

EXCAVATIONS AT THE GROTENBURG & PIEPENKOPF HILLFORTS, WESTPHALIA, GERMANY.

An Interim Report



By
**I. Dennis, O. Davis &
Johannes Muller-Kissing**

CARDIFF STUDIES IN ARCHAEOLOGY



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1. Introduction

The project in 2017 at the Westphalian hillforts of the Grotenburg and Piepenkopf was a pilot scheme intended to build upon existing collaborative working between Cardiff University (UK), Lippisches Landesmuseum Detmold (LLM) and Bochum University (Germany). The aspiration was to link the theoretical approaches to Iron Age hillfort studies across Europe and enable comparative analysis between different regions.

The region of modern Germany possesses a dense concentration of hillforts particularly in the southern regions of Baden-Württemberg and Bavaria. The Iron Age in lowland northern Germany is distinctively different and characterised by an absence of hillforts, the predominance of distinctive byre houses (Wohnstallhaus) and a reliance on cattle rearing. The region of Westphalia, in north-west Germany, is located at the interface of these two zones. Topographically the region can be divided into a lowland north and upland south broadly separated by the Teutoburg Forest. The battle of the Teutoburg Forest between the Germanic tribes unified under Arminius and the Roman legions led by Publius Quintilius Varus occurred somewhere in this region in AD 9, probably near Osnabrück. The victory of Arminius was decisive in preventing further Roman advances into northern Germany and later became a symbol of German unity. In the 19th century it was memorialised by Ernst

von Bandel with the erection of the Hermannsdenkmal within the hillfort of the Grotenburg, one of 27 in the region. Bandel considered the Grotenburg to be the primary settlement of the Cherusci tribe, but with little evidence to support such a position. In fact, there has been relatively little study of the Iron Age in Westphalia and our knowledge of the period in this region is surprisingly poor given its key location on the boundary between the Celtic and Germanic worlds. The extent to which the region was peripheral in the Iron Age, or conversely, a core zone of cultural contact and exchange is unclear. Indeed, while the hillforts of Westphalia display morphological similarity with others to the south, until recently none had seen anything beyond superficial excavation and it is not an exaggeration to say that we knew little about their construction, use and how they related to non-hillfort settlement and activity. A key research question therefore is why do hillforts exist in this region? Was their formation a result of contact with communities to the south, or rather, a result of endogenous social needs or tensions? This project aims to gather new chronological, structural and artefactual data from several Eastern Westphalian hillforts located in Kreis (county) Lippe. Drawing from interpretive models inspired from both German and British traditions, we aim to examine the extent to which hillforts in the region were centres of production and settlement, and the role they played in warfare and the construction of identities.

2. Research Background

The Kreis (county) Lippe is part of the state of North Rhine Westphalia (NRW) in the west of Germany. Situated in the north-east of NRW, Lippe borders on the state of Niedersachsen (Fig 2.1). The county, with a size of 1,246 square kilometres (ca. 42 km N-S, ca. 47 km W-E), can be divided into three different topographical regions. Despite its large size, only around 350,000 people reside within it. This low density of population means there is little destructive urban development and means that archaeological sites tend to be well-preserved. In addition, huge areas of the landscape have been forested since the Middle Ages or used for dairy farming.

The institution responsible for the archaeological heritage, control and monitoring of building sites and the execution of excavations is the archaeological department of the Lippisches Landesmuseum Detmold (LLM). It is part of the Landesverband Lippe, the cultural and social organ of the county.

In the south-west the three ridges of the Teutoburger Forest, to this day, cause a traffic and transportation obstacle because very few natural crossing points exist. To the north and west of the ridges start the fertile lowlands, which run to the west up to Osnabrück and beyond. The northern and eastern boundaries of this area are of agricultural importance and are limited by yet another mountainous terrain, the "Lippisches Hügelland". In contrast to the Teutoburger Forest, the north-eastern hills do not form a significant barrier to movement. The agricultural potential of the Teutoburger Forest and the areas to the south-west is relatively poor because of the very sandy soil, but the north-eastern region is more productive and exploited today primarily by small-scale dairy farmers (Springhorn 1985, 11-20).

The known Iron Age hillforts in Lippe are situated on the hilltops of the outer ridgelines with a clear view of the valleys and lowlands nearby. They are situated in the vicinity of trading routes, which can be dated back to the (early) medieval period. There is no evidence to support a prehistoric date for the trails, but in general most of them align with prehistoric burial sites.

Going from west to east five sites can be identified as hillforts. The Tönsberg and the Grotenburg are located on the ridgelines of the Teutoburger Forest. The other three hillforts of Lippe are located in the rolling country to the north-east. The Piepenkopf is located 5.2 km to

the west of Lemgo, while in eastern Lippe, six to eight kilometres east of Blomberg are the Herlingsburg and the Rodenstatt.

The Grotenburg and Herlingsburg have names possibly of some antiquity, whereas the Tönsberg and the Piepenkopf are named after the hills the forts are located on. The fifth hillfort, the Rodenstatt, has its name derived from the area it is situated on. The first scientific surveys on the hillforts in Lippe were conducted by Clostermeier in 1822. He and his successors saw the hillfort ramparts as Germanic fortifications built to repel the Roman advance into the region and tried to link them with the famous battle of the Teutoburger Forest in 9 AD. Like most scholars of their time, they interpreted the sites mainly as military positions and used theories of contemporary 19th century fortification as a means to understand Iron Age/Germanic warfare (Schuchhardt 1931, 2; for a critique of this approach see Bérenger/Treude 2007, 7). New methods and means of interpretation were first applied after World War II along with the restructuring of archaeology as a discipline in Germany. Hohenschwert (1978) was the first scholar to publish a modern view on the hillforts in Lippe. While he referred to the sites as "Befestigungen" (fortifications), he did not see them as primarily military installations but as possible centres of a cultural phenomenon that needed to be deciphered (Hohenschwert 1978, S. 17). In 2002/2003 the special exhibition "Burgen in Lippe ...heute schützen wir sie!" refocused attention on the hillforts of Lippe (Salesch 2002), but there remains a poor understanding of how these hillforts were used, who built them and why they were built. One of the main problems is a lack of large-scale open area excavation. The majority of archaeological work at hillforts in the region was undertaken in the early 20th century and concentrated on the survey and excavation of entrances and ramparts with little exploration of the hillfort interiors. While this means we have a reasonable knowledge of the morphology of the hillforts and the form of ramparts, there is a serious lack of chronological, structural and artefactual data on which to base interpretations.

The generation of such data is a key objective of this new work by Cardiff University and the LLM. The two sites chosen for excavation within the scope of this work were the Grotenburg and Piepenkopf (see Fig 4). Both sites have been subject of previous excavations, although of a rather superficial nature, and it was considered that any

new data, particularly chronological would significantly enhance our understanding of the occupation and use of these sites.

The hillfort of the Piepenkopf was declared a listed monument in 1941 after Forest Warden Köster brought it to the attention of the authorities in 1933. The excavation of three trenches (Schnitt I-III) in 1939 had to be abandoned due to the outbreak of World War II. A quartzite quarry was dug inside the hillfort in 1942. Protests were ignored because the material was declared “kriegswichtig” - important for the war effort (Hohenschwert 1978, S. 87), and approximately 0.5 ha of the 7 ha central fort were destroyed. In 1966 Hohenschwert cleaned up and re-recorded Schnitt I from 1939, placed a new cutting, Schnitt IV over the south-east corner of the rampart (to investigate the possibility of an entrance due the gap in the outer palisade) and redrew all the plans and sections, including Schnitt III across the outer boundary. These were published in the late 1970s along with photographs (Hohenschwert 1978). A single radiocarbon determination was obtained from a charcoal sample recovered from a posthole in Schnitt IV. This produced a La Tene date (266+/-65 BC), but it is unclear if this is related to the beginning, middle or end of Iron Age activity at the site. Until the commencement of this work there had been no further excavations.

The Grotenburg is better known today as the site of the monument of Arminius (Fig 2.2). Work on the monument and the touristic infrastructure that has taken place since the early 19th century has destroyed most of the site. Stones from the dry stonewalls of the ramparts were used as hard core for the monument's foundations and the local population within the vicinity of the monument also used stone from the site for their buildings. A stone quarry in the north-eastern area of the hill has also destroyed part of the ramparts. Today the once prominent stone wall has mostly vanished while the interior has been heavily disturbed by the construction of a substantial car park and several large buildings in the second half of the 20th century.

The name “Grotenburg” first appeared in written sources in 1548: “grothe Borch” (huge castle) (Preuß 1893, 60). In the 1880s scholars like Hölzermann and Thorbecke suggested that the different ramparts on the hilltop and the smaller adjacent earthwork enclosure known as “kleiner Hünenring” were a huge network of fortifications erected by Arminius or other tribes during the wars against the Romans (Hölzermann 1878, 112; Thorbecke 1882, 42). Excavations at the site have taken place on several occasions, first in the early 1900s and then in 1950 and the early 2000s. The excavations by Nebelsiek in 1950 were the largest - ten trenches were placed at various points over the outer stone wall (Fig 2.3, Hohenschwert 1978, 117), although the results were mixed. Parts of the ramparts were sectioned and the location of a gap interpreted as a

gateway was recorded, although the structural evidence is not entirely convincing and the nature of the defences remains unclear. Several small-scale excavations within the interior of the hillfort in the early 2000s revealed only small pits for a tree plantation. Little dating material has been recovered, although a Roman pilum head was found at the Grotenburg during the excavations on the Großer Hünenring at point 5, see fig 2.3. and a single radiocarbon sample from the palisade, Schnitt 6, see fig 2.3 produced a La Tene date (266+/-63 BC) comparable to that obtained from the Piepenkopf. This has been taken to suggest that the hillforts in Westphalia are a phenomenon of the middle La Tene period (Lt B2 to Lt C1) with a focus of activity in the third century BC (Schulze-Forster 2007), but the current evidence for this is unconvincing and earlier or later dates are entirely plausible. That some sites may have been occupied at the time of the Roman advance into the region is suggested by the discovery of a pilum associated with the ramparts at the Grotenburg.

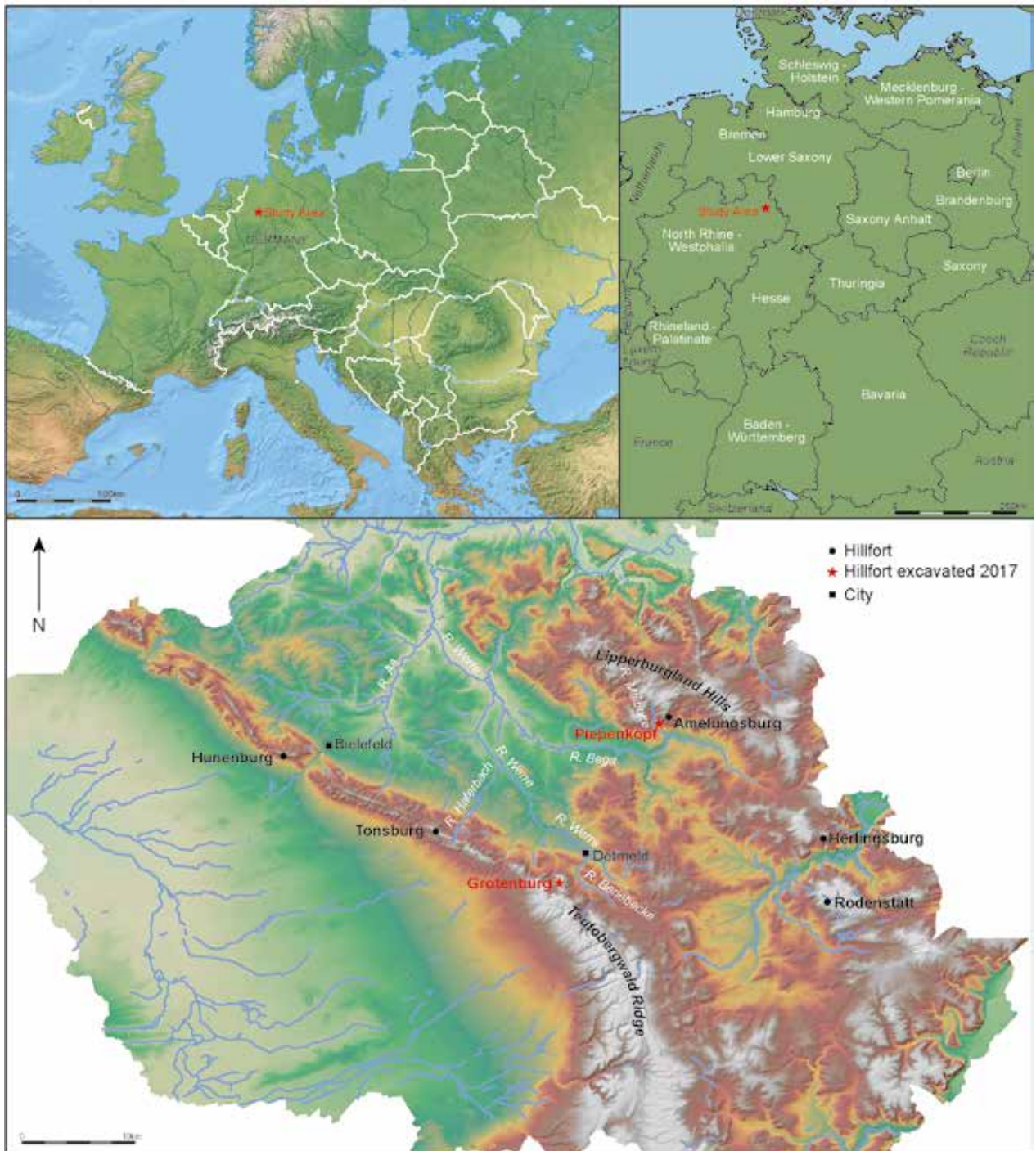


Fig 2.1. Location map showing the study area and the location of the Grotenburg and Piepenkopf hillforts.



