

Burgi in the Loess Plain of the Lower Rhine Region in Late Antiquity

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Defensive infrastructure in the hinterland of the late Roman province of Germania Secunda hinged upon the widespread use of burgi. These defended settlements played a role in transforming villa estates, depopulated zones, and the expansion of the military footprint. They are common in the late third- and fourth-century landscape, spread throughout the loess belt of Belgium, Dutch Limburg, and the Rhineland, yet little has been done to quantify them. This article is dedicated to the chronology, morphology, and functional aspects of burgi, primarily in the loess plain of the Lower Rhine region. The author assembles data from a wide variety of burgi, to characterize them and reach meaningful conclusions about what they represent within the landscape, in the hope that it will act as a pilot project for future work in the field.

Keywords: fortification, late antiquity, defence, *burgus*, Rhineland

INTRODUCTION

From the late third century AD onwards, the north-western continental provinces of the Roman Empire underwent rapid change. The landscape of some regions was apparently depopulated (Heeren, 2015), whilst settlement was fragmented in others (Lenz, 1999; Dodd, 2021). Frontier zones were in flux, with significant changes in the military footprint along the Rhine (Van der Meulen, 2017) and a new system of hinterland defence developed, focused on the road network (Brulet, 1990; Brulet et al., 1995).

The lowland zone of north-western Europe is dominated by fertile loess soils, stretching from northern France to the Rhine, bordered by coastal wetlands to the north and hillier landscapes to the south. This article examines one element of the Roman defensive infrastructure in the

loess plain of the Lower Rhine region (*Rheinische Lössbörden*) (Figure 1). Archaeologically, this zone was one of the densest areas of first- to third-century rural settlements in northern Europe (Lenz, 1999; Gaitzsch, 2011; Jensen, 2011) with a strong tradition of villa complexes (Roymans & Derks, 2011). This was complemented by several urban centres, including the *colonia* at Cologne as well as smaller towns such as Aachen, Zülpich, and Jülich. The region experienced significant dislocation during late antiquity, with several late third- and fourth-century abandonment episodes (Gechter & Kunow, 1986; Lenz, 1999; Dodd, 2021), the early phases of this period being seen as representing a ‘crisis’ (see Fischer, 2012 for examples from the Gallic Empire). Most settlements north of the main Cologne-Bavay highway were abandoned (Heeren, 2015, 2017; Dodd, 2021) and new defended sites appeared,

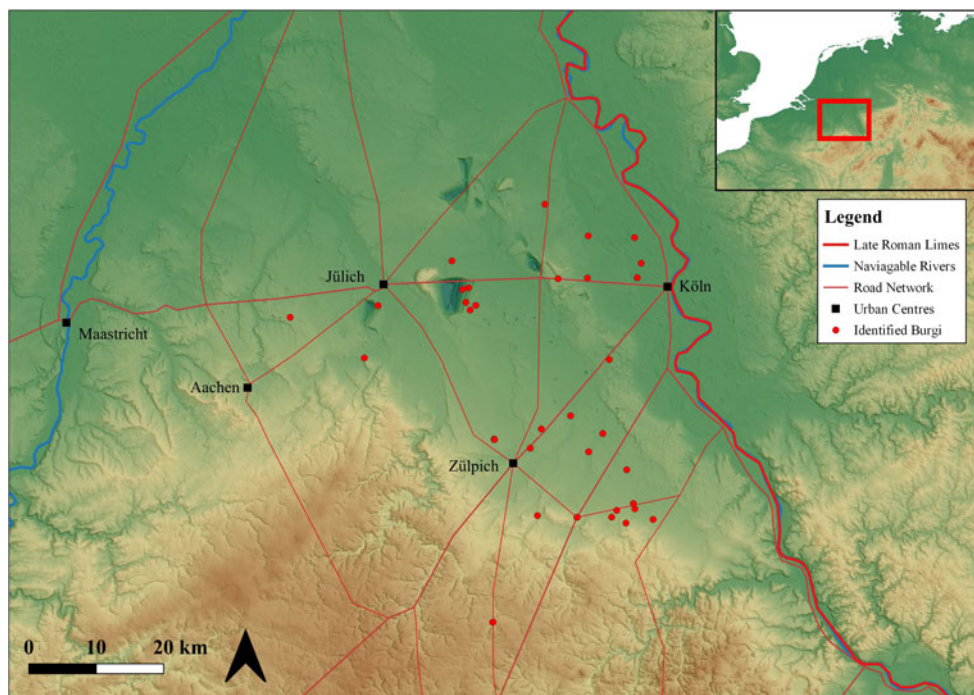


Figure 1. The study area, with site locations.

both military and establishments seemingly related to earlier villa complexes. The smaller towns shrunk or were abandoned, with some transformed into fortified enclosures (at Jülich: Perse, 1998; Aachen: Kyritz & Schaub, 2015; Zülpich: Gechter et al., 1979).

The appearance, use, and maintenance of defended enclosures, generally referred to as *burgi*, is a key element in this shifting pattern. Across both the lowland loess belt and the Eifel-Ardenne range, the number and scale of defended settlements increased during late antiquity. The development of these sites has been noted as far back as the mid-nineteenth century (e.g. Del Marmol, 1859) and associated with the retreat of populations to defended strongpoints during the fall of the *Limes* and the incursions of the Franks. This has long played an important role in our perceptions of defence, unrest, and ‘invasion’ in late antique northern Gaul.

Historically, the period under study covers the late third to the early fifth century, broadly equating with the late Roman Empire. The late third century saw a period of rapid and wide-ranging change (Esmonde Cleary, 2013; see Millet, 1990 for a wider view) with political fragmentation, especially in the west (Drinkwater, 1987). The most intense period in north-western continental Europe was between AD 250 and 270, under the so-called ‘Soldier-Emperors’ (Willems, 1984: 273). Within our study area, there is evidence of episodes of significant depopulation, especially in the north and east (Heeren, 2015, 2017; Dodd, 2021), with a lesser impact towards the south and west (Gechter & Kunow, 1986; Lenz, 1999), whilst a breach of the *Limes* was postulated in the frontier zone (Mommsen, 1894: 150–52; Van Es, 1981: 47–48; see Heeren, 2016 for a more recent critique). Rural settlements,

especially villas, began to transform (Dodd, 2021) and there is widespread evidence for the demolition of Classical funerary monuments for *spolia* reuse, often in fortifications (Clemens, 2009; see Perse, 1998 for examples).

The Lower Rhine was stabilized and reorganized under the Tetrarchs ([Nixon et al., 1994] *Panegyrici Latini* VIII, 5), who carved out a new provincial structure based around a senior official at Trier (Wightman, 1985: 202–03). This shift corresponds with an upswing in fortification: new defensive circuits are evident, with most cities fortifying a reduced settlement core, for example at Jülich and Heerlen (Butler, 1959; Mertens, 1977; Johnson, 1983); some sites were abandoned completely, as at Voorburg (*Forum Hadriani*). The widespread development of new fortified sites was coupled with new military networks along the rivers and the *Via Belgica* (Brulet, 1990, 2017; Heeren, 2018).

From the late fourth century onwards, the region slowly drifted out of direct Roman control. Military engagement was increasingly transferred to allied groups of *foederati* (Claudianus [Platnauer, 1922], *De Bello Gothico*: 419–29; Roymans, 2017: 66–67), whilst incursions from Germanic groups may have broken the Middle Rhine *Limes* in AD 405–406 (Kulikowski, 2000: 325–45). The early fifth century saw the region effectively leave the Roman orbit: surviving Romanized settlement patterns broke down and new Frankish groups repopulated the landscape (Dierkens & Périn, 2003; Roymans & Heeren, 2015: 557–58).

This article focuses on one facet of the wider defensive pattern of this period: the proliferation of *burgi*, or *burgus*-like features across the loess belt of the Lower Rhine region in late antiquity (Figure 1). It provides an initial overview of the sites, their chronology, and morphology and puts forward ideas about their function

within the defence scheme. As a first survey of these installations, it classifies and organizes sites identified as *burgi* by type and builds a picture of their development in the Rhineland from the late third century onwards. The data is presented holistically and the assessment of chronological, regional, and typological variations should be viewed as complementing work on the much better studied defended hilltop settlements (Gilles, 1985; Brulet, 2008; Prien & Hilbich, 2012).

EARLY INVESTIGATIONS

The study of defended settlements in north-western Europe was originally rooted in the historical sources. Antiquarian excavations at a range of sites were strongly influenced by these historical sources, which painted a dark picture of late third-century collapse (Aurelius Victor [Gruendel, 1966], *De Caesaribus*; cf. Drinkwater, 1987) and late fourth- and early fifth-century unrest (in Zosimus' *Historia Nova*, for example [Mendelsson, 1963]). This coloured our concept of late third- to fifth-century defended sites, defining site types and patterns with a distinct focus on sites identified as 'military' (e.g. Heidenburg-Hüchelhoven: Hagen, 1928; Brunhaut-Liberchies: Breuer, 1931; Heumensoord: Holwerda, 1933) or hilltop refuges (e.g. Samson: Del Marmol, 1859; Nismes-Roche Trouée: Bequet, 1887–88). The excavation of these sites naturally influenced the wider narrative, with fortified sites, both military, such as the road forts of the *Via Belgica*, and the hilltop sites of the highland zone, reinforcing the story of an unstable, defended landscape.

