

The substratum permanent structures of Roman Valencia

Giancarlo Cataldi¹, Vicente Mas Llorens²

¹Dipartimento di Architettura. Università degli Studi. Firenze. Firenze, Italy

²Escuela Técnica Superior de Arquitectura. Universitat Politècnica de Valencia, Valencia, Spain

E-mail: giancarlo.cataldi@gmail.com, vmas@pra.upv.es

Abstract. *The shape of the territory and the urban settlement of numerous Valencian cities were strongly conditioned by the original imprinting of Roman planning, characterized –as it is known– by large scale infrastructures, by settlements of orthogonal axes and by the allocation of the plot division into square modular divisions called centuriae. All the later interventions took necessarily into account such structures, which underwent numerous transformations over time, especially from the second half of the twentieth century. Then innovations and developments in modern technology contributed –more than in any other period– to neglect and override the traces of the original configuration. Territorial and urban research into Roman structures in the Italian peninsula has allowed the recognition of a sufficiently large number of plans, thus allowing the development of a complete general research method to read analogous structures in different Romanized territories. The authors now propose to apply this method to the territory of the Valencian Community. The rectilinear outline of Via Augusta with its forking side paths, the orthogonal signs of the agrarian fabric, the military milestones and the administrative divisions suggest, also in this case, the possibility of retracing the original pattern. Its structure could contribute, among other things, to explain the logic of the expansions outside the walls of the historic centre of Valencia that might otherwise seem arbitrary and meaningless.*

Keywords: Roman Valencia, substratum permanent structures, city planning, historical transformations

Introduction

This conference paper is the result of a joint research started by the mid-1990's and suspended because of a lack of funding by the European Community. The research was basically part of a series of educational and cultural initiatives involving, in various areas, researchers teams from the Facoltà di Architettura di Firenze and from the Escuela Técnica Superior de Arquitectura de la Universitat Politècnica de València (Cataldi and Corona, 2002). After more than 20 years, on this important occasion, placing Valencia at the centre of international attention on the Urban Morphology studies, we considered it appropriate to resume the hypotheses from that

time in order to update, confirm and compare them with recent studies on the urban form of Rome (Cataldi, 2016) and Florence (Cataldi, 2017, in print). The “substratum permanent structures” of Roman territorial planning (centuriations, first of all) seem to play, in our opinion, a very important role due to their binding presence in the urban transformation processes in the countless European cities of Roman origin.

The method of ‘reading’ and the hypotheses of Forma quadrata theory

Territory is a kind of huge spatial solid palimpsest, which bears the “structural signs”

