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NIJMEGEN-HOLDEURN WARE FROM THE WESTERN *CANABAE LEGIONIS* AT NIJMEGEN (NL): SOME REMARKS ON CHRONOLOGICAL AND SPATIAL ANALYSIS

Nijmegen-Holdeurn ware: an introduction

Wheel turned Roman pottery was first introduced to the Lower Rhineland by the legions participating in the German campaigns commenced by Augustus in the second decade BC. These first imports, especially the fine tableware, still betrayed strong Mediterranean influences, as did some of the pottery produced by the legions themselves at their bases. In the course of the 1st century AD, demand created by early incarnations of urban settlements like Cologne, Xanten and Nijmegen and the establishment of a more or less permanent military presence along the Rhine led to the birth and expansion of a provincial pottery industry. These regional potteries, based in urban centres and in the countryside, developed a Gallo-Roman style of their own which gradually moved away from its Mediterranean origins. From the Claudian period onwards, a substantial part of the pottery in use in the Lower Rhineland came from these regional potteries, of which Cologne became one of the principal centres.

At Nijmegen however, *Legio X Gemina* began large-scale production of its own pottery shortly after it was stationed in its fortress at the Hunerberg in the wake of the Batavian revolt of AD 69/70.¹ Contrary to the white and grey fabrics which were common in the Lower Rhineland, this new pottery was predominantly orange in colour, which was due to the local iron-rich clay deposits from which it was made. It has frequently been found in and around the fortress but is extremely rare outside Nijmegen.

Traditionally the pottery is divided into four groups: fine wares, smooth-walled wares, coarse-tempered pottery and *mortaria*.² Of these the fine wares are the most remarkable. Often thin walled and sometimes elaborately decorated, they largely differed from the pottery that was known in the Lower Rhineland. Many forms closely imitate metal and glass tableware of Mediterranean origin (fig. 1). Close parallels can be found in pottery produced by other legions outside the Lower-Rhineland, for example in the Wetterau near Mainz and in *Vindonissa*.³ The other three groups were generally in line with the pottery already available and common in the Lower Rhineland.

Between 1938 and 1942, excavations held at an estate named De Holdeurn, situated 4 km south-east of Nijmegen, uncovered the remains of a large brickyard which also included pottery kilns. At this site, large amounts of the same orange pottery were found. Stamps on brick and on some of the pottery revealed that this had once been the works depot of *Legio X Gemina*.⁴ After this legion had left for *Aquincum* around AD 105, the works depot was used by other units, but apparently mainly as a brickyard.⁵ The elaborately styled fine tableware is considered to be a product of *Legio X Gemina* only and although after its departure other units continued the production of coarse kitchenware, it appears that they have been doing so at a much smaller scale.⁶

The pottery was subsequently named Holdeurn ware, but since the 1970s it has become clear that its production was not restricted to De Holdeurn. Wasters and moulds indicated a Holdeurn-like production of fine wares in the vicinity of the fortress and indeed, excavations carried out by the Radboud University between 1987 and 1997 on a site that used to belong to a former boarding school, the Canisiuscollege, revealed two pottery kilns in the western area of the *canabae legionis* where both fine wares and coarse pottery similar to products from De Holdeurn had been produced.⁷ In the mid-1980s, the excavation of a kiln-site revealed that during the latter half of the 2nd century, coarse-tempered pottery in Holdeurn-like fabrics had also been made in the urban settlement of *Ulpia Noviomagus*, located a few kilometres to the west of the fortress.⁸ Since we cannot always determine from

¹ For the location of the archaeological sites at Nijmegen cf. POLAK in this volume.

² Smooth-walled ware mostly includes one- and two-handled flagons, but also “honey jars”, incense-burners and strainers.

³ HAALEBOS 1992, 368; WEISS-KÖNIG 2014, 167–168.

⁴ For a recent overview cf. M. POLAK, Local industry: brick, pottery, metal and glass. In: W. J. H. Willems/H. van Enckevort (eds.), *Ulpia Noviomagus – Roman Nijmegen. The Batavian capital at the imperial frontier*. Journal Roman Arch. Suppl. 73 (Portsmouth 2009) 164–168.

⁵ A stamp on a *mortarium* informs us that *Legio IX Hispana*, stationed at Nijmegen between 120 and 130, produced coarse pottery at the site. Cf. J. E. BOGAERS ET AL., *Noviomagus, Op het spoor der Romeinen in Nijmegen* (Nijmegen 1979) 39 and fig. 36. Other units are only known from stamps on brick.

⁶ Forms which were widely used from the mid-2nd century onwards are either absent or relatively rare amongst the production waste at De Holdeurn. Cf. WEISS-KÖNIG 2014, 165.

⁷ J. K. HAALEBOS/J. R. A. M. THIJSEN, Some remarks on the legionary pottery (‘Holdeurn ware’) from Nijmegen. In: B. L. van Beek/R. W. Brandt/W. Groenman-van Waateringen (eds.), *Ex Horreo. IPP 1951–1976. Cingula 4* (Amsterdam 1977) 101–113; HAALEBOS 1992, 366. One of the kilns had also produced Holdeurn-like pottery with orange or dark colour-coating, white-slipped flagons and grey reduced coarse-tempered ware, cf. HAALEBOS ET AL. 1995, 53–64.

