

## Original Study

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# All the Roads to *Patavium*: Morphology, Genesis and Development of the Roman Road Network Around Padua

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**Abstract:** This paper deals with the analysis of the ancient road network around the city of Padua, attempts to reconstruct its morphology and to define its genesis and development between the second Iron Age and Late Antiquity (6th/5th cent. BC to 6th cent. AD). The study follows a methodological approach that today we define as „archaeomorphological“, first proposed by E. Vion in the late 1980s. By applying this methodology to the Paduan territory, it was possible to identify a series of routes of probable ancient origin radially converging toward the center of Roman *Patavium*, and linking it to other urban centers in the region and to the minor centers located within its *ager*. The presence of Iron Age settlements along the path of many of these routes suggests that the development of such a road network likely begins in pre-Roman times, which also highlights the ancient strategic importance of Padua and its territory as a fundamental junction between the center and the North-East of the Italian peninsula. On the other hand, the Roman road network somehow survived into the Late Antique and Early Medieval times, always influencing the distribution of settlements and the orientation of churches, until it was for the greater part restored by the Commune of Padua over the 13th century.

**Keywords:** Landscape Archaeology, Archaeomorphology, Road networks, Roman roads, *Patavium*

## 1 Introduction: The Archaeomorphological Approach to the Study of Road Networks

The study of road networks is one of the main interests of archaeomorphology, a discipline that is part of the wider field of studies of Landscape Archaeology, and which analyses the morphological features that contribute to shaping of the landscape. And, among all these features, road networks are certainly the ones that have the greatest impact in landscape structuring: in fact, the different parts of which they are composed, namely the individual roads, are invariable elements in the landscape, often constituting proper “bearing structures” and being used as starting points in building specific territorial morphologies. In this sense, it seems quite evident that a dominant orientation in the landscape has the general tendency to propagate starting from a pre-existing road, spreading far beyond its original extent: it is the case, for example, of many medieval or modern orthogonal field systems often set up around a more ancient road which conditions the orientation of their axes.

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Therefore, we can consider roads as linear structures always conditioning the historical morphology of a territory and favouring continuity and mobility of shapes. However, they also reflect, in space, well defined historical dynamics, in that every road is a function and an expression of the specific time in which it was created (Palet 1997, 28-29): in fact, roads change over time with the transformation of the political, economic and environmental framework, as does the road networks of which they form a part. For this reason, road networks can be considered a dynamic structure continuously developing, where the traces of former phases remain almost fossilized within the most recent interventions, as in a palimpsest.

Thus, considering the analysis of communication routes as a fundamental tool for an archaeology that wants to investigate territory dynamics, in the late 1980s Swiss researcher E. Vion elaborated and proposed a new methodological approach to the study of road networks (Vion 1989). This approach, today further implemented mainly by the Catalan school of GIAP-ICAC led by J. M. Palet (Palet 1997, Flórez 2010, Palet, Orengo 2011, Matteazzi 2016), considers as its starting point the contemporary road network, that must be analysed (mainly through cartographic, historical and archaeological sources) following a regressive method, trying to establish relative chronological sequences that could help to better understand the subsequent transformations that led to its current status.

First of all, the analysis must define the entire structure (i.e., the road network), and then analyse each of its components, (i.e., the “itineraries” forming it, the various “tracks” constituting the itineraries and the different “stretches” composing the tracks). With “itineraries” we mean first-rate communications routes, both regional and extra-regional, linking two important poles (mostly, but not only, settlements). “Tracks” are instead the materialization of the itineraries on the ground (i.e., the various paths they follow over time): in general, each track is composed of several linear elements (which we can define as “stretches” or “segments”), very different in origin, that can work within one or more itineraries at the same time. Finally, we can define the “model” as the shape the road takes at the time of its construction (Robert 2009).

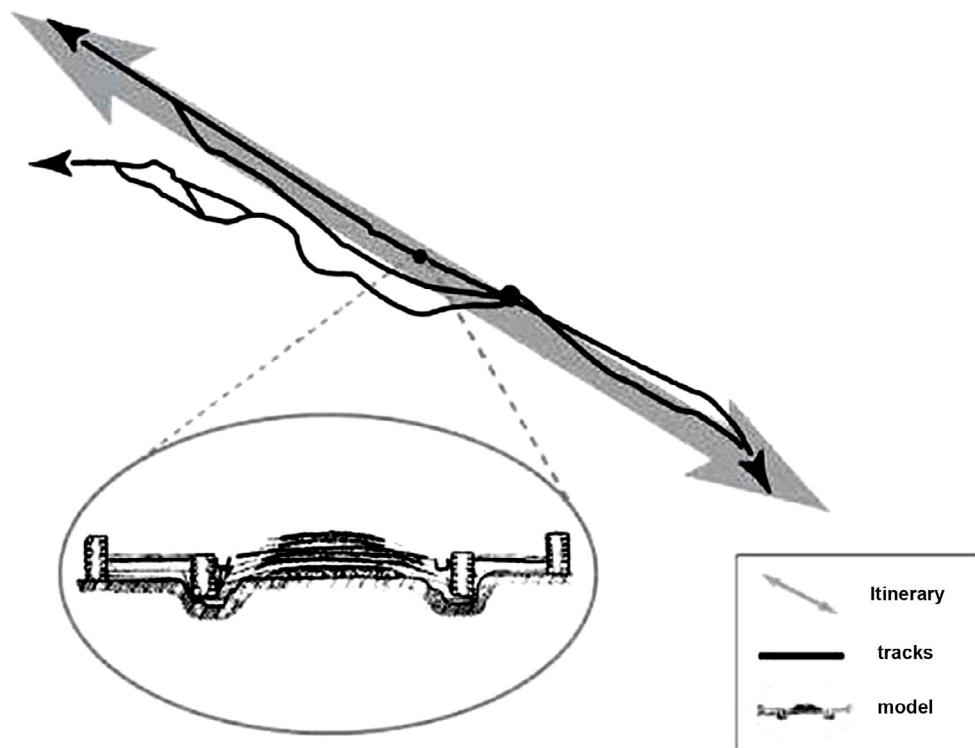


Fig. 1 The different layers composing a road network (from Robert 2009, modified).

Thanks to this differentiation in layers (fig. 1), it is therefore possible to carry out a systematic analysis of road networks and propose a chronological interpretation. In fact, through the different number of tracks identified for each itinerary and of models found within the same track, we can get an idea of the antiquity and the degree of evolution of a road network. Then, by analysing the relationships among itineraries and tracks and considering their overlaps, catchments and movements over time, we can establish relative chronological sequences showing the changes undergone by the road network, changes to which we can later try to assign an absolute dating with the help of all the available data, mainly historical (both cartographic and written) and archaeological.

## 2 Method and Tools

The first step in carrying out the archaeomorphological analysis of a road network is the identification, through a purely topographical checking, of what Vion defines as “natural corridors of potential circulation”, that is the natural communication routes that may have affected the first configuration of the road network. Road networks, like the landscape, are in fact the result of a compromise between human action and physical environment. Of course, social, historical and cultural factors, as well as observing rules of functionality that vary from time to time, and adaptation (depending on the location of settlements and/or urban centers at the moment in which a road track is built), are fundamental in their construction, but the physical characteristics of the territory are decisive and deeply influence their structure. Recognizing these “natural corridors” thus allows us to understand how the road network is inserted into the natural environment and how much other factors contribute to its definition and evolution (Palet 1997, 53).

In this sense, a precise and systematic restitution of each element comprising the road network is needed to subsequently define the shapes and analyse them archaeomorphologically (i.e., identifying the itineraries and the tracks forming the whole structure). The main objective of the archaeomorphological analysis is therefore documenting a road network in as much detail as possible, paying attention to the different tracks forming the itineraries, to their movements through the space and their connections with other axes, because every anomaly detected might be the result of an intervention carried out on the landscape in a precise historical moment (Palet 1997, 28-29).

The final step is the “stratigraphic” reading of all the elements identified, leading to the definition of chronological sequences (Ariño et al. 2004). This “stratigraphic” approximation is carried out by working on the different materials used for the archaeomorphological study, consisting basically of cartographic and aerophotographic sources, and through specifically designed archaeomorphological surveys that allow the relations between itineraries and tracks to be documented on the ground. Then, with the help of archaeological data and written sources, we can try to find out further elements for absolute dating the chronological sequences previously defined, in order to be able to confirm or not the proposed hypothesis.

As regards specifically to the case study presented here, the archaeomorphological analysis was carried out starting from the contemporary cartography, which served as the basis for georeferencing other cartographic and photographic sources, such as the Carta Tecnica Numerica provided by Veneto Region at 1:5,000 scale and a series of orthophotos at 1:10,000 scale. Historical maps turned out to be very helpful: despite the lack of geometric precision and the presence of more or less large distortions, they do show the road network before the modern interventions that affected Padua and its county since the second half of the 19th cent., thus favouring the restitution of tracks that are today completely abandoned or have even disappeared.

