

Shifting point-attractors: the central-symmetric flexi of via Flaminia and via Clodia near pons Milvius, Rome

Alessandro Camiz

Özyeğin University, Department of Architecture, Istanbul
alessandro.camiz@ozyegin.edu.tr

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Abstract

Recent urban morphology studies consider urban tissues as living organisms changing in time (Strappa, Carlotti, and Camiz, 2016), moreover even roads may be considered as organisms, and their diachronic deformations have been recently interpreted by the theory of attractors (Camiz, 2018). This paper analyses the flexi on either side of the river Tevere along via Clodia and via Flaminia near Pons Milvius in Rome, and interprets them as the effect of the shifted position of a point attractor. The censor Gaius Flaminius Nepos established via Flaminia in 220 BC (Messineo and Carbonara, 1992), the via Clodia, running along an earlier Etruscan route, was instead paved in 225 BC. The pons Milvius, also known as pons Mollis, connecting the two sides of the river, was built by M. Aemilius Scaurus in 109 BC (Messineo and Calci, 1991), even though an earlier structure in wood is mentioned as early as 207 BC (Palombi, 2019). A flexus occurs along both the rectilinear paths of the two streets, following a central-symmetry. This central-symmetric configuration led to the reconnaissance of a differed attraction pattern within the trajectory of the road that we interpreted as the result of the modification of the ramps of the bridge occurred after the foundation. The cross comparison of documents, iconographic and cadastral sources together with archaeological evidence lead to the confirmation of the hypothesis, showing that the deformation and the consequent urban layering (Strappa, 2018) happened after the demolition of the lateral ramps in two distinct phases. The ramp on the south side was demolished by Maxentius before the battle of Ponte Milvio, held on October 28th 312 AD, the northern ramp was instead demolished during the bridge's restoration works accomplished by Giuseppe Valadier in 1805.

Attractors and repellers: the flexus along the via Flaminia

The attractor theory is a new experimental tool of analysis in the urban morphology field, introducing the diachronic analysis of the route's configuration. Roads change in time and we can interpret some of the deformations they follow as the result of the attraction or repulsion of certain artefacts, defined here as attractors and repellers. Once an attractor appears into a network of routes, some paths could change their configuration and deviate from their former position following the attractor. A repeller is the inverse of an attractor, deforming the configuration of a path by repelling its traffic. Once an attractor has disappeared, its existence and position may be inferred by the formal analysis of the routes that have been deformed, determining a diachronical urban stratigraphy. It is therefore possible to infer the presence, type and position of a former attractor by recognising the deformations of the routes that were attracted by it (Camiz, 2018), (Camiz, 2019).

Despite the long title, this is a research about a crooked road. As you might notice, via Flaminia coming out of Porta del Popolo at a distance of about 200 m from Ponte Milvio deviates to the right at a distance of about 65 m, therefore aligning with the bridge's axis. The via Flaminia, or via Lata as it was named inside the city walls in Roman times, has a rectilinear configuration of 4,55 km from the Capitol hill where it begins all the way to the bridge, aligning perfectly with the city's gate today known as Porta del Popolo (Cataldi, 2016). Along via Lata there was also another triumphal arch (Arco di Portogallo) now disappeared. The Pons Milvius was built in different phases starting as a wooden structure in 205 BC, transformed into a stone construction in 109 BC, and Augustus built a triumphal arch built next to it to celebrate the restoration works of via Flaminia in 27 BC. No surviving image of this arch can prove its original position, but the image depicted in the *denarius argenteus* (fig. 13) of Augustan times together with its twin arch built in the same time in Rimini, now still standing, do suggest that the arch was designed so that the troops would march under it and that it was therefore aligned with the bridge, either in the middle as some suggest, or at the end.