⁸ J. E. BOGAERS/J. K. HAALEBOS, *Aan de grens van Ulpia Noviomagus. Opgravingen in Nijmegen-west (Bronsgeststraat-Dijkstraat 1985)*.

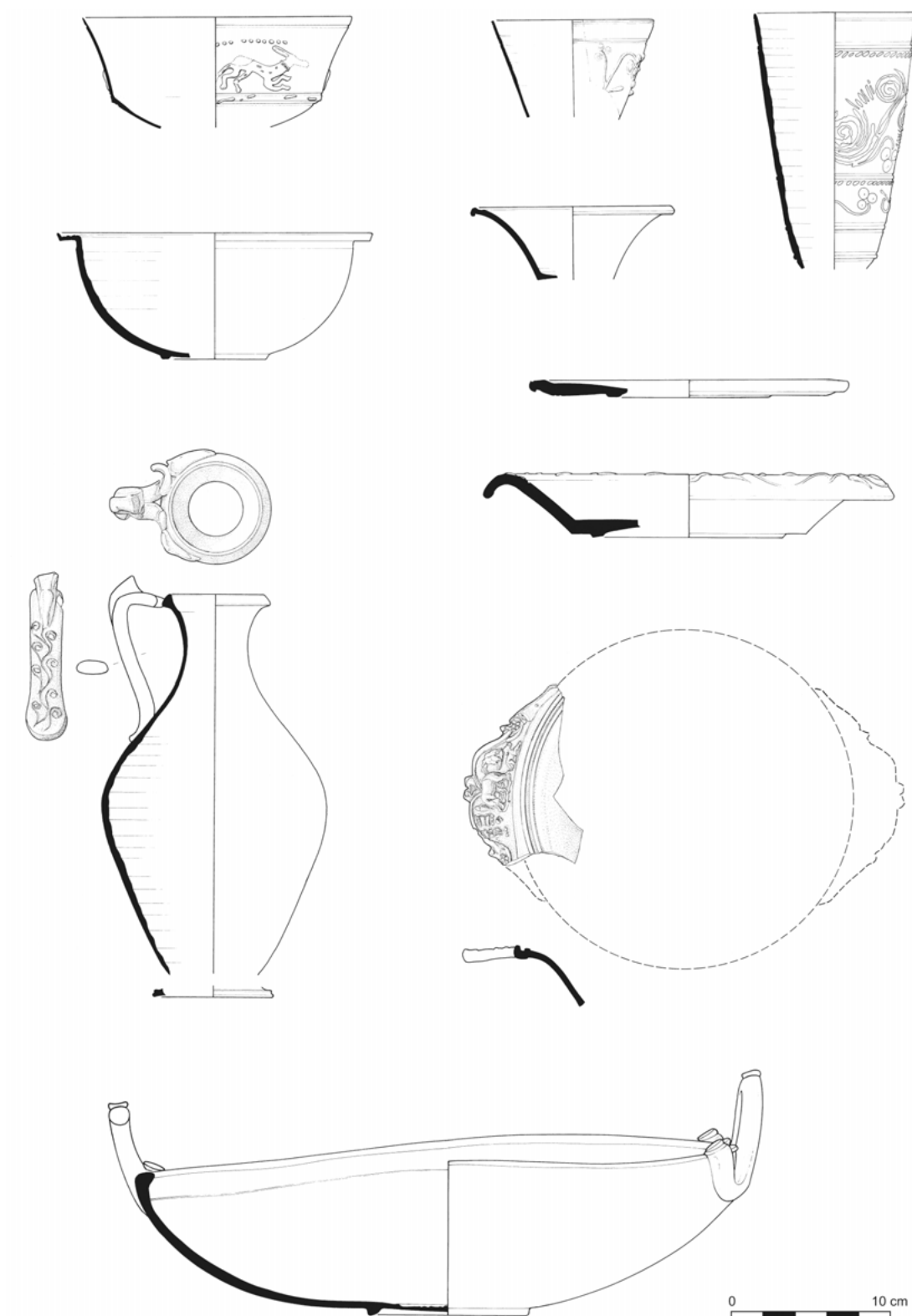


Fig. 1. Nijmegen, excavation Canisiuscollege: examples of Nijmegen-Holdeurn fine ware imitating bronze and glass vessels.

