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Kolb, Anne

DOI: <https://doi.org/10.1515/9783110638332>

Posted at the Zurich Open Repository and Archive, University of Zurich

ZORA URL: <https://doi.org/10.5167/uzh-203598>

Book Section

Published Version

Originally published at:

Kolb, Anne (2019). Via ducta – Roman road building: an introduction to its significance, the sources and the state of reserach. In: Kolb, Anne. Roman roads. Berlin: De Gruyter, 3-21.

DOI: <https://doi.org/10.1515/9783110638332>

Anne Kolb

***Via ducta* – Roman Road Building: An Introduction to Its Significance, the Sources and the State of Research**

Zusammenfassung: Der Fall des Marcus Dunius Paternus, eines Angehörigen der städtischen Elite in der römischen Kolonie *Aventicum* (Provinz *Germania superior*), beleuchtet exemplarisch Quellen und Forschungsstand zum römischen Straßenbau im etablierten *Imperium Romanum* der Kaiserzeit. Der vermögende Unternehmer bekleidete das lokale Oberamt in der nach römischem Recht verfassten Stadt und scheint nicht zuletzt aufgrund seiner eigenen ökonomischen Interessen mit privaten Mitteln den Ausbau einer *via publica* finanziert zu haben. Der Nutzen von Straßen auch für die Wirtschaft des *Imperium Romanum* wird einmal mehr demonstriert. Die Bedeutung des römischen Straßennetzes als Grundlage, Instrument und Symbol der römischen Herrschaft ist durch die Jahrhunderte der staatlichen Entwicklung zu verfolgen. Ein Überblick über die Quellenlage und den Stand der Forschung, insbesondere zu den heute bekannten über 8000 römischen Meilensteinen, ergänzen das Bild.

Abstract: The case of Marcus Dunius Paternus, a member of the urban elite in the Roman colony of *Aventicum* (in the province of *Germania superior*), serves to exemplify the sources and state of research on Roman road construction in the High Roman Empire. The wealthy entrepreneur held the highest local magistracies available in his city, and seems to have used his private means to finance the construction of a *via publica*, not least due to his own economic interests. The beneficial effects roads had upon the Roman Empire and its economy are thus demonstrated once again. The importance of the Roman road network as a foundation, instrument and symbol of Roman rule can be traced through the centuries of the state's development. An overview of the sources and the state of research, especially on the more than 8,000 Roman milestones known today, complete the picture.



Fig. 1: Pierre Pertuis, Foto J. Bartels



Fig. 2: Pierre Pertuis Inschrift, Foto J. Bartels

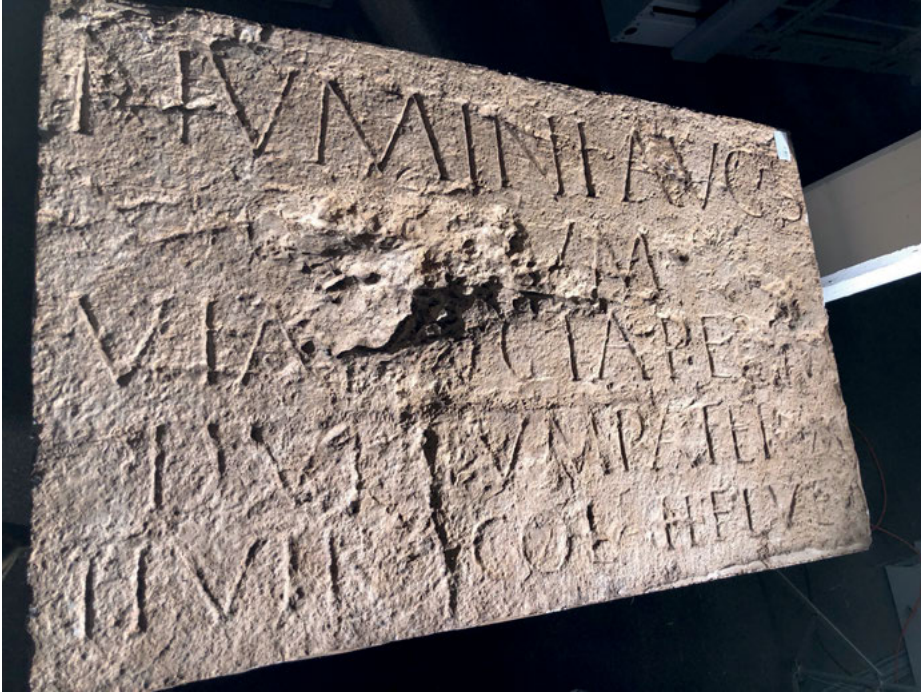


Fig. 3: CIL XIII 5166 cast in the Nationalmuseum Zürich (Nr. A-85164 Depot Affoltern am Albis), Foto A. Kolb

1 The Case of Marcus Dunius Paternus

*Numini Augus[t]or[um] / via [d]ucta per M(arcum) / Dunium Paternum / IIvir(um) col(oniae) Helvet(iorum).*¹

In the Swiss Jura mountains, above the rock gateway of Pierre Pertuis south of Tavannes, a Latin inscription documents construction work on the road that traversed the Jura from the area around Lake Biel to the Birs Valley. This monumental arch and the inscription it bears can here serve to exemplify the significance of the Roman road system, the sources used in its historical reconstruction and, last but not least, the recent developments in research.

The inscription above the rock arch refers to a route that may have followed a Celtic path, which the Romans expanded up to the mid first century in order to connect

¹ CIL XIII 5166, HOWALD/MEYER 1940, 271 no. 244; WALSER 1980, 34–35 no. 125. The inscription is carved into the rock above the north exit of the gate (815 mamsl), which probably marked the border between the areas of the *Raurici* and the *Helvetii*.

the two main routes of the region.² The inscription further attests to local construction work being done on this route, causing one to wonder who paid for it and why. Given the lack of the usual formulae, such as *sua pecunia*, the inscription does not offer any overt answers to these questions; but it might be assumed that M. Dunius Paternus, *Ivir coloniae Helvetiorum*, financed the work on his own.³ That said, the fact that neither the second duumvir nor the community are mentioned as builders seems to substantiate that conclusion.

His motives were hardly simply altruistic or even solely prestige-oriented. In fact, it seems more likely that his decision was informed by concrete economic interests. As other sources attest, M. Dunius Paternus was probably an active entrepreneur who dealt in lumber and architectural ceramics.⁴ These resources were the source of his wealth, which was usually the prerequisite for a leading role in local politics.⁵ It is even possible that the road ran along his private holdings.⁶ While cases in which private economic interests and public interest coincided are rarely attested due to our patchy source record, this dynamic should thus not be underestimated as a driving force behind ancient road building.⁷

The inscription and the rock gate further stand for two key genres of source material used in studying ancient Roman roads: the rock gate is an important archaeological marker for the route the Jura road followed through the terrain, but also for the labour involved in road construction; both these aspects are now being studied in a more comprehensive perspective.⁸ The route connecting the Lake Biel area and the

2 These led from Avenches via Solothurn to Augst and from Besançon via Mandeure to Kembs. The Roman Jura road that split off at Petinesca (and led to Porrentruy and Delle) is dated based on archaeological finds; see the overview in HERZIG 2006, 96–99, who assumes that there was an older Celtic structure due to the numerous ore deposits in the Jura.

3 Similarly FREI-STOLBA 2017, 164, though she thinks of money contributed by the colonia and external subsidies.

4 Most recently FREI-STOLBA 2017, 162–167.

5 His prominent role in the *colonia* seems to be documented by the fragments of an honorary inscription that may refer to his construction of a *schola*: AE 2009, 940 (= CIL XIII 5101. 5114. 5144).