All the available photographic material was also analysed (i.e., all the aerophotographic series ranging from the 1950s to 2008) beside the satellite imagery provided by internet applications such as Google-Earth, Flash-Earth and Tuttocittà. The aerial images from GAI series (1954-55) were very helpful, because they captured the study area before the great transformations that it underwent since the 1960s.

Finally, the incorporation of written sources (such as inheritance, donation, sale, foundation or cadastral documents) was useful for providing *ante quem* dates for some of the documented tracks, since they take great care to clearly define land boundaries: this allowed for a more precise chronological relation among the tracks to be obtained.

### 3 Results: The Morphology of Roman Road Network Around Padua

Thanks to the application of such a methodology to the study of the Paduan territory (Fig. 2), it was possible to identify a series of itineraries (both terrestrial and fluvial) which might have had an ancient origin and, therefore, have formed the road network that, in Roman times, affected the *ager* and the *urbs* of *Patavium* (Fig. 3).

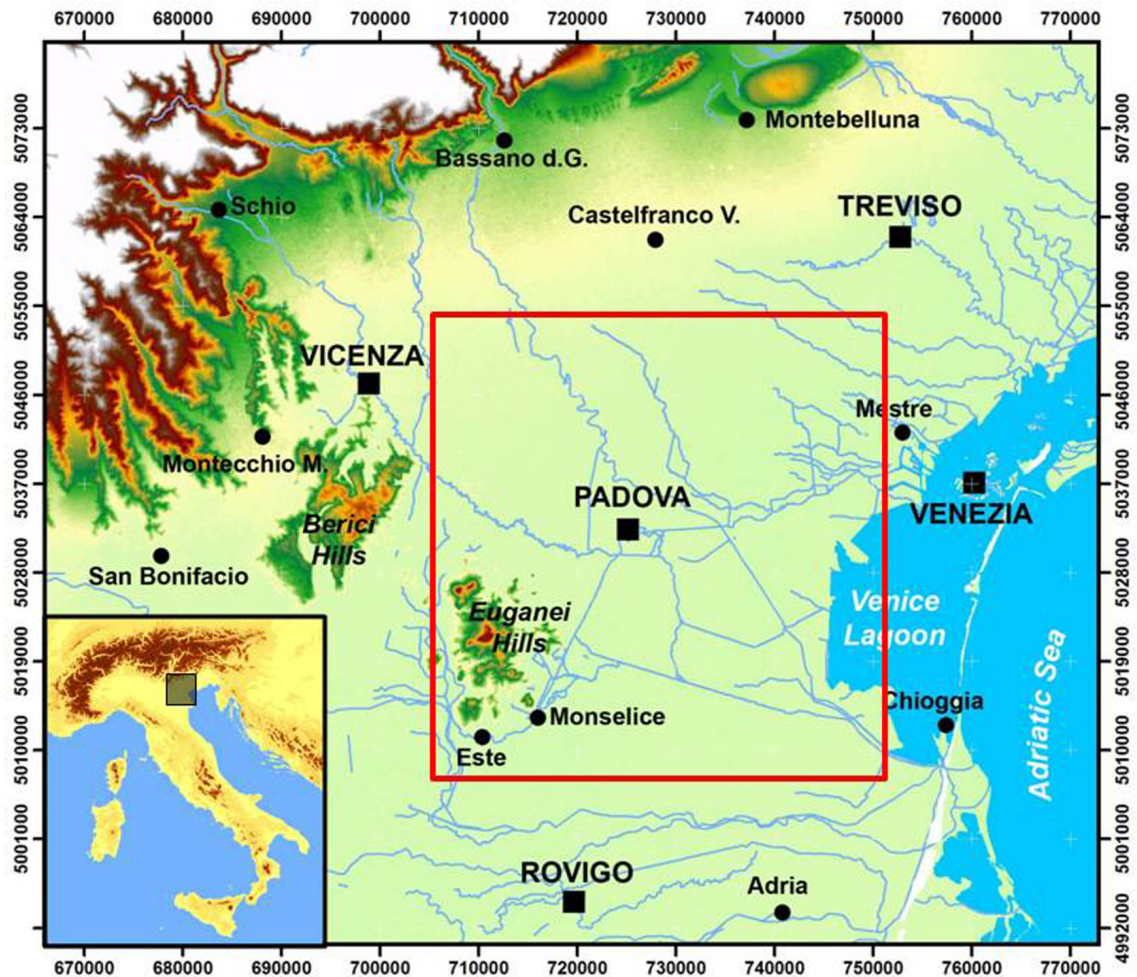
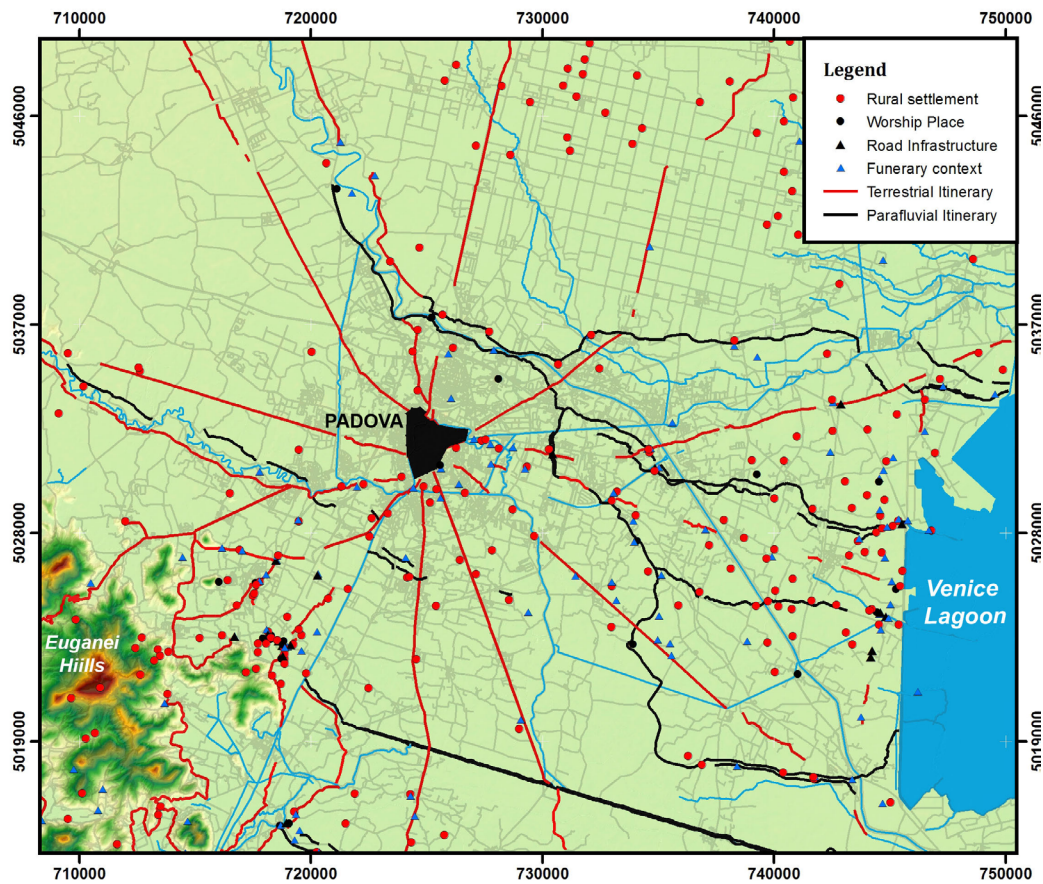


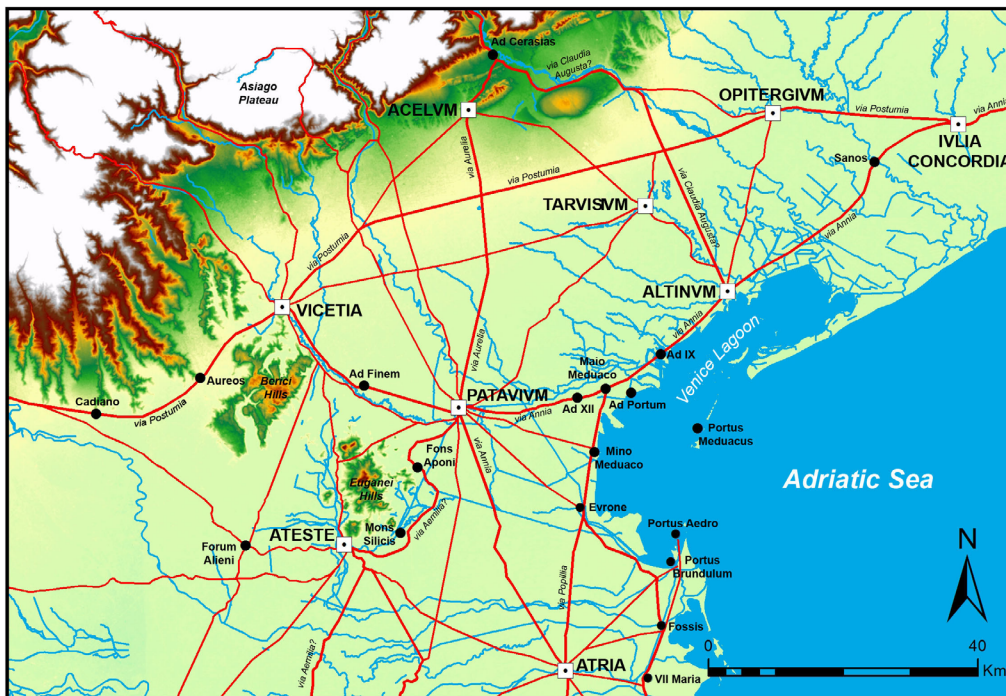
Fig. 2 Location of the study area.