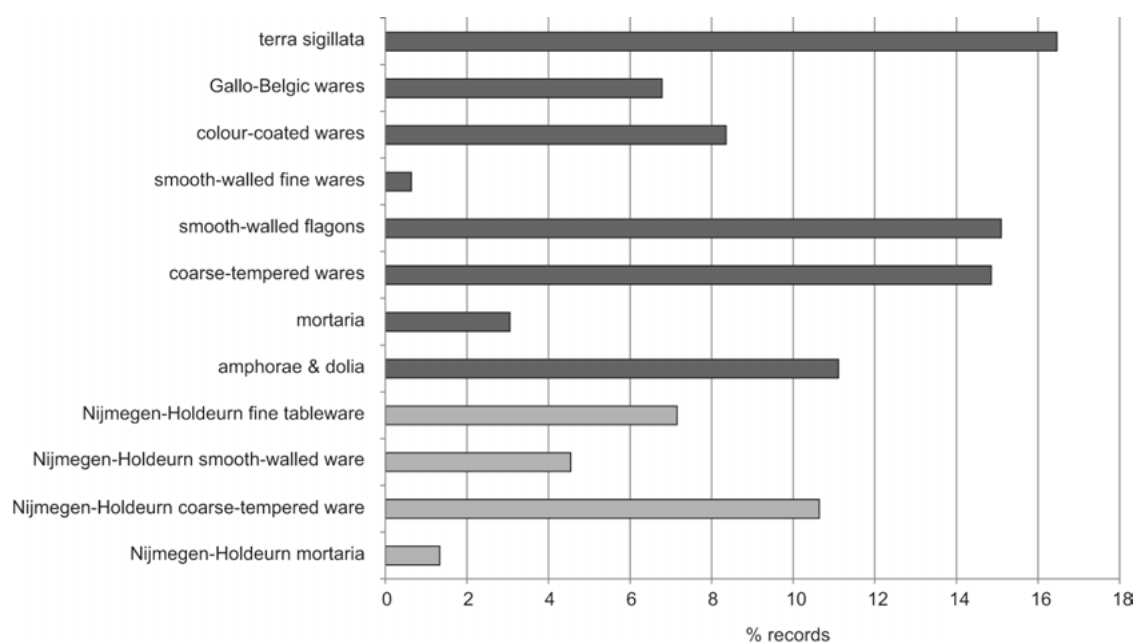


Fig. 2. Nijmegen, excavation Canisiuscollege: relative frequency of all wheel-turned pottery found at the site (N = 107,414 records).

which of these locations the pottery stems, we now speak of Nijmegen-Holdeurn ware.

The Canisiuscollege excavations (1987–1997): digging numbers

The main features found at the excavations behind the Canisiuscollege belong to a large, Augustan fortress and to the *canabae legionis* originally belonging to the smaller fortress of *Legio X Gemina*.⁹ Finds indicate that after its departure around AD 105 the intense use of this part of the *canabae* came to an end.¹⁰ Pockets of activity can still be traced until the mid-2nd century, but younger contexts are virtually absent.

Apart from these complexes the excavations also yielded a vast amount of finds, pottery in particular. More than half a million finds have been unearthed, classified and processed in a database. This and the fact that features have been digitized opened the way to spatial and chronological analysis of both finds and features. Although the study of terra sigillata and coins already shed some light on the chronology of the site and on matters of supply and demand,¹¹ other actors

that might offer insight on both the site and the finds have remained somewhat in the dark because of a lack of chronological anchors and of a means to differentiate and evaluate distribution patterns.

To optimize the research potential of this site and its finds, a number of techniques have been developed. One is the constitution of eight chronologically arranged groups of features which contain finds (CA-groups), each group providing a *terminus post quem* for the deposition of these finds. The other is a grid-based spatial analysis based on the distribution of pottery proportional to that of all the pottery.¹²

Nijmegen-Holdeurn ware from the Canisiuscollege excavations: cracking numbers

What had been revealed so far is that in the excavated area of the *canabae legionis* the volume of Nijmegen-Holdeurn ware is quite significant (fig. 2). It represents a fifth to a quarter of all pottery found at the site.¹³ In the area of the fortress that was excavated by the Radboud University in the years 1973 to 1983, the situation is almost similar.¹⁴ Obviously there seems to have been a necessity to produce a great amount of pottery in the legion's own back yard so to speak, even though there was already a flourishing provincial pottery industry elsewhere in the Rhineland.

Numaga 33, 1986, 3–6 and fig. 7. – Urban potters had already been active in the Flavian period, but their products differ substantially in form and fabric. Cf. J. HENDRIKS, Pottery from Ulpia Noviomagus-Nijmegen. First report on the Maasplein production site: kilns 1–2. In: B. LIESEN (Hrsg.), *Römische Keramik in Niedergermanien. Produktion - Handel - Gebrauch. Beiträge zur Tagung der Rei Cretariae Romanae Fautores*, 21.–26. September 2014, LVR-RömerMuseum im Archäologischen Park Xanten. Xantener Ber. 27 (Mainz 2014) 143–147.

⁹ For a map of the site with features cf. Polak, this volume; for an overview of the excavations and a more detailed map cf. Haalebos e.a. 1995.

¹⁰ VAN DER LINDEN 2011, 85–86 and fig. 2.

¹¹ J. K. HAALBOS, *Arts cretaria. Nijmegen en La Graufesenque. Enkele gedachten betreffende de organisatie van de terra sigillata-productie en -handel in La Graufesenque. Libelli Noviomagenses 4* (Nijmegen 1997) 8–9; F. KEMMERS, *Coins for a legion. An analysis of the coin*

finds of the Augustan legionary fortress and Flavian 'canabae-legionis' at Nijmegen. *Stud. Fundmünze Antike 21* (Mainz 2006) 111–117; VAN DER LINDEN 2011.