6 This might make sense in the mountain region, especially for a lumber producer. A parallel case could possibly be seen in the Arco di Barà in Hispania Tarraconensis. This arch, built by the senator L. Licinius Sura, may have bridged the Via Augusta where this road reached his family's land, as was suggested by G. ALFÖLDY in CIL II²/14, 2332; RATHMANN 2003, 141, likewise argues that this large landowner financed the section of the Via Augusta that passed through his holdings; he further proposes the arch of Barà as another parallel case.

7 A likely parallel is a rock inscription near Soria (Spain) naming only one duumvir as well: CIL II 2886: *Hanc viam / Aug(ustam? possibly better: usto/ustis) / L(ucius) Lucret(ius) Densus / Ivir{um} / fecit*. A few other inscriptions attest extra urban road building by private donors: CIL II 3167. 3221. 3271; CIL III 600; CIL V 1863. 1864; CIL XIII 4549; SEG 17, 315; IK 59, 152; cf. RATHMANN 2003, 141 Anm. 807, who has doubts about the status of "Reichsstraße"; HAENSCH/WEISS 2012, 451; for the low rate of utilitarian gifts such as roads ZUIDERHOEK 2009, 77.

8 Scholars generally agree that the gate is a natural formation (see already CIL XIII 5166) that was widened in Roman times to 10,5 m; see for instance DRACK/FELLMANN 1998, 524. By contrast, GREWE 2004,

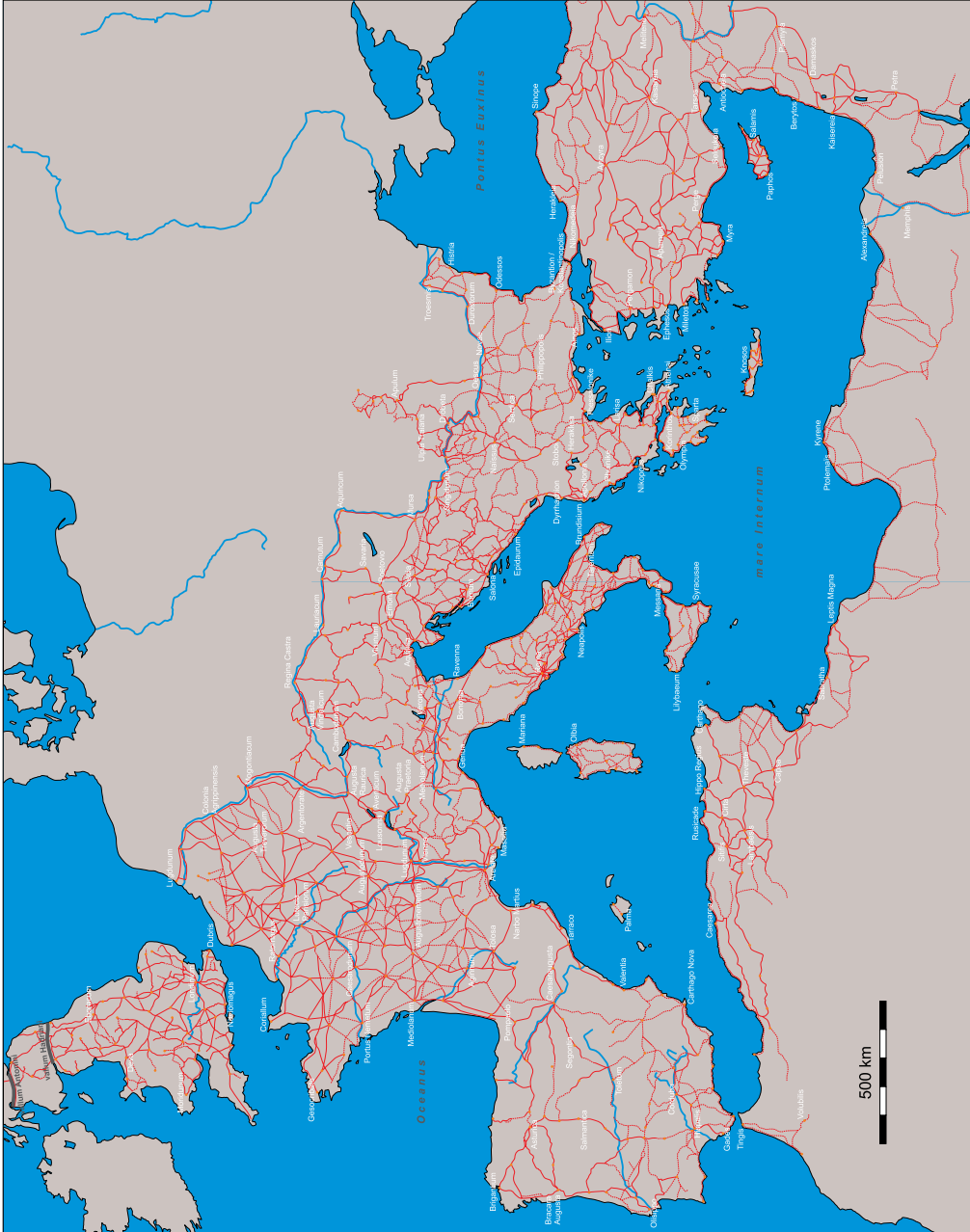


Fig. 4: M. Herchenbach/A. Kolb

13–14 argued that the rock was artificially cut (6m deep and 9m wide). Since the workers followed the natural slant of the limestone layers, the cut's ceiling slopes from 7 m down to 5 m; the argument is repeated in GREWE 2016, 773.

Birs Valley via the Swiss Jura Mountains is otherwise attested only by various traces of the roadway and the scanty remains of a potential waystation.⁹ Though it had been previously thought unlikely, the first century date suggested by this archaeological evidence could well fit the inscription. Its invocation of multiple emperors (*numini Augustorum*) had been interpreted as a *terminus post quem* of the joint reign of Marcus Aurelius and Lucius Verus (161–169). Already ERNST MEYER, however, had uttered a well-founded warning against dating inscriptions so late solely on the grounds of *Augusti* occurring in the plural.¹⁰ If this indicator for dating is removed, M. Dunius Paternus' building inscription can be placed earlier, after the elevation of the *gentis caput Aventicum* as *colonia Helevtiorum* in the year 71.

Another peculiarity that stands out by comparison with other road building inscriptions is the *via ducta* formula that is hitherto unattested in this form. The verb *ducere* (or *perducere*) most frequently occurs on inscriptions that deal with aqueducts (*aquae*) and trenches (*fossae*), which often involved excavation work.¹¹ While the phrasing may have been intended to emphasize the technical accomplishment of cutting the rock, that point must remain speculative.

The duumvir's inscription further allows one to deduce that the road functioned and ranked as a *via publica*, i.e. a public main road maintained by the public purse.¹² In sum, therefore, the combined study of inscription and rock gateway as an element of a regional interdisciplinary research perspective exemplifies the changes in research culture that the field of Roman roads has seen in recent years. In order to introduce these changes in a summary fashion, the following will discuss the significance of Roman roads in general, as well as review the available source material and the state of research.

2 Significance of Roman Roads

In the Roman Empire, roads were both foundation and means of power – a claim that can easily be substantiated by pointing to the history and development of the Roman road system. Already in Antiquity, the particular intensity of Roman road building was considered a characteristic feature of this world empire, since already

⁹ Summarised by HERZIG 2006, 96–99.

¹⁰ The sources use this phrase also for successive rulers and the ruling family; see most recently MEYER 1970. This formula first occurs in inscriptions securely dated to the year 139 (RIB I 707).

¹¹ See for instance CIL XIV 85: *...fossis ductis*; CIL VIII 4204: *...aqua vic[o] / Augustor[um] / Verecundens(ium) / perducta*; RIB I 1463: *... aqua adducta*; a number of milestones from Sardinia (and only there) have the phrase *via qui ducit a Nora* ... CIL X 7996–8001 etc.