The 'strada con fondale' architectural model

Following this same architectural model, Arcadius, Honorius and Teodosius built another triumphal arch at the end of the Pons Triumphalis, on the Vatican hill's side, in memory of Stilicho's victory in Pollenza in 402 AD against the Goths of Alaric. We can now imagine the view of someone coming out of the city, along the rectilinear via Flaminia, where at the end of the road, instead of seeing the arch, he could see nothing, while the arch was on the side. The distance between the road axis and the bridge is 65 m and not 10 centimetres, so it could not be interpreted as a mistake or a design miscalculation. It is very difficult to imagine a highly symbolic street as via Flaminia not aligned with the triumphal arch positioned at its end. This road and arch system followed a widely adopted architectural model, that of the "strada con fondale" which starting from classical times was widely employed in the middle-ages, in the Renaissance, all the way to Baroque and Modern times. The monument axially placed at the end of the rectilinear road was framed by the monumental perspective given by the road itself, strongly enhancing its symbolic meaning. What is also surprising in the Ponte Milvio case is that the same flexus configuration happens on the other side of the bridge, but inverted, forming all together a central symmetric double flexus. Therefore, both sides of via Flaminia, or Clodia as one of the branches leading North was named, did not axially align with the bridge, and with the triumphal arch. This paper is about this flexus, or interruption of the rectilinear road coming out of the city towards the north. It is based on the attractor theory which basically states that if we have an attractor, which usually is a building, or a function, or a centre, or anything important, this is attracting the road. If the attractor changes position in time, e.g. a city changes position, or a bridge is moved, then the road follows in time, as attracted by the shifted attractor. Looking at the road, the attracted, we can notice (fig. 1) another bridge North of Ponte Milvio, and that later, after the bridge had collapsed, the route originally leading there was deviated as attracted by Ponte Milvio, but this is another topic, perhaps for the next paper.

Looking at cartographic sources we recognise in the XV-XVIII century that the bridge was characterised by two fortifications on either side. The drawing with the project for the new Via di Porta Angelica, attributed to the De Rocchi (fig. 2), also shows via Flaminia with the flexus and the connection with the bridge.

The first hypothesis that we considered to interpret this anomaly was that the bridge in some time was demolished and rebuilt in a slightly different position, and that instead of tracing *ex novo* the road leading to the bridge, the engineers decided to reconnect it with the new axis resulting in the flexus. This hypothesis was broadly contradicted by the inverted position of the flexus on the northern side. If the bridge had been moved the flexi would have been both on the same side of the road, forming a symmetric configuration and not as they are with a central symmetric form (fig. 11 and 12). Therefore, it is not possible that the shifted bridge caused the road's deformation. We should notice that the road level as it was in the XVII century on the southern side of the bridge, was some 6 m below the road level of the highest part of the crossing. In the side elevation of the bridge (fig. 3) we can recognise a wooden structure connecting the bridge to the Roman shore of the Tiber: the last stone arch was missing in that time. On the opposite side instead there was a lateral stone ramp connecting the last arch of the bridge to the road level towards Tor di Quinto.

The two fortifications were built in later times, eventually during the Gothic war by Belisarius (Palombi, 2011). The one on the North was called Tripizone, and we could not find any information about the one on the South. Both the constructions belong to later times and not to the classical phase of the bridge, which is known to be 109 BC for the stone bridge, and 27 BC for its restoration with the addition of the triumphal arch by Augustus.

The fortifications and the lateral ramp were both removed in 1805 when Valadier restored the bridge, and replaced the northern one with a neoclassical turret. A French bombing severely damaged the bridge in 1849 during the seize of the Roman Republic; Francesco Azzurri restored it once more in 1850 (Ciotta, 2007).

The etching by Piranesi, which is dated 1748, shows the ramp still in place and the drawbridge in timber on the opposite side (fig. 5). On the Alexandrian cadastre dating to 1600 (fig. 4), we can clearly notice the side ramp, and what was left in that time of the Tripizone: the drawing also takes clearly note of the tower on the opposite side as well of the flexus of via Flaminia. The construction of the almond shaped square in front of the bridge with an axial view on the turret is attributed to Valadier who also attempted different solutions for the arrangement of the flexus on the southern side of the bridge (fig. 9). Within his project for a "Nuovo Campo Marzio" in 1805 he proposed a new street parallel to the Flaminia aligned with the Bridge.

Later in 1809 for the project of the "Villa di Napoleone" (fig. 8) he proposed an exedra. There is also another version of this project with a diagonal street as the continuation of the deviated tract of the Flaminia. We can notice the four roads approaching the newly designed almond square, all having flexi, showing that they were deviated from their original path, which was eventually on axis with the ramp, to align with the new turret. Valadier's project for the Flaminio area was never completed, but at the end of the XIX century the new road Viale Tiziano was accomplished, following one of Valadier's solutions and today is still there, perfectly aligned with the bridge (Ferri, 2018).

