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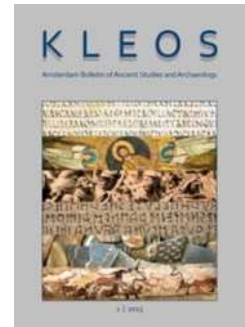
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The bridge on the river Meuse. Reinterpreting a Roman dedicatory inscription

BERBER VAN DER MEULEN AND VINCENT VAN DER VEEN

ABSTRACT

During the 1990s, excavations were carried out by the former *Rijksdienst voor het Oudheidkundig Bodemonderzoek* (ROB) at the location of the Late Roman bridge at Cuijk. Three intact bridge piers were discovered consisting of large wooden piles with iron shoes that were driven into the sand and the underlying gravel. On one of these piles an inscription was found. It read ETERNA, which the excavators considered to be a reference to the wish for the bridge's eternal existence. In the first half of this article we argue that it should in fact be considered a personal name, providing an analysis of the inscription itself and comparing it to a number of parallels from various military sites in Germania Inferior. In the second half we take a closer look at the archaeological and epigraphical record in an attempt to answer the questions who this person could have been and what reason he could have had to carve out his name.

INTRODUCTION

In 1964, the late prof. J.E. Bogaers discovered the first remains of the Late Roman bridge in the river Meuse at Cuijk. During his excavations on the nearby shore he found, amongst other things, a Late Roman *castellum*. Divers sent out as part of these campaigns, secured eight wooden piles from the river bed, which originally were interpreted by prof. Bogaers as either belonging to a wooden bridge or to an embankment contemporary with the late Roman *castellum*.¹ In 1989, local divers surveyed the area and confirmed that this spot most likely was the location of a bridge over the river Meuse. This led to a pilot study in the same year, which was followed up by intensive underwater excavations during the 1990's. These excavations were carried out by the *Oudheidkundig Bodemonderzoek* (ROB) and were intended to document and conserve the bridge *ex situ*.²

During the surveying, large clusters of stone and wood had already been spotted. The subsequent excavations showed that in three of these clusters upright wooden piles were still present. The piles were interpreted as belonging to three intact bridge piers. Eventually, five of these were identified, with a possible sixth one that has not yet been found.³

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The piles present in the excavated areas were tied to a noose and drawn out by a crane ship. Because they were still rather firmly embedded in the river bedding, this method led to some rope damage to the wood and many of the iron shoes, originally attached to the pointed ends of the piles, remained *in situ*.⁴

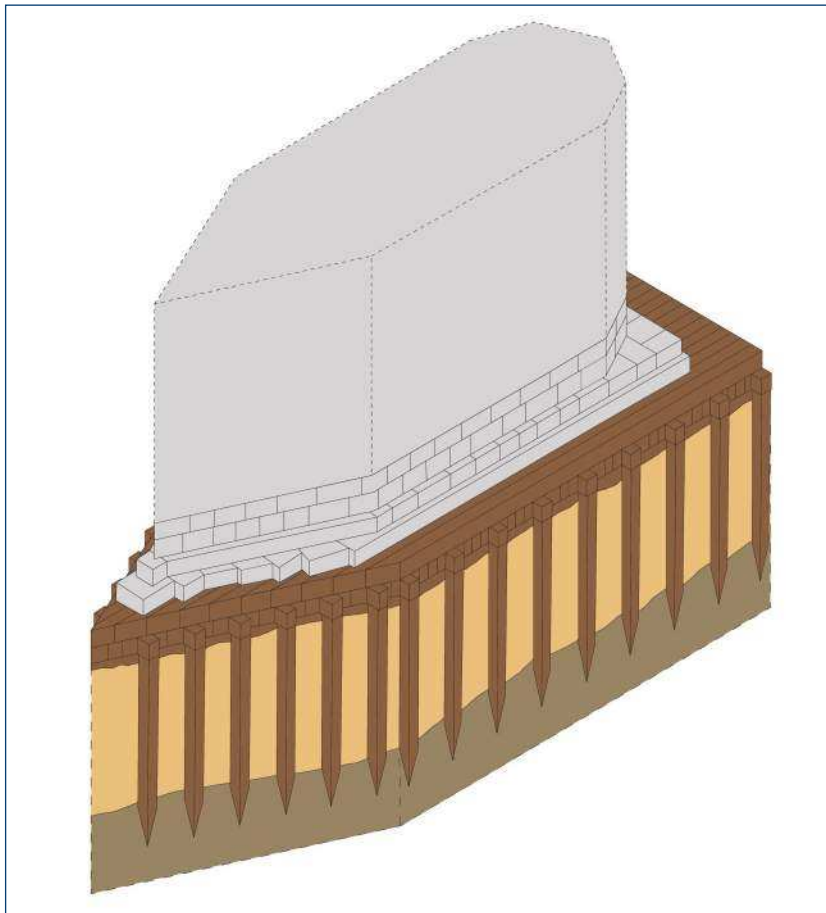


Figure 1

Technological reconstruction of one of the bridge piers. Stone elements are in grey, wood in brown. Yellow and grey-green represent the sandy topsoil and the underlying gravel.