¹² HERZIG 2006, 99 points out that the itineraries do not list the road, which seems to indicate that its importance declined over time.

Greek and Roman authors listed the roads among Rome's greatest achievements.¹³ A good example is Aelius Aristides, whose famous speech on Rome, delivered before Emperor Antoninus Pius, praises the Romans for opening up the entire world with their roads: “*You have surveyed the entire globe, spanned rivers with bridges of all kinds, pierced mountains to create roadways, established waystations in uninhabited areas and introduced a cultured and orderly way of living everywhere*”.¹⁴ The author's obeisance to the Empire concentrates on the civilising impact it has on other peoples by virtue of its technical and political-administrative superiority, which finds its material expression in road building. The Romans' ability to rule, which Aristides highlights elsewhere, thus finds its concrete expression in their road system.¹⁵ His praise further implies that the Empire's inhabitants are the main beneficiaries of these roads, since they provide infrastructural access to their places of residence, while also bringing order and culture. It is not difficult to imagine that the general principles of Roman rule in practice that Aristides praises here will have met with the approval of the Emperor and the imperial elite. That the Romans saw themselves as the bringers of salvation and civilising order is a familiar theme, beautifully expressed for instance in the memorable phrase Vergil formulated under the impression of the *pax Augusta* and the new monarchy: *tu regere imperio populos Romane, memento – haec tibi erunt artes – pacique imponere morem, parcere subiectis et debellare superbos*.¹⁶ The Roman road system remained a quintessential symbol of Roman power even in the 6th century when Procopius used a project of road repair undertaken by the Emperor Justinian to illustrate the excellence of Roman rule.¹⁷

For Rome, the roads were not merely a symbol of power, but also served as a concrete instrument of rule. The Empire was pervaded by an extensive network of main roads (*viae publicae*), built or expanded under imperial direction, with a total length of around 100.000 km, as well as around 200.000 km of regional and local roads of lower standard.¹⁸ The Roman road system did not reach this density, level of quality, and structure before the mid-2nd century CE. Before that, it had grown gradually in the wake of Rome's military expansion, driven by the needs of the army and the developing territorial state. These were served by making existing or new paths passable and reinforcing them, or even by turning them into *viae publicae* of the highest level of quality, which allowed even waggons to pass without being hindered by either terrain

13 Dion. Hal. ant. 3,67,5; Strab. 5,3,8; Plin. nat. 36,125.

14 Aristeid. 26, 101.

15 Aristeid. 26, 51. 58.

16 Verg. Aen. 6,847–853.

17 Prokop, De aedificiis 4,8.

18 On the Roman road system of the provinces see fundamentally PEKÁRY 1968; RATHMANN 2003; situation of Italy see ECK 1979; on the technology QUILICI 2008; GREWE 2013, 128–135; RAEPSAET 2016; significance and development RATHMANN 2007; KOLB 2012; RATHMANN 2014; KOLB 2015; KOLB 2016b.

or weather. This gradual growth began already in the 4th century BCE on the Italian peninsula and served to secure the newly acquired territory by connecting newly founded cities to Rome. From the 3rd century BCE onwards, Rome extended its interests beyond Italy into the Mediterranean world, gradually conquering and provincializing first the Western and then the Eastern half of it. This expansion of Roman rule is clearly visible in the roads built.¹⁹ In doing so, Rome made use of and expanded upon the existing structures, while also systematically adding new connections. This not only improved the ability of people to move over land, for instance for the purposes of travel or troop deployment, but also affected the movement of resources, especially of goods extracted from subjects or those required to supply Rome and its armies, while also benefiting communication.

After the growth it saw under Augustus, Roman road building was at its most intense during the imperial period. The need to consolidate the empire caused Roman administration to be intensified and its infrastructural basis needed to grow accordingly, giving rise to a wide-reaching and high-quality network of roads that connected even the most peripheral parts of the empire. According to Aristides, the emperor could then, as we know for Antoninus Pius, keep in close and uninterrupted contact with all his legates and emissaries. Like a conductor, he directed their moves using written instructions: “Hardly written, they already arrive, as if borne on wings.”²⁰

This network of roads was particularly beneficial to the economy,²¹ which is well known to have flourished in the 2nd century, at least in most provinces. Later, maintenance work and repairs predominate, as is documented primarily by the many milestones that have survived even from the 4th century. In the West, these sources seem to disappear in the 5th century.²² In the East, by contrast, concern and care for the road system remains significant in the 6th century and continues under the Byzantine Empire.²³

19 The oldest known provincial milestone stems from Sicily. It was evidently set up by the consul L. Aurelius Cotta (cos. 254 and 248 BCE) after the Roman victories over the Carthaginians (262 BCE Agrigentum, 254 BCE Palermo) according to AE 1957, 172; for this stone see most recently DIAZ ARINIO 2015, 104–105 no. 24, who gives the older research but offers no new insights. In Narbonensis a milestone of the consul Domitius Ahenobarbus (CIL XVII/2, 294) attests to the extension of the route from Italy to Spain in 118 BCE. In Asia the first milestones are likewise set up when the province was established and bear the name of Manlius Aquilius (e.g. IK 17/2, 3602), consul in 129 BCE.

20 Aristeid. 26, 33.

21 Most recently ADAMS 2012, 229–230; ROTHENHÖFER 2013; by employing network applications DE SOTO/CARRERAS 2009 and CARRERAS/DE SOTO 2013 discuss mobility, transportation costs and motives of Roman road building.

22 The last known milestone dates to the reign of Theodosius II and Valentinian III (435 CE) and was found at Arles: CIL XVII/2, 53.

23 As we saw, Procopius mentions Justinian’s concern with road building, but milestones seem to vanish, see DESTEPHEN 2018. The youngest known milestone dates to the reign of Justin (518–527 CE)

3 Sources

Research on the so-called imperial or public roads (*viae publicae*) has always been based on a variety of sources. The starting point is provided by ancient itineraries, practical aids used by travellers that consisted of written lists of routes that corresponded to actual roads through the terrain. One of the most extensive lists of this kind, which exist not only in literary, but also in epigraphic form, is the 3rd century *Itinerarium Antonini*.²⁴ Comprising 225 routes, more than 2000 place names, and just as many distance figures, this imperial Roman travel handbook offers an excellent overview of the main routes one could take to navigate the Empire. The famous *Tabula Peutingeriana* (created around 1200), named after the second and most famous owner of this manuscript, the humanist KONRAD PEUTINGER (1465–1547), has usually been interpreted as an illustrated version of such an itinerary (of early 5th century date). While the *Tabula* maintains the systematic arrangement of a linear list, it expresses it visually on a more than 6m long scroll that shows a compressed and distorted landscape view of the greater Mediterranean area, with the routes being marked out by largely parallel lines. Using this format, the scroll gives 2700 settlements and the corresponding distance measurements between them, presenting not only the Roman world but also a few areas far beyond the Empire's borders, such as Sri Lanka and China. In addition, this ancient world map also shows stylised topographical features, characterises the settlements with 555 little iconic vignettes, and also gives miscellaneous further information. As RATHMANN has recently demonstrated, the *Tabula Peutingeriana* derives from the Greek chorographic tradition and thus probably had a Hellenistic archetype that was created around 200 BCE. As such, it seems appropriate today to categorise it as a chorographic map.²⁵

In order to verify the exact course taken by a road referenced by a route listed in the itineraries, it is necessary to consult archaeological finds. While these are not preserved everywhere, they are relatively common for the Empire overall, which allows for a good understanding of construction techniques and the relative dates of roads. What is preserved below the surface reveals that not only the foundation and structure of the road itself vary depending on the road's location, the topography, and the condition of the terrain, but that these factors also affected the use of built structures to overcome obstacles or difficult stretches, such as bridges, tunnels, steps or stone furrows. The famous and much-lauded paved surface²⁶ of Roman roads is common in

RRMAM III 5, 119, as does the youngest road-building inscription MACKAY/MACKAY 1969, 139–140. In the 7th/early 8th century, the Umayyads continued the tradition in Palestine by setting up milestones in Arabic; see VAN BERCHEM 1922, 17–29.

