"Veue de la ville de Boze". A Seventeenth-Century View to Analyse the Transformations of the Landscape of the City of Bosa (Sardinia, Italy)

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Abstract. The contribution presents an analysis of the "Veue de la ville de Boze", a 17th century view of the city of Bosa (Sardinia, Italy).

The document is particularly interesting as it offers a detailed description of the landscape shapes; this aspect is functional to a reconstruction of the historical assets and of the transformations occurred in the last three centuries, also thanks to the current digital resources that support the diachronic analysis and the sharing of the results. The image, "built" according to proven methods of survey and representation of the territory, frames from the top of the plateau of Sa Sea, the city protected by a wall that connect numerous towers and by the thirteenth-century castle of Serravalle. The highlands that characterize the landscape of the hinterland, the river Temo that laps the urban center and reaches the sea along a fertile valley, the island called "Isola rossa" with the sixteenth-century tower and the marshy area of "S'Istagnone", are just some of the elements clearly identified, each of which, although mediated in the pictorial interpretation, useful piece for an in-depth examination of the architectural-landscape system. However, the study of the document wants to go "beyond the line", analyzing the elements recorded in the map and the operating procedures employed but above all searching and highlighting the graphic choices and the "communicative" intent of the author.

Keywords: Landscape painting · Survey and representation · Bosa

1 Reading and Representing the Transformations of the Landscape of Sardinia

The knowledge of the historical landscape and the transformations that over the centuries have modified uses and forms of the places is the starting point for the design of planning strategies aimed at the protection and enhancement of the existing cultural heritage.

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The multi-layered system that characterizes urban areas requires the contribution of specialist skills able to deconstruct the landscape and understand it, to read its diversity (therefore the uniqueness), represent the signs that still remain and -in a some way- direct the transformations linked to formal and informal human action; interpret and decode the drawings of cartographers, engineers and landscape painters, may be the contribution of the Representation Sciences to a multidisciplinary debate. The critical reading of maps and views, however, requires a deep knowledge of instruments and methods of survey and representation that over the centuries have refined a recording ability, cataloguing and dissemination, and currently require -because of the considerable amount of data offered by recent information technologies- a "lightening" phase to facilitate understanding of content and results of the surveys. In fact, the advent of aeronautics and the development of information technology has sanctioned the transition from a cartographic representation still linked to the direct perception of places -and to the figure of the explorer that directly selects what have to be recorded- to a more objective acquisition of the territorial data executed in a (almost) automatic way and substantially without a "direct" intervention of the operator; the latter is an approach that characterizes the drawings of military engineers the worked in Sardinia since the sixteenth century, the views of cities and nineteenth-century cadaster, that associate the accuracy of the data (compatibly with the instrumentation of the time) to a graphic choices of strong communicative impact and -following a correct interpretation- deliver useful information on the historical landscape of Sardinia. Read "beyond the line" and seek the "communicative" intent of the draughtsman who took part in the drafting of the "Veue de la ville de Boze a L'ouest de l'Isle de Sardaigne entre le Cap de la casse et le golfe de L'Oristan" represents the objective of the proposed contribution.

Therefore, the seventeenth-century view (1679–80) of Bosa, is of great interest for the knowledge of the historical landscape of this ancient city located in the western Sardinia, as it shows the walled city and its territorial context characterized by a sequence of highlands that frame the course of the river Temo to its mouth and the sixteenth-century tower of the "Isola rossa", first defense of the city and the fulcrum of a coastal control system active until the first half of the nineteenth century.

2 The "Veue de la ville de Boze"

The image of the city of Bosa, "built" from the top of the plateau of Sa Sea according to widely proven methods of land representation [1], frames the city protected by a sequence of towers connected by vertical curtains and by the thirteenth-century castle of Serravalle at the time reinforced by a series of embankments functional to the placement of cannons [2]. The representation of the medieval village is framed by the highlands that characterize the landscape of the hinterland, the river Temo that laps the city center reaching the sea along a fertile valley, the bell tower of the Church of "San Pietro Extramuros" distant from the city and along the ancient path called "Su caminu osincu" (the road of Bosa), the convent founded by the Capuchins in 1608 located outside the walls, the island with the tower built on the initiative of the Villamarin family with the contribution of the Ligurian coral fishermen [3] and the nearby church of "San Paolo" hermit (with apse towards the river soon replaced by the building dedicated to "Santa