(after Goudswaard et al. 2001, Fig. 48, modified by V. van der Veen).

The wooden piles served as the foundation of the bridge (see Fig. 1). To prevent rotting, the oak wood piles were placed in such a way that they always remained underwater, thus, creating excellent conditions for conservation and dendrochronological dating. In fact, in most of the piles, some sapwood was preserved and some bark was still intact, which indicates that not only very little of the original tree had been removed, but the wood had also been used almost immediately after felling, since bark tends to come off during the seasoning process. Furthermore, toolmarks of adzes/axes are still visible on the wood to this day.

On the basis of their length, the piles can be divided into two groups. The first group consists of a few piles (type 1) that are short (60-120cm). The second group (type 2) consists of piles that are longer (120-150cm). Type 1 piles served as the main way of foundation. They were placed in between type 2 piles, functioning as beams.⁵

36 of the total of 58 dendrochronological samples were used for the dating of the bridge. This revealed three distinct phases in the felling of the

wood. The first phase dates between 347 and 349 AD, the second to the winter or early spring of 368/9 AD and the third between 388 and 398 AD, with an estimated felling date of 393 AD.⁶

On one of the type 2 piles, dating to the second phase, i.e. the winter or early spring of 368/9 AD, an inscription was found.⁷ A section of the pile was smoothed prior to the carving of the inscription with an adze or axe, the lines that make up the letters being approximately 18-20cm tall and 2-3cm wide.⁸

EPIGRAPHICAL ANALYSIS

Starting from the point of the pile, from left to right, the first four letters can be read fairly clearly as ETER. The last two, however, are less certain due to the fact that this part of the pile projected from the soil and is therefore badly worn. It also suffered extensively by the ropes used to retrieve it from the river bedding.

The excavators suggest a reading as ETERNA. They deemed this inscription to be unique in its kind, as from other known wooden Roman bridges, only inscribed numbers and letters have been found (e.g. in Mainz). For this reason, they interpreted the inscription as one placed there as a wish for the bridge's eternal existence.⁹

In our view the interpretative drawing in the original publication, can be interpreted in two ways.¹⁰ Besides ETERNA, as the authors propose, the drawing could also be read as ETERNVM, the last three letters being a ligature. The second reading points to an interpretation as some sort of dedicatory inscription. When used adverbially, *aeternum* can indeed mean for ever. After examining the original photograph, however, it became clear that the first reading is the correct one, even though the letter A is rather damaged along with the rest of that section of the pile. A line seemingly connecting the letter N and A was not, as we thought, carved by hand, but rather the result of erosion. See Fig.2. for the original photograph and Fig.3. for our revised interpretation of the reading and drawing.

Figure 2

Original photograph of the inscription, courtesy of the FotoArchiefDienst Cuijk.