²⁴ See the overview of itineraries in KOLB 2016b, 235–237.

²⁵ RATHMANN 2018, 14–31.

²⁶ Strab. 5,3,8.

the environs of towns, but was not a general standard for overland roads, which were frequently gravelled earth roadways.

Besides the rather sporadic mentions of roads in the corpus of ancient literature – ranging from poetry to technical and legal literature – inscriptions provide the most informative testimony. This documentary material reveals not only the course of a road, but also its function and use, and thus sheds light on the significance of a given road as well as on that of road building more generally. Besides votive offerings – for instance those dedicated at crossroads – and city laws that provide information on road administration, the most important types of inscription are building inscriptions and milestones. At the same time, these are also the most common and conspicuous epigraphic monuments.

Milestones, a characteristic feature of the *viae publicae*, marked the distance, mile for mile, a road had progressed and further communicated that it had been built on the initiative of or funded by Roman magistrates, emperors or communities. Their purpose was thus not purely practical, but also to immortalise Roman rule on stone columns along the Empire's main lines of communication. Ancient travellers were thus constantly confronted with Roman power, as well as the Empire's capacity for organisation and public welfare. Despite the over 8,000 *miliaria* that have survived from all over the Roman Empire, we possess only a tiny fraction of the original number.²⁷ That notwithstanding, these largely monotonous texts are extremely important sources for political history, the spatial and administrative organisation of the Empire, and for imperial ideology. Besides the hard data they provide in the form of titulatures, place names and distance figures, their find spots and the regularities and irregularities of their formulae can also allow for significant insights. Up to the 4th century CE, their inscriptions often document construction work – either *ex novo*, repairs or improvements, or even the act of setting up new *miliaria* – on the *viae publicae*, which explains why milestone-inscriptions are often considered a special type of building inscription. At the same time, they increasingly take on features of dedications, as they come to be phrased in the Dative and references to road building become increasingly rare, especially from the 4th century onwards; finally they seem to lose any practical function.²⁸

Building inscriptions are particularly conspicuous if they are preserved on monumental structures, such as archways or honorary columns and bases.²⁹ They supplement our understanding of road construction and in some cases even reveal how the

²⁷ This includes inscribed and unscribed stones. See below the figures given as review of the state of research. In general see HIRSCHFELD 1907; KOLB 2001; KOLB 2004.

²⁸ The dative is first attested for Caligula (CIL II 4640), but becomes more common in the 2nd/3rd century; according to Sidon. *carm.* 24,5 a traveller saw old columns with imperial names (*satis vetustis nomen Caesareum viret columnis*); DESTEPHEN 2018 on the development of late Roman milestones.

²⁹ On monumental archways that spanned roads see ECK 2004, 23–39.

Romans planned the networks, which took place after new areas were added to the Empire and provincialized.³⁰ This can be seen on representative monuments, such as the so-called “Stadiasmus Patarensis / Stadiasmus provinciae Lyciae”. It is a huge pillar or statue base (6,72 m high, dating to the year 45/46), which not only records 65 routes in the province of Lycia as being built by the emperor Claudius, but also preserves the honorific dedication of the provincials to Claudius.³¹ As two years (after the Roman annexation of Lycia in 43) seem too short a time span to build such a road network, the previous existing and already measured ways seem to have been included into the Roman road network. Another example is the great building inscription of the Illyrian governor P. Cornelius Dolabella from the time of Tiberius.³² The preserved stone panels could come from a monument comparable to the Stadiasmus, though an arch is also possible. Although both inscriptions list overland routes and give distances, they are not to be understood as road directories for use by travellers. Rather, in praising road building, they propagate the efforts and accomplishments of Rome in integrating new territories and their inhabitants into the Empire. Inscriptions of this kind should thus be considered emphatic expressions of the structures and practices of Roman imperial organisation.

4 The State of Research

The Roman *viae publicae* have long been the subject of historical and archaeological research. As such, the history of this research cannot be exhaustively presented here. Instead, a few important contributions shall be singled out. The fundamental historical studies are still those of PEKÁRY 1968 and RATHMANN 2003.³³ They deal with the organization and administration of the main road network inside the Empire. In research, the *viae publicae* are often called imperial roads, which differ from private and regional roads on various counts, as set forth by the jurist Ulpian (Dig. 43,8,2,20–24). Closely related and occasionally overlapping fields of historical study are those of

³⁰ KOLB 2013, 206–221; KOLB 2016b, 229–230; see further on this process for the example of the province of Thracia (e.g. CIL III 6123) KOLB 2018.

³¹ SEG 51, 1832; cf. ŞAHİN/ADAK 2007, esp. 6 for the measures (6,72 x 2,38 x 1,62 m) which might refer to a base of an equestrian statue of the emperor; ONUR 2016a; ONUR 2016b.

³² CIL XVII/4 (fasc. 2) p. 129–132.

³³ In addition for the Republic WISEMAN 1970; for the organisation of the system in Italy ECK 1979; well-illustrated but popular summaries are provided by HEINZ 2003, STACCIOLI 2003 and KLEE 2010; on civic road administration KAISER 2011 and CAMPEDELLI 2014 (in Italy); more recent work on the building of *viae publicae* in RATHMANN 2004 (*capita viarum*); RATHMANN 2006a; RATHMANN 2014; BARTELS 2014.

‘travel’, ‘transportation’ and ‘the state infrastructure of the *cursus publicus*’, research into which has increased during recent years.³⁴

Recent conferences have already helped to collect the new results being achieved in current historical and archaeological research on Roman roads. So far, however, the regional diversity of the Empire has not been represented. Furthermore, the focus was on other questions, such as on the significance of *viae publicae* for settlements³⁵ or the relevance of road systems in the pre-modern world more generally.³⁶ Finally, these edited volumes applied very broad conceptions of roads and often had diachronic interests.³⁷ The small number of recent contributions to roads in the ancient world thematise the fundamental economic role of roads in the northern Roman Empire (ROTHENHÖFER, POLLAK) and the Celtic *leuga* as a unit of measure, which is being empirically reassessed once more (GREWE).³⁸

The numerous available archaeological detail studies and excavation reports predominantly document individual finds relating to roads, their facilities and their course. More recently, scholars have begun to treat larger regions with an eye to more interdisciplinary road research.³⁹ Of particular interest are those regions that have so far been neglected, such as the Roman-Persian border region recently considered by COMFORT 2009 and COMFORT/MARCIAK 2018. In recent years, archaeological research has further expanded our knowledge of the infrastructure travellers used along the roads, such as waystations and overnight quarters, as well as of military posts. This data also serves to improve our understanding of the relevance and usage of the road network; a recent example is the re-evaluation of the amber road through Pannonia and of its waystations.⁴⁰ Another related development is that the *stationes* are now thematised more explicitly.⁴¹

The study of Roman milestones is primarily carried out in a wealth of detail studies that engage with individual stones, individual roads, or with certain regions or time periods.⁴² An example of the latter approach is the new monograph by DIAZ ARINIO 2015 stands out, who assembled all milestones known from the Republican

34 Important monographs to the named topics deliver CASSON 1994; LAURENCE 1999; KOLB 2000; ADAMS/LAURENCE 2001; ADAMS 2007; VAN TILBURG 2007; GUÉDON 2010; ZWINGMANN 2012; LEMCKE 2016; RAEPSAET 2016.