¹² For a detailed treatise on these methods cf. POLAK in this volume.

¹³ All percentages are based on the number of records in the dataset instead of the number of (rim) fragments or pots, which is associated with certain particularities in the way the data were recorded. Cf. POLAK in: Kloosterman/Polak/Zandstra 2014, 30–32.

¹⁴ VAN DER LINDEN 2011 fig. 6.

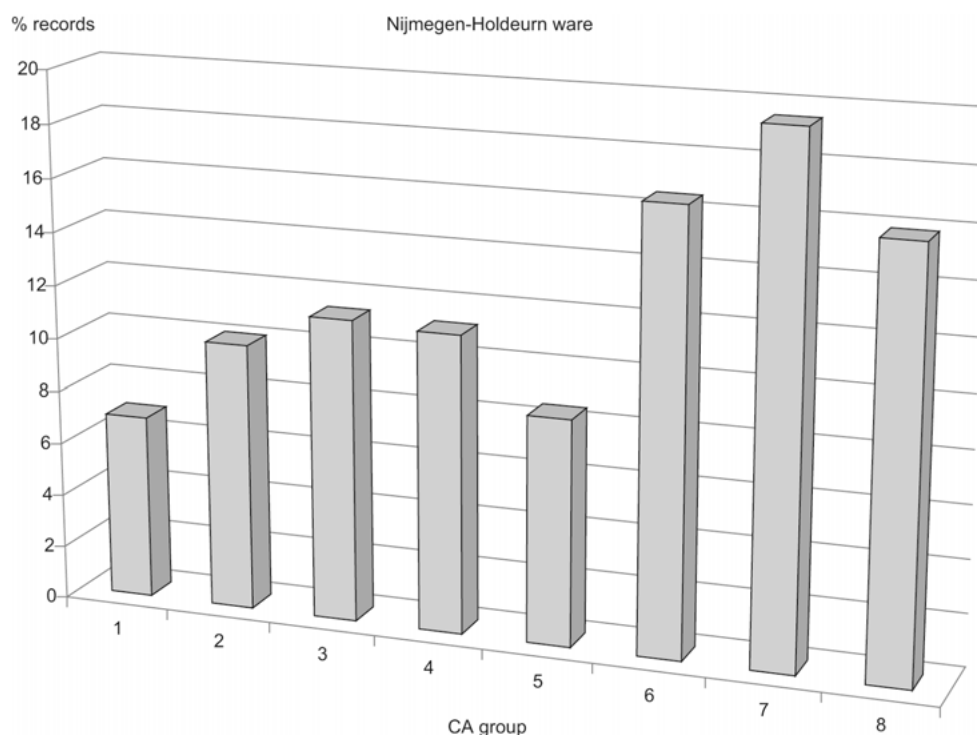


Fig. 3. Nijmegen, excavation Canisiuscollege: distribution of Nijmegen-Holdeurn ware across the eight chronologically arranged CA-groups.

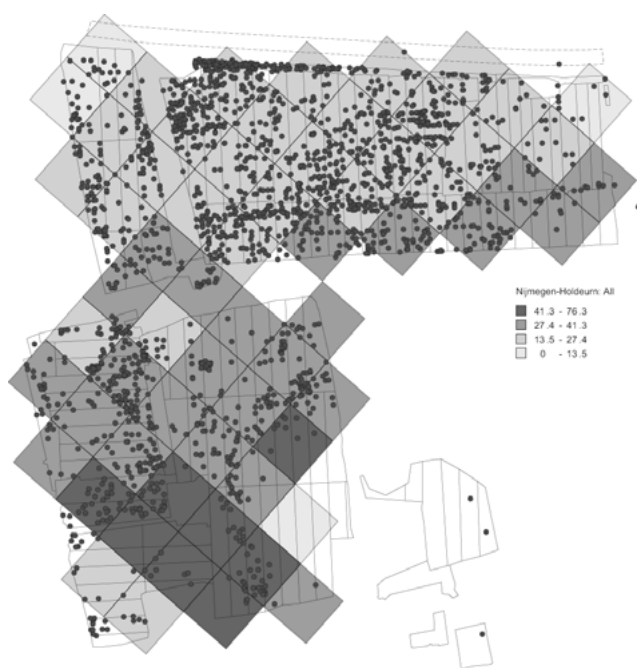


Fig. 4. Nijmegen, excavation Canisiuscollege: absolute (dots) and relative (squares) spatial distribution of Nijmegen-Holdeurn ware.

However, there is still much more to gain by the data at our disposal. There is for example little insight in matters of continuity: was this need for the legion's own supply of pottery pressing from the moment it landed on the Hunerberg or did it emerge at a later stage? There is also little knowledge about the internal development of the Nijmegen-Holdeurn ware. Did the different categories all develop simultaneously and in the same way? And how are the Nijmegen-Holdeurn pottery and its rivals in other fabrics related? When processed with the methods earlier mentioned, a more detailed picture starts to emerge.

