Roman city gates: Hubs in a network

I thank the organization of the T2M conference for the invitation to present this paper concerning Roman city gates here in Philadelphia.
Nowadays, in their attempts to keep traffic congestion under control, governments enlarge, if possible, the infrastructure: more roads, wider roads and improvements of intersections. Another option is to restrict traffic movements: stimulating public transport, taxes during rush hours, toll points along the roads, parking fees. In modern society, city gates lost their function; this happened already in the 19th century and because gates hampered the traffic flow, the majority of them were demolished. In Antiquity, the Middle Ages and early modern times, however, city gates were important buildings.

A city has to fulfil five conditions to function and to survive: **[PPT Accessibility][PPT Food supply][PPT Drinking water supply][PPT Means of support][PPT Defence].**
Which role did city gates play in the way cities operate? **[PPT in general]?**

In the Roman World, many cities were surrounded by walls and gates. Together with the squares (fora), they were the hubs in the municipal infrastructure. They had the following main functions. They were:

- Part of the city defence **[PPT in general 1];**
- Part of the city road system **[PPT in general 2];**
  In some cases:
- Part of the drinking water supply **[PPT in general 3];**
- Used for the evacuation of sewer water **[PPT in general 4];**
- Used for toll levying **[PPT in general 5];**
- Used as meeting-point (waggon rental) **[PPT in general 6].**

So, city gates played an important role in the functioning of the city. In this paper, I will discuss these six: defence, road traffic, supply of drinking water, sewer water discharge, toll levying and meeting-point.

City defence
Why was the one city surrounded by walls and gates while another of the same size was not? To answer this question, we have to realise that the construction of a city wall for defensive purposes would only be considered if a city was independent enough to choose sides in times of war. Walls and gates for defence are found mainly in city state societies, where the road system is less developed. In a centralized empire, with one central capital like Persia or the Roman Empire in the first centuries AD, the construction of a city wall is less important, because

the cities are not entirely independent and there is no rivalry between them. City walls could be erected, not so much for defense, but rather for marking the boundaries of the city. From the 3rd century AD onwards, with the decrease of power of the central government, we see the sudden construction of strong walls and gates around cities that did not have them previously, like the Aurelian Wall in Rome. **[PPT Aur Wall]**.

Traffic flow

A city is, in a peaceful time, able to exist without city walls, but no city can exist without a well-functioning road system. When a city government decides to build a city wall, the construction of passages to enable traffic flow is inevitable. So, city gates are weak but necessary interruptions of the city defence system.

It is evident, therefore, that there is a conflict between the military and the traffic aspect of the city gate. For defence, the number of city gates and their passageways should be reduced as much as possible. In wartime, city gates are the weakest spots of the city defence system and in only a few cases, enemies invaded the city along another way than through the gates. To facilitate the traffic flow, however, the number of gates has to be as large as possible, with wide and many passageways.

Throughout history, an evolution of city gate design is visible. In the Roman Republic (5th-1st century BC), a period of rivalling city states and turmoil, we see cities with strong city walls and a reduced number of city gates with usually only one narrow passage for in- and outcoming traffic. In the 4th century BC, the final plan of Pompeii was finished; the city was equipped with 7 city gates and also 7 narrow passages; it was easy to close the city. **[PPT Nola Gate]**.

When during the 1st century AD the fear for warfare was diminished and cities were no longer independent, the necessity to construct city gates with the emphasis on defense decreased. A new type of city gates was introduced; at first in Italy, but later also in the provinces outside Italy, cities started to construct city gates with two, three or even four passages. An example of an early three-passage-gate is the Porta di Ercolano in Pompeii; **[PPT Porta di Ercolano]** this gate replaced a former single gate, destroyed during the Social War around 90 BC. This, however, was an exception: old gates usually remained unchanged. Due to increased traffic flow and the development of extra-mural buildings, the city government had the opportunity to redesign the new gate as a three-passage gate. The central passageway was slightly moved to the left, so waggon ruts are now ending against a pillar. **[point]**.

Until the end of the 2nd century AD, city walls were planned and designed together with the city itself; they were now the boundary of the built-up area and no longer a defence structure. Gates with three passageways appeared in provinces outside Italy. They have a high central passage for horsemen and waggons, flanked by smaller passages for pedestrians. In some regions even four-passage-gates were constructed: in Northwest Italy, South-East Gaul and Britain.

An example is the Porte Saint-André in Autun in France. **(PPT Autun)** It is clear that this type of city gates could be constructed only in a peaceful period. The emphasis now changed to economy; hampering traffic and trade had to be avoided. The gates were embellished with ornaments; also with the function to impress visitors.

