Cultural Heritage Agency
Ministry of Education, Culture and Science

Nederlandse Oudheden 20

The Roman villa at Voerendaal-Ten Hove

Excavations of a Late Iron Age enclosure, a Roman villa complex, a Late Roman-Early Medieval settlement and burials

Part II - Synthesis

H.A. Hiddink (ed.)

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Excavations of a Late Iron Age enclosure, a Roman villa complex, a Late Roman-Early Medieval settlement and burials
Part II - Synthesis

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14 Voerendaal-Ten Hove before the villa

Henk Hiddink

14.1 Introduction

The habitation history of Voerendaal-Ten Hove, with different types and sizes of settlement through time, is summarized in this and the next two chapters. This chapter discusses the features and finds from periods before the Roman villa, from the Middle Palaeolithic until the very beginning of the Roman period. In practice, the emphasis lies on the Iron Age, and mainly the Late Iron Age. The entire period between c. 800-12 BC is designated here as period 1, while period 1 was previously dated between 50 BC and AD 50 (Fig. 5.1).[988] The following chapter addresses the Middle Roman period of both Roman villas (periods 2-3), while Chapter 16 deals with the Late Roman, Early Medieval and later periods.

Firstly, the historical context is summarized in each of these chapters and their subsections. Obviously, this has already been done in countless other publications, but it is unavoidable that we should provide some background on the developments at the supra-regional level of North Gaul and the Lower Rhine region.[989] We will attempt to provide some critical comments on traditional interpretations of/biases in the texts and focus on the themes most relevant to the history of regional settlement.

Secondly, this regional occupation history is addressed from an archaeological point of view in each of the main sections. The military camps, cities and *vici* of the province of Germania inferior/secunda are especially important for the Roman period because their demand for grain must have been a major stimulus for the development of the villa system. Next, we examine the rural settlement of each period because its development and scale can help to understand the chronology and character of Voerendaal. Although we aim to focus on Zuid-Limburg and the adjacent areas of the loess belt, data from the Meuse valley and the coversand of the MDS area are often referred to because they provide more relevant data. Finally, the chronology, size and character, as well as the interpretation of the habitation at Ten Hove, are discussed for each period and phase.

As follows from the above, different spatial and chronological levels of analysis will be taken into account throughout the discussion, as outlined in Section 3.2 (Fig. 3.1). Various themes regarding the social, economic and cultural aspects of society will be addressed.

14.2 The earliest finds and features. Stone Age, Early and Middle Iron Age

14.2.1 Stone Age

Middle Palaeolithic

Voerendaal-Ten Hove and the surrounding area were possibly visited by Neanderthal hunter/gatherers, sometime during the enormous time span of some 240,000-50,000 years ago.[990] The identification and dating of the two artefacts found at Ten Hove is not entirely certain, however, and they were found in a secondary context, not at the location where people actually stayed or hunted.

Late Mesolithic

The vast majority of the flint artefacts collected date to the Late Mesolithic, the period between c. 6,500 and 4,500 BC.[991] Because of the small number of artefacts that can be dated more accurately and the lack of radiocarbon dates of associated material, it is difficult to establish the chronology of activities. Most likely, it concerns the period – approximately and with some reservations – from 5,300 to 5,000 BC. At this time, the first farmers of the Linear Pottery Culture settled on the loess soils of the wider region, but the people at Ten Hove were still hunter/gatherers. The two groups probably had contact with each other, as a cluster of LPC sites was situated 8 km northwest of Voerendaal (Fig. 37.16).

The landscape during this period differed from the open steppe or park landscape of the preceding Late Palaeolithic, where migrating herds of reindeer and horse were hunted. Climatic changes had caused the development of dense forests, with open areas near river/brook valleys, lakes and swamps. Palynological research close to the site has shown that such a wet, peaty area was present in the Hoensbeek valley.[992] In general, the people of the Mesolithic hunted 'sedentary game' (*standwild*) – such as

988 Cf. section 5.1.2.

989 On the different spatial levels used in the analysis, as well as the chronological and other dimensions, see section 3.2.

990 See chapter 37. For syntheses on this period in the southern half of the Netherlands, see Rensink 2005; Roebroeks 2005.

991 See section 37.5.3. General overviews and the discussion on chronology are given by Verhart & Arts 2005 and Verhart & Groenendijk 2005.

992 Bakels 1996a, 139-140, fig. 25. A thin layer of loam, a third peat layer and lake marl were observed below the peat dated 4446-4258 cal BC (fig. 4.3) and to 7815-7585 cal BC (2 sigma), indicating the presence of a stream (?) and open water during some phases of the Late Palaeolithic and Mesolithic.

deer, aurochs, wild pig and beaver – and waterfowl. They also fished and collected hazelnuts, water chestnuts and other vegetable food sources or materials. The flint artefacts found at Ten Hove largely relate to the production of blades and the preparation and rejuvenation of the cores from which these blades were made. Projectile points and hunting gear in general were also maintained. Although no features such as hearths were present or recognized at Ten Hove, the quantity of artefacts suggests that Mesolithic hunter/gatherers stayed at the site for some time at different occasions. However, it is impossible to obtain an adequate picture of the spatial distribution of activities per phase because of the erosion of parts of the site, (mainly Roman) disturbances and the fact that the area beneath and south of the Steinweg were not investigated.

Neolithic

A modest number of flint and stone artefacts can be attributed to the Neolithic. Other less precisely dated pieces may also belong to this period. Even for the positively identified artefacts, including ground axes or pieces thereof, an arrowhead and some blades, it is not certain whether they are connected to the Michelsberg Culture (c. 4,200-3,600 BC) or the Stein Group/Stein-Vlaardingen complex (c. 3,450-2,500 BC).[993] It is likely that Ten Hove was settled for one or more periods of some duration, although neither Neolithic pottery nor features were found (their absence is probably the result of erosion). The people living or passing through here must now have been farmers. Evidence from elsewhere shows that they grew grain and kept cattle, pig and sheep/goat; hunting appears to have been of minor importance.

14.2.2 Early and Middle Iron Age. Undated, possibly prehistoric structures

Features

Whereas the oldest activities at Voerendaal-Ten Hove are represented by finds alone, from late prehistory onwards there are also several features (period 1; Fig. 14.1). Phases 1a and b represent the Early and Middle Iron Age respectively.[994] Pits 750 and 780 date to the Early Iron Age, the latter possibly somewhat earlier than the sixth century BC.[995] Two other pits, 749 and 779, seem to belong to the Early or Middle Iron Age. Six pits are dated to the Middle Iron Age (772, 810, 756, 773, 800 and 776). Most pottery from the two postholes of building 214 may belong to the same period, although the structure was probably constructed in the Early Roman period (phase 2, see below). Because the number of pits is small for both periods and two could belong to either one of them, they are shown all together in Figure 14.1.

Besides all these features, there are others that cannot be assigned to a specific phase. It is likely that they belong to the Iron Age, but their date is a terminus post quem only, with some perhaps actually belonging to periods 2, 3 or 4. Firstly, there are seven pits. The colour of some was light grey/brown, but they all contained some handmade pottery (708, 751, 796-799). Because the sherds in 797 were roughened, this points to an Early or Middle Iron Age rather than a Late Iron Age date. Pits 796-799 are located in trenches 104 and 105, where more Iron Age features are present. Somewhat special is pit 734, which yielded no finds but which is reminiscent of a prehistoric silo because of its shape and burnt soil. However, the burnt material can be related to the Late Roman/Early Medieval hearths 644 and 645 nearby! Besides the pits, there are some smaller buildings. Eight granaries seem to date to the Iron Age: 201-205, 256-258 and 261. No pottery was found in the features of granaries 215 and 216, but two pieces of iron in the former suggest a Roman or later date.

Character of the habitation

It is likely that the pits and granaries of the Early and Middle Iron Age were situated in the yards near houses. There are several feasible explanations for the lack of houses. Firstly, they may have been located just outside the excavated area, a possibility for the southern cluster of pits and the series of granaries in the southwest. Secondly, erosion could be a factor, whereby all the features of houses were eroded, or at least to such an extent that no pattern can be recognized in the remaining ones. Identifying houses is a general problem for the loess region in later prehistory, certainly not for Voerendaal

[993] For these 'cultures', see Schreurs 2005; Louwe Kooijmans 2005.

[994] The term 'phase' is used here for the subdivisions of our periods 1-5. Needless to say, the Early and Middle Iron Age are in fact periods.

[995] Cf. section 21.2.

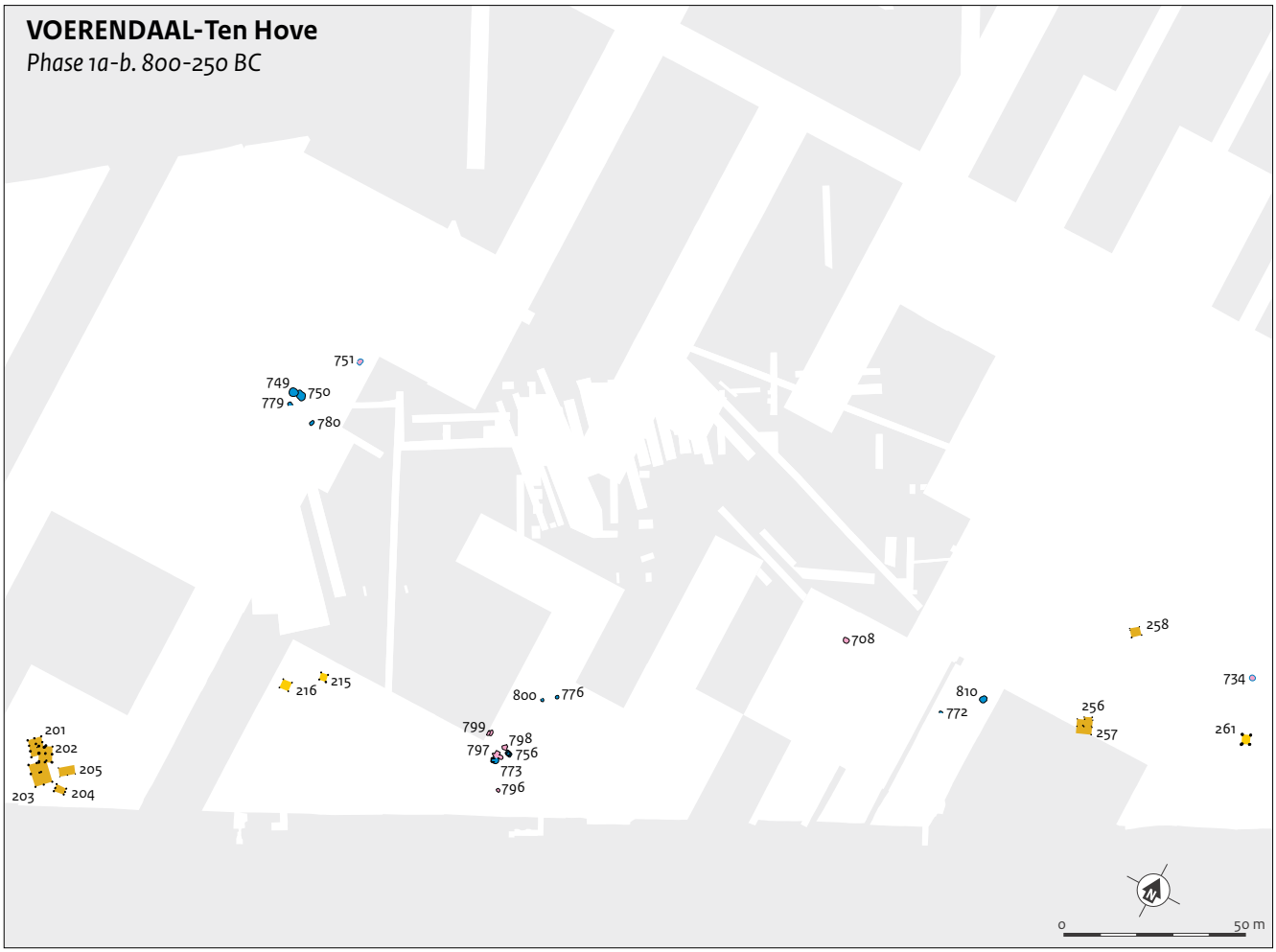

Fig. 14.1 Voerendaal-Ten Hove. Features (possibly) dating to the Early and Middle Iron Age, phase 1a-b; for legend, see figure 5.2.

alone. While hundreds of house plans of the St Oedenrode/Oss-Ussen 2 (Early Iron Age) and Haps/Oss-Ussen 4 (Middle-first part Late Iron Age) types are known from the sandy soils of northern Belgium and the southern Netherlands (MDS area), convincing examples are quite rare on the loam and loess further south.[996] Besides the explanations mentioned above, a third could theoretically be at play, namely the existence of different house types. In the Weert-Nederweert micro-region in the middle part of Dutch Limburg, with loamy sand, it took 30 years of large-scale excavations, investigating 45 ha, to identify one Oss-Ussen 2 and two Haps houses.[997] However, a multitude of prehistoric granaries were found at all investigated sites. Their features proved to be on average 5-10 cm less deep than those of granaries on sandy soils. It seems that a small difference in preservation was enough to make the remains of house plans unrecognizable in the Weert-Nederweert area.[998] Therefore, it is likely that the deterioration of the subsoil would also explain the scarcity of 'proper' house plans in the loess area in general and the eroded parts of Ten Hove in particular.

This is contrary to the opinion of other authors, who believe that houses on the loess resemble the granaries and other small outbuildings on the sandy soils to the north. (Perhaps only the core of the buildings was preserved and the wall posts were lost through erosion). Only some of the presumed houses are of the size we might expect of a house (approx. 14 x 7 m),[999] but the vast majority of plans are

[996] Some examples from Bilzen-Spelverstraat (Habermehl 2014, 38ff.) and Maastricht-A2 (Hazen *et al.* 2015, 206ff.)

[997] For two examples of Haps/Oss-Ussen 4 buildings, see fig. 6.3.

[998] Hiddink 2010, 99, n. 176.

[999] Like Sittard-Hoogveld 5 and Nieuwstadt-Sittarderweg 34. For these and smaller buildings on the loess, see Hiddink 2014c, 193ff.

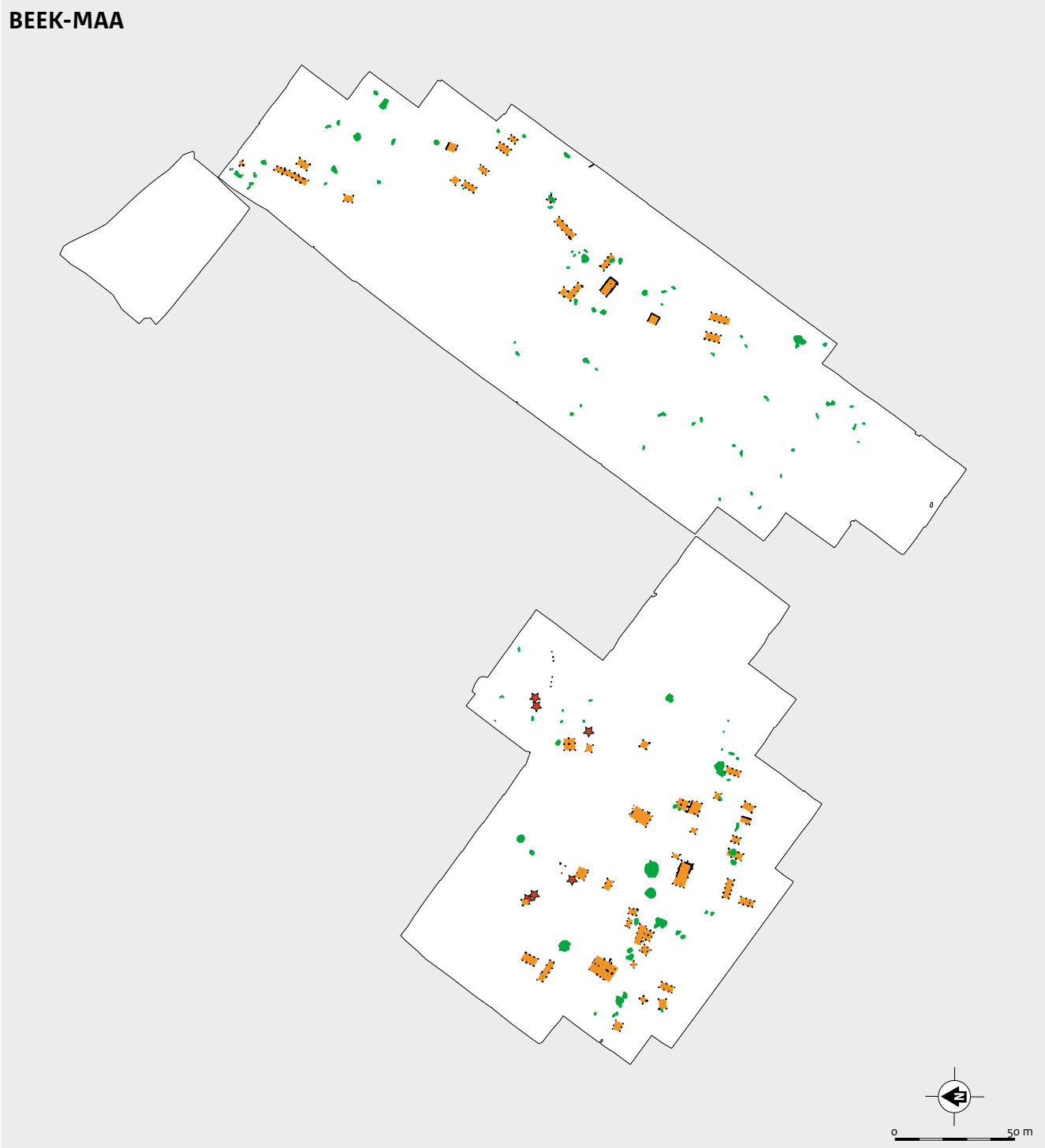

Fig. 14.2 Beek-Maastricht Aachen Airport. Simplified excavation plan, with buildings (orange), pits (green) and burials (stars). (source: modified after Tichelman 2010, fig. 4.5)

smaller structures.[1000] Beek-Maastricht Aachen Airport 1/2, the largest excavation in Zuid-Limburg for this period, is a fine example of a site with small buildings only (Fig. 14.2).[1001] Although the excavators consider some of the buildings to be houses, as just stated, we believe it is possible that these left no recognizable traces and that all the structures found should be interpreted as outbuildings. Although the plan of Beek-MAA suggests a clustered and stable or permanent habitation, the features date from an 800-year period (Early-Late Iron Age). It is therefore possible that the nature of settlement was more or less similar to that on the sandy soils, where the general pattern was one of single 'wandering' farmsteads spread over vast field complexes ('Celtic fields').[1002] Although houses and yards were moved each generation – or after two at most – some locations were revisited after a lengthy period, resulting in a greater density of features and a plan similar to that of Beek-MAA.

To conclude this section, some additional remarks on the features of Ten Hove are in order. While erosion is a plausible explanation for the absence of house plans near the northern cluster of pits, it was perhaps not the single factor for the southern cluster. This is located downslope, where erosion was less severe, as follows from the Late Iron Ages house plans found in this area (see below). Therefore, Early and Middle Iron Age houses are probably not recognizable here – there are a few dozen postholes 'left over' – and/or were situated outside the excavated area. These explanations probably also hold true for the cluster of granaries in the southwest.

14.3 The Late Iron Age

14.3.1 Caesar on the tribal groups in the north

The single substantial text about the wider region in the Late Iron Age is of course Caesar's *de Bello Gallico*. He informs us that Northern Gaul was inhabited by the Belgae, with the tribe of the Eburones in the northeast (Fig. 14.3). Neighbouring tribes of the Eburones were the Segni and Condrusi in the southeast,[1003] the Aduatuci between the Meuse and Sambre,[1004] the Nervii in the west,[1005] and the Menapii in the northwest.[1006] To the north and east, no other groups of the Belgae are mentioned by Caesar, with the implication that the Eburonean territory included very large parts of or even the entire Lower Rhine area.[1007] The modern province of Zuid-Limburg must therefore have been part of it, which means that Voerendaal was situated in Eburonean territory. According to Caesar, most of the Belgae were of Germanic origin. They supposedly crossed the Rhine in 'antiquity' and settled after driving out Gallic groups.[1008] More specifically, the Aduatuci are described as descendants of the Cimbri and Teutones (five decades earlier),[1009] while the Condrusi, Eburones, Caerosi and Paemani had unspecified Germanic roots.[1010] We should be suspicious of Caesar's 'ethnographic data' because the threat of Germanic groups gaining more influence was one of his main justifications for the campaigns in Gaul. Moreover, the suggestion that the Eburones and their allies had a Germanic and therefore wild and uncivilized nature may have been an excuse for the problems he had defeating them and for how they were ultimately treated (see below).[1011]

Although Caesar was hardly objective, nor comparable to a modern anthropologist, he still provides relevant information on Late Iron Age society in Gaul. Some of its structural features will already have been present in earlier periods. An interesting observation is that the tribes of the Belgae were bonded by many marriages.[1012] The kinship ties between families undoubtedly played a part in the political and military alliances between tribes, in the case of the Eburones for instance with the Treveri, of whom they were clients,[1013] but also with the Menapii.[1014] However, these alliances, certainly in the context of war, had to be ensured through the exchange of hostages.[1015] When the Treveri tried to win over Germanic groups in 53 BC, they only succeeded after promising money and by giving hostages.[1016] Ambiorix asserts that the Eburones had to pay tribute to the Aduatuci and that his son and a nephew had to be given as hostages.[1017] A final interesting point is the dual kingship of the Eburones, with Ambiorix and Catuvolcus apparently reigning over different parts of the tribe (because the territory was so

[1000] See also section 6.9.
[1001] Examples in the German loess area are Pulheim-Brauweiler and Jüchen-Neuholz in their initial stages, discussed in section 14.5.2 below.
[1002] There was a tendency towards a more stable, clustered habitation from the Middle Iron Age onwards (Haps, Someren-Waterdael, Sevenum-De Krouwel; see also section 7.3.1), but more or less isolated farms were still common (Weert-WML, Klein Leuken, Kampershoek Zuid). See Verwers 1972 (Haps); Hiddink 2011a; 2012a (Someren); Dyselinck 2016 (Sevenum); Coolen 2008 (Weert-WML); Tol 1996 (-Kampershoek Zuid; -Klein Leuken).
[1003] BG 6.31. The name of the Condrusi lives on in that of the Condroz region.
[1004] Which can be inferred from BG 5.27; 38; 6.31-33. For the fortification of Thuin-Bois du Grand Bon Dieu, some 10 km southwest of Charleroi, see Roymans & Scheers 2012, 20-24; Scheers *et al.* 2012.
[1005] BG 5.38.
[1006] BG 6.5; 33.
[1007] BG 1.1.
[1008] BG 2.4.
[1009] BG 2.29.
[1010] BG 2.4; 6.31.
[1011] Cf. Roymans 2019b; *et al.* 2020, 269 with references.
[1012] E.g. BG 1.18 (mother of the Aeduan Dumnorix married to a Biturigan man; Dumnorix himself was married to a Helvetian woman); 1.53 (Ariovistus married a Suebian and Norican woman); 2.4 (in general).
[1013] BG 4.6 (clientes together with the Condrusi); 6.2 (societas, foedus);
[1014] BG 6.5 (hospitium).
[1015] E.g. BG 2.1; 6.2.
[1016] BG 6.2.
[1017] BG 5.27.

Fig. 14.3 Tribal groups in North Gaul during the Gallic wars; in bold type groups designated as Germani cisrhenani.

extensive?).[1018] The only known Eburonean subgroup are the Ambivariti,[1019] although this tribal unit was probably not very large. We will return to the demise of the Eburones in a later section.

14.3.2 Insights into Late Iron Age society through material culture

Although Caesar's writings cover only a few years of the final part of the Late Iron Age, an extraordinary episode of intense supra-regional conflicts, we may assume that societies in which elites had wide-ranging contacts had existed earlier. Therefore, the picture sketched by Caesar applies to the period in which the enclosure at Ten Hove was in use, our phase 1c (Fig. 5.1-5.2). The wide-ranging, supra-regional contacts of the Late Iron Age are reflected in the archaeological record, by certain elements of the material culture predating the Gallic Wars. In fact, prestige items such as swords, wagons and metal vessels were already circulating and being deposited in the southern Netherlands and adjacent areas in

[1018] BG 5.24; 26; 6.31. About the kingship among Gallic and Germanic groups, see Roymans 1990, 33ff.

[1019] BG 4.9. This group lived 'trans Mosam', possibly somewhere in the southern Netherlands (Roymans & Scheers 2012, 13, n. 26).

the Late Bronze Age and Early Iron Age.[1020] Finds of imported Mediterranean metal vessels from the Middle Iron Age are known from Sittard-Hoogveld at the northern margin of the Dutch loess area,[1021] as well as Wijshagen and Eigenbilzen in Belgium (Limburg).[1022] From the first part of the Late Iron Age (La Tène C), there are for instance two large *Buckelringe* (anklets) and a 'plastic-style' belt hook from the grave of a female at Koningsbosch in Middle-Limburg, as well as plastic-style bracelets from other graves in the same region.[1023] Somewhat less precious items are the iron *Paukenfibeln* ('kettle-drum brooches') of the Benstrup type, found in both Middle Limburg and east of the Rhine in Germany.[1024] Objects of this kind, together with glass La Tène bracelets (see below), are indicators of a 'latènization' of (material) culture, although focused on Central Europe rather than (northern) France.

Of the objects mentioned above, none were found in Dutch Zuid Limburg. However, this is probably in some respects also a reflection of the scale and character of certain modern activities, including the small number of large-scale excavations, rather than of the situation in the past. The majority of Iron Age weapons were deposited in larger rivers and it is therefore unsurprising that quite a few examples were found at the confluence of the Meuse and Roer, where modern dredging for sand and gravel was concentrated. There is also a positive bias for the Middle Limburg region concerning grave finds, due to large-scale excavations in recent decades. In the Weert-Nederweert micro-region alone, seven cemeteries less than 5 km apart have yielded more than 150 Late Iron Age graves.[1025] That is about three times the known number of graves in the entire Dutch loess area, where no more than a handful of cemeteries are known.[1026] Moreover, the graves on the loess have yielded relatively few grave goods. Glass La Tène bracelets can be indicative of graves but also of settlements. However, the number of known finds is again not very large – at most 20 sites in Zuid-Limburg – and the different types/variants cannot be precisely dated.[1027] Moreover, they are probably not indicative of contact over larger distances because production within different parts of the southern Netherlands is plausible.

Although dating is also an issue with Celtic coins, they certainly bear witness to contact between groups over vast distances. The earliest coins in the region are gold staters that were struck both by groups to the southwest (northern France) and the southeast (Moselle and Middle Rhine area).[1028] These staters mainly belong to the period 125-60 BC, before the Gallic Wars (Fig. 14.4).[1029] Some gold coinages were still produced during the latter period, however.[1030] Hoards with early gold coins were found at Beringen (B/LI) and Niederzier-Hambach 382 (D/NRW).[1031] The first contains 22 gold, smooth 'rainbow' staters, three staters of the Atrebates, a half gold armring and three gold torques (fragmented). The Niederzier hoard contained 46 staters and three gold torques. Both hoards were found in settlements, which in the case of Niederzier was enclosed.[1032] The rainbow staters must have been struck somewhere in the southern half of Germany, at a location some 200-500 km from the hoard sites.

14.3.3 Voerendaal as an enclosed site

Chronology of the settlement

The type of society in North Gaul and Belgica described by Caesar must have been in existence long before, as we have attempted to show in a short discussion of material culture. The enclosure at Voerendaal-Ten Hove of phase 1c appears to belong to this 'pre-conquest' period. Because it has already been dealt with in Chapter 7, there is no need to discuss all the features again (Fig. 14.5). Rather, we will go into some details that were left out of that chapter and which have a bearing on alternative scenarios.

Although it is likely that most of the houses were associated with enclosure ditch 308, the 'chronological resolution' for the Late Iron Age is too low to prove this. One reason is the potentially complex formation process of the ditch and the not very accurate dating of the pottery in different locations and layers.[1033] At the same time, buildings (221?) 222, 223 and 236 are also not precisely dated. In some of them, handmade pottery points to phase 1c, but there is some (Late) Roman material that may not be ignored, even if an explanation as intrusive is likely. [1034] Building 236 could theoretically belong

[1020] See e.g. Roymans 1991.
[1021] Tol 2000, 112-113.
[1022] Maes & Van Impe 1986; Van Impe & Creemers 1991; Van Impe 1998.
[1023] Hiddink & Roymans 2008; Roymans 2007.
[1024] Hiddink 2014b, 197-198, fig. 136; 2014e, 82-85, fig. 6.4.
[1025] Hiddink 2014b.
[1026] Besides Valkenburg-Vroenhoven and Sittard-Hoogveld (Hiddink 2014b, table 8, fig. 128), another site near Sittard (Weiß-König & Loonen 2012, 139-150; 8 graves) and six scattered graves at Beek-MAA (Tichelman 2010, 42, table 43; Baetsen 2010).
[1027] For a map, see Roymans & Verniers 2010, fig. 2. Although the authors assert a 'precise' date for some types (2010, 201-204), the radiocarbon dates have a long range and form too small a sample (cf. Hiddink 2014b, 195, table 11). For the examples from Ten Hove, see section 31.1.
[1028] The main types are Scheers 24 (Ambiani in northwest France), Scheers 29 (Nervii in Central Belgium and the north of France), Scheers 23 (Pegasus type, Middle Rhine), Scheers 30 (Treveri/Arda). See Roymans 2004, 32, fig. 4.1, appendix 4.1; Roymans & Scheers 2012, 8-12, figs 7, 10.
[1029] Haselgrove 1999, group III.
[1030] This applies to the Nervii stater Scheers 29 (Roymans & Scheers 2012, 8-12, fig. 10).
[1031] Van Impe *et al.* 1997/1998.
[1032] Cf. chapter 7.
[1033] Section 41.2.
[1034] Chapter 40.

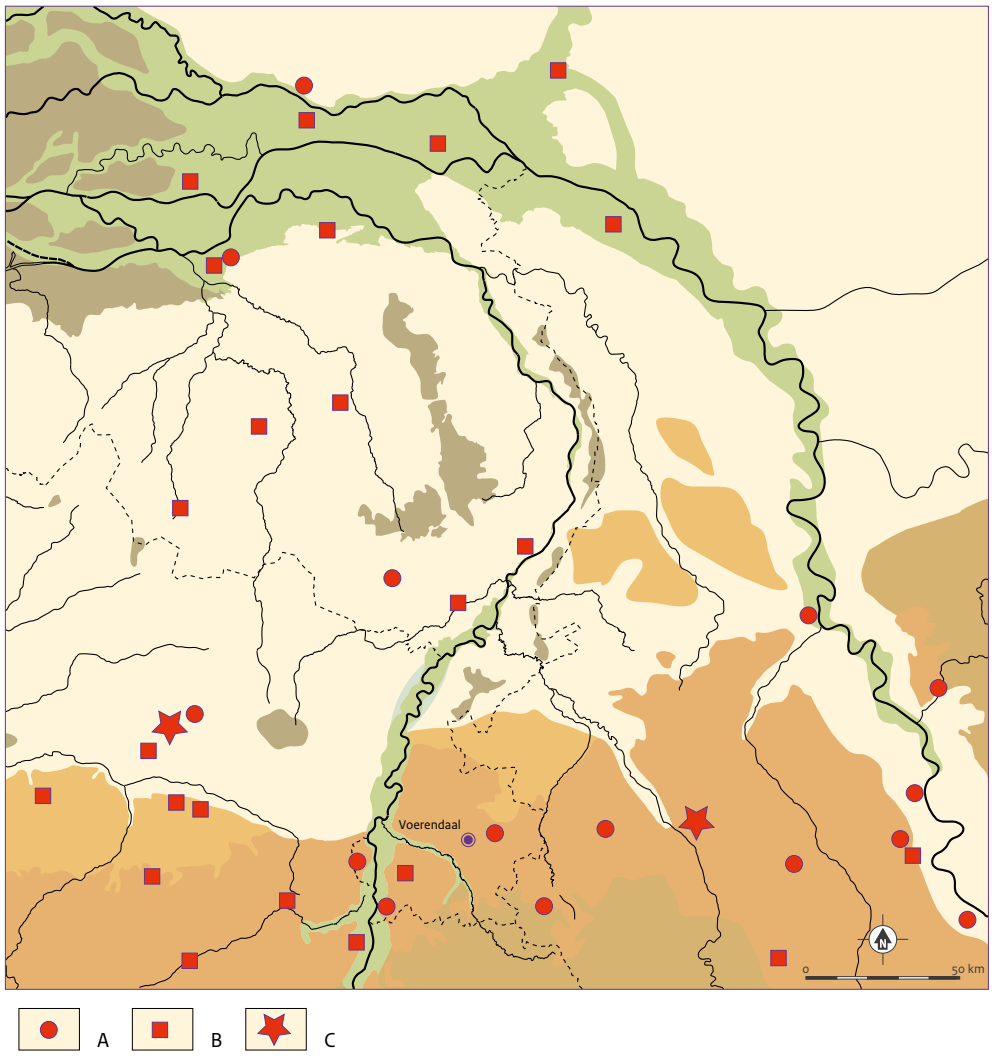

Fig. 14.4 The distribution of Celtic coins struck before the Gallic wars, in the southeast of the Netherlands and neighbouring areas. (source: modified after Roymans 2004, 32, fig. 4.1, appendix 4.1; Roymans & Scheers 2012, 8-12, fig. 7, 10)
A gold coin types originating in regions to the southwest; B idem, originating in regions to the southeast; C hoards.

to the Middle Iron Age on the basis of a radiocarbon date (because of the wiggle problem). Besides, it dates before c. 50 BC, and well before this date if we consider pit 769 in its vicinity.[1035] The dating evidence offered by pit 794 is relevant and should be repeated here: between c. 200-100/75 BC because of a combination of pottery, the spring of an MLT-type brooch, a fragment of LT glass and a ^{14}C date.

Assuming that at least two or three large buildings are Late Iron Age in date, various scenarios for the site's development still need to be considered. In a 'short chronology' there would be two subphases: one with building 222 and another with 223 – both too close to belong to a single phase – inside the enclosure and building 236 outside it during one of these phases. In a 'long chronology' there could even have been four phases, starting for instance with 1) building 236, followed by 2) an uninhabited enclosure, 3) house 222 and finally 4) house 223.[1036] If, not to make matters too complex, the three houses are taken as our point of departure, a maximum of three subphases or 'house generations' existed. House 236 could well be the oldest, dating to the first half of the Late Iron

[1035] See section 21.3.3.
[1036] If building 221 did belong to phase 1c, it might have been used alongside 222 or 223.

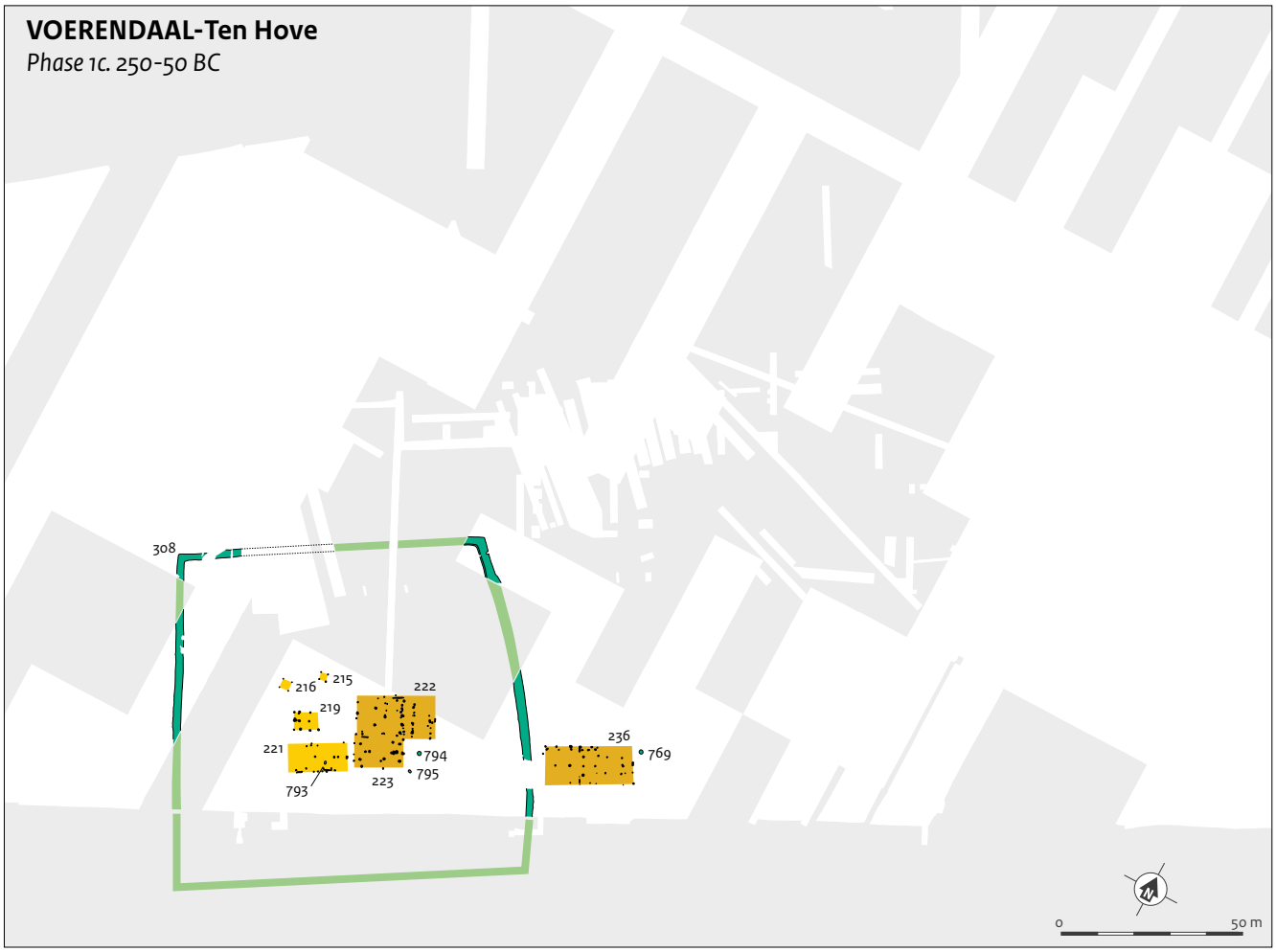

Fig. 14.5 Voerendaal-Ten Hove. Features from the Late Iron Age, phase 1c; for legend, see figure 5.2.

Age, say around 175-150 BC. If followed by two other house generations of 30 years,[1037] it is likely that habitation ended before the Gallic Wars. Obviously, all this remains quite conjectural because of the nature of the available data. In any event, the number of houses allows for a habitation of moderate duration only, within the span of a century.

The Late Iron Ages finds in general

A considerable portion of Late Iron Age finds was not collected from ditch 308, pits or features from buildings. Although it is highly likely that all were associated, they are less valuable as dating evidence and some finds were collected elsewhere on the site. Most 'stray finds' of pottery dating to the Late Iron Age are from the centre of enclosure 308 (orange dots in Fig. 14.6). A special category of pottery is briquetage material, vessels used in the production and transportation of salt from the North Sea coast (not mapped in Fig. 14.6). Besides a large fragment from a posthole of building 222 (Fig. 21.10; 40.9), a smaller one was found in trench 95, also inside the enclosure. Although not a prestige good proper, salt must have had a certain value and the inhabitants of the Late Iron Age farms had it at their disposal by participating in middle-range exchange networks. For the sake of completeness, the imported millstones should be mentioned: a quern of the Brillerij type (95-1-13/10720) from trench 95 (Section 33.5.3) and a small piece of tephrite from pit 794. Another find category characteristic of the Late

[1037] Arguments for an average lifespan of 30 years for houses to be used in comparisons: Hiddink 2014a, 133-135.

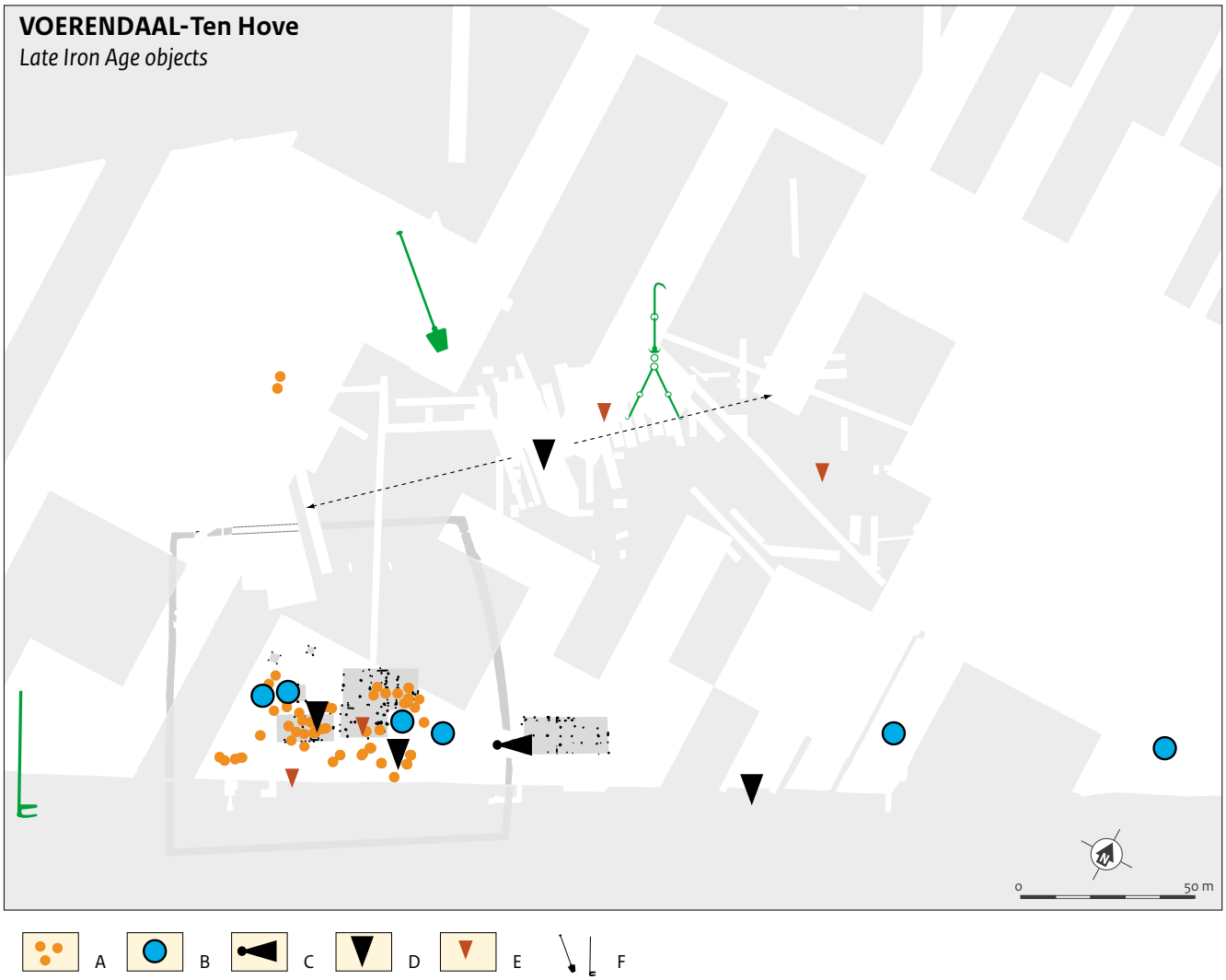

Fig. 14.6 Voerendaal-Ten Hove. Distribution of some types of Late Iron Age-objects.
A pottery not found in structures and pits; B La Tène-glass; C possible belt-hook; D brooches; E brooches, Late Iron Age-Early Roman; F iron objects associated with cooking and feasting, (some) probably of Roman date.

Iron Age are bangles of 'La Tène glass'.[1038] Four of six fragments were found inside enclosure 308, and two 100-200 m east of it (Fig. 14.6). It is possible, however, that the latter were 'pickups', collected much later and ending up in trench 20 some 55 centuries later.

Perhaps we should also expect Celtic coins in a Late Iron Age settlement, but none were found at Ten Hove. There are several possible explanations for this. Firstly, as noted in the previous section, coin finds are quite rare in Zuid-Limburg and environs, especially those predating the Gallic Wars. Secondly, the absence of coins may relate to the chronology of the Ten Hove settlement. Thirdly, it may be the result of the excavation method and poor-quality metal detecting.[1039] Some metal finds worth mentioning are a possible fragment of a belt hook and four brooches (Fig. 14.6).[1040] One of the three brooches of MLT construction is the one from pit 794. A second example was found in trench 95 and a third at an unknown location within Habets' excavations, which covered an extensive area, ranging from inside the enclosure (at the height of the Roman baths) to 100 m to the northeast (building 405). A last brooch dating

[1038] Section 31.1.
[1039] Cf. section 19.1.
[1040] Section 20.3.1 (brooches); 20.3.7 (belt hook).

to the Late Iron Age is a special variant of a spoonbow brooch from trench 16. This example has a place in the discussion on the transition to the Roman period and will be dealt with later (Section 14.5.3). A last metal find to be mentioned here is the intriguing meat fork 70-5-2/12041. It evokes images of feasts where large pieces of meat where prepared in large cauldrons.[1041] Although it probably dates to the Late Iron Age, there is a chance that it is Roman and an association with the enclosure is not certain. The fork was found 45 m west of ditch 308 near some undated granaries (Fig. 14.1; 14.6). Perhaps there was another Late Iron Age farm nearby, situated just outside the excavated area. Other iron finds related to cooking and cauldrons – hearth shovels and a cauldron chain – could be Roman in date because of the find locations at or near the villa.[1042]

The Late Iron Age habitation in its societal and historical context

As suggested in Chapter 7 and previous sections, the Voerendaal enclosure fits in with several developments in the wider region during the Late Iron Age, in particular a general tendency towards more stability in the location of settlements and an increasing differentiation between them. The latter process is related to the dynamic and unruly character of society, with competition and conflicts between elite groups, including both larger wars and small-scale raiding. The defensive character of enclosure 308 can be understood in this context. Its modest size and the absence of precious goods (Mediterranean imports, precious metal), as well as data on similar structures found elsewhere, suggest that the inhabitants belonged at best to a local elite. In any case, the enclosure at Ten Hove is unique for the southern part of the Netherlands (in the Late Iron Age). The larger buildings are quite important because they provide insights into house-building traditions in the region because our knowledge is deficient for the loess in the Late Iron Age.[1043] The problematic dating of the features and finds prevents definitive conclusions on the relationship between the end of habitation and Caesar's operations in the territory of the Eburones. However, as discussed above, the dating evidence rather points to habitation ending some decades earlier. There are no indications of violent destruction of the site. For instance, no traces of fire were found in the form of layers of charcoal or burnt pottery (apart from the odd sherd). In any event, there are virtually no finds that could belong to habitation between c. 50 BC and AD 20/30.[1044] There are a handful of possible sherds of 'proto cork urns' and these could also be Early Roman. Only a single brooch can be dated with certainty to the final decades of the Iron Age.

