Catalogue of early medieval building ground plans from the excavations Geldrop-Genoenhuis and Dommelen-Kerkakkers

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**Introduction**

In the years 1980-1983, excavations were carried out in Dommelen (Municipality of Valkenswaard, province of North Brabant, the Netherlands) by the University of Amsterdam prior to the realisation of a new residential area, in the vicinity of the former medieval church of Dommelen. These excavations are known as the Dommelen-Kerkakkers excavations. Features dating to the Bronze Age, Iron Age, the Middle Ages and modern times were found during these excavations, but no features dating to the Roman period. In the years 1989-1996, 2000, and 2004 excavations were carried out in Geldrop (Municipality of Geldrop, province of North Brabant) by the University of Amsterdam prior to the realization of a new residential area in the area between the hamlets of Hoog Geldrop, Riel and Genoenhuis. These excavations are known as the Geldrop-Genoenhuis excavations. Features from the Bronze Age, Iron Age, the Middle Ages and modern times were found. Again no features dating to the Roman period were found. A Roman settlement several hundred meters further away was destroyed during sand extraction.

The data from both excavations have been used in interpretative overviews but have never been published in detail. The graves found in both excavations have been published recently: Theuws, F. (ed.), 2023: *Distributing the dead. Settlement burials in the pagus Texandrië and the transformation of Merovingian society c. 700 AD (Southern Netherlands)*, Bonn. <https://www.academia.edu/125306491/Distributing_the_Dead_Settlement_burials_in_the_pagus_Texandri%C3%AB_and_the_transformation_of_Merovingian_Society_c_700_AD_Southern_Netherlands_>

A detailed analysis of the early medieval building ground plans of both settlements was published in the *Zeitschrift für Archäologie des Mittelalters*.

The documentation of each individual building plan is presented here as supplementary data. The following explains how each building plan is described and what is shown in the set of drawings of each building plan and the finds tables.

The catalogue of early medieval building ground plans

This catalogue describes all features of buildings and the finds found in them.

The starting point of the description are the basic observations in the field and not the irinterpretation. Structures are described as much as possible in terms of the constituent features (for example: 'opposite post holes') and not in terms of (interpretative) architectural elements that can possibly be reconstructed based on them (for example 'the truss'). The interpretations are presented in the published article.

The catalogue of building ground plans is set up according to a standard to guarantee that of comparable structures the same observations are always described which allows comparison. The graphic representation of the structures is also set up according to a standard.

The description of each building has three parts: a textual description (they have been made long ago and are for that reason in Dutch), a graphic representation and a series of tables in which the finds are described. These documents are brought together in a folder for each separate building ground plan.

**The textual description**

Although it has been explained above that the description of structures is based on observations in the field, it is inevitable that a distinction is made between features associated with dug-in posts that carried the weight of the roof (the core or skeleton of a building) and those associated with posts that provided strength to the wall or extensions of the building.

The building ground plans are described according to a protocol in which the following elements always recur (the Dutch language headings above the relevant paragraphs are in bold):

The features of the core or skeleton (**De kern**)

The features of the walls and extensions (**De wand**)

The features of entrances (**Ingangen**)

The features of a possible interior layout (**Binnen-indeling**)

Features of special elements (**Bijzondere elementen**)

Features of renovations (**Verbouwingen**)

Features that provide indications on the disappearance (demolition) of the building (**Het verdwijnen van het gebouw**)

Cuts or stratigraphic relations (**Oversnijdingen**)

A table with the dimensions of the building (**Maatvoering en gegevens gebouwplattegrond**)

A table with the correlation between features and find numbers (**Correlatie sporen en vondstnummers**)

The description uses a series of terms that are defined here.

Sectioning (**couperen**) is making and studying a vertical cross-section (profile) through a feature.

A post hole (**paalkuil**) is the total set of layers and units that have arisen because of the digging-in and disappearing (rotting or extraction) of a wooden post. Each of these units forms the smallest observable archaeological unit. It is very important to distinguish between these units when recovering finds because the dating depends on the finds in the different units.

The post pit (**insteek**) is the unit that has been dug to place a wooden post in the ground, i.e. the pit to place the post and the backfill thrown in after the post had been placed. The **insteek** is thus both an interface (the outline of the original pit) and the layer(s) in it except the ones described below.