When distributed across the chronologically arranged CA-groups we learn that although some of it already could have found its way into the soil early in the canabae's occupation period, the majority was deposited at a much later stage (**fig. 3**).¹⁵ The need for locally-made pottery appears to have been a factor from the start, but the general pattern is that the use of this kind of pottery increased during the course of time.

Related to this trend is the proportional distribution of Nijmegen-Holdeurn ware or the distribution of rim fragments of Nijmegen-Holdeurn ware relative to rim fragments of all the pottery recovered in equal areas of 25 × 25 m. The dots in **figure 4** illustrate the spatial distribution in absolute numbers, which is a pattern very similar to that of other pottery groups common at this site. However, the proportional distribution reveals that the squares with a share of Nijmegen-Holdeurn

¹⁵ CA-groups 6 to 8 add up to 51.9%. The CA-groups indicate that this pottery was deposited after 103. For the dating of the CA-groups cf. R. POLAK/R. KLOOSTERMAN in: Kloosterman/Polak/Zandstra 2014, 59–60 and fig. 2,7.

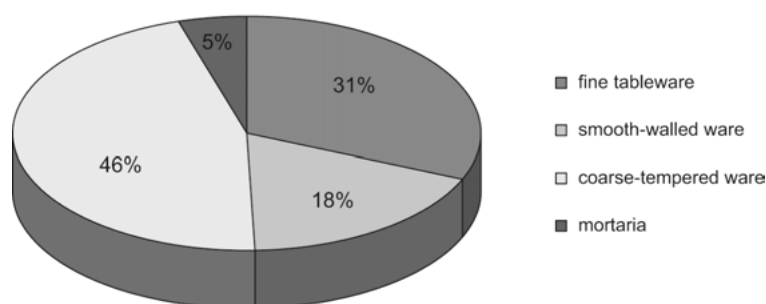


Fig. 5. Nijmegen, excavation Canisiuscollege: relative frequency of the different groups of Nijmegen-Holdeurn ware as a percentage of all Nijmegen-Holdeurn ware (N = 22,206 records).

ware that is above average (squares with 27,4% and up) are mostly to be found in the southern part of the excavated area. More specific, these squares do not appear north of a bundle of ditches and a stone sewer, which appear to form a chronological mark in the *canabae*'s topographic history.¹⁶ North of these ditches lies the oldest part of the *canabae*, flanking the road that left the *porta principalis sinistra* of the fortress in western direction. This is reflected by the spatial distribution of the eight CA-groups, of which the oldest two are almost completely confined to this part of the *canabae*.¹⁷ During the course of time the *canabae* expanded southwards and this is reflected by the distribution of the younger CA-groups. In the southernmost area only the youngest two CA-groups, 7 and 8, are still present. This is also the area where the Nijmegen-Holdeurn ware is most abundant, signifying that as the *canabae* expanded southward in the course of time, the frequency of Nijmegen-Holdeurn ware increased.

The Nijmegen-Holdeurn ware from the Canisiuscollege excavations can roughly be divided into the earlier mentioned four categories: fine wares, smooth-walled wares, coarse-tempered pottery and *mortaria* (fig. 5). Nijmegen-Holdeurn ware might be best known for its skilfully executed imitations of metal and glass tableware, but the vast majority found in the *canabae* is comprised of rather plain pottery and ordinary kitchenware.¹⁸ Still, no less than almost a third is made up of fine wares. Apart from delicate and elaborately decorated vessels, these also include plain and undecorated forms, some of which are also common in other fabrics, such as plates with rims curved inwards and bulbous beakers.

Most forms within the categories other than the fine wares were also abundantly available in other fabrics, which makes them very suitable for comparison in chronological and spatial behaviour.¹⁹ When compared with their counterparts in each CA-group, the *mortaria* and coarse-tempered wares show a gradual proportional increase in Nijmegen-Holdeurn ware at the cost of the fabrics brought in from elsewhere

(figs. 6–7). In both situations, the latter's share is very dominant at first, but eventually ends up being overshadowed by Nijmegen-Holdeurn ware. In the case of the coarse-tempered wares, this gradual shift in favour of Nijmegen-Holdeurn ware is also clearly reflected by its proportional spatial distribution (fig. 8). The pottery brought in from outside the legionary workshops is relatively most abundant in the oldest parts of the terrain, which lie in the north. Their equivalents in Nijmegen-Holdeurn fabric show the exact opposite pattern and are relatively most abundant in the most southern parts, which, according to the distribution of the CA-groups, are the youngest.²⁰

At odds with this pattern is the smooth-walled ware. This includes mostly flagons and is in the Lower Rhineland commonly found in whitish fabrics. When compared proportionally, the white fabrics remain dominant throughout all CA-groups (fig. 9). The share of Nijmegen-Holdeurn smooth-walled ware does not increase and eventually overtake its counterpart the same way the *mortaria* and coarse-tempered wares did. The smooth-walled ware also deviates from the rest of the Nijmegen-Holdeurn ware when individually distributed across the CA-groups (fig. 10). The fine wares, coarse-tempered ware and *mortaria* all behave chronologically very similar; relatively few are found in early features, then they gradually grow in numbers and finally they peak in the last three CA-groups. The smooth-walled ware is the only category within the Nijmegen-Holdeurn ware that is most abundant in the first four CA-groups.²¹

Concluding remarks

What chronological and spatial analysis revealed is an insight in the development of Nijmegen-Holdeurn ware in the western *canabae legionis* since its production was introduced by *Legio X Gemina*. The CA-groups provide no dating of production and usage, only of deposition, but the uneven distribution in time does reflect changes in supply and/or demand. The need to supplement the regular supply of pottery

¹⁶ For a map with the most relevant features cf. POLAK in this volume fig. 3. For a more detailed map cf. HAALEBOS ET AL. 1995 Beil. I.