14.4 The period of the Gallic Wars and the decades thereafter

14.4.1 Downfall of the Eburones

The Eburones are known to have been successfully ambushed a Roman army. In 54 BC, after bringing grain to the winter camp established by the commanders Sabinus and Cotta, Ambiorix and Catuvolcus suddenly attacked.[1045] The morale of the Romans was lowered by the rumour that Germanic warriors were on the move, and after intense fighting they were defeated. Ambiorix then made the Aduatuci and Nervi attack another Roman camp, which was barely held with the assistance of Caesar. The Roman commander retaliated the following year.[1046] Catuvolcus committed suicide, but Ambiorix managed to escape. Caesar divided his forces for operations in different regions, but his invitation to the Sugambri to plunder the Eburones backfired, resulting in the siege of the Roman camp at Aduatuca. After driving off the Germans, Caesar set fire to a large number of Eburonean settlements and the remaining crops (after feeding his pack animals), and also drove off the cattle.[1047] In 51 BC Caesar returned and supposedly destroyed what was left of the Eburones and their possessions: '...in despair of being able to bring the frightened fugitive [Ambiorix-HAH] into his power, he [Caesar] deemed it the best thing, out of regard for his own prestige, so completely to strip his territory of citizens, buildings, and cattle... He dispatched legions or auxiliaries into every part of the country of Ambiorix, wrought general

[1041] See section 20.3.15, fig. 20.38.
[1042] A hearth shovel found by Habets is not mapped because its find spot is unknown.
[1043] Section 14.2.2 above and 6.2.
[1044] See further section 14.5.3.
[1045] BG 5.26ff.
[1046] BG 6.29ff.
[1047] BG 6.43.

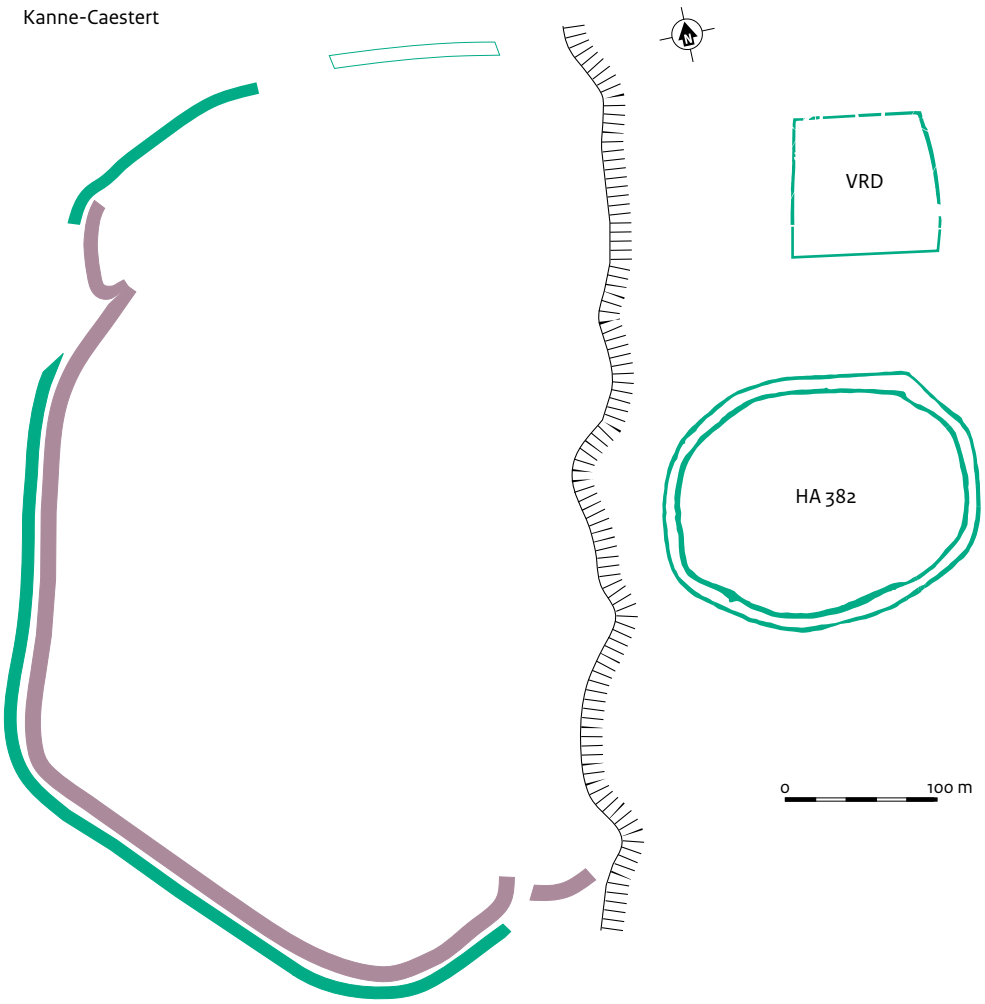

Fig. 14.7 Kanne-Caestert. Plan of the 'oppidum' on the plateau between the Meuse and Jeker valley (a ditch 275 m to the north left out), with Voerendaal and Hambach 382 for comparison. (source: modified after Roosens 1975, fig. 18; Kunow & Wegner 2006, fig. 147)

devastation by slaughter, fire, and pillage, killed or captured a large number of persons.'[1048] After these actions, two legions were sent against the Treveri. As far as we know, Ambiorix was never caught and the Roman objective was only '...to make Ambiorix hated by any of his subjects who might chance to survive...'. It is therefore a plausible scenario that some of the Eburonean population remained.

14.4.2 Archaeology of the second half of the first century BC

Sites and finds directly related to the Gallic Wars

Strictly speaking, the 'second half' in the heading applies to the period between 58 and 1 BC, part of phase 1d in our chronology (Fig. 5.1). In Zuid-Limburg and surrounding areas, no battlefields or fortifications of the Gallic Wars have been identified with certainty. The approx. 35 ha large fortification of Kanne-Caestert (B/LI) on the plateau between the Meuse and Jeker, 4 km south of Maastricht, was possibly a refuge of the Eburones or the camp where the troops of Sabinus and Cotta were slain in 54 BC (Fig. 14.7).[1049] Hard evidence is missing and the site may (also) have been used during the revolt of the Treveri in 30 BC, for example. As mentioned earlier, some smaller defended sites in the wider region have been interpreted in the past as sites given up during the Gallic Wars.[1050] However, the end date of these enclosed sites, like that at Ten Hove, cannot be pinpointed with enough accuracy and at least some would have been given up decades before.[1051]

[1048] BG 8.24-25 (written by Aulus Hirtius).
[1049] Verhoeven 2008; 2011; Buijtendorp 2018, 193ff.
[1050] Joachim (2006a, 247) assumes a 'virtually general end of habitation' in the Rhineland as a result of Caesar's actions. As discussed in section 16.3.2, the hoard at Niederzier was probably deposited around 90 BC, although this does not necessarily imply the end of settlement.
[1051] Cf. chapter 7.

The most concrete archaeological evidence are coin finds (Fig. 14.8-14.9). The typical Eburonean coin of this period is the Scheers 31 gold stater,[1052] which was struck in large numbers to ratify treaties with other tribes, to bond subgroups and to reward warriors. Several clusters can be observed: one in the Dutch eastern river area, with 23 examples found in the sanctuary at Empel, a smaller one in the Kempen/Campine area and a large one in the area around Tongeren. In the latter, hoards were found at Heers (82 pieces) and Amby near Maastricht (40 pieces). Other finds in Zuid-Limburg came to light near Maastricht-Randwyck and Graetheide. It is remarkable that these coins are found neither in Limburg further east of the Meuse nor in the German Rhineland.[1053] Several factors could be at play here, including the state of research and less extensive (reported) metal detecting.

Another series of coins, the silver *triquetrum* coins of the Lith group, were until recently believed to be a Batavian emission from the period between 50 and 30 BC.[1054] It was therefore surprising that 78 of these coins were found together with 41 gold staters (Scheers 31) in the hoard of Amby.[1055] This find proves that the earliest variants of the *triquetrum* coins were already being issued during the Gallic Wars, possibly by one or more subgroups of the Eburones living along the Meuse (Fig. 14.3).[1056] The two hoards from the Graetheide plateau are just situated at the margins of the loess area;[1057] a hoard from Echt just north of it.[1058] Further north they occur at several sites in the eastern (Waal/Meuse) river area.[1059] Like the Scheers 31 staters these coins are absent from the eastern part of Zuid-Limburg and the German Rhineland.

Total depopulation or a severe decline?

The accounts of Caesar and his general Aulus Hirtius suggest that the Eburones were eliminated, which has been characterized as genocide by, for example, Joachim and Roymans.[1060] The total disappearance of the name of the Eburones from the written and epigraphic record is a fact. Without doubt, many people were killed, starved or were sold as slaves. However, the question is whether the region was completely devoid of habitation after the Gallic Wars or whether pockets of habitation remained.

Archaeological and other data provide no definitive answers. For the German part of the Lower Rhine Area, researchers thought until recently that there was indeed a discontinuity until the mid-first century AD. Reference was often made to a pollen diagram for Boslar, which showed reforestation around the start of the first millennium (Fig. 4.4); however, there are alternative interpretations.[1061] For the German Rhineland, the gap is now slowly but steadily being filled by dendrochronological dates, grave finds and a few new Late Iron Age settlements. Moreover, more attention is being paid to the role of formation processes.[1062] On the sandy soils of the MDS area, the Roman Alphen-Ekeren house as such has several new features, although at some sites examples possess elements of the Late Iron Age Oss-Ussen 5 type. For cemeteries in, for example, the Weert-Nederweert area, one could argue for a break after La Tène D1/early D2, as well as for continuous use into the Roman period.[1063] The problem of establishing (dis) continuity is also – and very much so – one of chronological resolution. In order to accept continuity, archaeologists demand dates with an accuracy of 25-30 years for the late first century BC, whereas ranges of at least 50-100 years are not considered an issue for the Iron Age before Caesar.[1064] The scarcity of Late Iron Age finds in Zuid-Limburg seems to be largely the result of formation processes. Relevant here is the division of the area into either extensive built-up areas or agricultural land, resulting in relatively few large-scale archaeological excavations until recent years.

Although no definitive answers can be given, the population was without doubt considerably smaller than before. The historical and archaeological data on this period will be discussed in the next section. To complete the series of maps presented here, some post-Caesarian coin types are mapped in figure 14.9. The first are Scheers 58 silver quinarii, with the legend ANNAROVECI.[1065] These coins were struck from c. 50-30/25 BC. The name on the legend must be that of a local or regional leader and because the coins are found concentrated around Tongeren in the former Eburonean territory, the emission was probably related to the formation of a new group: the Tungri. If the

[1052] Roymans 2004, 34-38, fig. 4.3, appendix 4; 2020b; Roymans & Scheers 2012, 12-14, fig. 9, appendix 3.

[1053] Two pieces from Inden found in a Merovingian grave could have been 'imported' much later.

[1054] Roymans 2004, chapter 6, 67ff.

[1055] Roymans & Dijkman 2012.

[1056] Our map shows silver coins with the marks b, c, h, i, t and u.

[1057] Roymans 2019a; 2020a.

[1058] Hiddink 2005c; Roymans & Hiddink 2006.

[1059] Roymans & Hiddink 2006, figs 9-10, 12; Roymans & Dijkman 2012, figs 10-13.

[1060] Joachim 2006a, 248; Roymans (2019b) writes of a 'substantial discontinuity' of habitation.

[1061] Bunnik 1995. Comments on the interpretation: Andrikopoulou-Strack 2001, 165, n. 7 and this report, section 4.1.3.

[1062] See Andrikopoulou-Strack 2001 in general; Joachim 2006a, 250-252 on younger Iron Age sites. On the data for the Early Roman period, see section 14.5.2.

[1063] Hiddink 2003b, 125-133 (Weert-Molenakkerdreef); 2006, 16-18; 2016c, 84-93.

[1064] The bars in e.g. Roymans 2019b, fig. 11, and Roymans *et al.* 2020, fig. 2, suggest too much precision in dating (although meant to be taken together to present a picture at the regional level, pers. comm. Nico Roymans).

[1065] Scheers 1996; Roymans & Aarts 2009, 16, fig. 12; Aarts & Roymans 2009, 7-8; Scheers & Creemers 2012, 135-137, fig. 8, appendix 2.

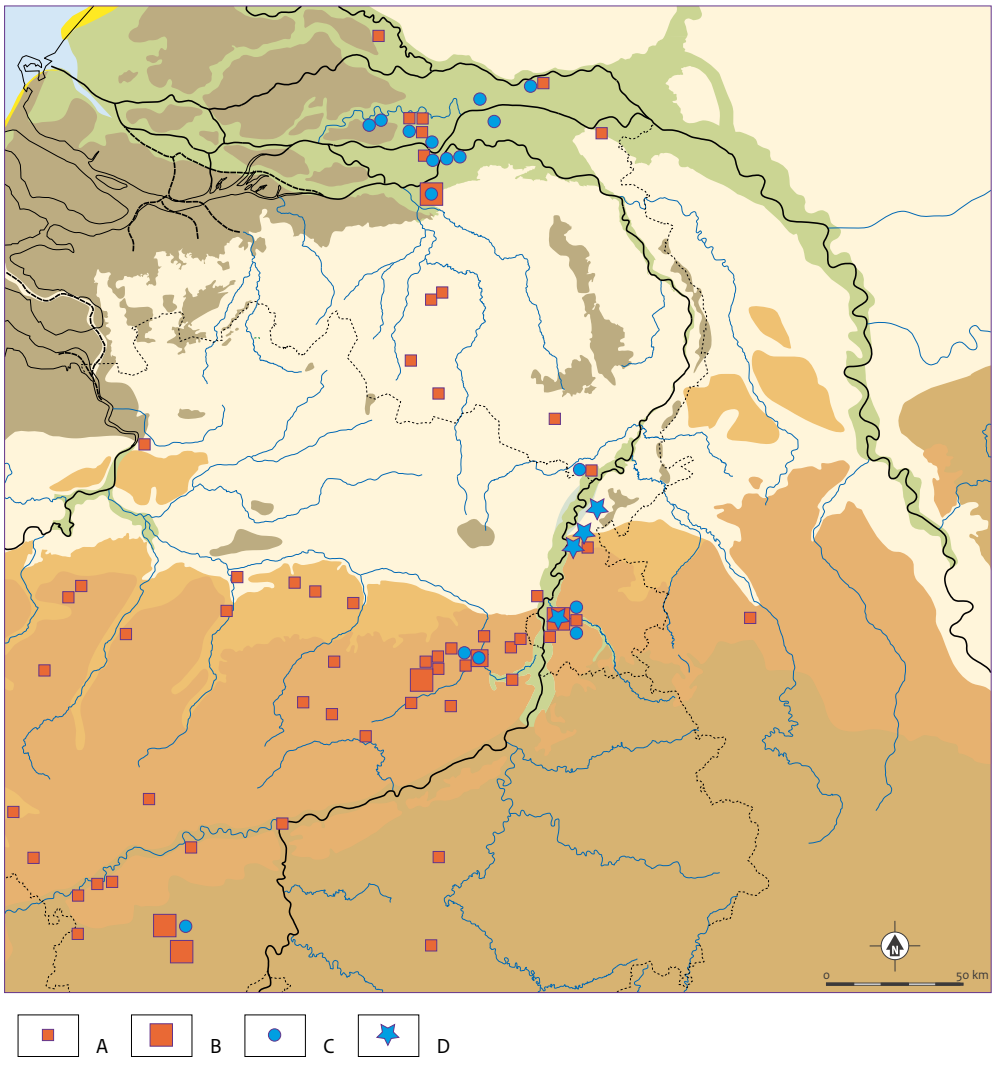

Fig. 14.8 Celtic coins dating from the period of the Gallic wars in the southeast of the Netherlands and neighbouring regions. (source: modified after Roymans & Scheers 2012, 12-14, fig. 9; Roymans 2004, fig. 6.6ff.) A gold stater Scheers 31, single coin; B idem, several/hoard; C silver triquetrum coins of the Lith-group, single coin; D idem, hoard.

dates mentioned are correct, the population must have grown again quite soon after the Gallic Wars. It is likely that the bronze AVAVCIA Scheers 217 coins were also struck in the context of new tribal entities forming.[1066] The oldest variant, class I with legend, was made after c. 20 BC until c. AD 10. These coins are mainly found in the former Eburonean territory, albeit with a more northerly 'centre of gravity' towards the Batavian area. Examples were also found in Roman army camps. The later class II/III coins without legend are more numerous and were 'adopted' by the Roman authorities and produced in the military camps.

14.5 The Early Roman period

14.5.1 Historical context

For the period shortly after the Gallic Wars, in Dutch chronology still part of the Late Iron Age,[1067] little has been written on the region between the lower Meuse and the Rhine; at best, most sources mention Gaul in general. Even the list of the successive governors of Gaul is incomplete.[1068] While the Roman elites were engaged in internal wars and intensive competition for power, slow progress was made

[1066] Roymans & Aarts 2009, 17-19; Aarts & Roymans 2009.
[1067] The year 12 BC (Drusus offensive) marks the start of the (Early-)Roman period although 19 BC is also currently used.
[1068] Cf. Wightman 1974, esp. table 1.

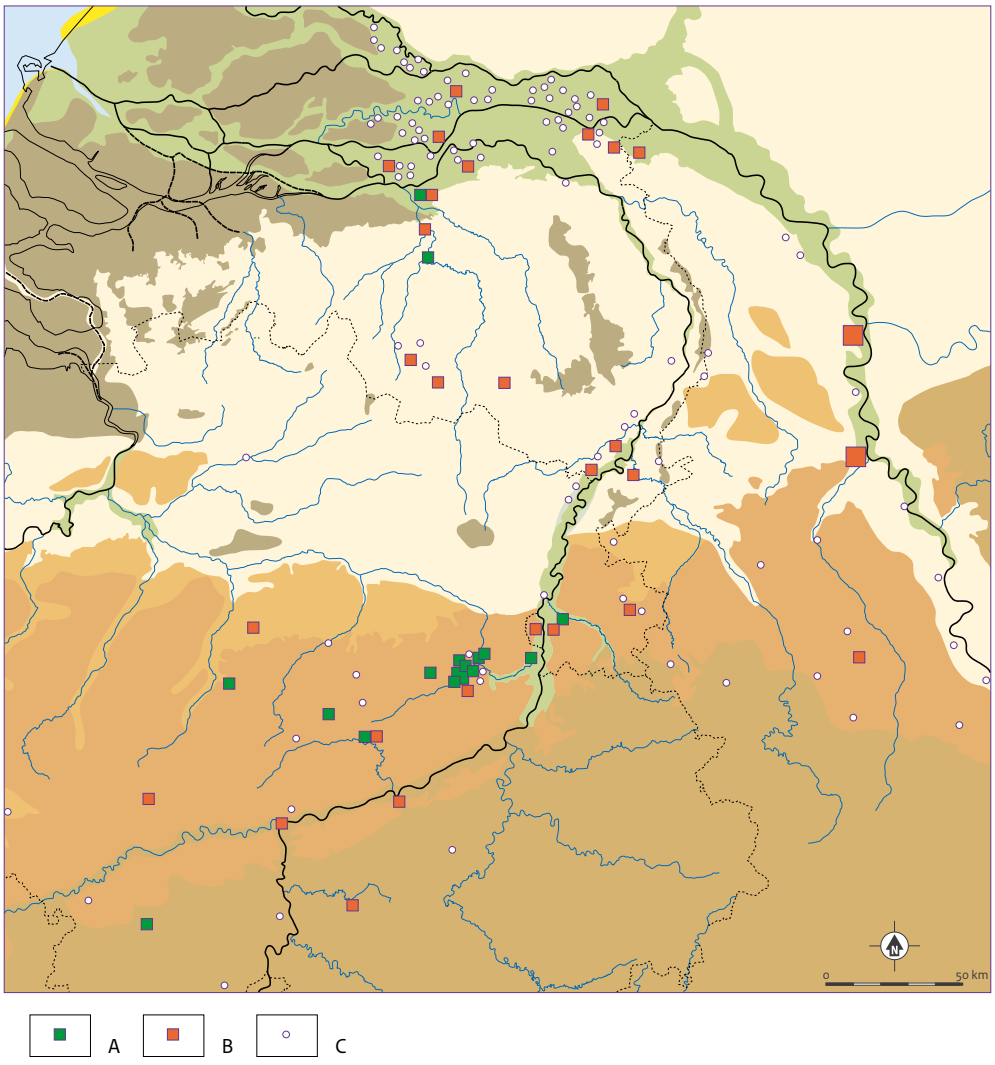

Fig. 14.9 Celtic coins dating after the Gallic wars in the southeast of the Netherlands and neighbouring regions. (source: modified after Scheers 1996; Roymans & Aarts 2009; Aarts & Roymans 2009; Scheers & Creemers 2012, fig. 8) A silver quinarii Scheers 58, legend ANNAROVECI; B bronze AVAVCIA coins Scheers 217, class I; C bronze AVAVCIA coins Scheers 217, class II/III.

on consolidating power in Gaul. Construction of the road network started under M. Vipsanius Agrippa (39-37 BC),[1069] with one of the roads leading from Lugdunum (Lyon) via Trier towards the Rhine. Besides 'revolts' in Gaul itself, there were problems with Germanic 'invaders' in the north. Aulus Hirtius had to cope with these in 45-44 BC and Agrippa felt it necessary to cross the Rhine.[1070] The general idea is that in this context the latter allowed the Ubii to settle left of the river.[1071] The Batavi, consisting partly of Chatti, were possibly also settled around the same time. Like the Ubii, they probably already had a treaty with Caesar.[1072] However, befriending or settling some tribes does not appear to have been an ultimate solution from a Roman perspective because conflicts with Germans are again reported for 39, 25 and 19-17 BC. Especially awkward was the defeat of M. Lollius in 17 BC by the Sugambri, Usipetes and Tencteri.[1073]

Possibly shortly before this defeat,[1074] and certainly directly afterwards, a large military infrastructure was put in place along the Rhine and its immediate hinterland. From now on, a large number of soldiers were present in the legionary camps of Nijmegen, Xanten, Moers-

[1069] Strabo 4.6.11.
[1070] Wightman, loc. cit.
[1071] An alternative is the second term of Agrippa in 19-17 BC (Rüger 1968, 6, n. 18); see Strabo 4.3.4 and Tacitus, ann. 12.27; cf. Willems 1984, 204-208.
[1072] On the treaty with the Ubii, see BG 4.16. The Batavi had a 'antiqua societas' (Tac., Germ. 29) with the Romans and probably Caesar's Germanic bodyguard consisting mainly of Batavi (Roymans 2004, 55ff.), like that of later emperors (Bellen 1981).
[1073] Dio 54.20.4-6; Vell. 2.97.1. These tribes had already been fought against by Caesar.
[1074] Kemmers 2008.

Asberg, Neuss and Bonn, which had a great impact on the hinterland. Following a census in Gaul and the instalment of a sanctuary for the Imperial cult in Lugdunum in 12 BC, Drusus began operations east of the Rhine. Most of these and later campaigns are not relevant here, apart perhaps from the defeat of the Sugambri (see below). The Romans began the administrative organization of Germania, including the conquered territory east of the Rhine.[1075] The construction of an *ara Ubiorum* in Köln made the 'town' the capital of the province of Germania.[1076] After the defeat of Varus in AD 9, Germania east of the Rhine was lost and the river gradually became the fixed border or *limes* of the empire. However, the large-scale military presence continued.

The Tungri appeared as a new tribal formation in the centre of the former Eburonean area (Figs 14.3 and 15.1). The extent of their territory is not exactly known, but the northern border with the Batavi must have been situated somewhere in the province of North-Brabant.[1077] The southeastern border with the Ubii ran though the High Ardennes and Hautes Fagnes, not far from the modern border between Belgium and Germany. As an original part of the large province-to-be Germania, the Tungrian territory was most likely also included in the later province of Germania inferior.[1078] It is not known to which territory Zuid-Limburg and the Meuse valley to the north belonged and this may have changed during the Roman period. There were several groups living in these parts. Firstly, there were the Sugambri, who Drusus fought and who were partly transferred to the Rhineland shortly afterwards by Tiberius (c. 8 BC).[1079] Because a *cohors Sugambrorum* existed beyond the Flavian period,[1080] it seems that the tribe as such also remained in existence. However, it is not clear where the group was settled and what their relationship was with the Cugerni, Sunuci and Baetasii; perhaps they were *pagi* of the Sugambri.[1081] According to Pliny, the Cugerni lived along the Rhine, between the Ubii and Batavi.[1082] Their proximity to the Ubii can also be inferred from Tacitus' account of the Batavian revolt.[1083] Both before and after the revolt, Cugerni served in Roman military units.[1084] The Cugernian town near Xanten ultimately became the Colonia Ulpia Traiana (CVT). The location of the Sunuci and Baetasii cannot be inferred from Pliny and Tacitus,[1085] but the former are commonly placed near and (south)east of Aachen, on the basis of the similarity of their name to that of the goddess Sunuxal who was worshipped in this area.[1086] If the latter is true, the area left for the Baetasii was the strip of land directly east of the Meuse. It is possible that the land north of the Geul around Heerlen and Voerendaal was part of Baetasian territory. Heerlen/Coriovallum may even have been the central (cult) place of the Baetasii.[1087] However, it lacked a formal legal status and remained a *vicus*; the Baetasian territory was probably never more than a *pagus*. Baetasii served in the imperial bodyguard,[1088] a cohors I Baetasiorum in Britannia,[1089] as well as in other units.[1090] The last mention of their name is early in the second century AD, after incorporation into the territory of the CVT.[1091]

14.5.2 Development of settlement and infrastructure

Military population, other consumers and infrastructure

The military installations along the Rhine as such are less relevant for us.[1092] However, the size of the 'military population' is very relevant because it is generally assumed that the military demand for food and fodder was the main stimulus for the development of villas, in the sense of farms. The number of soldiers in the Augustan period is not exactly known, but from Tiberius' reign until the Batavian revolt, some 42,000 men were stationed in the Rhineland (Appendix IV).[1093] Besides the cavalry horses and pack animals to be fed, there were many camp followers who accompanied the military. They lived in *canabae* and *vici*, while other people attracted by the business opportunities settled in 'proto-urban' settlements. These settlements at Nijmegen and Xanten were 20-25 hectares in size (Fig. 14.10). The *oppidum Ubiorum* at Köln may have reached a size of 80-100 ha in the decades before the foundation of the Colonia Claudia Ara Agrippinensium (CCAA) (Fig. 14.10).[1094] These settlements added somewhere in the range of 10,000-20,000 people to the population (Table 14.1; Appendix IV).

[1075] Dio 56.18.2; also attested by camps with town-like features such as Haltern and Waldgirmes (Kunow 1987, 436; Bechert 1995, 57; Becker & Rasbach 2003; Rasbach 2010).
[1076] Raepsaet 2013.
[1077] Raepsaet-Charlier 1994.
[1078] Bogaers 1971; Raepsaet-Charlier 1994; Vanderhoeven *et al.* 2001, 59; Raepsaet 2013, 129-133.
[1079] Suet., Tib. 9; Aug. 21.1 and Dio 55.6.1-3; Tac., ann. 12.39; Rüger 1968, 9.
[1080] Rüger 1968, 25.
[1081] Rüger 1968, 96-97.
[1082] Plin., nat.hist. 4,106 (called Guberni).
[1083] A Roman camp on Ubian soil at Gelduba was 'in proximos Cugernorum pagos' (Tac., hist. 4.26).
[1084] A horseman 'domo Cugernus' is mentioned in the middle of the first century (CIL 3.2712) and the cohors I Cugernorum in a diploma of AD 103 (CIL 7.1193; Rüger 1968, 97).
[1085] According to Pliny, one of the tribes living inland, away from the Scheldt and Rhine: '... introrsus...Tungri, Sunuci, Frisiavones, Baetasi...' (nat. hist. 4.106). Tacitus reports that the Baetasii fought with Nervii and Tungri in AD 70 (hist. 4.56; 4.66).
[1086] As illustrated, among other things, by inscriptions from Aachen-Kornelimünster (Finke 1927, 87, nos 261-262). See Rüger 1968, 99-100 (also on the cohors Sunucorum in a diploma of 124 AD); Raepsaet-Charlier 1994, 56.
[1087] Bridger 2008, 607; Jeneson & Vos 2020, 197-198.
[1088] Bellen 1981, 36, 113, A21 (serving under Nero).
[1089] Diploma of AD 103 (CIL 7.1193; Rüger 1968, 99).
[1090] A 'civis Betasius' as a member of ala II Flavia in Mainz (CIL 13.7025; Rüger 1968, 99).
[1091] See further section 15.1.2.

Table 14.1. Estimates of the 'consumers' in the population of Germania inferior at three moments during the early and middle-Roman period.

Group	AD 15	AD 69	175 AD
Military community	126000	126000	61500-64500
Proto cities	10000*	16500-22000	53000-65500
Civilian vici	10000-18000*	30000-50000†	62750-104500
Total	**146000-154000**	**172500-198000**	**177250-234500**
Growth rate c.		**120-130%**	**103-120%**

* 1/3 of next column; † 1/2 of next column

At this point, it is necessary to stress the aim of our calculations of population size and other matters. Our aim was a limited one, simply to gain a sense of the 'order of magnitude', the scale of society.[1095] As an indication of the latter, we chose the group of 'net consumers', the military and inhabitants of cities and *vici* (in Germania inferior).[1096] This number gives an idea of what had to be supplied by the main agricultural producers, the villas. We would like to have been far more accurate in our modelling, but the time investment needed far exceeds the parameters of our project. Moreover, without wanting to be cynical, the end result would still be fraught with immense uncertainties and perhaps only be slightly better.[1097]

Roads and rivers were pivotal for sustaining both the troops and the civilian population. The construction of roads began in the third decade BC, and the city of Tongeren (last decade BC) and *vici* such as Maastricht, Heerlen and Rimburg (before c. 10 AD) were founded along the '*via Belgica*'.[1098] It is improbable that enough corn was being produced in the region shortly after the start of the first millennium.[1099] Initially, it must have been imported from North Gaul.[1100] How this grain was collected – partly to fulfil tax obligations – and transported to the armies at the Rhine is largely unknown, however.[1101] In any event, the prospect of growing corn closer to the Rhine – thereby substantially lowering the transport costs – must have been appealing to both the Roman army and the civilian population. At first, a multitude of small post-built settlements in the Lower Rhine area must have been capable of supplying only a modest proportion of the grain and other foodstuffs needed. Only after two or three generations did the first villas came into existence. The big question, of course, is how did the settlement system develop and when did villas appear.

The development of rural habitation and the first villas

Although the scale of habitation in the last part of the Late Iron Age is difficult to ascertain, it is becoming ever clearer that rural settlements were present in the former Eburonean territory from the Late Augustan period onwards. On the sandy soils north of the loess belt, dendrochronological dates of wells indicate habitation from AD 3/4 onwards (Fig. 16.2). The earliest pottery found at the settlements of Hoogeloon and Riethoven, including some Arretine sigillata, provides the most accurate dates, around AD 10.[1102] As noted above, the past few decades have clearly shown that the loess and loamy soils of the Rhineland were not void of Early Roman settlement. Sparse early dendrochronological dates show rural habitation from c. AD 40 onwards (Fig. 16.2) and the same applies to the earliest graves in rural areas.[1103]

Two excavated examples in the German loess belt provide insights into the character and possible development trajectories of Early Roman settlements. At Pulheim-Brauweiler, some ten kilometres northwest of Köln, a first settlement phase comprises four small buildings and a number of pits (Fig. 14.11).[1104] The features are dated to La Tène D or shortly thereafter by handmade pottery in Late Iron Age fashion. It is not certain that habitation of the site was continuous. The buildings of the second phase are very similar to the earlier ones, albeit with a shifted orientation. The features contain some pre-Flavian pottery, possibly as early as Tiberian/

[1092] General surveys are Bogaers & Rüger 1974; Bechert & Willems 1995; Kunow 1987; Hessing *et al.* 2021.
[1093] Kunow 1987, 55, fig. 32.
[1094] Bloemers 1990.
[1095] Therefore, all calculations are explicit, but 'hidden away' in appendices.
[1096] As also defined in much more sophisticated calculations, e.g. those of Wendt & Zimmermann (2008, 205).
[1097] Cf. Reddé 2018, 131-134 on the problems of demographic calculations in the work of Wendt and others. This very relevant article, only brought to my attention after this text was written. also deals with agricultural yields, the burden of taxation and related matters (see further below).
[1098] Section 4.3.2.
[1099] See Reddé 2018, esp. 134; 150; 158-159.
[1100] Polak & Kooistra 2013, 398-400, referring to Derreumaux & Lepetz 2008 on archaeobotanical data from northern France.
[1101] Haalebos 1996, 490-492. Tacitus (hist. 4.25-26) writes about transport by boats along the Rhine to Köln and Neuss during the Batavian revolt. Civilis later organizes a naval blockade near the coast, suggesting that supplies came by sea (hist. 5.23).
[1102] Hiddink 2013, 129ff. (Riethoven-Heesmortel); 2014a, 263-264 (Hoogeloon-Kerkakkers).
[1103] Graves in the Hambacher Forst certainly date from the Claudian period onwards and possibly from the Tiberian period. See Gaitzsch 1983, 360-361; 1986, 415; 1993, Fundliste 1; Gaitzsch in Beyer & Joachim 1988, 421-423; 426; Kaszab-Olschewski 2001; Brüggler 2009, 201.
[1104] Andrikopoulou-Strack *et al.* 2000.

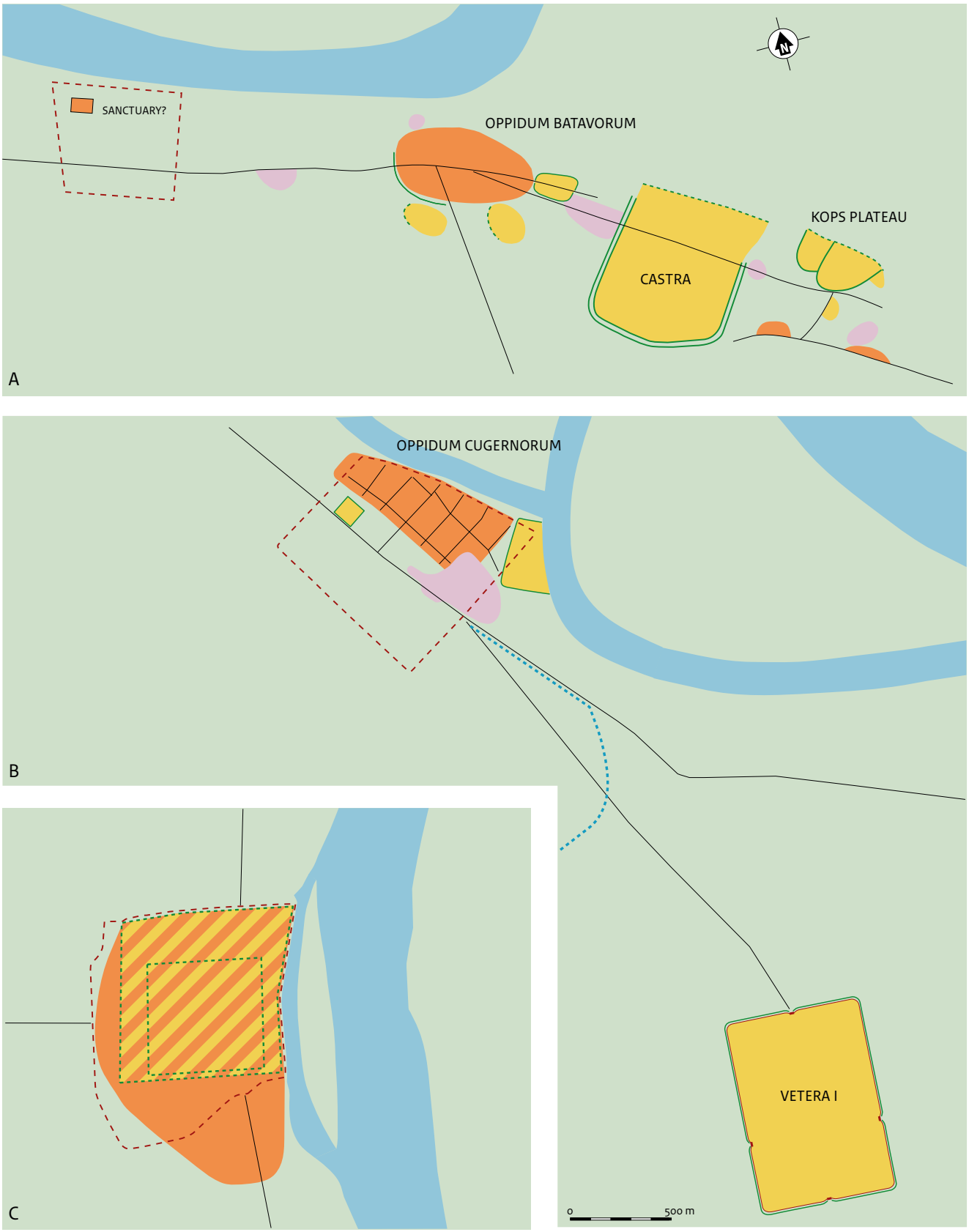

Fig. 14.10 Three 'proto-urban centres' and military bases on the Rhine; for elements not explained below, see legend of figure 15.2. (source: modified after Willems & Van Enckevort 2009, fig. 4; Müller et al. 2008, fig. 101; 128; Modified after Caroll-Spillecke 1995, fig. 8-9)
A oppidum Batavorum (Nijmegen) with the castra on the Hunerberg and the 'command centre' on the Kops Plateau; to the west the contours of the Flavian town Ulpia Noviomagus with the hypothetical sanctuary at De Winseling; B oppidum Cugernorum (Xanten) with the contours of the later C.V.T. and two the south castra Vetera I; C oppidum Ubiorum (Köln) with the contours of the later C.C.A.A and two quite hypothetical reconstructions of military bases.

Claudian.[1105] The orientation of the buildings and boundary ditch is similar to that of the 'proto-villa' of phase 3, suggesting continuity. This later settlement lies within an enclosure ditch of approx. 45 x 45 m and has post-built structures only. It existed from the turn of the first and second century AD at the very latest.

There was a similar development at Jüchen-Neuholz, 35 km northwest of Köln (Fig. 14.11).[1106] A considerable number of small (out)buildings of the Late Iron Age (La Tène C-D) were found in the eastern half of the excavated area.[1107] These seem unrelated to a second phase, which consists of a small house with sill beams, an outbuilding and three sunken-floored huts. The latter and the types of handmade pottery suggest a 'Germanic' origin of the inhabitants. The presence of associated Gallo-Belgic beakers date the features early in the Roman period. This is interesting because it provides an indirect terminus post quem for an enclosed settlement (approx. 80 x 75 m) somewhat further south. A cremation grave in this area belongs to the middle of the first century. The settlement – very similar to Pulheim phase 3 – has two phases of post-built structures. The two largest of the second phase are similar to Voerendaal 418. It is likely that a subsequent phase existed from around AD 100 onwards. This villa phase consisted of a modest villa, a stone-built barn and small shrine, as well as some post-built outbuildings, all within a yard of roughly 130 x 125 m.

Although Pulheim and Jüchen are very relevant, both sites illustrate the issue of dating for the different phases. A similar, vague chronology is found in many publications on other rural (villa) sites, in the Rhineland, Zuid-Limburg and Hesbaye-Condroz. Wherever features of a timber-built phase are found, the nature and chronology remains vague.[1108] Obviously, there are nice examples of house plans under or near later villas, such as at Kaalheide-Krichelberg, Kerkrade-Holzkuil (both Fig. 15.14), Neuss-Weckhoven (Fig. 6.7), Broichweiden-Kaninsberg,[1109] and Lafelt.[1110] Even at these sites, however, the earliest find material is seldom found in these buildings and other features. At best, it concerns stray finds or grave goods. Time and again, the typical early pottery includes cork urns, terra nigra beakers (e.g. Hofheim 125/126; Holwerda BW 26/27) and sigillata from South Gaul. These are potentially Augustan and/or Tiberian but were made until at least the later first century AD.[1111] At some sites, there is an odd brooch, possibly older than the wheel-turned pottery, something which reminds us of finds at Ten Hove (see below).[1112]

On the basis of the finds, the start of the elusive first timber-built phase at the many villa sites is placed 'sometime around the middle of the first century AD'. It will be no surprise that the construction date of the stone-built villas and their outbuildings is just as vague and 'floating in time'. 'From the Flavian period onwards' is a phrase found in many publications.[1113] The implicit reasoning seems to be that a single post-built phase preceded the villa. However, we have to consider that more post-built phases existed and that some settlements may have been founded later.[1114] The proposed start of Kerkrade-Holzkuil, for instance, is around AD 75, with the first small stone villa being constructed in the first quarter of the second century AD.[1115] Because of all the problems dating (villa) settlements, it is impossible to say how many existed around AD 70, 100 or 125. However, it is clear that the maximum number of villas was reached before the middle of the second century (Fig. 16.1). This can be concluded on the basis of the considerable quantities of second-century pottery collected at virtually all sites.[1116]

14.5.3 Voerendaal in the Early Roman period

Chronology

As discussed above, it is impossible to establish the exact end date of either enclosure 308 or the Late Iron Age buildings in the same area. However, there are arguments for an end well before the Gallic Wars. At least one spoonbow brooch, item 16-4-6/2560, certainly belongs to the latter part of the Iron Age (c. 70-30 BC). In principle, it could have belonged to the very end of phase 1c, but it is also possible that it was associated with ephemeral activities in the last decades of the first century BC (phase 1d). Four brooches can be explained either in the same way or – considering the production end dates

[1105] 'Haltener Kochtöpfe', Gallo-Belgic beaker, terra sigillata dish Hofheim 1.

[1106] Andrikopoulou-Strack *et al.* 1999; Frank & Keller 2007.

[1107] Some Late Hallstatt-Early La Tène features are not shown in fig. 14.11, nor are a large number of pits and postholes from various phases.

[1108] On possible but problematic or virtually unknown timber-built structures, see e.g. Hallmann-Preuß 2002/2003, 305 (Hambach 59); Brüggler 2009, 16 (Hambach 132; not documented because of time pressure!); Heege 1997, 32 (Hambach 500; rubble heap of main building only sectioned by crane); Vos *et al.* 2017, 31, fig. 2.28 (Maasbracht-Steenakker; nature of building unclear); Van Ossel & Defgnée 2001, 53-54 (Champion-Sur Rosdia).

[1109] See Brunsting 1950 (Kaalheide); Tichelman 2005, fig. 5.2.47 (Kerkrade); Chantraine *et al.* 1984, fig. 56 (Neuss); Heimberg 1977a (Broichweiden).

[1110] Vanderhoeven 2002, 134, fig. 7.

[1111] A rare case of a somewhat firmer date is the dendrochronological date of a well under the main building at Hambach 512: 35 AD + 25 = 60 ± 5 AD (Diethelm *et al.* 2016; Kaszab-Olschewski 2001, 46-57, table 4).

[1112] E.g. a Knickfibel Almgren 19 at HA 132, considered 'antique' (Altstück) by Brüggler (2009, 31) or a Hülsenspiralfibel found at Kerkrade-Holzkuil (Hoss & Van der Chijs 2005, 226).

[1113] Cf. Reddé 2018, 137 on North Gaul: 'One of the most noteworthy phenomena revealed by archaeological research of the last 20 years, however, is the virtual absence of villas in N Gaul before the middle of the 1st c. A.D. at the earliest, and often even later.'

[1114] Cf. the three successive Alphen-Ekeren buildings under the villa of Hoogeloon-Kerkakkers (Hiddink 2014a, 274-276, fig. 13.4).

[1115] Tichelman 2005, 159ff.

[1116] See below, section 15.2.

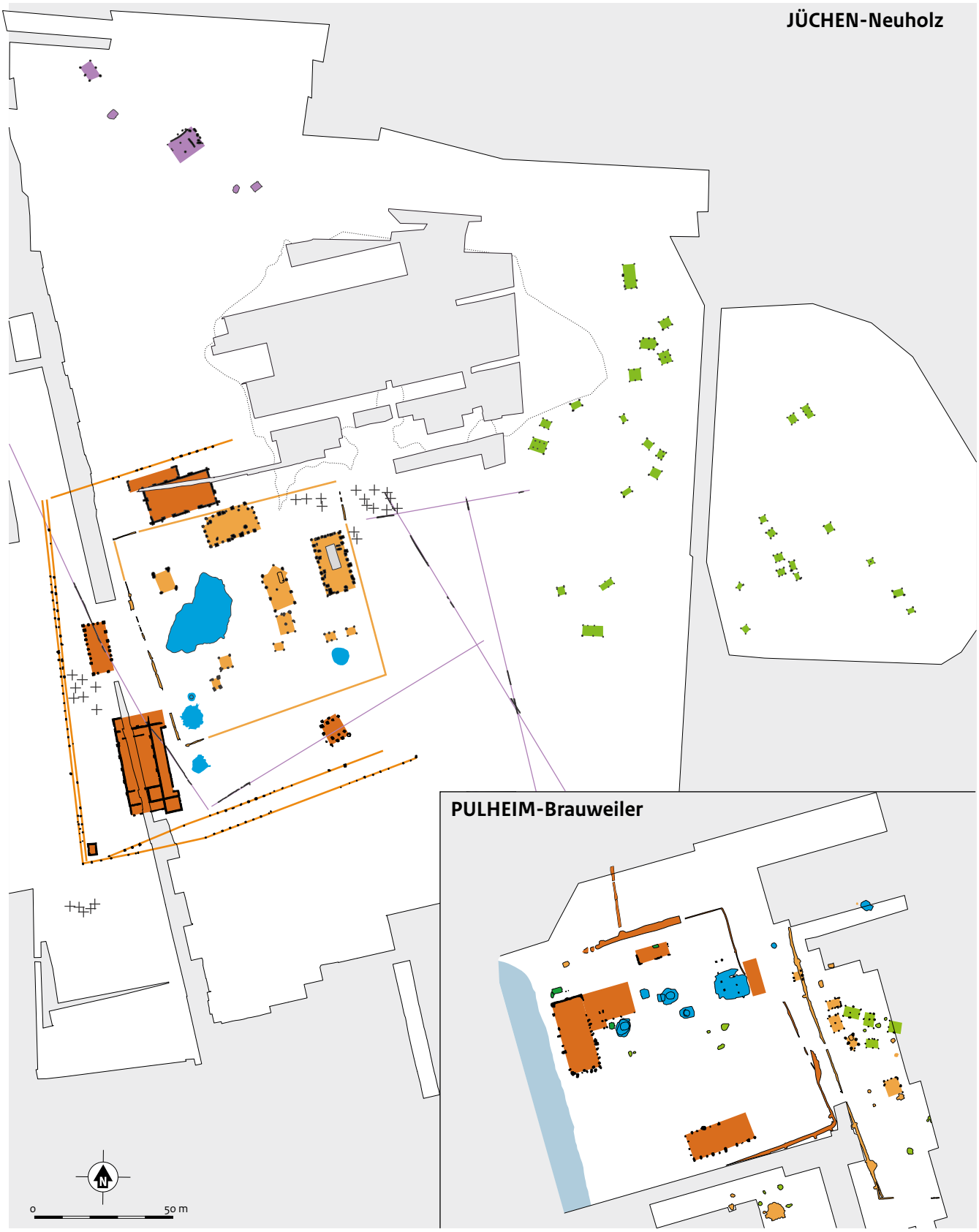

Fig. 14.11 Jüchen-Neuholz and Pulheim-Brauweiler; the majority of red buildings are post-built, the colour used here for specific phases. (source: modified after Frank & Keller 2007, fig. 264; Andrikopoulou-Strack et al. 2000, fig. 9-11; Joachim 2006, fig. 8)
Green: Late Iron Age; purple: Augustan; orange: Early Roman; red: Middle Roman.