35 FREI-STOLBA 2004.

36 ALCOCK/BODEL/TALBERT 2012.

37 KOSCHIK 2004; KUNOW 2007; SCHWINGES 2007; FISCHER/HORN 2013.

38 ROTHENHÖFER 2013; POLLAK 2013; GREWE 2013.

39 E.g. BEKKER-NIELSEN 2004; GRABHERR/WALDE 2006; HERZIG 2006; HERZIG 2007; BISHOP 2014; CUVIGNY 2014.

40 GROH/SEDLMAYER/ZALKA 2013.

41 Useful collected volumes on the topic are those of FRANCE/NELLIS-CLÉMENT 2014 and BASSO/ZANINI 2016; for a recent brief account of the *mansiones* of the *cursus publicus* KOLB 2016a.

42 The state of research is reviewed in KOLB 2004. The following listed publications refer to the most recent or important works.

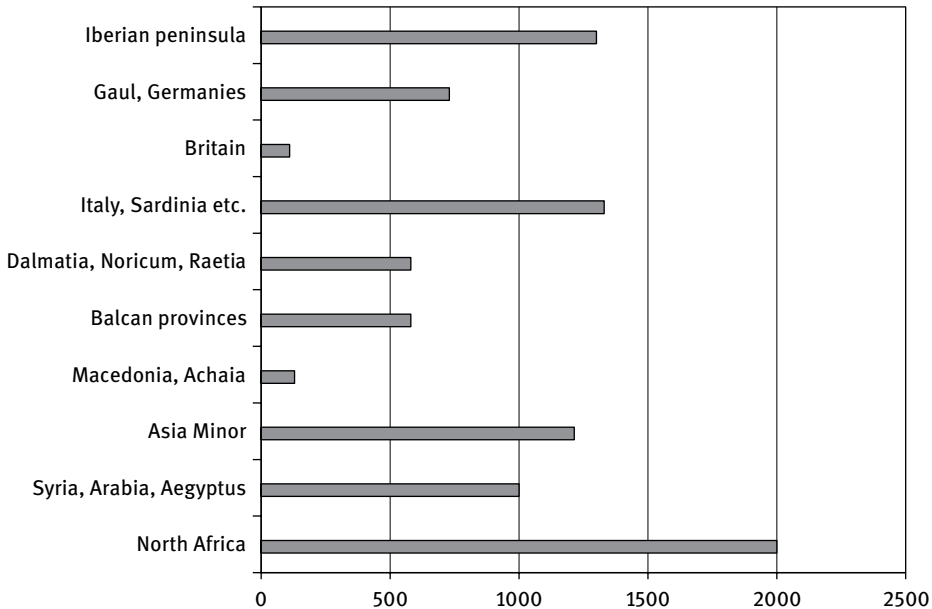


Fig. 5: Roman milestones: occurrence in the Empire (A. Kolb)

period (a little under 50 in number) in a catalogue with commentary and historical analysis.

Today the number of known milestones (both inscribed and as well anepigraphical stones) must nowadays be roughly assembled from the various regions of the empire (most figures are approximations): We know about 1300 from the provinces of the Iberian peninsula (*Hispania citerior*, *Baetica*, *Lusitania*),⁴³ the Gallic and Germanic provinces have rendered around 730,⁴⁴ 110 have been found in Britain,⁴⁵ in Italy (including the islands of Sardinia, Corsica and Sicily) around 1300,⁴⁶ in western Illyricum (*Dalmatia*, *Noricum*, *Raetia*) 580,⁴⁷ in the Balkan provinces (*Pannoniae*, *Dacia*,

⁴³ SILLIÈRES 1990 (for *Baetica*: ca. 100); RODRIGUEZ COLMENERO et al. 2004 (*Asturia* and *Gallaecia*: 674, but not deducting 41 dedications); CIL XVII/1, fasc. 1 (*Hisp. citerior*: 307); ESPAÑA-CHAMORRO 2017, 619–653 who counts 708 milestones for all Iberian provinces (519 alone for *Hisp. citerior* without *Gallaecia*) excepting the number given by RODRIGUEZ COLMENERO et al. 2004; RATHMANN (in this volume) counts 266 for the *Lusitania*.

⁴⁴ CIL XVII/2; HERZIG 2006; RATHMANN 2006b.

⁴⁵ SEDGLEY 1975; RIB I 98. 598. 2219–2314; RIB III 3516–3527.

⁴⁶ HERZIG 1970; DONATI 1974; BASSO 1987; OGGIANU 1991; BANZI 1999; GROSSI/ZANCO 2003; GROSSI 2019; further information about numbers by P. BASSO, A. BUONOPANE, P. GROSSI who are preparing the manuscript for CIL XVII 3,1 (Northern Italy)

⁴⁷ CIL XVII/4, fasc. 1–2.

Moesiae, Thracia) 570,⁴⁸ in the Greek provinces of *Macedonia* and *Achaia* 130,⁴⁹ in Asia Minor 1274,⁵⁰ in the eastern provinces of *Syria, Arabia* and *Aegyptus* perhaps around 1000,⁵¹ in North Africa around 2000.⁵²

All these publications provide important preparatory work for the forthcoming edition of the known milestones in the volume XVII of the *Corpus Inscriptionum Latinarum* (CIL XVII), which aims at collecting and making available only this category of source material province by province. Therefore it will offer a systematic and consistent presentation of the *miliaria* as part of the *Corpus Inscriptionum Latinarum*. The project “Roman milestones”, which was originally founded by GEROLD WALSER in the 1960ties, creates the basis for such research in aiming at the complete edition by the Berlin-Brandenburgische Akademie der Wissenschaften as “CIL XVII Miliaria Imperii Romani”. The edition is being prepared as a joint-venture of an international group of scholars around the mediterranean collaborating with the University of Zürich and the Berlin-Brandenburgische Akademie der Wissenschaften.⁵³ Following the criteria of the CIL the edition will cover all the milestone material from Roman Italy and the provinces; it is presented in a standardized form with text, commentary, drawing and photographs. Besides the already published volumes on Gaul and *Germania superior et inferior* (CIL XVII/2), as well as the provinces of the western Illyricum (*Raetia, Noricum, Dalmatia*), the latest published volume to date now covers *Hispania Tarraconensis* (2015).⁵⁴ Other volumes are currently in preparation for the regions of: *Britannia* (XVII/1), Italy (CIL XVII/3), *Pannonia* (XVII/4), the eastern Balkan and Greek provinces (XVII/4,3: *Moesia superior, Moesia inferior, Thracia, Macedonia and Achaia*) and the provinces of Asia minor.⁵⁵

48 HOLLENSTEIN 1975; HOLLENSTEIN 1995; PANAITI 2015; MIRKOVIC (in this volume); PETROVIC (in this volume); SOPRONI/LÖRINCZ/KOVACS et al. manuscript in preparation for CIL XVII; HOLLENSTEIN/KOLB manuscript in preparation for CIL XVII.

49 MOTTAS 1989; MOTTAS/DECOURT 1997; MOTTAS (in this volume).

50 FRENCH 1981–1988; FRENCH 2012–2015 who notes that 576 of the 1214 milestones are anepigraphic.

51 THOMSEN 1917; ISAAC/ROLL 1982; BAUZOU 1989; FISCHER/ISAAC/ROLL 1995; BAUZOU 1998; GRAF 2004; ROLL/AVNER 2008; BALTU 2008; ISAAC 2015; see now the full bibliography for *Judaea*: <http://milestones.kinneret.ac.il/en/bibliography/>. For the region as a whole THOMSEN 1917 counted 706 milestones; but now BEN DAVID (paper below in this volume) records already almost 700 milestones for the province of *Judaea* alone.

52 According to SALAMA 2001, 26; SALAMA 1987. In his unpublished MA thesis HUGENBERG 2004 counted 1926 milestones which were published up to the year 2001.