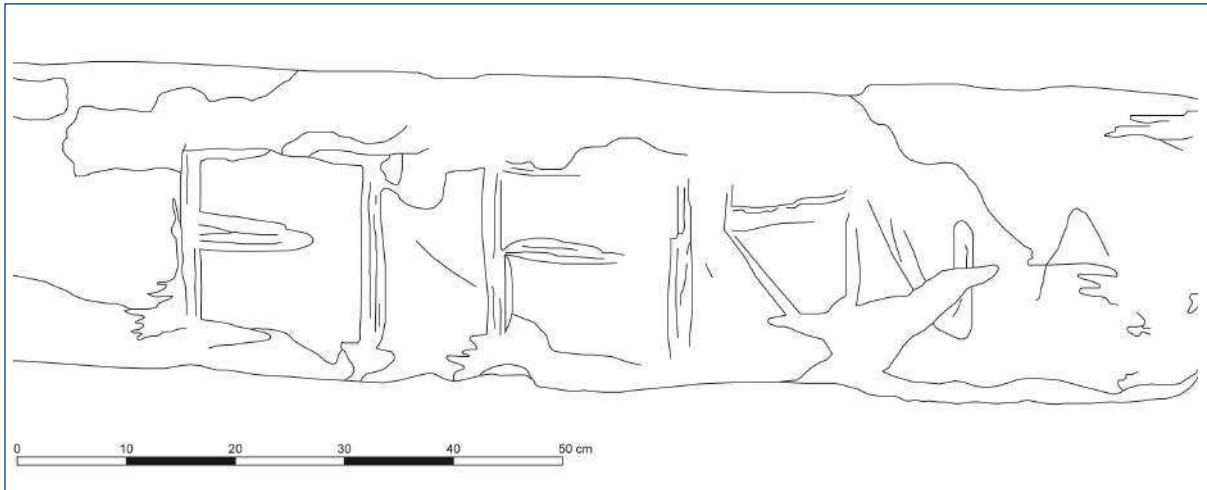


Figure 3
Interpretative drawing,
 V. van der Veen.

After establishing that the inscription ought to be read as ETERNA, we are left with the question of its meaning. Goudswaard et al. clearly are of the opinion that it relates to the adjective *aeternus*, meaning eternal or everlasting. The missing letter *a* in *eterna* does not stand in the way of such an interpretation, as the monophthongisation of *ae* to *e* is a common feature of Vulgar Latin.¹¹ If we are to believe, however, that *eterna* is an adjective; then what noun is it referring to? If the inscription refers to the bridge itself, then surely it should read *(a)eternus*, as the word *pons* (bridge) is of the male gender. A word that does correspond with the seemingly female gender of the inscription is the Latin word for life, *vita*. It could, therefore, be argued that *eterna* is a reference to the eternal life of the bridge and could thus be interpreted as a dedicatory inscription. Such inscriptions are well known for having been placed on public buildings either directly on the surface or on slabs attached to the structures. Some of the basic elements of these types of inscriptions, however, include the mentioning of the builder or commissioner of the building, information on the construction itself etc.¹² Unless Etern[...] is to be interpreted as a name element belonging to an official involved in the construction of the bridge, with the rest of the inscription not having survived, this interpretation seems rather problematic to us. First of all, the inscription lacks the above-mentioned key elements of such inscriptions.¹³ Secondly, it was placed in such a location that it would not have been visible to anyone anymore after the construction of the bridge. In this light, we argue here that we have to look at other types of epigraphical evidence to understand the meaning and function of this particular inscription.

To this end, we may consider other inscriptions on Roman construction wood from Germania Inferior. On a whole, such parallels are rather scarce, since wood tends to be 'deselected' in the field prior to proper inspection.¹⁴ For the Late Roman period these are entirely non-existent. We argue that the material on which the inscription was applied, namely construction wood, is more relevant to its interpretation than its date, based on the fact that construction techniques using wood, at least for bridges, remained

practically unchanged between the first and fourth centuries AD.¹⁵ We assume that the same also applies to the reasons why inscriptions are applied prior to or during construction.

The following is a list of inscriptions known to us on Roman construction wood in the North-western part of the Limes. These inscriptions have been ordered according to their relevance based on their context and their reading. Although it probably is far from comprehensive, we argue that it does shed a new light on the inscription at hand. Notably, they all come from military contexts.

One inscription comes from Vleuten-De Meern.¹⁶ Due to its 'wet context' on an oak plank of a dock dated to the late first century AD, this may be the closest parallel we have to the bridge at Cuijk. The inscription reads [...] ASSI, which clearly is the genitive case of a name. Graafstal states that the name must be of the centurion who oversaw the construction of the dock,¹⁷ likely because he expects the name to originally to have been preceded by a retrograde c, being a common abbreviation of *centuria*. Such military units consisted of roughly 80 legionaries and were led by a centurion.¹⁸ The name can be completed in a number of ways.¹⁹

Although not in a 'wet' context such as on a bridge or dock, all further inscriptions were found within a military sphere. The first of these was found in the *castellum* at Valkenburg (Praetorium Agrippinae). Here, on one of the posts of the north-western tower an inscription was found reading PLACIDI. Again, this clearly is the genitive case of a name, this time of the *cognomen* Placidus. Awaiting detailed publication, at the moment no more can be said about this inscription.²⁰

In order to present an overview as complete as possible we include an inscription from the *castellum* at Alphen aan den Rijn (Albaniana). It was found on an alder plank, which supported one of the central posts of the west tower of the oldest porta *principalis dextra*,²¹ and can be read as GL XVI, the meaning of which is far from clear.²²

Finally, several inscriptions are known from the *castra* at Oberaden. The first of these, D·VINIC, was carved on a plank sharpened on one end, which was found in a barrel well.²³ As mentioned before, the retrograde c is a common abbreviation of *centuria*. Vinicius/Vinucius is a fairly common nomen.²⁴

Another inscription was found on a wooden lintel of one of the barracks. It reads D·CA [...].²⁵ Too many possible *nomina* and *cognomina* exist to list here, although it is clear that the inscription again is a reference to a *centuria* and its commanding officer.