Within this early framework, *burgi* were somewhat understudied. Early excavations at Heidenburg-Hüchelhoven and Brühl-Villenhäuser assumed that these sites were part of the larger road surveillance network

(Hagen, 1931) and there was little understanding of the role played by other *burgus*-like structures in the region. Moreover, the term began to be used more broadly to include widely differing sites, with ‘*burgus*’ being applied to stone towers or forts defended by ditches along the late Roman *Limes* and hinterland across Europe (cf. Von Petrikovits, 1971).

RECENT APPROACHES

By the end of the Second World War, this initial phase of investigation had given way to more systematic analysis (e.g. Barfield, 1968; Heimberg, 1977; Mertens, 1980), establishing the long-term development of these sites, their relationship to earlier settlements (Brulet, 1974), and the transformation of defensive architecture more generally (Lander, 1980; Reddé, 1995). The initial development of fortified sites, both in the loess belt and the Eifel range, was dated by coinage of the third-century Gallic Emperors and Carausius (Von Petrikovits, 1971; Johnson, 1983; Brulet, 1990). Studies of defended hilltop settlements (Gilles, 1985) established a base for future work, and excavations of Belgian refuges provided an important dataset for the study of these sites (see Brulet, 1978; Mertens & Remy, 1973 for examples).

Partly influenced by the broad concepts of ‘defence-in-depth’ developed in the 1970s (Luttwak, 1976), scholars considered the defence of Germania Secunda and Gallia Belgica ‘solved’ and that new data would merely fill in the gaps in a pattern of defended highways and flexible defence in a partially depopulated landscape (Brulet, 1986, 1990; Van Ossel, 1995; Van Ossel & Ouzoulias, 2000: 143–45; Reddé et al., 2006; Deschieter, 2016). This model has been challenged in recent years, with new data entering circulation. The defended hilltop settlements have

undergone a great deal of further analysis, re-evaluation of older excavations (Hunold, 2011), and elaboration of new approaches (Böhme, 2008; Brulet, 2008; Prien & Hilbich, 2012; Bayard & Fourdrin, 2019). In the loess belt, systematic excavation from the late 1970s onwards in the Rhenish lignite mining area (Gaitzsch, 2011) has increased the number of known *burgi* exponentially (e.g. Gaitzsch & Haarich, 2012), whilst aerial photography from the 1960s onwards has identified further potential sites, especially in the Zülpich area (Scollar, 1963; Heimberg, 1977; Krüger & Zantopp, 1992).

Despite this, there has been little holistic examination of *burgi* in the region’s loess belt and their place in the landscape. Work has tended to focus on individual excavations or broad, thematically linked groups of sites (e.g. the road forts of the *Via Belgica*: Brulet et al., 1995; Bazelmans et al., 2004; or fortified villa complexes: Van Ossel, 1992; Dodd, 2021). Modern approaches have, however, begun to be applied: typologies are being developed (Henrich, 2010, 2015, 2017), with several projects underway. Some work has also targeted defensive architecture (Henrich, 2015; Brulet, 2019) as well as wider issues of integration (Heimerl, 2021: 117–29), making it possible to take further steps in analysis.

DEFINING THE *BURGUS*

Morphologically, the term *burgus* is difficult to define. Arguably a form of crisis architecture (cf. Driessen, 1995), what it represents is problematic. The word was in use from the late second century onwards and appears to apply to small installations or garrisons; its definition is limited (see Vegetius [Lang, 1872], *Epitoma Rei Militaris* IV, 10 for an ancient example; Brulet, 2006: 157) and the term seems to be Germanic in origin

(Visy, 2009). *Burgi* have generally been interpreted as evolving from early imperial timber watchtowers, with examples known as early as the first century AD (see Woolliscroft & Hoffmann, 2006 for Flavian Scotland). They were common along the *Limes* (e.g. Duisburg-Baerl-Dachsberg; Bechert & Willems, 1995: 49) and began appearing in greater number and variety from the third century AD onwards, with examples both in stone and wood. They became increasingly frequent in the hinterland, with the classic example of the Tongres-Bavay roadside forts (Brulet, 1990; Brulet et al., 1995).

The term encompasses a range of sites generally viewed as ditched enclosures, sometimes with towers (Darvill, 2008: 68; cf. Van Ossel, 1992: 164; for related storage towers, see Hiddink, 2022: 143–49). Archaeologically, *burgi* are defined primarily by the presence of V-shaped ‘defensive’ ditches, i.e. earthworks that would halt or delay attackers; some had interior features, others did not. In this study, this is used as a starting point for definition. The key issue is how ‘military’ these sites were. Scholarship has amalgamated unambiguous military installations—defined by stone architecture and multiple V-shaped ditches, coupled with explicit weapon finds, for example at Brunhaut-Liberchies (Breuer, 1931; Brulet

et al., 1995: 45–49)—with much simpler and more enigmatic establishments such as Weisweiler 32 (Schwellnus & Hermanns, 1980), resulting in a complex terminology, now deeply embedded in the research landscape. Although the differences are not necessarily clear, it is important to note that unambiguously military sites are morphologically much more elaborate. Within the study area, there is very little evidence of this, despite some sites (Heidenburg-Hüchelhoven and Brühl-Villenhaus) having long been identified as military installations connected to the defence of the road.

To address these issues, the *burgi* will be considered in a morphological framework (Table 1) that avoids a simple military *vs* civilian dichotomy and treats defence as a sliding scale. *Burgi* come in a variety of forms, all of which increase greatly in number in the loess plain of the Lower Rhine region during late antiquity (Figure 2).

THE DATASET

The dataset for this study consists of thirty-eight sites identified as *burgi*, spread across the region (Table 2). The sites have either been excavated and their excavation has revealed defensive-type enclosures (Heimberg, 1977; Gaitzsch & Haarich, 2012), or they have been surveyed or

Table 1. *Categories of burgi found in the loess belt of the Lower Rhine region (where data are available).*

<i>Burgus</i> type	Characteristics	Number of sites	Examples
Type 1: enclosures without internal structures	Ditch or ditches enclosing an area	5	Weisweiler 32, Rommerskirchen-Steinbrinkerhof
Type 2: enclosures with wooden internal structures	Ditch or ditches. Earth and palisade ramparts, towers, wooden interior buildings	11	Zülpich-Rövenich, Köln-Widdersdorf <i>Burgus</i> 1
Type 3: enclosures with stone internal structures	Ditch or ditches. Stone walls, stone buildings or stone towers, represented by squat, thick foundations	7	Rheinbach-Flerzheim, Jülich-Kirchberg

Table 2. Key information on burgus sites studied. The estimated date ranges in fifty-year blocks are recorded as certain, rather than possible or probable.

Site no.	Site name	Site type	New/ reused	Estimated date range AD (in fifty-year blocks)	Selected reference
1	Alsdorf-Hoengen-Bachfeld	Type 2: wooden structures	Reused	n/a	Lenz, 1999: 137–42
2	Euskirchen-Weilerwist-Lommersum	n/a	New	n/a	Heimberg, 1977
3	Euskirchen-Palmersheim-Lappermühle	Type 1: no internal structures	New	300–400	Heimberg, 1977
4	Mechernich-Satzvey	Type 3: stone structures	New	n/a	Scollar, 1963
5	Zülpich-Weiler	n/a	New	n/a	Scollar, 1963
6	Hambach 133	Type 2: wooden structures	Reused	250–350	Gaitzsch & Janssens, 2008: 111–14
7	Hambach 139	Type 2: wooden structures	Reused	300–400	Gaitzsch & Haarich, 2012
8	Hambach 158	Type 3: stone structures	Reused	250–400	Gaitzsch & Haarich, 2012
9	Hambach 224	Type 2: wooden structures	Reused	250–early fifth century	Beyer & Jürgens, 1995: 516–18
10	Hambach 303	Type 2: wooden structures	Reused	250–350	Beyer & Jürgens, 1995: 518; Van Ossel, 1992: 224
11	Rheinbach-Oberdrees	n/a	New	n/a	Scollar, 1963
12	Rommerskirchen-Steinbrinkerhof	Type 1: no internal structures	Reused	300–early fifth century	Ciesielski & Ungerath, 2016
13	Vettweiß-Froitzheim-Auf der Kohlstraße B	Type 3: stone structures	Reused	250–300; 350–early fifth century	Barfield, 1968
14	Vettweiß-Froitzheim-Auf der Kohlstraße C	n/a	Reused	n/a	Barfield, 1968
15	Vettweiß-Froitzheim-Auf der Kohlstraße D	n/a	Reused	n/a	Barfield, 1968
16	Weisweiler 32	Type 1: no internal structures	Reused	300–400	Schwellnus & Hermanns, 1980
17	Zülpich-Rövenich	Type 2: wooden structures	New	250–400	Heimberg, 1977
18	Heidenburg-Hüchelhoven	Type 3: stone structures	New	250–350	Hagen, 1928
19	Euskirchen-Billig 1	n/a	Reused	n/a	Andrikopoulou-Strack & Wippert, 2008