As we can see (Fig. 4), these routes linked Roman *Patavium* to other ancient urban centers of the region and to those areas of the *ager* where historical and archaeological data suggest that minor centers (*vici*, *fora* etc...) and sanctuaries were located, or there were important economic interests, such as the thermal area of *Fons Aponi* with the famous oracle of Geryon, the quarries of trachyte in the Euganei hills, or the harbours of the Adriatic coast connected to the maritime trade routes and the littoral waterway linking Ravenna to *Altinum* (Bosio 1991, 237-249). Furthermore, to the South, they led to the important Republican colonies and strongholds of *Mutina*, *Bononia* and *Ariminum*, while, to the North, they connected *Patavium* to the Alpine area through the fluvial valleys of Brenta and Piave rivers.





**Fig. 3** Results of the archaeomorphological analysis: the Roman road network around Padua. Grey lines represent the contemporary road network, while blue lines correspond to the present-day river network.



**Fig. 4** The main Roman road network in ancient *Venetia*. Legend: red lines: Roman roads; blue lines: present-day river network; white black dotted squares: urban centers; black dots: minor centers.

### 3.1 The Relationship with Natural Environment

An interesting aspect suggested by the archaeomorphological study is the close relationship that Roman road network established with the topography of the territory, highlighting its perfect integration within the ancient environmental framework (Fig. 5). In fact, all the identified itineraries follow the main natural routes that characterize the territory, setting along the courses of Brenta and Bacchiglione rivers and their branches, running close to the Euganei Hills between Padua and Este, or taking advantage of the wide open spaces offered by the plain to the North and South of the ancient town.

As we can easily observe by superimposing the road network to the geomorphological map of the territory (Fig. 5), many of the identified itineraries, specifically south of Padua, were built over alluvial ridges, in order to exploit their lithological solidity and, especially, their natural cant which could guarantee the functionality of the road even in case of flooding and swamping. Paths also keep away from the most depressed areas, once affected by the presence of marshes, bogs and ponds of different sizes, such as near Euganei Hills and, above all, in the area today covered by the brackish waters of the Venice Lagoon, while river crossings always occur in easily fordable areas, in correspondence to morphologically high zones (such as ancient river terraces or meander lobes) or bottlenecks within the meandering band of water courses.

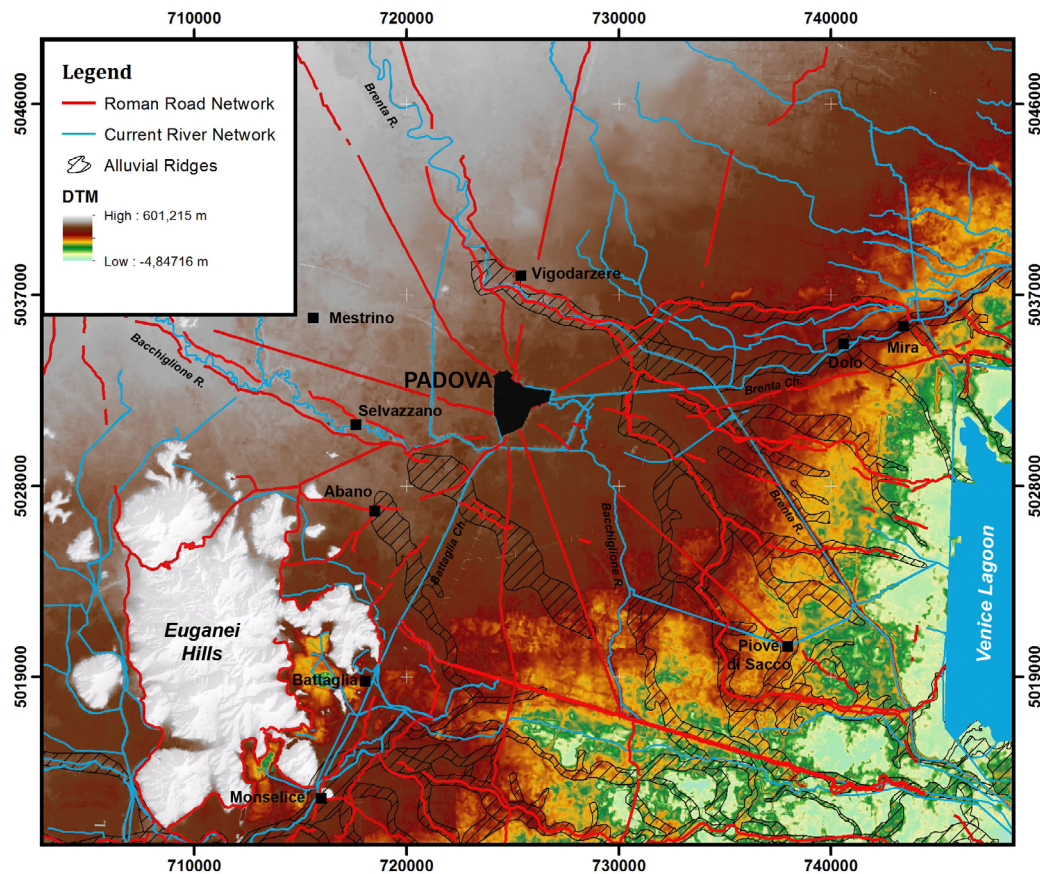


Fig. 5 The relationship between the Roman road network and the natural environment.

However, itineraries do not only adapt their paths to the natural environment but, in some cases, they face it. For example, where *natura loci* is not optimal, Romans addressed it through the creation of artificial structures, embankments of mostly trapezoidal shape (called *aggeres*) that could reach a width of 30-40 m at the base and a height of 2-3 m (Matteazzi 2013, 24-25): such embankments, always attended by a wide and deep ditch on each side, are very evident in aerial and satellite photos, while reference to them often



remains in medieval written sources, which define them as *viae/stratae levatae* or *in levata/levada*. These structures, of which evidence for only the route leading from *Patavium* to Asiago plateau remains (Bonetto 1997, 33-58; Fig. 6), likely characterized the tracks of the itineraries directed to *Bononia* and *Atria*, as we can see in aerial photographs<sup>1</sup>. Nonetheless, very often such *aggeres* were nothing but the banks of rivers, adjusted and raised up where the water courses were more unstable and thus dangerous; in these cases, road tracks were also used for towing boats upstream.

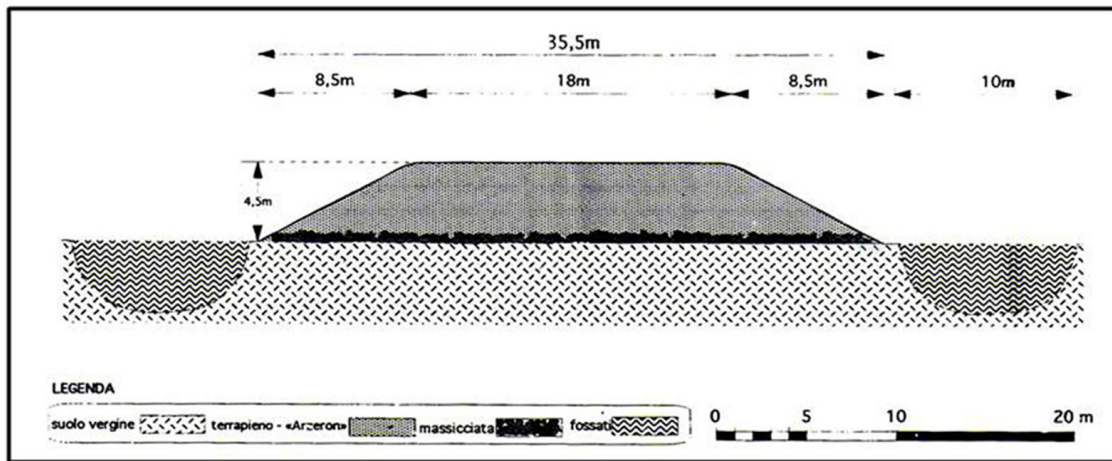


Fig. 6 The embankment of the road from *Patavium* to the Asiago plateau (from Bonetto 1997).