The core (**paalkern**) is the backfill at the place where the post originally stood. It is the filled cavity that came about after the wood of the post had rotted away.

The top fill (**nazakking**) is the upper fill of a post hole in a bowl-shaped depression that came about because of the collapse of the walls of the core.

An extraction pit (**uitgraafkuil**) is a pit dug when removing a wooden post.

The following terms are used when describing the building ground plans:

The axis of the building (**as van het gebouw**) is the geometric axis of the building that is determined by drawing a line across the middle of both ends of the core of the building

The ridge line (**noklijn**) of the building is the line across the ridge poles.

A bay (**travee**) is a transverse space in the building that includes both a part of the core and parts of the outer aisles.

The core space (**kernruimte**) is the space between the roof-bearing posts.

The outer aisles (**buitenstijlruimte**) are the spaces between the roof-bearing posts and the wall (posts).

A section (**vak)** is the space between four roof-bearing posts.

The line of the transverse connection (**lijn van het dwarsverband**) is the line between two opposing posts perpendicular to the length of the building.

The line of the longitudinal connection (**lijn van het langsverband**) is the line over the roof-bearing posts or wall posts in the length of the building.

A diagonal (**diagonal**) is a line between two roof-bearing uprights or wall posts in the opposite rows

When we talk about one, two or three aisles, we refer to the layout of the ground plan. This will generally correspond to the three-dimensional layout of a building, but this does not always have to be the case. Other authors speak of one, two or three naves.

Single-aisled (**eenschepig**) is a ground plan if there are no roof-bearing posts between the walls in the interior of the building.

Two-aisled (**tweeschepig**) is a ground plan if there is one row of roof-bearing posts between the walls in the interior of the building. This row is usually in the middle of the building on the axis line or on the ridge line.

Three-aisled (**drieschepig**) is a ground plan if there are two rows of roof-bearing posts between the walls in the interior of the building. Usually there are two posts opposite each other which thus form a pair.

Sometimes there is a four-aisled (**vierschepig**) ground plan, in which case post holes are also found on the axis or the ridge line of the building in a three-aisled ground plan. It is not always clear whether this concerns pits for roof-bearing uprights.

A small gully below the drip edge (**osendrup**) is below the eaves in which rainwater from the roof was collected.

The whole pit (**hele kuil**) is a description in the correlation table traces - find numbers for a post hole in which no further subdivision could be seen or were recorded.

**The graphic representation of the buildings**

The graphic representation of each building consists of an A3-sized document on which several frames have been placed that have the letters A to F. Each of these frames contains specific information. If there is no information for a particular frame, the frame has been omitted or left empty. All ground plans are on a scale of 1:200.

In frame A, there is a section from the all-feature plan in which the features of the building presented are marked in grey in a light brown frame that indicated the possible maximum size of the building. This makes it possible to determine which tracks were used for the reconstruction of the building ground plan from a multitude of features on the site. It also allows for other readers to decide whether features not included do form a part of the building ground plan.

In frame B, the ground plan is shown in the horizontal plane, in which in several cases it is indicated which parts of the post holes belong to the post pit and which parts are a cores. Cores that were not observed in the upper horizontal plane, but later while sectioning the feature, are indicated with a broken line.

Frame C shows the way in which the features of the building have been sectioned and the resulting cross-sections. In this way it is possible to show in which post holes cores were found or whether there are extraction pits etc. The scale of the sections is 1:100.This allows for a better analysis of the building features than when only a schematic representation of the depth is shown. The aim is to be able to write a ‘biography’ of the building (construction, use and demolition) and not just to elaborate on the construction (for which the depth of the post holes is important). In addition, a better estimate of the usefulness of the associated find complex is possible because it is visible from which units the finds originate. After all, there can be a significant difference in dating between finds from the post pit and those from the core and the top fill. A good estimate of the formation processes in post holes can thus contribute to a better estimate of the date of buildings.

In frame D, the distribution of the most important find categories over the features of the ground plan is shown. This distribution can be of help when considering the use of the different parts of the building or the formation processes of the data.

In frame E, either a photo is shown of the building as it was found during the excavation or an additional floor plan with, for example, lines that elucidate the interior arrangement of the building.

In frame F the finds that were found in the features of the building are depicted or, if frame E is occupied by a photograph, a drawing showing the plan with the lines related to the interior arrangement or renovations.