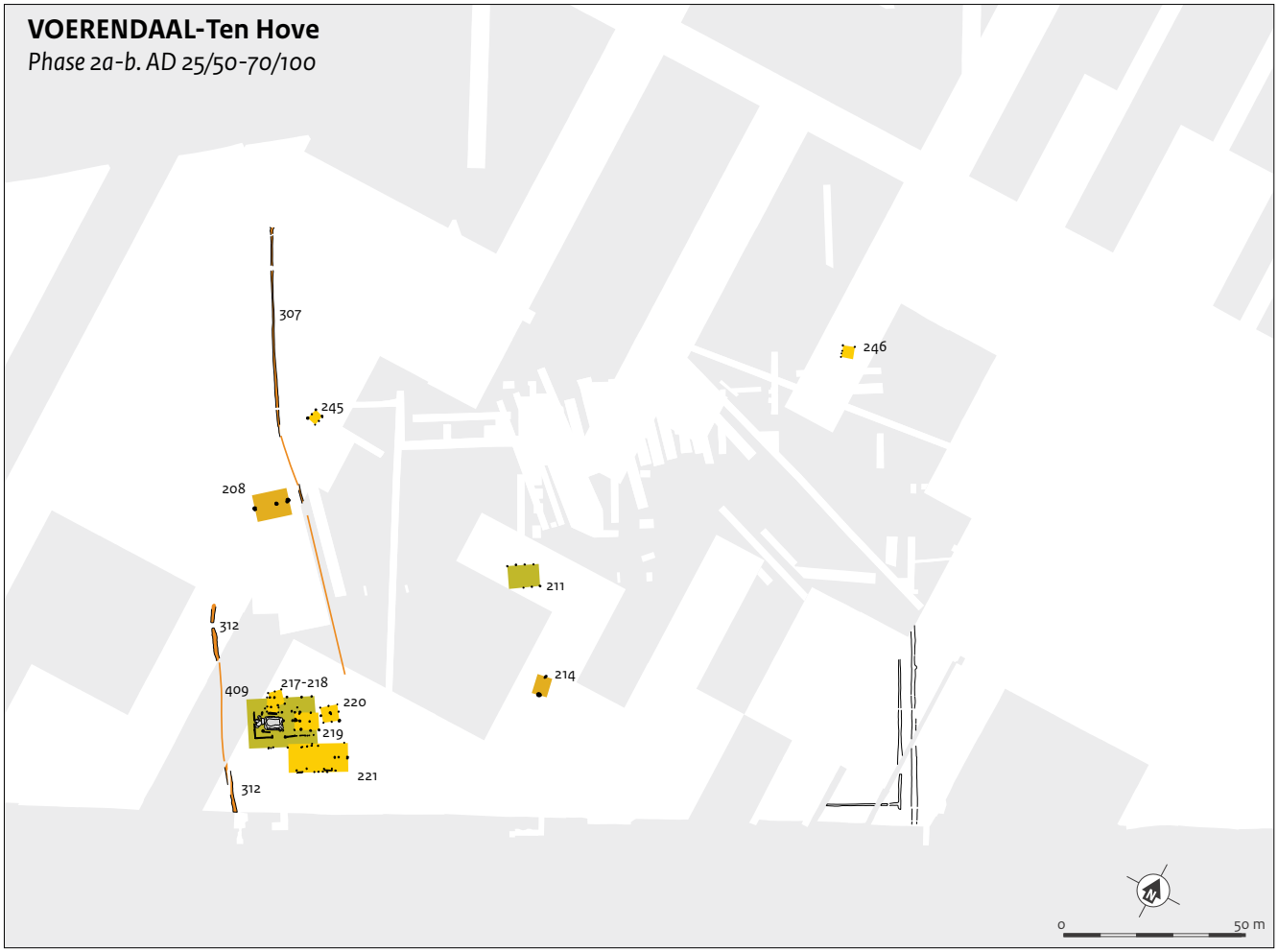

Fig. 14.12 Voerendaal-Ten Hove. The site in the pre-villa phases 2a-b. Orange: phase 2a; green: phase 2b; yellow: phase 1(c)-2.

– as part of period 2, shortly before AD 20/30.[1117] some sherds of handmade pottery or cork urns could belong to the first decades of the first century AD. Some sherds of handmade pottery or cork urns could in theory also belong to the first decades of the first century AD. Regrettably, this is not confirmed by (other) pre-Claudian pottery, such as Arretine sigillata or Gallo-Belgic girth beakers. The earliest terra sigillata from South Gaul at our site is Claudian-Neronian, dating between c. AD 40/50-70.[1118] The regular supply of other kinds of pottery started around the same time. It concerns Gallo-Belgic ware (beakers and terra nigra), as well as colour-coated and coarse-walled pottery, for the most part produced in Heerlen.[1119] It is noteworthy that the start date of 'Roman' Ten Hove is more or less identical to and as vague as that of many other villas mentioned in the previous section. A date 'around the middle of the first century' is obviously unsatisfactory, but sadly, anything approaching a firm dendro-chronological date is lacking.

Character of the early settlement

The first phase of the Roman-period settlement probably consisted of one or two scattered farms in the excavated area, with potentially more examples in the surrounding landscape. The buildings of this first phase 2a are the Alphen-Ekeren type structures 208 and 214 and perhaps 211 as well (Fig. 14.12). Only in a feature of 214 was an Early Roman sherd found, so the dating evidence is meagre. Building 208 appears to have been associated with ditch 307, partly

[1117] Section 20.3.1, under spoonbow, collar and simple Gallic brooches.
[1118] Section 22.2.
[1119] Section 23.2.3, 23.3.1.

aligned to the house (or vice versa). The ditch contained one late Tiberian (or later) terra nigra sherd and was probably filled in during the second half of the first century AD. Perhaps ditch 312 was also in existence during this time, demarcating the west side of a strip of land.

Besides 208, building 409 was situated in the area between ditches 307 and 312. We assume that 409 represents phase 2b. Some pottery in the infill of the cellar dates to around the middle of the first century AD, so there must have been at least some habitation in this area by that time. Perhaps building 409 can be considered a kind of 'proto-villa', on the basis of its quite unusual architectonic features such as its foundation on beams, the cellar pit and perhaps even a portico. In this scenario, the predecessor of villa 399 was located elsewhere. Of course, we cannot entirely rule out that there was a timber building closer to villa 399, a scenario noted by the excavators.[1120] This would make 409 an outbuilding, although still a special one.

The term proto-villa calls for some explanation. We will not address in full here the difficult topic of how to define a 'villa' (we will return to this later). For now, the relevant distinction is between traditional 'native' farms of the Alphen-Ekeren type – post-built, with wattle-and-daub walls and a thatched roof – and 'Romanized' buildings with a more complex plan and several rooms, constructed at least partly in stone, with a tiled roof, a portico, a cellar, etc. The term 'proto-villa' was coined by Slofstra to characterize a 'native' farmhouse with only a few 'foreign' elements added.[1121] In this sense, our building 409 could have been such a structure. In Slofstra's definition, the term was more specifically applied to buildings that would have been occupied by local chiefs who were not yet or no longer able to build a 'real' stone villa.

[1120] Section 5.1.3.

[1121] Slofstra 1991, 163-165; see Hiddink (2014a, 121-124) for more details and references on this theme.

15 The Middle Roman period. Construction and heyday of the villa

Henk Hiddink

Whereas the last chapter dealt with a very long period, ranging from the Palaeolithic to the beginning of the Roman period, a considerably shorter period of some 200 years is discussed below. It concerns the Flavian period up to the best part of the third century AD, the most important period for the site from an archaeological point of view. A modest villa was founded at Ten Hove after AD 70 (phase 2c). Later, it was replaced by a second main building that was enlarged through time. In combination with its outbuildings and other features, it formed a monumental ensemble (phase 3a-b).

The first section of this chapter describes the military history and administrative changes after the Batavian revolt, the latter being relevant because Zuid-Limburg became part of a new *civitas*. The second section is devoted to some aspects of the demographic development, namely the size of the net consumer population that stimulated agricultural production and the emergence of the villa system. The third section addresses the phasing of the villa(s) at Ten Hove, while the fourth examines its layout and position in the landscape. Sections 5 and 6 are devoted to the question of which factors lay behind the founding and enlargement of our villa: was it primarily a matter of 'consumption' by an elite family, simply the result of substantial agrarian production, or a combination of both? Obviously, it is relevant in this context to ask how rich the complex was in comparison with other villas in the region. The seventh and last section contains some reflections on the social aspects of the villa system, which we know in too little detail but which is pivotal for a thorough understanding.

15.1 Military and administrative context

15.1.1 The Batavian revolt

According to the Dutch chronological system, the Middle Roman period begins in AD 70, the year the Batavian revolt ended (Fig. 5.1). The causes of the rebellion or 'true' motives of its leader Iulius Civilis remain a matter of debate, not least because Tacitus was by no means an objective narrator.[1122] Factors contributing to the revolt were the large number of soldiers that the Batavians had to supply, their internal elite competition and the instability in the empire after Nero's death, with army units loyal to different pretenders to the emperorship. Both the causes and the exact course of events are less important here.[1123]

More relevant is the impact of the revolt, the destruction of Roman camps and civilian settlements in the Rhineland. The '*oppidum Cugernorum*' or '*Cibernodurum*' at Xanten is not explicitly mentioned by Tacitus, but perhaps it was the '*municipium*' near the Roman *castra* that the legionary commanders tore down under the threat of Civilis' advance.[1124] Oppidum Batavorum at Nijmegen was eventually left and set alight by Civilis during the final phase of the revolt.[1125] The effects of the troubles were also felt further west of the Rhine. Some of the fighting seems to have taken place in Zuid-Limburg. Claudius Labeo, a Batavian adversary of Civilis, was attacked with his troops of Baetasii, Tungri and Nervii at 'the bridge over the Meuse', perhaps one near Maastricht on the 'Via Belgica' towards Tongeren.[1126] Destruction layers were found in excavations in all three places mentioned.[1127] Oppidum Batavorum was not rebuilt but replaced by Ulpia Noviomagus slightly over 1 km to the west.

Although it is likely that a considerable number of rural settlements, including (proto-) villas, were also destroyed during the Batavian revolt, there is no archaeological evidence for this. As we have seen above, the vast majority of sites were still timber-built at this time and were in principle prone to destruction. However, even at sites set alight, the chances of finding evidence of fire are slim because, for instance, original ground surfaces are lost through later agricultural activity. We can only conclude that there are no indications of burnt structures, either post-built or stone-built, at Ten Hove and virtually all other sites.[1128] The destruction during the revolt may have been large scale and widespread but it seems to have been less significant in structural terms. Both military camps and civilian settlements were rebuilt quite rapidly, mostly at the same locations and sometimes nearby (Nijmegen, Vetera I-II). Concerning the rural settlements, the chronological resolution of our dating methods is insufficient to establish interruptions in their development.

[1122] Walser 1951; Brunt 1960.

[1123] For accounts of the revolt see e.g. Walser 1951, 86-128; Teitler 2004; Lendering on www.livius.org s.v. Batavian revolt (consulted 15-9-2020); On the Batavi, see Roymans 2004 and the contributions to Swinkels 2004.

[1124] Tac., hist. 4.22.

[1125] Tac., hist. 5.19.

[1126] Tac., hist. 4.66.

[1127] Rüger in Horn 1987, 629 (Xanten); Van Enckevort & Heirbaut 2010, esp. 53; Driessen 2010, 8; Visser 2010, 58ff. (Nijmegen/Oppidum Batavorum); Vanvinckenroye 1975, 28; Vanderhoeven 1996, 200 (Tongeren).

[1128] Braat 1953, 53; cf. De Maeyer 1937, 281-282.

Fig. 15.1 The civitates of Germania inferior and neighbouring provinces in the Middle Roman period, the location of some early pagi and subgroups as well as the earliest main roads.

15.1.2 Administrative changes and the groups of the Lower Rhine Area

The decades after the Batavian revolt saw some important administrative changes, beginning with the formation of the province of Germania inferior during the reign of Domitian (Fig. 15.1). Until then, it was part of the far larger province-to-be Germania, which should have included territory east of the Rhine.[1129] The 'tribal' groups incorporated in Germania inferior were the Cananefates, Batavi, Traianenses, Agrippinenses and Tungri. As mentioned in a previous section, the names Sunuci and Baetasii are only attested by names of military units until the early second century AD. It appears that these groups were not transformed into *civitates*. They possibly lived on as *pagi* in the sense of religious communities or non-autonomous territorial units without a formal legal status. The Traianenses were called Cugerni until the foundation of the Colonia Ulpia Traiana at Xanten. The *colonia* was possibly established as early as AD 98 by Trajan, according to Eck in an attempt by the new

[1129] Raepsaet 2013, 129-133. For sources on the administration and officials of Germania inferior, see Raepsaet-Charlier 1999.

emperor to win the allegiance of the troops in Germania inferior.[1130] It is possible that large parts of the street grid were already surveyed in the decades before, but that the construction of some important buildings only started several years after 98 AD.[1131]

As mentioned earlier, the Baetasii may have lived east of the Meuse, in the region were Voerendaal and Heerlen were situated.
An inscription from Rome suggests that the Baetasii were associated with the Traianenses, although it is not certain that this was the situation before the *colonia* was founded.[1132]
Be that as it may, there is evidence for parts of Zuid-Limburg belonging to the territory of the CVT. Firstly, in the well-known (re)building inscription from the baths at Heerlen, the sponsor M. Sattonius Iucundus appears to be a *decurio* of the *colonia*.[1133] Secondly, three bronze tablets found at the villa of Houthem-Ravensbosch are dedicated to magistrates of the CVT and one of these – Titus Tertinius – was *patronus* of the *pagus Catual(inus?)* at the same time.[1134] The latter name is similar to that of (the *vicus*) Catualium on the Tabula Peutingeriana, located between Blariaco and Feresne.[1135] Catualium must be Heel, between Blerick/Blariaco and Dilsen/Feresne west of the Meuse (Fig. 15.1). It is likely that both the villa Houthem-Ravensbosch and the *pagus Catualensis* were located in the *civitas Traianensium*. Obviously, the exact location of the borders of this *civitas* are unknown. The river Geul is generally seen as the southern border.[1136] The eastern border must have been situated somewhere between Heerlen and Aachen/Aquae Granni. An indication is a dedication by a *sexviralis Augustalis* of the CCAA/Köln found at the sanctuary of Aachen-Kornelimünster, indicating that this place 7 km southeast of Aachen was situated in the territory of the colonia. Another inscription from the sanctuary mentions the goddess Sunuxsal, suggesting that the area was formerly the territory of the Sunuci.[1137]

15.1.3 The specific impact on Zuid-Limburg

It is an intriguing question whether and how the administrative changes affected the population in Zuid-Limburg and its immediate environs. It is possible that the formation of the province of Germania inferior did not bring many changes in the short term. A group like the Baetasii may already have been in a subordinate position to the Cugerni. In any case, most of the population of both groups were still *peregrini*, without Roman citizenship. A small part of the population would already have acquired citizenship, mainly through service in the army. If Heerlen/Coriovallum had been the central place of the Baetasii, it did not instantly suffer a setback when the CVT was founded. It only meant that Heerlen remained a *vicus* as it had been before. The fact that it was not elevated to the *civitas* capital brought only a relative loss of importance in the long run.

The foundation of the CVT most likely had a more serious impact on the elites, and less so on the population in general and the *vicani* at Coriovallum. The numbers of people with Roman citizenship grew because of the veteran *legionarii* settling in the colony.[1138] This may have led to increasing competition for positions in the administration, cults and the economic networks. Furthermore, the issuing of land was a potential source of problems if this land was situated outside existing military territory or the immediate vicinity of the *colonia*.[1139] The best agricultural land was relatively scarce, concentrated in a zone far from the colony on the loess of Zuid-Limburg. These soils must already have been settled and tilled for the most part around AD 100 and the appearance of new owners may have had a disruptive effect.

Still, the changes after the founding of the CVT may not have been as sudden and intense as we might think. Firstly, veterans were already settling long before AD 100, mainly in cities and *vici* but to a certain degree also in rural areas, or were at least involved in affairs there.[1140]
An example from Zuid-Limburg is Marcus Iulius, whose gravestone was found along the 'Via Traiana', just south of the *vicus* Coriovallum.[1141] He was a veteran of *legio V*, and the absence of a *cognomen* suggests that his burial must have taken place in the first half of the first century AD. It is unlikely that the wave of new colonists-citizens-veterans 'pushed out' the old ones from their villas, although competition may have existed and existing farms bought. Secondly, it is

[1130] Eck 2008; 2014.
[1131] See e.g. Precht 2008.
[1132] Three people designated as 'Traianensius Baetasius', Hadrianic at the latest: CIL 6.31140; cf. Byvanck 1935, 520, no. 1395; Rüger 1968, 99.
[1133] Bogaers 1957; Nesselhauf & Lieb 1959, 209-210, no. 247; Schorn & Minis 2019, 8ff., no. 2.
[1134] Remouchamps 1925, 59-66; Derks 2011, 118ff., appendix 5, figs 5-8.
[1135] Tab.Peut. I, 4-5 (Stuart 1993).
[1136] Raepsaet-Charlier 1994, 56.
[1137] Other dedications to her were found in the area between Worm, Rur and Erft (Raepsaet-Charlier 1994, 56). A re-used inscription in a church at Gereonsweiler was put up on behalf of Q. Acilius Verus, a decurio of Köln (CIL 13.12013). This demonstrates that the area, 10 km northwest of Jülich, belonged to the CCAA.
[1138] Eck 2008, 250.
[1139] Cf. Eck 2008, 251; he suggests still unassigned land or pastureland near the colonia.
[1140] See Mann 1983; Demougin 1999 (topic in general, sources); Haalebos 2000b (esp. diplomata); Derks & Roymans 2006 (idem, general); Bridger 2006 (civitas Traianensium). Sources on some 25 veterans dismissed before 100 AD (Demougin 1999, appendix) attest only three 'inland' (Kierdorf, Arlon and Heerlen) and 21 in or close to military bases and civilian settlements along the limes.
[1141] CIL 13.8711, found in 1873 near the Bekkerweg/(Oude) Lindestraat; cf. Bogaers 1962/63, 76, n. 108; http://www.rijckheyt.nl/cultureel-erfgoed/iulius-marcus-romeins-legionair (consulted 18-9-2020)

conceivable that the many new inhabitants of the CVT were not primarily interested in acquiring wealth through direct involvement in agriculture but became engaged in trade and manufacture.[1142]

15.2 Further development of markets and the villa system

Reference was made earlier to one possible motive for the foundation of the CVT, namely to win over the troops. A second and probably more important one may have been to indirectly strengthen the Roman presence because troops were withdrawn from the Rhine border and sent to the Danube region. *Legio XXII primigenia* left Vetera II somewhere between AD 92 and 97. Although it was replaced by *legio VI victrix* and later *legio XXX Ulpia victrix*,[1143] Neuss was without a legion after the former left for Vetera. In c. AD 102 Nijmegen also lost its *legio X gemina*.[1144] Ulpia Noviomagus had a lower status than Xanten and did not become a *colonia*; instead, it was granted privileges such as *municipium* status and citizenship was bestowed on a large number of people.[1145] All in all, the number of troops fell markedly from the beginning of the second century onwards (Table 14.1 and Appendix IV). From more than 40,000 *legionarii* and *auxiliarii* in the pre-Flavian and 35,000 in the Flavian period, numbers dropped to slightly over 20,000 in the reign of Trajan. The decline in the number of soldiers must have had a considerable impact on the economy of Germania inferior. Moreover, many 'camp followers' departed along with the troops. This obviously affected the demand for agricultural (and other) products.

Stimuli such as the foundation of the CVT and the elevation of Ulpia Noviomagus and Forum Hadriani to *municipia* probably did not sufficiently compensate for the falling military demand. In the end, the first two cities were only slightly larger than they were before the Batavian revolt (compare Figs 14.10 and 15.2-15.3). All the same, the population of cities like Köln and Tongeren – and thus the number of consumers – still increased during the second century. Added to this, the number and size of the 'civilian' *vici* must have increased substantially from the later first century AD onwards (Fig. 15.4). In the end, the total 'urban' population of Germania inferior may have been stable or grew only moderately. This does not imply a stagnation of the economy per se, but the demand for basic foodstuffs such as grain may have not increased as dramatically as is often assumed.

The number of villas reached a peak around the middle of the second century AD. Figure 15.5 gives an idea of the number of sites and the population density in three areas along the road from Boulogne-sur-Mer to Köln. The upper map shows sites in the area between Jülich/Juliacum and Bergheim/Tiberiacum. Although this area includes the large lignite mines of Weisweiler and Hambach, many sites had already been discovered through intensive fieldwork in the 1960s and earlier. Without doubt, a large proportion of the mapped sites were villas with at least one stone-built and tile-roofed building. In the original inventories they appear as 'debris field' (*Trümmerstelle*). As noted above, it is difficult to say exactly what a villa is and to identify one from survey data alone. For now, we will adhere to the pragmatic definition of a farm/rural site that is partly constructed in stone.[1146] The sources for our map were chosen because of their scale, but a recent, more detailed inventory by Jeneson shows that even more sites existed, including some 20% 'post-built sites'.[1147] The number of sites is lower in the strip of land along the Roman road between Maastricht and Rimburg (middle map), with 'only' some 70 (probable) villas (for the area around Voerendaal, cf. Fig. 4.7). The original number of sites must have been considerably higher because several factors negatively affected the known numbers. On the one hand there are large, modern built-up areas and on the other the relief is more pronounced than in the Jülich-Bergheim area. The latter implies larger zones with less favourable conditions (steeper slopes) for past habitation and agriculture as well as more extensive erosion (destroying or covering sites).[1148] The density of known sites in map B is comparable to that of C, the Tongeren-Maastricht area. Almost all sites will represent villas here, but a handful of sites are known to consist of post-built structures.[1149] As in area B to the east, the relief is relatively

[1142] Obviously impossible to prove. The question remains as to whether the absence of Traianenses among the traders known from Colijnsplaat is significant (Galsterer 1999, 266), or simply a problem of the sample consisting of some 20 cases of dedicants with a known origin (Derks 2014, fig. 9; Stuart 2003, 73-75; Stuart & Bogaers 2001, 32). For the acquisition of wealth through agriculture and/or other activities, see section 15.6 below.

[1143] Strobel 1988; Galsterer 1999, 263-264; Schmitz 2008, 152-158. Legio XXII was stationed in Mainz, replacing legio XIV , which left for the Donau.

[1144] Kunow 1987, 54, fig. 31.

[1145] Eck 2008, 249, fig. 155. On the name and legal status, see Willems *et al.* 2009, 76-77.

[1146] Section 4.3.4; the problematic villa definition is further discussed in 15.5.1.

[1147] Jeneson 2013, 131ff., micro-regions 4 and 5.

[1148] The 'empty' area north of Heerlen includes large built-over areas, as well as the infertile sandy soils of the Brunsummer Heide. Particularly the southeast of Zuid-Limburg has a pronounced relief and is still not used for agriculture (wooded areas).

[1149] E.g. Veldwezelt and Kesselt (Vanderhoeven 2015, 192-193, figs 2-3).

pronounced and agriculture was intensive through the ages. In some zones virtually all traces of once-existing villas are obliterated and only large tumuli demonstrate that settlements were once present.[1150]

The density of villas in area A around Jülich and Bergheim has been calculated as being between one or two per square km (100-50 ha).[1151] If we assume that some 70-80 villas existed in area C between Tongeren and Maastricht, the density was one villa per 3-3.4 km².[1152] Even if the average villa – in the sense of *fundus* or amount of arable – here and in area B was larger than that around Jülich and Bergheim, the number of known villas would be well below the original. This also holds true for area B, Zuid-Limburg. For this region in its entirety, there is only one villa per 5 km², but for an area including the northern border of the Geul Valley near Valkenburg, the Heerlen Basin and the area between Heerlen and Rimburg, the density of (probable) villas is one per 1.7 km².[1153] This number comes close to that of area A. If we extrapolate these densities to the loess and loamy soils of Germania inferior as a whole, even taking large tracts of agriculturally less suitable or unsuitable soils (too wet, steep etc.) into account, there must have been at least about 2,000-3,000 villas in this province (order of magnitude). The possible implications for the scale of grain production and the income of the owners are discussed later (Section 15.6.3).

15.3 The general development of the villas at Voerendaal-Ten Hove

15.3.1 Dating the two villas

The view until now was that the first main building (399; phase 2c) was constructed in the Flavian period and the second (400; phase 3a) in around AD 100.[1154] However, the dating evidence for this, mainly presented by Braat, is invalid or very circumstantial at best. The single older find still retaining some significance is probably a rim fragment of a terra sigillata dish (Dragendorff 18/31) from East Gaul, dating lime-pit 335 – and therefore the construction of the baths (?) – to the second century AD. Without pretending to be able to offer a definitive answer to the dating problem, we can present arguments for dating each phase slightly later, about one generation. An important context in this respect is the cellar pit of building 409 (Figs 14.12 and 15.6). The building itself was in use during period 2b, as was pointed out in the previous chapter. Its cellar was probably finally filled in just before the construction of building 403 (phase 3a), the foundations of which cut the infill (Fig. 15.7). The majority of the pottery in the cellar pit dates to between c. AD 70 and 120, providing a terminus post quem of AD 70.[1155] However, some other finds date after AD 80-100 and a few even around c. AD 125/130. All in all, it appears that building 403 was constructed around AD 125 at the earliest, in practice perhaps even a decade or so later. As an outbuilding of the second villa, building 403 indirectly provides an approximate date for the construction of the main building.

If villa 400 was indeed built around or shortly after AD 125 (phase 3a), its predecessor 399 might have been constructed at the very end of the first century if it was in use for one generation only. A date earlier in the Flavian period would imply an existence for two generations. Perhaps an earlier founding is to be preferred anyway because the hypothetical 'mini-core' of villa 400 also needs to be considered (Fig. 8.5-6). However, if this ever existed, it may not have stood very long because it was even smaller than 399 and did not fit the grand scale of the villa during phase 3a and b. It is possible that it was only built as an improvised residence during or directly after the demolition of 399. The mini-villa cannot be dated, but we assume that it preceded the monumental layout of phase 3a of AD 125. Therefore, we tend to include it in period 2, as a short phase '2d', which is merely an extension of 2c (Fig. 15.6).

Besides the contents of the cellar pit in building 409, there are some other indications of the proposed construction date of the second villa 400. Post-built structures 209 and 210 were probably demolished around AD 125 at the earliest.[1156] They did not block the façade of 399 but stood in front of building 400. Buildings 212 – if not part of a fence – and 213 seem to be relatively early on the basis of the Alphen-Ekeren

[1150] Even a fair proportion of tumuli are known by field names only, as they were levelled in the past. See Massart 2015, 182ff.

[1151] The 36-37 sites of Stufe 2-4 in the inventory by Lenz (1999; cf. fig. 16.1), representing some 33 villas, are found in an area of 31.9 km²; for the Hambach lignite mine, there is 0.8 villa/km² (Gaitzsch 2011, 286-288). The roughly 188 sites in an older inventory (Tholen 1975, fig. 1) are in an area of 257 km², which amounts to one site/1.37 km².

[1152] Based on the number of settlements and 'isolated' tumuli in an area of some 240 km² (Vanderhoeven 1996, 223, fig. 21).

[1153] It concerns 43 sites/72 km² (author's site database).

[1154] Section 5.1.4. In addition to stray finds 'in' and near the main building, finds from pit 765 and basin 336 were supposedly indicative of the construction date of building 400.

[1155] See chapter 43.

[1156] See chapter 81.

Fig. 15.2 Plans of Tongeren and Xanten in the Middle and Late Roman period. (source: modified after Vanvinckenroye 1975, folding map; Müller 2008, fig. 158-160)
A built-up area Middle Roman period; B idem, Late Roman period; C cemetery Early/Middle Roman; D idem, Late Roman; E road with bridge; F aqueduct.

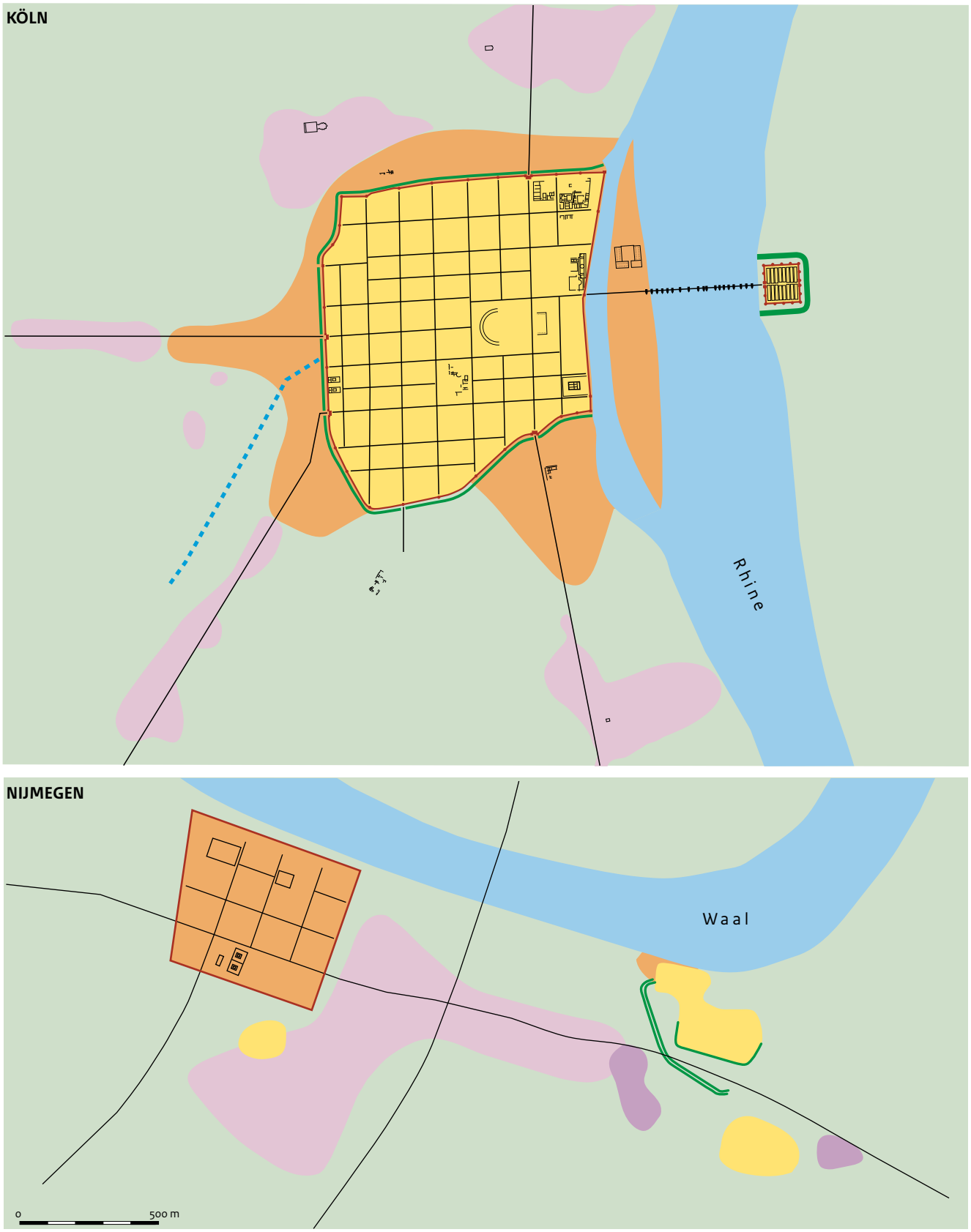

Fig. 15.3 Plans of Köln and Nijmegen in the Middle and Late Roman period. (source: modified after Horn 1987, fig. 396; Willems & Van Enckevort 2009, fig. 7-8; Van Enckevort 2010, fig. 151; Van Enckevort & Heirbaut 2010, fig. 161)

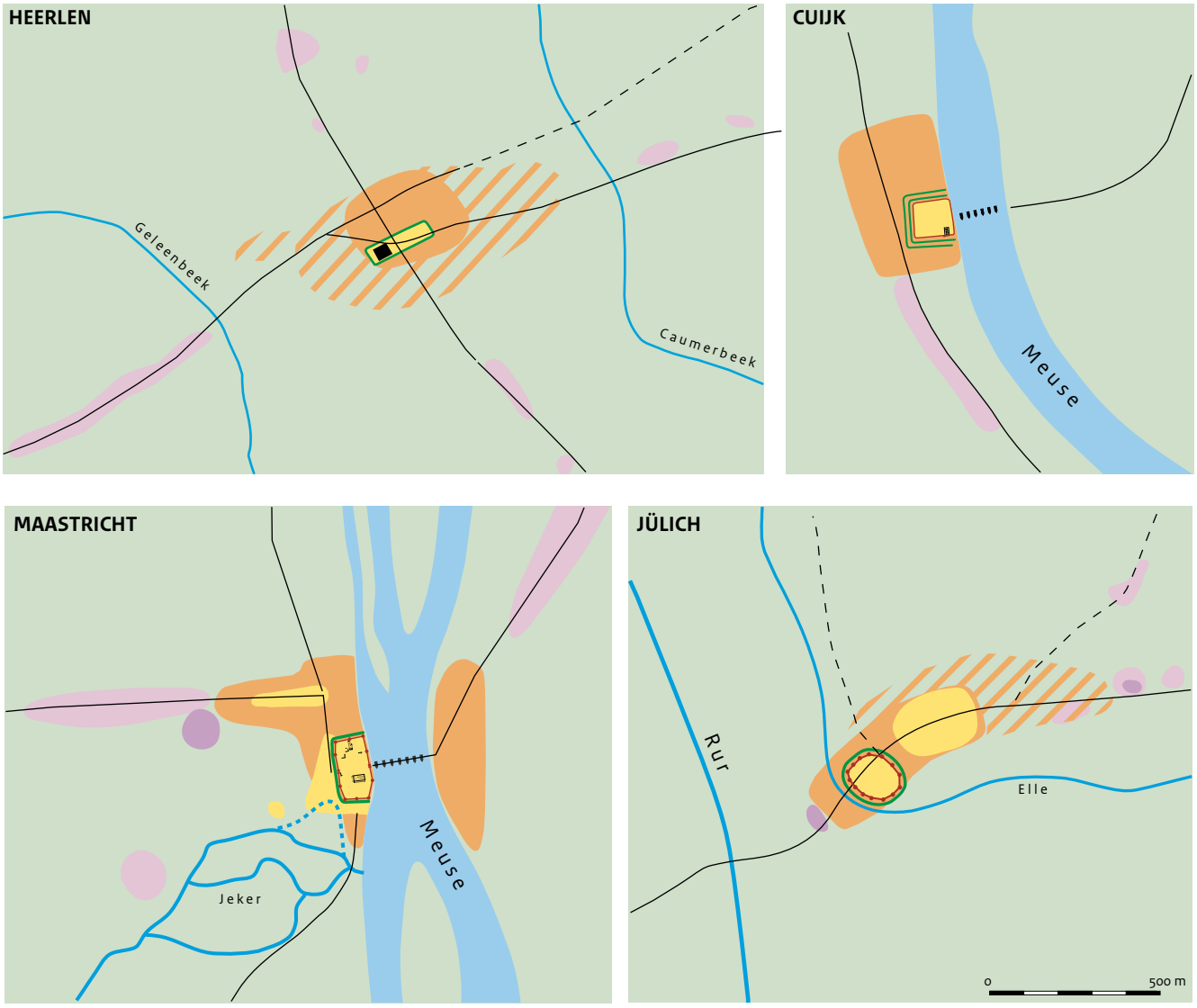

Fig. 15.4 Plans of four vici in the Middle and Late Roman period. (source: modified after Putker 1987, fig. 2; Jeneson & Vos 2020, fig. 10.3; Tichelman & Janssens 2012, fig. 2.2; Van Enckevort & Thijssen 2002, 30; 84; Panhuysen 1996, fig. 5; map 4; Kooistra 1996, fig. 45a; Tholen 1972, fig. 3-4; Pöppelmann 2010, fig. 33)

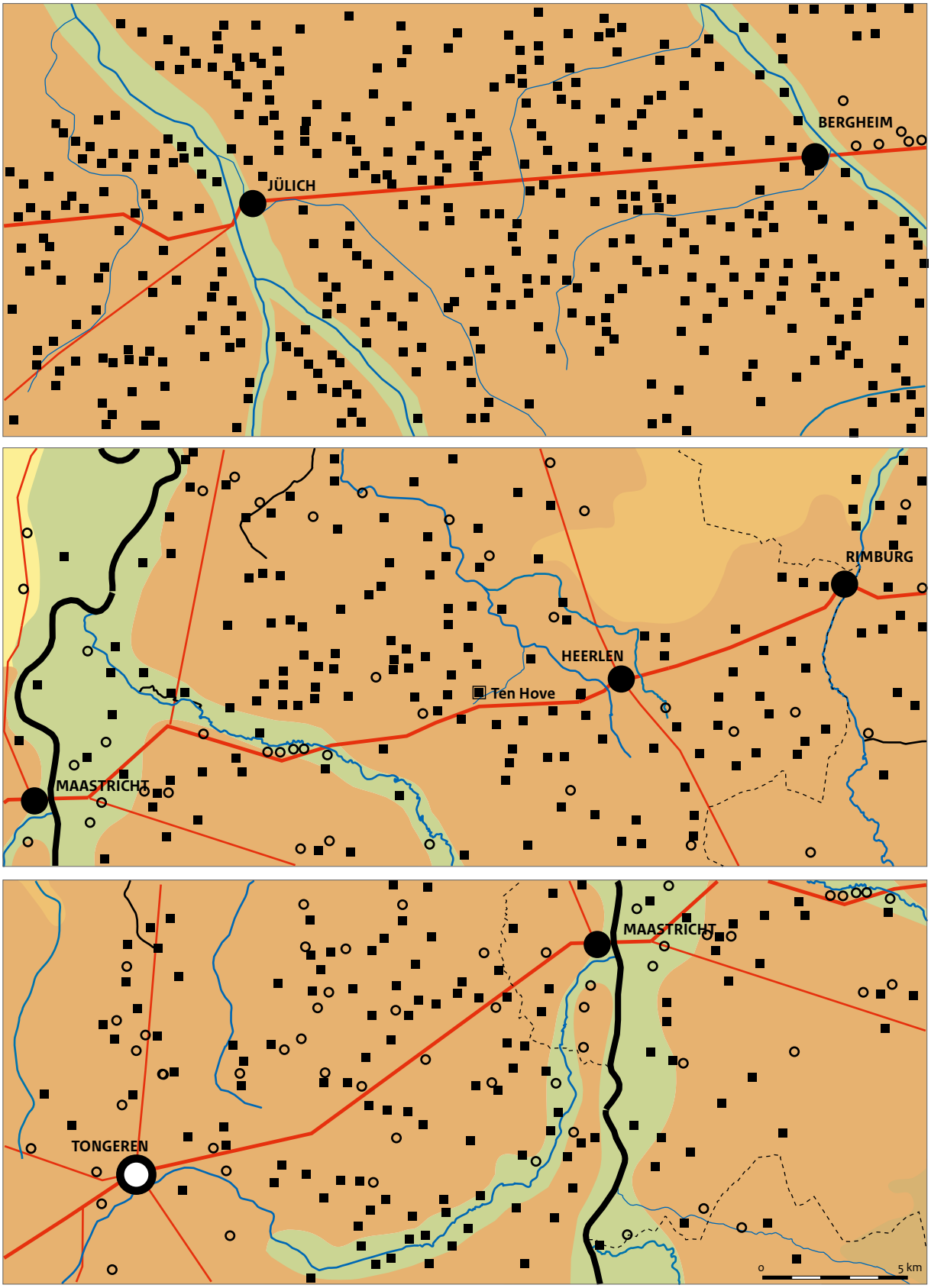

Fig. 15.5 An impression of the number of sites, the vast majority villas, in three micro-regions. (source: modified after Gaitzsch 2011, fig. 1; Tholen 1972; Hinz 1969, pl. 50; Jeneson 2013, fig. 5.21; 24; 26; Vanderhoeven 1996, fig. 21; site database author)
A Jülich-Bergheim area; B Maastricht-Heerlen-Rimburg area; C Maastricht-Tongeren area.

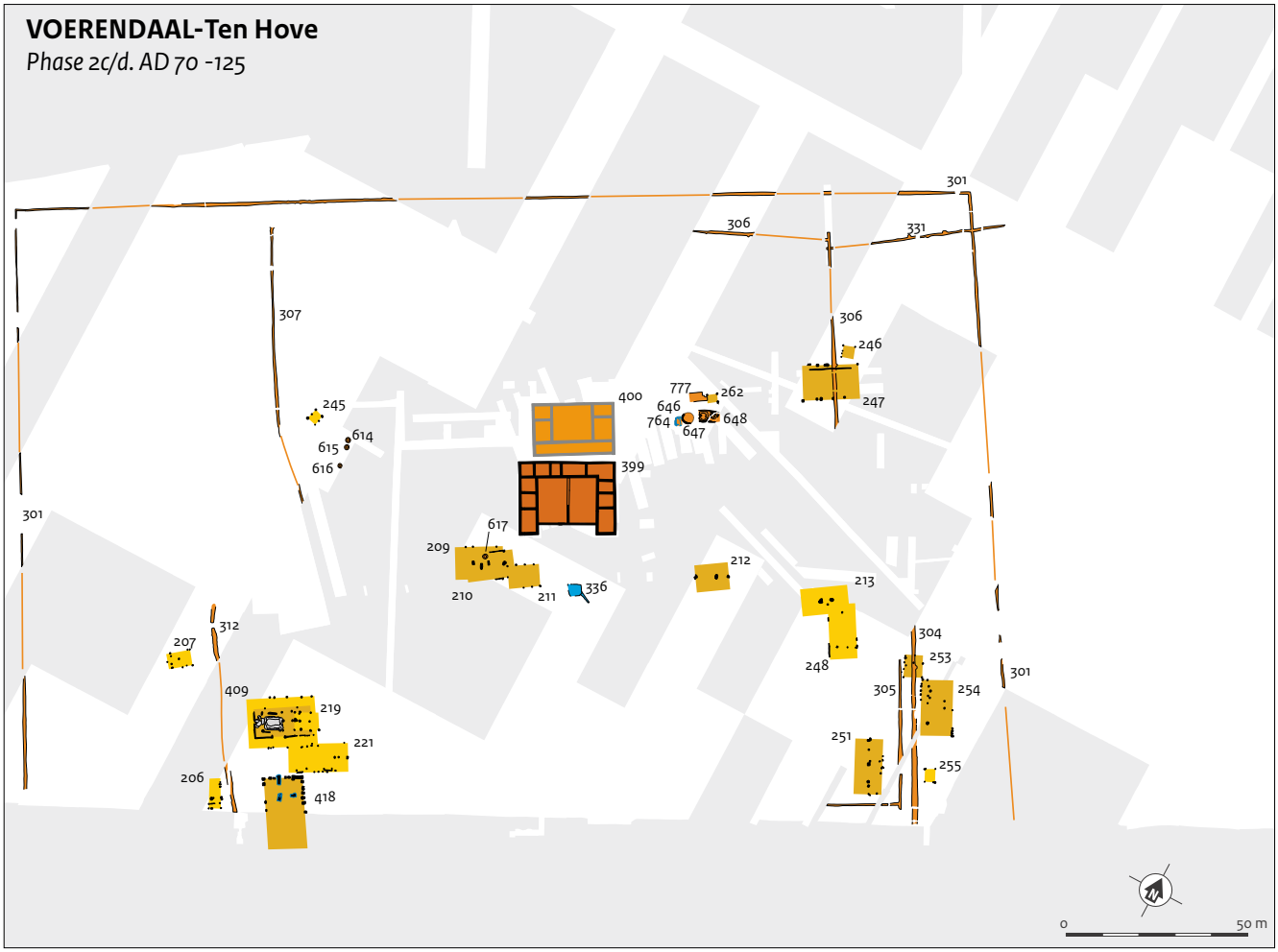

Fig. 15.6 Voerendaal-Ten Hove. The first villa, phase 2c; for legend, see figure 5.4.

building type. However, the finds show that they still existed in the early second century AD. Like 209 and 210, these buildings must have been removed during or shortly after the construction of the second villa 400. The contents of pits 728 and 729 'under' building 401 also suggest the construction of a stone outbuilding of period 3 around or after AD 125, but sadly this is not certain because the pottery could in part be intrusive. Unfortunately, ditches 304 and 305 preceding outbuilding 401 are also not well dated. A sherd of a Dragendorff 29 bowl from the latter was produced between c. AD 70-85, suggesting that the ditch was filled in some time after this date.

15.3.2 Elements of the villa complex through time

In addition to the buildings mentioned in the last section, 247-248, 251, 253 and 254 must also have been associated with the first villa 399. Taken together, the buildings form a rough U-shape. This (inverted) U has a similar width to that formed by the outbuildings of the second villa but is less 'deep' (north-south) as a result of the position of main building 399 respective to 400. Ditches 304, 305 and 306 were part of the enclosure of the villa in phase 2c because they are intersected by buildings 401 and 405 of period 3 (see above). It is remarkable that the centre of the first villa is exactly halfway along ditch 305 and the westernmost point of 312;

the latter was already in existence during phase 2a/b. At some point, ditch 301 might have become the boundary of the complex. It is not firmly dated but seems to have had 'Roman dimensions' (see below). It was intersected by ditch 302 of period 3 but probably did not disappear entirely. The west side may still have been used as a field boundary until much later. Several features associated with the heating of material belonged to phase 2c. Firstly, it concerns furnaces 614-616, intersected by the *horreum* and 617 nearby. They were used to produce iron and must have been used for the construction of the villa or other buildings from phase 2c, or for buildings of phase 3a.[1157] Kilns 646-648 must also predate period 3 because they are too close to the second main building to be contemporary with it. Regrettably, the function of these features remains unknown.

Without doubt the second main building 400 had a multi-phased development, as discussed in detail earlier (Section 8.2). Besides the obvious changes or additions such as heated rooms 12, 13 and 14, more refurbishing with fresh wall paintings and the like must have taken place. Moreover, it is very likely that the different phases of some of the stone outbuildings are not synchronous with each other and the main building. In theory, the villa complex as a whole may have had 10 or more phases during period 3, but strictly speaking there is evidence for only two (!). The first (3a) is the 'symmetrical villa' in combination with the smaller *horreum* and the baths in their first guise, the second (3b) the same main building with all additions, the enlarged *horreum* and the reorganized baths (Fig. 15.7-15.8). It is perhaps significant that the heated rooms and other additions are found at the east side of the main building, where tower 407 would later be built.

Probably not all post-built/wooden outbuildings of period 2 were replaced immediately by stone buildings in phase 3a. The function of the *horreum* in period 3 is obvious but one finding of our analysis is that 405 could also have been a storage building, perhaps even for grain. Grain must have been kept in building 401 for threshing (on pavement 420) and further processing. Some graffiti on pottery found in this area suggest that it might also have been the residence of workers. Building 403 was probably not a smithy, as was previously thought, but may have been a stable, close to horse pond 413.[1158] If there ever was a smithy, it must have been its predecessor 418 of period 2c, although even then not exclusively so and only for a limited period. The boundary of the villa complex consisted of ditches 301, 303 and 302, in chronological order, combined with rows of planting holes and a wall with a gatehouse at the south side. A Jupiter column was probably erected in the front yard – it is not known when – and a basin inside a garden, still in use late in phase 3b. Small buildings 410-412 were constructed at the back of the villa, probably in period 3. Terra nigra bottles around shrine 412 do not rule out a date in period 2c, however.

15.4 Layout and position in the landscape

The plans of the first and second main building have already been discussed in Chapter 8, but not that of the complex as a whole. That topic is addressed here and some comments are made on the location of our and other villas in the landscape.

Roman villas in the northern provinces, in the sense of the entire complex of main buildings and outbuildings within a yard, are commonly classified into two broad categories: more symmetrical and often longitudinal sites along an axis (*axiale Pläne* or axial plans) and sites with buildings more loosely distributed around the yard (*Streubebauung,* 'dispersed plan').[1159] Many examples of the latter type were excavated in the German lignite mining areas east of Zuid-Limburg (but are known throughout the Roman empire). Their layout shows a considerable variation, for example with the main building in a corner and the outbuildings along the other sides of the yard (HA 69; Fig. 15.9), with either the main building (HA 132; Fig. 3.1) or all buildings (HA 516; Fig. 3.1) closer to the centre of the yard, and with a layout vaguely resembling an axial plan (HA 59; Fig. 15.9). The villa of Anthée became a kind of ideal example of axial villas because it was investigated in its entirety around the middle of the nineteenth century (Appendix XX, Fig. 1).

[1157] Section 34.4.3; chapter 45.

[1158] The phosphate analysis of this area is discussed in chapter 39.