### 3.2 The Emergence of *Patavium* as Road Junction

Especially evident is the central role played by *Patavium* within the wider Roman road network of *Venetia*, where it stands out as an important road junction (Fig. 4). This strong function performed by the Roman town was certainly favoured by the peculiar topographic location of the settlement, which was the heart of an important network of routes (both terrestrial and fluvial) communicating the South and the North-East of the Italian Peninsula since the Bronze Age; and it was one of the reasons why *Patavium* became, at least since the 6th cent. BC, the most important center among the ancient Venetians *oppida* and the main reference for the Romans at the time of their arrival in *Venetia* (late 3rd cent. BC).

As clearly highlighted by archaeomorphological analysis, we can identify around the center of the Roman town at least three major areas defined by the convergence of different itineraries (Fig. 7), all of them characterized by the presence of necropolis and funerary contexts that, in some cases, show uninterrupted use from 2nd/1st cent. BC to 4th/5th cent. AD (Rossi 2014); to the North, in the area between Molino Bridge and the Railway Station; to the East, in the area surrounding the old church of St. Sophia; and to the South, in the area between Torricelle Bridge and the big square named “Prato della Valle”.

The importance of the northern zone, where the Roman Molino Bridge (Galliazzo 1971, 54-55) was the main entrance to the town for those coming from the North (here converged the itineraries from/to *Acelum* and *Feltria*, *Tridentum*, and Asiago Plateau), is highlighted by the presence of the amphitheatre that, most likely built by the first half of 1st cent. AD (Tosi 2003, 514-516), undoubtedly contributed to increased economic and social interest in the area. The function of the area as a road junction was still vital during medieval times, when the now-destroyed churches/hospices of the Holy Trinity, St. Saviour and St. Jacob (Gasparotto 1961, 80-81) were situated there.

<sup>1</sup> Part of the embankment that originally characterized the itinerary *Patavium-Atria*, well evident in the aerial photos, has been recently excavated near the village of Agna (see Pettenò, Vigoni 2011 for more details).

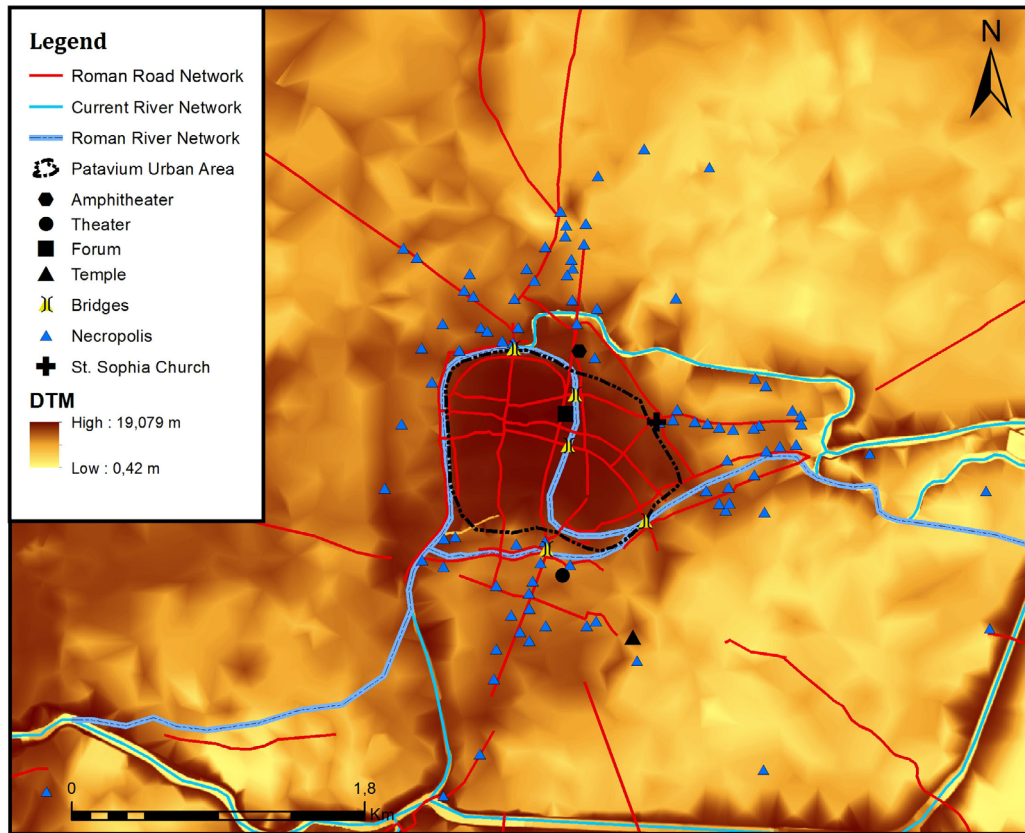


Fig. 7 Patavium and the ancient road network inside and around the town.

The area around the church of St. Sophia — where the itineraries from/to *Altinum*, Lova di Campagna Lupia (recognised as the site of *Mino Meduaco*, a minor center mentioned in the *Tabula Peutingeriana*) and the area of Chioggia (where the harbours of *Aedro* and *Brundulum* were located), as well as the itinerary from/to *Tarvisium* reaching the town from North-East converged — stands out as a particularly important urban road junction (Rosada 1993, 74). This role is further emphasized by the number of funerary features found in the area (Rossi 2014) and by the presence of the same ecclesiastic building of St. Sophia, which in the Late Antique period was established over a rich building connected to a worship place perhaps dedicated to Mithras (Zanovello 1982).

Above all, however, the area of Prato della Valle square stands out. It is where many itineraries linking *Patavium* to other major urban centers (*Vicetia*, *Ateste*, *Bononia*, *Atria*), to the thermal area of *Fons Aponi*, seat of the oracle of Geryon (Abano and Montegrotto) and to the sites of the main trachyte quarries in the Euganei Hills (Montemerlo, Monterosso) meet. The importance of the area during Roman times is hereby suggested, beside the presence of many funerary features (around which, in the easternmost part of the area, the church-monastery dedicated to the Paduan martyr *Iustina* was built maybe in the 4th cent. AD), by the existence of a temple erected between late 1st cent. BC and early 1st cent. AD (Vigoni 2009), a theatre (1st century AD) and, perhaps, even a circus (Bosio 1986), realities that surely favoured the convergence of different interests, mainly economic and social, that transformed the area into a monumental entrance to the urban center. This importance remained attached to the area of Prato della Valle for almost all of the Middle Ages, as demonstrated by the presence of various monasteries — St. Iustina, St. Magdalene and one belonging to the Dominican friars — of an old hospice dedicated to St. James and St. Christopher and the fact the area was for centuries the seat of an important city market.

## 4 Discussion: Genesis and Development of the Road Network Between 6th Century BC and 6th Century AD

### 4.1 The Road Network in Pre-Roman Times (6th-3rd Centuries BC)

When Romans reached *Patavium* for the first time, towards the late 3rd cent. BC, it is very likely they found an already quite articulated road network around the Venetic center. As archaeological data suggests, it seems possible to think that such a road network was developed between the 5th and 3rd cent. BC (i.e., during the phase of re-appropriation of the territory by the Venetics) (Capuis 1993, 188-197) which, beside achieving maximum settlement expansion, had as a main consequence the political definition and the physical structuring of the territorial boundaries among their main centers (Boaro 2001, 156). This phase of considerable settlement revival was certainly also favoured by the sharp change occurring in weather conditions which became less rainy and warmer, leading, in particular in the lagoon area, to a marine regression and to the consequent emergence of previously submerged lands (Bondesan et al. 2013, 14): all that allowed for the stabilization and systematization of a series of itineraries connecting Padua to other neighbouring Venetic centers (Vicenza, Este, Adria, Altino, Treviso and Asolo) and to important geographical zones in the territory under its control (the thermal area, the reliefs of Euganei Hills interested by grazing areas and the quarries of trachyte, or the harbours on the Adriatic coast), as well as to other important “foreigner” centers in Etruscan-Celtic (Spina, Bologna, Modena, Verona and Mantova), Umbrian (Ravenna) and Rhaetian (Feltre, Trento) areas (Fig. 8).