20	Euskirchen-Billig 2	n/a	Reused	n/a	Andrikopoulou-Strack & Wipperm, 2008
21	Euskirchen-Nettersheim 1	Type 3: stone structures	Reused	250–350	Hepa et al., 2010
22	Euskirchen-Nettersheim 2	n/a	Reused	n/a	Hepa et al., 2010
23	Euskirchen-Palmersheim-Alte Burg	n/a	New	n/a	Gerlach, 1996
24	Jülich-Kirchberg-Auf dem Steinacker/ Weisweiler 112	Type 3: stone structures	Reused	350–early fifth century	Päffgen, 2000
25	Erfstadt-Friesheim	n/a	New	n/a	Heimberg, 1977
26	Erfkreis-Pulheim	n/a	New	250–400	Frank & Wipperm, 1999
27	Euskirchen-Flamersheim	n/a	New	200–300	Krüger, 1990: 471
28	Köln-Bickersdorf	Type 2: wooden structures	Reused	300–early fifth century	Spiegel, 2002
29	Köln-Pesch	Type 2: wooden structures	Reused	350–early fifth century	Spiegel, 2002
30	Rheinbach-Flerzheim	Type 3: stone structures	Reused	300–early fifth century	Gechter, 1987
31	Elsdorf-Oberembt	Type 2: wooden structures	Reused	300–400	Müller, 1971
32	Brühl-Villenhau	Type 2: wooden structures	New	250–300	Bogaers & Rüger, 1974: 180–82
33	Weilerwist-Groß-Vernich	Type 2: wooden structures	Reused	300–400	Unpublished
34	Köln-Widdersdorf 1	Type 2: wooden structures	Reused	300–350	Spiegel, 2002
35	Köln-Widdersdorf 2	Type 1: no internal structures	Reused	350–early fifth century	Spiegel, 2002
36	Swisttal-Ollheim	n/a	Reused	n/a	Wessel & Wohlfarth, 2008
37	Flur- Pastorsbenden	n/a	Reused	n/a	Wessel & Wohlfarth, 2008
38	Frechen-Königsdorf	Type 1: no internal structures	Reused	350–400	Graßkamp, 2004

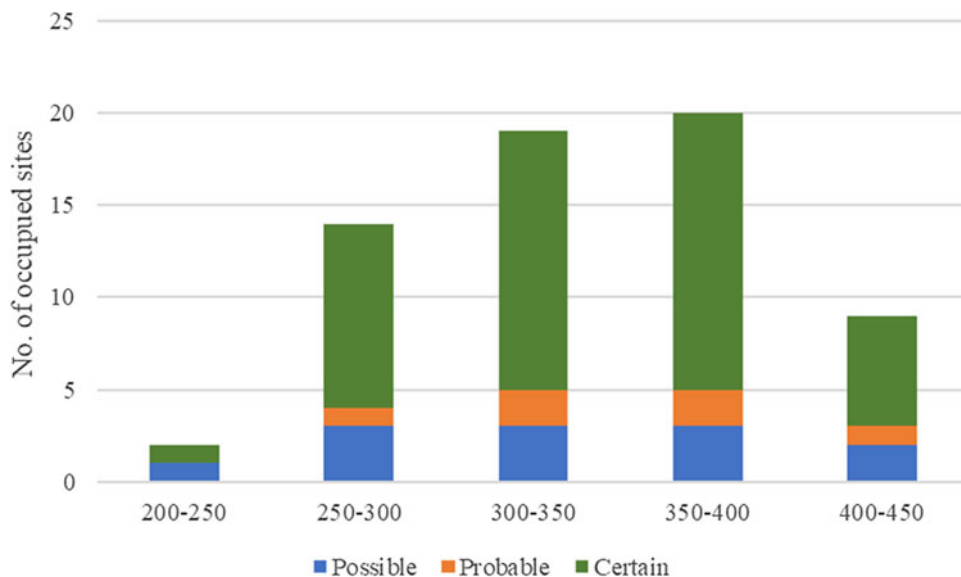


Figure 2. Chronology of occupation of the *burgi*, where data are available. Sites are divided into certain, probable, and possible categories, based on finds and other evidence.

photographed from the air (Scollar, 1963; Krüger & Zantopp, 1992; Frank & Wippert, 1999; Wessel & Wohlfarth, 2008; Song, 2018). All sites were dated in some way to between the third and fifth centuries AD. Although the inclusion of sites located by non-invasive techniques reduces our ability to date and characterize them, it provides a more complete geographical perspective on these sites; we should, however, be aware that some sites, such as Euskirchen-Borr (Scollar, 1963), have been misidentified in the past.

The *burgi* are not evenly distributed; they cluster for various reasons, some indicative of late Roman settlement patterns, others reflecting excavation bias (e.g. in the Rhenish lignite mining area). There seems to be no real discernible pattern: some sites are located along major routes, such as Heidenburg-Hüchelhoven (also known as Quadrath-Ichendorf; Brulet, 2017), whilst others are sited at some distance, such as Weilerwist-Groß-Vernich. Although some *burgi*, such as Euskirchen-Nettersheim (Hepa et al., 2010), are

strategically located at road junctions or river crossings, others are away from transport arteries, such as Hambach 133. Seven sites cluster in the Hambach and Weisweiler mining zones. Although this is probably the result of excavation bias owed to intense landscape-wide excavation since the 1970s, the presence of these sites also points towards the defence of the local glass industry, a high-value product in late antiquity (Gaitzsch et al., 2000).

The dates of the sites broadly span late antiquity (Figure 2). They are most abundant in the fourth century, particularly in the second half. There is clear evidence that these sites were used over the course of the late third to late fourth centuries, in line with long-held assumptions on the use of *burgi* as a whole (Brulet, 1990: 297–99; Brulet, 2006: 156). Although there is some evidence of early third-century *burgi*, their primary use-phase begins in the late third century, when *burgi* structures are abundant, with an eighty-one per cent increase in their appearance and use. This early shift in the late third century is worth

further exploration: some of the earlier sites, for example Euskirchen-Flamersheim, are known from survey and may belong to a transitional phase between earlier watchtowers and true *burgi*. At the other end of the date range, there is a distinct decline after AD 400. More than half the sites do not survive into the fifth century, with little evidence for continuity beyond the early decades. Very few sites show demonstrable evidence of occupation, with a few, such as Rheinbach-Flerzheim, represented by early fifth-century coinage. This suggests that the majority of surviving sites did not last long into the fifth century and raises questions as to whether there was a continuing need for such defences beyond this point. Although this does not necessarily explain who occupied late fourth- and fifth-century *burgi*, it is clear that these sites were no longer important by the mid-fifth century.

FORTIFICATION MORPHOLOGY

Typological variation

Burgi have been traditionally difficult to categorize. Superficially, they are small, enclosed sites, defended by ditches in broadly rectangular, square, or oval configurations. Some of these structures have internal timber, stone, or earth features such as palisades, towers, or ramparts, correlating with Henrich's (2017: 263–64) Types 1a, 1b, 2a, and 2b.

Recently, Henrich (2010, 2015, 2017), based in part on previous work (Van Ossel, 1992: 163–65), has attempted to define typological groups for fortified settlements. These site groups are focused on the development of fortifications on villa complexes, which does not necessarily demonstrate the proliferation of *burgus* features across the region. There are clear

examples of *ex novo* foundations as well as rebuilding or reuse at villa complexes. This division between new foundations and reused buildings or sites forms the basis of the typological division employed here (Table 3). New foundations are defended enclosures established on virgin ground, without known antecedent sites, whilst reused buildings or sites represent *burgi* which use older settlements, often ruined, as locations for defensive structures.

With most *burgi* reusing older settlements, and in some cases renovating and fortifying older buildings (e.g. at Jülich-Kirchberg-Auf dem Steinacker/Weisweiler 112: Päßgen, 2000), these choices have influenced the morphological development of *burgi* in our study area. In some zones, such as the Hambacher Forst, the overwhelming majority of *burgi* are located on or near abandoned or reused villa complexes, sometimes incorporating them into the defences, for example at Hambach 158 and 139. Others, especially towards Zülpich, appear to be *ex novo* foundations with little direct evidence of earlier settlements at a range of sites, both excavated and surveyed. There is, however, limited evidence that these siting decisions were taken on the basis of assessable criteria. Instead, the picture is highly mixed (Figure 3).