[1159] E.g. Lenz 1998, 50-55; Heimberg 2002/2003, 77ff. A classification of axial villas can be found in Ferdière *et al.* 2010, 359, fig. 1.

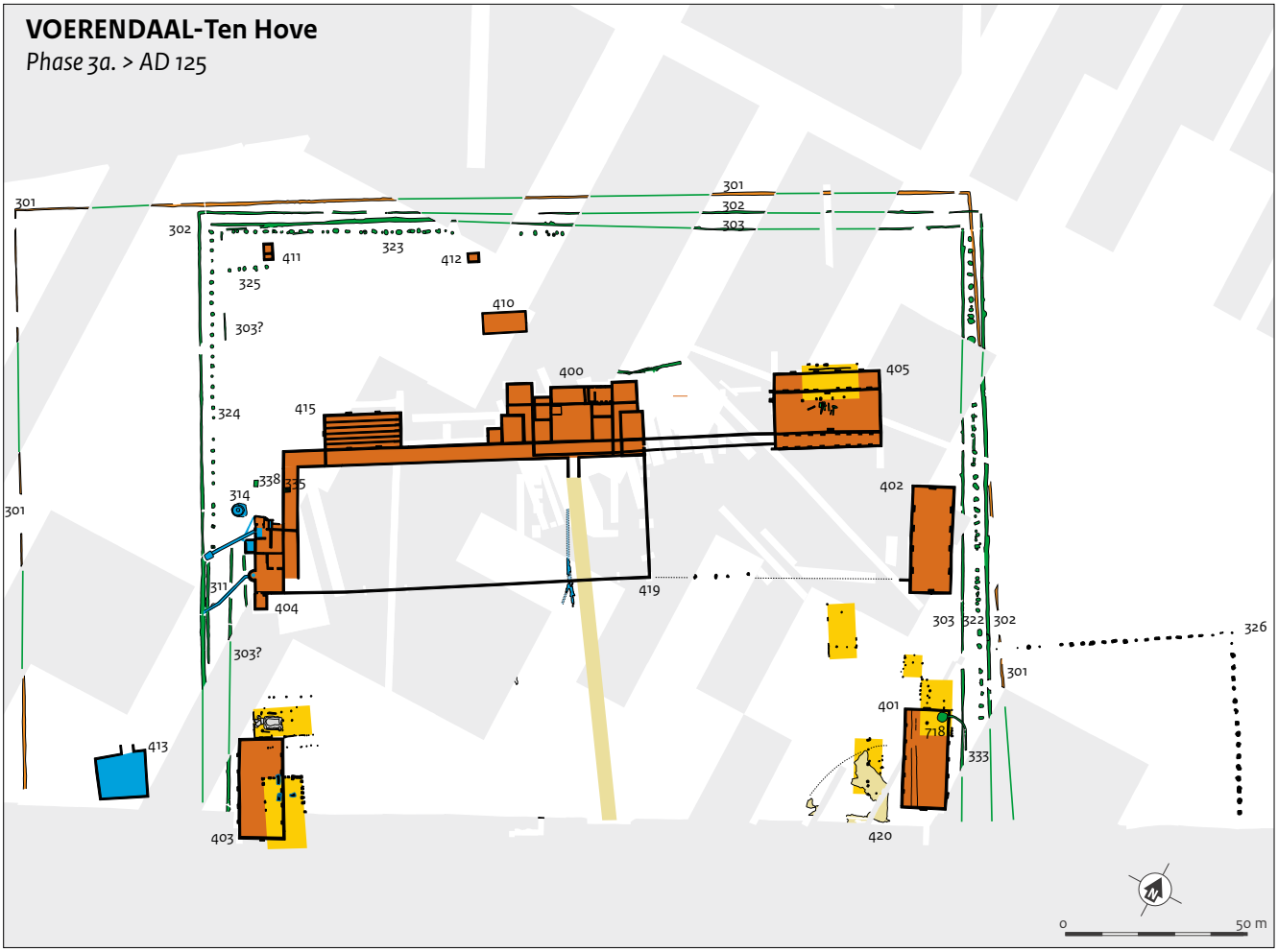

Fig. 15.7 Voerendaal-Ten Hove. The second villa, phase 3a; for legend, see figure 5.4.

The main building stood in the middle of a separate yard, the '*pars urbana*', centred on the longitudinal axis of the complex as a whole; two rows of outbuildings are situated parallel to this axis in the '*pars rustica*', in this case almost 500 m long and with a surface area of 15 ha.[1160] Obviously, not every villa of this type was this immense. Champion-Sur Rosdia, for example, is 'only' about 260(-300?) m long and covers some 4.5 ha, similar to Ten Hove (Fig. 15.10). In this case, there is also no – archaeologically observable – division between the *pars urbana* and *pars rustica*. There were no more than three to four outbuildings on each side, of which only one was stone-built. Another example shown here is the villa of Reinheim (D/SL), at least 388 m long with an area of 7.8 ha (Fig. 15.10). Villas with an axial plan are well represented in a number of regions, with different concentrations in the north, centre and south(east) of France, an area from the southeast of Belgium via Luxembourg to the Trier-Moselle-area, and one in Switzerland.[1161]

A variant of the axial villa is one with a transverse axis, *queraxial* (cross-axial), as opposed to *langsaxial* (long-axial). In this layout the main building is situated at one of the long sides of the complex, and at least some outbuildings are on the same side, or on both. Voerendaal-Ten Hove can be considered an example of this type (Fig. 15.9). Villas with a transverse axis form a minority of the axial villas,[1162] but are also found in different regions: Kerkrade-Holzkuil is a second example in Zuid-Limburg (Fig. 15.9), and there is Hamois-le-Hody in the Condroz and the villa of Newel in Rheinland-Pfalz, to mention just a few.[1163] There is also considerable variation in this type of villa, already illustrated by the more oblong shape of the latter two sites compared to Voerendaal and Kerkrade.

The particular reasons why a villa owner commissioned the construction of a complex with a particular shape and layout will always remain unknown. Many villas in the German loess area are more or less square in shape, with the corners of the enclosures pointing in the

[1160] For this term, see section 8.2.4.

[1161] Ferdière *et al.* 2010, fig. 5; Roymans & Habermehl 2011, fig. 2; appendix 1.

[1162] In the sample of Ferdière *et al.* 2010, Voerendaal is one of only four examples of this type 4 (3% of type 1-4); Hamois-le-Hody (B/NA; Lefert 2007) and Kerkrade-Holzkuil (Tichelman 2005) are not included in the sample.

[1163] For Newel, see Cüppers & Neyses 1971. Some Swiss examples in Drack 1975, 55.

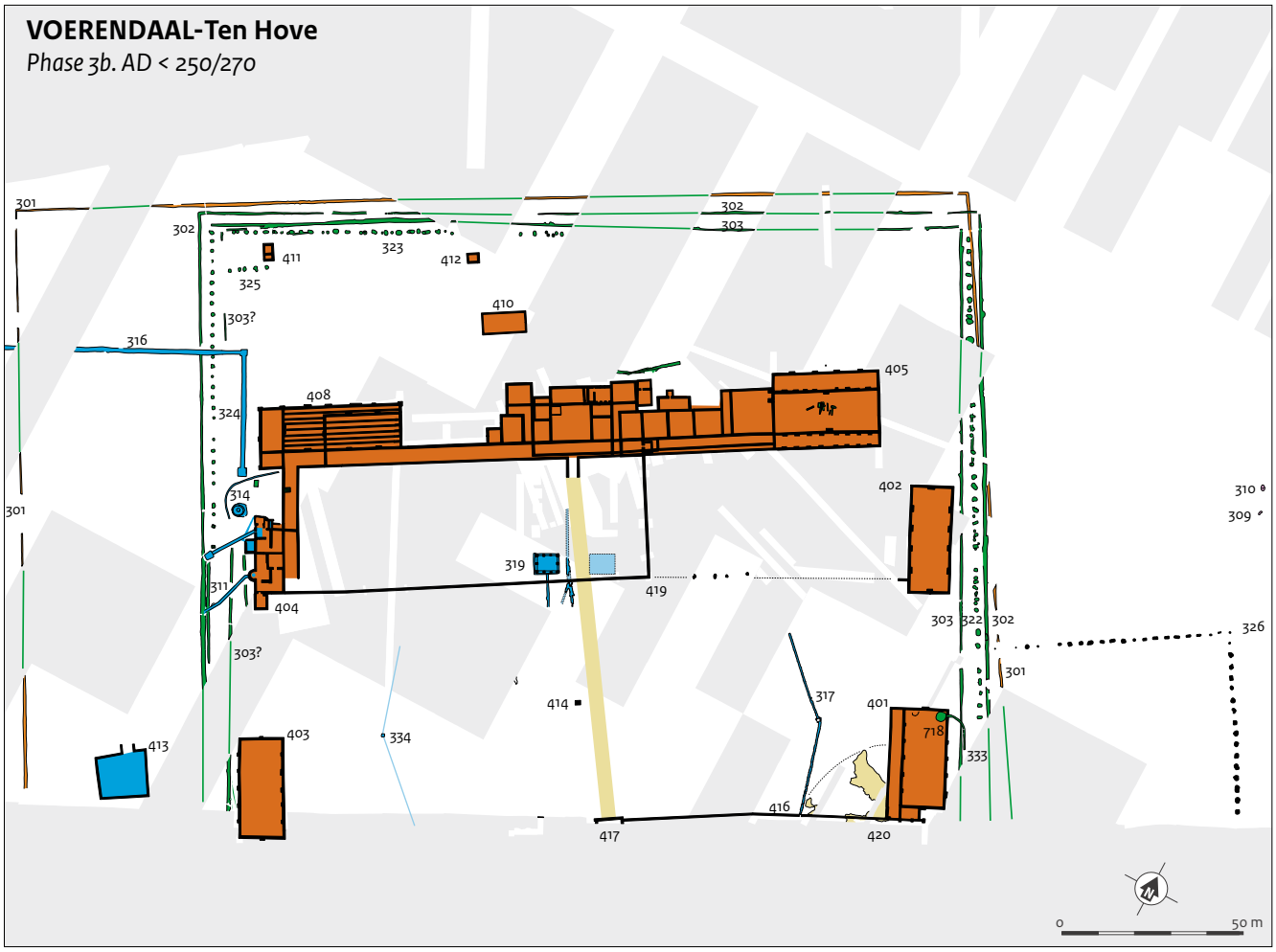

Fig. 15.8 Voerendaal-Ten Hove. The second villa, phase 3b for legend, see figure 5.4.

cardinal directions. In this region the plateaus are relatively flat, but in areas with a pronounced relief, this could be an important element in the siting of villas. The large villas of Mook-Plasmolen and Haccourt, for instance, were built on or near the edge of quite steep slopes, thus showing off the building to visitors and passers-by and providing the inhabitants with a good view of the landscape. Outbuildings seem to be absent at both sites, making these villas purely residential, without an agricultural function.[1164] Other villas do have outbuildings but they were still located on quite steep slopes. This holds true for the famous villa of Mayen-Im Brasil (D/RP), as well as for Simpelveld-Stampstraat and Houthem-Ravensbosch in Zuid-Limburg. The single outbuilding of the latter villa was situated quite far to the north because the complex was situated in a very narrow stream valley. Visitors to the site today have the impression that it was mainly chosen for its beautiful scenery. It could still have been an agricultural enterprise, with the fields located opposite the main building or high up on the plateau to the east.

It is feasible that the layout of Voerendaal-Ten Hove was determined partly by the landscape and partly by the particular development of the villa. The site of the second villa was probably largely determined by that of the first and, moreover, there was a kind of small 'cape' in this part of the site.[1165] If the second building had been built north of this cape, it probably would have been less impressive when seen from the valley because the gradient of the slope lessened to the north (Fig. 4.6).[1166] As a consequence, the location of 400 made it impossible to create a 'normal' axial villa. If the six outbuildings were placed in two rows of three with some space in between them, buildings 401 and 403 would have ended up very close to or in the Hoensbeek. Moreover, there would have been no room for the road along the front of the yard. There might have been other reasons why the villa owner simply choose a *queraxial* layout for the complex. Regarding the position of villas respective to slopes, it should be noted that the front of the main building sometimes faced downslope, as in Voerendaal or, for instance,

[1164] Although the outbuildings and fields could have been located at some distance from the villa.

[1165] There are no data available – e.g. trench wall sections – to determine whether this was (partly) man-made or just a natural feature.

[1166] An additional consideration could have been that it became more difficult to supply water to the baths and main building.

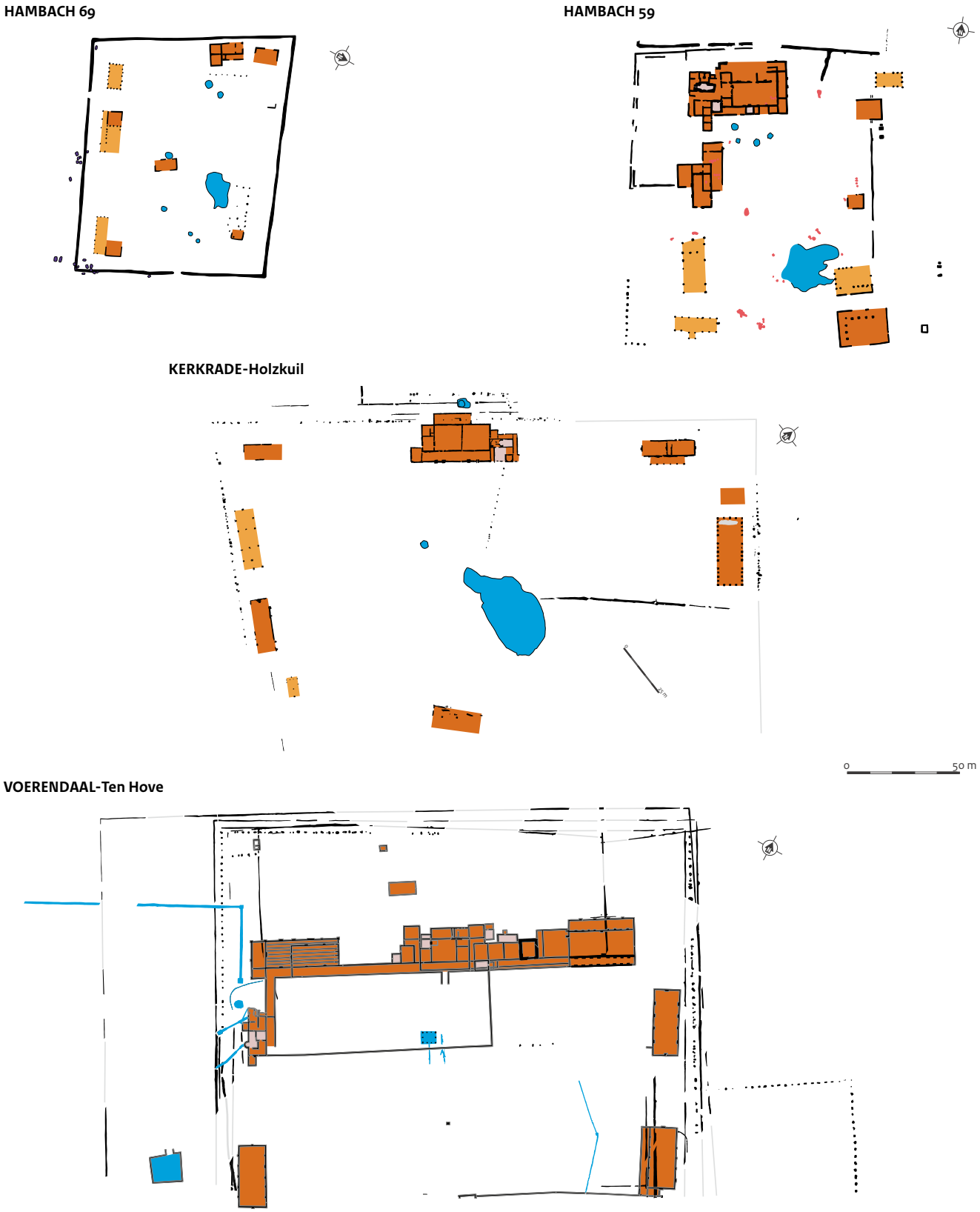

Fig. 15.9 Examples of villa complexes with a 'dispersed' and 'cross-axial' plan. (source: in part modified after Gaitzsch 1986, fig. 5; Hallmann-Preuß 2002/2003, fig. 11; Tichelman 2005, fig. 5.1)

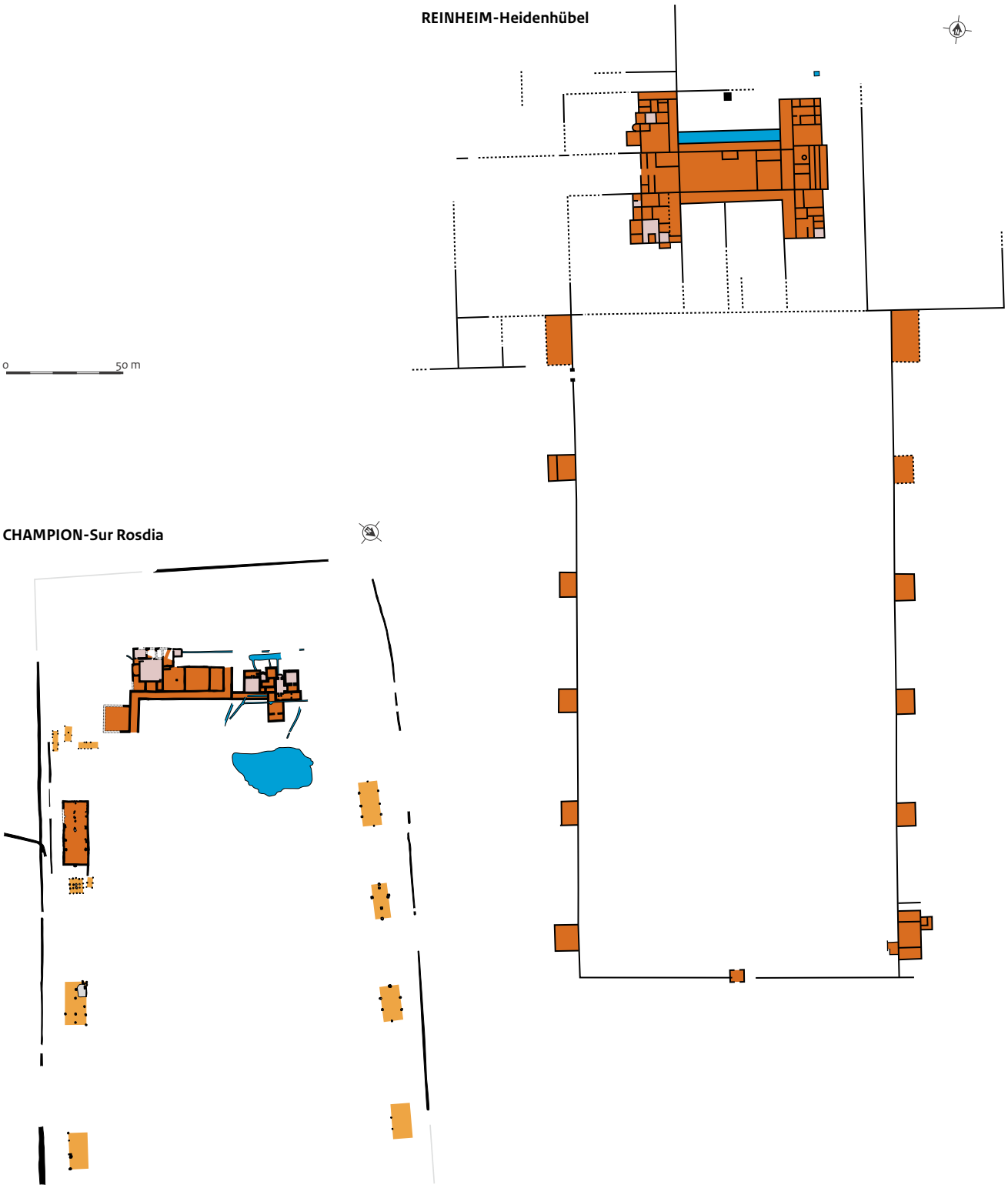

Fig. 15.10 Examples of villa complexes with an axial plan. (source: modified after Van Ossel & Defgnée 2001, fig. 13; Reinheim Stinsky 2001, fig. 1)

Kaalheide-Krichelberg and Houthem-Ravensbosch. Here, the aim was probably also to impress visitors. The main buildings at Bocholtz-Vlengendaal and Champion-Sur Rosdia had a front facing upslope. In situations like these, the view that the inhabitants had from the rear of the building may have been important. Sometimes an alternative lay-out was applied to 'manipulate' the impression of a villa. At for instance Köln-Müngersdorf and Vechmaal-Walenveld (B/LI), the outbuildings were situated at the rear of the main building,[1167] providing both inhabitants and visitors with an unobstructed view from and towards the front portico and gardens (Appendix XX, Fig. 6).

15.5 The consumptive aspects of the villa

15.5.1 Introduction. The villa discussion

Although every archaeologist knows intuitively what they consider to be a villa, it seems impossible to come up with a comprehensive definition. It is likely that even a Roman was incapable of doing so.[1168] That is why we have avoided this problem up till now, other than giving a pragmatic definition.[1169] One element characterizing a villa is that it is stone-built with a tile roof. Additional elements include a multi-roomed design, a portico, cellar, decorated walls, hypocaust heating, etc. An implicit distinction is made between the villa and traditional post-built houses, with a thatched roof, wattle-and-daub walls and often a byre. In the 1930s, Collingwood characterized the villa as '...the dwelling of people, somewhat Romanised in manners, who farmed a plot of land; as opposed to a town house on the one hand and a cottage on the other.'[1170] In the 1980s, in his book on the Roman period in the Netherlands, Van Es defined it as '... a farm, with at least a main building constructed in Roman technique, in stone or wood and stone combined.'[1171] Nearly 70 years later Woolf defined a villa as '... a settlement site, with a construction and design of broadly Roman style, located in the countryside.'[1172] Obviously, notions such as 'Romanized' and 'broadly Roman style' pose a problem of definition in themselves.

Leaving that aside, even early definitions were not limited to the morphology of the building and the building materials. An additional important element is the rural setting, or more specifically, an agrarian function. Not all villas were farms, however, as shown by the existence of purely residential, 'palatial' examples, both in the Mediterranean (e.g. the villa Hadriana) and the north (such as Haccourt and Mook-Plasmolen). This notion was incorporated in De Maeyer's 1937 definition of villas: '...buildings, separately situated in the countryside, functioning either as the focus of an intense [the exact word used-HAH] form of agriculture or as a residence for wealthy people.'[1173] Focusing on the farming aspect for now, we can make several observations. To start with, it is not only the form or size of the main building that distinguishes a 'native' farm – Collingwood's cottage or De Maeyer's 'loam hut' – from a villa. The latter generally consists of a main building combined with several relatively large outbuildings. This points to a matter of scale and farming methods, expressed by De Maeyer as 'intense' agriculture. In the well-known volume *The Roman villa in Britain*, editor Rivet gave the following definition: 'Villa, in Latin, means farm, but a farm which is integrated into the social and economic organization of the Roman world'.[1174] Slofstra began his formulation of explicit theories on the villa economy and its social aspects with this definition. He saw the villa 'as an agrarian enterprise with modern technology, aimed at surplus production for the market.'[1175] The inhabitants of smaller post-built farms were seen as peasants, either as dependants of larger villas or autonomous farmers, the latter implicitly more involved in producing their own surplus. Below we will take the view that a large villa such as Ten Hove was (mainly) involved in the production of food for humans, in casu (spelt) grain, to be sold at the 'market' (and partly to fulfil tax obligations). This may be an oversimplification that ignores other types of farms, including 'native' ones, but it is impossible in the scope of this publication to work out a comprehensive model of total agricultural production and consumption in the province or wider region.

[1167] At Vechmaal-Walenveld the Roman road to Braives-Bavay is situated directly south of the complex, making people approach the complex from the rear (Vanvinckenroye 1990, fig. 6).
[1168] On this point, see below and e.g. Habermehl 2011, 17; Roymans & Derks 2011, 2. Besides these publications, the villa concept is discussed in the works cited below (among many others), where many more references can also be found.
[1169] Section 4.3.4.
[1170] Collingwood 1930, 113 cited by Rivet (1969, 176).
[1171] Van Es 1981, 181.
[1172] Woolf 1998, 148.
[1173] De Maeyer 1937, 13.
[1174] Rivet 1969, 177.
[1175] Slofstra 1983, 84. Even a specific 'villa mode of production' is presented in this study.

The production aspect of Ten Hove and villas in general will be discussed in a later section. There, we will show that many researchers see the size and luxury of villas as the obvious result of wealth accumulated from the profits of agricultural production. Contrary to such a perspective, Millett interpreted the villa in a different way, as the result of conspicuous consumption. He saw elites as being primarily interested in land as the 'only legitimate and respectable' source of the wealth needed to obtain positions in the administration of the *civitas*. The possession of villas was thus secondary, although '[t]he embellishment of the houses, *villae*, on these estates was part of the system of expressing and retaining their power and social position.'[1176] This system of emulation also applied to the city *domus* and urban munificence.[1177] According to Millett, it was the essential result of voluntary 'Romanization', with the elites accepting 'the symbols of Romanitas' and thus the possibility of maintaining their power via offices in the administration.

One can criticize or comment on Millett's approach on several grounds. Firstly, even if the productive side of the villa was secondary, it would have been important at the site level and the income gained from it would also not have been irrelevant! Secondly, Millett uses terms such as (conspicuous) consumption and emulation 'without any unpacking of the baggage associated with [these terms]', as Mattingly remarked.[1178] Indeed, Millett does not refer to the theoretical background of terms such as conspicuous consumption and emulation.[1179] Moreover, it remains vague how emulation would have worked in practice. Discussions in Roman literature, albeit to some extent theoretical or moralistic, show tensions between an overt display of wealth or *luxuria* in buildings and restraint in this regard, moderation on the basis on one's 'real' place in the social hierarchy.[1180] Roymans and Derks noted that the owners of smaller villas were unlikely to have been involved in the competition between decurial elites, but rather at a lower and separate societal level of their own peers.[1181]

The point of these remarks is not to deny the existence of emulation but to suggest that it probably worked in more subtle ways. A Roman *domus* or villa was much more than a showcase for an overt and infinite display of wealth. The *domus* was not just a physical house but also the household and broader kinship group, including the ancestors.[1182] It could be almost sacred and a literal monument for its founder,[1183] one of the reasons for the use of stone and brick as building materials to achieve durability of the house. The layout and decoration of houses, or even the entire villa complex, could be used as an expression of an ideal or sought-after social order and position, as well as a certain lifestyle, of 'being Roman'.[1184] Dining rooms and baths made it possible to receive and entertain guests in proper fashion. Finally, it was also a place for relaxation and leisure (*otium*).

Below, we will explore some archaeologically observable aspects of villas, and of course of Ten Hove in particular, which are often mentioned in the literature as indications of expenditure, the wealth invested in the building(s) and decoration. Attention is also given to the possible motives behind the development and layout of our villa.

15.5.2 Size of the yard and main building(s)

The size of a villa complex as a whole and that of the main building are two potential indications of the wealth of its owners and the size of the farm as a whole. Of course, the set of relevant characteristics is much larger, including the number of outbuildings and the use of expensive building material such as marble, mosaics and wall paintings. However, the size of a villa is the easiest to determine, although it is obvious that there could be complications (such as changes through time).

Even at Voerendaal-Ten Hove, the size of the yard cannot be determined exactly. Firstly, the presence of ditches such as 304/305 and 312 show that it had different dimensions through time. Secondly, the southern border of the complex was situated outside the excavated area. Early ditches 304-307 and 312 (phase 2) are too fragmentary to calculate the size of the area delineated and to check whether it had 'Roman' dimensions. However, the area bounded by ditch 301 probably measured 20 *iugera* (5 ha) and that

[1176] Millett 1990a, 92.

[1177] Millet does not use the term 'emulation' in his book on Roman Britain (1990a) but only in an article from the same year (1990b, 34). On emulation or 'competitive building' in relation to villas, see also Woolf 1998, esp. 153-157 (and on emulation in general e.g. 1998, 18).

[1178] Mattingly 2004, 6.

[1179] On these theories, see esp. Deloz 2010, but also Martins 2004, who applies them to aspects of Roman villas.

[1180] See e.g. Wallace-Hadrill 1988, 44ff.; Hales 2003, 20ff.; Daloz 2010, 9-10.

[1181] Roymans & Derks 2011, 29.

[1182] The small 'temples' 411 and 412, or one or both, could have been shrines for ancestors (section 11.3.2-3); see also 42.3.6 (bronze statuette); 60.2 (terracottas); see also Roymans & Habermehl 2011, 93-97.

[1183] Saller 1994, 80-95; Bodel 1997; Hales 2003, 40ff.

[1184] See e.g. Wallace-Hadrill 1988; Slofstra 1995; Perring 2002, esp. 140-211; Roymans & Derks 2011, 15-16; 28-30; Habermehl 2013; Stephenson 2019 (Late Roman villas).

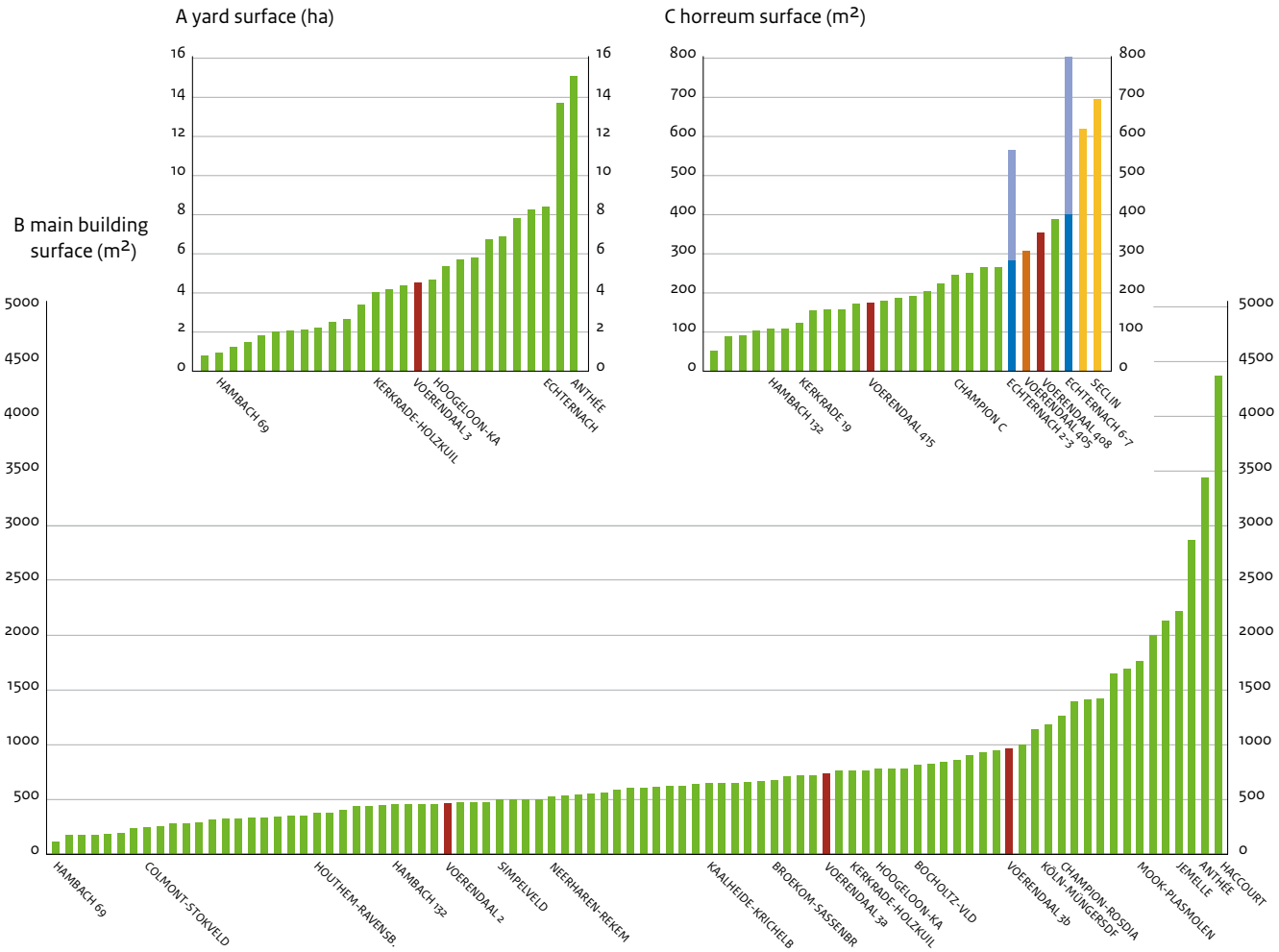

Fig. 15.11 Comparisons of the sizes/surfaces of villa yards and buildings.
A floor surface of 90 main buildings; B surface of 27 villa yards; C floor surface of 28 (possible) horrea.

bounded by 302 could have been 15 *iugera* (3.8 ha).[1185] The construction of wall 417 meant a slight reduction in size to about 14.5 *iugera* (3.7 ha) and if the strip between ditches 301 and 302 should still be considered part of the yard during phase 3, the total size may have been 18.5 *iugera* (4.7 ha). The size of a villa yard reflects the scale at which the farm operated, even if there is not a one-to-one relationship. Regrettably, the area of the fields is seldom known. Only for the Hambacher Forst are there some indications. Based on the average distance between a handful of villas, Gaitzsch estimated an area of about 50 ha belonging to each.[1186] Four of five sites mentioned by Gaitzsch had a yard size of 0.9-2.5 ha (Table *15.1). Hambach 132 was one of the larger villas, with a yard of 5.7 ha.[1187]

These average yards in the Hambach region were small compared to the 3.8-5 ha of Voerendaal, which is in line with the much larger size of this estate, perhaps 200-250 ha. Ideally, we should compare Voerendaal with villas from the same region, but in Zuid-Limburg only the areas of Schimmert-Steenland and Kerkrade-Holzkuil are known through excavations: roughly 2 and 4 ha. All in all, in a small sample of villas from the Condroz to the Rhineland, with Borg and Reinheim (D/SL) added as examples of large axial villas, Voerendaal emerges as a medium-sized complex (Table *15.1; Fig. 15.11). Some very small sites in the Hambacher Forst are under 1 ha, while the large villa of Anthée measures 15 ha (even Borg and Reinheim are only half that size).

[1185] Cf. section 11.1.1.
[1186] Gaitzsch 1986, 406-409; 2011, 286-290.
[1187] Brüggler 2009.
[1188] Villa baths are mostly incorporated in or attached to the main building; therefore the area of

More data concerning sizes are available for main buildings because these were the primary focus of early villa research (Table *15.2).[1188] In a sample of over 90 villa plans from the wider region, the building size ranges from 115 m² (Hambach 69) to 4385 m², nearly 40 times as much (Haccourt 5), with an average of 877 m².[1189] With a surface area of 468, 740 and 966 m² for the first main building (399), the 'symmetrical' and fully developed main building (400, both phases including the baths) respectively, Voerendaal is again a villa of average size (Fig. 15.11-15.12). Yet in its final stage, it ranks among the 20% of largest buildings in the sample. As an alternative to the size in square metres, we can count the number of rooms. Villas with at least 15 rooms can be considered medium-sized, those with 30 or more rooms large.[1190] Although this criterion is somewhat arbitrary, the result is more or less the same. In our sample of over 90 villas, the average number of rooms is 20 (Table *15.2).[1191] In the three stages just mentioned, Voerendaal grew from 12, then 24 to 30 rooms; from a small, medium-sized villa to a large one (only just). Of course, these figures are rather meaningless in themselves. The first villa at Ten Hove may have been small, but it was still larger than one third of the buildings in the sample. In its final stage, the second villa ranked among the 'top 20', but is very modest compared, for example, to Echternach (twice as many rooms), Haccourt 5 (almost 2.5 times as many) and Anthée (three times as many).

15.5.3 Decorations and building material

On the basis of the quantitative data discussed above, Voerendaal may be considered a villa of medium size, although it is quite a large example within that category. It would be preferable to combine this kind of data with those on the quality and value of the building materials, the decorations, as well as on the complex in its entirety, including all facilities. Also relevant is the moment in time when certain elements were introduced. Of course, it will be no surprise that the data needed are rarely available. Potential indicators of a villa's wealth often referred to in the literature are the use of marble (or other precious stone), the presence of mosaics and the number and quality of wall paintings.[1192] Here, archaeologists are immediately faced with problems caused by post-depositional processes and the resulting small quantities of material left. The single piece of marble found at Ten Hove, a 128 g piece of a plate 12 mm thick from 'inside' building 410, illustrates this problem. It is a lucky find, having been just one glance or crane-bucket sweep away from total oblivion! Besides showing the use of this costly stone, the application of thin plates is attested (related to the huge transportation costs).[1193] Still, we can only guess at how widely used marble floor or wall tiles were at Ten Hove. Moreover, there are no indications of more lavish uses of marble, such as the large *kantharos* and panelling as found at Echternach-Schwarzuecht.[1194] Marble was found at 13 (10.6%) sites in a sample of 123 villas in the Rhineland published by Kunow.[1195] However, given the huge proportion of lost/not observed material, it was perhaps less rare than one is inclined to think.[1196] For villas in Dutch Limburg, marble is reported for Bocholtz-Vlengendaal, Heer-Backerbosch, Haelen-Melenborg and Meerssen-Onderste Herkenberg.[1197] These older reports have to be read with caution, however, because the name 'marble' was and is used in the stone trade for all fine, polished limestone. For instance, 'Theux marble' and 'Namur marble' were made into tesserae and the *labrum* in the baths of Coriovallum. Here, as at Ten Hove, only a single fragment of Mediterranean white marble was found.[1198]

Perhaps less conspicuous than the marble is the granite found, originally part of at least one but probably more basins.[1199] However, this stone is very hard and therefore difficult to work. And, more importantly, it is not found in the region and had to be transported at least 100 km, and more likely over 250 km. Stone was also used for furniture, as shown by a lathe-turned table leg. The shale from which it was made was less precious or 'exotic' than the marble or granite but still had to be imported from outside the region.

No finds of tesserae from mosaics were found at Voerendaal,[1200] but several fragments of painted wall plaster were collected. Like the marble, the amount of material actually found is only a minute proportion of what was originally

separate baths (e.g. Voerendaal, Lemiers) are added to that of the main building. Porticos, peristylia and praefurnia are not included.

1189 Standard deviation 910, resulting in a 1 sigma range of about 422-1332 m².

1190 Roymans & Derks 2011, 2.

1191 Number of buildings 93, average 20, range 3-90, standard deviation 15.7.

1192 For a critical evaluation of these indicators, see Martins 2004.

1193 Outside the Mediterranean especially, marble was mostly used for small architectural elements and for tiles and panels, with thin slices of larger blocks offering an optimal surface-to-weight ratio (Russell 2013, 162, 165).

1194 Marble panelling is also attested for Haccourt room 22 (De Boe 1975, fig. 7). In Tongeren it was used quite widely: Dreesen *et al.* 2014, 18-19.

1195 Kunow 1994, 165, n. 102, fig. 10.18.

1196 Of the other '*nachgewiesenen höherwertigen Ausstattungs-merkmalen*' mapped by Kunow, 11 (8.9%) of 123 sites yielded fragments of mosaics, 14 (11.4%) of painted wall plaster. Because virtually all villas must have been decorated with wall paintings, this is yet another indication of how imperfect the archaeological record is.

1197 Cf. section 33.2.3.

1198 Dreesen s.a., 14-19; 26. On 'pseudo-marbles', see e.g. Dreesen *et al.* 2014, 18-19. In the Roman period all stone that could be polished was considered marble (Russell 2013, 10), valued by its colour, internal patterns, rarity, etc.

1199 Section 33.3.

1200 One of the rare finds from Zuid-Limburg are parts of mosaics and tesserae in rooms C, D and G at Bocholtz-Vlengendaal (Goossens 1916, 4-5).

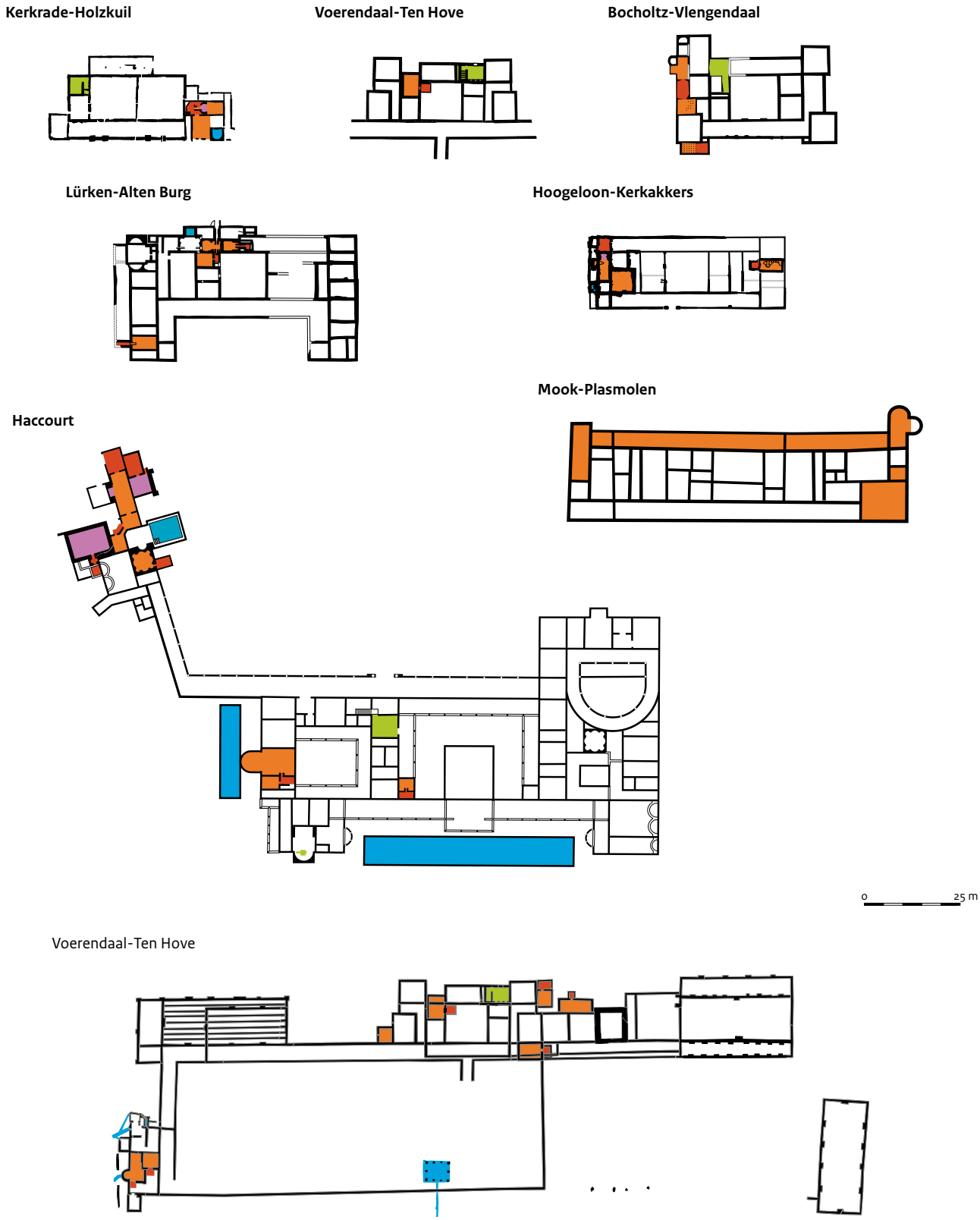

Fig. 15.12 A number of villa main buildings to compare sizes, with middle-sized examples like Ten Hove - at the top row and the largest from the region Haccourt near the bottom, showing that Ten Hove with its portico seemed even larger. (source: in part modified after Tichelman 2005, fig. 5.2.47; Goossens 1916, pl. 5; Piepers 1981, fig. 8; Hiddink 2014a, map 7; Braat 1934, fig. 3; De Boe 1975, fig. 17)

present. The approx. 0.5 m² collected represents less than 0.05% of the total wall surface of the main building and baths (not counting different phases of (re)decorating). Therefore, the fact that only relatively simple decorations are attested – still with some hints at depictions of figures – does not imply that the owners had limited wealth. For comparison, more than 10,000 fragments of painted wall plaster were found at Hoogeloon-Kerkakkers, representing some 13 m², over 25 times more than at Ten Hove.[1201] Even here, only two panels were reconstructed, one of which had a more complex decoration, including masks and a small depiction of Hercules.[1202] At the villa of Maasbracht-Steenakker conditions were favourable because some 7 m² of the decoration from a single room were deposited in the cellar.[1203] Therefore, it was possible to reconstruct several figures of different sizes from the dado, central panels and the upper zone, representing scenes from gladiatorial combats and *venationes*. These may have commemorated games that were paid for by the villa owner. Although very rare and lavish, the paintings in other rooms at Maasbracht may have been far less elaborate.

15.5.4 The baths

Besides decoration and building materials, costly elements of villas are baths and heated rooms in general. Their presence was determined not only by the financial position of the owner and the investment he wished to make for his own family. Baths also had a social and display function; friends and guests were entertained there. Why they were costly is obvious: they require more advanced construction, with double floors, walls with strands of *tubuli* and a vaulted roof to discharge the heated air. Preferably, heat-resistant stone such as tuff was used in some parts of the structure and this was seldom available locally.[1204] Not every villa owner had the means to install baths. In Kunow's sample of 123 villas mentioned above, baths were identified at 49 sites (40%).[1205] However, this number seems quite low and is perhaps in part influenced by the presence of relatively many small villas in the Rhineland. In our own sample of some 90 villas, two thirds had baths (Table *15.2).

Besides the fact that baths were absent at many villas, they were often not part of the original building. Of the 26 villa baths in Germania inferior studied by Doth, 23 are dated. Some ten sites (43%) appear to have been constructed after c. AD 150 and seven of these probably in the late second century or after.[1206] In reality, the percentage of baths that were constructed later would presumably have been 'early in the second century' because the date of some in the sample was simply equated with that of the main building. The plan of Houthem-Ravensbosch, for instance, suggests that both the baths and the heated room were not original features but later additions. In Dodt's inventory, even quite large villas like Blankenheim and Köln-Müngersdorf only had baths added at a later stage. Another nice example is Hoogeloon-Kerkakkers. Here the villa was built around AD 100, while dendrochronological and other dating evidence suggest that baths and a heated room were installed as late as the end of the second century AD.[1207] This example shows how drastic this was: one of the side tracts of the building had to be demolished to install the baths (at the expense of the building's symmetry). It is obvious that it would often have taken many years, or even one to two generations, to accumulate the capital needed for baths or heated rooms. At Kerkrade-Holzkuil, the first stone building was constructed in the beginning of the second century AD, but the baths were not added until several generations later, after AD 175.[1208]

Ten Hove fits this pattern to a certain extent because the first villa 399 had no baths. The second villa appears to have been fitted with baths quite soon after its construction (shown more by the fact that the baths fit neatly in the overall plan of the complex than by direct dating evidence). The first villa did not have heated rooms either, the second originally had only one, while others (12-14) were only added later, perhaps after quite a long time (late second or third century?). Many other villas show the same pattern, with heated rooms added in the course of time (cf. Hoogeloon).

[1201] Laken & De Wit 2014.
[1202] Hiddink 2015b, fig. 67; 69.
[1203] Swinkels 2017.
[1204] Obviously, limestone will burn and disintegrate if heated.
[1205] Kunow 1994, 164-165. Of the eight entirely excavated sites in the Hambach lignite mining area (by the early 1990s), only one had baths.
[1206] Dodt 2003, 215-311, site 11-36. See also section 8.4 and table 8.2.
[1207] Hiddink 2014a, 207-222; 274-278.
[1208] Tichelman 2005.