If we consider carefully the road's transformations, by comparing the Gregorian cadastre with Valadier's transformation, we can attempt the reconstruction of the entire diachronical sequence. Archaeological findings in the area have shown a number of tombs, aligned along the Roman road, as well as tracts of Via Flaminia's stone paving, 1.5 m below the actual road level. Along the deviated tract of the road, in 1462 Francesco del Borgo designed the aedicule of S. Andrea, which in 1566 was enlarged to be the oratory and cemetery of S. Andrea, belonging to the Arciconfraternita della Trinità dei Pellegrini (Cantatore, 2013). On the western side of Via Flaminia, there was a villa named Boccapaduli, probably dated to 1735 as written on the entrance, which was aligned with the rectilinear axis of the via Flaminia.

The 'strada con fondale' architectural model

The other possible explanation is that there were two ramps on each side, as in *Pons Aelius* in Rome (fig. 15), to reach gradually the bridge's higher level, but in this case the ramps were orthogonal to the bridge instead of being parallel, and eventually with a central symmetric configuration. On the southern side of the bridge, and maybe even on the opposite one as the coin suggests, Augustus built a triumphal arch. This arch was aligned with via Flaminia, but after passed under the arch the road would turn right and climb some 6 meters above gradually (10% of slope) with 60 meters of length, on the opposite side of the bridge it would turn to the right again and reach the level of the roman Via Flaminia which was unearthed by archaeological excavations on both sides at 1.5 meters below the actual street level (Virgili, 1983), (Virgili, 1985). With the demolition of the last arch the ramp was dismantled and eventually also the triumphal arch. The bridge was repaired several times in the following years but mostly using wooden structures to connect it with the Flaminia on the southern side, this structure worked as drawbridge and could be interrupted in case of an invasion from the North (Ciotta, 2007). On the other side the ramp instead survived and is clearly visible in many images (fig. 4, 5).

Shifting point attractors

Shifting point attractors is introducing a new type of attractor to explain this transformation of the roads approaching to the bridge on both sides. The diagram illustrating the double central symmetric flexus of via Flaminia and Via Clodia is visible in the picture (fig. 12) and suggests that there were two lateral ramps connecting the level of the road with the upper level of the bridge. The length of 60 m of these ramps seem to comply with a raise of about 6 metres, and a slope of approximately 10%. The demolition of the ramp on the northern side is documented during the restoration accomplished by Valadier in 1805. We are here considering the hypothesis that the other ramp was demolished in the wake of the battle of Ponte Milvio which happened on October 28th 312 AD. The day before Constantine had the famous dream with the vision of the cross "in hoc signo vinces". According to one of the sources (Svetonius, *De vita Caesarum*, XXX; Palombi, 2011, p. 85) in that time Maxentius to defend Rome from the approaching armies leaded by Constantine the great, demolished the last arch of the bridge towards Rome, and therefore the ramp, replacing it with a wooden structure so to cut off the enemy. He then committed a mistake by placing himself before this interruption and when Constantine approached he was pushed back along the bridge which did not hold the weight. Falling into the river and dying, Maxentius and his troops lost the battle, and as a consequence Constantine became the sole emperor of a newly declared Christian Roman Empire. Nevertheless, looking at the Gregorian cadastre, dated 1816, we can reconstruct the diachronical sequence of the entire transformation, with the position of the two side ramps, one of which is documented so its position and demolition is certain, while the other one is for now hypothetical. The Via Flaminia was eventually rectilinear all the way to the end of the ramp, where most probably stood the Augustus triumphal arch acting as the *meta* of the road.

The property division is orthogonal to the streets in the different road parts, and still is. In 312 AD the arch and the ramp were demolished, and in the subsequent times the road was reconnected with the new entrance forming the flexus: along this new restructuring route the land division followed a rotated orthogonal direction (Caniggia and Maffei, 1979). On the opposite side of the bridge, via Clodia, Flaminia and Tiberina were all aligned with the entrance of the side ramp. The transformation designed by Valadier deviated all the roads so to reconnect them with the new design of Piazzale Ponte Milvio.

Following this hypothesis, the central symmetric configuration of the flexi on the two sides of the bridge is the consequence of the central symmetry of the ramps: after the ramps were demolished the roads were attracted consequently. Surprisingly, photographic documentation provided by the Soprintendenza of unsure position, but described in the caption as "Via Flaminia, Ponte Milvio", have shown the Roman stone paving of via Flaminia at a level of 1.5 m under the street level (Virgili, 1983).