Architectural morphology

The traditional approach to architectural morphology at *burgi* sites has been based

Table 3. *Typology of selected sites in the study area.*

Typological characteristics	Number of sites	Key examples
New foundation	12	Heidenburg-Hüchelhoven, Zülpich-Rövenich
Reused site/building	26	Hambach 224, Hambach 303

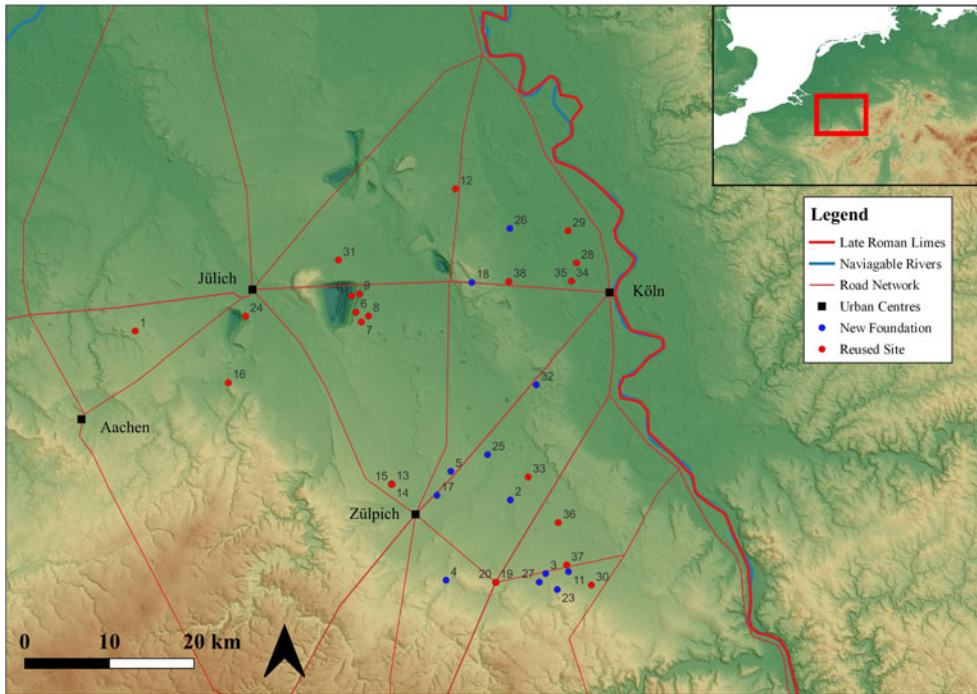


Figure 3. Distribution of new and reused burgi. Numbers refer to the sites listed in Table 2.

on function rather than form. This created two general groups: ‘regular fortifications’, denoting sites with a military presence, and ‘rural fortifications’, implying emergency measures taken by local populations, devoid of central planning and organization, with a variety of terms used to elaborate on this (Brulet, 1990, 2006). With respect to form, three major types of sites stand out within our dataset: enclosures without internal structures, enclosures with wooden internal structures, and enclosures with stone internal structures (Table 1). All three forms are found widely throughout the loess belt, both in larger ‘military’ installations and in sites traditionally identified as ‘civilian’ (Johnson, 1983: 138–41; Brulet, 2017: 49–51). These categories represent a development within the specific site-based lens of Henrich’s (2017: 263–64) Types 1a, 1b, 2a, and 2b.

The dataset is dominated by Type 2 features: enclosures with timber internal

structures. Primarily these are palisades, i.e. lines of stakes forming a wooden barrier. It is also notable that where stone buildings are present, palisade structures often form part of the defence, for example at Rheinbach-Flerzheim and Mechernich-Satzvey (Song, 2018: 27, fig. 5). Timber defences are therefore represented at all levels in the dataset, both temporally and spatially. Early sites, especially those dating to the late third century and the Gallic Empire, are primarily constructed from wood, often in multiple phases. Two key sites stand out, Brühl-Villenhau and the first phase at Heidenburg-Hüchelhoven. Both sites are roadside forts, primarily timber and earth constructions, and can be viewed within the milieu of the *Via Belgica* defence. Timber defences are also known at later sites, such as Köln-Widdersdorf *Burgus* 1, where internal structures and a possible palisade were recorded. This suggests a long-term continuity in design across the

late third and fourth centuries, with building practice following designs that were widely disseminated across the region.

This homogeneity is evident in the construction of the ditches. Almost every site where evidence was available had near identical ditches. The similarity of their profiles is remarkable: in nearly all cases it is a deep V-shaped ditch, in some cases tapering to a flat base. There are no examples of more elaborate features such as ankle-breakers or lines of stakes, elements which are present in the military installations along the *Via Belgica* (Brulet et al., 1995). The wide-ranging, but poorly dated, tower structures suggest similar designs being continually used in the loess belt, with the layout of Rheinbach-Flerzheim (Gechter, 1987) reflecting wider developments in defensive architecture. Notably, the best published stone tower, the fortification at Vettweiß-Froitzheim (Barfield, 1968), has a more complex style, with multiple rebuilding phases.

These issues may relate to building methods and materials. Labour needed to be marshalled and resources acquired. The optimal construction times suggested by Shirley (2000) for the first-century fortress at Inchtuthil in Scotland have been accepted as the norm for military construction; no parallel has been suggested for ‘civilian’ sites, but it is likely that the process was much slower. Whilst it may be possible to see emergency construction in poorly built, quickly erected defences, the startling similarity of the deep V-shaped ditches rather suggests that building a *burgus* was a planned operation. It does not appear to represent a short-term solution to perceived vulnerability but rather the result of longer-term planning.

In plan, key differences between the different types of defended enclosures begin to appear. Oval and sub-oval plans, such as at Rommerskirchen-Steinbrinkerhof, contrast with rectangular or square ditched

enclosures, for example at Zülpich-Rövenich. Figure 4 illustrates these changes, grouping sites by categories (see Table 1). A limited number of sites exist without internal features (Type 1), for example at Weisweiler 32 (Schwellnus & Hermanns, 1980). These sites superficially represent more developed *burgi*, especially in the form of their ditches, but their lack of internal defensive architecture such as palisades suggests that these features would be indefensible; hence it may be worth considering other functional options. There appears to be a correlation between more oval ditch circuits and a lack of internal features, but this is difficult to substantiate; much more work on the publication and excavation of *burgi* is needed to test this.

Six sites within this dataset have multiple ditches, displaying evidence of elaborate defences (see Figure 4 for two examples). Multiple-ditched sites overwhelmingly have some form of central tower feature, either in wood or stone, representing greater expenditure of time and effort than more rudimentary Type 1 or Type 2 enclosures. Unlike *burgi* in the Rhineland-Palatinate, where there are significant examples of developed *burgi* with multiple ditches, stone defences, and considerable cost and time invested in their construction (see Krier, 2009; Henrich, 2017 for examples), equivalent sites in the loess belt are not frequent; they are clearly not representative of the wider defended landscape and generally something of an anomaly within the loess belt.

Geographically, the differences between *burgi* types are difficult to discern. There are very few clear patterns in the distribution of the *burgi* in the loess belt, with a wide spread of different types across the region. Nonetheless, one trend is discernible (Figure 5). By and large, stone-built *burgi* are located closer to the road network, with a distribution tied much more to transport links, arguably playing a