53 Financial aid was graciously provided by the aid of the Deutsche Forschungsgemeinschaft.

54 CIL XVII/2 (*Galliae, Germaniae*) ed. G. WALSER; CIL XVII/4, fasc. 1 (*Raetia, Noricum*) ed. A. KOLB/G. WALSER/G. WINKLER and CIL XVII/4, fasc. 2 (*Dalmatia*) ed. A. KOLB/G. WALSER as well as CIL XVII/1, fasc.1 (*Tarraconensis*) ed. M.G. SCHMIDT/C. CAMPEDELLI.

55 The overall publication plan foresees the following volumes:

CIL XVII/1 *miliaria provinciarum Hispaniae, Britanniae*: fasc. 1,1 *miliaria Hispaniae citerioris*, Berlin 2015.

CIL XVII/2 *miliaria provinciarum Galliarum et Germaniarum*, Berlin 1986.

Due to this state of the project the established regions are mostly omitted in the papers of this conference volume which aims at reassessing current research on the construction and use of the Roman *viae publicae* in a combined historical and archaeological perspective. This reassessment tries to take into account recently studied regions of the Empire and some territories beyond, as well as to consider new sources and approaches to deliver new results.

Bibliography

- ADAMS 2007 = C. ADAMS, *Land Transport in Roman Egypt*, Oxford, 2007.
- ADAMS 2012 = C. ADAMS, *Transport*, in: W. SCHEIDEL (ed.), *The Cambridge Companion to the Roman Economy*, Cambridge 2012, 218–240.
- ADAMS/LAURENCE 2001 = C. ADAMS/R. LAURENCE (ed.), *Travel and Geography in the Roman Empire*, London/New York 2001.
- ALCOCK/BODEL/TALBERT 2012 = S. ALCOCK/J. BODEL/R. TALBERT (ed.), *Highways, Byways, and Road Systems in the Pre-modern World*, Malden, MA/Oxford 2012.
- BALTY 2008 = J.-C. BALTY, *Un nouveau milliaire de Domitien et le gouvernement syrien d'A. Lappius Maximus* (note d'information), *CRAI* 152, 2008, 835–846.
- BANZI 1992 = E. BANZI, *I miliari come fonte topographica e storica. L'esempio della XI regio (Transpadana) e delle Alpes Cottiae*, Roma 1999.
- BARTELS 2014 = J. BARTELS, *Meilensteine und Barbaren. Die Straßenbaupolitik auf dem Balkan unter Maximinus Thrax und Gordian III.*, in: A. KOLB (ed.), *Infrastruktur und Herrschaftsorganisation im Imperium Romanum*, Berlin 2014, 222–245.
- BASSO 1987 = P. BASSO, *I miliari della Venetia Romana*, Padova 1987.
- BASSO/ZANINI 2016 = P. BASSO/E. ZANINI (ed.), *Statio Amoena. Sostare e vivere lungo le strade romane*, Oxford 2016.
- BAUZOU 1989 = T. BAUZOU, *A finibus Syria. Recherches sur les routes des frontières orientales de l' Empire romain*, PhD Université Paris I, Paris 1989 unpublished.
- BAUZOU 1998 = T. BAUZOU, *Le secteur nord de la via nova en Arabie de Bostra à Philadelphia*, in: J.-B. HUMBERT/A. DESREUMAUX (ed.), *Fouilles de Khirbet Es-Samra en Jordanie I*, Turnhout 1998, 101–255.
- BEKKER-NIELSEN 2004 = T. BEKKER-NIELSEN, *The Roads of Ancient Cyprus*, Copenhagen 2004.
- BISHOP 2014 = M. C. BISHOP, *The Secret History of the Roman Roads of Britain*, Barnsley 2014.
- CAMPEDELLI 2014 = C. CAMPEDELLI, *L' amministrazione municipale delle strade Romane in Italia*, Bonn 2014.
- CARRERAS/DE SOTO 2013 = C. CARRERAS/P. DE SOTO, *The Roman Transport Network: A Precedent for the Integration of the European Mobility*, *Historical Methods: A Journal of Quantitative and Interdisciplinary History* 46, 117–133.

CIL XVII/3 *miliaria Italiae* (in 4 parts)

CIL XVII/4 *miliaria provinciarum Illyrici et Europae Graecarum*: fasc. 4/1 *miliaria provinciarum Raetiae et Norici*, Berlin 2005; fasc. 4/2 *miliaria provinciae Dalmatiae*, Berlin 2012.

CIL XVII/5 *miliaria provinciarum Asiae*

CIL XVII/6 *miliaria provinciarum Syriae, Arabiae, Aegypti*

CIL XVII/7 *miliaria provinciarum Africae*

- CASSON 1994 = L. CASSON, *Travel in the Ancient World*, Baltimore/London 1994².
- CHEVALLIER 1976 = R. CHEVALLIER, *Roman Roads*, London 1976 (transl. from French orig. 1972).
- COMFORT 2009 = A. COMFORT, *Roads on the Frontier between Rome and Persia*, PhD Univ. Exeter 2009.
- COMFORT/MARCIAK 2018 = A. COMFORT/M. MARCIAK, *How did the Persian King of Kings Get His Wine?: The upper Tigris in antiquity (c.700 BCE to 636 CE)*, Oxford 2018.
- CUVIGNY 2014 = H. CUVIGNY, *Le système routier du désert Oriental égyptien sous le Haut-Empire à la lumière des ostraca trouvés en fouille*, in: FRANCE/NELLIS-CLÉMENT 2014, 247–278.
- DE SOTO/CARRERAS 2009 = P. DE SOTO/C. CARRERAS, *La movilidad en época romana en Hispania: aplicaciones de análisis de redes (SIG) para el estudio diacrónico de las infraestructuras de transporte*, *Habis* 40, 2009, 303–324.
- DESTEPHEN 2018 = S. DESTEPHEN, *The Late Milestones of Asia Minor*, *Gephyra* 16, 2018, 173–184.
- DIAZ ARINIO 2015 = B. DIAZ ARINIO, *Miliarios romanos de época republicana*, Roma 2015.
- DONATI 1974 = A. DONATI, *I miliari delle regioni IV e V dell'Italia*, *Epigraphica*, 36, 1974, 155–222.
- DRACK/FELLMANN 1998 = W. DRACK/R. FELLMANN, *Die Römer in der Schweiz*, Stuttgart 1988.
- ECK 1979 = W. ECK, *Die staatliche Organisation Italiens in der hohen Kaiserzeit*, München 1979.
- ECK 2004 = W. ECK, *Straßen und ihre Denkmäler*, in: FREI-STOLBA 2004, 17–39.
- ESPAÑA-CHAMORRO 2017 = S. ESPAÑA-CHAMORRO, *Límites y territorios de la Bética romana*, PhD Madrid 2017.
- FISCHER/HORN 2013 = T. FISCHER/H.G. HORN (ed.), *Straßen von der Frühgeschichte bis in die Moderne. Verkehrswege – Kulturträger – Lebensraum. Akten des Interdisziplinären Kolloquiums Köln, Februar 2011*, Wiesbaden 2013.
- FISCHER/ISAAC/ROLL 1995 = M. FISCHER/B. ISAAC/I. ROLL, *Roman Roads in Judaea II: The Jaffa-Jerusalem Roads*, Oxford 1996, 289–293.
- FRANCE/NELLIS-CLÉMENT 2014 = J. FRANCE/J. NELLIS-CLÉMENT (ed.), *La statio. Archéologie d'un lieu de pouvoir dans l'empire romain*, Bordeaux 2014.
- FREI-STOLBA 2004 = R. FREI-STOLBA (ed.), *Siedlung und Verkehr im Römischen Reich: Römerstrassen zwischen Herrschaftssicherung und Landschaftsprägung: Akten des Kolloquiums zu Ehren von Prof. H. E. Herzig*, Bern/New York 2004.
- FREI-STOLBA 2017 = R. FREI-STOLBA, *Holzfässer. Studien zu den Holzfässern und ihren Inschriften im römischen Reich mit Neufunden und Neulesungen der Fassinschriften aus Oberwinterthur/Vitodurum*. Zürcher Archäologie Heft 34, Zürich/Egg 2017.
- FRENCH 1981–1988 = D. FRENCH, *Roman Roads and Milestones of Asia Minor*, Vol. 1–2, Oxford 1981–1988.
- FRENCH 2012–2015 = D.H. FRENCH, *Roman Roads and Milestones of Asia Minor Vol. 3: Milestones*, Fasc. 3.1–8: *Galatia (BIAA Electronic Monograph 2)*, London 2012–2015.
- GRABHERR/WALDE = G. GRABHERR/E. WALDE (ed.), *Via Claudia Augusta und die Römerstraßenforschung im östlichen Alpenraum*, Innsbruck 2006.
- GREWE 2004 = K. GREWE, *Alle Wege führen nach Rom – Römerstraßen im Rheinland und anderswo*, in: KOSCHIK 2004, 9–42.
- GREWE 2013 = K. GREWE, *Streckenmessung im antiken Aquädukt- und Straßenbau*, in: FISCHER/HORN 2013, 123–146.
- GREWE 2016 = K. GREWE, *Urban Infrastructure in the Roman World*, in: G.L. IRBY (ed.), *A Companion to Science, Technology, and Medicine in Ancient Greece and Rome*, Volume II, Chichester 2016, 768–83.
- GROH/SEDLMAYER/ZALKA 2013 = S. GROH/H. SELDMAYER/C. V. ZALKA, *Die Straßenstationen von Nemesco und Sorokpolany an der Bernsteinstraße (Panonien, Ungarn)*, Wien 2013.
- GROSSI 2019 = P. GROSSI, *Politics, Administration and Propaganda along Ancient Roman Roads in the Center and North Italy*, Oxford 2019 in print.