Below the road several masonry walls with a different orientation forming an angle

with the axis of the road were revealed. This substratum seems to confirm our hypothesis, when this new road was designed and paved it was superimposed on an existing urban tissue, restructuring the grid and determining the angle with the lower substratum. Other excavations along the river side have shown what has been interpreted as part of the river quay, even though it could be the remains or the foundations of the above mentioned ramp (Palombi, 2011), (Virgili, 1983). The level of the finding is -1.5 m consistent with the Roman street level, and the stonework construction with connecting bronze elements resembles closely that of the ramp of *Pons Aelius*, which was unearthed during the construction work of the Lungotevere. All the Roman bridges had ramps, but this one had orthogonal ramps instead of parallel ones. August built his triumphal arch attached to *Pons Milvius* in 27 BC as a twin arch of another at the opposite end of the road in Rimini, and today still standing. A silver *denarius* from the times of Augustus shows what has been interpreted as *Pons Milvius*, with the two triumphal arches at the ends. Even though the coins usually provide an idealised picture of monuments, this image suggests, as it shows the side, that the triumphal arch was a quadrarch and was placed at the end of the ramp aligned therefore with Via Flaminia.

The application of the attractor theory to the study of the evolution of urban form can provide further means of understanding, in this case if could provide a solid hypothesis regarding the evolution in time of the routes approaching to Ponte Milvio from either side.

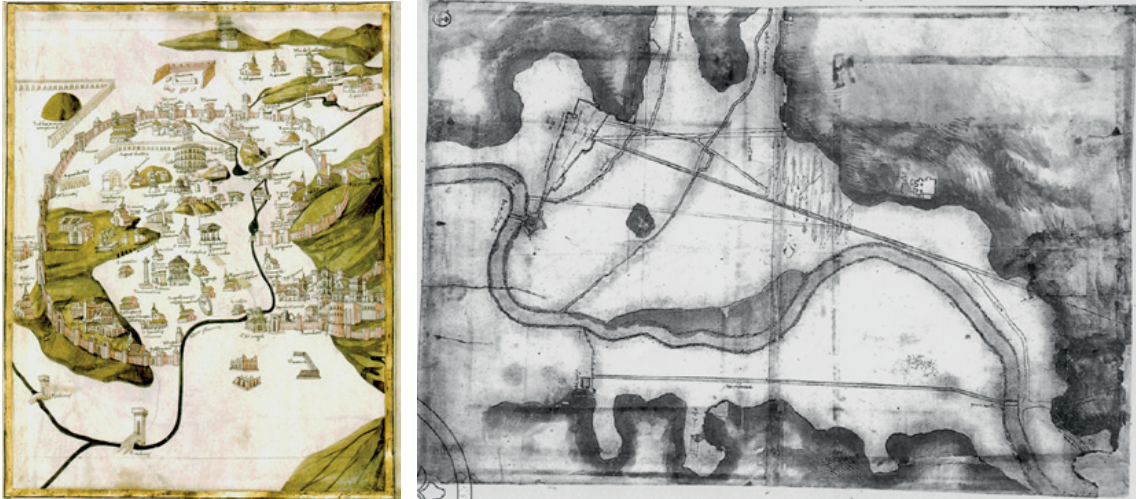


Figure 1. (right) Pietro del Massaio, View of Rome, from Ptolemy's *Cosmographia*, 1471, Biblioteca Apostolica Vaticana, Ms. Lat. 4802, fol. 133r;

Figure 2. (left) Bartolomeo De Rocchi, *Studio per l'acceso al Vaticano dai Prati attraverso la via Angelica*, 1560-1561, Gabinetto dei Disegni e delle Stampe degli Uffizi, Firenze, UA288r.



Figure 3. A. Chiesa, B. Gambarini, C. Nalli, G.B. Piranesi, *Pianta del corso del Fiume Tevere, e sue adiacenze*, Rome, 1744, ASR, *Disegni e piante*, Coll. I, Tevere, cartella 119, n. 26 (detail: side elevation of Ponte Milvio).



Figure 4. Sviluppo della strada fuori di Porta del Popolo da Roma sino a Viterbo, ASR, *Presidenza delle strade*, Catasto alessandrino, 433/V, 1660 (detail).



Figure 5. (right) Gian Battista Piranesi, Veduta del Ponte Molle sul Tevere due miglia lontano da Roma, Vedute di Roma, Tomo I, tav. 54, Firmin Didot Freres, Paris, 1835;

Figure 6. (left) Giovanni Battista Piranesi, Pianta di Roma e del Campo Marzio, Vedute di Roma, Tomo I, tav. 1, Firmin Didot Freres, Paris 1835.