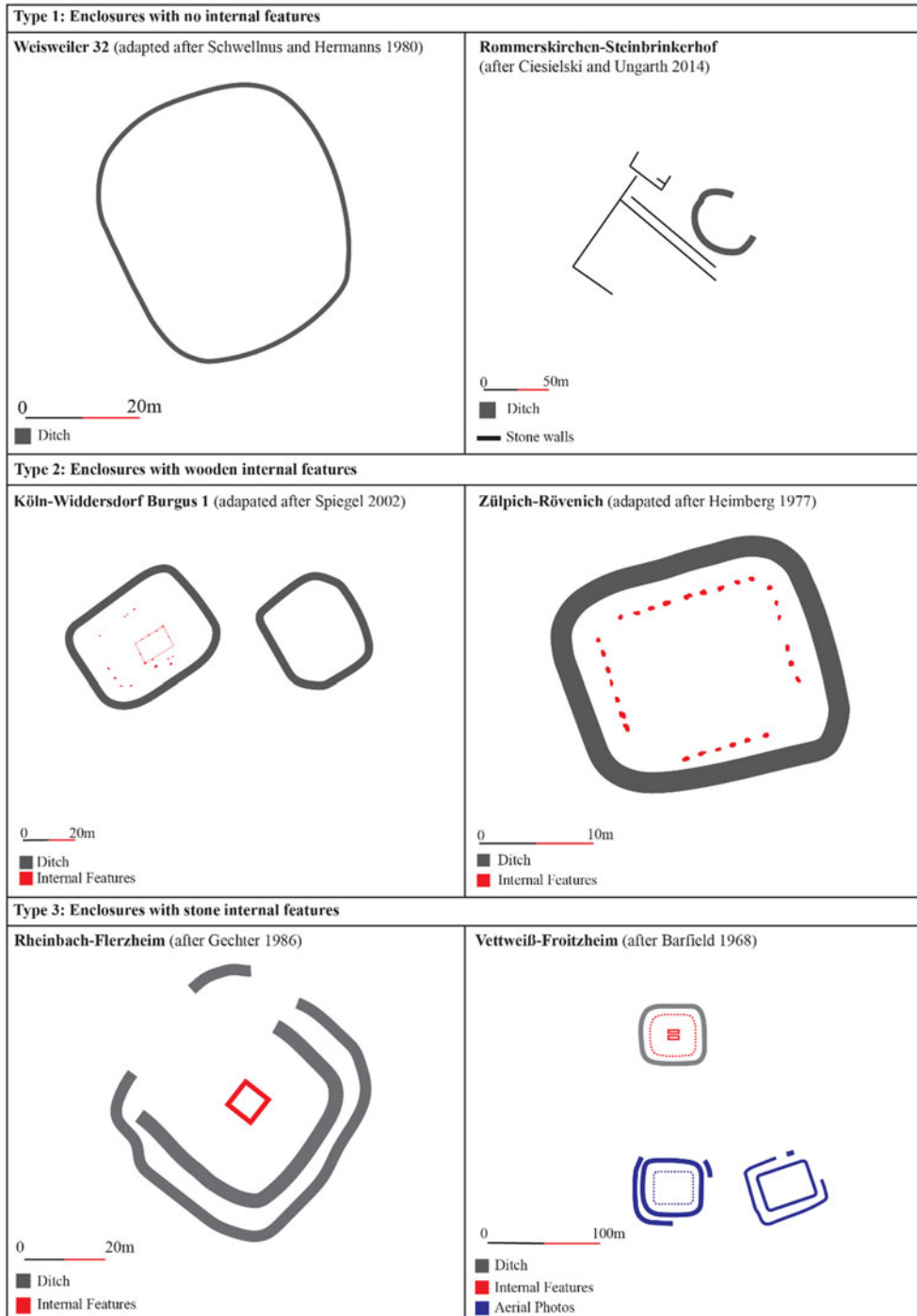


Figure 4. Forms of enclosed defensive settlements.

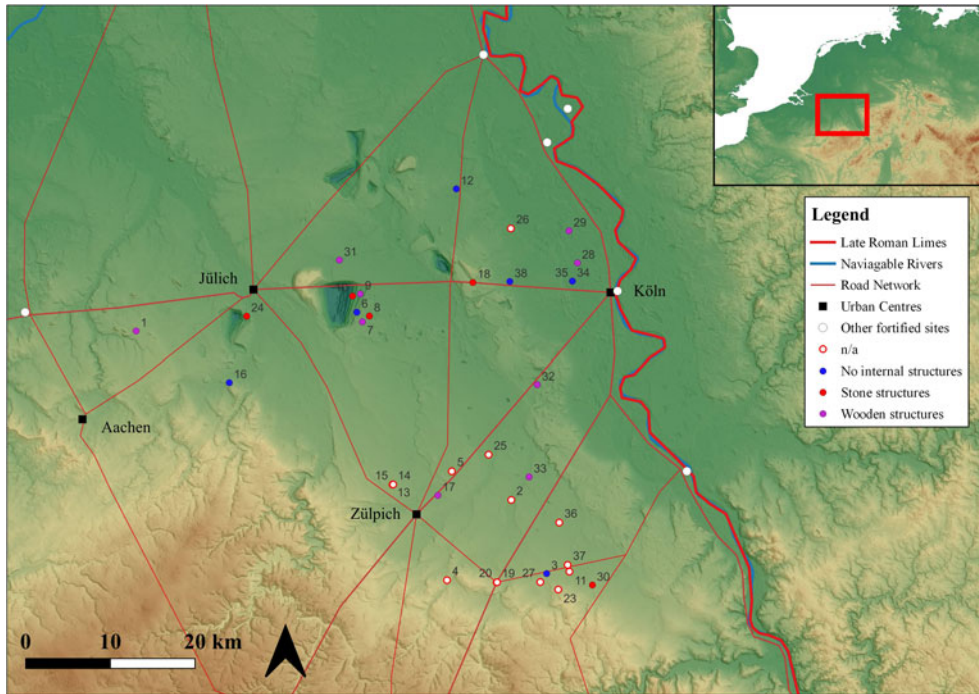


Figure 5. Distribution of morphological variations in *burgi* sites. Numbers refer to the sites listed in Table 2.

role in road surveillance. Their morphological similarity to the roadside forts of the *Via Belgica* between Tongres and Bavay hints at a similar design aesthetic, although further work is needed to publish these sites fully (Brulet et al., 1995 for an overview; Vilvorder & Verslype, 2019 for Tavieres). Further work is also needed to identify the nature of poorly understood sites, or sites revealed by aerial photography (as has been undertaken by Wessel & Wohlfarth, 2008); this would enhance our understanding of the role of these fortifications in the landscape and provide a better picture of their internal features.

FUNCTIONALITY AND *BURGI* IN THE LOESS PLAIN OF THE LOWER RHINE REGION

The data presented demonstrates the complexity of *burgus* sites in the loess plain of

the Lower Rhine region. The broad typological differences between the types of *burgus*, and the challenges offered by their distribution, highlight some of the issues related to the spatial, typological, and chronological divisions in terms of the function of these sites. Without significant modern excavation, coupled with an intensive publication programme of previously excavated *burgi*, we cannot be certain about the relationships between these sites and the landscape.

The role of the military community in the construction, operation, and maintenance of *burgi* is an obvious target for enquiry. Several sites have been claimed as military, based on a perceived typology, including Vettweiß-Froitzheim and Rheinbach-Flerzheim, whilst others are thought not to be military (Reddé et al., 2006). This division appears arbitrary; although there is a clear lack of defensive

architecture at Weisweiler 32, the ditch profiles are overwhelmingly similar and suggest a design developing from a similar source. Separation between military and non-military is not necessarily demonstrable in the material culture either. The finds from *burgi* sites are usually scarce (Heimberg, 1977; Woolliscroft & Hoffmann, 2006 for finds issues at small Roman installations in Scotland) and, if present, 'military' finds tend to be somewhat ambiguous. There is some limited evidence that more developed *burgi* yielded overtly military objects (Barfield, 1968: 92–110) but this is not universal since some less elaborate *burgi* have also yielded objects of a possibly military nature (Spiegel, 2002: 727–29).

The end of the *burgi* provides another, contradictory, perspective on occupation. The majority are abandoned by, or in, the early fifth century, in line with villa occupation in the area (Dodd, 2021, 90–94). The 'burgi abandonment horizon' perhaps indicates some military function. New arrangements along the Lower Rhine, where groups of *foederati* (Roymans, 2017) had an impact on troop deployments in the loess belt, coincide with *burgi* being abandoned by the early fifth century. Regardless of the reasoning behind this, the key point is that the smaller fortifications of the loess belt could not remain viable without the overarching framework of Roman political-military control, especially given their large number in periods of relative stability such as the early fourth century. This naturally suggests that the *burgi* were used, in part, by members of the military community, or at the very least, by groups that relied on the Roman state for their social, political, or military existence.

Morphologically, it is clear that some *burgi* were effectively indefensible. The lack of obvious defensive architecture, beyond V-shaped ditches, at Weisweiler

32 and Rommerskirchen-Steinbrinkerhof suggests that these sites were difficult or impossible to defend. What they represent instead is more challenging. Options for their roles within the landscape may include corals for livestock, which might be tested through chemical analysis or landscape-scale examination. The location of some sites, along with several Type 2 and Type 3 *burgi*, in the Hambacher Forst suggests that they may have played a role in the glass industry. The late antique Hambach glass industries are well studied (Brüggler, 2009; Rehren & Brüggler, 2020) and the defence of this key industry probably accounts for the cluster of *burgi* in this zone, either for processing, surveillance, or protection. Although Type 1 enclosures are undefended in a traditional sense, a V-shaped ditch may have acted as a sufficient deterrent to store glass securely before transport and, when coupled with local Type 3 defences, may have deterred would-be thieves. Much further work is needed to establish the relationship between the *burgi* and the glass production and processing sites in the lignite mining area.

CONCLUSION

The disparate evidence presented here suggests that *burgi* sites, bar a few probable military exceptions such as Brühl-Villenhau and Heidenburg-Hüchelhof, were multi-functional. Military and civil activities across the continental north-western Roman provinces were increasingly merging in the fourth century (Brulet, 2019) and it is appropriate to see independent 'militia' as well as military detachments occupying defended sites (see Brulet, 2017 for similar themes on urban defences). The location of the sites, both on and away from important transport arteries, supports this theory: some *burgi*

were located in zones with little or no interest to the Roman state, whilst architectural similarities between the sites suggest that they are related to one another in terms of design and form. Furthermore, although *burgi* probably had elements of ‘private’ operation and cost (Henrich, 2015 for an overview, 2017: 263–69), it is likely that designs spread quickly from military to civil contexts, perhaps along with military support or labour.