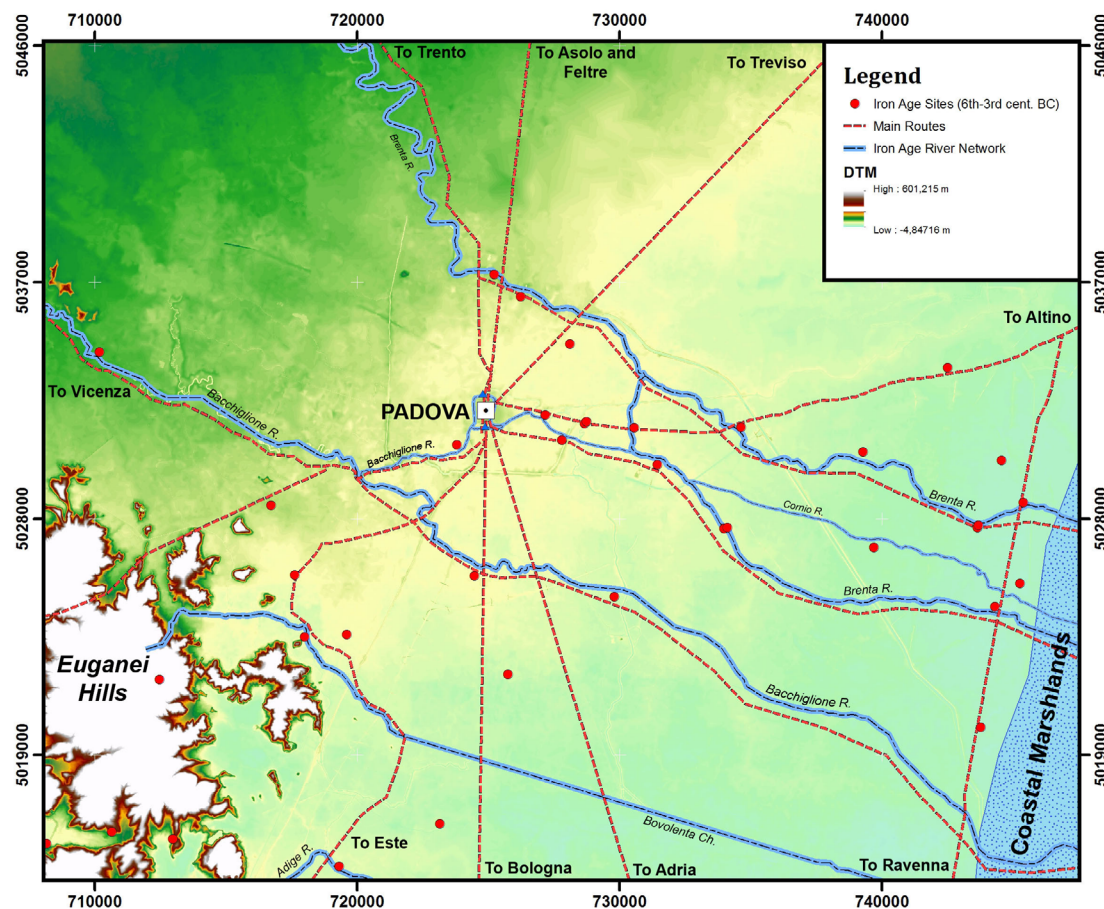


Fig. 8 The main routes reaching Padua during late Iron Age.



These itineraries mainly supported fluvial routes, suggesting navigation was one of the main means of transport. Thus, the various itineraries went upstream from Padua, following the course of the Bacchiglione river towards Vicenza and of the Brenta river to the Raethian area; in the opposite direction, they led to the Adriatic Sea, linking the Venetic center to the coastal area and the harbours located near the main rivers mouths. At that time, the Adriatic littoral was also affected by the presence of an inland waterway which allowed for quick connections along the Adriatic coast by exploiting the presence of marshes and ponds that characterized the coastline. It seems fairly certain today that Etruscans and Greeks (Syracusans in particular) were able, between the 5th and 4th cent. BC, to fully tap the potential of the river Po delta, so they could design and carry out the excavation of a series of waterways forming an inland navigation line connecting all the main ports of the time, namely Altino, Adria, Spina and Ravenna (Sassatelli 2013, 125, Braccesi, Veronese 2013, 140-142).

Other itineraries took advantage of some natural communication routes, like the “corridor” passing close to the eastern slope of the Euganei Hills between Padua and Este, or which penetrated into the wide open spaces of the plain, searching and finding the geomorphologically best points for a safe passage.

Despite the lack of concrete archaeological evidence, it is however possible to think that all these itineraries were equipped with rather structured roadways that foresaw the use of resources and technical measures that later will also be used and implemented by the Romans. In fact, according to the examples found in the urban areas of Este, Padua and Oderzo, we know that Venetics were able, at least beginning in the 7th cent. BC, to achieve road artifacts furnished with humpbacked profiles and side ditches, and built using different materials and differentiated building techniques always suitable to ensure an efficient form of drainage (Gambacurta 2004).

## 4.2 The Consolidation of the Roman Presence (2nd-1st Century BC)

Between the late 3rd and the early 2nd cent. BC, at the time of their arrival in *Venetia*, the Romans found a rather articulated road network that surely favoured their penetration into the Venetian territory, especially after the establishment of Aquileia in 181 BC, when connecting the new colony to the southern strongholds of *Mutina*/Modena, *Bononia*/Bologna and *Ariminum*/Rimini became a primary need.

In fact, thanks to the war events recorded in literary sources, and specifically the movement of troops and embassies that occurred between the late 3rd and early 2nd cent. BC, some of the itineraries developed during the previous centuries become favourite routes, and serve as the backbone of the road network that, during Imperial age, will characterize the north-eastern sector of the Italian peninsula (Fig. 9).

At this time, the itineraries linking *Patavium* to *Ateste*/Este (along the eastern and southern edge of the Euganei Hills) and to *Altinum* seem to take on added relevance. These itineraries allowed the creation of a route connecting Aquileia and *Bononia* (Pellegrini 2004, Bonini 2010), a locality also reached by the *via Aemilia* (*Ariminum-Placentia*, 187 BC) and the so-called *via Flaminia minor* (187 BC) — a northward extension of the *via Cassia* starting from *Arretium*/Arezzo (Alfieri 1992). But if we think that from *Ateste* it was possible to reach *Mutina* (Bottazzi, Calzolari 1990, Bosio 1992, 185-187), an important road junction probably reached even by another branch of the *via Cassia* (Campagnoli 2006), the importance that the *Ateste-Patavium-Altinum* route had to assume during the 2nd cent. BC as a penetration axis and direct connection with Rome cannot be doubted.

Furthermore, it is possible that Strabo refers to this route when he mentions the existence of a road built by the consul Marcus Lepidus as a continuation of the *Via Flaminia* (Strabo, V, 1, 11). Starting from *Ariminum* and passing through *Bononia*, it reached Aquileia running along “the feet of the Alps” so it could go around the coastal marshlands. By mentioning the “feet of the Alps”, the geographer from Amasea may actually have meant to refer, by extension, to the eastern slopes of the Euganei Hills and thus to a route that, from Bologna, would have skirted the Hills and, via Padua, would have reached *Altinum* and then Aquileia, effectively bypassing the Po Delta marshes (Dall’Aglio 1995). In this case, it is clear that Strabo merged and confused two different routes: the better known *via Aemilia* from Rimini to Piacenza, built by M. Lepidus, consul in 187 BC, and a road that reached Aquileia starting from Bologna. Since in the quoted passage, Strabo erroneously attributes the construction of *Via Flaminia* from Rome

to Rimini to G. Flaminius, a colleague of Lepidus in 187 BC — actually built by the consul's father in 220 BC — instead of the *Arretium-Bononia* road, of which other sources confirm him as the promoter, it is reasonable to assume, as already suggested (Dall'Aglia 1995), that at the heart of Strabo's confusion lies a second *via Aemilia* linking *Bononia* to *Aquileia*. It does not seem possible, anyway, that the person responsible for this second road was the consul of 187 BC, as it is usually believed (Bosio 1991, 31), since the sources (Livy in particular) do not associate with him the construction of any other road apart from the famous *via Aemilia*. It could then be more likely to think that the Marcus Lepidus referenced by Strabo corresponds to one of the consuls bearing the same name and in charge in 158 BC, 137 BC and 126 BC. To the last one it seems also possible to associate the construction of a *via Aemilia* to the South of the Peninsula (Camodeca 1997).