Fig 2.2. The Arminius monument at the Grotenburg and the Cardiff excavation team.

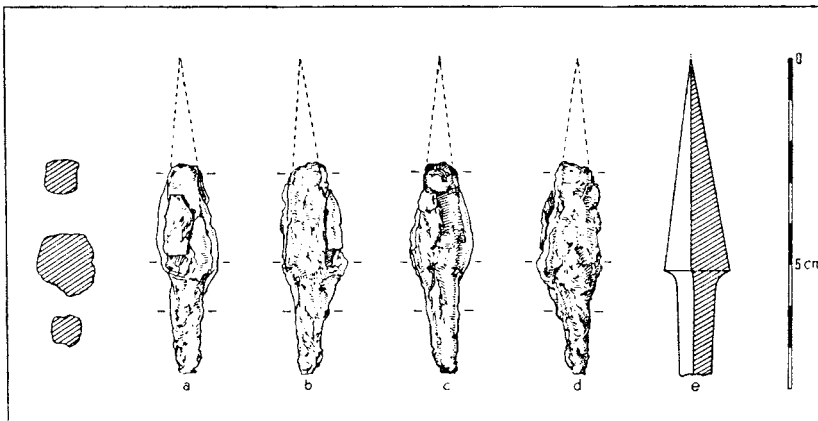
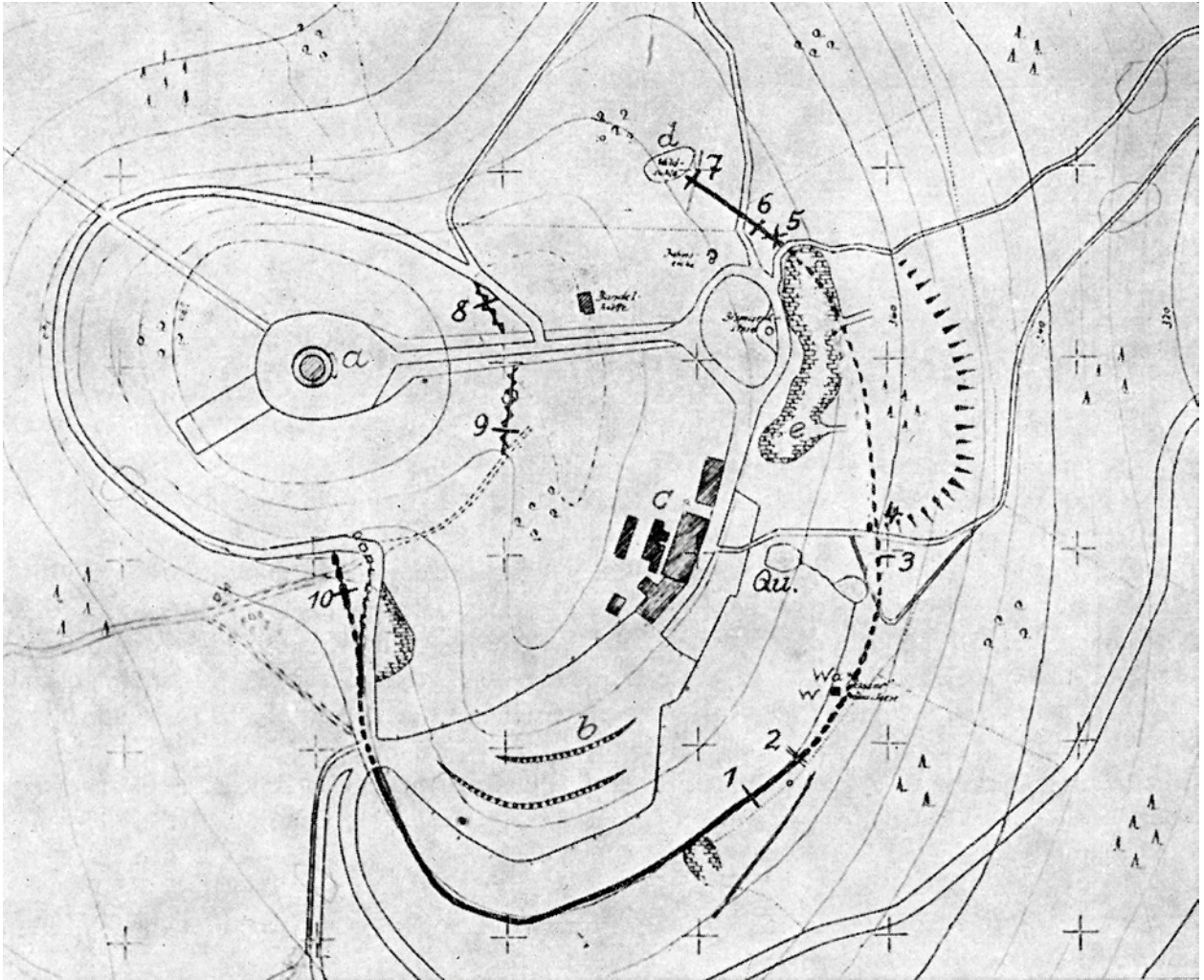


Fig 2.3. The Grotenburg plan of the excavations form 1951 and the pilum head found at point 5 (Hohenschwert 1978, Abb28 and Abb29, 117).

3. Aims for 2017

A single four-week season of excavation was carried out at both the Grotenburg and Piepenkopf Hillforts from 30th July to 18th August 2017. The overall aims of this research at both sites were:

- To assess the condition and survival of the remains
- To obtain dating material to help fix the construction, use and abandonment of the hillforts
- To recover structural, artefactual and Eco factual data relating to the occupation of the hillforts

Investigations at the Piepenkopf concentrated on re-excavating and re-recording all contexts at Schnitt II. This was originally excavated by Nebelsiek in 1939 and the aim was to clean back the section, record it and extend the trench west into the hillfort interior (Fig 3.1).

The Grotenburg excavations were designed to examine the outer rampart in detail and evaluate an area within the hillfort interior for potential occupational evidence. (Fig 3.2).

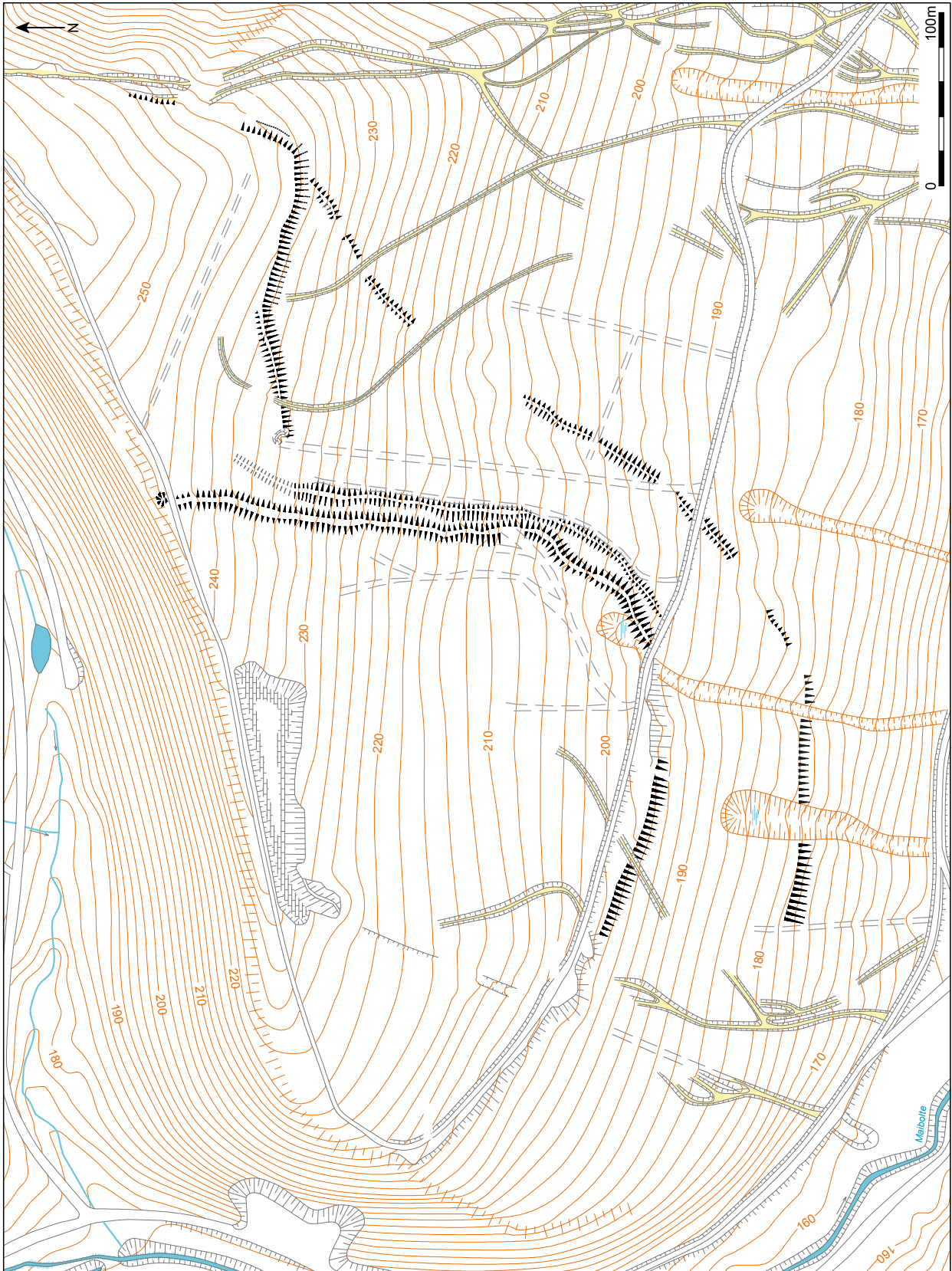


Fig 3.1. Topographical map of the Piepenkopf. Lippisches Landesmuseum Detmold (LLM).

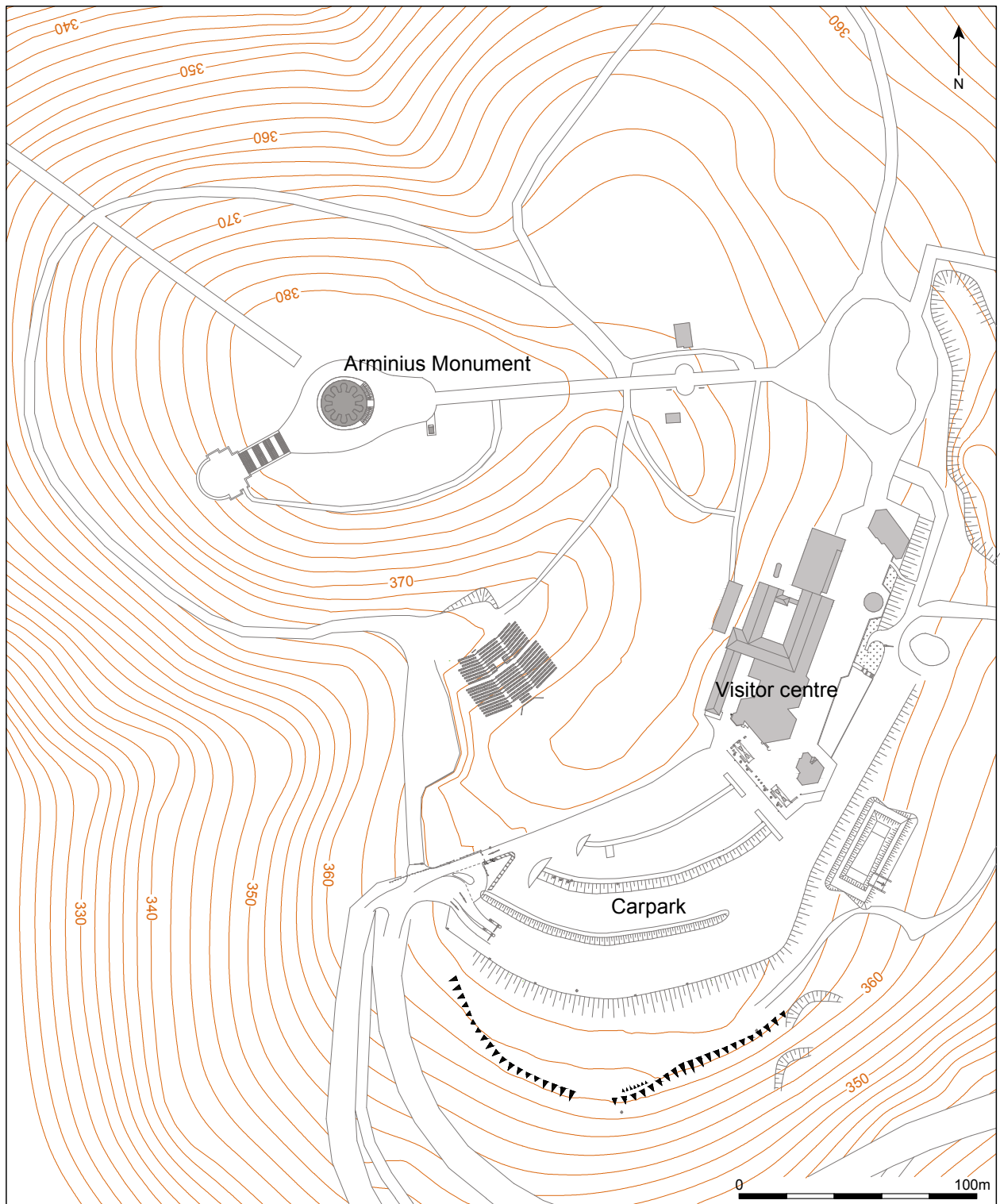


Fig 3.2. Topographical map of the Grotenburg. Lippisches Landesmuseum Detmold (LLM).