The data illustrate a web of multifunctional usage, military design schemes, different meanings, and occupation by different groups. The key obstacle to further understanding the *burgi* is simply a lack of publication. Most site records form part of the backlog held in store by the heritage authorities; since many sites are located in the lignite mining area, the polluter-pays principle does not apply (Gaitzsch, 2011). Publication beyond preliminary reports would help refine chronological and morphological resolution and allow us to better understand the sites’ construction, development, and longevity. Beyond that, integrating the *burgi* into the wider context will place them into the fortified landscape at a regional level and comparisons with other regions, for example Pannonia, are essential. The *burgi* in the loess plain of the Lower Rhine region are a key element in the defensive architecture of north-western Europe in Roman times. This article is an initial step in the study of these sites.

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REFERENCES

- Andrikopoulou-Strack, N. & Wippert, J.J.M. 2008. Vicus Belgica. Grabung, Begehung und Geophysik. *Archäologie im Rheinland*, 2007: 98–100.
- Barfield, L.H. 1968. Ein Burgus in Froitzheim, Kreis Düren. In: L.H. Barfield, ed. *Beiträge zur Archäologie des römischen Rheinlands*, 1. Düsseldorf: Rheinland Verlag, pp. 9–120.
- Bayard, D. & Fourdrin, J.-P. eds. 2019. *Villes et fortifications de l'Antiquité tardive dans le nord de la Gaule*. Lille: Revue du Nord.
- Bazelmans, J., Bakels, C. & Kocken, M. 2004. De Romeins wachtpost op de Goudesberg. Een verslag van de opgraving – Valkenburg aan de Geul 2004. *Historische en heemkundige studies in en rond het Geuldal, Jaarboek*, 2004: 61–86.
- Bechert, T. & Willems, W.J.H. 1995. *De romeinse rijksgrens tussen Moezel en Noordzeekust*. Den Haag: Matrijs.
- Bequet, A. 1887–88. Nos fouilles en 1885, Nismes, le refuge de la Roche Trouée. *Annales de la Société archéologique de Namur*, 5: 254–56.
- Beyer, B. & Jürgens, A. 1995. Rheinisches Amt für Bodendenkmalpflege. Ausgrabungen, Funde und Befunde 1993. *Bonner Jahrbuch*, 195: 457–575. <https://doi.org/10.11588/bjb.1995.0.62399>
- Bogaers, J.E. & Rüger, C.B. 1974. *Der Niedergermanische Limes*. Bonn: Rheinland Verlag.
- Böhme, H.W. 2008. Gallische Höhensiedlungen und germanische Söldner im 4./5. Jahrhundert. In: H. Steuer & V. Bierbrauer, eds. *Höhensiedlungen zwischen Antike und Mittelalter von den Ardennen bis zur Adria* (Reallexikon der Germanischen Altertumskunde Ergänzungsbände, 58). Berlin: De Gruyter, pp. 71–104.
- Breuer, J. 1931. Le fort romain de Brunhaut-Liberchies. *Bulletin des musées royaux d'art et d'histoire*, 3: 98–103.
- Brüggler, M. 2009. *Villa rustica, Glashütte und Gräberfeld: Die kaiserzeitliche und spätantike Siedlungsstelle HA 132 im Hambacher Forst*. Mainz: Philipp von Zabern.
- Brulet, R. 1974. *La Roche à Lomme à Dourbes* (Archaeologia Belgica, 160). Bruxelles: Service national des fouilles.
- Brulet, R. 1978. *La Fortification de Hauterence à Furföoz*. Louvain-la-Neuve: Université Catholique de Louvain.

- Brulet, R. 1986. Les sites fortifiés ruraux du Bas-Empire et du Haut Moyen Age dans le bassin mosan. In: M. Otte & J. Willems, eds. *La civilisation mérovingienne dans le bassin mosan : actes du colloque international d'Amay-Liège, du 22 au 24 août 1985*. Liège: Université de Liège, pp. 111–20.
- Brulet, R. 1990. *La Gaule septentrionale au Bas-Empire: occupation du sol et défense du territoire dans l'arrière-pays du Limes aux IVe et Ve siècles*. Trier: Rheinisches Landesmuseum.
- Brulet, R. 2006. L'architecture militaire romaine en Gaule pendant l'Antiquité tardive. In: M. Reddé, R. Brulet, R. Fellmann, J.-K. Haalebos, S. von Schnurbein & P. Aupert, eds. *L'architecture de la Gaule romaine: Les fortifications militaires*. Bordeaux: Ausonius, pp. 155–79.
- Brulet, R. 2008. Fortifications de hauteur et habitat perché de l'Antiquité tardive au début du Haut Moyen-Âge, entre Fagne et Eifel. In: H. Steuer & V. Bierbrauer, eds. *Höhensiedlungen zwischen Antike und Mittelalter von den Ardennen bis zur Adria* (Reallexikon der Germanischen Altertumskunde Ergänzungsbände, 58). Berlin: De Gruyter, pp.13–70.
- Brulet, R. 2017. The Roman Army and Military Defence in Northern Gaul and the Germanic Provinces During the Late Empire. In: N. Roymans, S. Heeren & W. De Clercq, eds. *Social Dynamics in the Northwest Frontiers of the Late Roman Empire*. Amsterdam: Amsterdam University Press, pp. 39–56.
- Brulet, R. 2019. Le nord de la Gaule et la frontière du Rhin : imbrication des sphères civile et militaire. In: D. Bayard, & J.-P. Fourdrin, eds. *Villes et fortifications de l'Antiquité tardive dans le nord de la Gaule*. Lille: Revue du Nord, pp. 91–108.
- Brulet, R., Mertens, J. & Léva, C. 1995. *Forts romains de la route Bavay-Tongres*. Louvain-la-Neuve: Université Catholique de Louvain.
- Butler, R.M. 1959. Late Roman Town Walls in Gaul. *Archaeological Journal*, 116: 25–50. <https://doi.org/10.1080/00665983.1959.10854142>
- Ciesielski, S. & Ungerath, O. 2016. Ein mehrperiodiger Siedlungsplatz am Steinbrinker Hof in Rommerskirchen. *Archäologie im Rheinland*, 2016: 124–26.
- Clemens, L. 2009. Zum Umgang mit Grabbauten der frühen und mittleren Kaiserzeit während der Spätantike und des Mittelalters nördlich der Alpen. In: D. Boschung, ed. *Grabbauten des 2. und 3. Jahrhunderts in den gallischen und germanischen Provinzen*. Wiesbaden: Reichert, pp. 313–29.
- Darvill, T. 2008. *The Concise Oxford Dictionary of Archaeology* (2nd edn). Oxford: Oxford University Press.
- Del Marmol, E. 1859. Fouilles dans un cimetière de l'époque franque à Samson. *Annales de la Société archéologique de Namur*, 6: 345–91.
- Deschieter, J. 2016. Two Shield Bosses from the Roman Vicus at Velzeke: Evidence of a Countryside in Peril. *Journal of Roman Military Equipment Studies*, 17: 61–68.
- Dierkens, A. & Périn, P. 2003. The 5th Century Advance of the Franks in Belgica II: History and Archaeology. In: E. Taayke, J.H. Looijenga, O.H. Harsema & H.R. Reinders, eds. *Essays on the Early Franks*. Groningen: Barkhuis, pp. 165–93.
- Dodd, J. 2021. *Villa Complexes in the Late Antique West: Case Studies of Regionalisation, Transformation and Migration AD 250–650* (unpublished PhD dissertation, Free University Amsterdam).
- Driessen, J. 1995. Crisis Architecture? Some Observations on Architectural Adaptations as Immediate Responses to Changing Socio-Cultural Conditions. *Topoi Orient-Occident*, 5: 63–88.
- Drinkwater, J. 1987. *The Gallic Empire: Separatism and Continuity in the Northwestern Provinces of the Roman Empire AD 260–274*. Wiesbaden: Steiner.
- Esmonde Cleary, S. 2013. *The Roman West AD 250–500*. Cambridge: Cambridge University Press.
- Fischer, T. ed. 2012. *Die Krise des 3. Jahrhunderts n. Chr. und das Gallische Sonderreich*. Wiesbaden: Reichert.
- Frank, K. & Wippern, J.M.M. 1999. Integrierte Prospektion. Ein römisches burgus als Fallbeispiel. *Archäologie im Rheinland*, 1998: 162–64.
- Gaitzsch, W. 2011. Roman Villa Landscapes of the Lignite Mining Areas in the Hinterland of Cologne. In: N. Roymans, & T. Derks, eds. *Villa Landscapes in the Roman North: Economy, Culture and Lifestyles*. Amsterdam: Amsterdam University Press, pp. 285–300.