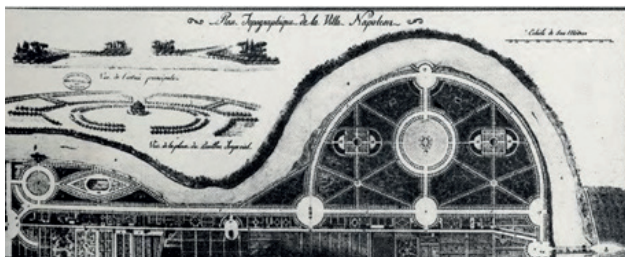


Figure 7. (right) Giuseppe Valadier, Pianta Topografica del Nuovo Campo Marzio, 1805, BIASA, Coll. Lanciani, Roma, XI,100/2, n. 87;

Figure 8. (left) Giuseppe Valadier, Pianta Topografica della Villa di Napoleone, 1809.

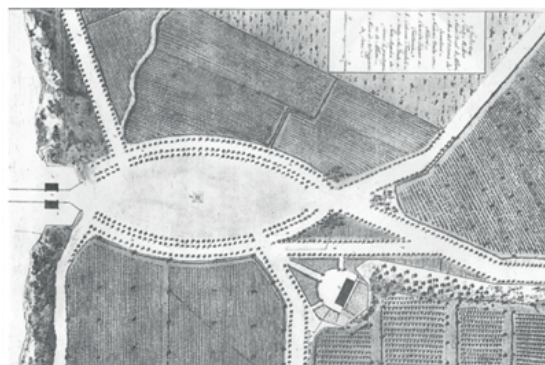


Figure 9. (right) Giuseppe Valadier, Planimetria della sistemazione della Piazza di Ponte Milvio, 1805;

Figure 10. (left) ASR, Catasto Gregoriano, Agro Romano, 153, Via Flaminia prima di Ponte Milvio, 1816.

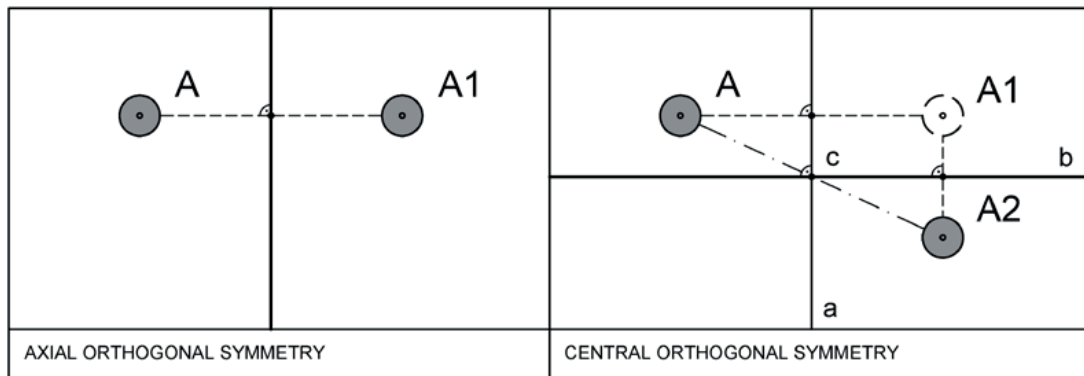


Figure 11. Plane symmetries: orthogonal axial symmetry (left); orthogonal central symmetry (right), (Camiz, 2020).