4. The Piepenkopf Hillfort

Grid reference TK 3919 Lemgo: r. 349780-349820
h. 576740-576780

Height: 190-240 m
Area size: 7 ha

The Piepenkopf Hillfort is located on the Lipper Bergland Hills. It occupies a triangular-shaped promontory with steep slopes on the northern, western and southern sides, and a relatively gentle sloping ascent on the east. The hillfort encloses around 7ha in total and is defined by two closely-spaced inner ramparts on its eastern and southern sides. A third outer rampart can also be partly traced around 20-30 m beyond the inner boundaries and incorporates a large polygonal enclosure or annexe outside the north-east corner of the hillfort. Early plans of the site show the inner rampart running continuously around the promontory, but there is no trace of it today along the steep northern edge. The position of the original entrance is unclear, but it is most likely located in the north-eastern corner where the boundaries are at their most complex and elaborate. The entire site is under dense mature woodland and crossed by forestry tracks, although even so a number of terraces, possibly platforms for buildings, are noticeable within the interior of the hillfort. A spring emanates in the south-east corner of the hillfort and flows out across the southern rampart.

Three weeks of excavation at the Piepenkopf Hillfort were carried out from 31st July to 18th August 2017. Two trenches were excavated, trench 1 was cut across the inner rampart and trench 2 was placed within the hillfort interior (Figure 4.1). Trench two was located in the interior of the hillfort to evaluate the stratigraphy and assess potential occupational evidence. The excavation conditions were variable ranging from hot and dry to overcast and wet. All archaeological features when identified were surveyed in using a Leica TS06 Flexline Total Station and finds were recorded with the find spot marked by a labelled tag.

All trenches and archaeological features were excavated by hand. Bulk soil samples for dating and other small artefacts (where appropriate) were taken from appropriate well sealed archaeological contexts or features associated with clearly defined structures. Samples of between 10-20 litres or 100% of smaller contexts were taken.

4.1 Trench 1

Trench 1 was located cutting across the inner rampart on the north-eastern side of the hillfort. This expanded upon Schnitt II from the 1939 excavations by Nebelsiek (Hohenschwert 1978) which had been left open due to the outbreak of the Second World War (Fig 4.2a and b). One of the aims of the 2017 excavation was to clean back and re-record the original cutting and obtain information to phase and date the rampart and any other associated features. Unfortunately, due to adverse weather and time constraints it was not fully re-excavated and recorded, but the intention is to revisit this cutting in 2018 and complete the excavation. For recording purposes the trench was divided in to two parts, Trench 1a and Trench 1b, which corresponded to the areas to the west and east of the centrally-placed rampart (Fig 4.3).

The trench was cleaned, cut back and expanded to allow the recording and allocation of context numbers to the deposits (Fig 4.4). Trench 1a and 1b had a combined length of 20m and at its widest point was 2m at the eastern end of trench 1a, and 1.5m at the western end of trench 1b. The depth of the trench below the modern ground surface was 0.56m at the eastern end, 1m at the rampart, 1.20m in trench 1b and 0.40m at the western end. Trench 1b was further extended to the west 5m by 0.6m (Fig 4.5). Images from the 1939 excavations show the depth and extent of the excavation of Schnitt II and the dry-stone revetment of the rampart (Fig 4.6). However, after cleaning and widening of the trench it became clear that the stone wall had at some point been removed, leaving only the tumble at the back of the rampart (Fig 4.7a and 4.7b).

The majority of the deposits within trench 1a and 1b are a yellow buff or yellow ochre in colour, varying in compaction, from hard to loose with some orange mottling. This made it difficult, especially on bright sunshine affected days, to identify subtle colour changes and distinguish between contexts. In trench 1a (eastern half) the natural (007) is a crumbly pale grey-yellow mudstone that contained small angular stones. This is different to the natural (016) found in trench 1b (western half), which is comprised of sandstone bedrock (Fig 4.8a and 4.8b). The rampart is located on the junction of these two natural deposits but their stratigraphic relationship at this point cannot be resolved until 2018, when the remaining rampart material will be recorded and removed.

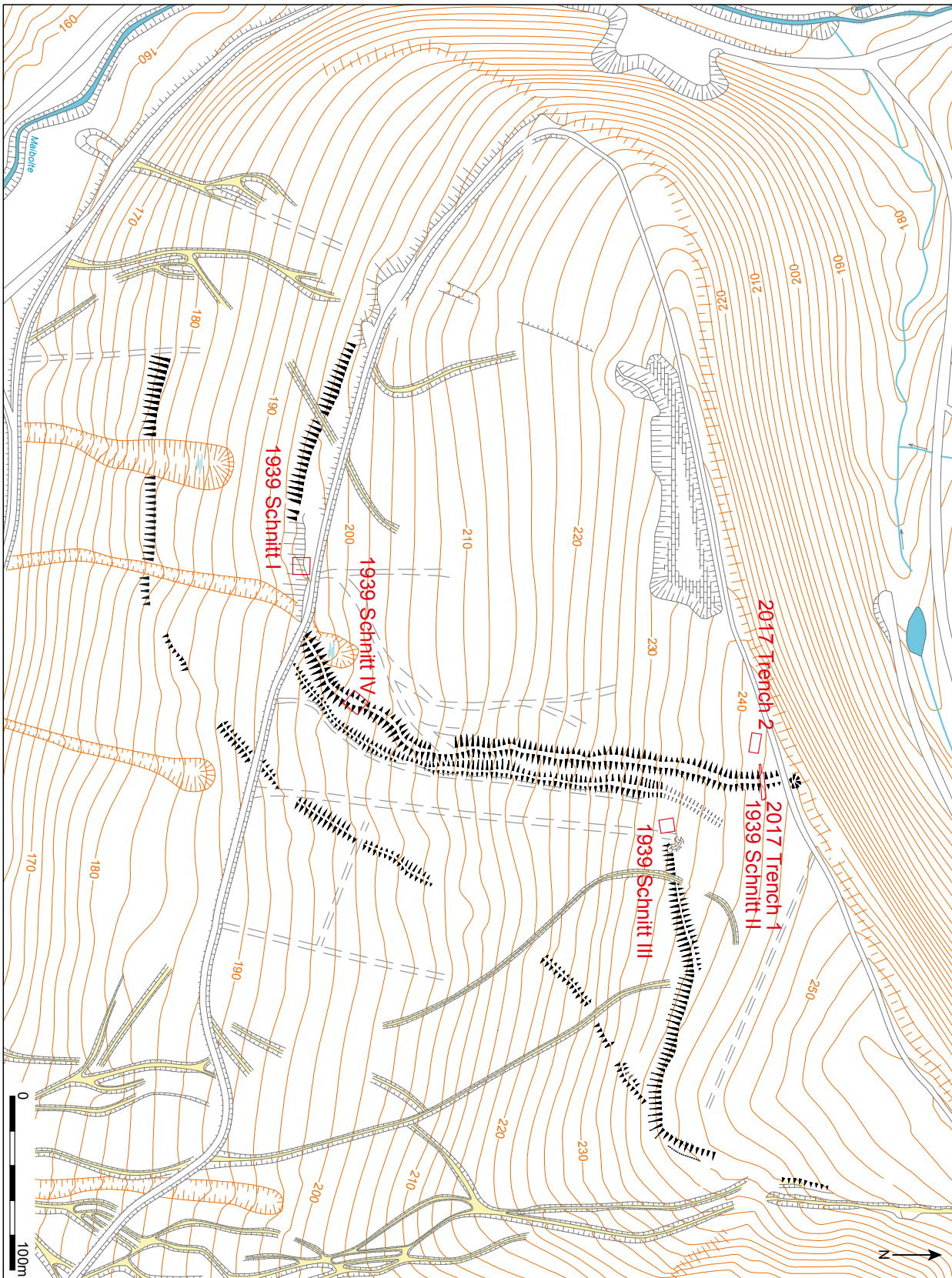


Fig 4.1. Plan of the Piepenkopf and the location of the excavations.



Fig 4.2a. Schnitt II, left open from 1939, before cleaning back.



Fig 4.2b. Cardiff archaeology students, initially cleaning back the 1939 trench.

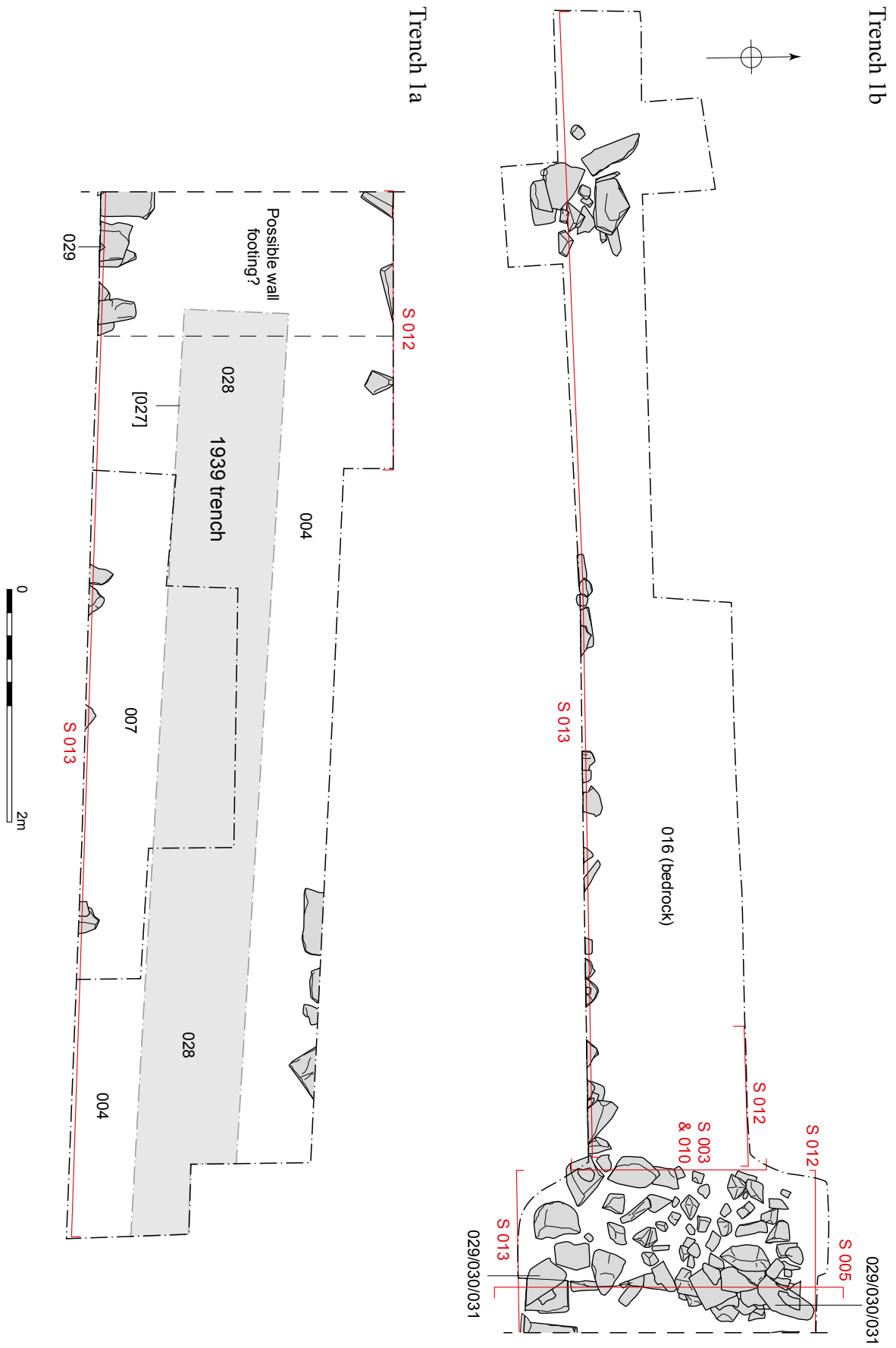
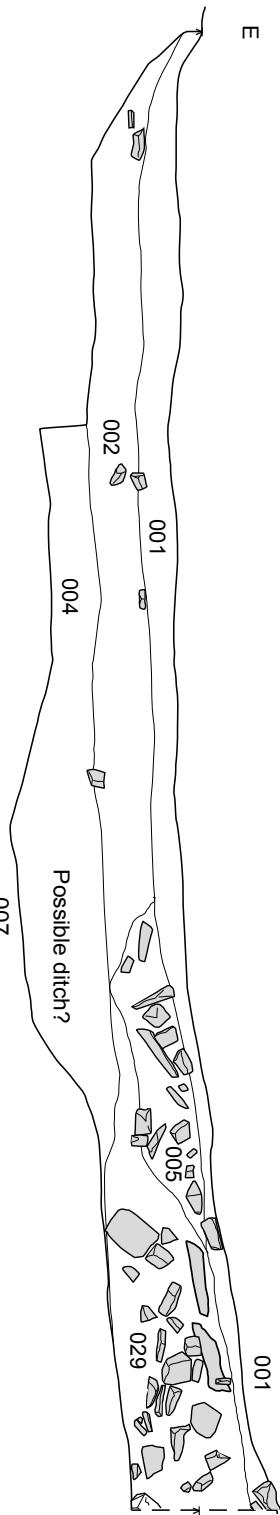


Fig 4.3. Plan of trench 1a and 1b, Piepenkopf Hillfort.