From the late 2nd century onwards, turmoil and fear of warfare returned. Unprotected cities had to be provided with walls and gates for defence; they could be erected at some distance from the built-up area. Due to the fact that there was traffic flow before the construction of the gates, the government was able to choose between one or two passages. **[PPT PN, Trier]** In the course of time, the number of gates and their passageways was reduced more and more. The late 3rd-century Aurelian Wall in Rome was originally equipped with 14 gates - four of them were double gates - but around AD 400 Emperor Honorius gave order to brick up some gates and reshaped the four gates with two passageways into single gates.

Drinking-water supply and sewer water discharge

Besides roads, two other types of infrastructure crossed the city wall: the pipes or aqueducts for drinking-water supply and the sewers, and indeed we know many gates not only connected with roads and city defence, but also connected with pipes for fluid transport. In contrast to the roads, the aqueducts had to be constructed on pillars to create sufficient fall. In Rome, some gates were connected to aqueducts, like Porta Labicana and Porta Praenestina, connected with Aqua Marcia, Tepula, Claudia, Julia, Anio Vetus and Anio Novus **[PPT Porta Lab and Praen]**. These gates are part of the Aurelian Wall and later than the aqueducts, but, apparently, the city government saw advantage in connecting the city wall, the city gate and the aqueducts in one complex. Other city gates also functioned as sewer water discharge. These gates were situated in the lower spots of the city.

Let us now have a look at the gates as traffic, drinking-water and sewer hubs of Pompeii **[PPT Pompeji, hubs]** Here, one city gate did not only function as part of the road system and city defence, but also as part of the drinking water supply. For a long time, the inhabitants of Pompeii used rain water for consumption, by means of underground tanks, but later, the city became connected with an aqueduct and the city government decided to admit the water through a city gate. The most suitable was Porta del Vesuvio, the highest point of the slope, where the water-castle is found. **[PPT contours] [point].** Gates at the southwestern, south and east side, on lower levels, functioned as sewer water discharges. **[point]. [PPT Sewer Porta Marina]**. The city government decided that the sewer water discharge had to take place mainly through open sewers in the streets; this explains the existence of the famous stepping-stones of Pompeii. In short, for the inlet of drinking water and the outlet of sewer water, not only the gates but also the height differences of the slope were used.

The situation of Xanten is quite different. **[PPT Xanten, hubs]** This city was founded as an entity ca. 100 AD along the riverbank of the Rhine, close to the Dutch frontier. All the gates are part of the road system and the city defence, but also here, one gate is part of the drinking water supply, it is called Veterator or Vetera Gate **(point)**. The gates at the northwest side, Burginatiumtor (Burginatium Gate) and the harbor gates **(point)** along the harbor also function as a discharge for sewer water **[PPT Burginatiumtor]**. The reason is the same as in Pompeii: the higher Veterator is more suitable to create fall for drinking water supply and the lower built gates like Burginatiumtor is more suitable for sewer water discharge into the Rhine.

The fact that a city gate is part of the drinking water supply also indicates the importance of drinking water. Who controls the drinking water supply, controls the city.

Toll levying

In some exceptional cases, there was toll levying at city gates, as in Lyons in France. The evidence for that function is the finding of pieces of lead that were attached to tax-free goods. Toll levying took usually place at the frontier of the Roman Empire, in harbors and province boundaries. Some emperors levied taxes along access roads in Rome.

Meeting-point

In many cities, gates functioned as meeting-points, social and traffic hubs between urban and interurban traffic. At the beginning of the Appian Way in Rome, there was a place named Area Carruces, which name refers to the waggons or carrucae for rent or left here, so this place was an early forerunner of a taxi rank, like nowadays in Jerusalem **[PPT Damascus Gate, Jerusalem]**. Unfortunately, we do not know the exact place. The physician Galen mentions an encounter at such a place. **[HANDOUT 1 Galenus]** The Area Carruces is not named here explicitly, but I suppose that this place is meant, since the man lived in a suburb outside the Servian Wall and he went to a place where lorries are loaded off and people leave their waggons. These scenes have to be close to a city gate, so I suppose that the Appian Way-Area Carruces is meant, or another Area Carruces. Anywhere, here was the domicile of the Schola Carrucarum or Carrucariorum, the guild of the carters; we know them from inscriptions, for example **[HANDOUT 2 De Ruggiero 1912, 206]**. In Pompeii, we know that the Porta di Ercolano was the meeting-point of the *muliones* or mule drivers. Here again, there is an inscription that testifies to: **[HANDOUT 3 CIL IV]** Finally, in front of the gates, there were, inevitably, the beggars, such as around Porta Trigemina in Rome. **[HANDOUT 4 Plaut. Capt. 90]**

Throughout the history of the Roman Empire, there were different types of gates matching different types of cities: older cities like Pompeii with narrow streets and few gates, and 'new towns', like Xanten. If we consider the several

functions of city gates, we have to conclude that the city governments gave priority to city defense, drinking water supply and sewer water discharge. It seems that traffic, however, came at the bottom of the list.