As excavation and publication took place in the first half of the 20th century, little is known of the context in which the following inscriptions from Oberaden were found. The first and most complete of these inscriptions reads D·P·POWPONI LQV [...] and was carved on a heavy oak beam.²⁶ The w in POWPONI must certainly be read as an upside down m, as three other inscriptions of this name are known from Oberaden featuring the letter m the normal way round.²⁷ Again, this inscription follows the same formula of a retrograde c followed by a name, or in this case two

names, in the genitive case. It can be translated as L(ucius) Qu[...] of the *centuria* of P(ublius) Pomponius.

The last inscription from Oberaden we discuss, was also carved on an oak beam. Even though the first half had been very badly damaged, Albrecht et al. tentatively suggest KARI/KAR(R)/KAR()RV(S) VII, translating it as cart (*carrus*) No. 7.²⁸ The second half, however, can be easily read as O-[L or T] RVBRI, and can be translated as: the *centuria* of Lucius or Titus Rubrius. The nomen Rubrius also appears on a *pilum murale* from Oberaden.²⁹

In sum, we can conclude that all but one of the parallels listed above are personal names, be it a *praenomen* and *nomen*, or a separate *nomen* or *cognomen*. Admittedly, there is a significant gap in date between these examples (mainly first and early second century AD) and the inscription from Cuijk (second half of the fourth century AD). However, as we have stated before we believe that this is not an insurmountable obstacle, as the possible reasons for carving these inscriptions will not have changed significantly over this time period. It can therefore be argued that the inscription of Cuijk might also be a name.

The question is what name was intended on the wooden pile in Cuijk. There are several possible completions of the text ETERNA. Dean mentions two occurrences of the *cognomen* Aeternalis, both from Moesia Inferior.³⁰ Kajanto lists a total of 16 occurrences of Aeternalis (15 men and one freedman) and one of Etern[us? -alis?]. He also lists twelve occurrences of the cognomen Aeternus, three of Aeterna and one of Aeternius.³¹ Lörincz lists twelve occurrences of the *cognomen* Aeternalis (one each in Gallia Cisalpina, Gallia Belgica, Dalmatia, Pannonia, three in Dacia and five in Moesia Inferior), including three spelled Eternalis. All three of these can be traced back to Dacia. He also mentions one occurrence of Aeterna and one of Eterna (both from Pannonia), four of Aeternus (two in Gallia Belgica, one in Aquitania and one in Gallia Lugdunensis) and one of Eternus from Gallia Belgica. Finally, he lists two occurrences of Aetern[...], one from Hispania and one from Aquitania.^{32 33}

Dean, Kajanto nor Lörincz give dates for any of these names. On potters' stamps on *terra sigillata*, however, the names Aeternus and Eternalis were in use at least until the late second and middle third century AD respectively.³⁴ Although this still does not quite bridge the gap between the dates of the above mentioned parallels and the inscription at Cuijk, it does make it more plausible that the name Eterna(lis) was still in use at the time of the bridge's construction.

Another argument is that most of the above-mentioned inscriptions, the exceptions being the lintel and *pila muralia* found at Oberaden, would not have been visible. This implies that they either had some sort of ritual function or that immediate visibility was not their primary function. As none of the examples of Roman construction wood point in the direction of the former explanation (they are all on profane structures), we suggest that the latter is the most likely.

SILVICULTURE, WOOD SUPPLY AND THE ROLE OF THE ROMAN ARMY

In the case of the bridge in Cuijk, this is especially poignant, as the part of the pile featuring the text was completely obscured from view by water and sediment. From other wooden bridges, such as Mainz, inscriptions of numbers and letters are known.³⁵ These may be interpreted as serving as an aid in the assembly of the bridge as has been the interpretation for similar marks on wooden barrels.³⁶ Goudswaard et al. already mention that a full text or word such as the one in Cuijk is unique in its kind.³⁷ We suggest therefore, that the inscriber was somehow involved in the organisation of the construction of the bridge, rather than the construction itself as its message would not have been possible to be read after construction. Supporting this assumption is the fact that unseasoned wood complete with bark was used, which rules out that the pile was reused.