- GROSSI/ZANCO 2003 = P. GROSSI/A. ZANCO, Miliari romani nel Nord Italia: materiali, provenienza, lavorazione. L'esempio dell'area veneta e friulana, *Quaderni di Archeologia del Veneto* 19, 2003, 192–202.
- GUÉDON 2010 = S. GUÉDON, *Le voyage dans l'Afrique romaine*, Bordeaux 2010.
- HAENSCH/WEISS 2012 = R. HAENSCH/P. WEISS, Ein schwieriger Weg. Die Straßenbauinschrift des M. Valerius Lollianus aus Byllis, *Römische Mitteilungen* 118, 2012, 435–454.
- HEINZ 2003 = W. HEINZ, *Reisewege der Antike. Unterwegs im römischen Reich*, Stuttgart 2003.
- HERZIG 1970 = H.E. HERZIG, *Le réseau routier des régions VI et VIII d'Italie*, Bologna 1970.
- HERZIG 2006 = H.E. HERZIG, Römerstrassen in der Schweiz, *Helvetica Archeologica* 146/147, 2006, 42–112.
- HERZIG 2007 = H.E. HERZIG, Historische Strassen- und Wegforschung in der Schweiz, in: SCHWINGES 2007, 119–159.
- HIRSCHFELD 1907 = O. HIRSCHFELD, Die römischen Meilensteine, *Sitzungsberichte der Königlich Preussischen Akademie der Wissenschaften* 9, 1907, 165–201 (= Kleine Schriften, Berlin 1913, 703–743).
- HOLLENSTEIN 1975 = L. HOLLENSTEIN, Zu den Meilensteinen der römischen Provinzen Thracia und Moesia Inferior, *Stud. Balc.* 10, 1975, 23–44.
- HOLLENSTEIN 1995 = L. HOLLENSTEIN, Neue Meilensteininschriften aus Bulgarien, in: R. FREI-STOLBA/M.A. SPEIDEL (ed.), *Römische Inschriften – Neufunde, Neulesungen und Neuinterpretationen. Festschrift für Hans Lieb*, Basel 1995, 179–189.
- HOWALD/MEYER 1940 = E. HOWALD/E. MEYER, *Die römische Schweiz*, Zürich 1940.
- HUGENBERG 2004 = R. HUGENBERG, *Strassen und Meilensteine in den römischen Provinzen Africa proconsularis, Numidia und Mauretania*, Zürich 2004 unpublished MA thesis.
- ISAAC 2015 = B. ISAAC, The Roman Road System in Judeaea, *Scripta Classica Israelica* 34, 2015, 41–48.
- ISAAC/ROLL 1982 = B. ISAAC/I. ROLL, *Roman Roads in Judaea I: The Legio-Scythopolis Road*, Oxford 1982.
- KAISER 2011 = A. KAISER, *Roman Urban Street Networks*, New York 2011.
- KENNEDY 2004 = D.L. KENNEDY, *The Roman Army in Jordan*, London 2004².
- KLEE 2010 = M. KLEE, *Lebensadern des Imperiums. Straßen im römischen Weltreich*, Stuttgart 2010.
- KOLB 2000 = A. KOLB, *Transport und Nachrichtentransfer im Römischen Reich*, Berlin 2000.
- KOLB 2001 = A. KOLB, Meile und Meilenstein, in: *Reallexikon der Germanischen Altertumskunde* 19, 2001, 505–507.
- KOLB 2004 = A. KOLB, Römische Meilensteine: Stand der Forschung und Probleme, in: FREI-STOLBA 2004, 135–155.
- KOLB 2011 = A. KOLB, Miliaria: ricerca e metodi. L'identificazione delle pietre miliari, in: F. PAVAN (ed.), *I miliari lungo le strade dell'Impero. Atti del convegno. Isola della Scala 28 novembre 2009*, Verona 2011, 9–18.
- KOLB 2012 = A. KOLB, The Conception and Practice of Roman Rule: the Example of Transport Infrastructure, *Geographia Antiqua* 20–21, 2011/2012, 53–69.
- KOLB 2013 = A. KOLB, Antike Strassenverzeichnisse – Wissensspeicher und Medien geographischer Raumerschließung, in: D. BOSCHUNG/TH. GREUB/J. HAMMERSTAEDT (ed.), *Morphome des Wissens: Geographische Kenntnisse und ihre konkreten Ausformungen. Beiträge der Tagung vom 15.-17. Juli am Internationalen Kolleg Morphomata*, München 2013, 192–221.
- KOLB 2015 = A. KOLB, Communications and Mobility in the Roman Empire, in: C. BRUUN/J. EDMONDSON (ed.), *Oxford Handbook of Roman Epigraphy*, Oxford 2015, 649–670.
- KOLB 2016a = A. KOLB, Mansiones and *cursus publicus* in the Roman Empire, in: BASSO/ZANINI 2016, 3–8.