**The tables with finds and the abbreviations used therein (by W. Kemme)**

For each building or structure, several tables are shown with the finds that were made in the features of the structure.

The finds table

The first table is the standard finds list. This table indicates which main categories of finds are present. For some main categories of the Merovingian buildings of Geldrop (so not for the Carolingian ones and the Dommelen excavation ones), determination tables are then given, such as for ceramics, brick, natural stone, glass, metal and cinders and slag. It was not always possible to determine everything in detail due to the high degree of fragmentation of the material.

Abbreviations used in the finds table. The following list contains the Dutch terms used in the tables.

Structuur nummer van de structuur (gebouwplattegrond)

Wp werkputnummer

Sp spoornummer

Vlak nummer van het vlak

Laag nummer van de laag

vnr vondstnummer

ker keramiek (in aantallen)

hl huttenleem (verbrande leem, in gewicht of indien te miniem in aantal)

ms maalsteen (tefriet, in gewicht)

sint/slak sintels/slakken (alle restanten van verschillende vormen van ijzerbewerking)

nst natuursteen

nstgew natuursteen gewicht

slst slijpstenen

met metaal

metgew metaal gewicht

bot bot materiaal

bakst baksteen

silex vuursteen

glas glas

hk houtskool

mortel mortelresten

hout houtresten

overig overige vondsten

tot totaal

 De aardewerktabel

In de aardewerktabel worden de determinaties gegeven van de keramiekvondsten.

Afkortingen en definities gebruikt in de aardewerktabel.

Structuur nummer van de structuur (gebouwplattegrond)

Wp werkputnummer

Sp spoornummer

laag laagnummer en beschrijving van de laag (insteek, kern, nazak, reparatiekuil)

vnr vondstnummer

n aantal scherven

r aantal randscherven

w aantal wandscherven

b aantal bodemscherven

o aantal scherven behorend tot het oor

t aantal scherven behorend tot de tuit

gew gewicht van de scherf of scherven

diam diameter van de rand of bodem

%Diam hoeveel procent er nog over is van de totale diameter van de rand of bodem, in procenten

openheid open of gesloten vorm

 open vorm: randdiameter is gelijk of groter dan de buikomvang, vb. bord, schaal

 gesloten vorm: randdiameter is kleiner dan de buikomvang, vb. kom, urn, kan, kruik

randvorm vorm van de rand, uitsluitend het bovenste deel

 Hierbij wordt onderscheid gemaakt tussen de volgende randvormen,

 plat

 rond

 spits

 schuin afgesneden

 omgeslagen naar buiten

 verdikt naar buiten

 verdikt naar binnen

 verdikt naar beide zijden

aanzet tot rand vorm van het deel tussen de buik en de eigenlijke rand

 Hierbij wordt onderscheid gemaakt tussen de verschillende randvormen.

 recht

 dekselgeul

 schuin naar buiten

 schuin naar binnen

 gebogen naar buiten

 gebogen naar binnen

buikvorm vorm van de buik

 Hierbij wordt onderscheid gemaakt tussen:

 knikwand, bij een duidelijke knikwandpot

 knik, wel een knik maar niet duidelijk knikwandaardewerk

 bol

 aanzet tot bodem

 deel van schouder

bodemvorm vorm van de bodem

 Hierbij wordt onderscheid gemaakt tussen de verschillende bodemvormen.

 hol

 plat

 bol

 met standvoet

 met standring

 lensbodem

imagering insluitsels die in de fragmenten aanwezig zijn, zowel natuurlijk als toegevoegd: zand/steengruis/chamotte e.d.

determinaties in het geval, dat een scherf gedetermineerd kan worden naar productieplaats, bijvoorbeeld als Pingsdorf of Badorf wordt dat hier vermeld. Een vraagteken betekent, dat de scherf niet Merovingisch is, maar dat het ook niet bekend is wat het wel is.

baksel onderverdeeld in 6 categorieën: korrelfrequentie, korrelgrootte, kleur buiten, kleur breuk, kleur binnen, hardheid

b/korrelfrequentie de mate waarin de magering voorkomt uitgedrukt in een percentage

b/korrelgrootte de grootte van de korrels magering uitgedrukt in mm

b/kleur buiten kleur van de buitenzijde van de scherf, bij een combinatie van kleuren is de eerstgenoemde kleur dominant, bv. rood-bruin is meer rood dan bruin.