Unfortunately, despite the in depth technological knowledge of the bridge at Cuijk, the organisation of its construction and repairs still remains elusive.³⁸ One of the first questions that come to mind is where the enormous amount of wood used for the bridges initial construction and repairs was extracted from.

The ROB excavation has yielded a number of pollen cores, but these cannot be dated more accurately than between the Iron Age and the Early Middle Ages. They do, however, indicate that the landscape in this period was a mostly open one.³⁹ Recent investigations in the same part of the river resulted in a similarly disappointing dating.⁴⁰ Like the ROB excavators we must use an earlier landscape reconstruction made for the entire Eastern Dutch River Area, which concluded that just before the beginning of the Late Roman period the region saw an increase in tree vegetation (to around 60%), of which 40% consisted of ash, 11% of oak, 3,5% of hazel and 2,5% of beech.⁴¹

The small percentage of oak trees present in the Eastern River Area and the open landscape locally suggests that the oak timber for the bridge was largely, if not completely, procured from another region. Unfortunately, no provenance studies were included in the initial report. For our current question, this is not too much of a problem, as the way in which the procurement of the wood was organised is of greater importance. Thanks to archaeological and textual evidence, we know of various ways in which supply was organised by the Roman army, all providing viable reasons why one would write their name on one of the supplied piles. The rest of this paper will provide an overview of the logistics involved in wood procurement and their reflection in the archaeological and epigraphical record.

Previous studies into Roman construction wood have mainly focused on the technical aspects of it, and have sufficiently shown that the Romans used various silvicultural systems for the upkeep of their woodlands.⁴² Selective and coppicing systems are for instance mostly associated with large scale state controlled forests (*salti*).⁴³ These *salti* were looked after by so-called *saltuarii* (with some stewards or *vicili* under their charge) who

were in the position to overlook felling operations, select trees for felling and generally look after the affairs of the estate.⁴⁴ Several inscriptions on gravestones mentioning *saltuarii* are known from Waldfischbach.⁴⁵ Woodchoppers (*silvicaedii*), and *dendrophores* (initiates into the cult of Attis who were involved in all sorts of activities related to wood, ranging from cult festivities to felling and wood trade) are also known to have worked in these *salti*.⁴⁶

Timber trees were also grown on a smaller scale by *villae*, as attested by Cato's list of the most important agricultural activities.⁴⁷ That wood, either from *salti* or privately owned lands, was used as a commercial commodity is attested by several inscriptions mentioning wood traders, often called *lignarii*.⁴⁸ Similar to potter's stamps, usually interpreted as marking the potter's products, these *lignarii* may have wished to mark their products to designate its origin or as a mark of quality for their customers.

A similar term is found in the military sphere. It was common for the inhabitants of marching camps and more permanent *castella* and *castra* to rely largely on the local environment for their supplies of water and wood.⁴⁹ Several inscriptions from the Rhine region mention officers *in lignariis* (one of them aptly named Silvano).⁵⁰ Another four from Germania describe *vexillationes agentes in lignariis* of the legio XII whose specific duty it was to procure timber for their legion.⁵¹ Meiggs links these officers *in lignariis* to sawing operations for the supply of the fortresses with non-local big timber. This is based on two irregular shaped military strongholds found in Germany that feature structural evidence for large scale sawing activities.⁵² The piles from the bridge in Cuijk were of course not sawn, but it seems reasonable that the activities of officers *in lignariis* comprised more than sawing, as planks are only one of the types of construction wood needed for military purposes.⁵³ The term *in lignariis*, furthermore, has traditionally been explained as meaning "in a timber store-base", whereas current insights have strained that there is no reason to assume timber storage in the Roman period.⁵⁴

One final mention of collecting construction wood as part of a soldier's activities is given by Vegetius. When describing the different types of camp commanders, he mentions the *praefectus castrorum*, who was apparently in charge of supervising the construction of the camp and whose responsibility it was to ensure that there were adequate supplies of, among other things, construction wood.⁵⁵ As the civil *lignarii* above, camp commanders in charge of wood procurement may have wished to mark some of the wood to show the completion of their duty.

What remains now is to identify which one of these scenarios described above is the most likely for the inscription on the bridge in Cuijk. As the evidence from the textual record regarding the activities of wood procurers and traders is rather scarce, we will refrain from taking a side in this debate. However, we can make some general remarks on the nature of the inscription regarding the wood infrastructure in the Roman period.