Fig 4.4. Trench 1a and the 1939 Schnitt II, after initial cleaning.

Trench 1a



Trench 1b

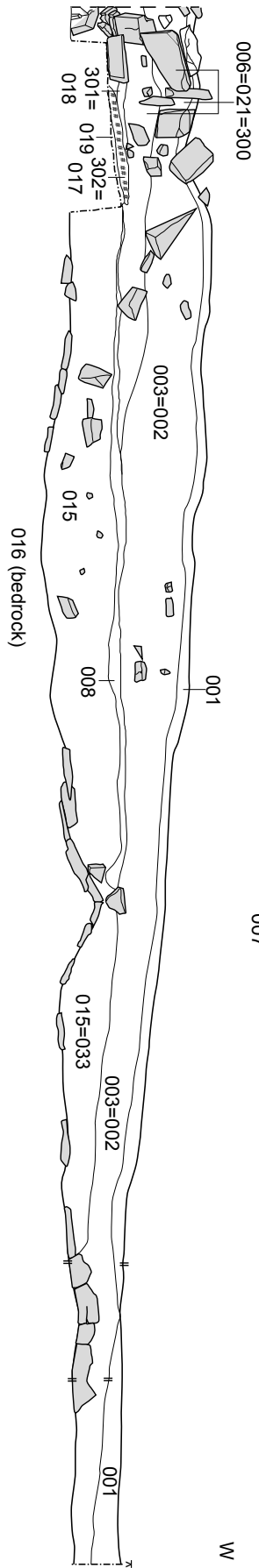


Fig 4.5. Trench 1a and 1b, section drawings



Fig 4.6. The wall from the 1939 excavations of Schnitt II. (Hohenschwert 1978, plate 35).



Fig 4.7a. The end of the 1939 excavation trench (the dark patch in the foreground) and where the wall has been removed, which can be seen to the north in the south facing section.



Fig 4.7b. The tumble from the wall.



Fig 4.8a. Context (007), the natural marlstone.



Fig 4.8b. Context (016), the natural sandstone.

4.1.1 Trench 1a

002, 004, 005, 007, 027, 028, 029, 030, 031

The natural (007) is a marlstone. In trench 1a it is directly overlain by context (004), which is a compact yellow orange sandy clay with some small stone inclusions. This is most likely to be a colluvial downward wash and organic build up. There is a possibility that (004) may have been cut by a ditch. This is very hard to discern (Fig 4.9a and 4.9b) but there is a rise in the natural (007) towards the wall (029), now removed. The fill of the possible ditch is a compact and mottled red/yellow sandy clay with some small to medium angular stones. There were no finds or datable evidence from this deposit and it could represent the fill of a natural hollow or depression, which have been observed on the hill. The deposit sealing (004) is context (002), a yellow ochre sandy clay and containing small rounded and angular stones. It is on average 0.30m deep and runs along the whole length of the trench (including trench 1b where it was allocated context number (003)). A single rim sherd of prehistoric pottery was recovered from this context, at the point where it meets (005). Context (002) is sealed by context (001), a very dark brown/black humic top soil derived from the leaf litter from the surrounding trees. Context (001) has been

allocated to all trench top soils. Context (005) consists of large angular limestone stones lying partially within context (002). This deposit is possible tumble from the revetment wall of the rampart (029), after the hillfort fell out of use or was abandoned. Context (029) is the rampart (see fig 4.9b) and consists of medium to large angular stones ranging in size from 0.20m to 0.40m. The large stones are contained within a matrix of small to medium angular stones and light yellow/orange ochre sandy clay which is presumably the infill of the rampart. The cut and fill numbers [027] and (028) were assigned to the 1939 excavation trench (see Fig 4.3).

4.1.2 The rampart

006, 015, 016, 017, 018, 019, 020, 024, 025, 300

Within the centre of trench 1 are the remains of the hillfort's inner rampart. The earliest deposit above the natural bedrock (016) was a yellow ochre sandy clayey deposit that contained small angular stones (015/020) and is equivalent to 002 in trench 1a. This was overlain by a thin lens of light creamy buff yellow sandy clay (019). It is equivalent to (008) in trench 1b (see below) and is possibly the Iron Age land surface. It is cut by a small posthole [024]. This was circular in plan, 0.18m



Fig 4.9a. Possible ditch cutting context (004).



Fig 4.9b. Wall section (029) and the wall matrix (030).

in diameter and 0.10m in depth, and filled by a mottled yellow, ash grey clay (025) that contained some small flecks of charcoal (Fig 4.10a and 4.10b). It is possible that this feature pre-dates the rampart, but it is more likely that it is part of a timber structure or framework which formed the back of the rampart Fig 4.11).

Sealing (019) and spanning the width of the trench is a grey black deposit (017), containing a very large quantity of oak and beech charcoal that had been heavily damaged by wood boring insects prior to burning (Fig 4.12). Deposit (017) was up to 0.12m thick and stopped abruptly as it reached the rampart core (see Fig 4.10b). This context presumably represents the burnt remains of old timbers located at the back of the rampart. A sample was sent for radiocarbon dating and produced a date of 381-204 cal. BC, suggesting a construction date at some point in the 4th or 3rd century BC. The possible burnt remains of an upright post or beam (022, 023) was also recorded in section (Fig 4.13). These burnt deposits are very similar to those identified in 1966 by Hohenschwert in Schnitt IV 1978 (Fig 4.14). Hohenschwert recorded postholes and a spread of charcoal and burnt material on the old land surface directly behind the inner rampart on the south-eastern side from which a comparable La Tene radiocarbon date was obtained (Hohenschwert 1978, 91, 4.2.2.3.3). These burnt deposits at different locations around the circuit of the inner rampart suggest that it was deliberately burnt down. Above (017) was a

layer of highly burnt sandstone (018) that had fractured and crumbled due to intense heat (Fig. 4.15). This layer was probably formed by stone from the rampart falling backwards onto the timbers (017) as they lost their integrity. This layer was sealed by large angular blocks of stone (006/300) which most likely represents tumble from the rampart (029) after disuse.

4.1.3 Trench 1b

003, 008, 015, 016

Trench 1b is 11m long (Fig 4.16, see also Fig 4.5). The trench was extended further to the west beyond the limit of Schnitt II to investigate whether any features existed within close proximity to the rampart. The earliest deposit identified above the natural (016) was a yellow sandy clay (015), equivalent to (002/003/020), and may represent a buried subsoil beneath the possible Iron Age land surface ((008), equivalent to (019)) that sealed it. A clay spindle whorl was recovered from (008).

At the very western end of the trench the bedrock rises and is only 0.25m beneath the current land surface. At this point, a feature consisting of a setting of several medium sized stones was uncovered (Fig 4.17 and Fig 4.3). This may have been stone packing around a post pad, but conceivably it could be natural.



Fig 4.10a. Post hole [24] cutting (019) the old land surface.

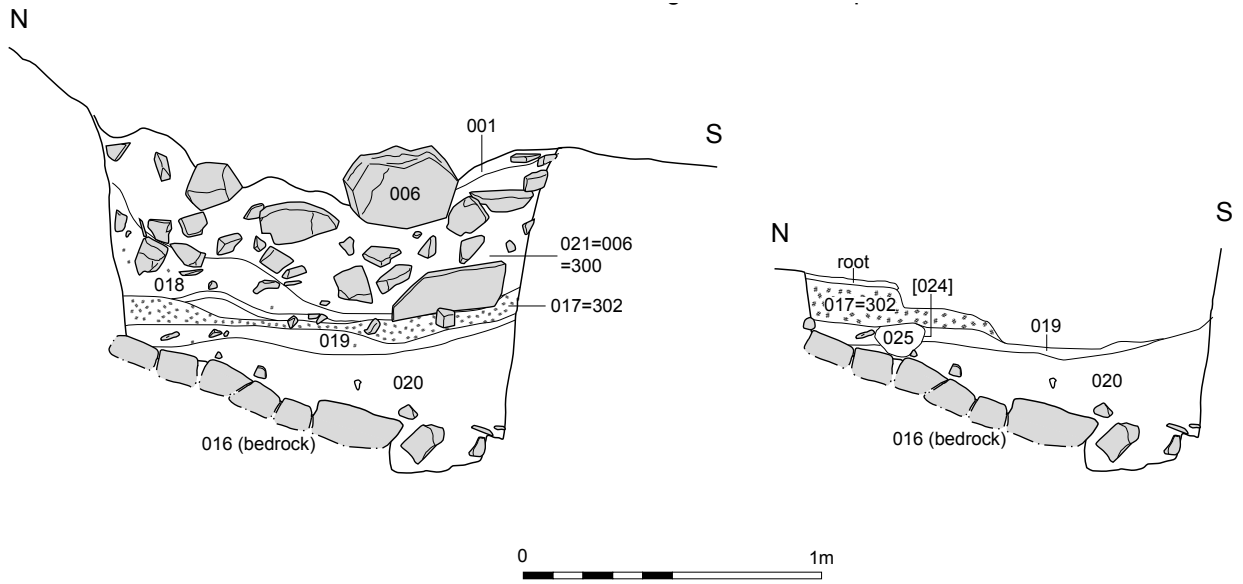


Fig 4.10b. Section drawings of post hole [24], context (019), and associated contexts.

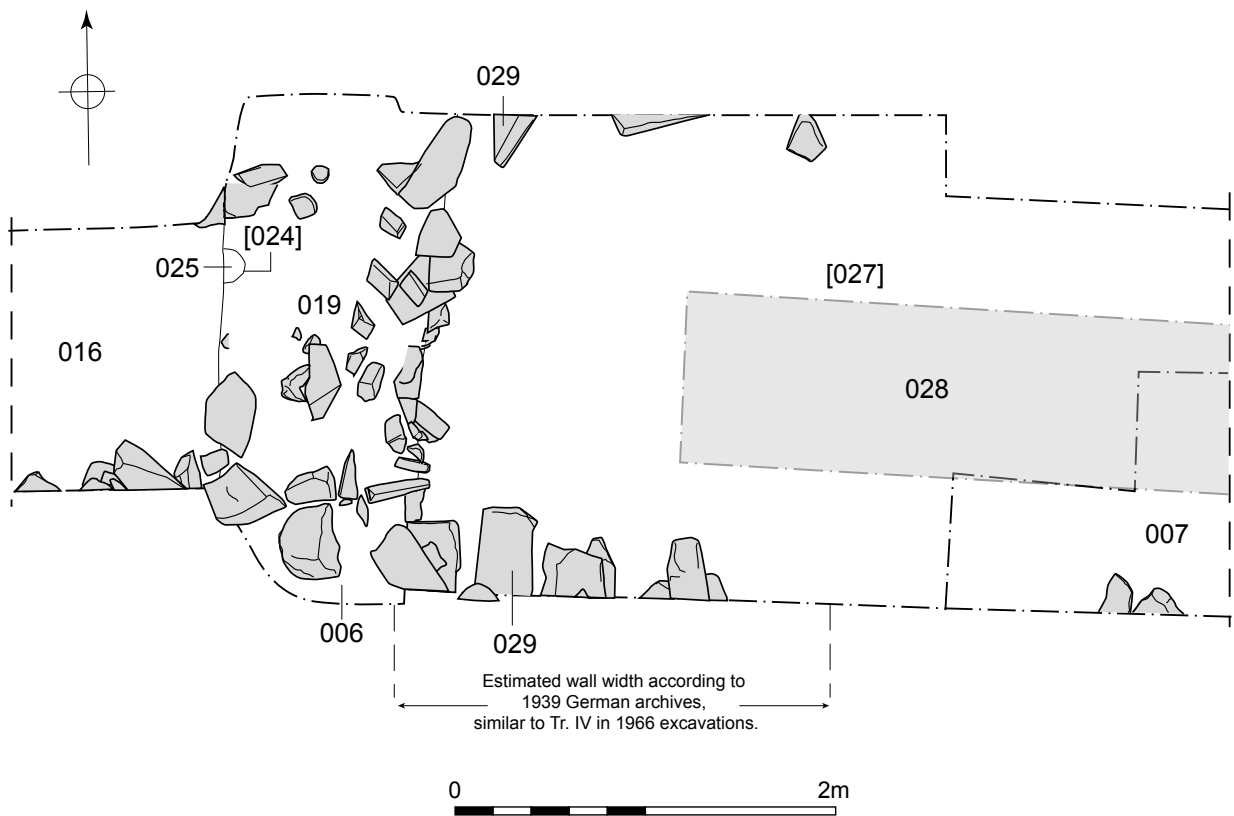


Fig 4.11. Plan the central part of trench 1a and 1b, showing post hole [24], context (019) and the back of the wall.