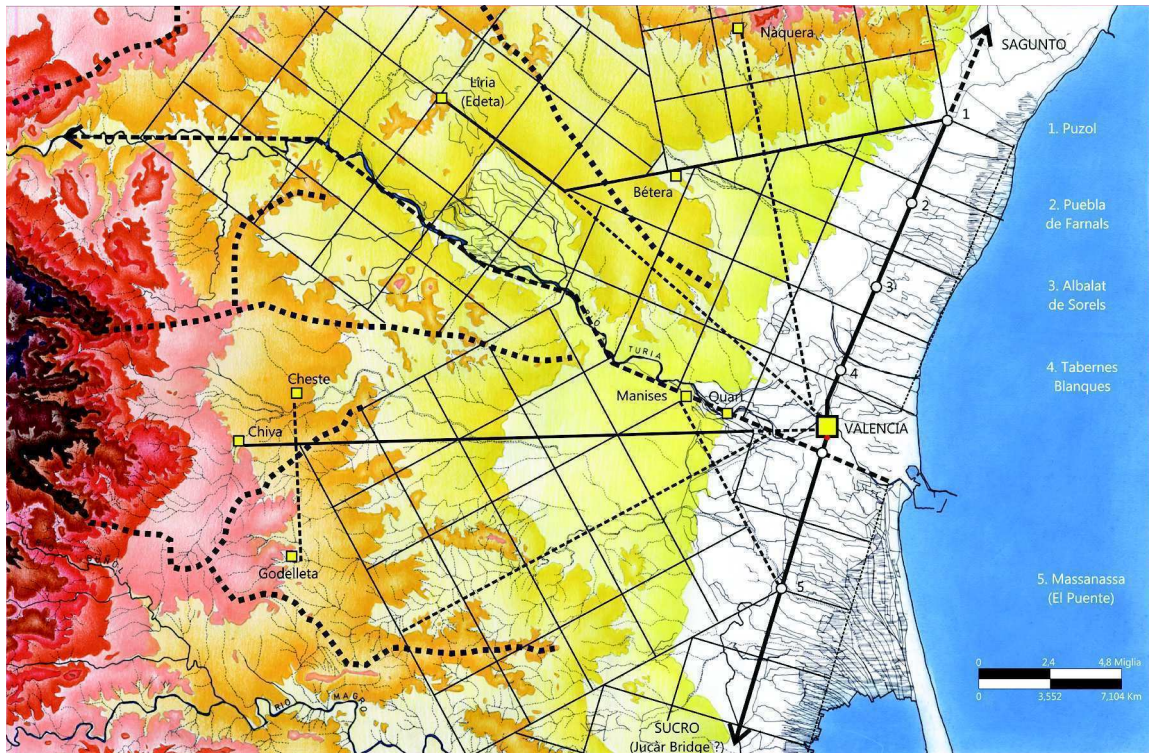


Figure 1.

Hypothetical reconstruction of the Roman planning of Valencia's territory in the imperial period.

introduced by men, overlapping and reusing them over the course of time (Cataldi, 1977). So territory, in this sense, can be considered as the only big book that cannot be counterfeited in the history of humanity, nowadays spread over the entire surface of the planet. The reading of this book is generally made by pulling off the layers of the different stratified systems of signs that, as the chapters of a tale, all together give shape to the plot. The semantic key element of each diachronic "tale" logically depends on the degree to which the inherited structures are reused, whose "essential" components (that cannot be missing) –conventionally divided at a methodological level– are settlements, fabrics, routes and limits (Cataldi, 2009, P. 141). Interpretative difficulties about the phase changes stem from the fact that the new settlements' systems of signs are, normally, the concrete expression of mental abstract programmes (projects).

The substratum structures of the Roman period, as well as those of other previous ridge-top phases (Cataldi, 1977, pp. 45- 46) are the most persistent: probably because they initiated the right of private property in the western world,

i.e. the possibility of passing along lands and properties to heirs. The Forma quadrata theory is the result of multiple convergent readings of territories planned by Romans (Cataldi et al, 2000; Cataldi 2007; 2016; 2017). Due to length restrictions, on this occasion we can just suggest two fundamental hypotheses of this theory, based on the assumption that Roman surveyors designed their plans on measured maps called formae, technically created on geodesic squared meshes with oriented modular coordinates secundum caelum, with clearly reducible dimensions (scale-related), starting from an ager of twelve square miles, through the saltus (1/25th of the ager) to end with the centuria (1/25th of the saltus). As on a squared paper, they then designed the colonial plan on a map, establishing on the geodesic mesh the best direction (from a hydraulic point of view for the rainwater runoff) for the two axes cardo and decumanus of the new squared planned unit (with the typical dimensions of an ager oriented secundum naturam), using for this task certain relations of integers univocally fixed, on maps and on the land, in reference fixed points of the geodesic mesh (Cataldi, 2007; 2016).

The regional plan of Roman Valencia (Figure 1)

- The two straight layouts of Via Heraklea – Augusta.

The layout of Via Heraklea-Augusta, north of Valencia's plain, is well-known and it is not difficult to find the marks of Roman centuriation on it. It is clear to notice that the road's straight layout and its counter axis, based at the end of the Turia River valley, cross themselves orthogonally in the proximity of what would become the city of Valencia.

However, what is less clear –and strengthens the findings reported in this paper– is its study in the light of what we called *Forma quadrata secundum caelum*. Everything makes sense when we consider the coincidence of important territorial milestones and Roman urbanisation with the big 12x12 Roman miles squares (*Ager*) and its subdivisions in 25 *saltus* (Cataldi, 2017, in print).

According to this theory, the squared system *secundum caelum* oriented at cardinal points could be the primary system thanks to which Romans gained a general vision of their whole territory and the reference geographic system, useful later on to design, *secundum naturam*, communication roads and cities based on them.

This way, Valencia's territory has its northeast vertex in the settlement of Puçol, and the location of the Turia river mouth during the Romanisation period would be marked on its southern side, where counter-axis of the Turia valley starts. It must be noted that the coastal line in the foundational period of Valencia city should have been a few kilometres to the interior (Furió et al., 1999, p. 13).