We know, first of all, that the pile featuring the inscription was smoothed before the text was applied, even though the piles generally were only marginally worked. This not only shows that the inscription was placed with care and intent, but also suggests that it took place at the same location as the working of the felled trees into piles, rather than during felling or construction of the bridge. This is further supported by the fact that the same type of tool was used for working and smoothing the pile. Because the provenance of the wood is unknown, and the material culture and features of the late Roman *castellum* near the bridge have not been sufficiently published, it remains uncertain whether the trees were worked in Cuijk itself or somewhere else.

Although not mentioned above, there is yet another possibility, namely that Eterna(lis) is the name of the recipient of the order. *Tituli picti* on amphorae, for example, are commonly interpreted as featuring both the name of the producer (usually in the genitive case) and of the recipient.⁵⁶

Although an interpretation in the military sphere seems the most probable given the military context of the bridge's construction, the absence of a retrograde C or any other clear army-related marker makes it impossible to prove that the inscriber was either a military man or a civilian.

CONCLUSION

We feel that our reconsideration of the inscription on the Late Roman bridge in Cuijk has shed a new light on its meaning. The fact that the inscription was in a place permanently hidden from view makes it very unlikely that it had any dedicatory significance. To the contrary, inscriptions on construction wood from various military sites in Germania Inferior indicate that more often than not, they can be read as a personal name.

The second part of this paper provides a short overview of some of the people that can be identified in the archaeological and epigraphical record as having been involved with Roman construction wood. We hope to have shown that many individuals were involved in the procurement, working and trading of construction wood and may have wished to mark some of it with their personal name. This could be explained in the same way as potter's stamps on table ware and amphorae, or brands on barrels. A wood trader (*lignarius*) could have marked his goods as a badge of quality or as a control mark. The same goes for the *praefectus castrorum* or officer *in lignariis* in charge of the procurement of construction wood. Woodchoppers (*silvicaedii* or *dendrophores*) could have marked their products so any defects could be traced back to those responsible and the same could apply to soldiers who were charged with the felling and processing of wood. Sadly, the evidence is insufficient to choose one above the other. What we can say however, writing almost seventeen centuries after the bridge's construction, is that the inscriber certainly left his mark.

BIBLIOGRAPHY

- Caesar, *Commentarii de bello Gallico*, ed. H.J. Edwards, 2006, London/Cambridge MA (Loeb Classical Library 72).
- Cato, *De agri cultura*, eds. H.B. Ash/W.D. Hooper, 1934, London/Cambridge MA (Loeb Classical Library 283).
- Vegetius, *Epitoma rei militaris*, ed. A. Önnarfors, 1995, Stuttgart (Bibliotheca scriptorum Graecorum et Romanorum Teubneriana 61).
- Albrecht, C./A. Baum/K. Regling/A. Oxé, 1938: *Das Römerlager in Oberaden und das Uferkastell in Beckinghausen an der Lippe, volume 1*, Dortmund (Veröffentlichungen aus dem Städt. museum für vor- und frühgeschichte Dortmund, Bd. II).
- Aßkamp, R./R. Wiechers, 1996: *Westfälisches Römermuseum Haltern*, Münster.
- Bishop, M.C., 2012: *Handbook to Roman Legionary Fortresses*, Barnsley.
- Bogaers, J.E., 1966: Opgravingen in Noord-Brabant. Cuijk en St. Agatha. *Trefpunt voor Cultuur, Recreatie en Maatschappelijk Werk*. September 1966, 337-339.
- Boogert, S.J., 2006: *Wie wat bewaart, die heeft wat. Een onderzoek naar de overdracht van archeologische vondstcomplexen aan provinciale depots*, The Hague (Erfgoedinspectie / Archeologie Rapport).
- Dean, L.R., 1916: *A Study of the Cognomina of Soldiers in the Roman Legions*, Princeton.
- Dobson, B., 1988: Army Organisation, in P. Conolly, *Greece and Rome at War*, London.
- Domínguez-Delmás, M. / M. Driessen/ I. García-González / N. van Helmond / R. Visser / E. Jansma, 2014: Long-distance oak supply in mid-2nd century AD revealed: the case of a Roman harbour (Voorburg-Arentsburg) in the Netherlands, *Journal of Archaeological Science* 41, 642-654.
- R.G. Collingwood / R. P. Wright, 1992: *The Roman Inscriptions of Britain. Volume II, Instrumentum Domesticum*. Fascicule 4, in S. S. Frere/R. S. O. Tomlin (eds.), RIB II, 8 fasc., Alan Sutton Publishing, Gloucestershire.
- Goudswaard B. / R.A.C. Kroes/ H.S.M. van der Beek, 2001: The Late Roman bridge at Cuijk, *Berichten van de Rijksdienst voor het Oudheidkundig Bodemonderzoek* 44, 439-560.
- Graafstal, E.P., 2000: Vleuten-De MeerWaterland, in D. Kok/ K. van der Graaf/ F. Vogelzang (eds.), *Archeologische kroniek. Provincie Utrecht 1998-1999*, Utrecht, 167-191.
- Hartley, B. / B. Dannell/ B. Geoffrey, 2008a: *Names on terra sigillata. An Index of Makers' Stamps and Signatures on Gallo-Roman Terra Sigillata (Samian ware)*. 9 vols., (1): A to Axo, London.
- Hartley, B. / B. Dannell/ B. Geoffrey, 2008b: *Names on terra sigillata. An Index of Makers' Stamps and Signatures on Gallo-Roman Terra Sigillata (Samian ware)*, 9 vols., (3): Certianus to Exsobano, London.
- Kajanto, I., 1965: *The Latin Cognomina*, Helsinki.