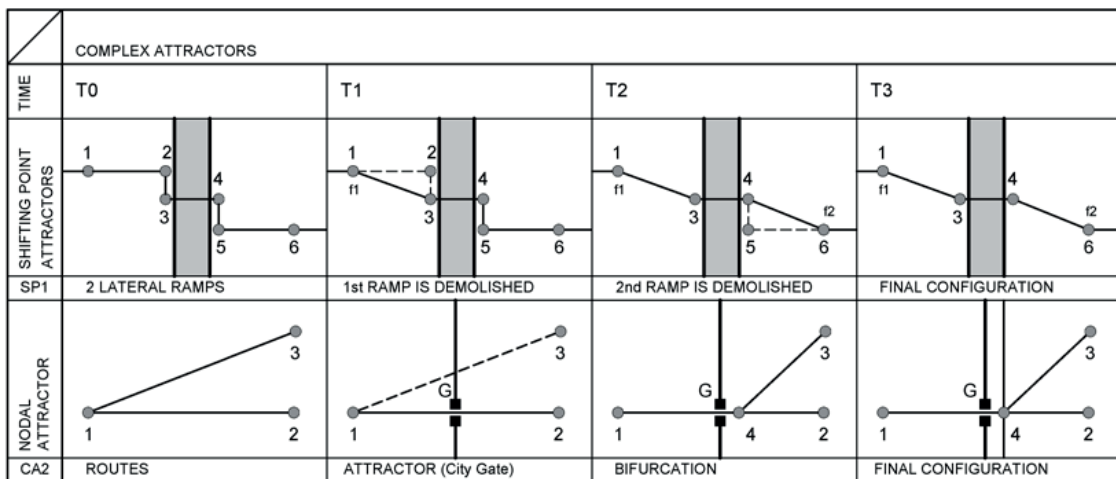


Figure 12. Shifting central symmetric point attractors (bridge with lateral ramps); nodal complex attractors (city walls and gate), (Camiz, 2020).



Figure 13. Guido Achille Mansuelli, outer elevation of Augustus' arch in Rimini, 1942 (left); denarius argenteus, Augustus, "QVOD VIAE MVNITAE SVNT", private collection, (right).

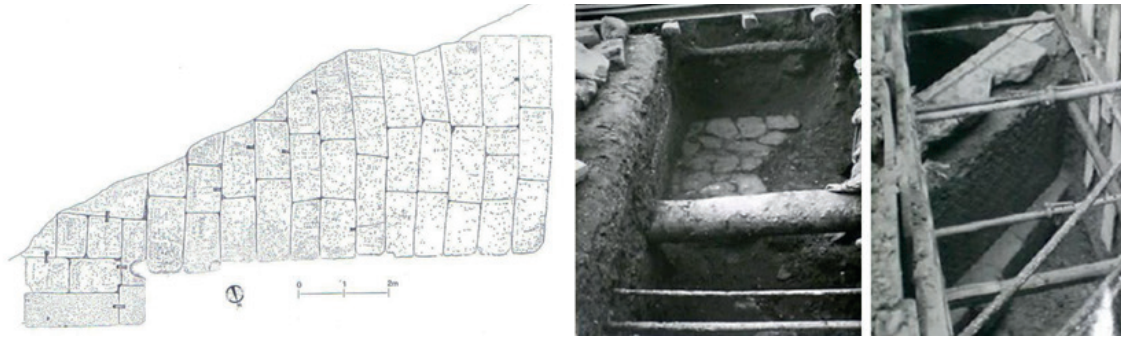


Figure 14. Remains of the river quay at the Milvio bridge, (Virgili, 1983) (left); Via Flaminia, Ponte Milvio, stone paving of the roman road, and masonry constructions with a different orientation in the lower layer, (right).



Figure 15. The ramp of Pons Aelius (Ponte S. Angelo) being demolished during the construction works for the Tevere's embankment, 1890 ca.