It wasn't just a matter of drawing some points on a grid. The *Forma quadrata* allowed establishing, through simple relations with the mesh, the directions of different layouts. This way, the northern section of Via Heraklea has a 3:7 relation with the grid and, inversely, the end of the Turia river valley has a 7:3 relation.

It can't be seen as random the fact that settlements between Puçol and Valencia

(Puebla de Farnals, Albalat dels Sorells y Tavernes Blanques) are at the same distance on Via Heraklea's straight layout: it could be the topographic result of consecutive triangulations in order to keep the road layout straight.

If the straight northern section of the Via kept the same direction in the southern Valencia plain, it would end up encountering the hills. Thus, it was necessary to use a different ratio 3:10 in order to orient the itinerary with the foothill line and keep it in the plain, avoiding Albufera. It is not random that the Miguelete tower is nowadays its visual point of reference. The intermediate settlement Massanassa is placed close to El Puente, place-name indicating explicitly its strategic function of territorial control. It is placed as well on a possible topographic triangulation spot.

- The squared fabrics of plain (*centuriae*) and mountain (*saltus*)

However, Roman surveyors not only used the *ager* grid with its *secundum caelum* orientation (N-S, E-W). Following the analogy established in this paper with the procedures used in different Roman-founded places in Italy and especially Florence (Cataldi, 2017, in print), we could suppose that each of the two straight sections of Via Heraklea-Augusta might have served as axes generating big modular units (*agri coloniali*), with 12 Roman miles each side, divided into 25 *saltus* (5x5) in mountain areas and, in turn, divided in 25 *centuriae* (5x5) in more fertile plain areas. In the areas close to Valencia, this assumption is not just a mere hypothesis because it is easy to find a coincidence between the current agricultural and political divisions and the layout of the various aforementioned *agri*.

Continuing with the Florentine analogy, we can assume that, over the centuries, the layout of *agri coloniali* –with their consequent *saltus* and *centuriae*– presented more complex layouts, as they were based on the itineraries that connected the main city, Valencia, with the most prominent surrounding Iberian cities: Liria, Náquera and Chiva.

Urban developments of Roman Valencia

- The hypothetical squared founding castrum on the Turia River island (Figure 2).

Historians (Sanchis Guarner, 19721; 19885 , p. 22) and archaeologists (Escrivà Chiver et al., 2010, p. 30) seem to agree on the fact that Valencia was founded in the year 138 B.C. on one of the many river islands created by different branches at the Turia delta, close in that area to its mouth.

It doesn't seem that other settlers had established before in that location because no remains from other cultures have been found in the subsoil, underneath the first Roman settlement layer.

All this allows us to assume that the beginning of Valencia was a Roman military camp that would be settled on the highest spot of the biggest delta island of river Turia, in a spot that would let them control the location where Via Heraklea met the river. This settlement was even more successful because Valencia lays half way between the two main cities of the Republican period on the Mediterranean coast: Tarragona and Cartagena, 250 Km far from each of them (López-Davalillo Larrea, J., 1999, p. 69).

Tito Livio (Sanchis Guarner, 19721; 19885 , p. 22), from whom we got just a short summary, talks about Valencia as an oppidum, meaning a stronghold or walled city. However, given its strategic value for the protection of the location where Via Heraklea met the river Turia, we can assume that a castrum was initially located where later there would be the city of Valencia. This hypothesis coincides with the usual customs of the Roman army and has been detected in the founding of different cities, particularly in Florence (Cataldi et alii, 2000, p. 17; Cataldi, 2016, in print) which is our point of reference and contrast.

If we admit that the Florentine model is valid, we have to accept that the Valencian castrum was a settlement based on a squared cardo-decumanus structure of 1000 feet per side, to which 100 would be added as an area of belonging. Thus we get to 1200 feet per side, which equates to a quarter centuria. It seems logic that no remains of this have been

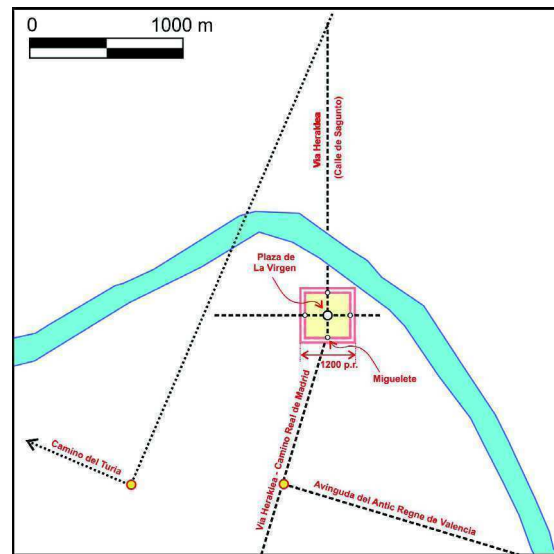


Figure 2.