Fig 4.12. Context (017), the burnt remains of the rampart at the back of the wall.

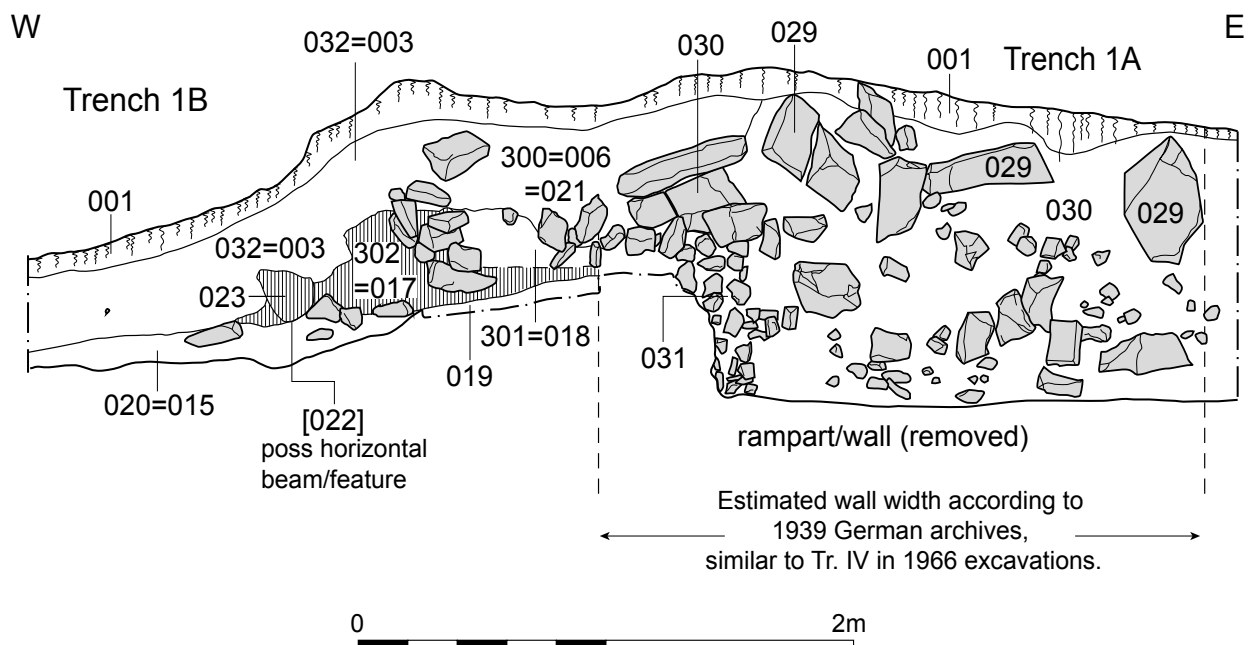
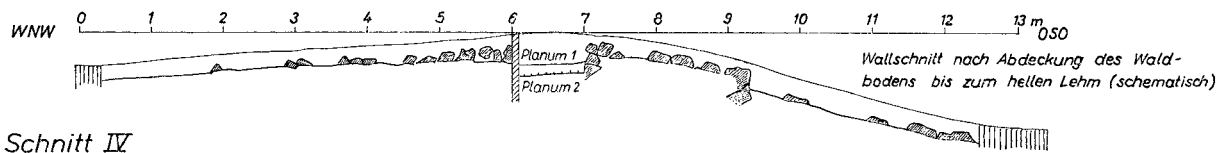


Fig 4.13a. Section drawing of (022) and (023), a possible burnt upright post or beam.



Fig 4.13b. (022) and (023), a possible burnt upright post or beam.



Schnitt IV
Piepenkopf 1966
Plana und Teilprofil

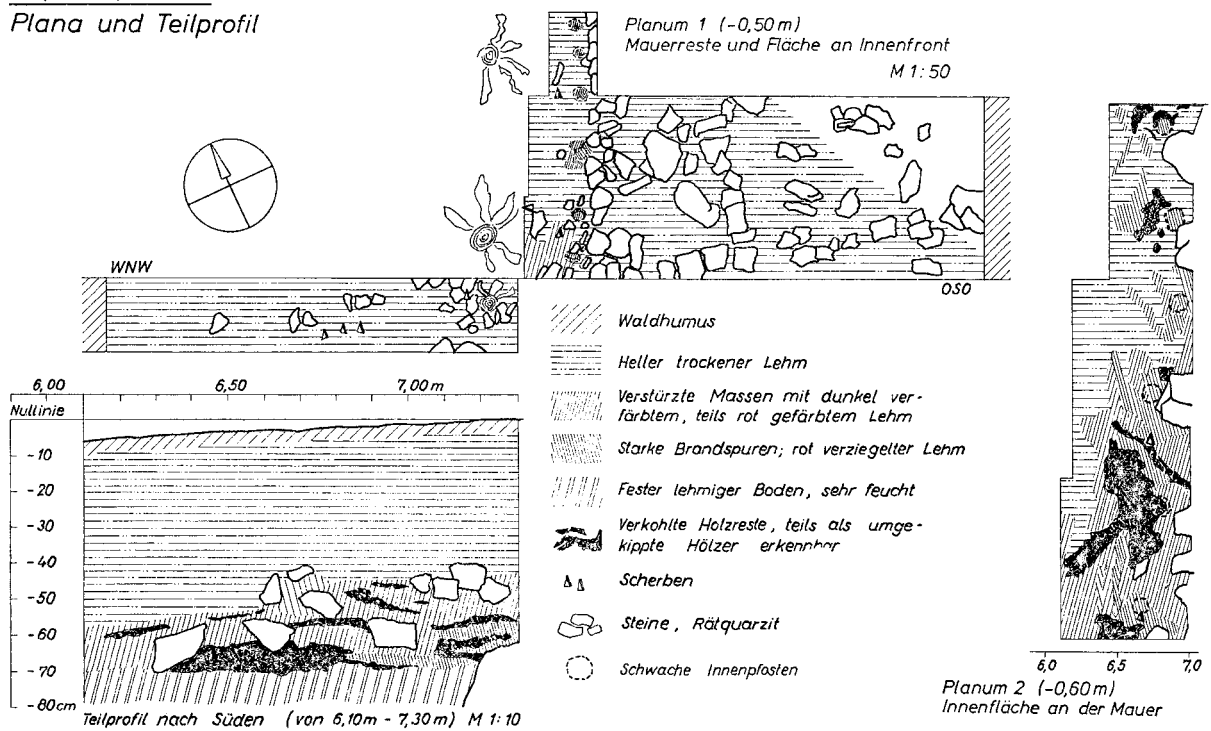


Fig 4.14. Hohenschwert's illustrations of the post and burnt areas at the back of the wall in Schnitt IV, 1966 (Hohenschwert 1978, supplement, 22).



Fig 4.15a. Context (018) the burnt stones, above (017) at the back of the rampart.



Fig 4.15b, The back of wall and contexts (19), (18) & (06).



Fig 4.16. Trench 1b, north and west facing sections showing (016), (015), (008) and (003).



Fig 4.17. Stone feature at the far western end of trench 1b.

4.2 Trench 2

100, 101, 104, 105, 106, 108, 109

The Piepenkopf Hillfort slopes downwards to the south and during a visual assessment of the interior, terraces appear to have been cut into the slope as you traverse downhill. A 2m by 2m evaluation trench was excavated 30 m to the west of trench 1 in order to assess the potential for Iron Age occupational features and to further examine the geology within the hillfort (Fig 4.18). Trench 2 was located on one of these terraces in an accessible clearing in the dense woodland (Fig 4.19). The natural (109) is a light grey-green marlstone containing small angular stones. Sealing the natural was a compact light yellow-orange sandy clay (108). This dipped down sharply towards the east end of the trench (Fig 4.20). The small

size of the trench meant it was difficult to understand whether this was a natural depression or a deliberately cut feature. It was filled by a compact dark orangey-yellow sandy clay (104) that contained a few sherds of unabraded prehistoric pottery. This was in turn sealed by a thick (0.30m) deposit of friable yellowy-orange sandy clay (101) which contained a dense concentration of prehistoric pottery, including a large sherd with finger print impressions on the rim (Fig 6.3). There was also a small area of burning found within (101) towards the south of the trench (Fig 4.21). This feature [105] and fill (106) was oval in plan/shape. The fill was yellow/orange in colour with frequent patches of dark grey and frequent flecks of charcoal. This was sampled, unfortunately the charcoal samples after flotation were found to be unsuitable for dating. Sealing all of these deposits was the humic topsoil (100).



Fig 4.18. Cardiff archaeology students excavating trench 2.

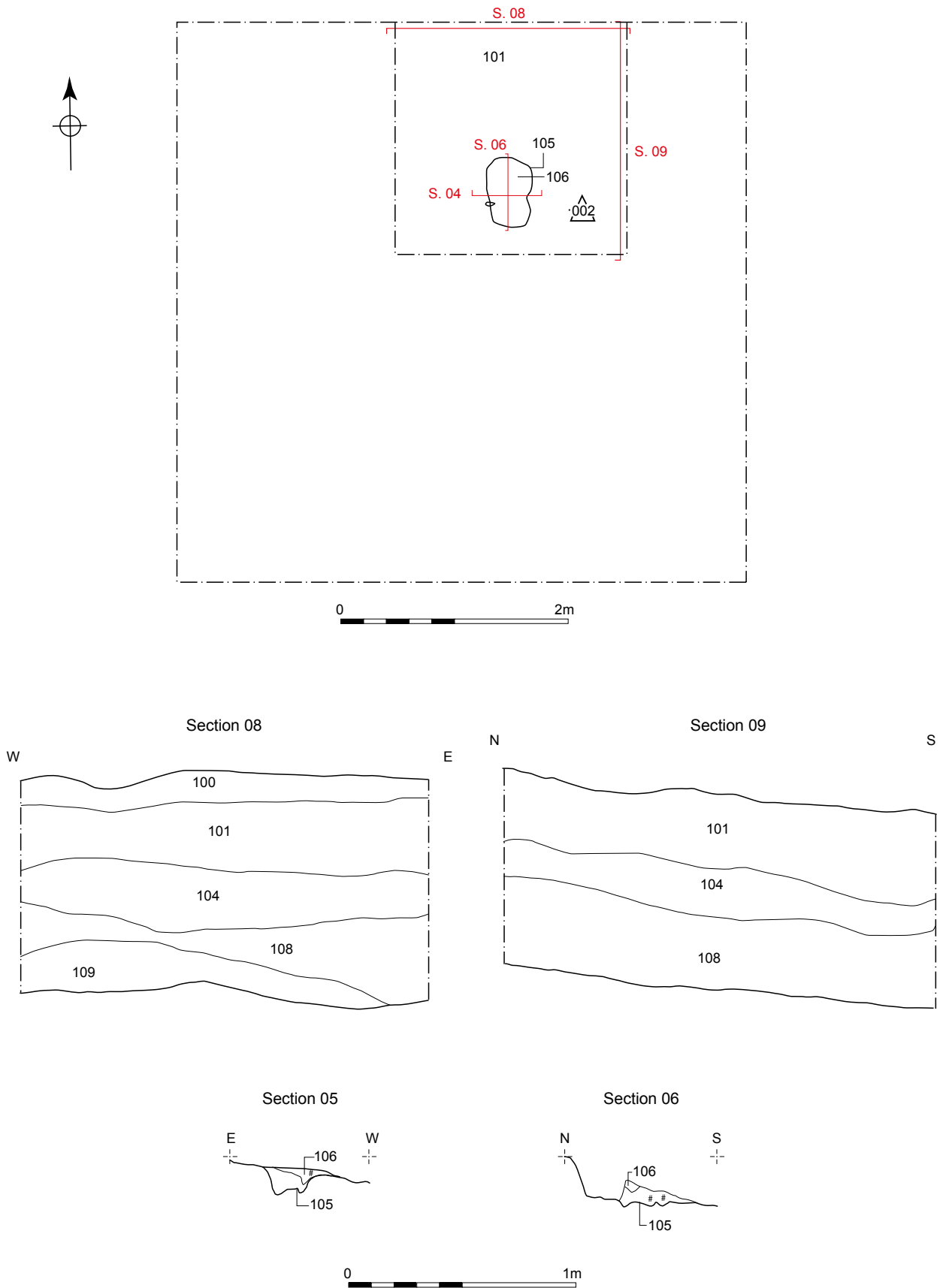


Fig 4.19. Trench 2, plan & sections of contexts (109), (108), (104), (101), [105] and (106).



Fig 4.20a&b. The marlstone natural (109) in trench 2 dipping down towards the east side of the trench, with contexts (108), (104), (101) and (100).



Fig 4.21a&B. The burnt area [105] and (106) within context (101) in trench 2.