- Kenzler, H. (ed.) 2009: *Imperium, 2000 Jahre Varusschlacht* (exhibition catalogue LWL- Römermuseums, 3 vols., (1), Stuttgart, 383-384.
- Kühlborn, J.S., 1992: *Das Römerlager in Oberaden III. Die Ausgrabungen im nordwestlichen Lagerbereich und weitere Baustelluntersuchungen der Jahre 1962-1988*, Münster.
- Lörincz, B., 2005: *Onomasticon Provinciarum Europae Latinarum, Vol. I ABA – BYSANVS*, Budapest.
- Meiggs, R., 1982: *Trees and Timber in the Ancient Mediterranean World*, Oxford.
- Palmer L.R., 1954: *The Latin Language*, London.
- Polak, M. / R.P.J. Kloosterman/ R.A.J. Niemeijer, 2004: *Alphen Aan Den Rijn - Albaniana 2001-2002*, Nijmegen.
- Remesal Rodriguez, J., 1998: Baetican olive oil and the Roman economy, in S. Keay (ed.) *The Archaeology of early Roman Baetica*, Portsmouth, (JRA Supplementary Series, 29), 183-199.
- Sandys, J.E., 1969: *Latin Epigraphy. An Introduction to the Study of Latin Epigraphy*, Groningen.
- Schmidt, M.G., 2004: *Einführung in die Lateinische Epigraphik*, Darmstadt.
- Schulze, W., 1933: *Zur Geschichte lateinischer Eigennamen*, Berlin.
- Van Breda, W.A., 2011: *Een Booronderzoek in Gebied 6000, Maasboulevard Loskade te Cuijk. Inventariserend Veldonderzoek Waterbodems in de Vorm van een Karterend Booronderzoek*, Amersfoort (ADC Rapport 2164).
- Visser, R.M., 2007: Behoeftte aan bouwhout in de Nederrijnse regio tijdens de Romeinse tijd, in E. Gehring/ D. Habermehl/ R. van 't Veer/ I. Venderbos (eds.), *Sojabundel 2006*, Amsterdam, 107-114.
- Visser, R.M., 2009: De Romeinse houtvoorziening in de Germaanse provincies, *Westerheem* 58, 2-12.
- Visser, R.M., 2010: Growing and Felling? Theory and evidence related to the application of silvicultural systems in the Roman Period, in A. Moore/ G. Taylor/ P. Girdwood/ E. Harris/ L. Shipley (eds.), *TRAC 2009: Proceedings of the Nineteenth Annual Theoretical Roman Archaeology Conference, Ann Arbor (USA) and Southampton (UK) 2009*, Oxford, 11-22.

NOTES

- 1 Bogaers 1966, 338.
- 2 Goudswaard et al. 2001, 443, 446.
- 3 Ibid., 450.
- 4 Ibid., 453.
- 5 Goudswaard et al. 2001, 459-460.
- 6 Ibid., 483.
- 7 Ibid., 462. Evidence for this phase is limited to the western part of the excavation, leading Goudswaard et al. to the conclusion that the second construction phase consisted of the addition of another pier, to counterbalance the meandering riverbed; Ibid., 495.
- 8 Ibid.
- 9 Ibid., 462.