b/kleur breuk kleur van de breuk volgens de Munsell Soil Chart

b/kleur binnen kleur van de binnenzijde van de scherf volgens de Munsell Soil Chart

b/Oxi/Red of het aardewerk oxiderend of reducerend gebakken is

b/hardheid hardheid van het aardewerk volgens Mohs’ schaal van hardheid

opp. bewerking de manier waarop de buitenzijde van een scherf is afgewerkt. Hierbij wordt onderscheid gemaakt tussen:

 gladwandig: aardewerk met een glad oppervlak

 gepolijst: gladwandig aardewerk dat na vervaardiging extra geglad is door opwrijven, zodat het een glad oppervlak kreeg met een metaalachtige glans

 ruwwandig: aardewerk met een ruw oppervlak

 afgestreken ruwwandig: ruwwandig aardewerk dat na vervaardiging is afgestreken met een natte doek of iets dergelijks. Hierdoor voelt de buitenzijde minder ruw aan. Bij deze scherven zijn er vaak duidelijke sporen, vegen en strepen, te zien veroorzaakt door het afstrijken. De binnenzijde voelt vaak ruwer aan

hand/gedraaid of het aardewerk handgevormd is of op de draaischijf gemaakt

versiering beschrijving van eventuele versiering

opmerkingen hier kunnen eventuele bijzonderheden of literatuurreferenties worden ingevuld

In determining the ceramics, the scheme of Mathew, Woods and Oliver was chosen to determine the grain size and frequency of the tempering, which was also used in the study of the Wijnaldum pottery and the Roman pottery of the Tongeren reference collection. This scheme can be used to display the absolute size and quantity (expressed as a percentage) of inclusions within a range. It therefore does not provide exact numbers and in a sense the groups can be interpreted as few, medium and many or small, medium and large, but the results are easier to compare with other complexes.

The size is shown in four groups from 0.5-0.1 mm to 0.5-3.0 mm. <0.5 has been added for the barely visible inclusions. The percentages for the quantity of inclusions are shown in groups with 10% in between. These steps are often reduced to 5%. The grain size and quantity were determined macroscopically, sometimes using binoculars. The type of inclusions was also examined to try to identify them more specifically. Due to a limited knowledge of minerals it was not possible to determine the inclusions specifically. Therefore, only the color of the inclusions that could not be determined was described.

The colour description was done using the Munsell Soil Chart. The ability to better compare pottery complexes was also the most important argument for this adjustment.

The hardness was determined using the Mohs scale of hardness. The Mohs scale is a relative scale, which runs from 1 to 10, with each number corresponding to a mineral. The scale is relative, because the difference between 9 and 10 is many times greater than between, for example, 1 and 2. By scratching an object with one of the minerals from the list, it can be determined whether the object is harder or softer than the mineral and in this way the hardness can be measured generally. So only the scratch hardness is measured, which is only one form of hardness in addition to, for example, hardness under pressure. Despite its limitations, the Mohs scale is often used to determine the hardness of pottery and is therefore useful for comparison.

The spreadsheets include a column with determinations of the pottery. This column indicates, among other things, when a fragment is non-Merovingian, but also partly “determinations” of the Merovingian material.

The material can be divided into several groups based on surface treatment and whether the shards were baked in a reducing or oxidizing manner. This concerns the following groups:

- Coarse ware (reducing/oxidizing) (**ruwwandig reducerend/oxiderend**)

- Polished (reducing/oxidizing) (**gepolijst** **reducerend/oxiderend)**

- Fine ware (**gladwandig**)

Coarse ware

The coarse ware pottery is divided into a reducing (RUWWRED) and an oxidizing (RUWWOXI) firing group. No further distinction is made, although there are indeed differences. Given the relatively small number of fragments, a further division is not useful. It is also important to indicate that the determined shards do not indicate all shards that could belong to the group. Because the groups consist of fragments that are indeed related to each other, but also differ from each other to some extent, the boundaries of what does and does not belong cannot be very clearly defined. This can lead to a number of sherds that do belong to the group but have not been determined as such. The most important consequence of this is that the determinations must be used with some caution in quantitative analyses.