Maria Stella Maris" with apse towards the city and a second dome) with the marshy area of "S'Istagnone" and behind it the highland called Monte Furru. These are some of the elements of the landscape clearly identified in the view, useful data for the historical knowledge of the places and for a reconstruction of the transformations occurred over the centuries; the description is completed with interesting elements such as the tanneries located along the river and not far from the city walls, the well at the service of boats mooring in the nearby harbor and the indication of the depth of the seabed and the river bed expressed in arms and feet, measurements that anticipate the professional training of the technician who coordinates the survey operations. The point of view or points of view [4] used must be such as to allow to frame and collide the cornerstones, as bell towers, peaks or towers visible even at a long distance, necessary to install a survey grid; it is a process necessary in the present case because "the most complex views are the result of collaboration, and often between the basic drawing and the final image are interposed different personalities of makers, engravers and copyists" [5] with the possibility that the final drawing is the result of a combination of a topographic survey and a subsequent completion entrusted to a landscape painter. About this, it should be remembered that the seventeenth century is characterized by an improvement of measurement technique, an increasingly wide codification of the representation system, a spectacular evolution of urban and territorial survey. Urban surveying in particular changes very quickly, thanks to the progress of the art of engraving, the use of increasingly precise surveying instruments and the deepening of geometric-perspective cognitions. The widening of the fields of investigation on the antiquity, the affirmation of the press, the shift of the attention of architects and painters from the monumental ruin to the urban scene determine, in Rome, since the last quarter of the sixteenth century, a new graphic activity, called vedutism. This kind of representation can rely on the improvement of scientific instrumentation and in particular, at the beginning of the seventeenth century, on the quadrant, on the compass of proportion and on the diopter [6], in addition to the optical chamber and pantograph, the latter necessary to obtain a perspective repre-sentation and allow the scale changes necessary for the transcription of the working copy in the final support. In the middle of the century, the inventions continue throughout Europe, accompanied by the foundation of various scientific academies such as that of the Cimento (1657), the London Royal Society (1662) and the Academy of the Sciences (1666), founded in Paris by Louis XIV that played an active role supporting and encouraging the construction of scientific instruments and the research into geodetic measurements. In this precise period the hydrographic engineer Jacques Pétré is responsible with Nicolas Pène from 1679 of the predisposition of the atlases nautical manuscripts of the Mediterranean surveyed from the French Navy; between the views contained within these manuscripts there are the "Veue de Final" dated 1685 (Fig. 1) and, in Sardinia, the views of the strongholds of Cagliari, Castelsardo (Fig. 2), Alghero and Bosa realized according to a very precise graphic code, as showed by the drawing of the highlands, the hills and the coast line and by the use of watercolor expertly employed by painters in the wake of the working team.

Fig. 1. "Veue de Final" (Jacques Pétré 1685, Vincennes, Bibliothèque du D.c.p.) published in Capalbo 2020 [7].

Fig. 2. The tower of the port of Castelsardo in Sardinia (Jacques Pétré, 1679, Chateaux de Vincennes (Paris), SHD/M, Service Historique de la Defense-Marine, 98, cc. 48 e 49, published in Guarducci 2016).

3 Analysis of the Map

The view of Bosa is part of the General Charter of the Mediterranean Sea "Carta-portolano generale del mar Mediterraneo" composed of 6 atlases, two of which with marks 98–99 concern Italy and its islands (with Corsica); these collections contain 24 general and regional maps, 24 views of coastal landscape, 16 plans of inhabited centers, 31 views of ports and landings [8] and among these the view of the city of Bosa (Fig. 3) at the time included within the Kingdom of Spain, condition that does not exclude, together with the situation of France engaged in uninterrupted wars between 1673 and 1684, the need for an expeditionary survey executed from a place far from the city, as probably happened.

Fig. 3. Veue de la ville de Boze (Bibliothèque nationale de France, Parigi).

An analysis of the document, published for the first time in the 1981 by S. Spanu [9], suggest the position of surveyor at the small inlet called "Cala 'e moros", close to the mouth of the river Temo and drawn in the foreground in the document. This privileged point allows to clearly look all the elements deemed useful for a correct representation of the places with a special attention reserved -as instructed by the minister Jean-Baptiste Colbert- to the main places of the coasts, reefs, shaves, anchorages, ports and coves (and therefore the inclusion of the Cala 'e moros) and, of course, the cities and fortresses.

Some of these are of great interest for the reconstruction and protection of the historical landscape and the recovery of the memory of places, such as the composition of the medieval city walls or some architectural and functional details of the tower of the "Isola rossa", the latter recently affected by restorations that have erased the traces of some of its important portions, as the "demi lune" well visible in the seventeenth-century view.

The choice of the territorial framework in which to place the image of the landscape of Bosa and the construction of a survey network allow the recording of some buildings and of the depth of the seabed immediately close to the mouth of the river.

However, some parts of the area represented in the view are not visible from the point of observation assumed and this would justify the inaccurate description of the river Temo in its final stretch.