¹⁷ For the spatial distribution of the eight CA-groups cf. POLAK in this volume fig. 13.

¹⁸ The fine wares have been discussed in detail by: HAALEBOS 1992, 365–381 and recently by WEISS-KÖNIG 2014, 137–174.

¹⁹ The fine wares are less appropriate for such comparisons. Because of its many peculiar and unique forms, it is harder to determine what other pottery the fine wares competed with, if at all.

²⁰ The proportional spatial distribution of the *mortaria* shows a less obvious but similar trend. Cf. R. KLOOSTERMAN in: Kloosterman/Polak/Zandstra 2014 fig. 5,14.

²¹ Unfortunately, the average of rim fragments is too low to allow the representation of its proportional spatial distribution.

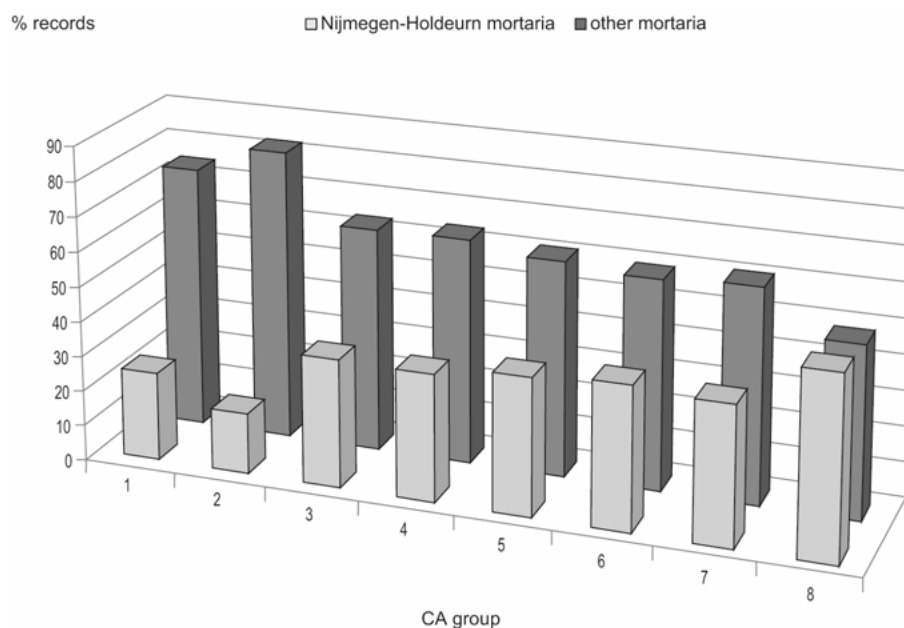


Fig. 6. Nijmegen, excavation Canisiuscollege: shares of mortaria in Nijmegen-Holdeurn ware and of *mortaria* in other fabrics in the eight chronologically arranged CA-groups.

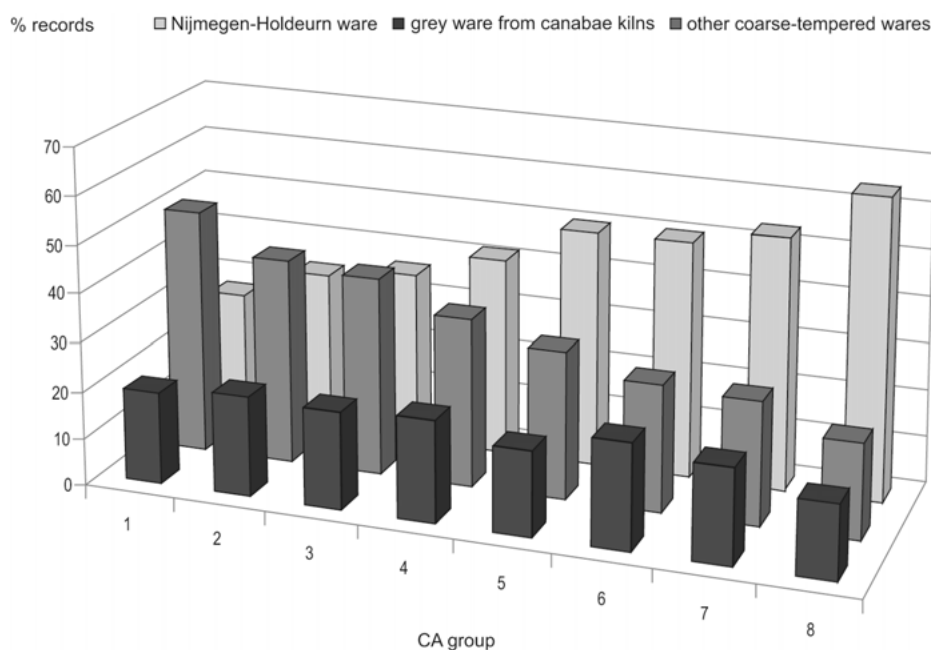


Fig. 7. Nijmegen, excavation Canisiuscollege: shares of coarse-tempered ware in Nijmegen-Holdeurn ware, of similar pottery in a grey fabric from the canabae-kilns and of similar pottery in other fabrics in the eight chronologically arranged CA-groups.