15.5.5 The site in its totality

It is at the level of the entire site at Voerendaal, rather than in specific elements, that most wealth and expenditure can be observed. To start with, there was the decision to replace the first main building rather than to extend it. Although the house was not very large, it was not particularly small either, being of average size (certainly for the period). If the suggestion that it may not have had a tiled roof holds true,[1209] building 399 would not have looked very impressive. However, the yard had roughly the same width in periods 2 and 3 and although the outbuildings were placed somewhat irregularly in the beginning, they may have been positioned in a more regular fashion in the course of time when replaced by stone structures.

One reason for the – seemingly – abrupt break between periods 2 and 3 may have been a change in ownership. It is feasible that a new owner wanted to literally erase the house as a symbol or monument of the former *domus* in the sense of household. Taking the historical context into account, the extension of the villa at Ten Hove could have been the indirect result of the founding of the CVT and increased elite competition (even considering that period 3 started at least a generation later).[1210] Obviously, this does not necessarily imply a new owner, but perhaps the need for a more impressive, monumental villa as befitting an aspired-to higher social status and the fashion of the period. Perhaps more down-to-earth motives also played a part, such as building 399 becoming too small for the household or decaying somewhat. It may have been too complicated to extend or modify 399 because of its particular plan. Moreover, constructing building 400 some 20 m to the north created more room for the outbuildings and/or positioned the bath better respective to the optimal position of the aqueduct. Finally, financial motives may have been at play, with the funds for a more monumental building and complex becoming available only in the first half of the second century AD (see below).

Whatever the motives behind the changes at Ten Hove, there are more examples of villas that were completely torn down to build a new one. Lürken is a case in point, with a small building similar to 399 being replaced by a new, large villa some 20 m 'behind' it (Fig. 15.13; Appendix XX, Fig. 12). A spectacular example is Haccourt, where an 80 m long villa with a bath was torn down to create a truly palatial building (Fig. 15.13). In fact, even at sites where the main building remained at more or less the same spot, it was demolished to make way for a new villa. The least drastic cases are post-built structures replaced by stone ones, as at Hoogeloon-Kerkakkers, Kaalheide-Krichelberg or Kerkrade-Holzkuil (Fig. 15.14; Appendix XX, Figs 9, 14, 5). At the latter site, the first very small stone villa was torn down to make way for a bigger one. More often and during later phases, stone villas were simply extended.

During period 3 of Ten Hove, wealth was particularly displayed by the ordering of individual buildings and structures. Firstly, the long portico added grandeur to the not especially large main building. The façade of the building proper measured 39 m, less for example than Hoogeloon with 51 m and comparable to Bocholtz-Vlengendaal, Kaalheide phase 1 and Kerkrade B (Fig. 8.7; 15.12; 15.14). However, the portico gave an impression of a building that was 130 m wide (even 160 m if it extended eastwards to building 405). Braat characterized it as a '...kind of stage setting, camouflaging the different groups of buildings.'[1211] and counted this as a 'point lost' in his overall review of the complex: 'However, the Voerendaal villa was only a "pleasure palace" [*lustslot*; *Lustschloss*] by suggestion; half of the complex had an agricultural function and the favourable impression was a bargain.'[1212] Braat is too cynical, however, and misses the point.

Firstly, the portico itself was not a fairly cheap stage setting but a costly element. If our reconstruction with the use of 3 m high columns is correct, at least some 40 were present. Although quarried only 10 km away near Nivelstein, the transport costs of some 30 tonnes of stone must have been considerable. If composite or Corinthian capitals were indeed used, the labour of stone workers would have added to the costs. Secondly, apart from the amount of money or labour involved, it is questionable whether Roman visitors to

[1209] Cf. section 32.6.2.
[1210] See further section 15.7 below.
[1211] Braat 1953, 66.
[1212] Braat 1953, 65.

Ten Hove would have judged the 'stage setting' negatively. They were probably more positive for the simple reason that they understood what was going on. Both from an emic and etic perspective, the main reason to consider Ten Hove in period 3 as more than an average villa is the design and realization of the complex as a whole. The portico was not an element that was simply placed in front of a building but an integral element, as shown by the shifted 'pseudo-*Eckrisalite*' of building 400 (Fig. 8.7). The owner of the second villa appears to have been ambitious, envisaging the entirely layout from the start and planning a large investment.

The fact that the outbuildings were an integral part of this design is even evident at first glance from their symmetrical positioning respective to the main building. Although the precise phasing is unknown, the portico would ultimately have extended to both sides, connecting both the *horreum* and building 405 to the main building. A special separate unit was subtly created within the symmetrical layout as a whole. 'Garden wall' 419 in combination with the western portico – possibly with a more monumental design than the (later) eastern part – created a kind of *pars urbana* comprising the main building, the baths and the *horreum*. The latter not only had a utilitarian function but was also a symbol of successful farming. A position of the *horreum* close to the main building is found at many villas.[1213]

Considering the outbuildings as such, even if they were timber-framed, the amount of limestone necessary for the foundations and base of the walls was still considerable. Rendering and whitewashing probably created the impression that they were made entirely of stone. The size, quality and number of the outbuildings at Ten Hove are not general features of villa complexes. Firstly, the size of the (second) *horreum* is considerable and if building 405 was also used for storage, its capacity was huge respective to the majority of villas in the region. Secondly, the use of stone in all outbuildings is also quite remarkable. For instance, at Champion-sur le Rosdia, seven outbuildings were post-built and only one (the *horreum*) was constructed in stone at a later stage. This particular arrangement was not the result of lesser wealth, however, because the main building was larger than 400 and the baths especially were more lavish and double the size of those at Ten Hove. All the same, the pattern of just a single outbuilding in stone, or two at most, is found at many sites (cf. Appendix XX). Elsewhere, more structures were stone-built, for example at Kerkrade-Holzkuil. Here, five of eight outbuildings were in stone in the final phases, gradually replacing wooden structures in the course of the second century AD (Fig. 15.9).

More stone elements were added to the series of main buildings and outbuildings at Voerendaal, such as walls around the 'garden' and along the front of the complex. The placing of a gatehouse at the entrance to the yard and the erection of a Jupiter column or statue along the path to the villa manipulated the visitors' view and made the most of the complex as a 'stage setting'. There were gardens in front – with basin 319 (with fountain?) – and probably at the back of the main building. The small shrines here were not merely decorative elements but foci where ancestors and/or *genii loci* were paid respect, important constituents of the *domus* in the broader sense. Last but not least, there is the 1.5-1.8 km long aqueduct, a feature present as far as we know at only a minority of the villas in the wider region. Obviously, the proximity of the villa to a water source and limestone quarries significantly lowered the costs. Perhaps Braat would simply consider this another bargain, a lucky coincidence. However, it is important to realize that the favourable location of Ten Hove respective to stone, water and especially to good agricultural land is in itself an indication of wealth and social status. The location was probably not the result of chance but of circumstances through which the current owners – and not another family – acquired it.

15.5.6 Consumption of movable goods

In theory, it should be possible to make inferences about the level of consumption by looking not merely at investments in architecture but also at the artefacts or 'movable property' at a site. In practice, however, this is extremely difficult. The most obvious reason are the formation processes,

[1213] Section 9.2.1; 9.3.1.

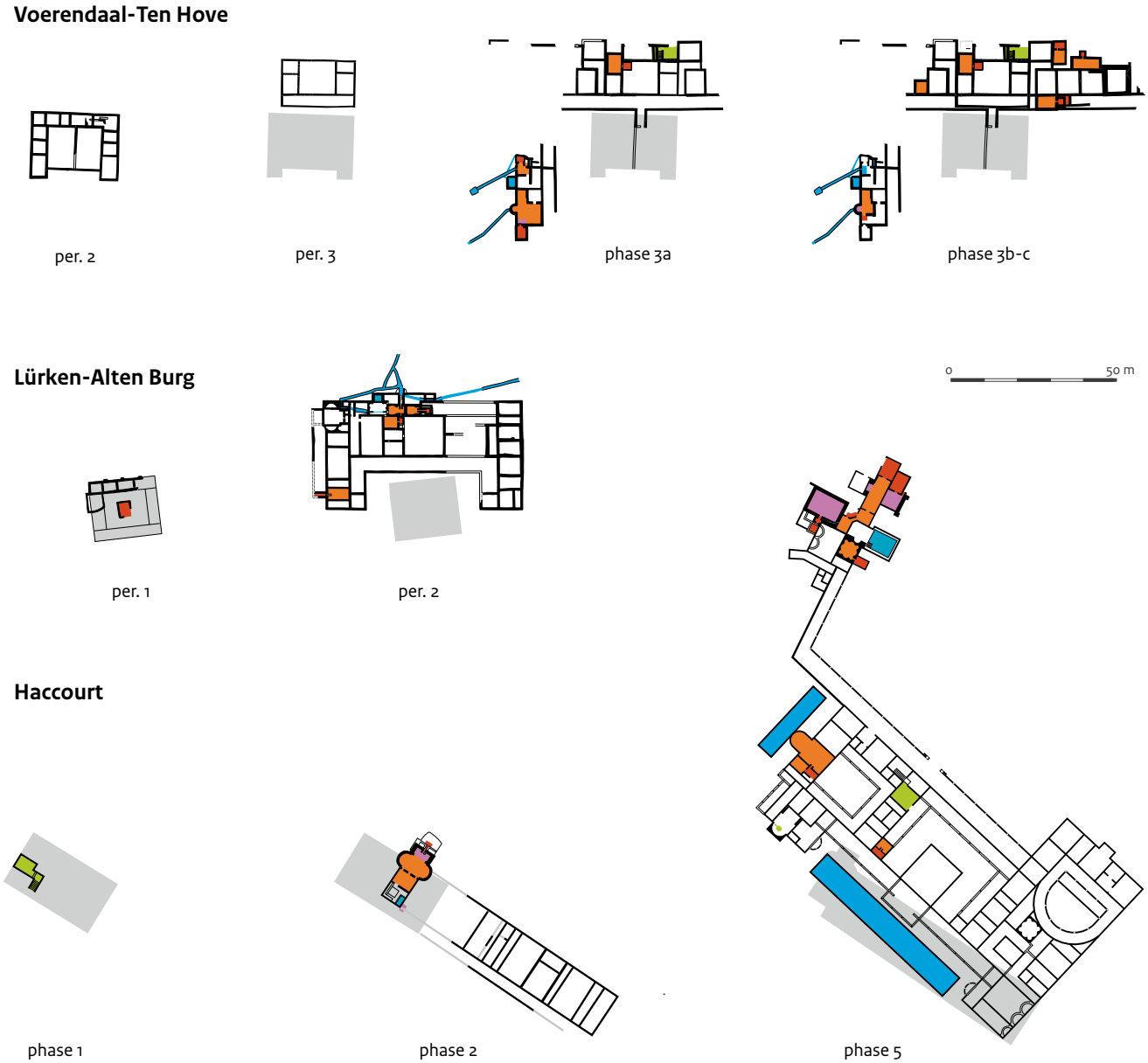

Fig. 15.13 Three villas where the first stone building was demolished and replaced. (source: in part modified after Piepers 1981, fig. 8; De Boe 1974, fig. 19; 1975, fig. 17; 1976, fig. 18)

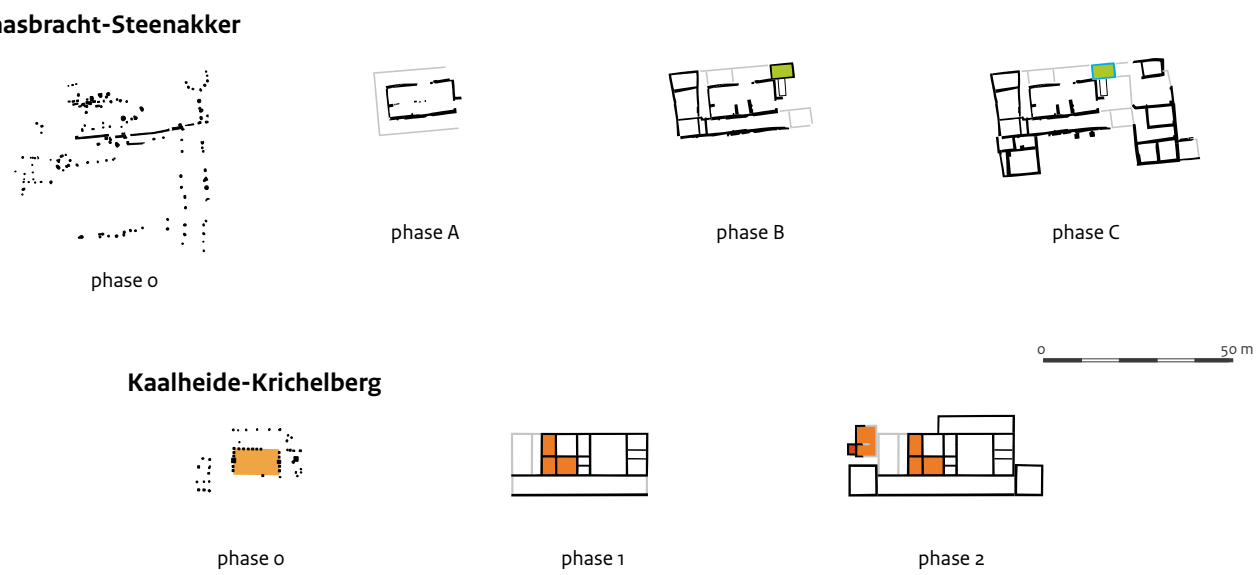

Fig. 15.14 Four villas with one or more post-built structures, later replaced by a stone building that was extended in the course of time (in Kerkrade once replaced). (source: modified after Vos et al. 2017, fig. 2.28, 30; Brunsting 1950; Koster et al. 2002, 50-51; Tichelman 2005, fig. 5.2.47; Hiddink 2014a, map 7)

with robbing/recycling, agricultural activities and erosion leading to a substantial fragmentation of and reduction in the quantity of artefacts. The methods and care in collecting finds are obviously also included in the formation processes. All in all, the picture presented by the remaining/collected finds at Ten Hove does not show any particular wealth.

Concerning the coins and other metal finds, it seems that the quality of metal detecting at Ten Hove in the 1980s was less than desirable.[1214] This is shown by the lower number of Early and Middle Roman coins found compared to that at the villa of Hoogeloon-Kerkakkers, investigated in the same period. The quantity of other metal objects is still roughly comparable, although at the latter site largely the result of sieving the infill of features. The find of a tiny gold ring at Hoogeloon is the result of this, to a certain degree a chance find and not indicative of greater wealth than at Voerendaal. The same holds true for a piece of gold jewellery found in a drainpipe at Kerkrade-Holzkuil, probably lost in the baths or a toilet.[1215] Metal objects associated with elements of elite self-representation and a 'Roman lifestyle', such as bathing/personal appearance, hunting, drinking/dining and literacy,[1216] can be found at villa sites. However, their use by the upper class is to a certain degree only evident in the context of rich graves, while at settlement sites a use by servants or slaves cannot be ruled out. At Ten Hove, this holds true for mirrors and a glass balsamarium (bathing), some bronze vessels and cutlery (drinking/dining), as well as a seal box and a stylus (writing), although the latter was quite costly. The hunting weapons found illustrate the point just made about grave gifts. The burials that they came from belong to the Late Roman period.

Although glass and earthenware vessels are associated with dining and drinking, their use by the elite is even more difficult to prove and certainly not restricted to this group.[1217] Even the bronze vessels mentioned, represented by some fragments of wine strainers, are quite ordinary. It is likely that silverware was used at exclusive dinners (the two silver(-plated) spoons are the only remaining bits). Truly expensive glass is not attested at Ten Hove, although some vessels of higher quality were used.[1218] The number of glass fragments is significantly lower than, for instance, at Hoogeloon-Kerkakkers, again due to the wet-sieving done there. Sturdy forms such as ribbed bowls and bottles dominate the archaeological record at Hoogeloon, Voerendaal and other villas.

Concerning the pottery, besides site-specific formation processes, comparisons between (villa) sites are hampered by chronology and differences in trade networks. The pottery kilns of Heerlen were so close to Ten Hove that their products dominate the assemblage of 'regional pottery'.[1219] Therefore, the vast majority of colour-coated beakers and dishes, for example, came from Heerlen rather than from Köln. Material from the Meuse valley, the Tongeren-Tienen area and regions further west is also less abundant. It concerns smoked beakers and dishes, as well as mortaria, dominating assemblages in the MDS area such as that of Hoogeloon-Kerkakkers.[1220] The low number of sherds of jars in 'grey ware' and blue grey 'Low Lands ware' at Ten Hove is also striking.[1221]

There are also differences between Voerendaal and Hoogeloon regarding pottery imported from outside the region. At both sites, around 10-11 kg of terra sigillata was collected, but the number of sherds (441:728) points to a better preservation at Ten Hove, the average sherd being twice as heavy. Apart from that, the quantity of sigillata from South Gaul in Voerendaal is significantly higher than in Hoogeloon.[1222] Because Ten Hove became a (proto-)villa about one generation earlier, the obvious conclusion seems that more wealth was acquired here before c. AD 120. However, a closer examination reveals that Hoogeloon yielded some sherds of Arretine sigillata, a thin-walled Aco beaker and more Gallo-Belgic ware (including girth beakers, dishes HBW 77). Therefore, its inhabitants had access to imports early in the first century AD (besides a slightly earlier beginning of occupation than at Voerendaal). The lesser quantity of sigillata from South Gaul must be partly the result of other preferences and participation in different distribution networks, not simply of lesser wealth. Regarding later sigillata fabrics and black-slipped beakers, there are also differences between the two sites that are just as difficult to explain.[1223] At Hoogeloon

[1214] See chapters 19-20.
[1215] Hoss & Van der Chijs 2005, 229-239.
[1216] Roymans & Derks 2011, 28-29.
[1217] Cf. the terra sigillata with graffiti, which was probably used by workers (chapter 29)!
[1218] See chapter 31.
[1219] Chapter 23, fig. 23.1.
[1220] Different sources of mortaria at Hoogeloon and Voerendaal are firstly apparent from the number of stamps: 16 vs 0 (!), secondly, by fragments from Bavay, represented by 505 and 9 fragments respectively. Here we only make a comparison with Hoogeloon because 1) the amount of pottery is similar to Voerendaal (cf. section 5.2) and 2) the material was investigated by the same specialist. For comparisons regarding different pottery groups and other materials, see chapters 19-37 in part III of this publication.
[1221] Table 23.20.
[1222] Number of fragments 1. 7 times higher, weight 4. 3 times (mainly concerning plain forms, almost equal number of decorated ware).
[1223] The percentage of sigillata from the Argonne and Trier at Voerendaal does not differ much (45 vs. 55% (both groups together set at 100%), while at Hoogeloon the former dominates (70 vs. 30%). Regarding the black-slipped beakers, there is a different image: at Ten Hove 78 vs. 22% for Argonne and Trier respectively, and at Hoogeloon 39 vs. 61%.

there is a chronological bias towards late second- and third-century pottery.[1224]

Regarding the amphorae from both sites, the level of consumption of wine, fish sauce and olive oil was at first sight higher at Voerendaal.[1225] Again, this is in part the result of better preservation, yielding a larger weight at Ten Hove. with both the MNI and number of rim sherds more or less the same at Hoogeloon.[1226] The most conspicuous fact is the rarity of middle-sized, flat-based 'regional' amphorae at Ten Hove (MNI 10 against 52 at Hoogeloon).[1227] Either the consumption of (certain types of) wine and probably beer was lower at our villa, or it is the outcome of chronology and/or trade networks. Still, the amphora spectrum of Ten Hove as such points to the consumption of quite diverse foodstuffs and wines, transported over large distances: olive oil from Spain, fish sauce from Spain and South Gaul, as well as wine from the latter region. An important observation is that olive oil and wine were still supplied to our villa in the third century AD.

15.6 The productive side of the villa

15.6.1 Non-agricultural production

Before discussing Ten Hove's major source of income, agriculture, we should comment on other potential activities. Willems suggested a number of these, partly associated with some furnaces and kiln(s) of the first villa, phase 2. Small furnaces 614-616 were indeed used for the production of iron, but even in combination with the large quantities of slag found they reflect local use only rather than trade.[1228] The same holds true for the products of the kiln(s) under tower 407.[1229] Although their exact function is unknown, they were probably used for making building material rather than pottery, which, given the scale of production at Heerlen, would hardly have been sold.[1230]

Another possible non-agricultural product of the villa was peat for fuel.[1231] The borings in the Hoensbeek valley showed the presence of pre-Roman peat, with indications that this could have been cut.[1232] If peat was used in Roman times, its scale cannot be assessed because the extent and original thickness is unknown. Moreover, although deforestation seems to have been advanced by the Roman period, we do not know whether the wider region was devoid of firewood and whether peat had to be used on a large scale. Finally, for what it is worth, while a large quantity of charcoal was found at Ten Hove, none of the archaeobotanical samples contained indications of burned peat.[1233]

A final potential non-agricultural product of the villa could have been limestone, quarried for use at other villas, but especially Heerlen.[1234] Although in principle a possibility, it is not as obvious as it seems at first sight. Limestone is present near the surface along a 10 km long zone along the Kunrade and Benzerade Fault (Fig. 33.3). Assuming the stone for Ten Hove was indeed quarried near Craubeek, this quarry would have been the furthest of all from Coriovallum (about 5 km). Other potential sources are situated only 1.5-2.5 km from the *vicus* and would have been preferred considering the crucial factor of transport costs in the stone trade. Like Craubeek, other potential quarries were also situated along the '*via Belgica*'. From the perspective of (transport) costs alone, it is unlikely that Ten Hove was the preferred supplier of limestone for Heerlen. However, as in agriculture, other factors could have played a part, offering the owner of our villa advantages in the regional stone trade. Peaks in the demand for building stone during phases of rapid growth at Coriovallum could also have made transport costs less important, albeit only temporarily. In any event, the exploitation of a quarry would have required a separate workforce since farm workers at Ten Hove were occupied for the better part of the year.[1235]

15.6.2 Agriculture

Without doubt, the main productive activity at Roman Ten Hove was agriculture, centred on the production of grain. Species such as spelt wheat, bread wheat, hulled barley and emmer were cultivated, the first being the main crop produced for the market. No full overview is given below of the evidence for the cultivation of different crops and for agricultural strategies,[1236] nor is it our aim to question the importance of

[1224] At Hoogeloon relatively many late features/layers were present (Hiddink 2014a, 89ff.), the colluvium at Ten Hove perhaps offering a more balanced preservation of material from all periods.
[1225] Chapter 24 (Voerendaal); Van Kerckhove 2014, 382-389 (Hoogeloon).
[1226] Voerendaal 36: Hoogeloon 35 MNI; 42:43 rims fragments but sherds/weight 1,646/160,328 g and 2,558/63,040 g. respectively
[1227] Cf. Table 23.20.
[1228] Section 9.6.3; 34.4.3.
[1229] Section 9.6.2.
[1230] Cf. chapter 23. At the time of the excavations, Heerlen seemed to have produced a limited range of forms and fabrics. Gielen (1987) listed only nine main forms, against over 150 known today (Van Kerckhove 2019, table 1).
[1231] Willems 1986, 147.
[1232] Bakels 1996a; section 4.1.3. The top was 'clean cut' and not dried out, suggesting that it had not been eroded by water and was never at the surface, therefore removed by humans instead.
[1233] Pers. comm. Laura Kooistra.
[1234] Willems 1986, 147.
[1235] Although quarry workers may have assisted during harvesting, the farm workers were probably also occupied, for example in autumn and winter, with threshing, ploughing and slaughtering and with maintaining equipment and buildings.
[1236] See Kooistra 1991; 1996; 2020; chapter 17.

agriculture as such. The aim in the remainder of this chapter is to reflect on the question if it is really obvious that the wealth generated by agriculture paid for the construction or maintenance of a villa like Ten Hove. Countless comments in the literature give the impression that agriculture was unproblematic and very profitable. A few citations on Voerendaal and the loess belt in general, including one example from literature for a general audience, may suffice to illustrate the view generally held:

- In the late 1930s, de Maeyer explained the rise of villas as follows '... '*villae rusticae*', suggesting by their growing number, vastness and rising comfort, that farming and stock-breeding were the main source of wealth in the Roman period [...] An important factor in the extraordinary development in our region must have been the proximity to the Rhine army, for which our area must have been a veritable grain store, easily reachable for traders via the main Cologne-Bavay road and its many branches [...].'[1237]

- In his synthesis of the villa's history, Braat wrote: 'On a piece of [...] loess soil, acquired towards the end of the first century, an enterprising pioneer from Gaul built a fairly simple stone farm. After living there for some twenty odd years, he had substantially extended his property and his fortune, allowing him to replace it with a larger and more comfortable house [...] His son, who had become owner of a large estate, ordered a further extension of the building after the middle of the second century.'[1238]

- Willems explained the villa system in general as follows: 'To supply the growing population and the military with food, a new type of settlement emerged in the hinterland: the villa. [...] a farm on which the inhabitants produced far more than for their own needs. Using the most advanced methods for that period, the goal was an optimal yield for selling. Successful owners became ever richer and could afford beautiful stone houses.'[1239]

- Kooistra gave the following impression of the size of production at Ten Hove and nearby villas: 'If all seven villas of the Heerlen Basin and possibly also the villas on the north side of the Geul produced the same quantity of surplus grain, it may be assumed that this part of Limburg was the granary of the province of Germania Inferior in the Roman period.'[1240]

- The *Tourist Guide for Roman Zuid-Limburg* translates the archaeologists' careful formulation into superlatives: 'At the time of the Ten Hove villa, cereals were worth gold. Here gigantic amounts of spelt were grown. [...] The resulting wealth paid for a luxurious house for the owner.'[1241]

- Several elements found in the quotations above are also present in the explanation given by Roymans and Derks for the economic success of the villa owners: 'The question is where all that wealth in the form of cash money came from. There were two critical factors here: 1. The emergence of a large military market in the Rhine zone following the stabilisation and extension of the Rhine *limes*, and 2. rapid urbanisation from Augustus onwards, bringing with it an urban market. All of this created powerful consumer demand for agricultural products, resulting in a thriving rural economy. This was further stimulated by the development of a sophisticated transport infrastructure in the form of a network of land and waterways, and by the Roman taxation system.'[1242]

The claim that the grain production was 'gigantic' is obviously exaggerated and the same holds true for the suggestion – perhaps not intended to be taken literally – that only a small number of villas sufficed to supply the entire civilian and military population of the province. In any event, we can make several comments on agriculture and the gains that it produced (see below). For simplicity's sake, we will focus on the production of grain for human consumption (and equate grain to spelt).

15.6.3 Grain yields, calories and surplus

Key factors in agriculture

In her PhD thesis on agriculture in the area between the Rhine and Meuse in the Roman period and Early Middle Ages, Kooistra analysed the archaeobotanical and relevant archaeological evidence from Voerendaal and other sites, to construct a quantitative model of yields and consumption in the Heerlen Basin and the Hambach lignite mining area.[1243] One of the aims

[1237] De Maeyer 1937, 41-42.
[1238] Braat 1953, 75.
[1239] Willems 1992, 526.
[1240] Kooistra 1996, 112.
[1241] Brandts *et al.* 2019, 81.
[1242] Roymans & Derks 2011, 16-17.
[1243] On the Heerlen Basin: Kooistra 1996, 107-113.
[1244] Kooistra 2020, passim.
[1245] Slicher van Bath 1987, 12ff.; Bieleman 1992, 11-17.
[1246] Kooistra 1996, 109.
[1247] A considerable area of pasture and hay land in the Hoensbeek valley has to be added. Although animal husbandry was important (traction, manure), it is less relevant for the present discussion (yet see below).
[1248] Kooistra 1996, 106, fig. 22b, no. 9; Van de Graaf 1989, 89, no. 149; Archis 62BN-173; site 2096 in the author's own site database.
[1249] See appendix V.
[1250] Cf. section 4.1.3.
[1251] Bieleman 1992, 153.

was to gain an impression of the potential surplus produced for the market. The model is well-thought-out and is considered here to be essentially correct. Obviously, it remains a model, intended as a frame of reference for further thinking about the economy of the 'theoretical villa' as she calls it.[1244] Therefore, only a few thoughts on key factors in agriculture are given below.

Concerning the volume of agricultural produce, a first key factor is the amount of land available.[1245] We may assume that the area belonging to Ten Hove was substantial, although probably not yet in the first century AD. Kooistra set it at some 200 ha, both for Ten Hove specifically and for the average hypothetical villa in the Heerlen Basin.[1246] Indeed, the loess ridge between Retersbeek and Hoensbeek measures roughly 3,000 x 750 m (225 ha). However, the part of the ridge suitable for agriculture was only about 500-600 m wide, resulting in a net area of 100-120 ha (2 km in length) or 150 ha (3 km).[1247] Another settlement ('site 9') occupied the same loess ridge, reducing this to an area of 100 ha, obviously still substantial.[1248] If more, as yet undiscovered sites existed, the arable belonging to Ten Hove was possibly even smaller. It is not entirely clear whether 'site 9' was a small villa or only a post-built structure and whether it and hypothetical others were autonomous or part of Ten Hove. Perhaps if the latter had fields of 100 ha, these may have sufficed to produce a surplus.[1249] Another scenario would be that Ten Hove villa had arable land south of the Hoensbeek valley,[1250] again resulting in an area close to 200 or even 250 ha.

Apart from uncertainty about the actual area of agricultural land available, there is the factor of soil fertility. Although loess has many good properties – easy to till, a good balance between water retention and drainage – the fertility is not extremely high and the soil is slightly acidic.[1251] Loess is also prone to erosion on steeper slopes, although this was apparently not serious on the gentle slope where our villa was located.[1252] Without doubt, fertility was kept up in part through crop rotation, either two-course (one year with a crop, one year fallow) or three-course (one year with winter grain, another with summer grain, one year fallow).[1253] A potential major limiting factor could have been the amount of animal manure available, as discussed recently by Kooistra.[1254] The pasture and hay land needed to feed a sizeable herd would have reduced the size of the arable. In any case, the isotope analysis included in this publication suggests that the majority of fields at Ten Hove were not heavily manured.[1255] Perhaps there were other arrangements in place to obtain enough fodder for the animals, such as hay land further away from Ten Hove. In any event, the problems for Roman agriculture were identical to those in later periods, when they do not appear to have been limiting factors (see below).

Besides the size of the arable and the need to sustain fertility, other key factors are the actual yield and the yield ratio, which is the yield (per area) minus the quantity of seed required for the following year. The literature on this controversial topic and its implications for the (pre/proto)historical agricultural economy is endless.[1256] Ratios like 1:3-4 published by Slicher van Bath for the Dutch Middle Ages are probably too low,[1257] not least because archaeological experiments suggest better results for prehistoric and Roman agriculture, even on soils of moderate quality.[1258] Of interest here are data on the loess of Zuid-Limburg around AD 1800, when the Netherlands was part of France. Yield ratios of 1:7.3-14 (1:10 on average) were recorded during that period.[1259] These are in line with the higher ratios of Kooistra's model. The historical, nineteenth-century sources also provide data on actual yields, which were low to moderate, between 452-1,296 kg or 1,054 kg/ha on average.[1260] All in all, we can only conclude that the actual quantity of grain produced in the Roman period on the loess remains unknown. If the soil fertility was sustained or did not decline too much, the yields may have been reasonable (apart from incidental bad harvests). This does not mean that agriculture was highly profitable, however, as will be discussed below.

The surplus produced at Ten Hove and other villas versus demand

Kooistra calculated the surplus production for the hypothetical villa in the Heerlen Basin, which is more or less identical to Ten Hove. Besides the factors discussed above, her model took into

[1252] Section 4.2.

[1253] Although classical texts on agriculture do not necessarily record actual day-to-day practice, it is obvious even in the Mediterranean that crop rotation systems, different types of fertilizer etc. were generally known in the Roman period, also in the wider region (White 1970). On agriculture in Limburg during the sixteenth century, see Bieleman 1992, 154.

[1254] Kooistra 2020.

[1255] See chapter 17. The fields may also have been limed (cf. section 4.1.3).

[1256] A recent discussion specifically on the Late Iron Age and Roman period in Gaul and both Germanic provinces by Reddé (2018, 319ff.) He rightly criticizes the extrapolation of reconstructed yields for specific areas and doubts the high numbers often assumed, such as for the hinterland of Köln.

[1257] Slicher van Bath 1987, 26ff.; 360, table 2 (1:3.8 on average); cf. Bieleman 1992, 86-87.

[1258] Reynolds 1985, esp. 399ff., table 1; Lüning & Meurers-Balke 1980, 342, table 28 (but see Kooistra 1996, 99)

[1259] Jansen 1963, table 9 (wheat districts of Heerlen, Oirsbeek, Meerssen).

[1260] Jansen 1963, table 10 (wheat Rolduc, Ubach over Worms, Kerkrade, Rimburg, Simpelveld, Bocholtz, Meerssen). Around Jülich yields of wheat were 1400-1600 kg/ha during the same period and perhaps only half of that in the Middle Ages (Lüning & Meurers-Balke 1980, 432-343, table 30). Obviously, the numbers apply to wheat, not the main crop at Roman Ten Hove. Spelt is more (winter-) hardy and less susceptible to plant diseases (Bieleman 1992, 155).

account the number of workers (about 50). She also presented a number of scenarios, involving lighter and heavier soils, the percentage of grain vs meat in the diet, etc.[1261] The worst-case scenario would result in a surplus from 200 ha sufficient to feed 242 people, the optimal scenario a yield for 839 people (besides the workers. For the sake of convenience, the outcome can be simplified and translated into rounded numbers: 250, 500 or 750 people (low, average, high surplus).

For Ten Hove the results of the model are also related to the capacity of the *horrea*.[1262] The first, smaller *horreum* could contain less (some 50 tonnes/metric tons) than the average yield.[1263] It might have become too small in the course of time because it was enlarged in phase 2 (Appendix V, table 2). The amount of slightly more than 100 tonnes calculated for the second phase is only slightly below the maximum yield in the model. In this respect, the capacity of the *horreum* does not prompt further discussion.[1264] However, the issue in the end is that we do not know what 50 or 100 tonnes of grain/spelt represents. If the *horreum* also held the sowing seed, the grain for local consumption and the emergency reserve, the surplus to sell at the market was at the lower end of the scale. However, if there was more storage capacity at the site, in building 401 and especially the hypothetical *horreum* 405, the net produce would have been at the top end of the scale.

Returning to the (hypothetical) surplus, one wonders how it was related to demand. What are the implications if a 'model villa' could supply, say, 500 or 750 military and urban consumers? If this group included some 200,000 people, that would require roughly 400-267 villas like Voerendaal, with a combined size of 80,000-53,400 ha (Appendix V, table 3). In such a scenario, the Heerlen Basin was by no means the 'granary of Germania inferior'. Not even the whole of Zuid-Limburg – with roughly 25,000 ha of loess – yielded the demand of Germania inferior. However, the combined loess area belonging to Xanten and Köln probably would have sufficed. And moreover, if the *civitas Tungrorum* is also taken into account, Germania inferior included an enormous area of loess soils, perhaps close to 300,000 ha. Although much of this area undoubtedly consisted of soils less suitable for agriculture (too steep or wet), we should also reckon with huge areas of lower quality arable.[1265] These 'sand loess' and loamy soils had a gross area of roughly 900,000 ha. Even if only a quarter to a third of all soil types mentioned represented arable, this would amount to 300,000-400,000 ha. All in all, the arable soils in Germania inferior appear to have been sufficient, even if the number of consumers was considerably larger than estimated here (Appendix V, tables 2-3). The view held by many authors, from De Maeyer to Roymans and Derks,[1266] of an unproblematic food supply seems essentially correct, unless our estimates of yields and/or the size of the arable lands are totally skewed.[1267] Assuming for now that they are correct in terms of the order of magnitude, what are the implications? If there was indeed an abundance of grain, it may have resulted in a reduction in prices and hence in the wealth of the villa owners. This and other topics are further explored below.

15.6.4 What about the relationship between surplus and income?

With a seemingly simple question like this, we enter the realm of ever greater uncertainty because surprisingly little is known about costs and prices in the Roman period. Leaving aside for now the problem that grain has no fixed price, it is possible to estimate the worth of the 34, 69 or 103 tonnes of surplus grain (Appendix VI). This quantity of grain could represent a sum somewhere in the region of 23,000 to 69,000 sestertii, quite a broad range. Obviously, taxes and transport costs have to be subtracted from the sums mentioned. Taxes were probably not very high in the Roman period and can be estimated at around 10-15%.[1268] However, assuming these were used to feed the army, irrespective of taxes being levied in kind or money, the result may have been that farmers earned nothing from the military section of the net consumer group. Transport costs are another potentially important factor conveniently left out of most discussions on the villa economy (Appendix VII). If the owner of Ten Hove could sell all produce in nearby Coriovallum, this would

[1261] Kooistra 1996, 112, table 18.

[1262] Kooistra 1996, 109.

[1263] As noted earlier, the weight of some 50 and 100 tonnes represents the weight of the threshed and dehusked 'edible' grain (as used in Kooistra's models). As the stored grain was only threshed once, the real weight in the Voerendaal horreum was some 69.7 and 139.3 tonnes respectively.

[1264] Cf. section 9.3.1. Van Enckevort & Hendriks (2015, 127) suggest a quantity that is more than double, based on the unlikely assumption of 450 ha of arable (2.25 x 200 ha), resulting in 2.25 x 104.5 tonnes = 235,000 kg! On the issues of the capacity of horrea in general (including Voerendaal), see Reddé 2018, 151-154.

[1265] Even the loess in area A of fig. 15.5 is in fact of a lesser quality, with the loess often far less than 2 m thick with a subsoil of sand and gravel (Kooistra 1996, 92-94; geoportal.nrw > geoviewer > Karten > Geographie und Geologie > Boden und Geologie > Geologische Karte 1:100 000).

[1266] As cited in section 15.6.2 above. For a recent overview with the same conclusion, see Brüggler *et al.* 2017.

[1267] For a pessimistic view of the net yields, see Reddé 2018, 142-143.

[1268] On taxes, see e.g. Hopkins 1980. Reddé notes that besides these 'regular' taxes, additional levies were forced upon the population (2018, 148-150; 154-155). These were probably excessive in the Early Roman period, slowing down the economic development of the rural areas considerably.

lower the profits by perhaps only 1%. However, if everything had to be transported to the *civitas* capital of Xanten, the profits may have declined by 20-25%!

Assuming that somewhere around 20-25% of a villa's gross profit was lost on taxes and transport, a substantial amount of money was still earned each year. Although we also know less about building costs in the Roman period than we would like, the price of a small villa was perhaps 50,000 sestertii and that of a medium-sized one some 100,000-200,000 sestertii (Appendix VIII). This suggests that the earnings at Ten Hove made it possible to build a villa after two years or five to ten at most. The reality would obviously have been much more complicated. The first villa at Ten Hove was the result of revenues in the preceding period. These were (partly) the agricultural produce of modest Alphen-Ekeren-style farms and/or a 'proto-villa' that probably produced less per year. It is likely that far less than 50 ha of arable was available or could be worked initially. More land had to be bought and at the same time the owners probably had to invest, in addition to the first villa, in a *domus* in a (proto-) urban centre, in munificence, as well as in the considerable expenses of a substantial household. We have to ask whether the revenues from agriculture were sufficient during this initial stage. The size of the second villa was the result of a long development and the capacity of its first *horreum* indicative of the production reached at the time of its construction. If there was a new owner, the second villa was certainly paid from other sources of income and the *horreum* was only a reflection of the production aimed at.

Without wanting to challenge the idea that the income from agriculture was substantial for Voerendaal-Ten Hove, we find that models lose their explanatory power if we extend the focus from our particular site to include the regional level. In other words, there is little understanding of how the villa system as a whole functioned. Take for example the estimate mentioned above of roughly 400-267 villas of a 'Ten Hove size' needed to feed the net consumer population of Germania inferior. This surely does not represent the reality because the actual number of villas may have been at least 2000-3000 in the second century AD. Some dozens of villas may have been larger than Voerendaal, while many hundreds were much smaller. The typical size of the many villas in and around the Hambach area, for instance, is estimated at some 50 ha.[1269]
For Picardy, average sizes were probably around 50-100 ha.[1270] There may have been even smaller sites, of 20-5 ha. All the same, even if smaller, less productive villas made up the majority and there were more net consumers, it appears that there were far more villas than needed for grain production in Germania inferior. A rough estimate on the basis of moderate yields is 900(-1,425) villas (Appendix V, tables 2-3), still much lower than the actual number.

The negative effect on prices would have been great if a large amount of grain was indeed available on a regular basis, especially because grain imported from outside the region/province also has to be taken into account, even later in the Roman period.[1271] Perhaps there were counteracting factors besides more consumers and regular lower yields, such as frequent and widespread serious crop failure and substantial spillage during storage and transport.[1272]
These would have had a positive effect on prices. It is further conceivable that some specialization in specific crops or cattle-breeding took place on a local or regional scale, making some farms less dependent on grain cultivation. For instance, smaller villas and post-built settlements on the loess may have been involved in the fattening of cattle from the sandy soils.[1273]

To conclude, we wanted to make the point that it is an open question as to how profitable agriculture really was in the second and early third century AD. Although it might have been a substantial source of income for very large villas and 'upper middle-class' ones like Ten Hove, this point must not be exaggerated. Many smaller villas probably produced only a small surplus, allowing extensions and new decorations only after a considerable period. Obviously, small villas and post-built settlements would have been considered quite successful by their inhabitants if they obtained their own food, seed corn and a small surplus for taxes and necessities, including some consumption goods. The fact that many villas had only one or two stone outbuildings (no *horreum*) and never acquired baths suggests that their profits were modest.

[1269] Gaitzsch 1986, 408, fig. 11; Kooistra 1996, 97.
[1270] Woolf 1998, 163.
[1271] Pottery found in a grain ship at Woerden (Haalebos 1996, 485-486, fig. 8) suggests that it operated along the coast, the cargo perhaps coming e.g. from northwestern France, Britain (both by sea, in a sea-going vessel for the first leg of the journey) or the Nervian civitas (via the Scheldt; cf. the Nervian neg(otiator) fru(mentarius) active at Nijmegen (CIL 13.8725). Although this particular cargo consisted of emmer, not spelt, it still hints at the scenario of large-scale imports of spelt, some from the southeast via the Rhine and not from the northwest.
[1272] The grain in the Woerden boat was infested with insects (Pals & Hakbijl 1992).
[1273] Vanderhoeven (2015, 194-195), on settlements like Kesselt and Veldwezelt. These could have received cattle bred in settlements in the MDS area and collected at e.g. the villa of Hoogeloon-Kerkakkers (Hiddink 2014a, 231-248, 292; Kooistra & Groot 2015). Finds such as grains of bread wheat and a chaff fragment of spelt at this villa (Kooistra 2014, 712; Kooistra & Groot 2015, 147-150), as well as spelt and large flowered bug parsley (Orlaya grandifloria) at the settlement of Weert-Kampershoek (Van Haaster 2014, 164), point to grain imports from the loess area. The farmers on the sand were generally self-reliant, but might have grown less corn themselves in order to specialize more in cattle-breeding.

15.7 Social aspects of the villa

Besides questions about the technical and financial aspects of agriculture, we finally want to point out that the preconditions for economic success must ultimately be sought in the social sphere.

Obtaining Roman citizenship was the most important precondition for economic and social advancement. It is highly likely that the owner of the first villa was a citizen. If he himself was granted citizenship, it was probably the reward for military service in the *auxilia,* as a son of a family of indigenous farmers already living at Voerendaal in the middle of the first century AD or even a generation before.[1274] An alternative scenario is that one of his ancestors had become a citizen already, as part of the Baetasian elite. Another is that the owner was an outsider, for example a veteran from Köln or another place along the *limes*. Whatever may have been the truth, the successive villa owners of Ten Hove were striving for further social advancement. The size and design of the second villa – both the main building and the complex in its entirety – show the aspirations, or rather the (temporary) end result. As the villa can be ranked among the top in the medium-size category, the owner was probably involved in the administration of the *civitas Traianensium*. The construction of a new, more monumental villa may have been encouraged by the foundation of the *colonia*, resulting in new territorial arrangements and a surge in elite competition.[1275] This was possibly related to the site coming into the possession of another family, thereby eradicating the house and the memory of the previous owners. However, as stated earlier, it is impossible to know what the motives were for rebuilding the villa.

The social status of the family in possession of the villa had an impact on all kinds of 'economic' affairs, including agriculture. The Roman economy was not a free-market economy in which everyone had access to land, capital and channels of distribution. Only being a Roman citizen and member of the regional social elite enabled this. Our villa owner may himself have been dependent on mighty patrons and friends, but not on the entire chain of 'middlemen' unavoidable for peasant farmers, craftsmen and labourers, increasing debt and reducing profit at every stage.[1276] Social arrangements may have played a part in, for instance, transporting agricultural products, as mentioned earlier. Even if the grain of Ten Hove had to be taken all the way to Xanten or a military base, this may still have been worthwhile if its sale for a reasonable price was guaranteed. This was possible through deals with high-level traders (*negotiatores*) or military commanders.[1277] A maximum profit could be made if the whole surplus was sold at Heerlen. This would have required some kind of cartel – with a limited number of other villa owners – and acceptance by other people of high status and (whether voluntary or not) the inhabitants.

At the same time, a higher social status of the owners of Ten Hove made it possible for them to become *patroni* of, for instance, *vicani* living in Heerlen. Investments in the town's amenities, such as M. Sattonius' spending on the baths, or lending money to craftsmen, may have assured scarce extra labour needed at the critical harvest time.[1278] Besides inhabitants of Coriovallum, the owner of Ten Hove may have exerted direct (owning the soil) or indirect control (as a *patronus*) over other rural sites in the region. These could have been non-villa settlements similar to Heerlen-Trilandis, Veldwezelt or Kesselt, perhaps specializing in cattle-breeding and fattening as well as being an additional source of cheap labour (Fig. 4.10; Appendix 21, Figs 1-2). It is also possible that the owner had several villas, with Voerendaal as the most luxurious one, the others more modest and balancing investment and consumption against income. Many scholars question whether the northern provinces adopted the 'Italic model', with smaller villas worked by tenants and/or slaves but owned by absentee landlords.[1279] One argument against it is the investment in medium-sized and smaller villas, suggesting that the occupants were owners, not merely tenants.[1280] According to Roymans and Derks, most of the very small, non-monumental villas (e.g. those without baths) were owned by free, land-owning 'middle-class' farmers.[1281] This may be true in general, although it is still possible that landlords invested in small villas operated by

[1274] Cf. the discussion and references in Hiddink 2014a, 294-295; Roymans & Derks 2015, 296.

[1275] See above, section 15.1.2-3.

[1276] On the social aspects of the villa economy, including patronage, tenancy, wage and slave labour, see Slofstra 1983; 1991, 178ff.; Roymans & Derks 2011; Garnsey 1980; Whittaker 1980. On the role of middlemen in modern peasant societies, see e.g. Papousek 1981; for more references on the topic in general Hiddink 2014a, 293.

[1277] On these negotiatores, see e.g. Wightman 1985, 154-156; Roymans & Derks 2011, 18-19.

[1278] On the provision of labour by vicani, see Hiddink 1991, 215-216 (with further references; cf. Jeneson 2013, 154). Large villas like Borg and Reinheim were located next to vici, suggesting a relationship (Roymans & Derks 2011, 27). Patronage of a local or regional community (in casu a pagus) by a villa owner is attested by the inscriptions from Houthem-Ravensbos (Slofstra 1983, 93-94; Derks 2011).

[1279] See e.g. Slofstra 1983, 85ff.; Roymans & Derks 2011, 20.

[1280] Woolf 1998, 163; Roymans & Derks 2011, 21.

[1281] Roymans & Derks 2011, 27-28, fig. 9.

tenants. But in any case, even if the owner of a small villa was a free man, he was inevitably a client himself, perhaps of the lord of a larger villa, who had to be provided with services and labour in exchange for better access to distribution channels, loans, etc.