4.3 Discussion

The re-excavation of Nebelsiek's Schnitt II (trench 1) has confirmed that the inner hillfort rampart was around 2.2 m in width and fronted by a drystone wall (fig 4.22). Unfortunately this had been largely removed, probably by Nebelsiek in the 1930s, which made it difficult to ascertain the original rampart height. The back of the rampart appears to have been delimited by timber posts or planking, with the core of the rampart formed by a matrix of earth and stone. It was not possible this year to confirm whether there was a ditch exterior to the rampart, although one was recorded by Nebelsiek further around the rampart circuit in Schnitt I.

The timberwork of the rampart rear appears to have been burnt *in situ*. The radiocarbon date obtained from trench 1 indicates construction of the rampart at some point between 381 - 204 cal.BC. No samples were recovered this year from the destruction layers that could provide a date for abandonment, but the charcoanal analysis (see section 7.2) suggests the timberwork was in a rotten and decayed condition when burnt. Similar burning at the rear of the rampart was identified by Hohenschwert in Schnitt IV. The burning of these oak and beech timber elements is unlikely to have been accidental since they would have taken considerable effort to ignite probably assisted by the addition of brushwood and the smearing of animal fat. Localised burning, particularly around an entrance, is more likely to indicate the tactical use of fire in an assault. However, the apparent comprehensive burning of the rampart at the Piepenkopf may suggest the punitive razing after capture or alternatively an intentional ritual act of destruction by the inhabitants. In either case, the glow from a burning hillfort would have been a spectacular display of destruction of both an important place and the community which inhabited it.

Evaluation of deposits within the interior of the hillfort were too small to convincingly identify any structures or buildings, but the recovery of a spindle whorl and pottery assemblage is suggestive of occupational activity and indicates that it may have been a place of residence rather than simply a refuge or space for periodic assembly.

5. The Grotenburg Hillfort

Grid reference TK 4019 Detmold: r. 348890-348930
h. 575280 -57325

Height: 360-380 m
Area size: 10 ha

The Grotenburg Hillfort is located 4km to the south west of Detmold on the Teutoberg Wald ridge. The hillfort encloses 10ha and occupies a prominent hilltop overlooking the Westphalian Plains. The site consists of a small, circular inner enclosure in which the statue of Arminius was erected in the 19th century. A widely-spaced outer rampart emanates from the eastern side of the inner circuit creating a figure-of-eight shaped hillfort in plan. The interior of the hillfort has been heavily disturbed by development, while the outer rampart is covered in woodland.

Four weeks of excavation at the Grotenburg Hillfort were carried out from 31st July to 18th August 2017. The excavation conditions were variable ranging from warm and dry to overcast and at times very wet. All the archaeological features and finds were surveyed in using a Leica TS06 Flexline Total Station and the finds marked with a labelled tag. All trenches and archaeological features were excavated by hand. Bulk soil samples for dating and other small artefacts (where appropriate) were taken from appropriate sealed archaeological contexts or features associated with clearly defined structures. Samples of between 10-20 litres or 100% of smaller contexts were taken. Two areas were examined, area A and area B (Fig 5.1). Two trenches were excavated in area A, located over the remains of the outer rampart (The Großer Hünenring). One trench was excavated in area B between the inner and outer rampart circuits near to the Arminius statue. A magnetic gradiometric survey carried out over the winter and spring of 2016-17 by LLM in this location appeared to show a number of regularly-spaced pits or postholes indicative of buildings.

5.1 Area A

5.1.1 Trench 1.

Trench 1 was 11m by 8.40m and positioned over a large upstanding portion of the rampart in the south-east part of the hillfort (Fig 5.2). The trench location was chosen because the rampart was still a significantly visible earthwork here (Fig 5.3) and possible occupation features behind it were indicated on the geophysical survey.

Unfortunately, during excavation it was discovered that this area had been extensively damaged in the mid-20th century and the rampart reconstructed (Fig 5.4). In 1951-2 a tornado extensively damaged the Grotenburg and the surrounding area. Large trees were uprooted across the hilltop with several falling across, and damaging, this area of the outer rampart (Fig 5.5). At some point in the mid 1960s a pipeline was also cut through the rampart, probably as a drainage feature for the large visitor carpark. It is unknown if any archaeological recording was undertaken, but whoever carried out the construction work rebuilt the rampart in this location using large stone blocks to create a 'stepped' wall. During excavation, it was initially thought that the stone blocks were part of the original rampart construction, but beer bottle tops, fragments of sewerage pipe and a leather wallet were recovered from beneath them. The wallet contained a driving licence dating to 1968, providing an informative, if unexpected, terminus post quem.

5.1.2 Trench 2

2001, 2002, 2003, 2004, 2005, 2008, 2009, 2010, 2013, 2015, 2016, 2017, 2020, 2021, 2022

After it was realised that trench 1 was not going to provide detail about the original rampart construction, it was decided to open up another trench at a different location around the rampart circuit. Trench 2 was positioned across the outer rampart of trench 1 (Fig 5.6a). The trench was 8 m by 2 m and aligned north to south over the rampart.

The natural in the area below the wall (2013) is a very bright yellowy-orange marl containing medium to small angular stones (Fig 5.7). Nebelsiek in 1955 described this natural as a 'flaming marl' (Hohenschwert 1978, 108-117). Immediately overlying the natural in the northern half of the trench is deposit (2002) (equivalent to 2020), which is a thin orange, yellow, brown mottled marl with small angular stones. It is approximately 0.05m in depth, a thin lens of this can also be seen in the southern part of the trench in the section (Fig 5.8) and beneath the rampart. It is likely this deposit represents the old land surface, although no finds were recovered from this deposit. Lying on and within (2002) was a small, discrete, burnt deposit (2017) (Fig 5.9). This was sealed by a compacted layer of medium size stones, some slightly burnt (2016). This context was 0.80m by 1.0m and located between two very large stones on the east and west side of the

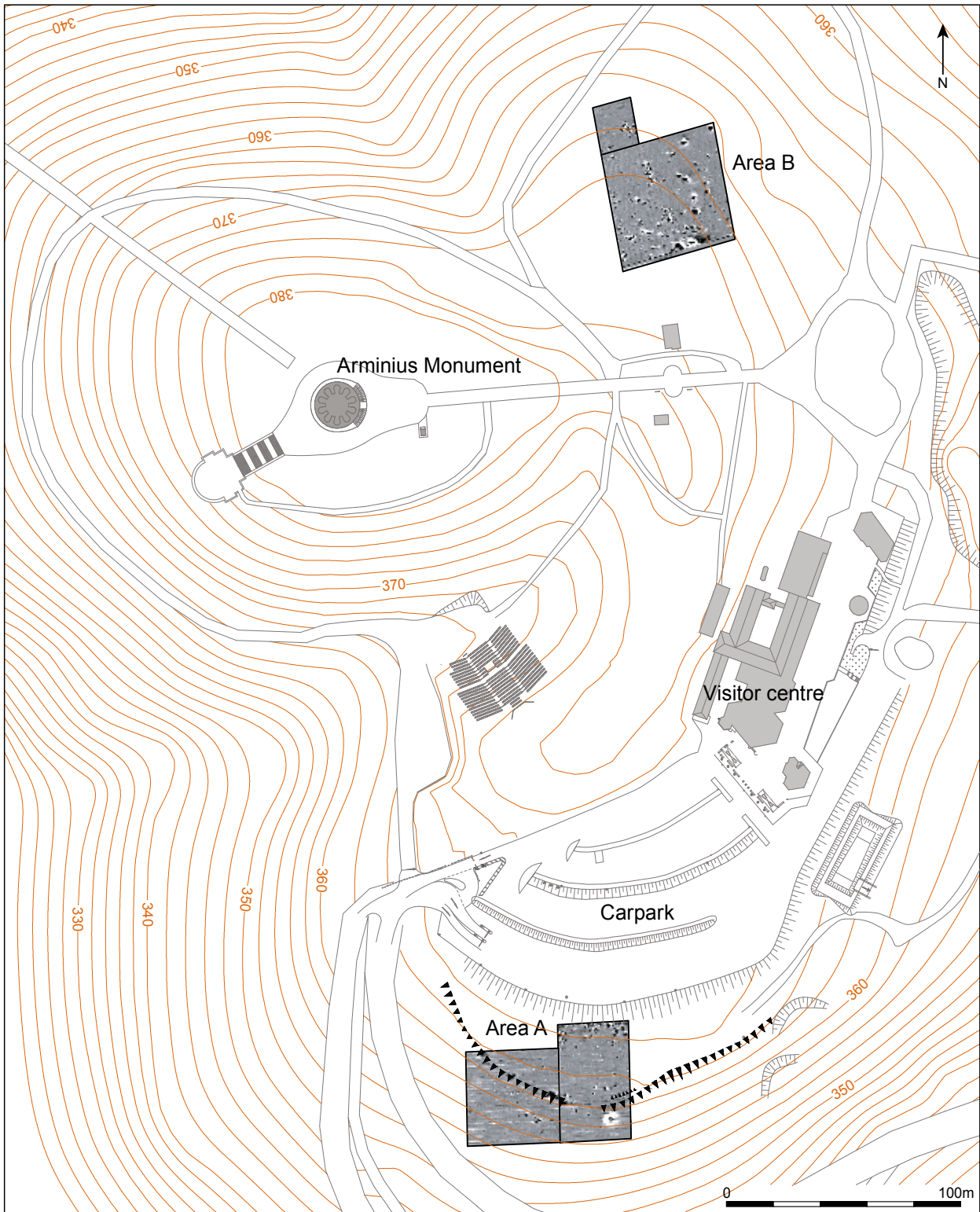


Fig 5.1. Plan of the Grotenburg Hillfort showing the geophysical survey areas.

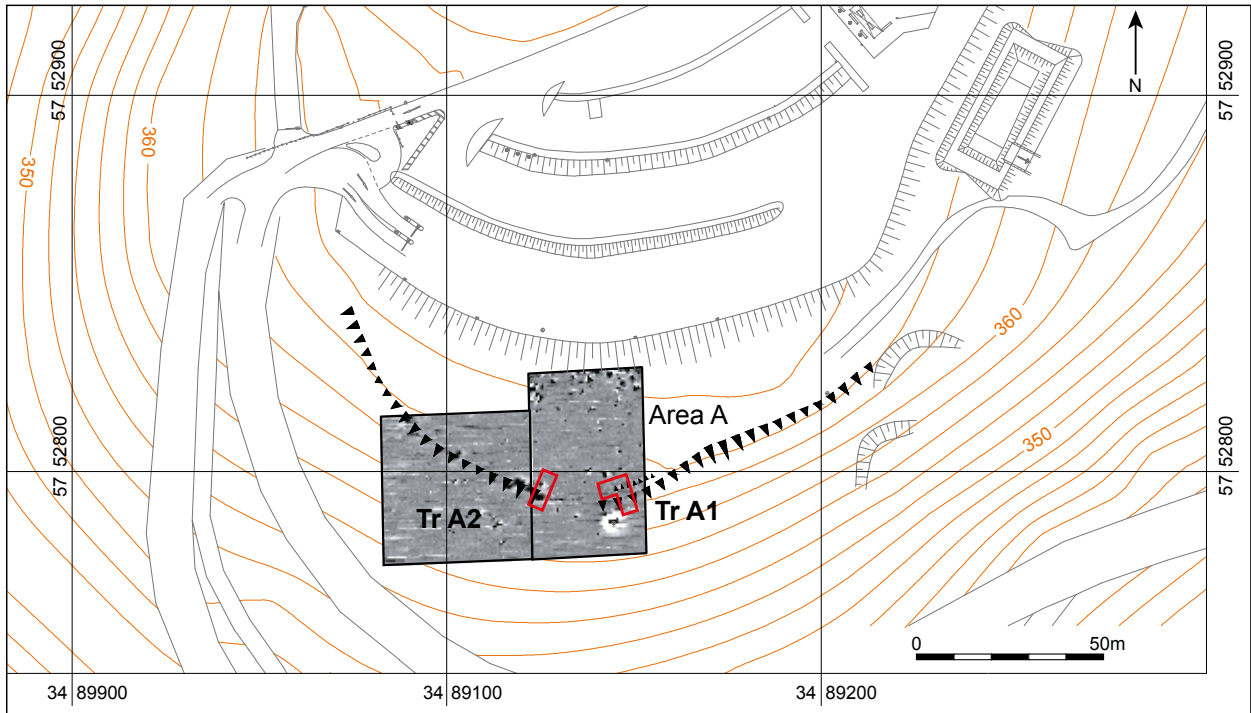


Fig 5.2. Plan showing the location of Trench 1 and Trench 2 on the geophysical survey.

trench (2003) which are presumably part of a stone-built front face of the outer rampart (Fig 5.10). Contained within this stoney layer was a potential stone setting for a post (2021) (Fig 5.11). This was circular in shape, 0.65m in diameter and filled by a yellow-grey crumbly sandy soil (2018). Overlying (2016) was a deposit of medium sized angular sandstone rubble (2015), that contained a matrix of fine light orange brown soil with some flecks of charcoal (Fig 5.12). This presumably represents the rampart core. Some of the sandstone rubble has been heat affected - the stones are red in colour, crumbling and friable - suggesting that the rampart may have been burnt. The rampart is approximately 3m wide, with stepped courses evident. This may represent a deliberate construction method or robbing of rampart wall stones in antiquity or for the construction of the Arminius monument (Fig 5.13). Oak charcoal was obtained from the rampart core. However, this was heartwood and not suitable for radiocarbon dating. In the northern half of the trench the old ground surface (2002) was sealed by (2001/2009). Cutting context (2001) is [2004] a linear feature (Fig 5.14) 15cm below the ground surface and stopping just above context (2002). The linear feature runs across the width of the trench and its fill (2005) was dark ash brown with flecks of charcoal, it was 10-14cm wide and 8cm in depth. This could be interpreted as a possible beam slot for the wall of a building, but the trench was too narrow to determine this conclusively. This was sealed by a dark grey black sub-soil deposit

(2010) which also overlay the rampart. Overlying all of these deposits was the topsoil (2000). A deposit (2008) was also recorded at the same level as (2001) and (2009) (Fig 5.14). This was a mottled dark brown marl with light grey patches, flecks of charcoal and small sub-angular stones. Although similar to (2001) the shallowness of this feature has been interpreted as a tree throw.