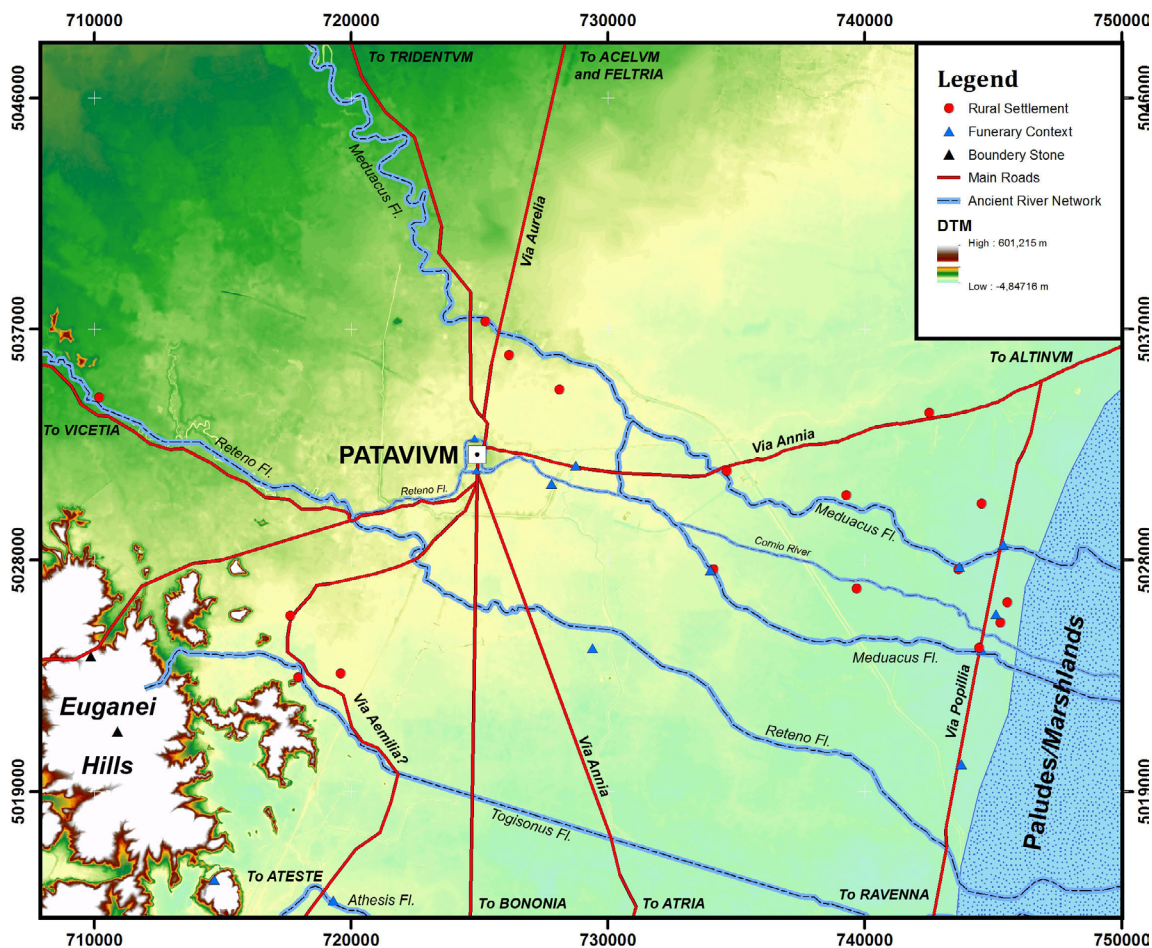


Fig. 9 The road network around *Patavium* between the 2nd and 1st century BC.

The itinerary from Padua that reached *Atria*/*Adria* passing through the village of *Agna* could have been in use during the 2nd cent. BC. The possible derivation of the toponym from an original *Annia*, as well as the mention in several 11th to 12th century documents of a road called *Agna* or *Lagna* connecting Padua and *Agna*, suggest the road itself could be recognized as a part of an original *via Annia* linking *Patavium* to *Atria* (Bosio 1991, 70-71). In *Adria*, the *via Annia* would have met the *via Popillia*, another consular road built in 132 BC which ran along the coast and connected *Aquileia* to *Ariminum*, linking the main ports of the northern Adriatic (i.e., *Altinum*, *Atria* and *Ravenna*) (Bosio 1991, 59).

Another *via Annia*, perhaps the extension of the *Patavium-Atria* route, also linked Padua to *Altinum* and *Aquileia*, where two inscriptions (CIL, V, 7992, 7992a) mention the presence of a road built by the consul T. Annius, who is not yet clearly identified<sup>2</sup>.

However, the recent discovery of a trachyte milestone erected by the consul T. Annius near Codigoro (Ferrara), along what is usually considered the path followed by *via Popillia*, would seem to suggest that *via Annia* did not end in *Adria*, but went southward likely reaching *Ravenna* (Donati 2009). Therefore, according to an interesting hypothesis suggested by Uggeri and based on epigraphic evidence found in several areas of Central Italy, it is likely that Annius was the promoter of an original route directly connecting Rome to *Aquileia* and passing through the urban centers of *Caesena/Cesena*, *Ravenna*, *Atria*, *Patavium*, *Altinum* and *Concordia* (Uggeri 2012). By this assumption, the Annius named on the Codigoro milestone and on the inscriptions from *Aquileia* might correspond to T. Annius Luscus, consul in 153 BC and, more importantly, one of the commissioners sent by the Roman Senate to *Aquileia* in 169 BC to lead the new settlers there. As a result of this position, Annius may have decided to open a direct route from Rome to *Aquileia*.

Two decades later, in 132 BC, *P. Popillius* would instead develop the route along the coast between *Rimini* and *Altinum* which, from the beginning, would also serve as a terrestrial support to the Po delta waterway, perhaps further prolonged by *Popillius* itself up to *Altinum*, as suggested by the interesting evidence of a *fossa* (waterway) *Popillia* between *Malamocco* and *Altino* (Rosada 2010, 136). These works promoted by *Popillius*, in fact, might find a precise meaning if we consider them to be the outcome of the political and military context of the second half of the 2nd cent. BC. As *Pliny the Elder* reports, the *Istrian* campaign of *Tuditanus* took place in 129 BC, and a series of infrastructural and logistical interventions may have been foreseen in connection to it, among them a terrestrial itinerary that directly linked *Rimini* and *Altino* in support of a safer inland shipping route.

Beside these itineraries, archaeological data suggests that during the 2nd cent. BC Romans also used other ancient routes. One of these was the itinerary that leads to *Bagnoli*, starting at *Padua* and traversing *Maserà* and *Conselve*, as the presence of a coin hoard dating to 125 BC and recovered in 19th century near *Maserà di Padova* would seem to suggest (CAVe 1992, 136 n. 253). It is possible that, originally, the itinerary continued southward down to *Rovigo* before reaching *Bologna*<sup>3</sup>.

The arrangement of the itinerary towards *Acelum/Asolo* and *Feltria/Feltre* probably dates to the first half of 1st cent. BC. Toponymic data and medieval sources seem to identify it with an otherwise poorly known *via Aurelia*, the construction of which is usually attributed to *C. Aurelius Cotta*, consul in 75 BC and proconsul of *Cisalpine Gaul* in 74 BC (Bosio 1991, 126). Finally, it was in the first half of the 1st cent. BC, that the itinerary that followed the right bank of the river from *Padua* *Bacchiglione* towards *Vicetia/Vicenza* was also likely designed, as it would have allowed a direct link between *via Postumia*, which reached *Vicenza* already by 148 BC, *via Annia* and the other itineraries reaching *Padua* from the South.

### 4.3 The Early Imperial Period (Late 1st Century BC-2nd Century AD)

The road network defined between the 2nd and the first half of the 1st cent. BC had to remain unchanged at least until the granting of full citizenship to the main urban centers of the *Cisalpine Gaul*, which took place between 49 and 42 BC. Particularly important was the following period, from the end of the 1st cent. BC to the 2nd cent. AD, during which *Augustus* and his successors started a program of restructuring and expanding the Empire road network (Matteazzi 2013, 35-39), which in *Cisalpine Gaul* fully involved not only terrestrial routes, but also fluvial ones, with the excavation of new waterways and the creation of adequate infrastructures (Uggeri 1987, 339).

If in *Patavium* this program surely involved the complete paving of all urban streets, it is likely that

<sup>2</sup> Two consuls belonging to the gens *Annia* might be considered the promoters of the road construction: T. Annius Luscus, consul in 153 BC, and T. Annius Rufus, consul in 128 BC. About this topic, see the contributions of Donati 2009; Rosada 2010; Uggeri 2012 and references cited therein.

<sup>3</sup> So thinks Wiseman (Wiseman 1964, 28-29, Wiseman 1969, 86-88), who considers this itinerary a stretch of the original *via Annia*.



*extra urbem* it mostly involved the restructuring of former Republican roads and the creation of denser connections between the urban center and the *ager* under its jurisdiction, leading to a greater definition of the road network gravitating around the town (Fig. 10).