- 10 Ibid., Fig. 19. This publication can be downloaded free of cost via easy.dans.knaw.nl.
- 11 The common, spoken version of Latin as opposed to its legal, written form; Palmer 1954, 157.
- 12 Schmidt 2004, 57-8.
- 13 Although it should be noted that the inscription is not complete, it could be argued that there were no more words following Etern(a) based on the patterns in damage (see above).
- 14 Inscriptions can be hard to make out prior to the wood having been cleaned and conserved. As this is both a lengthy and costly process, usually only a selection of the construction wood and organic finds is selected for conservation. This problem of deselection of organic finds to cut costs has become particularly acute since the advent of commercial archaeology. As is mentioned in a report of the Cultural Heritage Inspectorate (Erfgoedinspectie), all provincial depots have noticed a significant drop in incoming organic materials, disproportionate to previous experiences and the number of excavations carried out; Boogert 2006, 19-20.
- 15 E.g. bridges built on foundations of wooden piles at Trier and Mainz, comparable to the one at Cuijk, date from the first century AD; Goudswaard et al. 2001, 488-489.
- 16 Graafstal 2000, 179-180.
- 17 Ibid., 179.
- 18 Dobson 1988, 216.
- 19 The most common *cognomen* being Bassus; Dean 1916, 13, while both Cassus and Crassus are also attested; Kajanto 1965, 287; Dean 1916, 81, 161 respectively; cf. Lörincz 2005.
- 20 Personal comment M. Polak, Sept. 2014.
- 21 Polak et al. 2004, 58-59.
- 22 It is tempting to associate the number with the *Legio XVI Gallica*, which was disbanded and reformed in 69 AD as the *Legio XVI Flavia Firma*. However, as the plank was part of the first building phase of the *castellum*, *Legio XVI Gallica* would at that time have been stationed at Mainz (Mogontiacum); Bishop 2012, 130. The identification of GL as "legion", while the abbreviation LEG is much more common, is also uncertain.
- 23 Kenzler 2009, 383-384.
- 24 Schulze 1933, 110, note 3; 380.
- 25 Kühlborn 1992, 171 and Taf. 51, 283; Aßkamp / Wiechers 1996, 36).
- 26 Albrecht et al. 1938, 82.
- 27 Ibid., Taf. 57, 47-49. All on *pila muralia*, reading O·P·POMPON, O·P·POMPONI and P·POMPON respectively.
- 28 Ibid., 82.
- 29 Ibid., Taf. 58, 54. ?·RVBRI.
- 30 Dean 1916, 129-130.

- 31 Kajanto 1965, 274.
- 32 Lőrincz 2005, 31-32.
- 33 N.B. There may be some overlap in the references listed by these three authors. As they do not systematically cite their original sources, it is impossible to reconstruct the exact number of doublets.
- 34 Hartley et al. 2008a, 92-93; *Ibid.* 2008b, 368.
- 35 Goudswaard et al., 462.
- 36 Collingwood / Wright 1992, 1.
- 37 Goudswaard et al. 2001, 462.
- 38 *Ibid.*, 494-5.
- 39 *Ibid.*, 507-8.
- 40 Van Breda 2011, 29.
- 41 Connected to the decrease in population in that period; Goudswaard et al. 2001, 507.
- 42 Respectively clear cutting, selective felling, coppicing and agro-forestry; Visser 2010, 13-19. Cf. Domínguez-Delmás et al. 2014, 651ff. for their study into wood provenance for the 2nd century AD harbour of Voorburg-Arentsburg.
- 43 *Ibid.*, 20.
- 44 Visser 2007, 112; *Ibid.* 2009, 6; Meiggs 1982, 330.
- 45 Visser 2007, 112.
- 46 Visser 2009, 6; See also *ibid.*, 5 for gravestones for these *dendrophores*.
- 47 Cato, *De agricultura* 1.7; Visser 2009, 4.
- 48 See e.g. *CIL* III 12924 and XI 1620.
- 49 Caesar, *De Bello Gallico* 3.15.2; Vegetius, *De Re Militari* 2.19.
- 50 *CIL* XIII 6618 and 6623.
- 51 Visser 2009, 6.
- 52 Meiggs 1982, 186.
- 53 Which may include, among others, defence and siege works, bridges etc.; Meiggs 1982, 154. To this list may be added accommodation.
- 54 *Ibid.*, 180.
- 55 Vegetius, *De Re Militari* 2.10-11. It should, however, be remembered that the book, written in the late fourth century AD, in essence is a plea for army reform. It deals with the decadence of the author's time and often describes an idealised version of the army of the Early Empire.
- 56 Remesal Rodriguez 1998, 191-192.