- KOLB 2016b = A. KOLB, The Romans and the World's Measure, in: S. BIANCHETTI/M.R. CATAUDELLA/H.-J. GEHRKE (ed.), Brill's Companion to Ancient Geography, Leiden/Boston 2016, 223–238.
- KOLB 2018 = A. KOLB, Transport in Thracia, in: Cities, Territories and Identities. 1st International Roman and Late Antique Thrace Conference. Plovdiv, 7–10 October 2016, *Bulletin of the National Archaeological Institute of the Bulgarian Academy of Science* 44, 2017 (2018), 1–9.
- KOSCHIK 2004 = H. KOSCHIK (ed.), „Alle Wege führen nach Rom ...“ Internationales Römerstrassenkolloquium Bonn, Pulheim 2004.
- KUNOW 2007 = J. KUNOW (ed.), Erlebnisraum Römerstraße Köln-Trier. Erfstadt-Kolloquium 2007, Treis-Karden 2007.
- LAURENCE 1999 = R. LAURENCE, The Roads of Roman Italy: Mobility and Cultural Change, London 1999.
- LEMCKE 2016 = L. LEMCKE, Imperial Transportation and Communication from the Third to the Late Forth Century: The Golden Age of the *cursus publicus*, Bruxelles 2016.
- MACKAY/MACKAY 1969 = T.S. MACKAY/P. A. MACKAY, Inscriptions from Rough Cilicia East of the Calycadnus, *Anatolian Studies* 19, 1969, 139–142.
- MEYER 1970 = E. MEYER, Nochmals Augusti, *Klio* 52, 1970, 283–285.
- MOTTAS 1989 = F. MOTTAS, Les voies de communication antiques dans la Thracé égéenne, in: H.E. HERZIG/R. FREI-STOLBA (ed.), Labor omnibus unus. Gerold Walser zum 70. Geburtstag dargebracht von Freunden, Kollegen und Schülern, Stuttgart 1989, 82–104.
- MOTTAS/DECOURT 1997 = F. MOTTAS/J.-C. DECOURT, Voies et milliaires romains de Thessalie, *BCH* 121, 1997, 311–354.
- OGGIANU 1991 = M.G. OGGIANU, Contributo per una riedizione dei miliari sardi, in: L'Africa Romana. Atti dell'VIII convegno di studio, Cagliari, 14–18 dicembre 1990, Sassari 1991, 863–897.
- ONUR 2016a = F. ONUR, Parerga to the Stadiasmus Patarensis 16, The roads, settlements and territories, *Gephyra* 13, 2016, 89–118.
- ONUR 2016b = F. ONUR, Patara Yol Anıtı / «The Monument of Roads» at Patara, in: H. IŞIK/E. DÜNDAR (ed.), Lukka'dan Likya'ya: Sarpedon ve Aziz Nikolaos'un Ülkesi/From Lukka to Lycia: The Country of Sarpedon and St. Nicholas, Yapı Kredi Yayınları Anadolu Uygurlukları Serisi 5, Istanbul 2016, 570–577 (online: <http://adkam.akdeniz.edu.tr/sp-en-text>).
- PANAITE 2015 = A. PANAITE, Roman Roads in *Moesia inferior*. Archaeological and Epigraphic Evidence, in: L. VAGALINSKI/N. SHARANKOV (ed.), Limes XII. Proceedings of the 22nd International Congress of Roman Frontier Studies. Ruse, Bulgaria Spetember 2012, Sofia 2015, 593–600.
- PEKÁRY 1968 = T. PEKÁRY, Untersuchungen zu den römischen Reichsstrassen, Bonn 1968.
- POLLAK 2013 = M. POLLAK, Wege zum Wohlstand. Technologie und Infrastruktur in den Zentralalpen, in: FISCHER/HORN 2013, 11–42.
- QUILICI 2008 = L. QUILICI, Land Transport Part 1: Roads and Bridges, in: J. P. OLESON (ed.), The Oxford Handbook of Engineering and Technology in the Classical World, Oxford 2008, 571–579
- RAEPSAET 2016 = G. RAEPSAET, Land Transport and Vehicles, in: G.L. IRBY (ed.), A Companion to Science, Technology, and Medicine in Ancient Greece and Rome, Volume II, Chichester 2016, 768–83.
- RATHMANN 2003 = M. RATHMANN, Untersuchungen zu den Reichsstrassen in den westlichen Provinzen des Imperium Romanum, Bonn 2003.
- RATHMANN 2004 = M. RATHMANN, Die Städte und die Verwaltung der Reichsstrassen, in: FREI-STOLBA 2004, 163–226.
- RATHMANN 2006a = M. RATHMANN, Statthalter und die Verwaltung der Reichsstrassen in der Kaiserzeit, in: A. KOLB (ed.), Herrschaftsstrukturen und Herrschaftspraxis. Konzepte, Prinzipien und Strategien der Administration im römischen Kaiserreich, Berlin 2006, 201–259.
- RATHMANN 2006b = M. RATHMANN, Die Reichsstrassen der *Germania Inferior*, *Bonner Jahrbücher* 204, 2004 [2006], 1–45.

- RATHMANN 2007 = M. RATHMANN, Die Bedeutung der Straßen im Römischen Reich, in: KUNOW 2007, 17–30.
- RATHMANN 2014 = M. RATHMANN, Der Princeps und die *viae publicae* in den Provinzen. Konstruktion und Fakten eines planmäßigen Infrastrukturausbaus durch die Reichszentrale, in: A. KOLB (ed.), Infrastruktur und Herrschaftsorganisation im Imperium Romanum. Herrschaftsstrukturen und Herrschaftspraxis III. Akten der Tagung in Zürich 19.-20. 10. 2012, Berlin 2014, 197–221.
- RATHMANN 2018 = M. RATHMANN, Tabula Peutingeriana. Die einzige Weltkarte aus der Antike, Darmstadt 2018³.
- RODRIGUEZ COLMENERO et al. 2004 = A. RODRÍGUEZ COLMENERO/S. FERRER SIERRA/R.D. ALVAREZ ASOREY, Miliarios e outras inscrições viarias romanas do noroeste hispánico (conventos bracarense, lucense e asturicense), Santiago de Compostela 2004.
- ROLL/AVNER 2008 = I. ROLL/U. AVNER, Tetrarchic Milestones found near Yahel in the Southern Aravah, *ZPE* 165, 267–286.
- ROTHENHÖFER 2013 = P. ROTHENHÖFER, Die Wirtschaft der Römer: Produktionszentren und Handelswege in römischer Zeit, in: FISCHER/HORN 2013, 109–121.
- ŞAHİN/ADAK 2007 = S. ŞAHİN/M. ADAK, Stadiasmus Patarensis. Itinera Romana Provinciae Lyciae, Istanbul 2007.
- SALAMA 1987 = P. SALAMA, Bornes milliaires d'Afrique provinsulaire. Un panorama historique du Bas Empire Romain, Rome 1987.
- SALAMA 2001 = P. SALAMA, Les bornes milliaires du territoire de Tipasa (Maurétanie Césarienne), Roma 2001.
- SCHWINGES 2007 = R.C. SCHWINGES (ed.), Strassen- und Verkehrswesen im Hohen und Späten Mittelalter, Ostfildern 2007.
- SEDGLEY 1975 = J. P. SEDGLEY, The Roman Milestones of Britain: their Petrography and probable Origin, Oxford 1975.
- SILLIÈRES 1990 = P. SILLIÈRES, Les voies de communication de l'Hispanie méridionale, Paris 1990.
- STACCIOLI 2003 = R.A. STACCIOLI, The Roads of the Romans, Rome 2003.
- THOMSEN 1917 = P. THOMSEN, Die römischen Meilensteine der Provinzen Syria, Arabia und Palästina, *ZDPV* 40, 1917, 1–103.
- VAN BERCHEM 1922 = M. VAN BERCHEM, Matériaux pour un Corpus Inscriptionum Arabicarum II,1, Le Caire 1922.
- VAN TILBURG 2007 = C.R. VAN TILBURG, Traffic and Congestion in the Roman Empire, London/ New York 2007.
- WALSER 1980 = G. WALSER, Römische Inschriften in der Schweiz. II. Teil: Nordwest- und Nordschweiz, Bern 1980.
- WISEMAN 1970 = T.P. WISEMAN, Roman Republican Road Building, *PBSR* 38, 1970, 122–152 (= Roman Studies, Liverpool 1987, 126–156).
- ZUIDERHOEK 2009 = A. ZUIDERHOEK, The Politics of Munificence in the Roman Empire. Citizens, Elites and Benefactors in Asia Minor, Cambridge 2009.
- ZWINGMANN 2012 = N. ZWINGMANN, Antiker Tourismus in Kleinasien und auf den vorgelagerten Inseln, Bonn 2012.