appears to be present at an early stage of the *canabae*, but at first only on a small scale. Then the production of Nijmegen-Holdeurn ware soared and flooded the military market. In the case of coarse-tempered wares and *mortaria*, both the chronological behaviour in the CA-groups and their spatial distribution reveal that the increase in Nijmegen-Holdeurn ware was either caused by or the cause of a decrease in the amount of similar pottery that came from workshops other than De Holdeurn or the ones in the *canabae legionis*. Contrary to these groups,

the Nijmegen-Holdeurn smooth-walled ware never gained momentum and compared to the imported white flagons always remained a rather small fish. This discrepancy still remains to be explained, but it is striking that at De Holdeurn, traces of production of smooth-walled flagons are very scarce.²²

²² J. H. HOLWERDA, Het in de pottenbakkerij van De Holdeurn gefabriceerde aardewerk uit de Nijmeegsche grafvelden. Beschrijving van de verzameling van het museum G. M. Kam te Nijmegen (Leiden 1944) table 4.

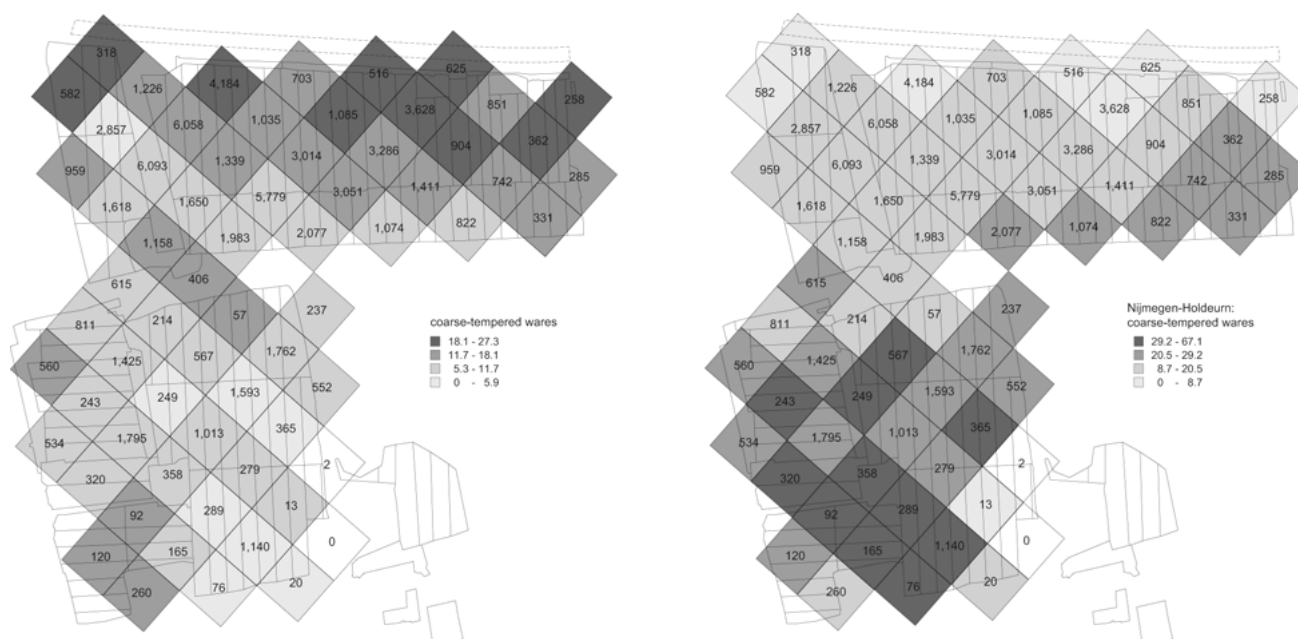


Fig. 8. Nijmegen, excavation Canisiuscollege: relative spatial distribution of Nijmegen-Holdeurn coarse-tempered ware and of similar pottery in other fabrics and not from the *canabae*-kilns.