Hypothesis on the original castrum in Roman Valencia.

found because of the lightness of the materials used for its construction (stockades and tents), especially if the new city would be built on it later on. Here, the research method based on reading the signs on the territory and on the current urban fabric is especially valuable to understand the shapes and infrastructures built in the past.

So for this reason we have to suppose that Valencia's castrum was placed on a big fluvial terrace elevated over surrounding lands and encircled by some of the many branches in which the river Turia was divided in this final section of its course, allowing an efficient defence and a better control over the river crossing. Cardo and Decumanus maximus probably were the same as the ones used later on in the city. This way, we could accept that the first settlement was a Roman squared camp, 1200 feet long, with the main cardo maximus axis being the same as the current calle de Navellos and its extension on the other side of the river: calle de Sagunto. The presence of this road, whose course still exists in the current urban fabric and has the same orientation as the cardo in the future city, is necessary to find the oblique line of Via Heraklea's northern section (3:7 ratio) and still maintains the place-name corresponding to Porta Saguntina. In the south, starting from Porta Sucronensis, Via Heraklea starts with a new orientation (3:10 ratio) which

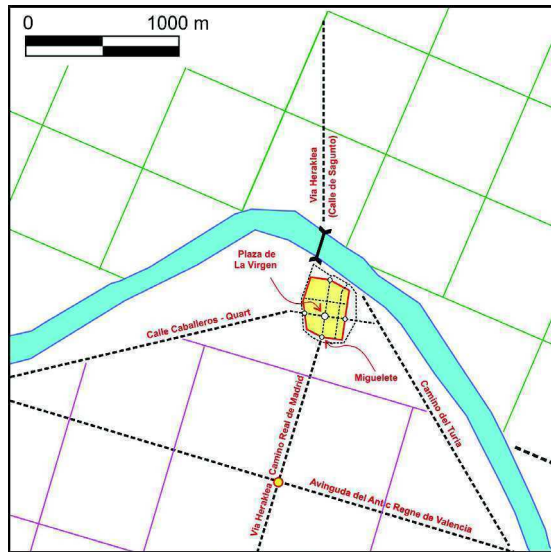


Figure 3.

Hypothesis on the urban form of Valencia in the Republican period.

allows avoiding the Albufera lagoon and the hills southwest of Valencia's plain. If this theory were true, the location for the construction of the Miguelete many centuries later wouldn't be random: besides its Cathedral's bell tower function, it would also be the perspective focus of Via Augusta, or better said, the visual point of reference of the southern section of the aforesaid Via.

Sometime after this camp, the oppidum that Tito Livio wrote about was founded (Sanchis Guarner, 19721; 19885, p. 22). We can assume that, starting from this moment, the layout of centuria fabrics started to be planned on the brims of the two straight sections of Via Heraklea. The existence of this initial spatial organisation is evident in transport infrastructures, rural ways, irrigation system and division among municipalities, and it strengthens the validity of the assumptions of this paper.

With the transformation from Castrum to Oppidum (Fig.3), the military camp becomes a colony and the place of the soldiers is taken by settlers, who normally would have been discharged soldiers (Sanchis Guarner, 19721; 19885 p. 24; Escrivà Chiver et al, 2010, pp. 53-54). According to the remains found and funeral uses, it seems that these first settlers came from central and southern Italy. The colonial city maintained the road structure and

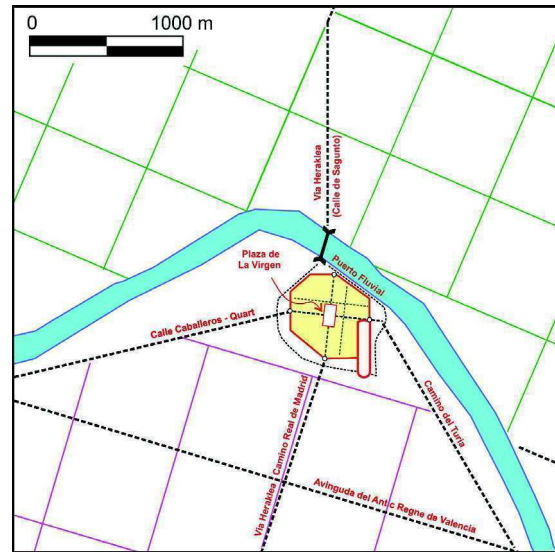


Figure 4.