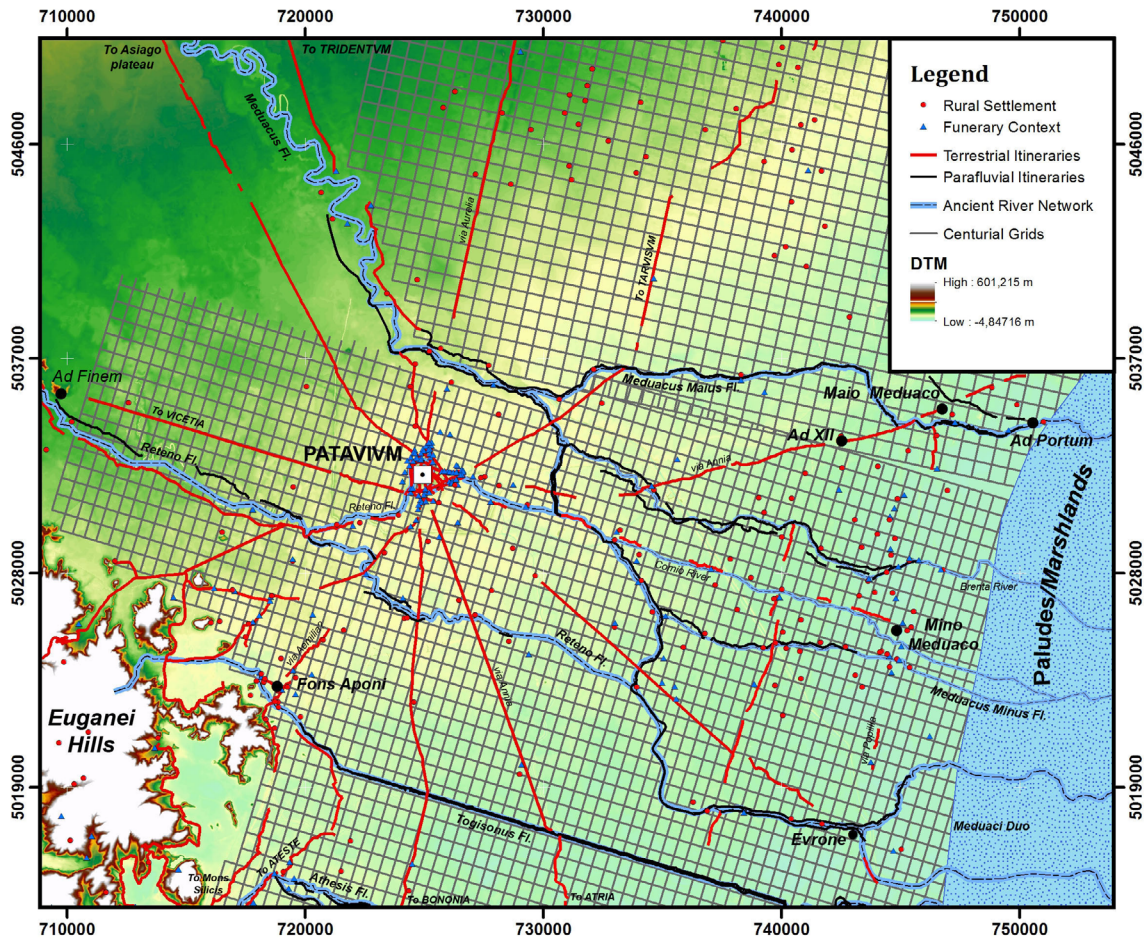


Fig. 10 The road network around *Patavium* between late 1st century BC and 2nd century AD.

An interesting aspect to be highlighted about the itineraries built during this period, is the evidence of how most of them adapt their paths to the theoretical grids of the three centuriated field systems built in the *ager Patavinus* between the 1st cent. BC and the 1st century AD. Except for *via Aurelia*, whose path was used as *Kardo Maximus* for the so-called Padua North-East centuriation (Bosio 1991, 127), the roads were constructed following the orientation of existing land divisions: this is the case, for example, of the itinerary going up the left bank of the Brenta river towards *Tridentum*, which started from the village of San Giorgio in Bosco follows the direction of a *kardo* of the centuriation of Cittadella-Bassano (Bonetto 1997, 100); or the one directed to *Tarvisium* that, starting from Vigonza, works as a *kardo* for the centuriation to the North-East of Padua; or, again, the itinerary that reaches Vicenza through the village of Montegalda following the left bank of Bacchiglione river and the one directed to Lova/*Mino Meduaco*, both of which function as *decumani* for the centuriation to the South of Padua (Fig. 10).

It is quite possible that it was by the middle of the 1st cent. AD that the itinerary that connected *Patavium* to the Adriatic harbours of *Aedro* and *Brundulum* through the village of Piove di Sacco, crossing the *via Popillia* near Codevigo/*Evrone* and working as a diagonal road of the centuriated area to the South of Padua was developed. For the two other itineraries directed to *Bononia* and to *Atria*, and functioning as



diagonal roads of the same field system, I believe that, given their age (they were likely in use during the 2nd cent. BC), they might be identified as two examples of the gromatic process known as *varatio*, according to which an existing road could be used as a generator axis of a centuriat grid (Matteazzi 2015, 23-24). Following this procedure, in fact, a centuriat grid could be constructed from a straight stretch of a road that would act as diagonal axis of the *limitatio*, passing through one or more units of the grid, according to the angular relationship established between the road and the agrarian division and the module of the grid (Roth Conges 1996, Chouquer, Favory 2001, 90-94).

#### 4.4 The Late Antiquity (3rd-6th Century AD)

Despite the partial abandonment of the countryside beginning in the 3rd cent. AD, which led to a progressive reduction of road maintenance, the road network seems to remain functioning, for the most part, between the 3rd and 4th cent. AD (Fig. 11), which is attested, beside archaeological data, by the mention of some itineraries in late antique *Itineraria* – in particular, the itinerary *Vicetia-Patavium-Altinum*, now forming part of the important route *Mediolanum-Aquileia* or the *Patavium-Ateste* one, mentioned in *Itinerarium Antonini* as a stretch of the “*item ab Aquileia Bononiam*” (IR 1929, 281-282) – and, above all, by the evidence of milestones related to the restoration works carried out during the Tetrarchy (Basso 1986, 161 n. 71) and Constantine times (Basso 1986, 164 n. 73).

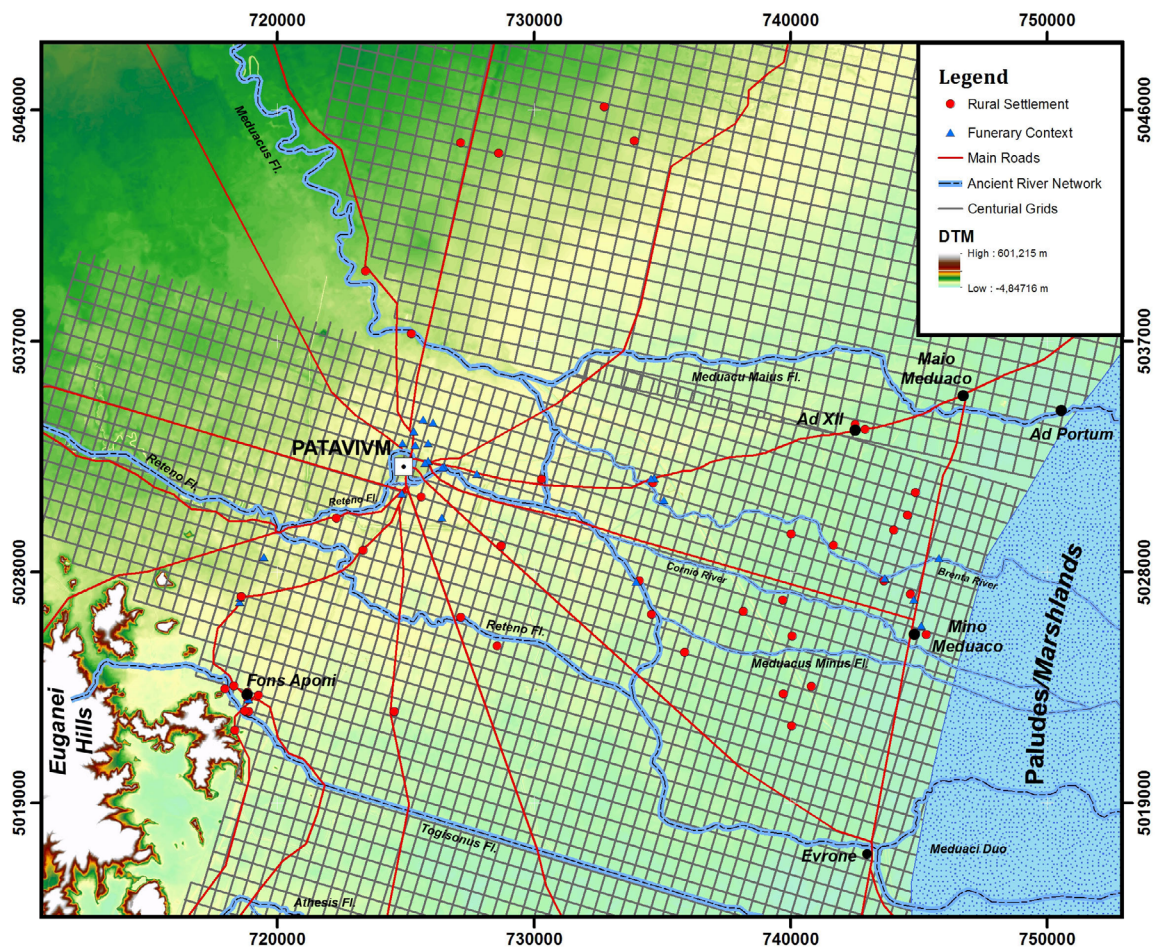


Fig. 11 The road network around *Patavium* between the 3rd and 4th century AD.