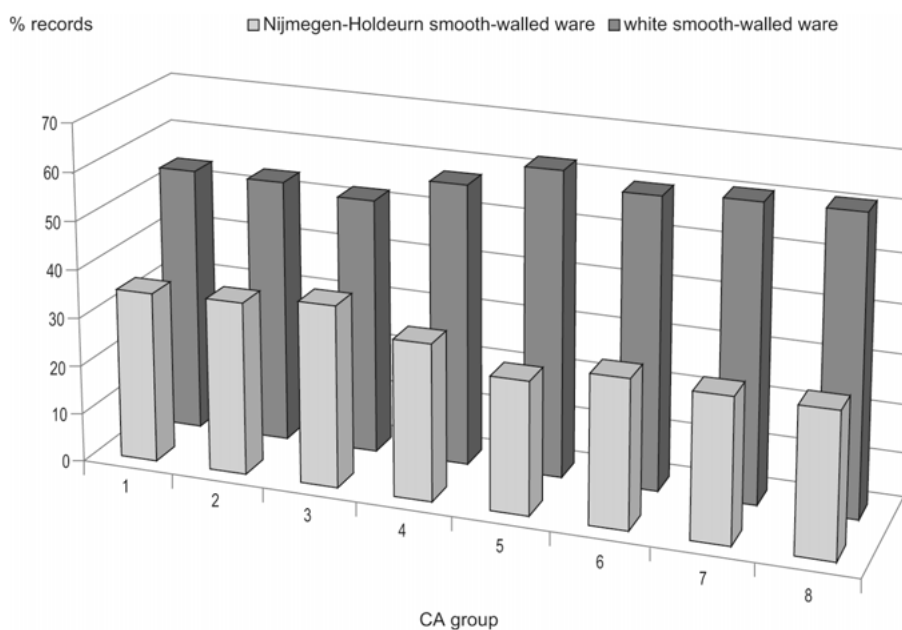


Fig. 9. Nijmegen, excavation Canisiuscollege: shares of Nijmegen-Holdeurn smooth-walled ware and of similar pottery in other (white) fabrics in the eight chronologically arranged CA-groups.

From the dates provided by the CA-groups that have yielded the majority of Nijmegen-Holdeurn ware it is tempting to suggest the rebuild of the fortress, shortly after the legion took part in the suppression of the rebellion of Saturninus in AD 89, as a stimulus for the production of legionary pottery.²³ Perhaps this event attracted more people to the Hunerberg,

causing the *canabae* and therefore demand to grow. In this period the demand for wheel-turned Roman pottery also grew in the hinterland. These events might have caused a situation whereby the regular workshops couldn't supply all these markets sufficiently anymore.

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²³ For the periodization of the fortresses at the Hunerberg in Nijmegen cf. HAALBOS ET AL. 1995, 6–7.

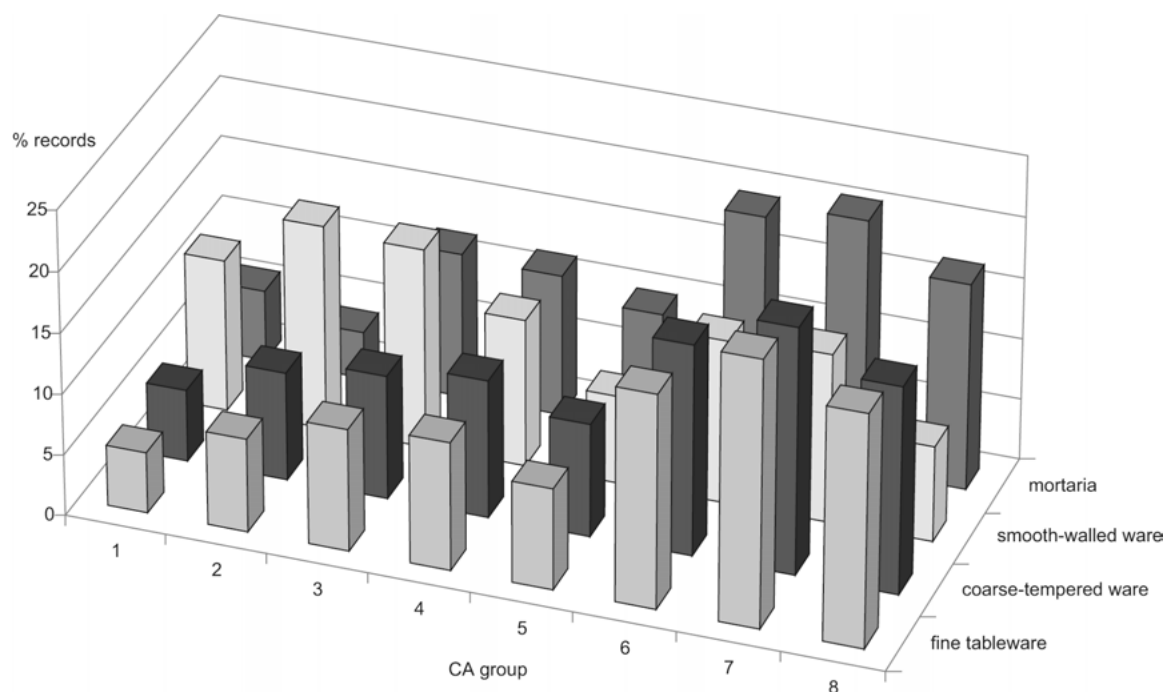


Fig. 10. Nijmegen, excavation Canisiuscollege: distribution across the eight chronologically arranged CA-groups of all four categories of Nijmegen-Holdeurn ware.

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