A subject ignored thus far is the organization of the labour force at Ten Hove (or any other larger villa for that matter). Kooistra's model assumed that Ten Hove was regularly occupied by ten families including children: that of the owner, the *vilicus* and eight families constituting the workforce proper.[1282] The number of people present would have been much larger if the owner's family (with servants) was on site, and during harvest time. Regrettably, there is no evidence – such as the number of graves! – for the size of the regular population and very little for the buildings or rooms where they resided.[1283] Even more relevant are questions regarding the status of the labourers. Insofar as they were free people, payments might have been in money or (partly) in kind. Because very young children could not supply much labour, they were certainly not (directly) provided for. Older children and married women would also not have been paid directly, even if they did perform all kinds of tasks. Without doubt, a wide variety of arrangements were used to limit the size and expense of the permanent labour force, such as occasionally hiring wage labourers and calling in dependants from *vici* and post-built settlements. It is also possible that slaves were employed on a regular basis. Although the iron shackles found at Ten Hove are no definitive proof of the presence of slaves (they could be Late Roman in date), slaves were certainly employed in the region.[1284] Shackles were found, for instance, at the villas of Rosmeer and Hoogeloon.[1285] Finally, labour costs may have been reduced by innovations such as the *vallus* or reaping machine, although scale on which it was actually used in farming is not known.[1286]

The ultimate problem when attempting to reconstruct the socio-economic aspects of any particular Roman villa is that archaeology cannot in principle establish social and economic relations between different sites, or only in extremely rare cases, by means of finds such as those at Houthem-Ravensbosch. It is clear that Ten Hove belonged to the higher range of the class of medium-sized villas. Its owners must have participated in the higher social circles of the *civitas*. Although the revenues from agriculture must have been substantial and probably paid for the construction and maintenance of the villa, the sources of income and the owners' expenses as a whole remain unknown. The question as to what motivated the involvement in farming is also unanswered. Did the family operate the villa themselves in the first century and were they still closely involved later, or were they primarily oriented towards an urban way of life, only 'consuming' and displaying wealth in the countryside for part of the year?

[1282] Kooistra 1996, 109.

[1283] Section 9.2.2; 9.3.3; a villicus – if there was one – probably lived in a room in the main building.

[1284] Roymans & Zandstra 2011; see also Günther 2018. On the finds at Voerendaal, see section 20.3.14.

[1285] De Boe & Van Impe 1979, pl. 13, nos 13 and 14 (Rosmeer); Hiddink & Zondervan 2014, 531, fig. 23.12 (Hoogeloon).

[1286] Described by Pliny (nat.hist. 18.296). See Fouss 1958; White 1967b; Raepsaet 1995; Heimberg 2011, 104-109. It is an interesting suggestion, based on experiments, that the machine was only suitable for harvesting spelt (Wiethold & Zech-Matterne 2016, 410).

16 The end of the grand villa, Late Roman and Early Medieval habitation, later activities

Henk Hiddink

The first main section of this chapter focuses on the period in which the villa at Voerendaal fell into decline and was eventually no longer inhabited, from the later third until the early fourth century AD. Although probably interrupted for some decades, the habitation of the site did not end, however. A new post-built settlement was founded late in the fourth century, possibly occupied by people originating east of the Rhine. This is the subject of the second section, followed by the third, devoted to the later stages of this settlement in the Merovingian period. A special feature of this time is a small cemetery amidst the ruins of an outbuilding of the villa. As in the previous chapters, each section begins with a survey of the available written sources for the period in question, followed by a survey of habitation in the wider region and, lastly, a discussion of features and finds at Ten Hove. A final, fourth section summarizes the few features and finds belonging to the Carolingian period up to modern times.

16.1 Late second-early fourth century

16.1.1 Historical background

Potentially destabilizing events from the later second century onwards

Many researchers have characterized the third century AD as one of crisis for the Roman empire.[1287] It is not our intention to review this characterization, nor to discuss and settle on one of the many explanations – or dates – for the ultimate 'end' of the Roman empire. Like those of the two preceding chapters, the sketch of the historical events below is intended to provide some context for the society of which the settlement of Voerendaal was a tiny part.
The following section discusses the archaeological aspects of settlement in the wider region for the same reason. Both historical and archaeological data can assist in the construction of a chronological framework for our site.
According to some, problems relating to the assumed third-century crisis started as early as the later second century, marking the onset – in their view – of a slow and lengthy decline of the empire that culminated at the end of the fifth century AD. Solely on the basis of the implied length of the period – as long as that between the French Revolution and the present day – it is doubtful whether such a view has any analytical value. We will only list some of the 'problems' often mentioned.

One element or cause of the later crisis often referred to is the Antonine 'plague', an epidemic that reached Rome in AD 165, spreading to other regions including Gallia and the Rhineland and supposedly still raging in AD 189.[1288] A second known epidemic was the so-called plague of Cyprian from AD 251 onwards, according to some sources the cause of the death of emperor Claudius Gothicus in AD 270. Although these epidemics really did happen, it is impossible to assess their severity and demographic impact on specific regions such as Zuid-Limburg. Moreover, epidemic diseases occurred on a regular basis in antiquity. They are documented, for instance, every 5-8 years in the late republican period, but did not prevent the Roman empire from growing.[1289]

A second issue from the late second century onwards in the north were raids by Germanic groups. An early documented example concerns the Chatti raiding Germania (superior) and Raetia in AD 162 and probably again sometime between 170 and 174.[1290] In the latter period the Romans also had to fight the Chauci (from the Elbe region) in Belgica, assisted by 'auxiliaries hastily levied from the provinces'.[1291] Groups from the coast and the Elbe area attacked again in c. AD 213 and at the same time the Alamanni caused trouble in Germania superior.[1292] The sources on these early raids are fraught with the same set of difficulties as later ones, discussed in the following sections: they seldom give an accurate account of the areas and scale of the attacks and plundering (unlike the epidemics). The scale is often exaggerated because the texts were written to praise an emperor or to highlight the agony in which the 'degenerate' Roman empire found itself (by Christian writers).[1293] Many were composed decades or even centuries after the events in question, based on primary accounts now lost.

Finally, we should mention 'historical' events at the end of the second century such as

[1287] Discussions on various themes and many references can be found in e.g. Hekster *et al.* 2007.
[1288] See McNeill 1976; Gilliam 1986; Duncan-Jones 1996; Bruun 2007.
[1289] Duncan-Jones 1996.
[1290] SHA, Marc.Ant. 8,7-8. During this period, but further to the east, there were wars with the Marcomanni (c. AD 166-180).
[1291] SHA, Did.Iul. 1,7-9.
[1292] Dio 78.13.3-4; 14.3-4.
[1293] See e.g. Whittaker 1995, who also points to the specific themes of Christian authors. See for instance Salvian: 'Where or in whom are evils so great, except among the Romans? Whose injustice so great except our own? The Franks are ignorant of this crime of injustice. The Huns are immune to these crimes. There are no wrongs among the Vandals and none among the Goths.' (de gub. Dei 8)

the uprising of Maternus, supposedly affecting Gaul, Spain and Italy (AD 185-186), and the usurpation of Clodius Albinus (AD 193). The reality of the first is doubtful, the sources on it being part of the negative 'framing' of Commodus;[1294] in any event, it probably had no impact on the north. Regarding the second event, Clodius Albinus is said to have tried to gain command of the legions of Germania inferior following Commodus' assassination. He was not successful and Septimius Severus became emperor,[1295] making Albinus *Caesar*. There do not appear to have been any serious troubles in the province. In AD 196 Albinus invaded Gaul after Severus wanted to get rid of him. However, he could not take Trier, again lacking the support of the troops further north, and was ultimately defeated at Lyon.

Obviously, periods for which no conflicts are recorded in the classical texts were not necessarily peaceful. A number of inscriptions from the reign of Septimius Severus bear witness to building or reconstruction activities on the *limes* of Germania inferior.[1296] Some tension here is also suggested by the presence of *legati legionis*, recorded on votive altars at the *castellum* of Vechten.[1297] In AD 231 an altar commemorating a victory by *legio I Minerva* was erected east of the Rhine near Bonn, probably on the battlefield.[1298]

The Imperium Galliarum and the supposed fall of the limes

Some decades later, in the third quarter of the third century AD, the empire got in serious trouble, which certainly did affect Germania inferior. This is the first part of phase 3c in our site chronology (Fig. 5.1). Around 255 Gallienus, son of and co-emperor with Valerianus, came to the Rhineland to fight raiding Germans. To repel them, a treaty had to be made with a Germanic leader; the latter obliged to prevent others from crossing the border.[1299] The seriousness of the situation can be deduced from the fact that a mint was set up at Cologne and Valerianus himself came to the city.[1300] Some years later he left to wage war against the Persians, by whom he was captured in 260 AD.[1301] The combination of troops being withdrawn and the emperor's capture probably led to new severe troubles on the Rhine and Donau. Gallienus had to suppress a revolt in Pannonia, leaving his son Saloninus in the north. The revolt was probably the result of invasions by Goths in Greece, Sarmates and Quadi in Pannonia, Alamanni in Gaul and Italy, as well as *Francorem gentes* in Gaul and Spain.[1302] The invasions are mentioned not only in texts but also on an altar found at Augsburg. It records victory after a battle on 24/25 April 260, over a group of '*barbaros gentis Semnonum sive Iouthungorum*', liberating thousands of prisoners whom the *barbari* had taken from Italy.[1303]

In the north the high-ranking officer Postumus defeated a raiding party of Germans/Franks and afterwards allowed his soldiers to collect the spoils of war.[1304] A conflict over these with Silvanus, praetorian prefect and guardian of Saloninus, resulted in a siege of Köln and the murder of Salonius and Silvanus.[1305] Postumus became ruler of an Imperium Galliarum, at its height combining Gaul, Britain, Spain and Pannonia.[1306] His reign seems to have been fairly successful, protecting his territory with the help of Germanic troops against other Germans and attacks by Gallienus.[1307] However, he also had to cope with internal troubles, as is shown by an inscription mentioning baths set on fire at Krefeld along the Rhine.[1308] A revolt by a certain Laelianus in 269 led to a siege at Mainz, and when Postumus prevented his troops from looting the city, they murdered him.[1309] His successors Victorinus, Tetricus I and II won some victories over Germanic groups but lost Spain and had to cope with troop mutinies and city revolts. In 274 the official emperor Aurelianus won back the Imperium Galliarum for Rome.[1310] However, the emperor was killed only a year later, allowing Germanic groups to seize 60 cities in Gaul, a region in turmoil ever since the death of Postumus.[1311] Historians and archaeologists traditionally believed that the barbaric incursions between AD 260 and 275 resulted in a complete breakdown of the border defence at the Rhine *limes*. This view is questioned nowadays,[1312] although it may have taken some time to put the defences in good order again.

On the basis of the historical data and the idea of the fall of the *limes*, the year 270 was taken as the divide between the Middle and Late Roman period in Dutch chronology. While the break is perhaps not absolute and arbitrary in

[1294] On its chronology Alföldy 1971, who believed that it was limited to Germania superior and who interprets Herodian as an unhistorical source; for a critique and references, see also Moritz s.a. on https://www.ancientworldmagazine.com/articles/army-revolt-military-disorder-reign-commodus/ (accessed 13-5-2021)

[1295] Dio 73.8.1; 74.14.3-4; 76.1.1; 76.6.1-7.3; SHA, Alb.; See also https://www.livius.org/articles/person/clodius-albinus/ (accessed 13-5-2021)

[1296] Alphen aan den Rijn (AE 2000, 1023; Haalebos 2000a; Franzen 2004); Scheveningen? (CIL 13.8824-8825, 8828; Waasdorp 2012, 143-145) and Egmond (original findspot unknown; CIL 13.8829; Byvanck 1935, 221, no. 389).

[1297] CIL 13.8811 and 8810; Alföldy 1967, 54-55, nos 67-68. The first inscription mentions emperor Elagabalus, whose name is erased, together with that of the legatus. The vow to Victoria Augusta from Bonn could refer to a victory by Severus Alexander, either over Elagabalus or external enemies (CIL 13.8035; Eck 2007, 31, n. 23).

[1298] CIL 13.8017; Eck 2007, 31-32.

[1299] Zos. 1.30.

[1300] Eck 2004, 553-555.

[1301] Eck 2009, 185ff.

[1302] Eutr. 9.8; Aur.Vict. 33.3.

[1303] Bakker 1993; Eck 2009, 192. The altar was set up when Postumus had become emperor.

[1304] Aur.Vict. 33.8.

[1305] Zos. 1.38.2.

[1306] Drinkwater 1987; Eck 2007; 2009.

[1307] Eutr. 9.9; Aur.Vict. 33.8. Postumus' coins mention several victories of Germanic raiders.

[1308] Eck 2004, 573-574, fig. 248; 2009, 190, fig. 6.

[1309] Eck 2004, 575.

[1310] Drinkwater 1987, 90-91; Eck 2004, 576-577; 580-581; Eutr. 9.10; Aur.Vict. 35.4.

[1311] De Boone 1954, 47; SHA, Prob. 13.5; Oros. 7.24.2; Eutr. 9.17.

many respects, there is archaeological evidence for serious changes around this time in the rural areas of Germania inferior, as will become clear in the next section.[1313]

Restoration?
After the murder of Aurelianus in AD 275, the new emperor Marcus Aurelius Probus came to the north in AD 277-278 and supposedly took the 60 cities in Gaul back from the Germans. It is stated that he also retrieved all the booty, defeated 400,000 warriors on Roman soil, made treaties with 'nine *reguli* of various tribes' – probably mainly Alamanni – and obtained 16,000 *auxiliarii* in the process.[1314] The accomplishments of the emperor as well as the initial gains of the *barbari* were certainly exaggerated, and the same holds true for those of his successors in the following decades. The actions of these periods are only known through panegyrics, speeches in praise of emperors and military leaders.
An example such as the erection of a milestone near Köln in July 276 suggests that the troubles had not been disastrous in any case: matters returned to normal quite soon.[1315]

Probus did not solve the problem of Germanic raids for good. Fights with Germanic groups are recorded for every subsequent decade, often concluded with a treaty. Some of these confrontations happened near our research area. In AD 286 Maximianus made peace with Franci and their king Gennobaudes, while ten years later he is said to have driven the Franci, Chamavi and Frisii out of Batavia and territory along the Scheldt. During the reign of Constantinus I, shortly before 310, the Bructeri were combated east of the Rhine and their kings Ascarius and Merogaisus were thrown to the lions. In 313 the emperor himself defeated *barbari* near the '*inferiorem Germaniae limitem*', and his son Crispus again fought against a Frankish tribe shortly before AD 321. Two decades later, Constans I made peace with Franci after his troops had apparently been victorious in battles.

16.1.2 Archaeological data on settlement, in particular rural sites

Last quarter of the second – first half of the third century
The discussion of whether and how the late second-century historical events are reflected in the archaeological record is an old and still unresolved one. Although Mommsen expressed the opinion in 1885 that the raids by the Chauci mainly, or only, hit regions along the North Sea coast, De Maeyer still attributed the end of many Belgian villas deep inland to these events.[1316] Holwerda and Braat apparently saw no connection and placed the abandonment of the Dutch villas later, in the course of the first half of the third century AD.[1317]

For a region near the coast such as the *civitas Menapiorum*, where the numbers of settlements declined from the second half of the second century onwards, the Chaucian raids have to be considered as an explanatory factor.[1318]
Perhaps there were raids prior to these, because a coastal defensive system was developed from the third quarter of the second century onwards.[1319] However, as noted above, the impact inland of the Chaucian raids was probably nil. Despite the fact that the consequences of the Antonine Plague, revolts and other raids of the late second/early third century AD are taken seriously by some authors,[1320] they were most likely not major for our region.[1321]
The construction of city walls, for instance, was not merely a defensive measure but also a matter of civic pride. Fires did happen in cities, but probably mostly as the result of accidents.

Turning to the rural areas, archaeology gives the impression that society flourished around AD 200. Since c. AD 175 and certainly in the third century, farms on the sandy soils of the MDS area were larger than ever before. The same holds true for the amount of pottery circulating, all of it produced outside the region.[1322] The MDS area offers an important reference framework for the loess region to the south, not only because of the far greater number of large-scale excavations but also because of the large sample of dendrochronologically dated wells. Their dates suggest a continuity of settlement at least until the middle of the third century (see below and

[1312] Heeren 2016.
[1313] CIL 13.9155; Eck 2004, 582.
[1314] SHA, Prob., 13.5-14; cf. De Boone 1954, 47. Here the numbers are obviously exaggerated.
[1315] With the name of Florianus; CIL 13.9155; Eck 2004, 582.
[1316] De Maeyer 1937, 282-289. He was certainly not naive or of the opinion that terra sigillata was not suitable for dating the end of sites; he valued coin finds too highly, however.
[1317] E.g. Braat 1934, 13; without doubt on the basis of their finds in various villa excavations. De Maeyer was aware of the opinions of Dutch archaeologists (1937, 288).
[1318] De Clercq 2009, 190-198 (based on a series of radiocarbon dates, some dendrochronological dates and finds).
[1319] On the Dutch coastal area, see Waasdorp 2012, 139ff.; on the system in general, Dhaeze 2011; Aardenburg: Van Dierendonck & Vos 2013; Oudenburg: Vanhoutte *et al.* 2009; 2014.
[1320] De Clercq 2009, 488-495; Van Enckevort 2001, 385-388 (Nijmegen and surrounding region); Buijtendorp 2010, 256ff. (Forum Hadriani).
[1321] Cf. Willems (1984, 247).
[1322] Examples of 'rich' or at least varied pottery assemblages from settlement contexts – sunken byres in not exceptionally large houses – are Lieshout house 400 and Deurne 524 (Hiddink 2005a 420-432; 2008, 274-280). Representatives of the large third-century farm buildings found e.g. at Hoogeloon and Weert-Kampershoek (Hiddink 2014a, 102-103, fig. 6.4-5; 2014g, 138, fig. 8.4). The graves may appear quite modest but they still contain significantly more pottery and other objects than those of the period up to 150/175 (some examples in Hiddink 2011e, 94, fig. 94).

Fig. 16.2).[1323] There are virtually no readily available published data on general habitation trends for Zuid-Limburg and the region directly to the west. For the loess in the German part of Lower Rhine area, there are some indications of a decline in settlement, albeit not unambiguous and not as early as the later second century AD. In a somewhat older study of five regions, Gechter and Kunow observed a decline in the number of sites in the period AD 200-c. 275 compared to AD 150-200 (Fig. 16.1).[1324]
The former period is quite long, however, and for that reason the observed trends cannot be linked with certainty to specific events in the late second century. On the Aldenhovener Platte as studied by Lenz, in the western part of the WW lignite mining area (Fig. 3.2), the number of occupied settlements was the same before and after c. AD 180 (periods 3-4; Fig. 16.1B).[1325] At first sight, the series of dendrochronologically dated wells from the lignite mining areas shows an interruption between c. AD 167 and c. 196 (both termini post quem).[1326] In respect to this, it is important to note that the sample contains a modest 26 sites, some with undated wells, potentially covering the hiatus mentioned. The gap will likely close when new dates become available.[1327] Moreover, we are looking at construction dates of wells, not directly linked to the duration of the habitation of an area. In the lignite mining areas, wells had to dug to a depth of 20-30 m, and this investment resulted in a very long use-life compared to the sandy soils.[1328] Wells constructed before 170/175 AD may have been used into the third century.

Rural settlement of the MDS area in the advanced third century
While one could argue about the effects of events around AD 200 recorded in the written sources, there is no question that those reported for the third quarter of the third century had severe consequences. The cities, *vici* and military sites will be discussed at a later stage.
To contextualize Voerendaal, we will first discuss rural habitation in general. The best data are available for the sandy soils of the MDS area. In the next section, the focus will shift specifically to the villas.

In the MDS area, the series of dendrochronologically dated wells ends with an example from Best, with wood cut in the autumn/winter of AD 254/255 (Fig. 16.2).[1329] Another interesting case is a well from AD 242/243 excavated in Reusel, which was intersected by a house plan, adding yet a later phase to the settlement. Because of the fact that the average use-life of wells in the region was 25 years, the suggestion is that habitation ended somewhere between AD 260-280.[1330] Although we avoid where possible references to coin hoards in relation to hiatuses in occupation, a hoard from Vught must be mentioned here. The 4778 coins are mostly *antoniniani* struck by the rulers of the Gallic empire, with some 20% imitations of their coins. Based on this, deposition took place at the latest between c. AD 276-280.[1331] After this date, the dates of hoards suggest – like the dendrochronological dates – an interruption of habitation. The next hoard in time for the Dutch part of the MDS area is that of Hapert (2572 coins), dated after AD 402 and therefore buried well over a century later.[1332]

It is theoretically possible that some of the rural settlements did not last until AD 270 and were already abandoned shortly after AD 200, the terminus post quem provided by the pottery at most sites.[1333] However, the majority must still have been in existence until AD 270, as indicated by dendrochronological dates. For the small group of *vici* situated 'inland', the coin series from Grobbendonk is significant, with the latest three coins (out of 152) dating to between AD 260-275.[1334] This suggests that the occupation ended quite abruptly. Several causes, acting over a longer period, may have contributed, but the unrest during the Imperium Galliarum was probably the last straw. It may even have been an imperial decision to clear the region.[1335] This is the beginning of phase 3c in the site chronology of Ten Hove (Fig. 5.1).

The fate of the villas
If we relied only on published data, the survival rate of villas after c. AD 270 would appear to be quite low. For example, in his inventory of Late Roman sites Brulet mentions less than 10 (former) villas with occupation for the Dutch province of Limburg. This number represents about 7% of the Middle Roman villas in this modern province. Obviously, this is not an adequate picture, because it rests often on nothing more than a single coin or sherd,

[1323] Obviously, dendrochronological dates are not unambiguous: the majority only provide a terminus post quem, secondary use of older wood in constructions, etc.
[1324] Gechter & Kunow 1988. The graph of the Hürtgener Hochflache is not included in fig. 16.1.
[1325] Lenz 1999, 90ff., figs 7-8.
[1326] Diethelm *et al.* 2016. The dates in fig. 16.2 are taken from Diethelm & Wendt (2019, 96, fig. 12), determining the year simply by measuring the distance from 0 in the diagram. The list by Gaitzsch (2011, 291, table 1) is quite useless because all dates are given a meaningless ± 5 year uncertainty; at least some are far more precise (cf. Diethelm & Wendt 2019).
[1327] In the table in Gaitzsch 2011, just mentioned, there are dates of 175 and 177 ± 5 of wells apparently not in the diagram of Diethelm & Wendt 2019.
[1328] Wells were probably used for some 50-70 years on average, with a maximum of possibly a century (Diethelm & Wendt 2019, 96-97). In the MDS area the average use-life was 25 and the maximum 50 years (Hiddink 2014a, 270).
[1329] Meurkens 2017, 280, table 8.5; for a sample of 17 other sites with dendrochronological dates for settlements, see Hiddink 2014, 271, fig. 13.3.
[1330] Hiddink 2014a, 270, fig. 13.3.
[1331] Kropff 1987, 16; see also Kemmers 2012.
[1332] Evers 1969/70.
[1333] By Niederbieber 33 metal-gloss beakers (cf. Voerendaal!); the chances of identifying the later variants with white barbotine decorations, dated after c. AD 255 (Künzl 1997), are very slim. They are present at 3 of 17 sites: Riethoven, Mierlo-Du Pré, Breda-Steenakker. The dating value of coins is also limited for rural sites (a hoard at Cuijk-De Nielt has some relevance with two coins of

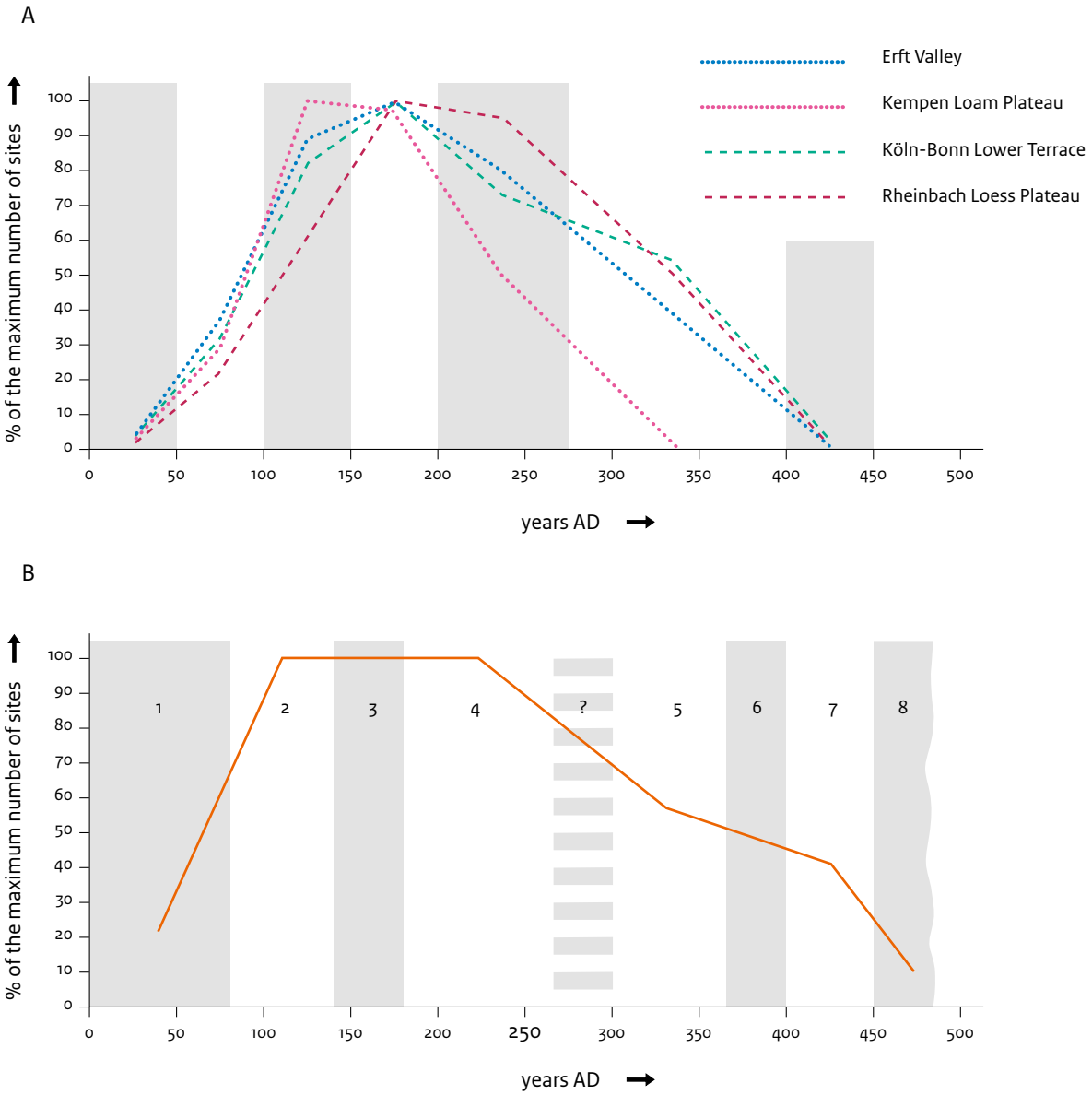

Fig. 16.1 The percentage of settlements existing through the Roman period in micro-regions on loess and loamy soils, with the maximum number for each area taken as 100%. (source: modified after Gechter & Kunow 1988, fig. 9.2-4; Lenz 1999, fig. 7-8)
A four areas in in the German Lower Rhine area; B Aldenhovener Platte

probably not collected or missed at seemingly non-occupied sites.[1336]

For the German loess area the gradual decline during the third century as indicated by (surface) finds has already been mentioned (Fig. 16.1). Dendrochronology shows that the construction of wells ended around AD 250 and occupation may also have been interrupted around AD 270. However, the impression given by figure 16.2, that the region was uninhabited for a long period, is false and merely the result of the relatively small number of dendrochronological dates. Although some might have been abandoned completely, the majority of sites saw activity in the Late Roman period. On the part of the Aldenhovener Platte studied by Lenz, fieldwork and excavations brought 36-37 sites to light from the Middle

AD 251-253). See Hiddink 2014a, 270-272, fig. 13.3, table *13.3.

[1334] Aarts 2000, appendix 10. Vici such as Cuijk and Maastricht were still inhabited afterwards, however (see below).

[1335] Roymans *et al.* 2020, 281.

[1336] Brulet 1990, 204ff.

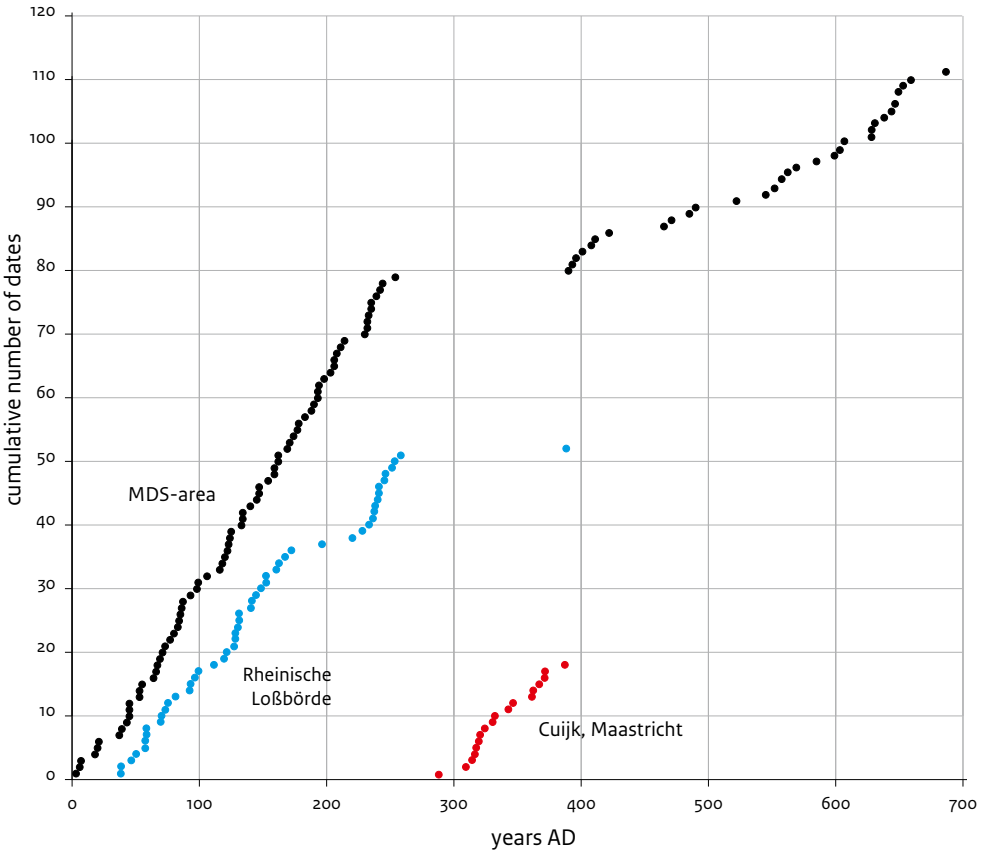

Fig. 16.2 Dendrochronological dates of wells in settlements in the MDS and Rhineland lignite mining areas, as well as dates of bridges and quays at Maastricht and Cuijk.

Roman period (Lenz periods 2-4).[1337] For the fourth century AD (periods 5-6), 21-24 sites or 60% still show activity; for the first half of the fifth century AD (period 7) this was still 15 sites or 40% (Fig. 16.1). Because the number of sites says little about the scale of habitation or activity, Lenz attempted to find an indication by calculating the number of 'cooking pots' per 10-year period. The ratio of Middle to Late Roman was 4:1.[1338] A slightly different kind of calculation gives a ratio of 2.4:1.[1339] Data on a number of other micro-regions in the loess/loam area of the Rhineland also suggest that somewhere around 50% of the rural sites displayed activity in the fourth century AD (Fig. 16.1). Obviously, this does not inform us about the scale of habitation and the kind of activities performed.

One obstacle in obtaining a clear picture of what was going on at villa sites in the Late Roman period is that new main buildings are virtually non-existent. Therefore, comparisons cannot be made between the size of the main building in the Middle vs the Late Roman period. The observable traces of (re)building are nearly always confined to specific parts of main buildings or outbuildings, leaving the question as to what degree the rest were still in use.[1340] Restoring damaged rooms by constructing a new roof leaves no archaeological trace. And, as just discussed, evidence for Late Roman habitation or activities tells us nothing about scale or permanency. Because of all the methodological problems, it is virtually impossible to compile meaningful maps or lists of Late Roman villas.[1341] When dealing with specific sites, we have to carefully evaluate the available data.

For Kerkrade-Holzkuil, for example, we can assume on the basis of the low number of finds that the site was visited only to obtain stone and

[1337] Lenz 1999, 90ff., figs 7-8. Moreover, for all of the 'aussagekräftigen' (≈excavated) main buildings of villas, there are indications for activities and all sites with more than 45 vessels (MNI) have Late Roman pottery.

[1338] Lenz 1999, 91, table 19.

[1339] When the sample is reduced to Niederbieber 89 (Lenz 31C, 35K-M) and Alzey 27 (35N-P) only, both in use for roughly 150 years, the ratio is only 2.4:1. At Hambach 132, the ratio is 2.3:1.

[1340] In Lenz' research area (1999, 85-89), a room with apparently three apses at site 15 (1999, fig. 12) is likely to be a Late Roman element; the same possibly holds true for the X-shaped hypocaust at site 67 (fig. 35). If the rectangular room at the south side of the Lürken villa (Lenz 1999, fig. 33) is really a Late Roman addition, it is – with its surface of 50 m² – quite insignificant in respect to the building's total (1,400 m²)! An example of a substantial Late Roman phase is attested for Echternach (Metzler *et al.* 1981, period 5). Bad Neuenahr-Ahrweiler (D/RP) was apparently downgraded after a hiatus, becoming some sort of inn (Hospiz) (Fehr 2003, 26ff.).

[1341] For this kind of information, see e.g. Brulet 1990 and Van Ossel 1992.

[1342] Only one sherd of a Chenet 342 bowl was found (Wiepking 2005, 182, fig. 6.5), together with two to three coins (Kemmers 2005).

[1343] Van Ossel & Defgnée 2001, 94-98.

[1344] See section 12.4.

[1345] An antoninianus of Tetricus I for Tetricus II is the last of the 10 coins and two antoniniani are imitations, suggesting the possibility of a deposition early in the 280s according to Brüggler (2009, 22; 175-176; 239).

other raw material.[1342] The same model probably applies to Champion-Sur Rosdia, although more Late Roman pottery was found there and some rooms of the former baths were inhabited for a while, an '*occupation parasite*' according to the excavators.[1343] Many other villas may still have had an agricultural role, although other 'industrial' activities are more conspicuous.[1344]

Hambach 132 is an interesting case because of the glass production, and also in other respects. This villa seems to have been abandoned shortly after AD 273, a date provided by a small hoard of coins in a (bread) oven in the main building.[1345] There was a hiatus of perhaps just one generation: some of the later graves west of the main building date to the later third century, while new burials were dug in the fourth.[1346] Like a number of other sites in the region, glass was made at Hambach 132, here in two workshops (wooden structures with kilns). Production started in the first half of the fourth century and ended about a century later.[1347] Also of interest are the 46 burials.[1348] Firstly, the (dated) graves are spread quite evenly over time between c. AD 300- 450. Secondly, the graves represent an average population of some six-seven people, thus only one family (two at most).[1349] Thirdly, the burials are regularly accompanied by a fair number of ceramic and glass vessels, suggesting that the craftsmen at the site were reasonably well-off. The latter point is perhaps the most striking, although the inhabitants obviously obtained the glass cheaply because they made it themselves.

Hambach 132 may be taken as a representative of the general situation in the loess area of the Late Roman period. Even while the scale of rural habitation appears to have been lower compared to the Middle Roman period, a fair proportion of the remaining sites functioned quite well in the fourth and early fifth century AD. This conclusion is not new, as it was already reached by others some decades ago.[1350] Irrespective of what the rural population produced themselves, be it agricultural products, glass or other materials, they were able to buy reasonable quantities of imported goods. This is shown most clearly by the pottery, which appears to have reached the loess area with ease, transported from places/regions 100-150 (Mayen) or even 250 km away (Argonne).

16.1.3 The final stages of the villa at Ten Hove

The end of the large villa

Although the development of the second villa at Ten Hove was quite complex, strictly speaking no more than two phases can be discerned: 3a and b (Fig. 15.7-15.8).[1351] A third phase (3c) is introduced to highlight the villa in a hypothetical reduced state with tower 407. Sadly, no dendrochronological data are available to shed more light on the chronology of advanced stages of Ten Hove's development. The pottery offers little help, even though a substantial amount came from ditch 302 near the baths and the infill of basin 319 in front of the main building. The youngest identifiable form is the same one as found at most sites in the MDS area: the third-century black-slipped beaker (Niederbieber 33), dated after AD 200.[1352] Fragments of these beakers with white barbotine decorations, produced after c. AD 255, were not found on our site.[1353] Other vessels, especially coarse- walled (Urmitz) ware and mortaria, could be third century in date, but they do not constitute definitive proof. For the site as a whole, the latest sigillata – represented by no more than two vessels – has a terminus post quem of c. AD 185/190. The termini post quem of the pottery as a whole are provided by some amphorae, produced between c. AD 210-230 (twice) and 220-250. The latest coin was struck only some years later (Septimius Severus). Two coins of Postumus are better ignored because both were found in an Early Medieval (!) pit.[1354] A single coin of Carus struck in AD 283-284 is interesting but could still have been lost much later, during phase 4b-d. In the end, the latest dates available are not provided by finds, but by charred grain. Two radiocarbon dates from the *horreum* – a building supposedly destroyed by fire – cover the period AD 246/247-401 (2 sigma).[1355] Two samples of grain on 'threshing floor' 420 in front of building 401 may date from the late first century AD onwards, a third after AD 210. All these samples provide a terminus ante quem of c. 330-335 (2 sigma).

The data on Ten Hove do not allow for a more accurate chronology than for the loess area and surrounding regions in general. It is likely that the villa was (partially) destroyed and temporarily abandoned in the period of the

[1346] Brüggler 2009, 202. At nearby Hambach 59, well I has a dendrochronological date of AD 321 (Hallmann-Preuß 2002/2003, 349).

[1347] Brüggler 2009, 90-92.

[1348] Brüggler 2009, 102-123, 430ff. (grave 35ff.).

[1349] Obviously, only part of the population could have been buried (Brüggler 2009, 125; cf. section 13.1.1). Brüggler's estimate for the Late Roman population is 10-20 individuals, but based on a life expectancy of 40-60 years. An average value of 25 years (at birth) is more probable (Smits & Hiddink 2003, 165-166, table 21; 2018, 146ff.). However, the presence of two families is feasible in any case, given factors such as erosion, underrepresentation of children etc.

[1350] See e.g. Van Ossel 1995.

[1351] Section 17.3.

[1352] Section 16.1.2.

[1353] For Zuid-Limburg, we only know of two fragments at Bocholtz-Vlengendaal (Goossens 1916, 15).

[1354] These coins should probably not be considered as 'residual' or 'stray' finds, having been brought to the site shortly after they were struck. Both are less regular double sestertii and the pit they were found in (733) was situated some distance from the Roman villa.

[1355] Chapter 5, table 5.6; 84. The idea that the villa was destroyed by fire is based on Braat's observations of a burn layer (brandlaag, sporen van brand) over the main building and horreum (1953, 53, 59). However, its nature (colour, thickness, composition) was not documented and it was not observed by the ROB excavators. The charred grain in the area of the horreum is the only indication of (a catastrophic?) fire.

Imperium Galliarum, between AD 260-275. This is shortly after the terminus post quem for the *horreum* offered by radiocarbon. A catastrophic fire could have happened at any time during the fourth century, however.[1356] Although the date of grain from the threshing floor suggests an end before c. AD 330-335, there is no proof that it was charred during the same event(s) as that from the *horreum*.

Phase 3c. Twilight of villa culture around AD 300?
The small amount of dating evidence available for Ten Hove provides little chronological resolution. A multitude of scenarios for the final phases of the villa are therefore feasible. It is possible, for instance, that 'tower' 407 was erected during the turbulent times of the Imperium Galliarum and destroyed at the end of it, together with the villa, the *horreum* and the baths.[1357] However, the tower could also post-date the destruction of the villa and have been constructed early in the fourth century AD.

In any case, there was activity at Ten Hove after AD 260-275, during phase 3c. The only hard evidence for habitation at the site are graves 320 and 321, dating to sometime around AD 300, at least before c. 325 (Fig. 16.3).[1358] Although there is a theoretical possibility that the people buried lived in a post-built structure near the Steinweg, the characteristics of the graves are still somewhat 'Roman'. The large dagger, spear and arrowhead in grave 320 seem to refer to hunting and thus a Roman lifestyle. Intuitively, one is inclined to envisage the family living in a stone building. This was probably tower 407, whether or not in combination with rooms surrounding it, former parts of the east half of the villa re-erected or repaired. The contents of graves 320 and 321 give the impression that the people in the settlement were better off than simple 'squatters' living in mere patched-up ruins, but this is again based more on intuition than on firm archaeological evidence. If the tower did indeed function as a defended granary or '*Turmspeicher*', the settlement might still have operated as a grain-producing farm during the early fourth century AD. It is likely that there was still a substantial demand for grain in this period, both from the army and 'city dwellers'.[1359] Although nothing is known about their condition, outbuildings such as 401 and 402 must also have been present in some form because the area around them attracted a good deal of activity during period 4.

The end date of 'phase 3c' remains as obscure as that of 'phase 3b', the large villa. On the basis of the dates of graves 320 and 321 (before c. AD 325), as well as the impression that they were not part of a larger cemetery, we assume that this phase ended before the second quarter of the fourth century. The question as to when the 'Frankish village' was founded is discussed below (Section 16.2.3).

16.2 The advanced fourth-early fifth century

16.2.1 Historical background

Events between c. AD 350 and 410
The alleged restoration of order by Probus was mentioned in Section 16.1.1, and it was noted that Germanic raiding did not stop, as is apparent from actions between c. AD 310-340, during the reign of Constantinus I, Crispus and Constans I. The general pattern in the fourth century AD was similar to that in the later third century: Germanic raids were successfully countered after some delay, but the withdrawal of troops to other fronts and internal strife offered new opportunities to the Germani.[1360] One such instance is the conflict between the *magister militium* Magnentius, taking power in Gaul. Emperor Constantius II defeated him in AD 353,[1361] after allegedly inviting Franci and Alamanni to enter Gaul.[1362]

The next usurpation took place shortly afterwards, by the Frank Silvanus, who had been sent to Gaul and the Rhineland by the emperor.[1363] After Silvanus was killed in 355, Köln was taken and 'destroyed' by *barbari* after a siege.[1364] In 356 *caesar* Julianus won back the – apparently still – 'very strongly fortified' city from '*Francorum regibus*'.[1365] Events close to Voerendaal are mentioned in the account of Ammianus Marcellinus, serving in the *protectores domestici* of Julianus. After the recapture of Köln, *magister equitum* Severus was marching to Reims 'via Köln and Jülich' late in AD 357.[1366] He encountered a raiding party of 600 Franks,

[1356] The only indication of fire in basin 319 is a charred beam or water pipe.
[1357] Structure 407 is extensively discussed in section 8.3.
[1358] Section 13.1; 83.3.
[1359] See below section 16.2.2.
[1360] Elton 2018, passim.
[1361] Amm. 14.5.6; 16.10.1; Zos. 2.42-54.
[1362] Lib. 18.33; De Boone 1954, 83-84, n. 509.
[1363] Amm. 15.5. On Silvanus, see Waas 1971, 105-107.
[1364] Amm. 15.8.19.
[1365] Amm. 16.3.2.
[1366] Amm. 17.2.1-4.

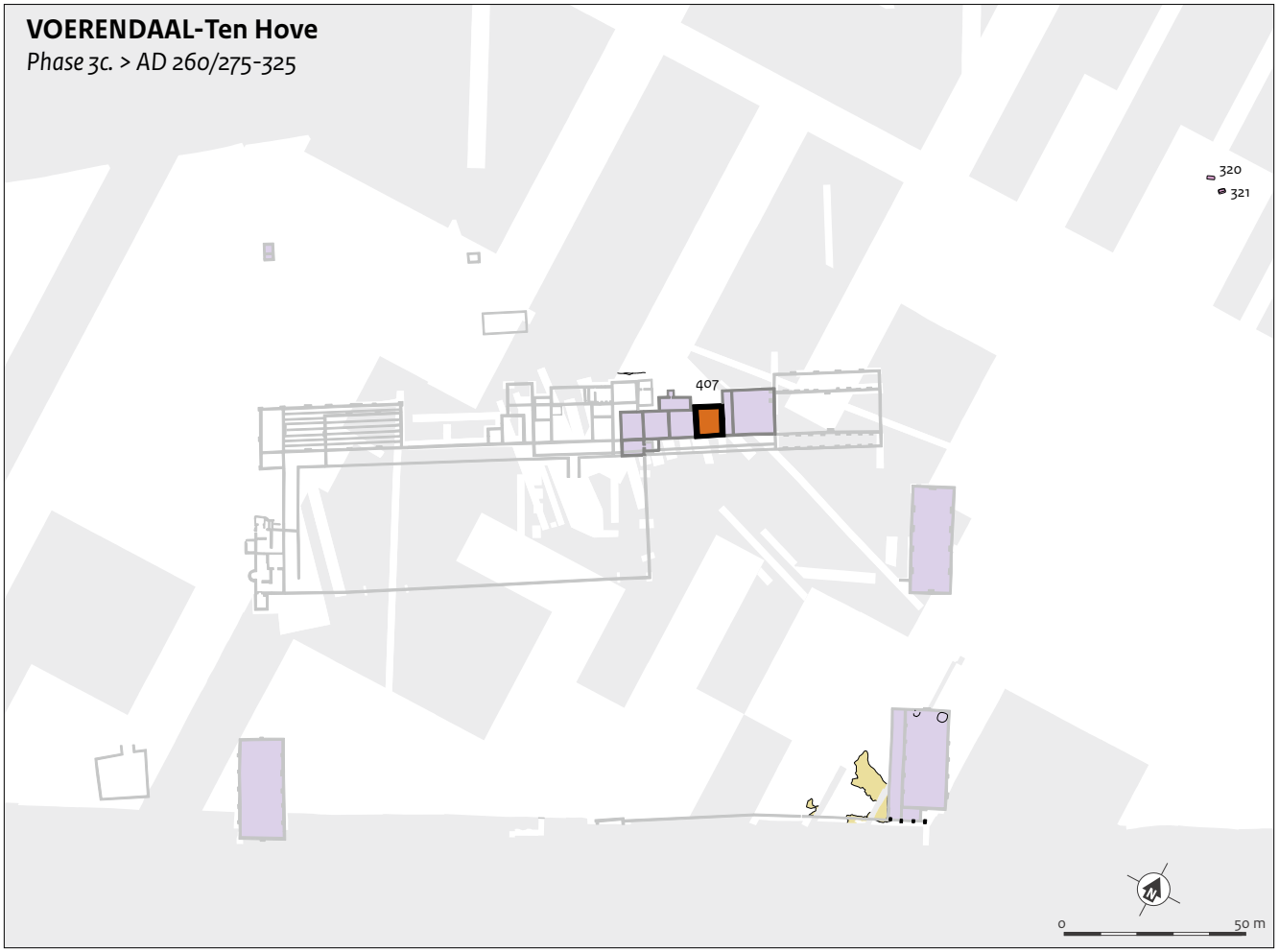

Fig. 16.3 Voerendaal-Ten Hove. The villa around AD 300, phase 3c; for legend, see figure 5.4.

who fled to two unoccupied fortresses along the Meuse. After a siege of 45 days, overseen by Julianus himself and with the assistance of (navy) vessels, the Franci surrendered. In the following year, Julianus met at Tongeren with Salian Franks, who lived in 'Toxiandria'.[1367]
After negotiations and the giving of gifts, supposedly concluding a treaty, the *caesar* followed and defeated them. They accepted their surrender and were without doubt relegated to a much more subordinate position. Later in 358, Chamavi living west of the Rhine were expelled or taken prisoner. Moreover, three abandoned forts along the Meuse are said to have been restored.[1368] In the following year, seven cities/fortresses on the Rhine – from Castra Herculis/Arnhem-Meinerswijk(?) to Vingo/Bingen – were also repaired, and fitted out with *horrea* to hold grain from Britain.[1369] Julianus' final military action in the north was an attack on the (Ch) attuarii east of the Rhine in AD 360, after assembling at Tricensima (Xanten). Next, the emperor travelled south, strengthening the defences along the Rhine.[1370]

For the reign of Valentinian I (AD 364-375), Ammianus mentions fights with Saxones and Franci in the coastal regions of Gaul.[1371] Furthermore, there is the much-discussed battle around AD 370, in which Nannenus ambushed Saxones near '*Deusone in regione Fracorum*'.[1372] It has been suggested that this took place in the south of the Netherlands, but if this were the case, the location was close to the confluence of the Dieze and Maas ('s-Hertogenbosch) rather

[1367] Amm. 17.8.1-4.
[1368] Amm. 17.9.1-2. On the conflicts with the Franks, see also Zos. 3.6; 3.8.1; Iul., ep. Ath. 279D-280C.
[1369] Amm. 18.2.1-4.
[1370] Amm. 20.10.1-3; the same for c. 369: Amm. 28.2.1.
[1371] Amm. 27.8.5.
[1372] Amm. 28.5.1-7; 30.7.8; Hier. chron. 2389; De Boone 1954, 19-20.

than further 'inland' near Diessen in Noord-Brabant.[1373] A good decade later, in 383, Magnus Maximus took power and ultimately ruled Britain, Gaul, Spain and Africa.[1374] Near the end of his reign in 387, a campaign in Italy opened Gaul for Franci, led by Gennobaudes, Marcomeres and Sunno.[1375] Roman troops stationed in Trier intervened via Köln and defeated them near the *Silva Carbonaria* (*Kolenwoud* south of the Demer). In this period, the Frank Arbogastus was *magister militium* for the young official emperor Valentinian II (AD 375-392). He attacked the Bructeri and Chamavi living beyond the Lower Rhine.[1376]

Arbogastus later served under an emperor who he himself had appointed.[1377] This Eugenius renewed treaties with the Franci and Alamanni.[1378] He was defeated in 394 by Theodosius, and Arbog1astus committed suicide. The new *magister militium* Stilicho was also a half-barbarian, with a Vandal father. He still served under emperor Honorius (AD 395-425). Both were primarily focused on fighting the Goths in and near Italy. Trier definitely lost its status as imperial residence to Milan and Ravenna and in 402 also that of *praefectura praetorio Galliarum* to Arles, 700 km to the south. Rome's involvement in the far north lessened and in 406/407, Alani, Suevi and Vandali overran the Franci and crossed the Rhine, also scaring the Alamanni away.[1379] The Britannic usurper Constantinus III was also accepted as emperor over Gallia in AD 407. There are claims that he secured the Rhine border with support from Franci and Alamanni.[1380] His successor Jovinus was made emperor in Mainz and minted coins in Trier, Lyon and Arles.[1381] He had Franks, Alamanni, Alani and Burgundi in his army,[1382] and was strongly dependent on the Gothic king Athaulfus. After the latter betrayed him, Jovinus' life and reign were over (AD 413). Under Valentinian III, who became emperor in AD 425 at the age of only six, the *magister (utriusque) militiae* Flavius Aetius fought against Franci who had settled near the Rhine (AD 428).[1383] This location is very vague, but coins of the episode are found in the southern Netherlands (see below).