Polished

The surface of this pottery is polished. Most polished pottery is fired in a reducing atmosphere and has little to no temper. The color of the fracture is often red-brown and the hardness of the shards is quite soft.

Among the polished pottery, the bowls seem to have a separate firing. Only three rims and a few bases of these bowls have been found. The polished surface is not present in a number of cases, but the surface of the shards suggests that it is not the original surface. In addition, other shards of bowls have the same structure and color on the fracture and have also remains of a polished surface, which is always strongly weathered. This firing can be linked with certainty to bowls in almost all cases. Only one wall shard cannot be determined from what shape the vessel had. The paste of the bowls, like the other polished pottery, has little to no inclusions. The paste is brown in almost all cases (7.5YR/5/3). It always concerns bowls with a conical wall, but not of one clear type.

Fine ware

Fine ware is the ceramics where (almost) no inclusions come through the surface of the fired clay. However, there is also a group of smoothed coarse ware where the temper does neither come through the surface. However, this is defined as pottery with a 'bumpy' surface where the temper is covered. Often there are still traces of finishing in the form of sweeps and strokes. The inside is often less fine worked. The fine ware has not been further subdivided, because no clear coherence could be discovered during the study of the pottery. That is because there are fewer fine ware shards than coarse ware shards which means that there is less to put together. In addition, the fine ware fragments are often small. Although weight is not an absolute indication of the size of the shards, it does provide a good estimate. In particular, the shards of three grams and less are so small that they are difficult to describe. These factors may explain why it has been difficult to find coherence within the group of fine ware shards.

In addition to the "determinations", the comments indicate in several cases when a shard fits another, when a shard resembles another one and when several fragments probably belong to the same pot.

The brick table

Most brick fragments originate from Roman roof tiles and *imbrices* which were reused in the Middle Ages. When describing the brick fragments, the shape/type, size, impressions, thickness and height of any edges were considered. The column ‘comments’ indicates whether the thickness of a fragment also represents the original thickness to indicate which data can be used for further analysis of size. The comments also state the height of the edge of tegulae and, in cases where this was possible, the shape/type of the fragment is noted.

The stone table

The natural stone is described by number of fragments, weight, dimensions, shape and, if applicable, the type of stone and type of object. Although all tephrite is noted separately in the general finds list under ‘millstone’, it is also placed in the natural stone table. This is partly because it seems unlikely that some fragments are pieces of millstone, and partly because it seemed better to describe all the material per material type. The grinding stones have therefore also been placed in the natural stone table.

The largest length, width and height have been measured for the dimensions. The shape of the stones is described in three terms, namely rounded, rounded/angular and angular. The idea behind this is that the more rounded the stone, the more likely it is naturally formed and vice versa. The vast majority of stones are angular, there are a few rounded/angular fragments of which the majority is tephrite and there are very few rounded stones among them. It therefore seems plausible that most of the stone has been worked, and it probably came from elsewhere.

Except for tephrite and flint, it has not been possible to identify stone types. It may be interesting to have an origin determination done.

Grinding tools are generally divided into three types:

- Whetstones: can be used in the hand, are portable and usually rod-shaped or block-shaped.

- Grinding stones: relatively immobile, have rotating and non-rotating types.

- Grinding blocks: have an irregular shape, they are often reused grinding stones. One criterion used to differentiate grinding stones from grinding blocks is that grinding blocks must have at least two grinding surfaces.

All the grinding tools from the features examined are whetstones according to this classification. One stone is a lot bigger than the other but is probably still mobile enough to be identified as a whetstone.

Tephrite is usually found in the form of grinding stones. It is therefore plausible that most fragments come from grinding stones. However, there are several pieces that look like building blocks or something similar.

No specific determination has been made of the flint.

The slag and cinder table

Slag and cinders are considered here as remains of all types of metalworking. A further division into types of activities has not taken place. This must be done by a specialist. The largest length, width and height and the weight have been examined. A column indicates whether it is a slag or a cinder.

The metal table

The metal is described per object and then according to the number of fragments, weight, dimensions, type of metal and possibly what kind of object it is. For the dimensions, the largest length, width and height have been measured. In some cases, it has been decided to give both the minimum and maximum width or height, because the object tapers. In the case of nails, the thickness of the shaft is mentioned in the comments.

The glass table

Very few glass fragments have been found.