- Gaitzsch, W. & Haarich, H. 2012. Römische Kaiserzeit: Zwei spätrömische Befestigungen (burgi) im Tagebau Hambach. *Archäologie im Rheinland*, 2011: 128–29.
- Gaitzsch, W. & Janssens, J. 2008. Burgus und merowingerzeitliche Gräber in Etzweiler. *Archäologie im Rheinland*, 2007: 111–14.
- Gaitzsch, W., Follmann-Schulz, A.-B., Wedepohl, (Autor/in) K. H., Hartmann, G. & Tegtmeier, U. 2000. Spätrömische Glashütten im Hambacher Forst – Produktionsort der ECVA-Fasskrüge: Archäologische und naturwissenschaftliche Untersuchungen. *Bonner Jahrbuch*, 200: 83–241. <https://doi.org/10.11588/bjb.2000.0.62196>
- Gechter, M. 1987. Der römische Gutshof der Secundini bei Rheinbach-Flerzheim. *Jahrbuch des Rhein-Sieg-Kreis*, 1987: 39–46.
- Gechter, M. & Kunow, J. 1986. Zur ländlichen Besiedlung des Rheinlandes in römischer Zeit, *Bonner Jahrbuch*, 186: 377–96. <https://doi.org/10.11588/bjb.1986.0.63853>
- Gechter, M., Heimberg, U. & Pahlen, P. 1979. Ausgrabungen in Zülpich. *Ausgrabungen im Rheinland*, 1978: 85–90.
- Gerlach, G. 1996. Ein geschütztes Bodendenkmal. Der spätrömische burgus von Palmersheim. *Archäologie im Rheinland*, 1995: 90–92.
- Gilles, K.-J. 1985. *Spätrömische Höhensiedlungen in Eifel und Hunsrück*. Trier: Rheinisches Landesmuseum.
- Graßkamp, S. 2004. Frechen-Königsdorf – Ein Vergleich der Ergebnisse von Prospektion und Grabung. *Archäologie in Rheinland*, 2004: 91–94.
- Gruendel, R. 1966. Sextus Aurelius Victor. *Liber de Caesaribus*. Leipzig: Teubner.
- Hagen, C. 1928. Heidenburg-Hüchelhoven. *Bonner Jahrbuch*, 133: 238–39. <https://doi.org/10.11588/bjb.1928.0.46593>
- Hagen, J. 1931. *Römerstraßen der Rheinprovinz*. Bonn: Schroeder.
- Heeren, S. 2015. The Depopulation of the Lower Rhine in the 3rd Century: An Archaeological Perspective. In: N. Roymans, T. Derks & H.A. Hiddink, eds. *The Roman Villa at Hoogeloon and the Archaeology of the Periphery*. Amsterdam: Amsterdam University Press, pp. 271–95.
- Heeren, S. 2016. The Theory of ‘Limesfall’ and the Material Culture of the Late 3rd Century. *Germania*, 94: 185–209. <https://doi.org/10.11588/ger.2016.39072>
- Heeren, S. 2017. From Germania Inferior to Germania Secunda and Beyond: A Case Study of Migration, Transformation and Decline. In: N. Roymans, S. Heeren & W. De Clercq, eds. *Social Dynamics in the Northwest Frontiers of the Late Roman Empire*. Amsterdam: Amsterdam University Press, pp. 203–21.
- Heeren, S. 2018. Military Might for a Depopulated Region? Interpreting the Archaeology of the Lower Rhine Area in the Late Roman Period. In: P. Diarte-Blasco & N. Christie, eds. *Interpreting Transformations of People and Landscapes in Late Antiquity and the Early Middle Ages: Archaeological Approaches and Issues*. Oxford: Oxbow, pp. 137–47.
- Heimberg, U. 1977. Ein burgus bei Zülpich. *Bonner Jahrbuch*, 177: 580–93. <https://doi.org/10.11588/bjb.1977.1.78995>
- Heimerl, F. 2021. *Das römische Beda/Bitburg*. Trier: Rheinisches Landesmuseum.
- Henrich, P. 2010. Die in der Spätantike befestigte römische Villa von Bodenach, Landkreis Vulkaneifel. *Funde und Ausgrabungen im Bezirk Trier*, 42: 31–43. <https://doi.org/10.11588/fuabt.2010.54722>
- Henrich, P. 2015. Private Befestigungsanlagen der Spätantike in den gallischen und germanischen Provinzen. In: P. Henrich et al., eds. *Non solum ... sed etiam. Festschrift für Thomas Fischer zum 65. Geburtstag*. Rahden: Marie Leidorf, pp. 177–87.
- Henrich, P. 2017. Die befestigte Villa von Bodenbach (Landkreis Vulkaneifel) im Kontext der spätantiken Befestigungen Nordgalliens und Niedergermaniens. *Trierer Zeitschrift*, 79/80: 231–83. <https://doi.org/10.11588/2016.55074>
- Hepa, M., Forrest, M. & Ortisi, S. 2010. Neue Untersuchungen im Vicus von Nettersheim, *Archäologie im Rheinland*, 2009: 89–91.
- Hiddink, H.A. ed. 2022. *The Roman Villa at Voerendaal-Ten Hove*. Amersfoort: Rijksdienst voor het Cultureel Erfgoed.
- Holwerda, H.J. 1933. Romeinsch miniatuur castellum in Heumensoord. *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden*, 14: 10–25.
- Hunold, A. 2011. *Die Befestigung auf dem Katzenberg bei Mayen und die spätrömischen*

- Höhenbefestigungen in Nordgallien*. Mainz: Römisch-Germanisches Zentralmuseum.
- Jeneson, K. 2011. Evaluating Settlement Patterns and Settlement Densities in the Villa Landscapes between Tongres and Cologne. In: N. Roymans & T. Derks, eds. *Villa Landscapes in the Roman North: Economy, Culture and Lifestyles*. Amsterdam: Amsterdam University Press, pp. 259–74.
- Johnson, S. 1983. *Late Roman Fortifications*. London: Batsford.
- Krier, J. 2009. Die Ausgrabungen auf dem Gelände der römischen Palastvilla von Bartringen-Burmicht. In: G. Kremer, ed. *Das frühkaiserzeitliche Mausoleum von Bartringen (Luxemburg)*. Luxemburg: Musée national d'histoire et d'art, pp. 13–30.
- Krüger, T. 1990. Kreis Euskirchen. In: B. Beyer, A. Jürgens & M. Rech, eds. *Ausgrabungen, Funde und Befunde 1988. Bonner Jahrbücher*, 190: 471.
- Krüger, T. & Zantopp, R. 1992. Römische Kleinbefestigungen – Aus der Luft entdeckt und unter Denkmalschutz gestellt. *Archäologie im Rheinland*, 1991: 62–64.
- Kulikowski, M. 2000. The *Notitia Dignitatum* as a historical source. *Historia: Zeitschrift für Alte Geschichte*, 49: 358–77.
- Kyritz, D. & Schaub, A. 2015. Neues vom Aachener Markt: Das spätrömische Kastel und sein Nachleben. *Archäologie im Rheinland*, 2014: 154–57.
- Lander, J. 1980. Typology and Late Roman Fortifications: The Case of the 'Diocletianic Type'. In: W.S. Hanson & L.J.F. Keppie, eds. *Roman Frontier Studies 1979, Part III* (BAR International Series 71(III)). Oxford: British Archaeological Reports, pp. 1051–61.
- Lang, C. ed. 1872. *Vegetius. Epitoma Rei Militaris*. Stuttgart: Teubner.
- Lenz, K.-H. 1999. *Siedlungen der römischen Kaiserzeit auf der Aldenhoven Plateau*. Köln: Rheinland Verlag.
- Luttwak, E. 1976. *The Grand Strategy of the Roman Empire*. Baltimore: Johns Hopkins University Press.
- Mendelshon, L. 1963. Zosimus, *Historia Nova*. In: *Zosimi Comitis et Exadvocati Fisci Historia Nova*. Hildesheim: Olms.
- Mertens, J. 1977. De Laat-Romeins stadmauer van Tongeren. *Archaeologia Belgica*, 196: 49–54.
- Mertens, J. 1980. Recherches récentes sur le limes en Gaule Belgique. In: W.S. Hanson & L.J.F. Keppie, eds. *Roman Frontier Studies 1979, Part II* (BAR International Series 71(II)). Oxford: British Archaeological Reports, pp. 423–70.
- Mertens, J. & Remy, H. 1973. *Un refuge du Bas Empire à Éprave* (Archaeologia Belgica, 144). Bruxelles: Service national des fouilles.
- Millet, M. 1990. *The Romanisation of Britain: An Essay in Archaeological Interpretation*. Cambridge: Cambridge University Press.
- Mommsen, Th. 1894. *Römische Geschichte 5: Die Provinzen von Caesar bis Diocletian*. Berlin: De Gruyter.
- Müller, G. 1971. Eine Befestigte Spätromische villa rustica bei Oberembt, Kreis Bergheim. In: G. Binding, ed. *Beiträge zur Archäologie des römischen Rheinlands*, 2. Düsseldorf: Rheinland Verlag, pp. 350–64.
- Nixon, C.E.V., Rodgers, B.S. & Mynors, R.A.B. 1994. Anon., *Panegyrici Latini*. In: *In Praise of Later Roman Emperors: The Panegyrici Latini: Introduction, Translation And Historical Commentary with the Latin Text of R.A.B. Mynors*. Berkeley: University of California Press.
- Päffgen, B. 2000. Villa rustica und Burgus auf dem Steinacker in Jülich-Kirchberg. In: H.G. Horn, ed. *Millionen Jahre Geschichte, Fundort Nordrhein-Westfalen* (exhibition catalogue). Mainz: Philipp von Zabern, pp. 283–84.
- Perse, M. 1998. Das spätrömische Kastell in Jülich. In: C. Bridger & K.-J. Gilles, eds. *Spätromische Befestigungsanlagen in der Rhein- und Donau Provinzen* (BAR International Series, 704). Oxford: Archaeopress, pp. 57–62.
- Platnauer, M. 1922. Claudian, *De Bello Gothico*. In: *On Stilicho's Consulship 2–3. Panegyric on the Sixth Consulship of Honorius. The Gothic War. Shorter Poems. Rape of Proserpina*. Cambridge (MA): Harvard University Press.
- Prien, R. & Hilbich, P. 2012. Zur Rolle von Höhensiedlungen in der spätantiken Siedlungslandschaft der Moselregion. In: O. Heinrich-Tamáska, ed. *Rauben, Plündern, Morden - Nachweis von Zerstörung und kriegerischer Gewalt im archäologischen Befund : Zerstörung und Gewalt im archäologischen Befund (Bremen, 5.-6.10.2011)* (Tagungsbeiträge der