Traffic congestion is usually seen as a modern phenomenon. Due to population growth after ± 1850 and the fact that mobility is accessible and even inevitable for everyone, not only cities but even villages have problems with inter-urban traffic congestion.

These problems concerning interurban traffic did not play a role of any importance in the ancient Roman world. The still famous interurban road system had enough capacity to prevent traffic jams. There were toll points where traffic was forced to stop, but these points – and traffic delay – were relatively scarce. Traffic congestion was a typical urban problem, causing delay for travellers who had to pass a city. But what about dimensions of cities? Rome, the capital and largest city, had a diametre of 4 or 5 kilometres. Other cities were smaller. The northeast-southwest diametre of Pompeii is one kilometre and the northwest-southeast diametre 700 metres. The majority of the cities had an area of less than a square kilometre. A pedestrian, horseman or waggon is able to traverse such a city within a relatively short time. In the case of crowds, it might have taken longer to cross a city, but a passage time of 20 minutes is an acceptable one. So delay must have been relatively short, compared with our modern congestion delay. Only Rome had traffic congestion problems, a little bit more similar to the present situation.

To keep traffic congestion under control, emperors and local governments enacted laws. Doubtless the most famous is the so-called *Lex Julia Municipalis* or *Tabula Heracleensis,* usually ascribed to Julius Caesar **[HANDOUT 5].** Another well-known law concerning control of public space is the *Lex Coloniae Genitivae Juliae* of the South Spanish town Urso, with special attention to keep free the public roads: **[HANDOUT 6].** All of these are laws from local governments, but we also know some laws and verdicts enacted by emperors. Emperor Claudius, for instance, forbade not only to pass a city by waggon, but also on horseback. This law was reinforced by the 2nd century emperors Hadrian and Marcus Aurelius. Domitian ordered in AD 92 that shopkeepers had to remove their goods from the streets, because they hampered traffic. There is no reason to doubt that this regulation was meant to be operative in Rome and other cities in the empire with a long history where there was less space between the houses than in later-founded cities. It may be assumed that in Xanten, where streets had an average width of 10-12 metres, not counting the roofed sidewalks, traffic congestion did not play an important role.

Sofar about the laws. Are there any reasons why city governments did not enlarge the infrastructure, actually improving the traffic situation?

Another difference between the situation in the Roman Empire and our time is the fact that nowadays nearly everybody is able and willing to travel therefore everybody is subjected to traffic congestion. In the ancient Roman world, the

majority of the population was not. Let us make a division between the different groups.

We have the paradox that the most detailed information is available concerning the smallest groups of travelling people: emperors and their courts, soldiers on campaign and officials travelling with the *cursus publicus*, the state transport organisation. The anonymous mass of travellers, farmers, merchants and messenger-boys, not mentioned in literature, were by far the largest group of road users.

Some emperors and their courts travelled over long distances, not only in times of peace like Hadrian, but also in times of war on campaign, like Julian in the 4th century. Marching troops and legions could cause congestion. Senators and other high-ranked officials did not experience much of discomfort of traffic congestion: servants gave way to them and they were not subjected to restrictive measurements like the *Lex Julia Municipalis*.

One group remains: the crowds of peasants, tradesmen and shopkeepers selling their goods. They were forced to obey the rules and to work at night. A slave does neither have the right to protest against working, nor against working at night. But due to the fact that they formed the largest part of traffic flow, their influence on traffic by day was considerable. In his satires, the poet Juvenal complains how a decent man cannot sleep at night, because undecent people are driving, working and making noise at night.

Finally, measured time did not play a rol of any significance. In our time of clocks, watches and digital numbers on computer screens, traffic congestion is a problem because we have to be somewhere in time. In the ancient Roman world, time was only measured by sundials and water clocks. There was a different notion of time, so also another experience of time spent in a traffic jam.

Conclusions
[PPT] Functions of city gates:
- **Part of city defense**
- **Part of road infrastructure**
- **Part of drinking-water supply system**
- **Part of sewer system**
- **Collecting taxes**
- **Meeting-point (waggon rental)**

[PPT]Lowest priority for traffic
- **[PPT] Traffic congestion was relatively scarce**
- **[PPT] Disinterest by the local governments**
- **[PPT] Not considered as a real problem**

[PPT] Thank you for your attention!