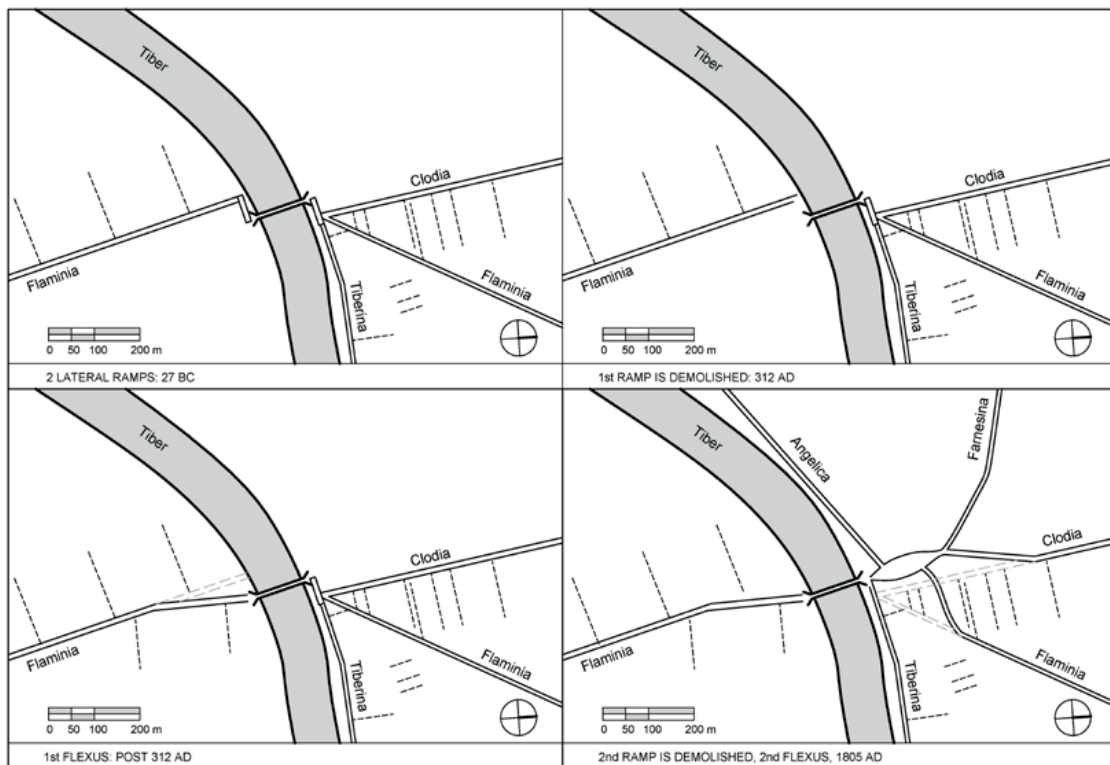


Figure 16. Diachronical sequence; 1) lateral ramps (27 BC); 2) demolition of the first ramp (312 AD); 3) first flexus (post 312 AD); 4) demolition of the second ramp (1805 AD), (Camiz, 2020).

References

- Camiz, Alessandro (2014), "Urban Morphology and Architectural Design of City Edges and Vertical Connections in Historical Contexts", in Cavallo, Roberto; Komossa, Susanne; Marzot, Nicola; Berghauer Pont, Meta and Kuijper, Joran eds., *New Urban Configurations*, Amsterdam: IOS Press, pp. 227-234.
- Camiz, Alessandro (2018), "Diachronic transformations of urban routes for the theory of attractors", in Urios Mondéjar, David; Colomer Alcácer, Juan; Portalés Mañanós, Ana eds., *City and Territory in the Globalization Age*, Valencia: Editorial Universitat Politècnica de València, pp. 1359-1369.
- Camiz, Alessandro (2019), "Attractors, repellers and fringe belts: origins and medieval transformations of Arsinoe, Ammochostos, al-Mau'dah, Famagusta, Magusa", in Carlotti, Paolo; Ficarelli, Loredana and Ieva, Matteo eds., *Reading Built Spaces. Cities in the making and future urban forms*, Rome: U+D Editions, pp. 297-308.
- Caniggia, Gianfranco and Maffei, Gian Luigi (1979), *Lettura dell'edilizia di base*, Venezia: Marsilio.
- Cantatore, Flavia (2013), "Il tempietto di sant'Andrea a ponte Milvio tra architettura e scultura nella Roma del secondo quattrocento", in Cantatore, Flavia; Fiore, Francesco Paolo; Ricci, Maurizio; Roca De Amicis, Augusto and Zampa Paola eds., *Giornate di studio in onore di Arnaldo Bruschi*, Roma: Bonsignori, pp. 37-48.
- Cataldi, Giancarlo (2016), "A double urban life cycle: the case of Rome", *Urban morphology*, 20,1, pp. 45-57.
- Cimbolli Spagnesi, Piero (1995), *Castel Sant'Angelo la fortezza di Roma. Momenti della vicenda architettonica da Alessandro VI a Vittorio Emanuele III (1494-1911)*, Roma: Palombi.
- Ciotta, Anna (2007), "Ponte Milvio in Rome. Building techniques and history of restoration work", in Lourenço, Paulo B.; Oliveira, Daniel V. and Portela, Artur eds., *Proceedings of the 5th International Conference on Arch Bridges*, Braga: University of Minho, pp. 139-145.
- Ferri, Paola (2018), "Il Paesaggio nella Città: dal Parco pubblico del Valadier al Parco sportivo del Foro Italico", *Il Tesoro delle Città*, Strenna 2018, Wuppertal: Steinhäuser Verlag, pp. 122-145.
- Maretto, Marco (2013), "'Saverio Muratori: towards a morphological school of urban design'", *Urban Morphology*, 17, 2, pp. 93-106.
- Marzot, Nicola (2002), "The study of urban form in Italy", *Urban Morphology*, 6, 2, pp. 59-73.
- Messineo, Gaetano (1991), *Via Flaminia. Da Porta del Popolo a Malborghetto*, Roma: Quasar.
- Messineo, Gaetano and Carbonara, Andrea (1992), *Via Flaminia tra Porta del Popolo e Ponte Milvio*, *Bullettino della Commissione Archeologica di Roma*, 94, pp. 156-158.
- Messineo, Gaetano; Calci, Carmelo (1991), *La via Flaminia antica dal Campidoglio al Monte Soratte*, Roma: Quasar.
- Palombi, Cinzia (2011), *Le dinamiche insediative del territorio compreso tra la via Flaminia e la via Trionfale, dal Tevere al V miglio, nella tarda antichità e nell'alto medioevo*, PhD thesis. Università degli Studi di Roma "Sapienza", Italy.
- Palombi, Cinzia (2019), *Le dinamiche insediative del territorio compreso tra la via Flaminia e la via Trionfale, dal Tevere al V miglio, nella tarda antichità e nel medioevo*, Rome: L'Erma di Bretschneider.
- Spagnesi, Gianfranco (2003), *Roma: la basilica di San Pietro, il borgo e la città*, Milano: Jaca book.
- Strappa, Giuseppe (2018), "Substrata. Morphology of the ancient city, beyond its ruins", *Urbanform and Design*, 9-10, pp. 8-21.
- Strappa, Giuseppe; Carlotti, Paolo and Camiz, Alessandro (2016), *Urban Morphology and Historical Fabrics. Contemporary design of small towns in Latium*, Rome: Gangemi Editore.
- Virgili, Paola (1983), "Opere di arginatura a Ponte Milvio", *Archelogia Laziale*, V, pp. 124-127.
- Virgili, Paola (1985), "Ponte Milvio: studi e restauri", *Archelogia Laziale*, VII, pp. 145-148.