Another reference guides the study hypotheses; the document is oriented according to the North-South axis. This indication directs towards a mapping-based verification (on a Technical Regional Map with metric scale 1:10.000) of the accuracy with which the vertices of the survey network (Fig. 4) were recorded and drawn, with the real possibility that the view is the result of an instrumental survey subsequently supplemented by the information observed from the top of the plateau of Sa Sea; an hypothesis with which the topographic survey gives the data to define the grid from which the landscape painter complete the view as a prospectus (Fig. 5).

The map is also integrated by a legend which specifies, by means of letters, some architectural, dimensional and functional aspects of the landscape: A- *La Ville de Boze*, B- *le chateau*, C- *la rivière Sur la quelle les barques de dix tonneaux au des-sous peuvent aller de la mer jusques au pont*, D- *le pont*, E- *Eglise pres de la plage*, F- *puis d'eau*

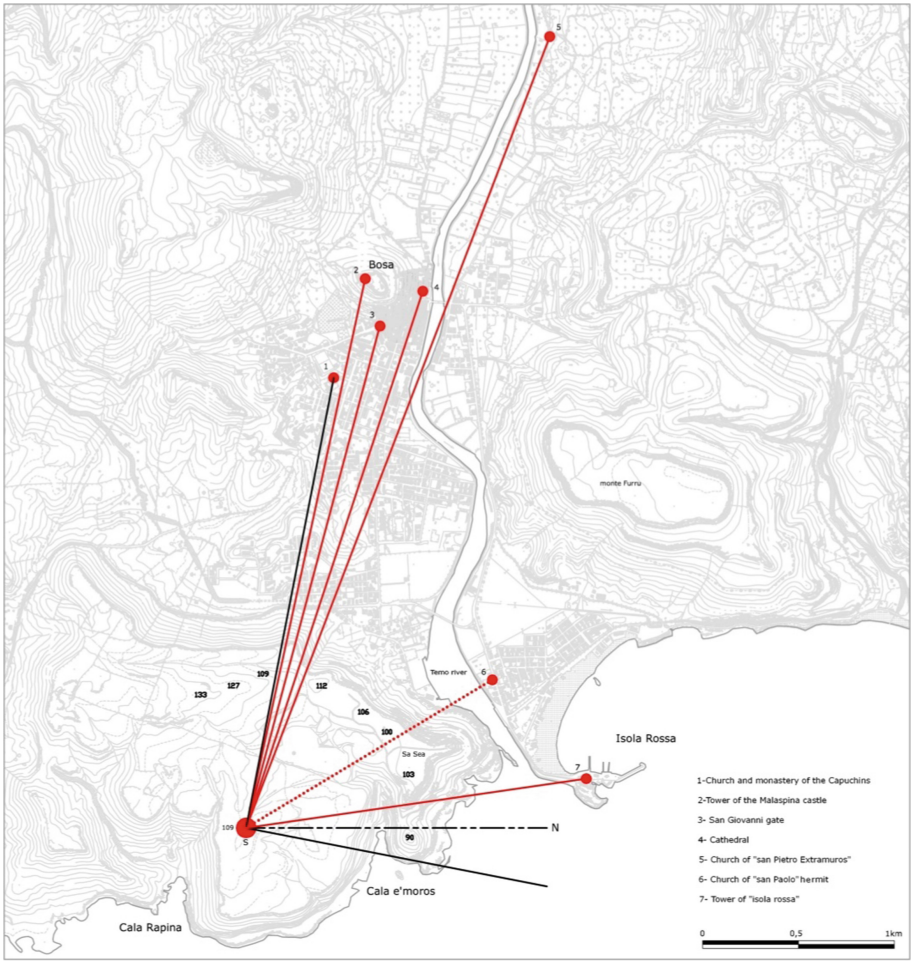

Fig. 4. Instrumental station and cornerstones used for the construction of the view (hypothesis).

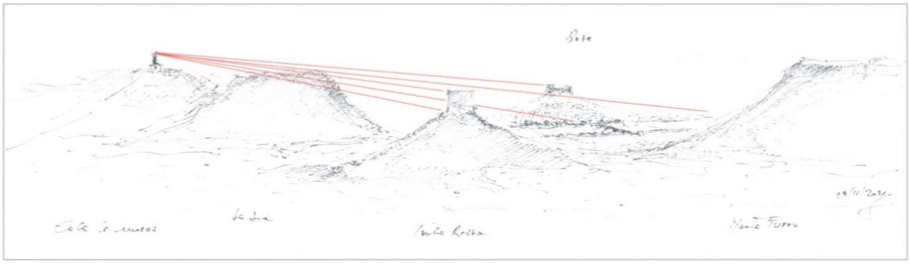

Fig. 5. Graphical representation of the instrumental station and of the elements that composed the survey grid (sketch by Andrea Pirinu).

douce, c'est le seul endroit ou les batiments qui sont au mouillage peuvent faire de l'eau, G- *Isle, sur laquelle il y a une tour avec quatre pièce de cannons de fer*.