The process of 'Germanization'

The short- and mid-term effects of the internal conflicts and recurring Germanic raids are difficult to assess. On the one hand, there must have been more raids than reported; how many occurred between AD 321-340, 340-352 and 370-387? On the other hand, the havoc wrought by barbarians was often exaggerated to highlight the success of the emperors who defeated them. In the long run, Roman society certainly deteriorated and the Germanic influence became ever greater. As already apparent from the personal names mentioned above, the defence of the empire became ever more dependent on Germanic troops. This process started long before barbaric *magistri militum* such as Arbogastus or Stilicho were operating. Ever since the Marcomannic wars, the Roman army – both serving official emperors and usurpers – increasingly drafted Germanic soldiers.[1384] Several units and officers are known from the *Notitia Dignitatum* and the writings of Ammianus, drafted prior to and around the middle of the fourth century AD.[1385]

A result of both invasions and military service was that Germanic groups settled on Roman soil, a subject much debated by historians and archaeologists. When the Roman authorities tried to settle affairs in the north after AD 275, Germani who 'occupied Roman soil' were mentioned.[1386] Under Maximianus and Constantius, both *laeti* and Franci were settled in Roman territory to cultivate fields lying waste in the regions of the Arvii (Nervii?) and Treveri.[1387] In the Notitia Dignitatum, *laeti* appear as military units from specific regions, each under the command of a *praefectus laetorum*. The '*praefectus laetorum Lagensium, prope Tungros Germaniae secundae*' was the most northerly,[1388] with all others stationed in the north of France. Ammianus calls them a '...lineage of barbarians on this side of the Rhine...who voluntarily come over to us.'[1389]

In the literature the *laeti* are often portrayed as unfree men, deployed as famers and labourers, forced to provide conscripts. They are distinguished from later Germanic '*foederati*' with a higher status.[1390] However, the literature on *laeti* and *foederati* uses scholarly constructs rather than contemporary sources; the difference between

[1373] The role of the Saxones suggests a battle towards the North Sea. Although Diessen derived its name from the river Dieze, this did not happen until the Middle Ages. It is even possible that the battlefield was situated in Flanders, France or even east/north of the Rhine for that matter.

[1374] Elton 2018, 138-139.

[1375] Greg.Tur. 2.9; De Boone 1954, 111-112.

[1376] Greg.Tur. 2.9; De Boone 1954, 113-115; Elton 2018, 146.

[1377] Elton 2018, 146-148.

[1378] Greg.Tur. 29; De Boone 1954, 115.

[1379] Oros 7.40.3; Greg.Tur. 2.9; De Boone 1954, 122

[1380] De Boone 1954, 122-123, n. 823.

[1381] De Boone 1954, 124-125; Elton 2018, 182.

[1382] Greg.Tur. 2.9.

[1383] Prosper Tiro, Chronicon 428; see De Boone 1954, 132-133.

[1384] See for the north, Hiddink 1999, table 7.2. Of course, smaller Germanic units were already used by Caesar, Augustus and other first-century emperors.

[1385] Hoffmann 1969; Waas 1971.

[1386] SHA, Prob. 13.7; Eutr. 9.17.

[1387] Pan. 8(5).21.1; 6(7).5.3; De Boone 1954, 57-58.

[1388] Not.Dign. occ. 42.43. Germania inferior was called Germania secunda since Diocletianus. Together with Germania prima and the former provinces of Gallia Belgica and Lugdunensis it was part of the Dioecesis Galliarum.

[1389] Amm. 20.8.13.

[1390] E.g. Böhner 1963; Roosens 1967; Günther 1971; Böhme 1974, 195ff.; Kazanski & Périn 2008.

[1391] On the Roman literary and political expression of treaties in terms of deditio and the 'real' practices and circumstances, see Heather 2006.

[1392] See for example Amm. 14.10.1-16 (esp. 9 and 16) where Alamanni thought it best to make peace in

them was probably not absolute in Roman times.[1391] One clue is Ammianus' characterization of *Laeti* as voluntary immigrants, another that a treaty (*foedus*) was often purely opportunistic, made only because it suited one of the parties to end a conflict for the time being.[1392] Therefore, *foederati* did not necessarily obtain a higher status, and certainly in the long run they were not certain of their position. Böhme, who thought it was possible to identify graves of *foederati* from the middle of the fourth century onwards, later remarked that they would be more aptly characterized as '*auxilia*', simply auxiliary troops.[1393]

Most important here is the conclusion that the sources give no clear picture about the time and scale of Germanic settlement in the north during the fourth century AD. According to the first references in texts, *laeti* were settling outside our region, among the Nervii (?) and Treveri. It is likely that Germanic leaders with their retinue and kin also settled in the north in the course of time.[1394] In the next section we will discuss the archaeological evidence for this settlement. One specific find category should already be mentioned here, namely that of Late Roman gold *solidi*, both as single finds and in hoards (Fig. 16.4). As these are primarily considered payments for Germanic *foederati*, or rather *auxiliarii*,[1395] the finds suggest a Germanic presence west of the Rhine during the late fourth and first half of the fifth century AD. If there was still some kind of physical border along the Rhine, the coin finds show that it had become permeable in practice. Germani could choose to either return to the north after their service or stay on 'Roman' soil.

16.2.2 Archaeology of the Late Roman period

Military sites, cities and vici

It is not pivotal for our study to establish exactly how and when the *limes* functioned again after its supposed 'fall' between AD 260 and 275. Pottery, coins and other material show that a line of forts was present along the Rhine and inland during the fourth and into the fifth century (Fig. 16.5).[1396] However, the quantity of finds is often small and it is not always clear whether this relates to the state of research (e.g. concerning the upper strata of sites), interruptions in the occupation and/or low levels of activity. Unlike for previous periods, it is therefore impossible to write detailed histories for the majority of sites and to make reliable estimates of the size of the military presence in Germania inferior/secunda.[1397] Moreover, the divide between military and civilian settlements became blurred in this period, as will become clear below. The most important point is that the sites on the map reflect a concern with the defence of transport routes, the roads and rivers. Many cities and *vici* inland became defended sites and dendrochronological dates show that bridges were regularly maintained.[1398] Although Brulet assigned the defended sites along the '*via Belgica*' to two periods, that of the *Imperium Galliarum* and the reign of Constantine the Great and successors,[1399] there were probably several cycles of (re)construction and decay. Many small, defended sites inland ('hillforts' and *burgi*) were not so much the result of imperial strategies but of initiatives by local communities.

The westernmost city of Germania inferior, Forum Hadriani/Voorburg, seems to have been virtually uninhabited in the fourth century AD. No Argonne sigillata was found and only a handful of fourth-century coins.[1400] The place no longer functioned as a town, also because habitation in the surrounding countryside had gradually declined after the second half of the third century, partially as a result of the region becoming wetter. Less than a handful of rural sites in the coastal region experienced (temporary) Late Roman activity and between 350 and 450 the area seems to have been totally void of habitation.[1401]

The habitation of Ulpia Noviomagus/Nijmegen, capital of the *civitas Batavorum*, continued during the Late Roman period and was probably more or less uninterrupted into the Middle Ages.[1402] Nevertheless, there were serious changes concerning the location and scale after c. 275 AD. The Middle Roman town was abandoned and rebuilt 1.5 km to the east. Here, on the edge of an ice-pushed ridge, the Valkhof fort was constructed early in the fourth century (Fig. 15.3). The complex was surrounded by broad ditches, also defending the riverside settlement/port of the Waalkade. To the south, there was a

accordance with their own rituals, or the episodes near Tongeren and Deusone described earlier in this section, where the Romans accepted peace, only to attack again shortly afterwards.

1393 Böhme 1996, 100-101; see next section.

1394 On Germanic officers in the Roman army, see Waas 1971.

1395 Roymans 2017; see also Martin 2009; Hiddink 1999, 210-214, appendices 14-16 (finds in Germania magna). Besides coins, some hoards contain 'Hacksilber' or heavy gold necklaces, made out of a number of solidi. A special find is a small bronze hoard in a sunken-floored hut at Beegden-Eerdweg, with coins of Valentinian III (Beliën & Dijkstra 2015).

1396 Map primarily based on Brulet 1995, modified on the basis of an assessment of the data from Brulet 1990, Bogaers & Rüger 1974 and Bechert & Willems 1995. A useful new overview of presumed forts in the Netherlands is Van der Meulen 2017. Burgi west of Köln: see Spiegel (2002, 72off.) and Heimberg 1977b, with a few sites in the Hambach lignite mining area added. Sites south of the Moselle are taken from Bernard (1990, fig. 67; 73), cities and coastal forts in England from Dhaeze 2011.

1397 Cf. table 16.1; appendix IV.

1398 And see section 4.3.2, for milestones east of Heerlen indicating road maintenance in the first half of the fourth century.

1399 Brulet 1995, 109-113; 2017; cf. section 8.3.

1400 Driessen 2014, esp. 479. Van Kerckhove (2014b) mentions only a few (possible) Late Roman sherds. For the coins, see Van der Vin & Buijtendorp 2006; Kemmers 2009; 2014.

1401 De Bruin 2017, 276ff.

1402 Willems *et al.* 2009, 101-103; Hendriks *et al.* 2014.

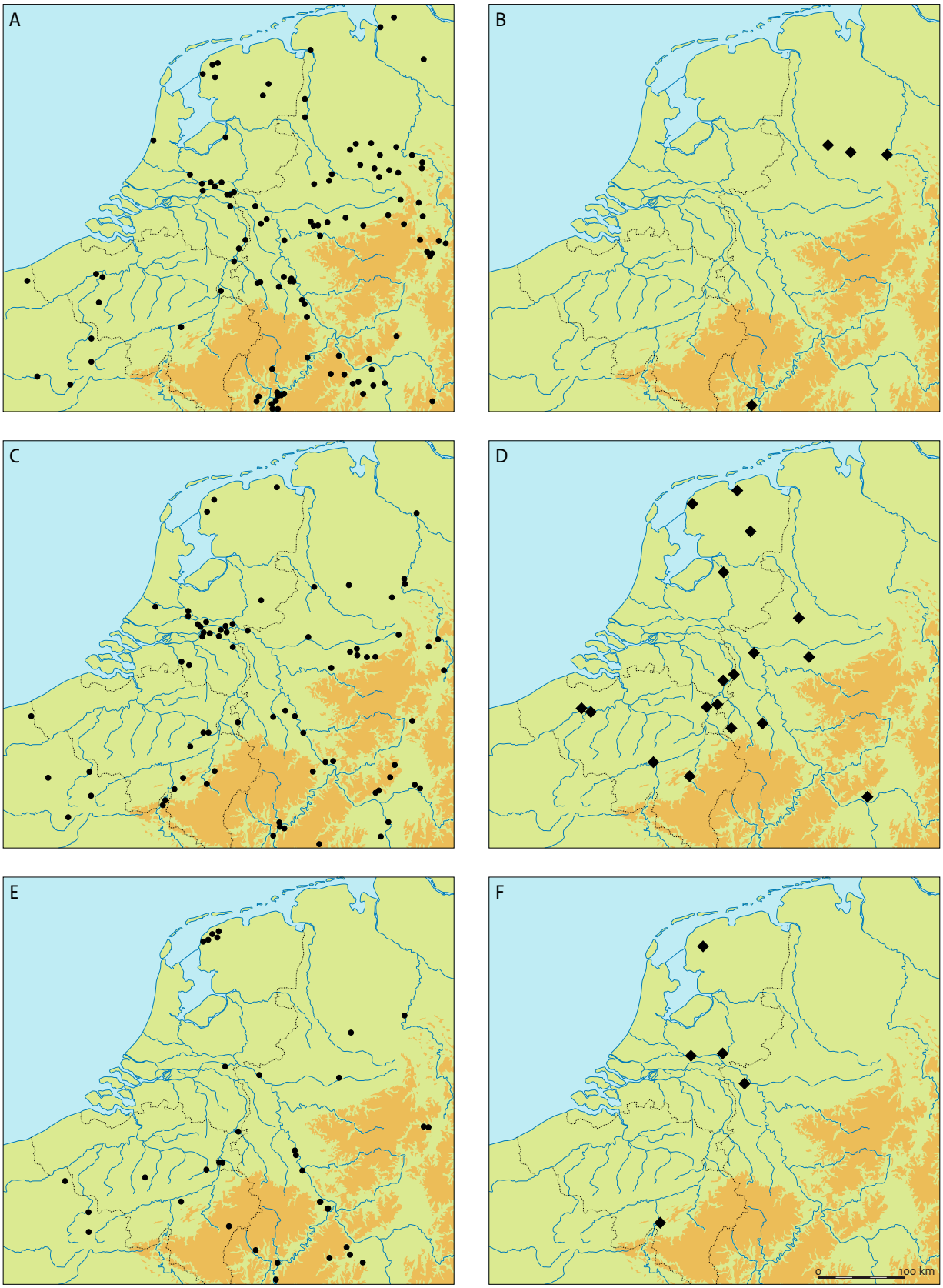

Fig. 16.4 Finds of Late Roman gold solidi on both sides of the Middle and Lower Rhine Valley. (source: H.A. Hiddink, modified after Roymans 2017, fig. 4-6) A-B single coins and hoards, Valentinian I and II (AD 364-392); C-D idem, Honorius-Constantine III (AD 395-411); E-F idem, Valentinian III (AD 425-455).

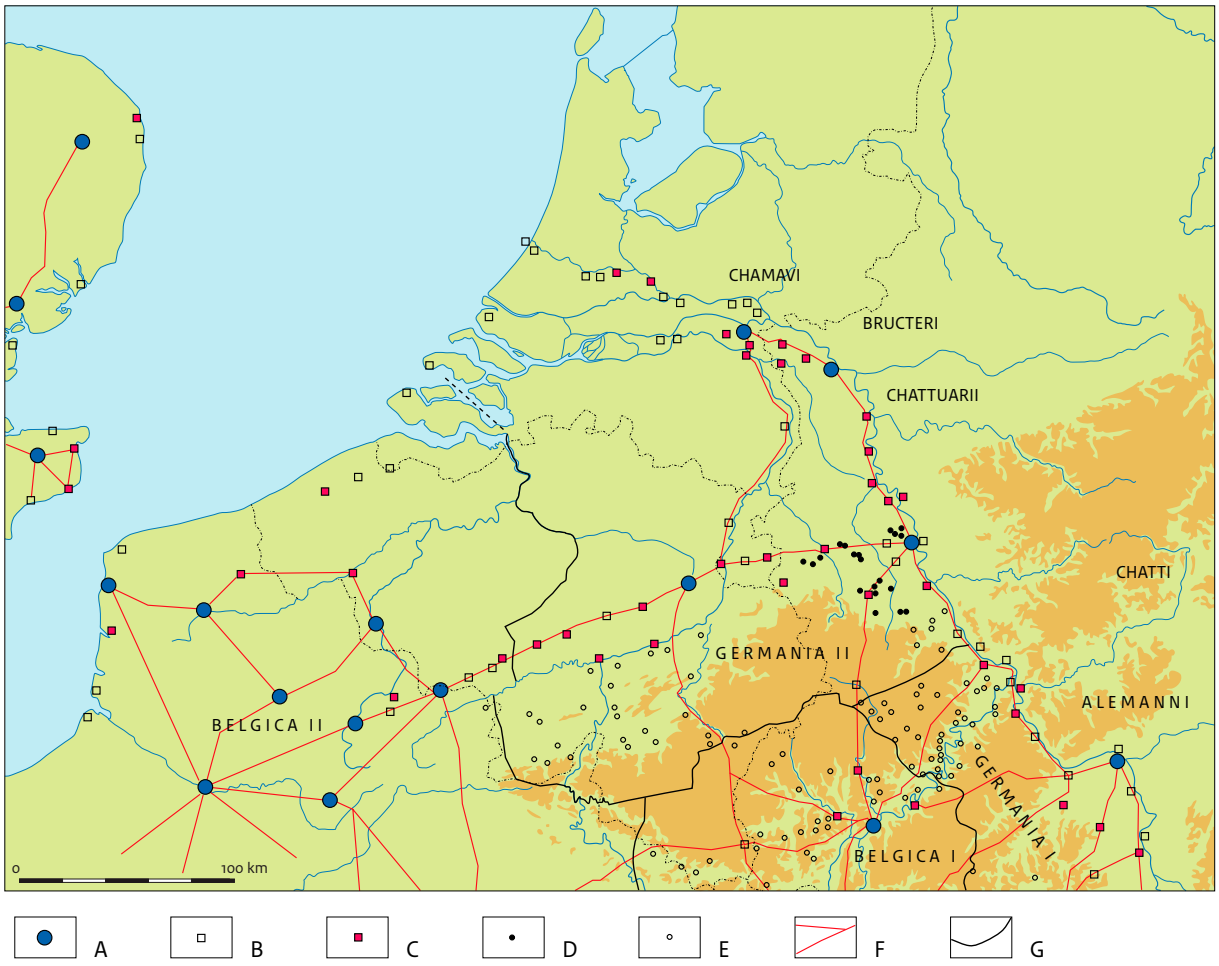

Fig. 16.5 The Late Roman 'defensive system'. (source: modified after Brulet 1995, 102)
A walled city; B castellum, walled (forts near) vici; C idem, in use around AD 400; D rural burgi often near (former) villas; E 'mountain refuges'; F major road; G provincial border.

'Frankish' settlement.[1403] Nijmegen likely continued to exist because of its strategic location at the intersection of the Waal and roads to Xanten and the Meuse valley. Nevertheless, its size was reduced to roughly one third of that of the Middle Roman town, in line with the number of burials.[1404] Moreover, it is doubtful that the Valkhof settlement functioned as a *civitas* capital in the context of a largely depopulated *civitas Batavorum*.[1405]

Colonia Ulpia Traiana near Xanten was reduced in the fourth century AD to only one fifth of its original size (Fig. 15.2). On the one hand, the reduction in size did not necessarily reflect a reduction in population because seven of the 40 insulae of the Middle Roman town had been used for public buildings and temples and another seven were possibly not inhabited.[1406] On the other hand, the civilian and military components were integrated. The army base, Vetera II, was given up and its troops transferred to the city, now called Tricensima after *legio XXX*.[1407] The Argonne sigillata and coins indicate that the town/fort was strongly depopulated after the middle of the fourth century AD.[1408] A new main centre of habitation was an older *vicus* 400 m outside the *colonia*. Here, at the site of the later St Viktor Dom, some *cellae memoriae* were constructed late in the fourth century. Some fifth-century graves were also found in this area.[1409]

The CCAA/Köln seems to have been the same size *intra muros* in the Middle and Late Roman period, some 75 ha (Fig. 15.3). The most conspicuous feature of the Late Roman period was the *castellum* Divitia/Deutz, literally a bridgehead on the eastern bank of the Rhine. It could accommodate 1000 soldiers, was built under Constantinus I in the beginning of the fourth century and was used until the early fifth century.[1410] Not much is known about the buildings inside the city, but at least the *praetorium* had a mid-fifth-century building phase.[1411] The youngest building inscription from the city mentions Arbogastus and is dated 392-394 AD.[1412] Two bishops, Maternus and Euphrates (attending synods in 313, 314, and 342/343 respectively), resided in the city in the first half of the fourth century.[1413] A third bishop of Köln was Severinus, who died in 397 AD. Shortly after his death, a small church was built over a *cella memoria* south of the city, later to become the St Severin church.

Tongeren was reduced to one third of its size in the Late Roman period (Fig. 15.2). A stretch of new town wall was combined with a part of the old one to defend the highest part of the site.[1414] Both the internal size and that of the surrounding cemeteries were considerable. It is feasible that some of the inhabitants were soldiers, suggested by the *Notitia Dignitatum* and the city functioning as Julianus' base in AD 358. Bishop Servatius resided in Tongeren around this time. He travelled to synods in Bulgaria and Italy and acted as an intermediary between Magnentius and the official emperor.[1415] A basilica was built at the site of the later church of Our Lady and parts of several large town dwellings were found, some with elaborate mural paintings.[1416] The cemeteries also bear witness to a relative prosperity and were used until the middle of the fifth century AD.[1417] Tongeren ultimately lost its position to Maastricht, the new episcopal seat.[1418]

Maastricht, Cuijk and Jülich were *vici* in the Middle Roman period, ranging in size from 10 to 20 ha. A Late Roman fort was built in all three, without doubt because of their position in the riverine and road network (Fig. 15.4). The fort at Maastricht is dendrochronologically dated to AD 333,[1419] the Meuse bridge around the same year and/or a decade later, as well as AD 362-363.[1420] At least one *horreum* was present in the southern half of the *castellum*.[1421] At Cuijk a castellum and bridge over the Meuse also formed the main elements of the *vicus* (Fig. 15.4; 16.2). Revetment piles of the Meuse bank are dated before 300 (once) and especially after c. 320 (Constantinus I).[1422] The bridge was constructed and repaired around AD 350, 368/369 and between 388-398.[1423] It is possible that Maastricht and/or Cuijk were among the forts under siege by Julianus in AD 357, but there are more candidates south of Maastricht. The size of both forts is very small, in the range of 1-1.5 ha. However, little is known about habitation in the immediate surroundings. Maastricht was at least some 4.5-5 ha in size.

Regarding Late Roman Jülich, also with a fort and a cemetery, it suffices to say here that it was at least about 3.5 ha in size (Fig. 15.4). For a

[1403] Unpublished, probably not earlier than second half of the fourth century (cf. below).
[1404] Number of graves at Ulpia Noviomagus some 30,000-40,000 (Koster 2010, 12, table 1) for about 200 years of habitation. The two Late Roman cemeteries and some 8,000-10,000 graves (Steures 2011, 407-408), after about 100-150 years of continuous habitation. With an average life expectancy at birth of 25 years, the populations consisted of roughly 4,500 and 1,500 people, still substantially larger than the approx. 1,000 people mentioned by Willems (1984, 284).
[1405] Roymans *et al.* 2020, 280.
[1406] Müller 2008, 273-274, figs 159-160.
[1407] Otten & Ristow 2008; Amm. 18.2.4; 20.10.1.
[1408] Otten & Ristow 2008 558, fig. 394.
[1409] Otten & Ristow 2008, 571-577; Bridger 2008.
[1410] Precht in Horn 1987, 513-516; also proven by the dendrochronological evidence from the bridge piles (Frank & Hanel 2019).
[1411] Hellenkemper in Horn 1987, 478-486.
[1412] CIL 13.8262.
[1413] Päffgen & Ristow 1996; for plans of the earliest phases of St Severin, Bierbrauer 1996, fig. 82; 84.
[1414] Many activities are attested for areas extra muros, involving dozens of coins and hearths (Vanderhoeven 2017, 128-133, figs 1-2).
[1415] Vanderhoeven 2012; 2017.
[1416] Vanderhoeven & Ervynck 2018.
[1417] Böhme 1974, 301-302, pl. 104-108, site 137.
[1418] See below, section 16.3.
[1419] Panhuysen 1996, 58, n. 204.
[1420] Vos 2004, 98-99.
[1421] Panhuysen 1996, map 4, J.
[1422] Manders 2009, appendix 1.
[1423] Goudswaard *et al.* 2000/2001, 483; Jansma 1995, 120.

long time, very little was known about Late Roman Aachen, except for the fact that finds from this period are concentrated in about one third of the Middle Roman town.[1424] Only in recent years has the existence of a small stone fortress been established.[1425] Obviously, a final *vicus* to be discussed is Heerlen (Fig. 15.4). Here, an area of some 1.5 ha was enclosed by a ditch. There was without doubt an earthen rampart and/or a stone wall, but investigations up till now have provided no evidence. The enclosed area seems to be cut in half by the Aachen-Xanten road, entering it through a *clavicula*-type gate. The baths were situated in the western half of the fortress. Repairs and alterations show that they retained their function for some time at least, although the building may have been used for a different purpose later in the fourth century (residence, military use?). The date of building remains in the eastern half is not clear, but they could have been used for storage. Pottery finds, coins and other data point to occupation well into the fifth century AD.[1426]

Size of the net consumers group

Estimating the size of the 'net consumers' group in Late Roman Germania secunda is even more difficult than for preceding periods. The cities and *vici* seem to have been reduced on average to one third of their previous size (Table 16.1; Appendix IV). If we take this as an indicator of the entire consumer population, it would mean a reduction from roughly 200,000 to 66,000. However, this is perhaps a maximum because parts of the army were living inside the towns by now. In principle, it would not have been a problem to produce enough food for both consumers and producers, even while the group of rural sites was shrinking accordingly (see below). It is perhaps less significant that the latter were 'post-built' settlements rather than villas. The rural population probably had to deliver a portion of the harvest as a tax requirement to cities and *vici*/fortresses nearby (think, for example, of the *horreum* in the Maastricht fortlet). It is feasible that many inhabitants of the Late Roman (small) towns, besides being shopkeepers and craftsmen, produced a portion of their own food, working small fields and vegetable gardens, as well as keeping some poultry and pigs.

A serious constraint on agricultural production may have been the farmers' burden of regularly losing cattle and crops to raiding parties and armies living off the land. It is likely, however, that a considerable portion of grain was imported from outside Germania secunda. This could have occurred on a more regular basis than the specific imports mentioned in the context of Julianus' campaigns. In AD 358, the emperor had his winter quarters in Paris,

Table 16.1. Estimates of the population size of a number of cities and vici in Germania inferior/secunda in the Middle and Late Roman period.

Site	Middle Roman surface (ha)	Late Roman surface (ha)	% Middle Roman size	Population (166.15/ha)
Forum Hadriani	12	-	0	-
Nijmegen	30-35	7.5-10	21-33	1246-1662
Xanten	73	14.5	20	2409
Köln	155	98	63	16283
Tongeren	119	42	35	6978
Cuijk	12.5	>1.2	>10	>199
Maastricht	10-20	4.5-5	23-50	748-831
Heerlen	7.5-20	>1.5	>20	>249
Jülich	10-20	5	25-50	831
Aachen	16	5-Jun	31-38	831-997
Average			**32**	

[1424] Schaub 2008, fig. 1.
[1425] Kyritz & Schaub 2015.
[1426] Cf. section 4.3.3.

over 350 km east of the area where he intended to operate that year. This location had probably also been chosen because of the organization of supply. Ammianus writes that grain came to Paris from Aquitania.[1427] Not wanting to wait for new supplies after the harvest, Julianus started a campaign against the Salii, with the soldiers carrying *bucellatum* (a kind of biscuit) for just 20 days.[1428] The next year, in preparation for fights against the Alamanni, seven cities and forts along the Rhine where restored and their *horrea* filled with the *annona* from Britannia.[1429]

Rural settlement(s)

The general characteristics of Late Roman rural settlements in the region, as well as related topics, have already been discussed (Section 12.6). Before we address the question of their date and number, some remarks on the burial evidence are in order. The possibility of Germanic settlement west of the Rhine referred to earlier was inspired by classical texts. Initially, archaeologists believed that they could identify the graves of *laeti* who had been involuntarily settled there (shortly after AD 300).
The metalwork, such as the typical *Kerbschnitt* ('chip-carved') belt fittings, brooches and, for example, bone combs did not intuitively look '(Gallo-)Roman'. The Germanic connection seemed clear because of their occurrence at either side of the Rhine. Moreover, the presence of swords and axes in the graves did not fit in with Roman law, prohibiting citizens from bearing arms. However, improved knowledge about the chronology made it clear that the vast majority of burials dated after the time of the *laeti*. In Böhme's important inventory and analysis, the burials were assigned to *foederati* instead and dated from c. AD 350-450.[1430]
After some 15 years, Böhme revised his chronology and proposed dates from the late fourth century onwards.[1431] He now envisaged the Germani as regular Roman soldiers (*auxilia*), drafted as larger bodies of men, including high-ranking warriors with their retinue.[1432]
Their characteristic belt fittings were believed to all have been produced in Roman workshops (*fabricae*).[1433] The revised later date of the 'Germanic' graves is relevant here, for their occurrence coincides with phase 4b in our chronology for Ten Hove (Fig. 5.1). It accords with those of more recent finds in the south of the Netherlands. Some 40 cremation graves at Gennep, 200 m from the settlement, are dated by finds and radiocarbon in the last quarter of the fourth and predominantly the fifth century AD.[1434] Small groups of cremation graves at Someren and Nederweert have somewhat earlier ^{14}C dates but still in the second half of that century.[1435]

Regarding the settlements, a first observation is that only few examples with excavated Late Roman post-built structures are known in the loess region, apart from Voerendaal and workshops/sheds like those at Hambach 132 or 412 (Fig. 12.6). At Aldenhoven-Langweiler a one-aisled building 12 m in length and a sunken-floored hut were found.[1436]
Lenz dates them from the first half of the fourth century onwards, but the finds from the features do not confirm such an early start.[1437]
Other known examples of post-built structures are a 15 m long house and two incomplete plans just outside the Late Roman *castellum* of Krefeld-Gellep, dating to the first half of the fifth century AD.[1438] The studies on the German loess area mentioned above show a steady decline in the number of sites during the fourth century, in some regions as low as 15% around AD 400 (Fig. 16.1). On the Aldenhovener Platte, over 40% of the sites were still occupied in the first half of the fifth century. It is not clear, however, which part of these sites were post-built 'Germanic' settlements, rather than old villa buildings with 'squatters' robbing materials.

The best excavation data are those for the MDS area and the Meuse valley, with the group of settlements presented in Section 12.6 (selection in Fig. 12.7-9; Appendix XXI).
These sites were hamlets or even isolated farms, in some cases occupied for one or two generations only. The small number of graves found at Someren-Waterdael and Nederweert-Randweg give the same impression, only allowing one to two families for the same number of generations. In accordance with Böhme's chronology, these cemeteries and the settlements were founded quite late in the fourth century AD (our phase 4b). Although the end dates are difficult to establish, the average

[1427] Amm. 17.8.1-2. Via rivers such as the Garonne and Dordogne to Bordeaux, then by sea and finally via the Seine, the distance would have been in the range of 1300 km.
[1428] Resulting in a food shortage during the reconstruction of three forts on the Meuse (Amm. 17.9.1-3).
[1429] Amm. 18.2.1-4; Iul., ep.Ath. 280A.
[1430] Böhme 1974.
[1431] Böhme 1987.
[1432] Böhme 1996, 100-101.
[1433] Böhme 1996, 92.
[1434] Theuws 2008b, 780-783, figs 6-10; Hiddink in prep.
[1435] Hiddink 2011b, 115-116, table 5.2-3; 2011d, 209-215 (Someren); 2016a, 9-11; 25-32 (Nederweert). These dates, especially those from Someren, seem too old for some reason ('old wood effect' acted on the cremated bones?), but the finds point to the end of the fourth or fifth century AD. On the interpretation of this type of grave, see Theuws 2009.
[1436] Lenz 1999, 126-134, pl. 12-32 (Siedlung 23); 2005.
[1437] Cf. Lenz 1999, 128-129, pl. 31, no. 379.
[1438] Lenz 2005, 395-397, fig. 13.

settlement – if it ever existed – seems to have been occupied for 50-75 years. This allows a comparison with the population density of the MDS area in Middle Roman period. Against nearly 800 houses from the period AD 1-275 (2.9/year), there are some 50 from the late fourth and the fifth century (0.7-1 house/year). Therefore the population size was roughly a quarter to one third of the previous period (cf. the 10-40% for the loess area). The location of sites had shifted. In the Middle Roman period most settlements and thus house plans are known from 'inland' areas, with fewer examples from the Meuse valley south of Cuijk-Gennep, where most Late Roman examples are found.[1439]

16.2.3 Voerendaal as a 'Frankish village'

Phase 4a. Dark decades between AD 325 and 375
This phase is between 3c, when graves 330 and 321 had been dug before AD 325, and the founding of the 'Frankish village' of phase 4b, dating from 375 onwards. In Chapter 26 it is called the 'first transitional phase'. A small number of finds could in theory belong to it. It concerns some roller stamps on Argonne sigillata, only four but still representing almost 15% of this find category. Among the 96 Late Roman coins, two were struck between AD 330-340 and one between 340-350, as well as some less precisely dated examples. A few metal objects, some pottery – such as part of the Mayen MR ware – and some of the glass vessels – such as Isings 96 cups – could also in theory have been used around the middle of the fourth century AD. Finally, part of the 2 sigma ranges of some the radiocarbon dates cover this phase. Among the structures that might eventually have been constructed during phase 4a is tower 407, if it was a feature of the later reign of Constantine the Great or one of his successors, rather than the late third century (Fig. 16.3). Structures such as house 241, granary 249 and sunken-floored huts 503, 512, 520 could also theoretically date to phase 4a because they only contain Middle Roman material (Fig. 16.11). Even the large pit of sunken-floored structure 757 could in principle have been dug in before AD 350, although it was ultimately filled in much later. However, all the 'evidence' mentioned only points to habitation if a 'long chronology' is applied, taking termini post quem dates at face value. In our opinion, it is far more likely that all finds and features – except for 407 – belong to phase 4b.

Phase 4b. Dating the beginning of the 'Frankish village'
Our preference for a 'short chronology' for Voerendaal-Ten Hove is strongly influenced by the data on other 'Germanic' settlements in the wider region, which suggest that a rather late start is more likely.[1440] However, there are also arguments based on the finds to opt for a start of phase 4b after AD 375 or even around AD 400.

The roller-stamped Argonne sigillata has just been mentioned in the previous section. Obviously, one could place great emphasis on the 15% produced prior to c. AD 375,[1441] but this could have been used (long) afterwards and we want to stress that 85% was produced after that date. Even more significant is the chronological distribution of the coins. Although some may theoretically have been used shortly after they were struck in AD 330-340/360, the contextual analysis shows that this concerns only 3-4% of the finds.[1442] The same analysis shows that at most two thirds of the coinage minted under the authority of Valentinian I could have been in circulation during his reign. A fair proportion must have been in use much later and, all in all, between 55-70% of all late-Romain coinage was probably still in use or at least deposited after AD 388. Except for the odd East Roman/ Byzantine amphora dating between AD 375-425, most pottery is not dated well enough to establish the start of the settlement. However, the coarse-walled pottery in particular fits in with a later beginning. About 80% of the coarse-walled pottery is from Mayen, and 40% was likely produced after AD 360 (MR) and another almost 55% certainly from the late fourth century onwards (MD).[1443]

As for the structures, it is frustrating that no specific examples can be attributed with certainty to this phase. The dating problems made us decide not to present plans per phase but to show them all in a single plan (Fig. 16.6). The structures mentioned in the previous section could belong to phase 4a because they contain no finds or to the later fourth or fifth century/

[1439] See e.g. Hiddink & Roymans 2015, fig. 1; appendix.
[1440] See section 12.6; 16.3.2.
[1441] One even from structure 503, a context dating after AD 350.
[1442] Section 19.3-4.
[1443] Section 26.6.3.

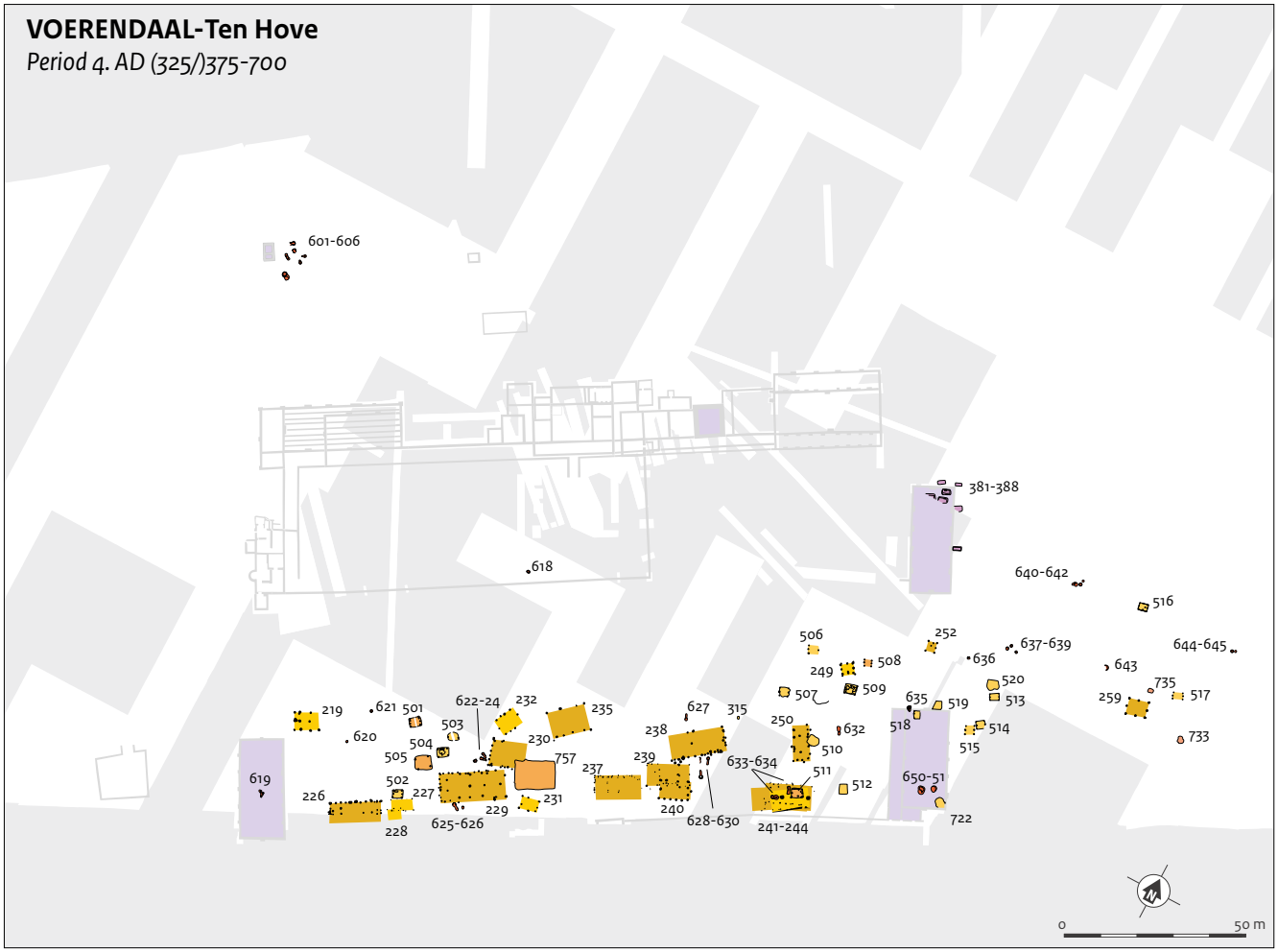

Fig. 16.6 Voerendaal-Ten Hove. All features (except for pits) of period 4; for legend, see figure 5.4.

phase 4b. In theory, they could even be Early Medieval (phase 4c/d). The same holds true for buildings 226 and 230, sunken-floored huts 502, 507-510, 513-516, 518-519 and 757(?), as well as hearths 604 (and 601-606 by association), 623, 627, 630 and 632-634. All these features have finds or radiocarbon dates pointing to construction after c. AD 375, but these are still termini post quem only. Without doubt, the walls of some of the villa (out)buildings still stood during this phase and it is feasible that a few – or parts of them – were again provided with roofs. Especially around building 401 there seems to have been a lot of activity. However, it remains a question as to what evidence should demonstrate that it was in use until c. AD 400, as the excavators thought.[1444]

Size of the settlement, sustenance and origin of the population

It is difficult to determine the size of the settlement at any given moment, obviously because specific structures cannot be dated exactly, but also because of the uncertainty about its exact begin and end date (Section 16.3.3). As already stated in Section 12.6, the 10-12 excavated 'large' buildings or (farm)houses represent roughly 300 years of habitation (c. AD 350/375-650/675). This implies that on average only a single farm was in existence. Considering the fact that perhaps half of the site was excavated, as well as the possibility that the Late Roman settlement (4b) was slightly larger than the Early Medieval one (4c/d), perhaps two

[1444] Willems 1986, 147; chapter 43.

to three houses existed during the latter phase. It was obviously nothing more than a hamlet.

The inhabitants of the Late Roman settlement at Ten Hove were probably self-sufficient with respect to their basic food, grain, fruits and meat.[1445] It is difficult to say which animal bones and archaeobotanical samples belong to phase 4b (Appendix IX, table 2; Table *16.2). Concerning the grain, there is the issue that much of it appears to be residual, apart from the general dating problems of features. Only the grain from a few samples is radiocarbon dated to period 4, although to phase 4c/d rather than b (structure 501, 627, 635; Table 5.6). It appears that spelt was still grown, combined with barley and some emmer and millet. Rye is present in a handful of samples at Ten Hove, two with dozens of grains. Although the dated samples probably represent Early Medieval crops, rye could already have been introduced in the Late Roman period. It was initially introduced by Germanic immigrants, or at least imported from the north.[1446] There may have been some surplus agricultural production during phase 4b, sold or exchanged for pottery (and its contents!) and other objects of everyday use (see below). Obviously, the agricultural production of the hamlet would have been only a fraction of that of the Roman villa.

Although the hearths found all over the site bear witness to non-agricultural production, their specific functions are unknown.[1447] The slag found mainly in the southeast part of the site suggests that at least some was used for the production of raw iron and tools.[1448] Iron tools and structural fittings from the villa are a likely source of this iron. Other activities in which hearths could have been used are the melting and reworking of glass, bronze and lead, as well as the production of (handmade) pottery and materials such as lime (for mortar) and charcoal. As none as these activities can be proven, the importance of this production is also unknown: did it satisfy local needs alone or were products sold (the latter is a distinct possibility)?

Whatever the sources of income for the people living at Ten Hove – besides local production, possibly military pay (see below) – it seems remarkable that trade networks were still operating, albeit perhaps not continuously. Admittedly, the quantity of consumptive goods for the Late Roman period at Ten Hove is small in comparison to the Middle Roman period, but a broad range is present (as well as at contemporaneous rural sites). There are glass vessels, probably produced in the loess area east of Voerendaal (30-40 km). Coarse ware pottery – and millstones – were supplied from the Mayen area, a distance of 110 km as the crow flies but over 160 km via the Rhine and the 'via Belgica'. The Argonne terra sigillata had to be transported more than 250 km along the Meuse to reach Zuid-Limburg. That olive oil was still used is attested by a Dressel 23 fragment from Baetica.[1449] The most remarkable find is obviously the LRA1 amphora from southern Turkey or Syria, over 3000 km away! Perhaps it was obtained by inhabitants of our site while serving in the east or via a city such as Köln, still connected to long-distance trade networks serving the rich and the army.

Although 'dragon buckles' or '*Tierkopfschnallen*' like the ones from trenches 68 and 95 (Fig. 20.11) are traditionally considered to be indicative of Germanic soldiers, this is debatable.[1450] Instead, we should envisage a society in which the clear boundary between the military and the civilian sphere had ceased to exist. Moreover, as already noted in Chapter 12, we should ask why soldiers would reside in rural settlements. The presence of a military community is feasible for 'strategic locations' near intersections of roads and waterways. However, for Voerendaal, although situated near the '*via Belgica*' and Heerlen, it is more likely that the inhabitants were veterans or 'military families' rather than active soldiers themselves.

Finally, there is the question of whether the settlers of Late Roman Voerendaal were of Germanic origin. Besides the two 'dragon buckles', there is only a fragment of a crossbow brooch that some would interpret as Germanic. However, the younger variants to which our specimen seems to belong are frequently found west of the Rhine and may have been produced there.[1451] The main buildings in the settlement at Ten Hove share no obvious traits with those found north and east of the Rhine because they are not particularly long and are not three-aisled. Only building 229 had roof-bearing posts close

[1445] Kooistra 171-176. See further chapter 17.

[1446] Rye was already cultivated north of the Rhine in the Middle Roman period and therefore finds south of the Rhine are interpreted as an indication of immigrants ((Hiddink 1999, 157-162; Heeren 2017, 163, table 3).

[1447] Section 12.4.

[1448] Section 34.4.4.

[1449] Section 24.2.6.

[1450] See also section 20.3.7. The military interpretation still adhered to by Brüggler (2009, 222-223; with many useful references). According to e.g. Nicolay, at least the 'simple' examples such as those from Ten Hove were also worn by civilians (2007, 246). See also Heeren 2012, 280.