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International Seminar on Urban Form
Italian Network
<http://www.isufitaly.com/>

Contacts

Phone: +0668878832

Fax: +0668878832

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URBAN SUBSTRATA & CITY REGENERATION

Morphological legacies and design tools

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Presentation

URBAN SUBSTRATA & CITY REGENERATION **Morphological legacies and design tools**

The fifth Isufitaly Conference will focus on the notion of the substratum in its various aspects.

First, the typological one, as a set of rules inherited from the built landscape that allow reading and conscious transformation. We cannot reduce, of course, the complexity and richness of our ancient heritage to universal interpretational patterns that classify types and processes in a kind of taxonomy of the Ancient (that is true for any built environment). Instead, the identification of a few common criteria that allow us to interpret these phenomena through an architect's eyes, tracing the many outcomes back to the general rationales that produce them, can prove useful to morphological studies.

Then, the physical shape of the historical layer, which in many ancient cities has determined the structure of the current settlements. Substratum is, from this point of view, the part beneath the current built landscape that has no longer a function but still contribute to the form of new fabric. It is the prolific layer that gives rise to multiple organisms. We could then consider a 'substratum' as the composition of elements that once belonged to a built fabric or architectural organism. 'Substratum' despite having lost both their relationship of necessity that bound them together (their purpose and original organicity), and the continuity between the different phases of change and development, still transfer specific characters to the buildings originated by them.

Finally, the intangible aspect, the heritage of projects, experiences, and researches that constitute the working legacy on which current study can be based.

The notion of substratum could be, therefore, more than a specific issue, a way of seeing the built reality useful to the contemporary project.

The term not only includes the ideas of rooting and transmission; it also refers to the means, the tools we can use to reach the essence of the form, of its universal being. This universality, a quality that the actual building did not possess, constitutes a fertile abstraction: a reading as well as a project, how we give a new unity to the multiple and scattered forms of the remains we have inherited.

Furthermore, another theme, which is complementary to the substrata one, is that of urban regeneration. It is a topic extensively investigated by urban research which, in this context, could be reconsidered differently and innovatively.

In continuity with the previous Isufitaly meetings, the theme of the conference proposes a debate on the topics of the urban form transformation at different scales, in the light of our cultural heritage understood as a design tool.

The conference will take place at Palazzo Mattei di Giove, built on the ancient remains of the Teatrum Balbi, in one of the Rome areas where the relationship between the present city and the ancient substratum is more evident, even in its contradictions (the Porticus Octaviae, the Teatrum Marcelli, the archaeological area of Largo Argentina).

Organization

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