This legend integrates the representation of the places entrusted to the drawing as in the case of the "Isola rossa" tower (Fig. 6) equipped with four iron cannons, to emphasize the "military" function of the survey. With the same utility, even military, are reported the depths (3 arms) of the seabed close to the mouth and of the bay protected from the island by the prevailing winds. It also indicates the depth of the mouth of the river Temo in which to navigate with boats of 10 tons, from the sea to the bridge; it is between 5 feet - 2 arms, it means between one metre and one metre and a half metre, a somewhat reduced depth as known due to the obstruction caused in 1528 with stone boulders to prevent the entry to the French fleet led by Andrea Doria.

This information is of great importance because it indicates that only small boat can enter the river and sail to the city.

Fig. 6. Detail of the "Isola rossa" tower and its "demi lune".

The precision of the survey also makes it possible to identify some military architecture lost as a result of demolition or incorporated into the current urban fabric.

This is the case of the square tower, located near the bridge (Fig. 7) and built to defend the southern access to the city, that today can be identified with a building that

juts out from the line of the block built behind the ancient walls. In the comparison between seventeenth-century view and the nineteenth-century maps it is also possible to recognize the tower [10] positioned close to the city gate called "Porta di Carmine" (or "Porta di san Giovanni"), adjacent to the Carmelite convent, erected in 1606; the land registry dated 1857 shows a trace of it (Fig. 8 and 9).

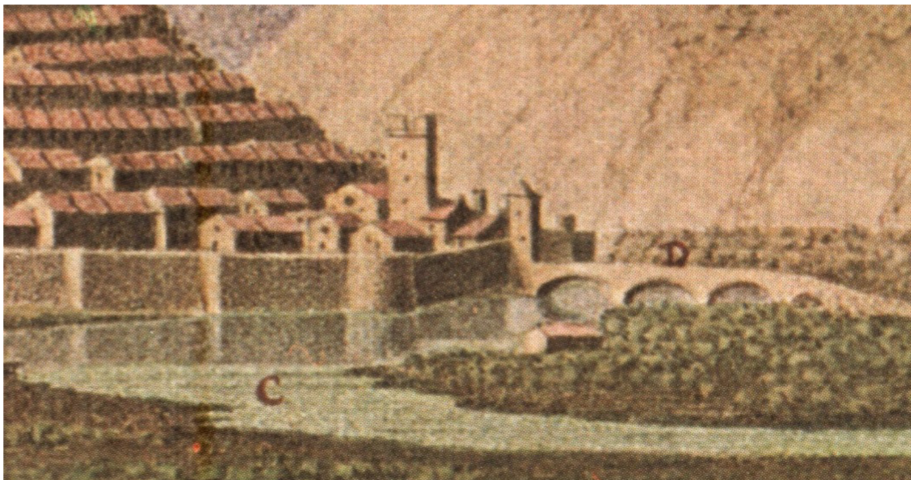

Fig. 7. Detail of the view that shows the tower built to control the city gate and the bridge.

Fig. 8. Detail of the view showing the tower to protect the city gate called "Porta di Carmine".

Fig. 9. 19th century map that identifies the city gate and the tower incorporated into the urban fabric (Historical Archives of Nuoro).

4 Conclusions

The analysis of the "Veue de la ville de Boze" showed the expertise with which in the seventeenth century the French engineers integrate the topographical precision of instruments with "a pictorial-perspective language" [8]. As a pictorial record of historical landscapes, the value of landscape paintings to the historical geographer is self-evident. To be useful, any appraisal of them as a source of information must concentrate on their deficiencies since the value of any source is enhanced by a knowledge of its limitations [11]. The limitations of landscape paintings concern their coverage and their accuracy; an integration of landscape painting and military maps overcomes these limitations [12] and the relationship between vedutism and topography becomes closer to obtain a document that brings together (instrumental) measurement and (human) perception [13]. The view of Bosa, the result of a refined synthesis of mathematic certainties and pictorial sensitivity that characterized the work of landscape painters active in Sardinia [14], offers

a document capable of leading to recognition of the historical matrix of the landscape and the protection and enhancement of cultural heritage. An historical heritage changed and partially lost over the centuries but of which the traces can be rediscovered and used to preserve the memory and enhance and protect the still existing natural and anthropic "signs". Among these the city wall, the marshy area of "S'istagnone" and his network of canals, the latter a place affected from the second half of the twentieth century by an urbanization that has compromised the hydrogeological order and the Spanish tower with a "demi lune", documented in the seventeenth-century map and cancelled by recent restorations.

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