- Arbeitsgemeinschaft Spätantike und Frühmittelalter, 6). Hamburg: Verlag Dr. Kovač.
- Reddé, M. 1995. Dioclétien et les fortifications militaires de l'Antiquité tardive: Quelques considérations de méthode. *Antiquité Tardive*, 3: 91–124. <https://doi.org/10.1484/J.AT.2.301090>
- Reddé, M., Brulet, R., Fellmann, R., Haalebos, J.-K., von Schnurbein, S. & Aupert, P. eds. 2006. *L'architecture de la Gaule romaine: Les fortifications militaires*. Bordeaux: Ausonius.
- Rehren, T. & Brüggler, M. 2020. The Late Antique Glass Furnaces in the Hambach Forest Were Working Glass, Not Making It. *Journal of Archaeological Science Reports*, 29: 10–72. <https://doi.org/10.1016/j.jasrep.2019.102072>
- Roymans, N. 2017. Gold, Germanic Foederati and the End of Imperial Power in the Late Roman North. In: N. Roymans, S. Heeren & W. De Clercq, eds. *Social Dynamics in the Northwest Frontiers of the Late Roman Empire*. Amsterdam: Amsterdam University Press, pp. 57–81.
- Roymans, N. & Derks, T. 2011. *Villa Landscapes of the Roman North: Economy, Culture and Lifestyle*. Amsterdam: Amsterdam University Press.
- Roymans, N. & Heeren, S. 2015. Contextualising Ethnicity and the Rhetoric of Burial Rites in Late Antique Northern Gaul: The Evidence From Settlements and Precious Metal Circulation. In: M. Kars, R. van Oosten, M.A. Roxburgh & A. Verhoeven, eds. *Rural Riches and Royal Rags? Studies on Medieval and Modern Archaeology Presented to Frans Theuvs*. Zwolle: Spa-Uitgevers, pp. 8–30.
- Schweltnus, W. & Hermanns, J. 1980. Eine spätrömische Befestigungsanlage im Vorfeld des Tagebaues Zukunft-West (Weisweiler 32). *Ausgrabungen im Rheinland*, 1979: 207–08.
- Scollar, I. 1963. Einige Ergebnisse der archäologischen Luftbildforschung im Rheinland während des Jahres 1962. *Bonner Jahrbuch*, 163: 305–10. <https://doi.org/10.11588/bjb.1963.0.75500>
- Shirley, E. 2000. *The Construction of the Roman Legionary Fortress at Inchtuthil* (BAR British Series 298). Oxford: Archaeopress.
- Song, B. 2018. Luftbildarchäologie – Methodische Erfahrungen im Jahr 2017. *Archäologie im Rheinland*, 2017: 25–27.
- Spiegel, E.M. 2002. Ausgrabungen in einem römischen Siedlungsplatz mit zwei spätantiken burgi in Köln-Widdersdorf. *Kölner Jahrbuch*, 35: 699–82.
- Van der Meulen, B. 2017. The Late Roman Limes Revisited: The Changing Function of the Roman Army in the Dutch River/Coastal Area (AD 260–406/7) (unpublished MRes dissertation, Free University Amsterdam).
- Van Es, W.A. 1981. *De Romeinen in Nederland*. Bussum: Unieboek.
- Van Ossel, P. 1992. *Établissements ruraux de l'Antiquité tardive dans le nord de la Gaule*. Paris: CNRS.
- Van Ossel, P. 1995. Insécurité et militarisation en Gaule du Nord au Bas-Empire. L'exemple des campagnes. *Revue du Nord*, 77: 27–36. <https://doi.org/10.3406/rnord.1995.5067>
- Van Ossel, P. & Ouzoulias, P. 2000. Rural Settlement Economy in Northern Gaul in the Late Empire: An Overview and Assessment. *Journal of Roman Archaeology*, 13: 133–60. <https://doi.org/10.1017/S104775940001881X>
- Vilvorder, F. & Verslype, L. 2019. *Taviers gallo-romain. L'agglomération et la fortification*. Louvain-la-Neuve: Université Catholique de Louvain.
- Visy, Z. 2009. *Presidia et burgi in the Early Roman Empire*. *Limes*, 20: 989–96.
- Von Petrikovits, P. 1971. Fortifications in the North-Western Roman Empire from the Third to the Fifth Centuries AD. *Journal of Roman Studies*, 61: 178–218. <https://doi.org/10.2307/300017>
- Wessel, I. & Wohlfarth, C. 2008. *Archäologische Forschungen auf der Rheinbacher Lössplatte. Ein Projekt zur Prospektion in einem geographischen Kleinraum*. Mainz: Philipp von Zabern.
- Wightman, E. 1985. *Gallia Belgica*. London: Batsford.
- Willems, W.J.H. 1984. *Romans and Batavians: A Regional Study in the Dutch Eastern River Area II*. Amersfoort: Rijksdienst voor het Oudheidkundig Bodemonderzoek.
- Woolliscroft, D.J. & Hoffmann, B. 2006. *Rome's First Frontier: The Flavian Occupation of Northern Scotland*. Stroud: Tempus.

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Les *burgi* dans les plaines de loess du Rhin inférieur pendant l'Antiquité tardive

L'infrastructure défensive de l'arrière-pays de la province de Germanie seconde à l'époque romaine tardive dépendait en grande mesure des burgi. Ces établissements défensifs ont joué un rôle dans la transformation des villas et des zones dépeuplées ainsi que dans la présence militaire en Rhénanie. Ils sont largement répandus dans le paysage du IIIe et IVe siècle, dans les basses-terres limoneuses de Belgique, du Limbourg néerlandais et du Rhin, mais peu d'études ont été menées dans le but de les quantifier. Cet article traite de la chronologie, morphologie et fonction des burgi, particulièrement dans les plaines de loess du Rhin inférieur. Sur la base des données provenant de divers burgi, l'auteur tente de les caractériser et d'en tirer des conclusions sur ce qu'ils représentent, dans l'espoir de servir à de futures recherches. Translation by Madeleine Hummler

Mots-clés: fortification, Antiquité tardive, défense, burgus, Rhénanie

Die *burgi* der Spätantike in den rheinischen Lössböden

Die defensive Infrastruktur im Hinterland der spätrömischen Provinz Germania Secunda war mit den weitverbreiteten burgi verknüpft. Diese befestigte Anlagen spielten eine Rolle bei der Umgestaltung der Villen und entvölkerten Gebieten sowie bei der militärischen Ausdehnung im Rheinland. Sie sind in der Landschaft des späteren 3. und 4. Jahrhunderts weit verbreitet, in den Lössebenen von Belgien, im niederländischen Limburg und im Rheinland, aber ihre Quantifizierung fehlt noch. Dieser Artikel befasst sich mit der Chronologie, Form und Funktion der burgi, besonders in den rheinischen Lössböden. Auf der Basis von Daten aus verschiedenen burgi versucht der Verfasser diese zu charakterisieren und sinnvolle Schlussfolgerungen über dessen Beziehungen zur Landschaft zu ziehen, in der Hoffnung, dass die vorgelegte Studie weitere Forschung anregen möge. Translation by Madeleine Hummler

Stichworte: Befestigung, Spätantike, Verteidigung, burgus, Rheinland