5.2 Area B

Trench 3 was excavated in area B between the inner and outer circuits near to the monument. The trench was positioned over potential features highlighted by the geophysical survey. It was 10 m by 7 m and located in a clearing between beech trees (Fig 5.15a and b). The topsoil (1001) was 0.10 m in depth. Below this was a deposit of small angular limestone stones (1002). This is apparently the natural for this part of the hill and two small 1 m by 1 m sondages in the north-east and south-west corners of the trench confirmed this. Thirty-three small cut features, circular in plan, were identified cutting through the natural (Fig 5.16 and fig 5.17). They were regularly-spaced around 1 m apart and arranged into rows. Initially the features were interpreted as the postholes of a dense cluster of structures, but a sample were half section and the fills found to contain glass from bottles and other modern debris. The most likely explanation is that they are sockets for a beech tree plantation. No further excavation was carried out in this area.



Fig 5.3a&b. The wall of the Großer Hünnering in Trench 1, before excavation, and Cardiff students excavating the wall in Trench 1.



Fig 5.4a&b. Trench 1 excavated showing modern damage and the pipeline running through the wall and Cardiff archaeology students recording Trench 1 after excavation.

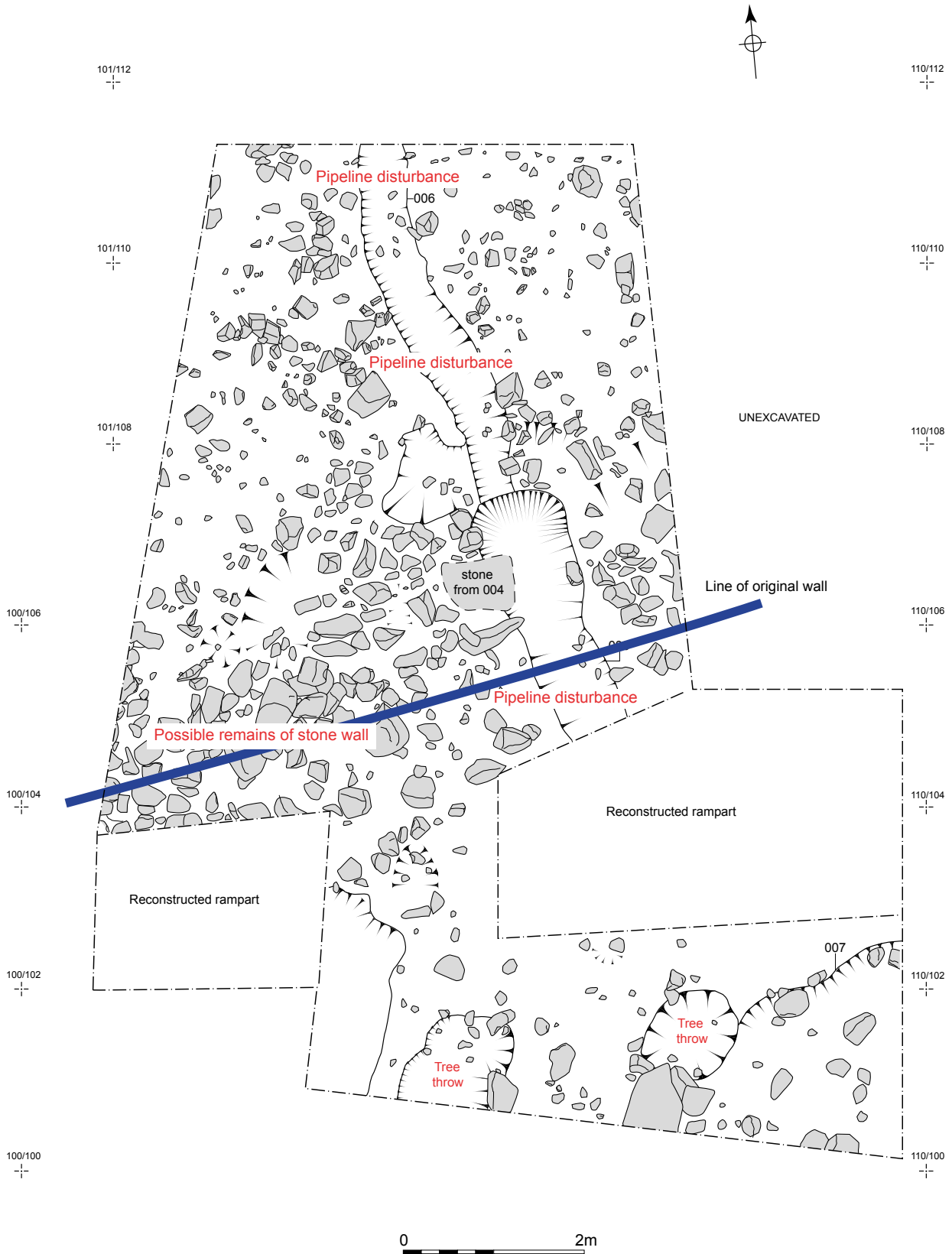


Fig 5.5. The overall plan of Trench 1, showing the pipeline and the line of the original wall.



Fig 5.6. De-turfing Trench 2.



Fig 5.7. The natural flaming marl of the Grotenburg.

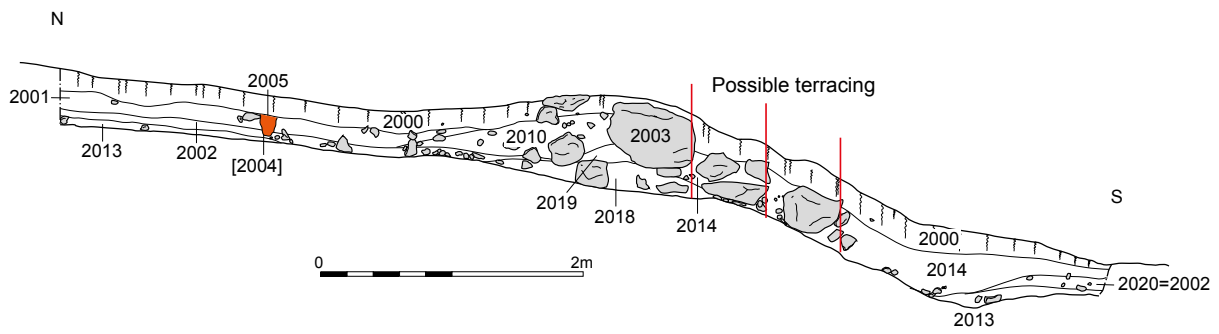


Fig 5.8. Trench 2, section drawing showing all contexts.



Fig 5.9. The burnt area context (2017) and context (2002).

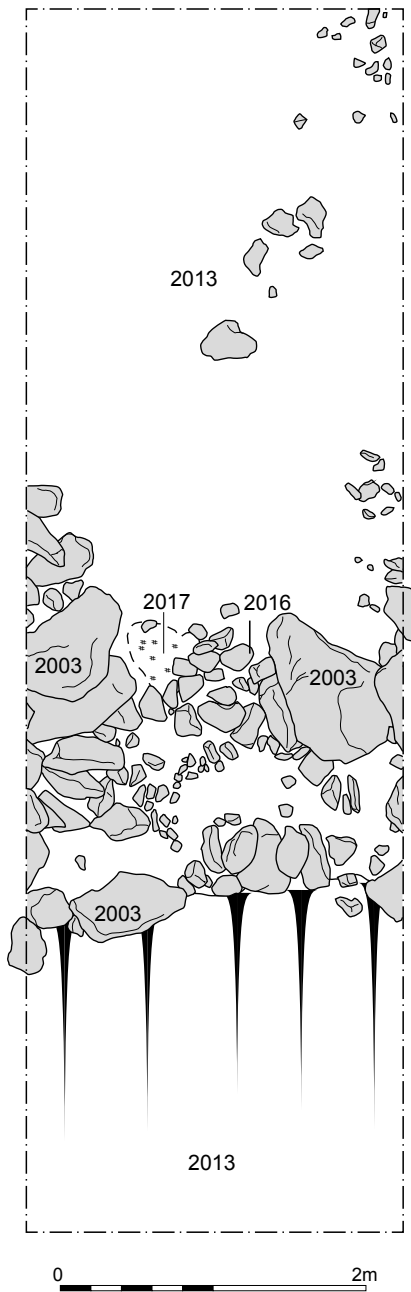


Fig 5.10. Trench 2 plan showing contexts (2016), (2017) and the large stones (2003).



Fig 5.11. Possible stone setting or packing (2021) under context (2016).

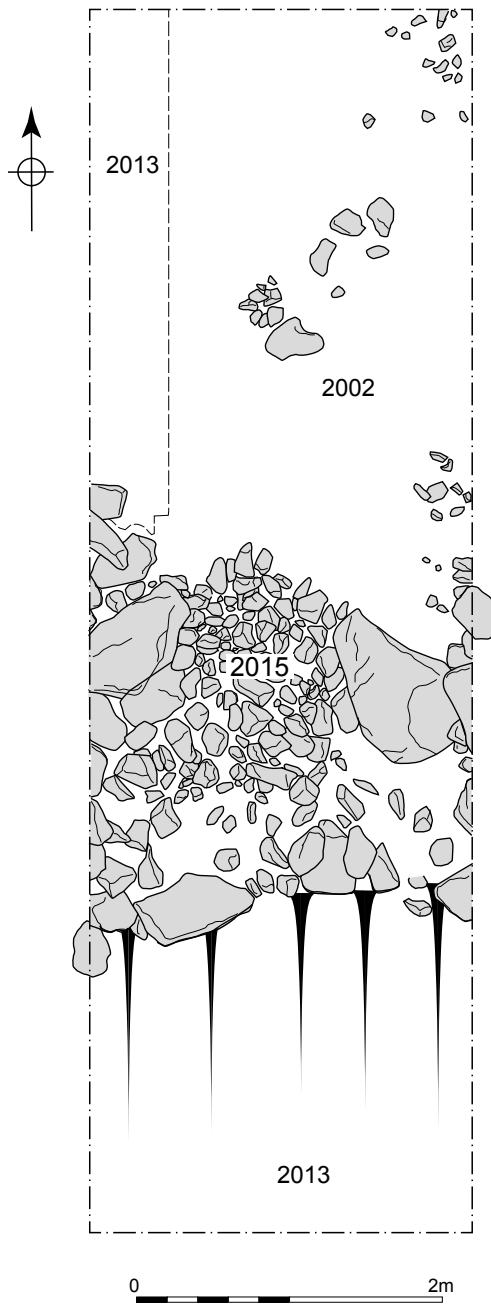


Fig 5.12. Plan of context (2015), the rampart core material, above context (2016).



Fig 5.13a&b. The wall (2003). 5.13a the front of the rampart wall, 5.13b the exposed top of the wall (2003).

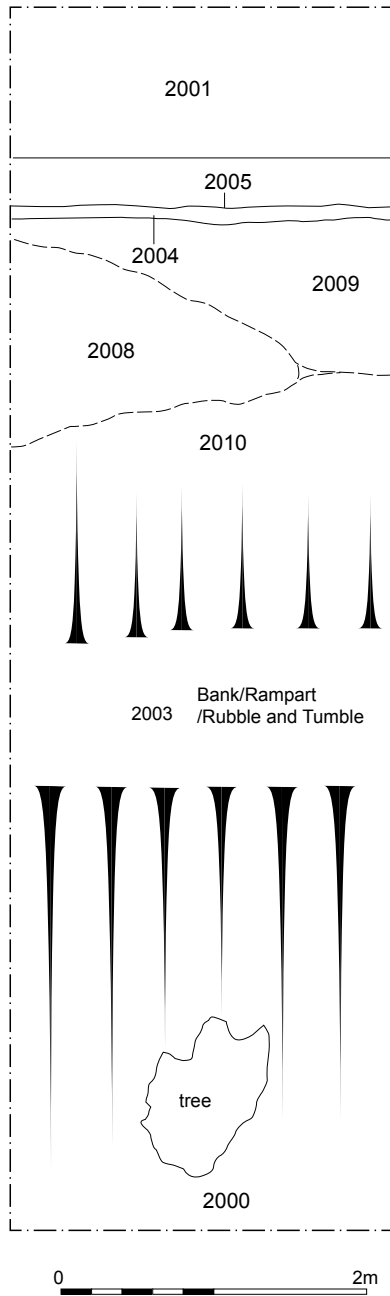


Fig 5.14. Plan 5.14a and photograph 5.14b showing the linear feature [2004] and (2005), at the northern end of Trench 2.