However, at least from the 4th cent. AD, it is possible to propose that, as in other parts of Italy, the efficiency and the maintenance of the terrestrial road network gradually decreased, due to the contemporaneous strengthening of fluvial and maritime routes, as highlighted by late antique sources, where it is not uncommon to find references to journeys made by water that do not seem to find comparisons in previous times (Dall'Aglia 1997, 87-88). This condition was also driven by the climatic and environmental changes affecting Northern Italy since the 4th cent. AD (Fontana et al. 2008, 86, Cremonini et al. 2013) which, though a progressive advancement of the sea and constant avulsions of main river courses, deeply altered the previous hydrographic framework, opening up new fluvial routes (Uggeri 1987, 337-344).

It is not surprising then to find out that, during this period, the Padan littoral shipping line is prolonged from *Altinum* to Aquileia, likely as a result of the increasing importance of Aquileia and, above all, of Ravenna, which served as the new capital of the Empire beginning in 404 AD (Bosio 1991, 243-244). While a series of annony and military measures taken by Theodoric (454-526 AD) and the Chapter of Liutprand (715 AD), ordaining an agreement between Lombards and the inhabitants of Comacchio (Ravenna), prove that trade along the main waterways was still very important between the 5th and 8th century.

Despite all, it is likely that road maintenance was still remarkable in 6th century, when we know that Theodoric took a series of measures aimed at restoring former Roman roads (Szabò 1986, 667-668). In fact, just at this time, some itineraries that previously were mostly of local interest, such as the one passing through the villages of Abano and Montegrotto, seem to assume greater importance and allowed a direct connection between *Patavium* and the Byzantine *castrum* (then Lombard *civitas*) of *Mons Silicis*/Monselice (Fig. 12).

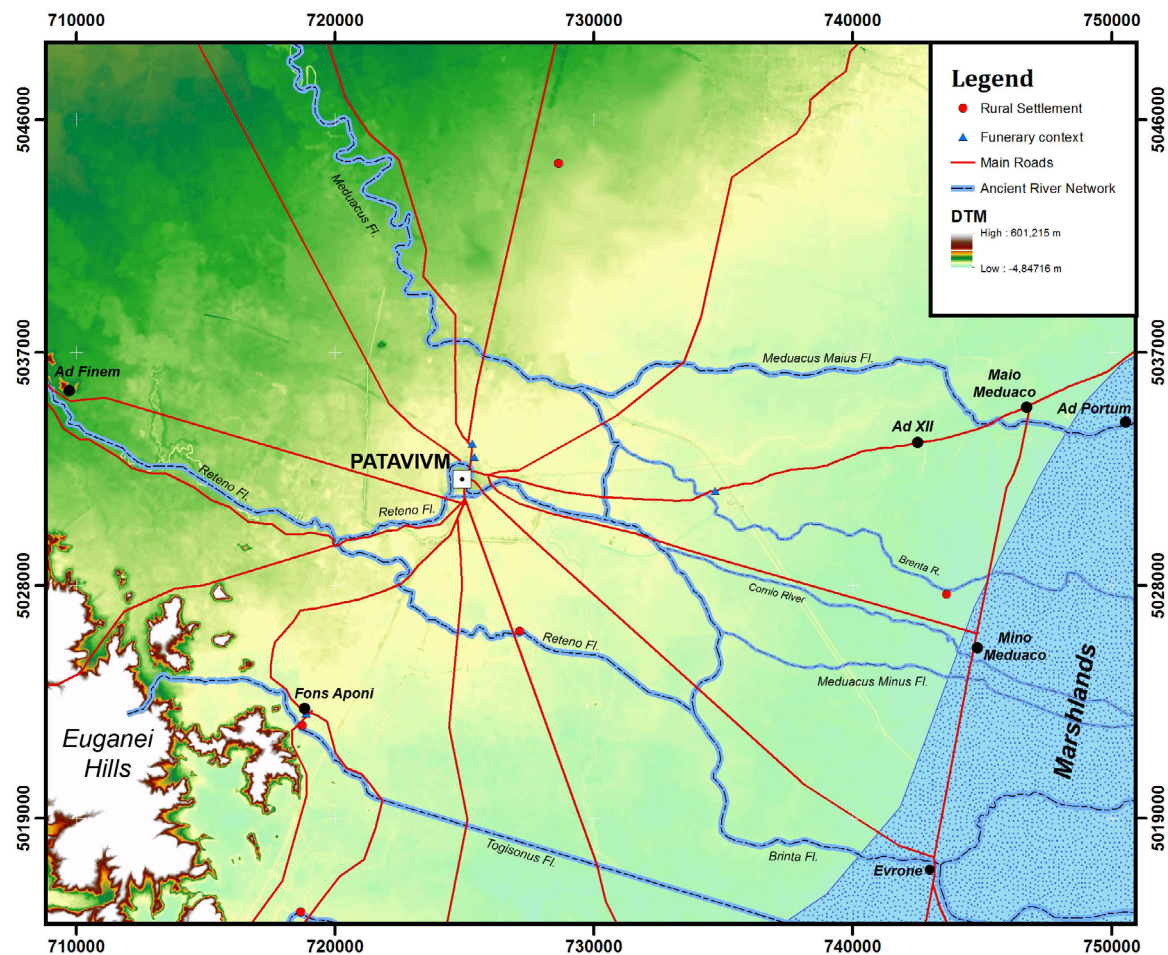


Fig. 12 The road network around *Patavium* between the 5th and 6th century AD.

Anyway, not all the itineraries remain in function. The ones that guaranteed the connection between Padua and other urban centers were most used. In fact, due to the increasingly frequent marine ingressions and the consequent establishment of lagoon conditions along the coast and wide marshlands in the inner plain, many itineraries (including the ones directed from *Patavium* to *Bononia* and to *Atria*) largely lost their original function, only surviving for some stretches and, for the most part, as simple dirt roads.

## 5 Final Remarks

This contribution intended to demonstrate the manner in which to obtain interesting results in a territorial study through the application of an archaeomorphological methodological approach. In this case specifically, we focused on the reconstruction of the ancient road network set around the Venetic and Roman center of *Patavium* (Padua). The starting point was the modern road network, which was analysed through the recognition and definition of the different parts that constitute it, i.e., itineraries and tracks: then a stratigraphic reading of all the identified elements was carried out, which led to defining a relative chronological sequence, to which absolute dating was later assigned on the basis of the available historical and archaeological data.

We thus could ascertain that the main routes affecting Padua were created in pre-Roman times and set into areas of the territory that were important from a point of view both topographic (in terms of safety and ease of passage) and social-economic (in terms of linking functionality). Of course, the greater contribution to the formation of the road network was given by the Romans, who used and greatly expanded the protohistoric routes creating denser connections between the town of Padua (which in this period clearly emerges as one of the main road junctions of the North of the Italian Peninsula) and the *ager* under its jurisdiction, and especially among the minor centers scattered throughout the territory (this also and especially through the creation, between 1st cent. BC and 1st cent. AD, of at least three centuriated field systems, two to the North and one to the South of *Patavium*).

Despite the gradual abandonment of the Paduan territory in the 3rd and, especially, between the late 4th and 5th cent. AD, the road network set up by the Romans seems to preserve a precise structuring even in Late Antiquity and throughout the Early Middle Ages, when many of the axes that form it show themselves as the greatest element of settlement continuity and the main vehicle of Christianization in the countryside, strongly contributing to anchor settlement distribution and to orient religious buildings.

Such a condition will remain until the 12th/13th century, when the Commune of Padua undertook an important territorial control policy which, in addition to the improvement and the expansion of the hydrographic network through the creation of new navigable channels, addressed the restoration and implementation of the existing road network, renovating ancient itineraries and building new ones.

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