Hypothesis on the urban form of Valencia in the Imperial period.

increased its surface.

This paper suggests an interpretation of the location of a highly significant element, *cardo maximus*, which is not the same as the most accepted interpretation among Valencia's archaeologists (Escrivà Chiver et al., 2010, p. 46). In particular, it doesn't make sense that the northern connection were made through the current calle de Alborai because this road is parallel to Via Heraklea and their connection would be impossible. However, if the *cardo maximus* laid on the current calle de Navellos, its logical extension being calle de Sagunto, which follows the same direction, the connection with Via Heraklea would be direct and, moreover, it is consistent with the urbanising Roman customs.

- The developments of municipium in the imperial period (Figure 4).

After a long period of almost complete abandonment that started with the destruction and burning of the city in the year 75 B.C. after the Civil War (Sanchis Guarner, 19721; 19885 , p. 26; López-Davalillo Larrea, J., 1999, p. 58; Escrivà Chiver et al., 2010, p. 58), the municipium of Valencia was reconstructed, but it maintained the basic structures layout and the fundamental location of the Forum, which was however reconstructed—even in its pavement—

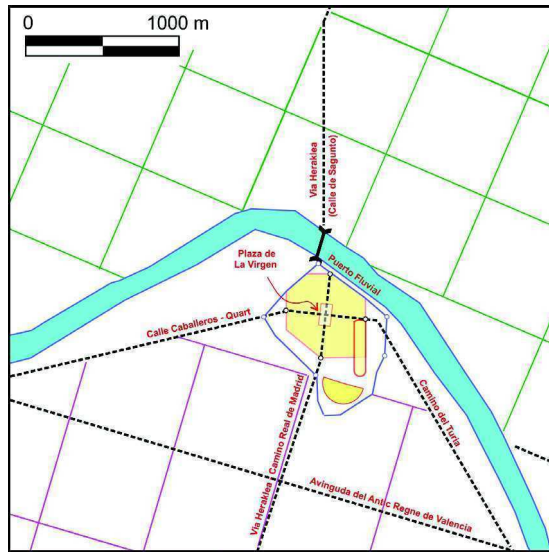


Figure 5.

Valencia's Islamic walls seem to substantially follow the route of the second fringe belt of the imperial city, except from the southern route, whose expansion can be explained by the presence of a hypothetical theatre, that could be recognised over the basis of the current urban network signs.

and provided with important monumental buildings (Escrivà Chiver et al., 2010, pp. 50-57). Thanks to it, Valencia reached the rank of one of the main cities in Hispania. The walls follow a polygonal geometric layout. This layout –which we hypothetically reconstructed on the basis of its traces on the actual fabric of the external itinerary of the fringe-belt– seems to observe the typically Roman principles of symmetry and regularity. The Saguntina and Sucronensis gates, placed respectively in the far north and south of the *cardo maximus*, were built together with the corresponding wall edges, while the east and west gates of *decumanus maximus* seem to be placed at the centre of large walls.

The documented presence of an important circus in the southeast part of the city (Escrivà Chiver et al., 2010, pp. 37-39) allows to rightfully address the question of the existence of a theatre because, in Roman cities of the imperial period, it was customary for this important building dedicated to theatre performances to be constructed before the circus (Merlo, 1996). Likewise, it is possible that no remains of the possible theatre have been found yet, the same way that nobody talked about the circus of Valencia until a

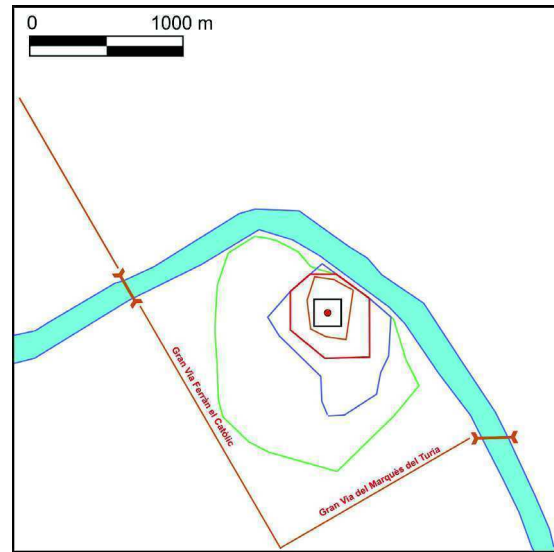


Figure 6.