[1451] Section 20.3.1.

to the long walls, reminiscent of certain building types from the northern Netherlands.[1452]
The most obvious 'Germanic' building type is the sunken-floored hut, although it is possible that, once introduced west of the Rhine, it was soon used by 'native' people as well. In the end, the handmade pottery is the most convincing indicator of some 'northerly connection'. Although the composition of the fabrics has not been analysed, a number of vessels represent 'Germanic' types/forms. The fragments represent some 20% of the fragments and 7-8.5% MNI of the pottery dating between c. AD 350-450.[1453]
Most handmade pottery was collected from two contexts: pits 315 and 723.[1454] The latter pit appears to be an ordinary rubbish pit, but the former contained a fine, decorated carinated handmade bowl, a large piece of Argonne sigillata and skull fragments of a male.[1455] It does not appear to be a grave but could be some kind of ritual deposition. Because the handmade pottery was mainly found in two contexts only, it may have been used by a part of the population or during an early stage only.
Ten Hove is similar to many of the Late Roman post-built settlements of the wider region, its material culture being a mix of 'Germanic' and 'Roman' elements, with the latter being the most prevalent.

16.3 The later fifth century and Merovingian period

16.3.1 Historical sources

General history of Gaul and the Rhineland
After the first quarter of the fifth century AD, 'Roman history' provides only a small amount of information on the Germanic provinces, with Köln and perhaps Tongeren the northern-most places mentioned. During the time of *magister militium* Aetius, Frankish kings came to the fore. Their history is sketchy and mainly known through the writings of Gregory of Tours, compiled well over a century later. He writes about North Gaul, where Chlogio (died c. AD 455) '*…regem fuisse Francorum, qui apud Dispargum castrum habitabat, quod et in termino Thoringorum*.'[1456]
Some historians believed that the Thuringi occupied a territory near the Rhine,[1457] while others thought that the word is a corruption of 'Tungri'.[1458] The latter option is perhaps more likely because Chlogio also operated in the north of France, where he captured Cambrai from the Romans.

The relationship between the later Frankish king Childeric (AD 457?-481),[1459] *magister militium* Aegidius and the latter's son Syagrius, a '*rex Romanorum*' residing in Soissons,[1460] remains obscure. Some modern historians infer that he and Aegidius were adversaries, while Gregory reports that Childeric was exiled to the Thuringi (Tungri?), where he came under the protection of king Basinus and his wife Basina, Aegidius meanwhile becoming king of the Franks.[1461] Others suppose that both were allies, at least at some time. Most important is the possibility that Childeric was not so much a Frankish king but, like Aegidius and his son, a '*rex*' in the Roman sense: an army commander.[1462] In any event, it is clear that Roman positions and institutions were gradually transformed.

Childeric's son Clovis defeated Syagrius (486/487) near Soissons and expanded his territory not only to the south but also to the west.[1463] Here, the Frank Sigibert ruled over the Rhineland or at least the region around Köln. He waged battle against Alamanni near Tolbiacum/Zülpich in AD 490 but could defeat them only with the help of Clovis in c. AD 496/497.[1464] This resulted in the incorporation of the Rhenish Francs into the Merovingian realm. Köln remained a *sedes regia*, a (temporary) residence of Merovingian kings. In AD 520 Theuderic I resided in the aula regia, the old *praetorium*. This royal seat, probably also functioning as his mint, was called the *palacium thesauri* in a report on the struggle for power between the brothers Theuderich II and Theudebert II (AD 612).[1465] Rich burials reflect the presence of royals and nobles at Köln.

It is interesting that a few references can be found to the existence of communities of 'Romans' in northern cities as late as the second half of the fifth century AD. A letter by Salvianus mentions relatives in Köln, who had until recently attended theatrical performances, but who became servants to the Franks.[1466] A letter written around AD 477 by Sidonius Apollinaris to

[1452] Section 6.7.
[1453] Table 26.1.
[1454] Chapter 46.
[1455] Section 42.3.
[1456] Greg.Tur., hist. 2.9.
[1457] Zöllner 1970, 27.
[1458] If that is true, Dispargum could be Duisburg east of Brussels (e.g. Roosens 1967, 97). See also De Boone 1954, 142. The Thuringi problem returns in the context of Gregory's writing on Childeric (Greg.Tur., hist. 2.12; cf. Hardt 2015).
[1459] Some of the many works on Childeric, his grave and the sources: Zöllner 1970, 39ff.; James 1988; Brulet 1996; Lebecq 2006 (2002); Dierkens & Périn 2003; Quast 2015.
[1460] Greg.Tur., hist. 2.27.
[1461] Greg.Tur., hist. 2.12; Theuws 1990, 54, no. 63.
[1462] The hypothesis that Childeric was a commander is based on the interpretation of a letter supposedly sent by bishop Remigius of Reims to Clovis. Childeric is not explicitly mentioned, but it is said that Clovis' new position as ruler of Belgica II had also 'always' (semper) been in the hands of his parents (parentes) (Dierkens & Périn 2003, 171, n. 29).
[1463] For Clovis' reign, see Zöllner 1970, 44ff.
[1464] Zöllner 1979, 34; 57.
[1465] Müller 2017, 8-9.
[1466] Salv., de gub. Dei 6.8; epist. 1.5 (cf. Päffgen & Ristow 1996, 147). As such, theatrical performances are sinful to Salvian; in the letter he speaks about a noble lady from Köln, a relative of his.

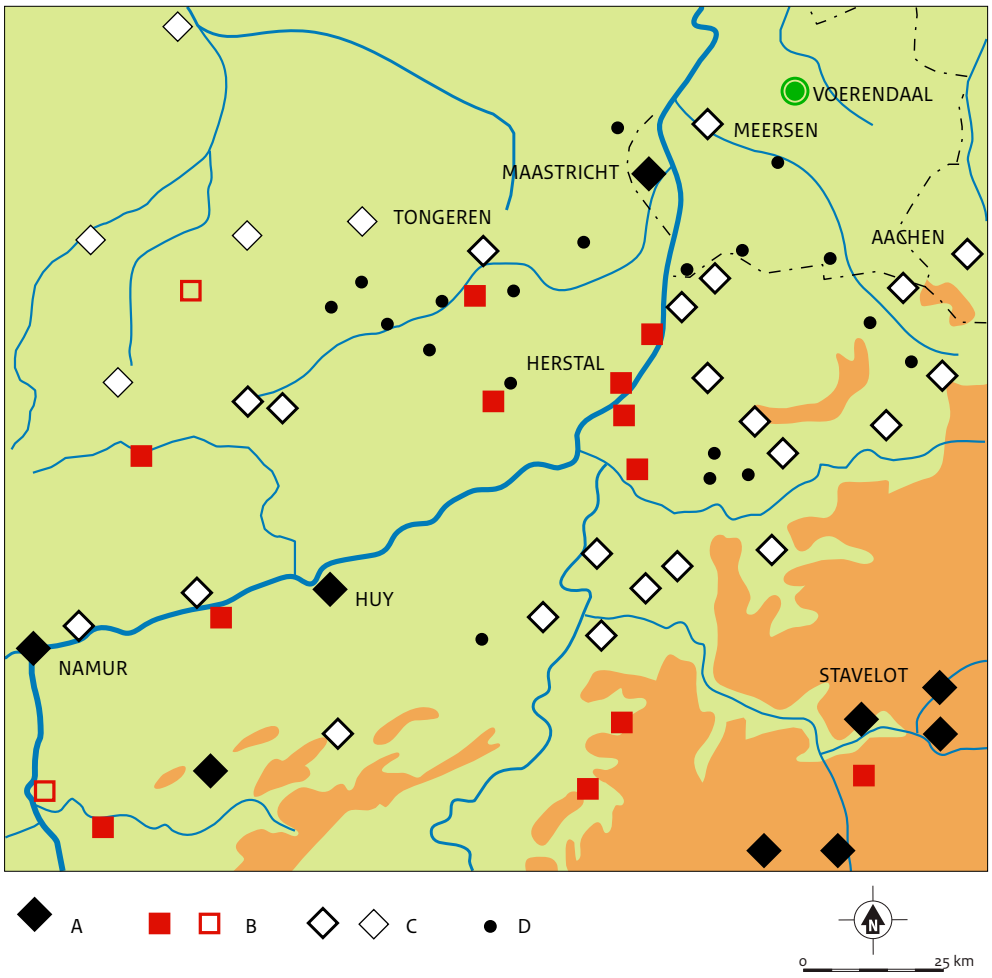

Fig. 16.7 Royal property in the middle Meuse area. (source: modified after Theuws 2001, fig. 8)
A Merovingian royal property; B (possible) Pippinid property, ca. AD 700; C royal property, mentioned in Carolingian times; D idem, mentioned in the High Middle Ages.

comes Arbogastus (II) also shows that there was still contact between the southern part of Gaul and the Moselle area.[1467] The letter concerns the interpretation of the Scriptures and Arbogastus is praised for upholding Latin living among barbarians.

Some records and inferences concerning regional history

The scanty information in the written sources on the north was summarized above. Combined with information from later sources and archaeology, somewhat more can be said about the Meuse Valley and areas directly to the west and south. King Basilus, who reigned over the area around Tongeren (Thuringia), was probably one of several regional leaders in the second half of the fifth century. Their 'kingdoms', like that of Sigibert, were successively incorporated into the Merovingian realm.

Early Medieval bishops were not merely church functionaries but also members of elite families. The well-known bishop Servatius resided in Tongeren but left the town in AD 350 to die and be buried in Maastricht, probably the power base of his kin (?).[1468] Tongeren was probably still the more important city for some time. It was only two centuries later that bishop Monulphus built a *magnum templum* for Servatius in Maastricht.[1469] The fact that only Monulphus and his successor Gondulphus (died after AD 614) were buried in the St Servaas suggests that this church and the cult were associated with a particular elite group. The other important church in Maastricht, the Church of Our Lady inside the old Roman fortress, was either another creation of Monulphus, to function as the official bishop's seat, or a foundation by the Merovingian kings, who were the likely owners of the Roman fortress.[1470] It is certain at least that kings visited Maastricht several times between AD 595 and 690/695.[1471]

It is probable that the Merovingians owned much more land around Maastricht (Fig. 16.7).[1472] This is an inference based on Carolingian and later Medieval sources, including references to land belonging to the chapter of St Servaas.[1473]

[1467] Sidon. epist. 4.17.
[1468] Theuws 2001, 160ff.
[1469] Theuws 2001, 170-171.
[1470] Theuws 2001, 175-178.
[1471] Theuws 2001, 181-183; 2015, 175.
[1472] Theuws 2001, 205-213; 2015, 175-177.
[1473] Also for the sandy soils of the Kempen/Campine, charters become available only from c. AD 700 onwards (relating to gifts of land to Willibrord/Echternach, see Theuws 1991). For the possessions of St Servaas, see Hackeng 2006.

At the time that these documents were written, the Carolingian dynasty had succeeded that of the Merovingians. In theory, the royal property could initially have been taken over by the Pippinids, a Frankish elite family who gradually increased their influence during the seventh century AD. East of the Meuse a large estate is mentioned in charters from AD 851 and 870, with the *palatium Meerssen* at its centre and extending eastwards to the present-day places of Nuth, Wijnandsrade and Klimmen, only 1.5 km from Ten Hove.[1474]

Part of the lands belonging to Meerssen could have been post-Merovingian reclamations, however. The plateaus in Zuid-Limburg only gradually became part of the cultivated area again. Because the general process is documented mainly by place names its chronology is rather crude.[1475] The charters that record specific locations date to 100-150 years after the (archaeologically attested) habitation at Ten Hove ended. The village of Voerendaal, or *Furenthele*, is mentioned for the first time in a charter of AD 1065, dating the consecration of its church to AD 1049.[1476] At that time the village belonged to the *allodium* He(e)rle(n), although its church was apparently the *matris ecclesiae* of Heerlen – the former *vicus* of Coriovallum – as well as of Welten, Nieuwenhagen, Heerlerheide and Hoensbroek.[1477] This large area borders on the lands belonging to Meerssen,[1478] suggesting that it was another old territory dating back to at least the Carolingian period.[1479] But again, there is no proof for this. There remains a time gap between Merovingian Ten Hove and the first records about the village and church of Voerendaal. The inhabitants of our site may have relocated to the site of the village and church, or were perhaps succeeded as 'local rulers' by another elite family.

16.3.2 Settlement during the first part of the Early Middle Ages

Larger settlements and the net consumer population

Society in the Early Middle Ages had a totally different character than during Roman times. To start with, there were many relatively small territories ruled by 'kings' such as Childeric, Sigibert or Basilus (concentrations of high-status objects in the wider region are shown in Fig. 16.8). After incorporation into the Merovingian kingdom, the personal power of elite families remained relevant. While the elite (including the clergy) and their retainers had to be fed, not all agricultural produce had to be transported to 'central places'. In the Merovingian period, elite groups were quite mobile and changed residence several times during the year, to other 'towns' or their – archaeologically elusive – villas.[1480] It is improbable that a site like Voerendaal still had any connections in terms of food supply with distant places such as Xanten, Nijmegen, Köln or Tongeren. Therefore, it is pointless to discuss these and others in detail, as was done in previous sections.

Of course, the (former) *vicus* of Heerlen/Coriovallum is a likely candidate for connection with Ten Hove. However, while a considerable quantity of finds from the Late Roman period was collected throughout the years, dating well into the fifth century, Merovingian finds seem to be missing entirely.[1481] Perhaps the inhabitants of Ten Hove paid tribute to elite groups residing at Meerssen or another, unknown place in the region, and almost certainly – even indirectly – to elites in Maastricht, where the bishop resided and the king stayed from time to time.
Some indications of the population living at Maastricht are given by the size of the Pandhof and Vrijthof cemeteries.[1482] However, although the number of some 800 investigated burials is impressive, the excavated parts represent only a portion of the population, some 80 individuals.[1483] A better impression of the population size can be gained from the area with features and finds, recorded over an uninterrupted expanse of some 12-15 ha with a separate area to the north.[1484] This size is comparable to that of the Roman *vicus* (west of the river). Because part of the area was probably uninhabited and used for industrial activity, the population possibly consisted of some 1,500-2,000 people.[1485] Although perhaps high in the context of the Early Middle Ages, this is tiny compared to the cities of Roman times. Feeding a group of this size cannot have been an insurmountable problem. Some of the food must have come from the many small farms/hamlets in the vicinity, and some may

[1474] Theuws 2015, 177-178, n. 40.
[1475] Renes 1990, 40-42, fig. 15.
[1476] Van Hommerich 1952; 1974.
[1477] The name change from Coriovallum to Herla/Herle took some 600 years (cf. Gysselingh 1960) and is related to sound shifts in Germanic (Kuhn 1962, 122).
[1478] Cf. Van Hommerich 1952, 133. The chapter of St Servaas in Maastricht had possessions in Vaesrade, some 4 km northwest of Heerlerheide and 5 km north of Voerendaal. This suggests that it also belonged to the Merovingian-Carolingian sphere, but can be traced back only to the eleventh century (Hackeng 2006, 63; 540-541).
[1479] According to Van Hommerich (1952) the owner, bishop Udo of Toul, was a descendant of the Carolingians.
[1480] The focus of Merovingian kings and elites lay initially on their thesaurus of precious metal.
This was replenished by wars and raids, which also yielded cattle and slaves. Later, landed property became more important and claims on surplus gradually shifted to claims on the soil (Theuws 1990, 43-45). On the problem of the Early Medieval villas, see Theuws 1991; 2008a.
[1481] None of a series of recent archaeological reports mentions finds (e.g. Veldman 2007; Geerts 2018; Tichelman 2019; 2020; Tichelman & Janssens 2012). A settlement was possibly situated east of the Roman vicus, where virtually no research has taken place (pers. comm. Karen Jeneson).
[1482] Kars 2011; Theuws & Kars 2017 (a useful summary and review in Wetzels 2018).
[1483] Based on a use-life of 250 years (used from c. AD 450, a marked increase in burials in sixth century) and a life expectancy of 25 years.
[1484] Kooistra 1996, 279, fig. 45b; Theuws 2015, 181, fig. 5.
[1485] Cf. appendix IV.

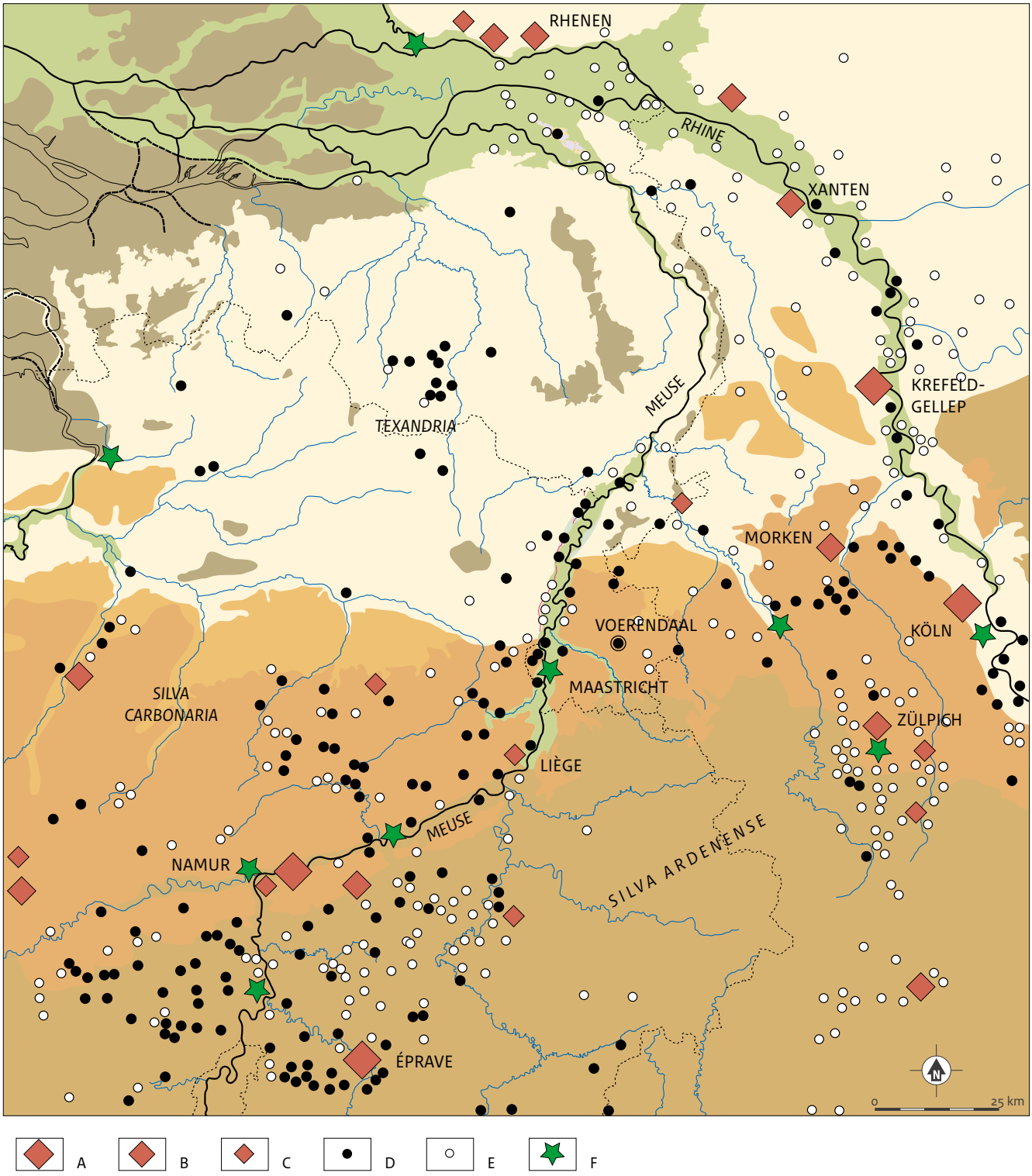

Fig. 16.8 Impression of the 'Merovingian cultural landscape' in the wider region around Voerendaal, mainly on the basis of burial sites. (source: modified with some additions after Theuws 1990, fig. 3; 7; 2015, fig. 4)
A cemetery with 5 or more prestige goods (gold buckles, helmets, angos, etc.); B idem, 2-4 objects; C idem, 1 object; D Merovingian row-grave cemetery; E possible cemetery; F seventh-century mint.

have been imported from the south via the Meuse.[1486] Many commoners living in Maastricht probably practised some agriculture and husbandry themselves.

Rural settlement

As for previous periods, it is difficult to gain an impression of the number of rural settlements or the population density of the Merovingian period. The number of known settlements from around the beginning of the sixth century AD is small for many regions. For instance, in the German part of the Lower Rhine area, Siegmund lists only two (possible) settlements for this period, against 12 cemeteries and four sites of unknown character (most of them situated in the Rhine Valley).[1487] A map by Wieczorek including the same region but incorporating more of the loess belt between Köln-Bonn and Maastricht shows only seven settlements (including Voerendaal) and 25 cemeteries.[1488] Lenz knows of only four sites (against 36-37 Middle Roman ones) for his study area on the Aldenhovener Platte (Fig. 16.1).[1489] Before turning to population growth, we must once again address the theme of (dis)continuity (in connection with Ten Hove phase 4c; see below).

As already hinted in a previous chapter,[1490] there are indications that some rural settlements, at least on the sandy soils of the MDS area and in the Meuse valley, founded around AD 400, did not remain in continuous existence into the sixth century. A first piece of evidence is that no wells appear to have been constructed in the period AD 410-465 (Fig. 16.2). The latter year applies to the oldest well from Breda-Steenakker B, the Early Medieval settlement at a different location than the 'Germanic' one to the northwest (Fig. 16.9).[1491] The well of AD 465 is succeeded by a series of dendrochronologically dated examples through the entire sixth and the first half of the seventh century AD. At Helden-Schrames, the 'Early Medieval' farms have a different orientation than the earlier (short)houses, again suggesting discontinuity.[1492] Obviously, a situation like that at Helden could be the result of a settlement shift, creating a false impression of discontinuity. Gennep-Stamelberg is an example of a site that probably shifted, as suggested by scattered features and finds in the east; continuity is also evidenced by the Touwslagersgroes cemetery (see below). For other settlements, it is impossible to say anything about (dis)continuity. A few cemeteries supply additional data, however. At Gennep-Touwslagersgroes, Late Roman graves from the first half of the fifth century are found together with inhumations from the sixth-seventh century AD, hinting at continuous use by essentially the same group.[1493] Other Late Roman cemeteries suggest discontinuity. For example, Someren-Waterdael and Nederweert-Randweg were small and thus short-lived anyway, combined with the absence of Early Medieval burials.[1494] Another interesting case is a site near Borgharen. A group of scattered graves was found here, one with a sword of the Krefeld type belonging to the second half of the fifth century AD.[1495] These burials were situated 200 m away from the ruin of a Roman villa, which was used for a Merovingian cemetery from the middle of the sixth century onwards.[1496] The burials at different locations suggest that the area was void of habitation for several decades around AD 500.

Whilst the increase in population in the wider region is difficult to trace on the basis of settlement data, it is illustrated by the number of 'row-grave cemeteries' (*Reihengräberfelder*). Obviously, the number of row-grave cemeteries is not a direct reflection of Frankish 'colonization' but rather of changes in socio-political structure (James) and/or an increasing stability and attachment to land (Theuws).[1497] Keeping this in mind, we can use the number of cemeteries as an indicator of population growth, which was marked from the end of the fifth century onwards (Fig. 16.10; based on a small sample of 50 sites). Another proxy for population size are palynological data, although the decline in tree numbers is not (always) a direct reflection of population growth. A diagram like the one for Boslar shows deforestation already occurring in the sixth century (Fig. 4.4). The diagram for Herzogenrath in the same figure has a long period with a varying tree-pollen percentage and a marked reduction only after AD 700. In this respect it is quite similar to the diagram from the vicinity of Ten Hove (Fig. 4.3). The definitive

[1486] A rich archaeobotanical sample from a seventh-century pit, with a large quantity of spelt, offered no clues about its provenance (Kooistra 1996, 282-289).
[1487] Siegmund 1998, 223-226, fig. 84.
[1488] Wieczoreck 1996, 245, fig. 171. Cf. the few (possible) sites from the Dutch loess area listed by Van Enckevort *et al.* (2017, 117-122): only seven, including Maastricht.
[1489] Lenz 1999, 90ff., figs 7-8. Taf. 197.
[1490] Section 12.6.4.
[1491] Berkvens & Taayke 2004a.
[1492] De Winter 2010.
[1493] Cf. section 16.2.2.
[1494] Hiddink 2011d, 209-215 (Someren); 2016a, 9-11; 25-32 (Nederweert). A dendrochronologically dated well at Someren (AD 471; De Boer & Hiddink 2012, 16, table 3.3) was found some hundreds of metres north of the cemetery.
[1495] Van der Graaf & Loonen 2014, esp. 197ff.; on swords of the Krefeld type, see Böhme 1994; Theuws 2008b, fig. 11.
[1496] Hulst 2000; Hulst & Dijkman 2008; Lauwerier *et al.* 2011; Lauwerier & De Kort 2014.
[1497] Theuws 1990, 45; referring to James 1979.

Fig. 16.9 Breda-Steenakker. Late Roman (site A) and Early Medieval structures (B). (source: modified after Berkvens & Taayke 2004a, fig. 16.1; 2004b, fig. 2; Koot & Berkvens 2004, map 2)

decline in tree cover in both places occurred in the period for which virtually no archaeological phenomena are known at Ten Hove (period 5).[1498]

16.3.3 The hamlet of the late fifth-seventh century

Phase 4c. Some 'dark decades'?
This phase is mainly introduced to draw attention to a 'second transitional phase' (cf. Section 26.6), comparable to 4a. The Late Roman hamlet of phase 4b, founded after AD 375, could in theory have ceased to exist around AD 450. Instances of both discontinuity and continuity occur in the wider region, as was shown above. Most decorated Argonne sigillata at Ten Hove was produced before AD 425; some – less precisely – in the second half of the fifth century. The two 'dragon buckles' date to around the middle of the fifth century and AD 450 has therefore been chosen as the end of phase 4c. The 'imitation sigillata' bowl 101-1-1/12967 dates to the second half of the fifth century and could therefore belong to either phase 4b or 4d.

[1498] See below, section 16.4.

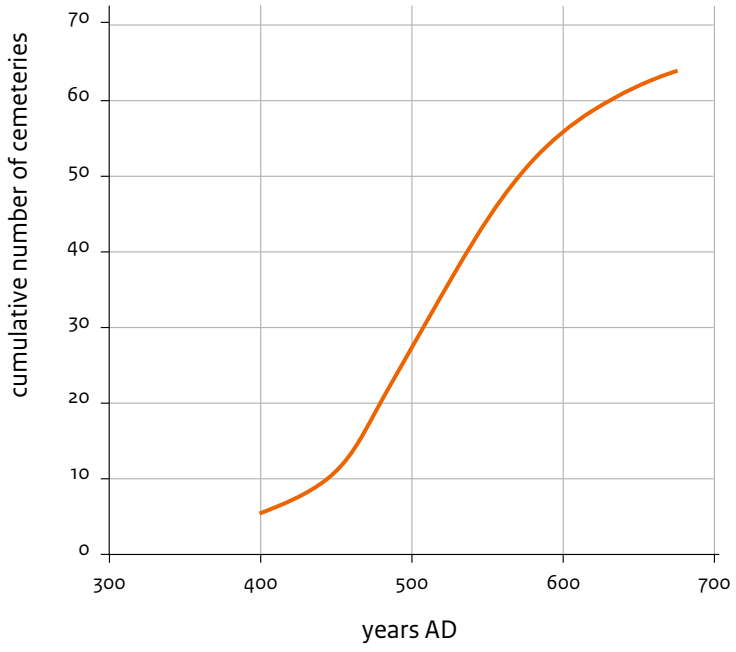

Fig. 16.10 Smoothed curve of the number of newly founded row-grave cemeteries between AD 400-700 in a sample of sites from the southern Netherlands and adjoining regions 400-700 (N= 64).

Phase 4d. Burials and buildings from the sixth and seventh centuries
The carinated pot/bowl or *knikwandpot* 1953-2.12/11425 (Fig. 27.2) is the only firmly dated and therefore relevant find in the discussion on the time when Ten Hove was certainly inhabited (again). It was made before c. AD 510/525, possibly as early as 460/480. Several other items of pottery, glass and metal could also belong to the second half/end of the fifth century AD, but all these finds, as well as the radiocarbon dates, allow for a later date. On the basis of the terminus ante quem of the carinated bowl, AD 500 is taken as the start of phase 4d.
In particular, the finds from the cemetery in and around building 402 (graves 381-388) cover the period of c. AD 575-675 in a short chronology (darker green in Fig. 5.1). If a long chronology is preferred, it could have been used from around AD 500 until shortly after 700. For convenience's sake, we have chosen this option for the habitation of period 4d in general. As with the Late Roman phase 4b, it is also impossible to tell exactly which structures belonged to the Early Medieval phase 4d. In fact, several of the structures mentioned in Section 16.2.3 could be Early Medieval. Of the larger buildings, 250 was part of 4d rather than 4b, because it seems to intersect sunken hut 510 (Fig. 16.11). The finds and/or radiocarbon dates of sunken huts 501, 504, 505, 511, as well as hearth 635, allow for an assignment to phase 4d. Building 259 and pit 733 certainly belong to it, as well as pit 735 and some stray finds from trenches 46 and 52 in the southeastern part of the excavation (Fig. 16.12). The radiocarbon date of grain from hearth 631 suggests activity at the site at least in the second half of the seventh century or possibly even in the eighth century (Carolingian period).
Some stray finds could date from this time as well, but as neither a single hearth nor a few sherds are hard evidence for habitation, we have set the end of the site at around AD 700. Obviously, there may still have been houses in the surroundings of the excavation.

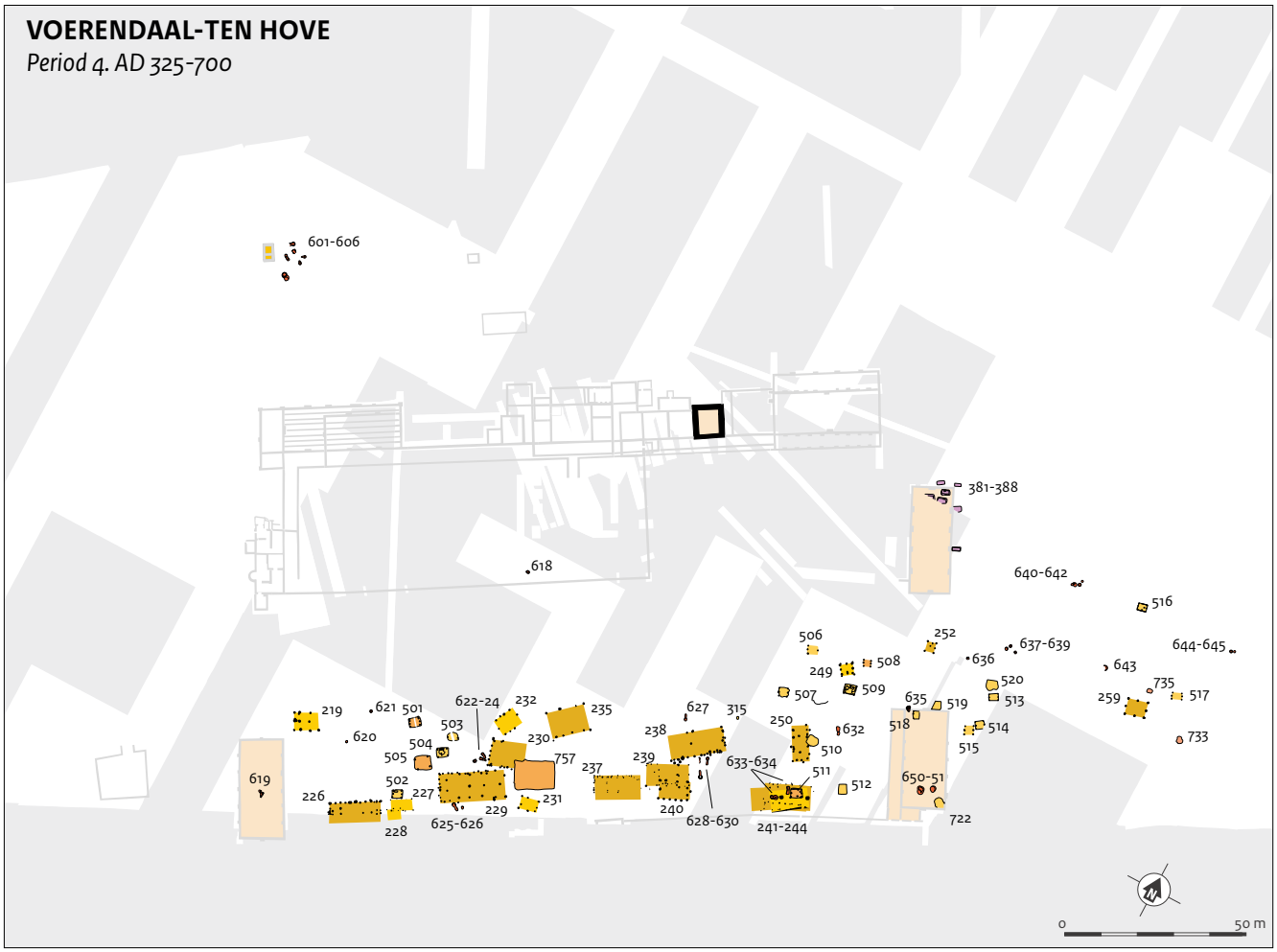

Fig. 16.11 Voerendaal-Ten Hove. All features (except for pits) of period 4.

Size and type of settlement, activities, connections at a (supra-)regional level

The number of Early Medieval finds is quite small compared to earlier periods, with pottery represented by at least 138 and not exceeding 395 fragments against at least 882 Late Roman ones. One reason for this could be a decline in trade on a supra-regional scale or a 'regionalization' of exchange networks (see below). Another likely cause is that the population was smaller than before. That this could be the case is suggested not only by the small, single farm 259, but also by the estimated number of graves around building 402.[1499] Even if some 20 to 30 people were buried here in the course of a century, they represent a population of 5-7.5 strong or a single family. The number of features around tiny house (?) 259 is quite small, indicating anything but an area that was densely populated during phase 4d (Fig. 16.12). If other farms existed there, these were more dispersed and were located outside the excavated area, south of the Steinweg or further to the west or east. One is reminded of the somewhat 'prehistoric' character of the habitation elsewhere during the Early Middle Ages (Fig. 16.9; 16.13).

The people of Ten Hove – or at least some of them – were without doubt farmers. As discussed earlier, they probably grew spelt, rye and barley and kept cattle and pig.[1500] Even though the surplus might have been small, some agricultural produce – possibly livestock rather than grain – would have been handed over to elites as tax and/or in exchange for goods

[1499] Section 13.2.1.

[1500] Table *16.2; appendix IX, table 2; chapter 17.

Fig. 16.12 Voerendaal-Ten Hove. Features certainly belonging to phase 4d; for legend, see figure 5.4.

such as pottery, glass and metal objects. Similar to the Late Roman period, hearths were constructed at Ten Hove, even during the final habitation phase (631). Although both structural remains and finds from the Early Middle Ages do not at first sight suggest great wealth, this is somewhat misleading. While most pottery (and glass) came from the region, Maastricht and the Meuse Valley, some coarse-walled ware was probably still imported from Mayen. The grave goods are not particularly exquisite – with no horse gear, gold objects, bronze or glass vessels or inlaid belt fittings – but still include metal objects and weapons. This implies that a family (the only family?) at Ten Hove was one of 'farmer-hunter-warriors', an elite at a local level. They probably controlled the surplus of a few other families around Ten Hove. By founding their cemetery they expressed claims on the land. The location near an 'old building' of the Roman villa may have been intended to emphasize the antiquity and thereby legitimacy of these claims.[1501]

16.4 The site from the Carolingian period until the present day

16.4.1 Carolingian period and High Middle Ages

There is a chance that there were some activities at the site in the Carolingian period, suggested by the radiocarbon date of hearth 631 and a sherd from another (652).[1502] The site was

[1501] See section 13.2.
[1502] Another possible Carolingian sherd in sunken-floored hut 510 (see chapter 44).

Fig. 16.13 Weert-Nederweert. Dispersed Late Merovingian and Early Carolingian farms. (source: modified after Dijkstra 1998, fig. 4.1)

probably no longer inhabited, and the hearths may have been constructed by people living in the vicinity. It is telling that no sherds were found of Mayen and Badorf pots from the period c. AD 725-900, which were quite common in the south of the Netherlands. The enigmatic pit 736 dates to between the end of the eighth and the end of the tenth century AD. It appears to lie isolated on the 'crest' of the ridge, halfway between the Hoensbeek and Retersbeek (Fig. 16.14). No firm evidence exists for a farm in its immediate surroundings. Some sherds of High Medieval pottery were found in pits some 30 m away, but these were mixed with later material (see below). As expected, most of the sherds from the High Middle Ages (AD 1000-1250/1300) were collected in the area along the Steinweg, in the colluvium and old arable layers. The 'centre of gravity' does not lie inside the former villa yard but further to the east. They are possibly related to a farm nearby, outside the excavated area. In the west, some Medieval

Fig. 16.14 Voerendaal-Ten Hove. Features from the Carolingian period up till modern times.

pottery was collected from layers in trench 78 and from a posthole of building 202. Although it is regarded as contamination in the latter context,[1503] there may have been some activity in this area in the Middle Ages. In the wider vicinity, finds of High Medieval pottery were made near several historic farms or 'castles' (moated sites) around Voerendaal, as well as at some other locations. It is clear that the (micro)region was quite extensively inhabited during the High Middle Ages.[1504] The closest findspot is situated some 400 m east of our site, with an unknown amount of pottery dating from AD 1000 onwards.[1505]

16.4.2 Late and post-Medieval finds and features

The quantity of late and post-Medieval pottery – dating from c. AD 1300 onwards – is somewhat larger than that from the preceding period. Besides pottery, the latest finds at the site include fragments of some tobacco pipes, a sherd of porcelain and a fragment from earthenware made by the Société Céramique at Maastricht, as well as pieces of coal.[1506] A few sherds were found in Roman features. Two sherds from drain 328 clearly ended up there through the backfill of Braat's excavations. Small pieces of late and post-Medieval ceramics from aqueduct 316 and drain 317 could be the result of burrowing moles or the removal of stones that hindered the farmers. Most pottery

[1503] Chapter 81.
[1504] E.g. Huiskenshof (Archis 16387), Mareweg (51079), Steenenis (416794), Retersbeek (417034) and Rivieren Castle (Hiddink & De Boer 2003, 13-17). Finds near Hoenshuis (16322) should date as early as AD 1000 (Willems & Kooistra 1987, 38) but are listed in Archis with a start date sometime between AD 1050 and 1500.
[1505] Willems & Kooistra 1987, 36 (not found in Archis).
[1506] It is a popular albeit unlikely notion that coal was widely used in the Roman period. Finds are mentioned for a

was probably brought to the site with manure. The presence of sherds in the highest excavation levels and even in the dark layer over building 403 show that most of the colluvium was deposited in the Late Middle Ages and later. The distribution of the younger finds is in essence comparable to that of the High Medieval pottery; it often appears in the same find numbers. This holds true for some pits near feature 736, where High Medieval sherds are associated with late/post-Medieval pottery and coal. Therefore, the older material must also have been the result of manuring, occurring in the arable layer and finally ending up in the pits during the past few centuries. Only a single sherd of stoneware from a posthole of building 260 does not appear intrusive (Fig. 16.14). This small building was probably a shed or stall, standing isolated in the fields.

A number of ditches (900-series) are dated by finds in the Late Middle Ages or thereafter. Ditch 907 ran along the Steinweg, largely just outside the boundary of the excavations. A small trench from 2004 established that wooden beams were laid on the Steinweg south of this ditch at some time, probably because soil washed off the slope made the road untraversable.[1507] Ditches 901-905 must have been the boundaries of plots of land, as they have a more or less identical orientation to that of the present field boundaries.[1508] The two separate ditches of 903 probably demarcated a cart track,[1509] while 902 and 905 are certainly associated with tracks. A small track (909) turned off ditch/track 905 and ran in a westerly direction. Further north, track 906 was observed over almost 300 m. This east-west road is shown on the first land registry map from the beginning of the nineteenth century (Fig. 16.15) and also on the topographical map of 1925.[1510] It connected the Ten Hove farm with Het Huisken, Retersbecks Hoff and Het Hoefken to the northwest. Finally, a multitude of possible wheel ruts or plough scars were documented in trenches 8, 70, 78 and 94.

Among the certain recent features or disturbances, two groups stand out. The first comprises all traces of older excavations, especially those by Braat. Most of these are to be found around the baths and the *horrea*, a few in the main building. Old excavation or rather exploration trenches are also present in trenches 10 and 11 (Holwerda) and 107 (Braat). A second group of disturbances are sets of parallel ditches in trenches 70, 95-107 and 15-23.
These demarcate strips of land 7-8 m wide, the sides of former silage piles (*persbulten*).[1511] At some spots, the subsoil showed the typical blue-grey staining caused by the anaerobic and acidic conditions under these piles.
This phenomenon was also observed near two rectangular pits and an irregular cluster of recent disturbances in trenches 55-56 and 65-66. These are probably the remains of smaller (older?) silage pits.

The oldest land registry map was mentioned above in connection with cart track 906.
The surveying for this map was done before August 1822. It is remarkable how few subdivisions were present at the loess ridge at that time. The southern field A1153 was 9.3 ha and the northern field A1153 even 22.4 ha.[1512] The owner of these plots and of the Ten Hove farm at the time was Frederik baron von Emminghaus, via the family of his wife, Adriane Wilhelmina Angela van Panhuys.[1513] Adriane was the daughter of Willem Hendrik and sister of Johan Cornelis van Panhuys, successive lords of Haeren castle in the Hoensbeek valley. Ownership by a single rich and ultimately (1815) ennobled family is a possible explanation for the large size of the fields.[1514]

praefurnium at Bocholtz-Vlengendaal, Schaesberg-Overstenhof and Liège-St Lambert (e.g. Raedts 1974, 3). A small piece embedded in slag stuck to a whetstone at Kerkrade-Holzkuil (Kars 2005, 275). Some Roman use of coal is feasible, although only at a local level near natural outcrops, such as Holzkuil near the Worm Valley.

1507 Geraeds 2005, 40-43, fig. photo 14.

1508 The oldest land registry map (c. 1832) shows no smaller subdivisions of land north of the Steinweg, although some must have existed (Voerendaal A4).

1509 Double ditches can also indicate former hedges on low banks (see Baas *et al.* 2012).

1510 Voerendaal A4; Klimmen A2; TMK sheet 763.

1511 Cf. examples from Deurne-Groot Bottelsche Akker (Hiddink 2008b, fig. 8.2); Weert-Kampershoek (2010, fig. 11.4) and Hofstade-Kasteelstraat (2018b, fig. 1.4), all situated at the borders of fields.

1512 Plots A1151 and 1152 measured 9.5 and 0.9 ha. OAT1119A001-031 (beeldbank RCE, consulted 14-05-2020).

1513 https://genwiki.nl/limburg/index.php?title=Van_Panhuys (consulted 14-5-2020); http://resources.huygens.knaw.nl/repertoriumambtsdragers-ambtenaren1428-1861/app/personen/1727 (consulted 14-5-2020); Gerards 2000.

1514 Some large fields in section E were also in the possession of the Panhuys family, while examples both to the west and east were owned by a member of another noble family: Marie Joseph François Antoine Ladislas de Villers Masbourg d'Esclaye.

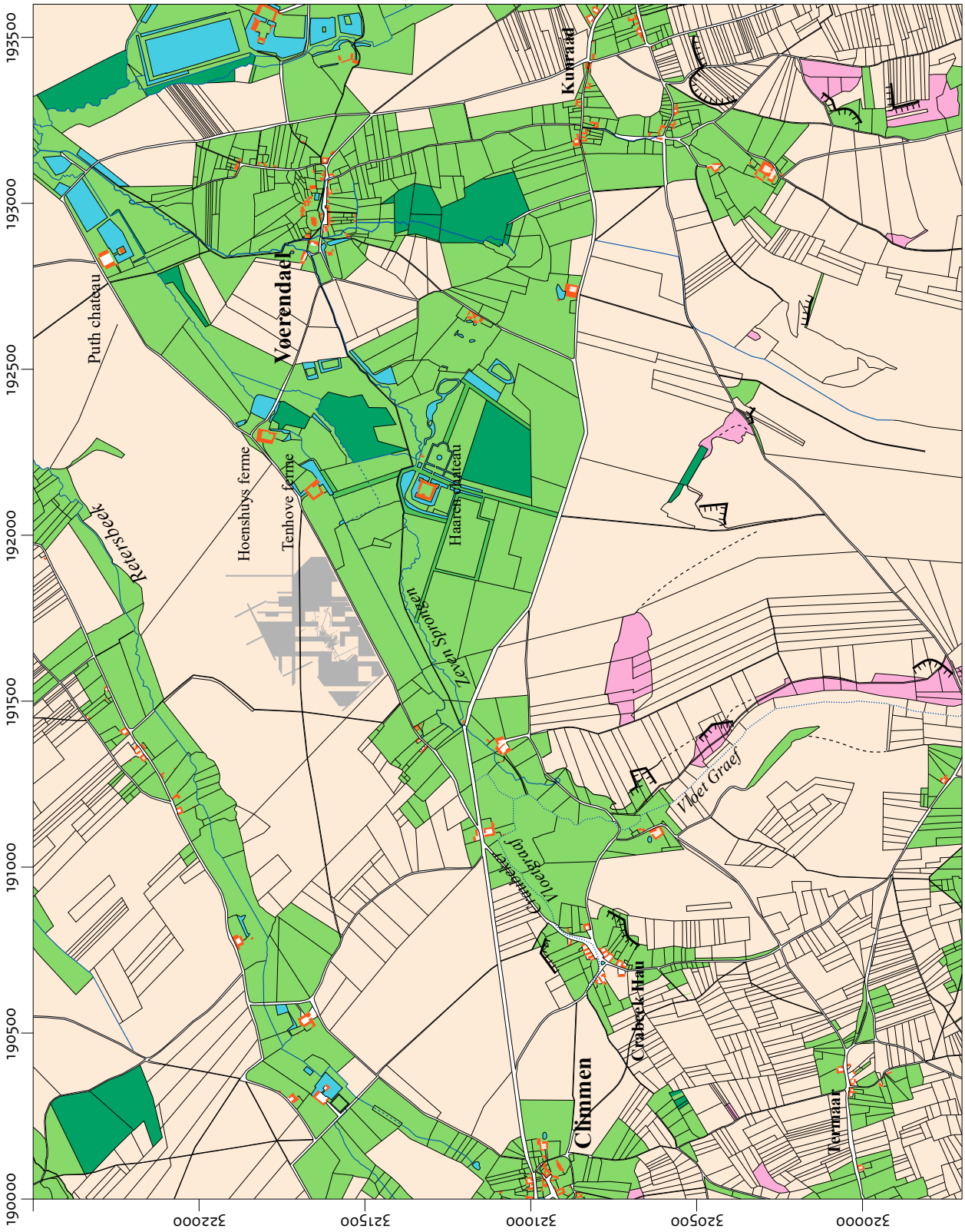

Fig. 16.15 Voerendaal. Land use and settlement according to the oldest land registry maps and tables. (source: modified after map Klimmen A1-2; B; C1-2; Voerendaal A1-4; B4; E1-3)

This report presents the results of the excavations at Voerendaal-Ten Hove, especially those conducted three decades ago by the State Service for Archaeological Investigations (ROB). A full publication of the Roman villa was long overdue because it represents only one of three Dutch examples investigated in its entirety. Moreover, the site is relevant for its Late Iron Age enclosure, post-built structures preceding the large villa and settlement remains and burials of the Late Roman and Merovingian period.

This second part of the publication is a synthesis of the features and finds analysis. This is seen from the perspective of current archaeological and historical knowledge about adjacent regions, especially the loess belt of Zuid-Limburg, the German Rhineland and Hesbaye-Condroz in Belgium, as well as the sandy soils of the Maas-Demer-Scheldt area.

This scientific report is intended for archaeologists, as well as for other professionals and amateur enthusiasts involved in archaeology.

The Cultural Heritage Agency of the Netherlands provides knowledge and advice to give the future a past.