Synthetic representation of the development processes of the urban form of Valencia, besides the Islamic walls, including the 14th Century walls and the two Grandes Vías from the first years of the 19th Century.

few years ago when archaeological findings proving its presence were found. Again, the research method based on the reading of current fabrics allows to propose the hypothesis on the existence of the theatre assuming that it could have had an impact on the curved section of the Islamic wall in its southern route (Sanchis Guarner, 19721; 19885 , p. 44; (Figure 5).

Conclusion

From our paper, we can draw two conclusions:

In the case of cities with a Roman origin, the methodological need to inductively reconstruct, starting from current signs, the planned mesh of centuriations designed on the margins of the large consular roads. Unlike reductionist positions that only consider as valid the interpretations based on findings of material remains or documents of the time, the presence of layouts and landmarks that meet the Roman way of proceeding in the current fabric can be used to propose hypotheses on historic processes that generated cities and current territories. The layouts of roads and ways, the divisions in property and between municipalities are, if interpreted correctly,

just as real as the material remains, and they must become part of a global process aiming at understanding the past.

The need to analyse the influence that the ancient fabrics had on the modern planned structures. In this sense, the case of Valencia is exemplary: two of the main modern infrastructures, the railway line and the international airport of Manises, actually follow the orthogonal layouts of Roman planning based on *cardo* and *decumanus*. The knowledge and interpretation of facts that took place more than 2000 years ago is valuable in itself, but it is also useful to correctly understand the current situation and to distinguish between the aspects of reality that are a consequence of history and those which are just a matter of random chance.

References

- Cataldi G. (1977) *Per una scienza de territorio. Studi e note* (Uniedit, Firenze).
- Cataldi, G. (2007) 'La pianificazione antica del territorio', in Biagianni I. (ed), *La Valdichiana dai primordi al terzo millennio. Storia ragionata di un territorio* (Tiphys, Cortona).
- Cataldi, G. (2009) 'The planning-typological approach', *Urban Morphology*, 13, 140-143.
- Cataldi, G. (2016) 'A double urban life cycle: the case of Rome', *Urban Morphology*, 20, 45-57.
- Cataldi, G. (2017) 'Florence: the geometry of urban form', *Urban Morphology*, 21 (in print).
- Cataldi, G., Corona, R. (eds) (2002) *Logge e/y Lonjas. I luoghi del commercio nella storia della città / Los lugares para el comercio en la historia de la ciudad* (Alinea, Firenze).
- Cataldi, G., Iacono, P., Merlo A., (2000) 'La geometria di Firenze. Il progetto matrice della città e del territorio', in Cavallina, G. and Degl'Innocenti, P. (eds), *Architettura e contesto* (Dipartimento di Progettazione dell'Architettura, Firenze) 4-17.
- Escrivà Chiver, I., Ribera i Lacomba, A. and Vioque Hellin, J. (2010) *Guía del Centro Arquelógico de l'Almoína* (Ajuntament de València, València).
- Faus Prieto, A. (1997) *Cartografia Valenciana (Siglos / Segles XVI – XIX)* (Diputació de València, València).
- Furió, A., García, J., Martí, J., (1999) *Historia de Valencia*. (Editorial Prensa Valenciana, S.A., Valencia).
- Herrera, J. M., Llopis, A., Martínez, R., Perdigon, L., Taberner, F. (1985) *Cartografia historica de la ciudad de Valencia. 1704 – 1910* (Ajuntament de València, València).
- López-Davalillo Larrea, J. (1999) *Atlas histórico de España y Portugal. Desde el Paleolitico hasta el siglo XX* (Editorial Sintesis, Madrid).
- Sanchis Guarner, M. (1972; 19885) *La ciutat de València. Síntesi d'Història i Geografia Urbana* (Ajuntament de València, València).
- Merlo, A. (1996) *Il teatro romano di Segobriga, ricostruzione architettonico-funzionale e metodologie d'intervento, tesi di laurea* (Facoltà di architettura, Università di Firenze, Firenze).
- Yepes Piqueras, V. (2013) 'Conjectura sobre la existencia de puentes romanos sobre el Turia a su paso por Valencia', *Quadernos de diseño en la obra pública*, pp. 14-19.