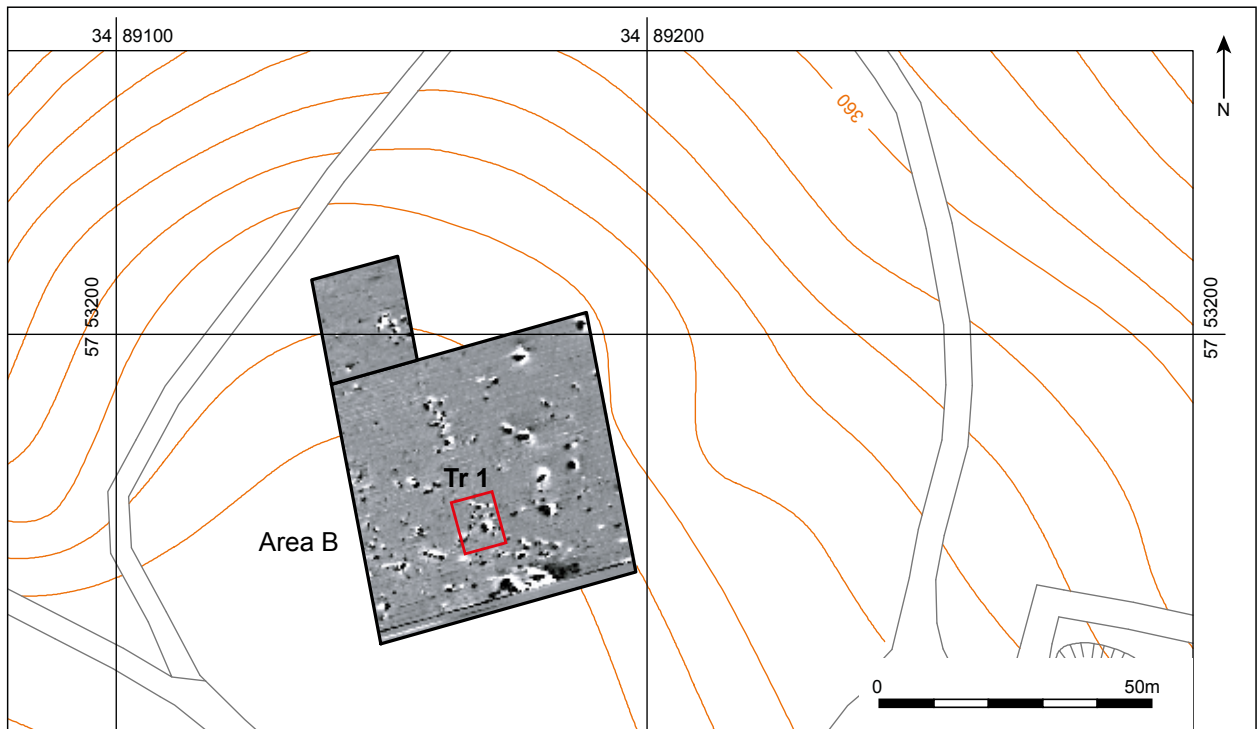


Fig 5.15a&b. Plan (5.15a) showing the location of Trench 1 in Area B. Fig 5.15b: Trench 1 being cleared on a misty morning in the Teutoberg Wald.

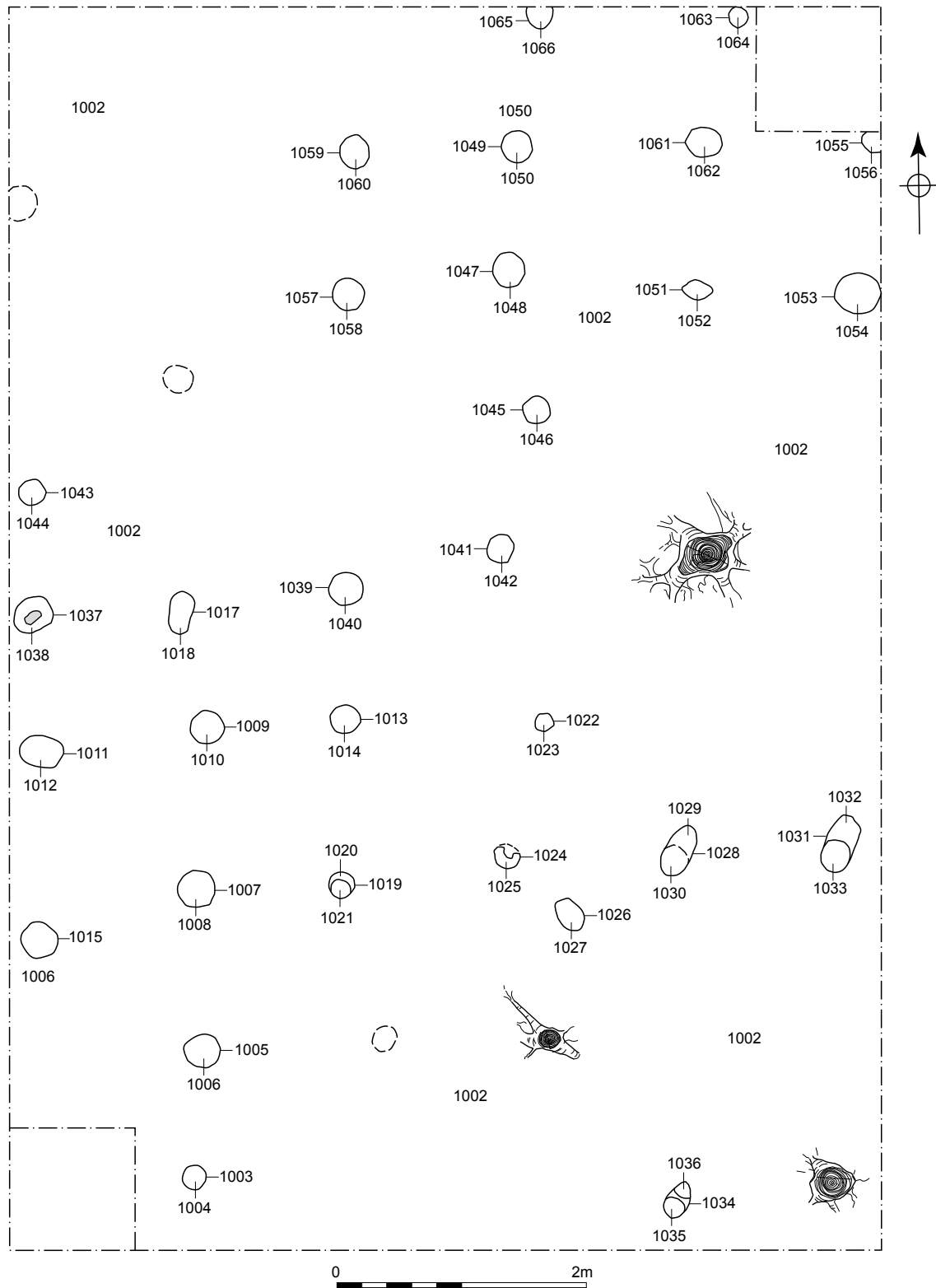


Fig 5.16. Overall plan of Trench 1, Area B, showing the bore holes for tree saplings.

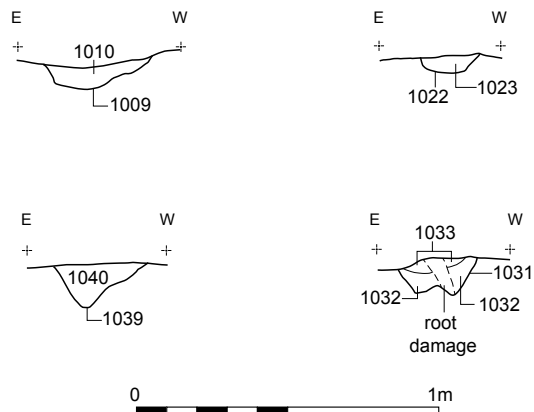


Fig 5.17. Sections through the bore holes for the tree saplings found in Trench 1, Area B.

5.3 Discussion

Clearly, the Grotenburg Hillfort has been heavily disturbed which has resulted in the destruction of much of the prehistoric archaeology. The interior of the hillfort is mostly wooded which makes any large open-area excavation required to identify occupation evidence difficult. The features identified in 2017 in trench 1, Area B, are likely to be derived from 19th and 20th century tree planting. This brings into question the identification of post-built structures by Nebelsiek (see Hohenschwert 1978, fig. 27, 114-115) in the 1930s, these too may also have been from tree planting activity.

The outer rampart was investigated in two places (trenches 1 and 2). The remains in trench 1, although impressive, were clearly not original. The rampart identified in trench 2 had also been disturbed with much of the stonework robbed. However, it is possible to suggest that it was originally around 3m in width with a dry-stone front face and an earth and rubble core. The burnt deposits identified within the rampart suggest it must have also had timber elements, possibly at the rear, but these had been burnt. It is possible that this mirrors the destruction recorded at the Piepenkopf, but further excavation around the rampart circuit is required to corroborate this.

6. The Finds

The only finds recovered during the 2017 excavations came from the Piepenkopf. This included 111 sherds of pottery from trenches 1 and 2, with the majority coming from context 101 in trench 2. The diagnostic forms found have been illustrated and photographed (Fig 6.2 & 6.3) and are very similar in form and fabric to the ceramics found during the 1939 and 1966 excavations at the Tönsberg. (Fig 6.4).

A small, ceramic spindle whorl was also recovered from trench 1, behind the rampart. This was 33mm in diameter (fig 6.1).



Fig 6.1. The clay spindle whorl from Trench 1b.

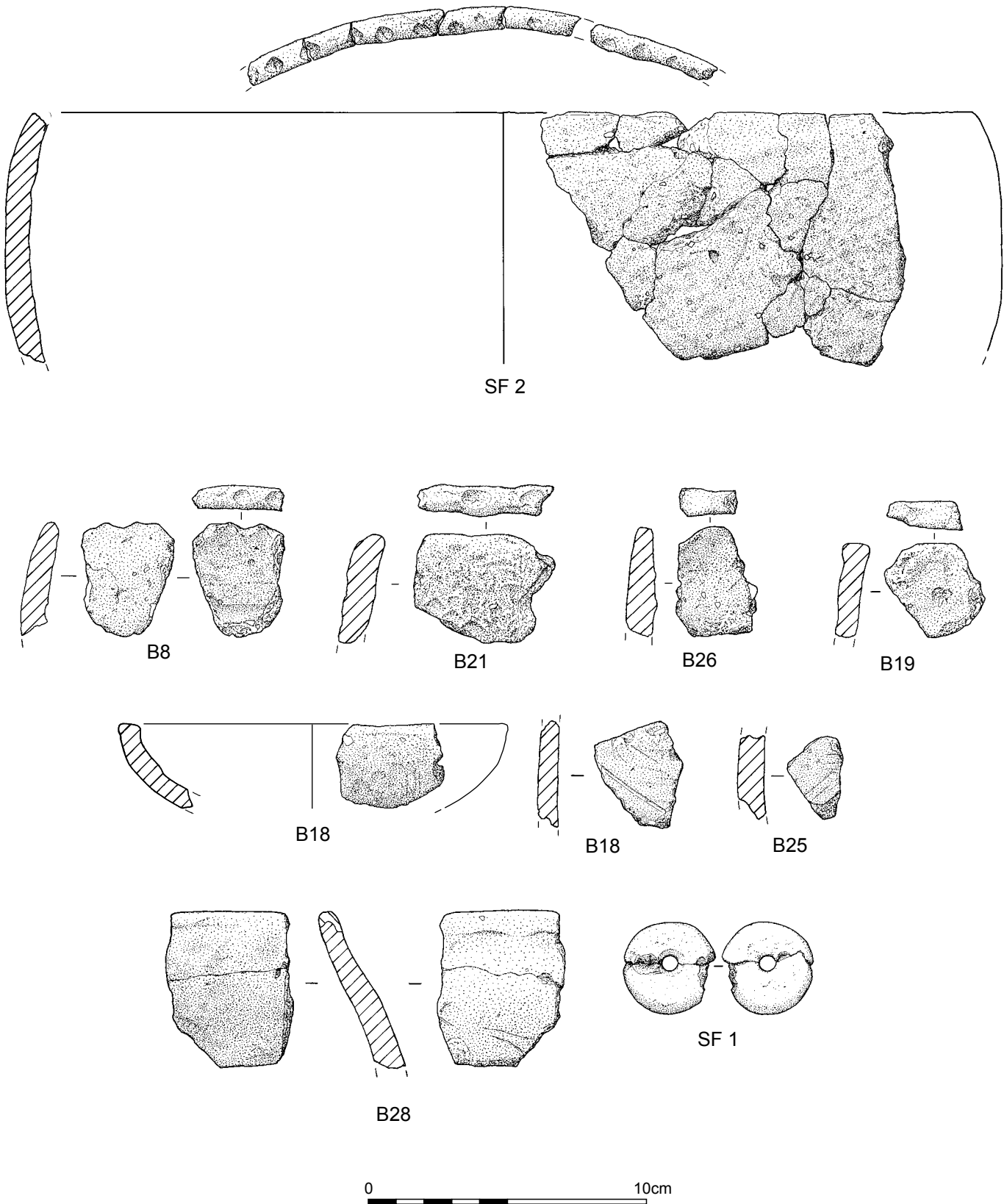
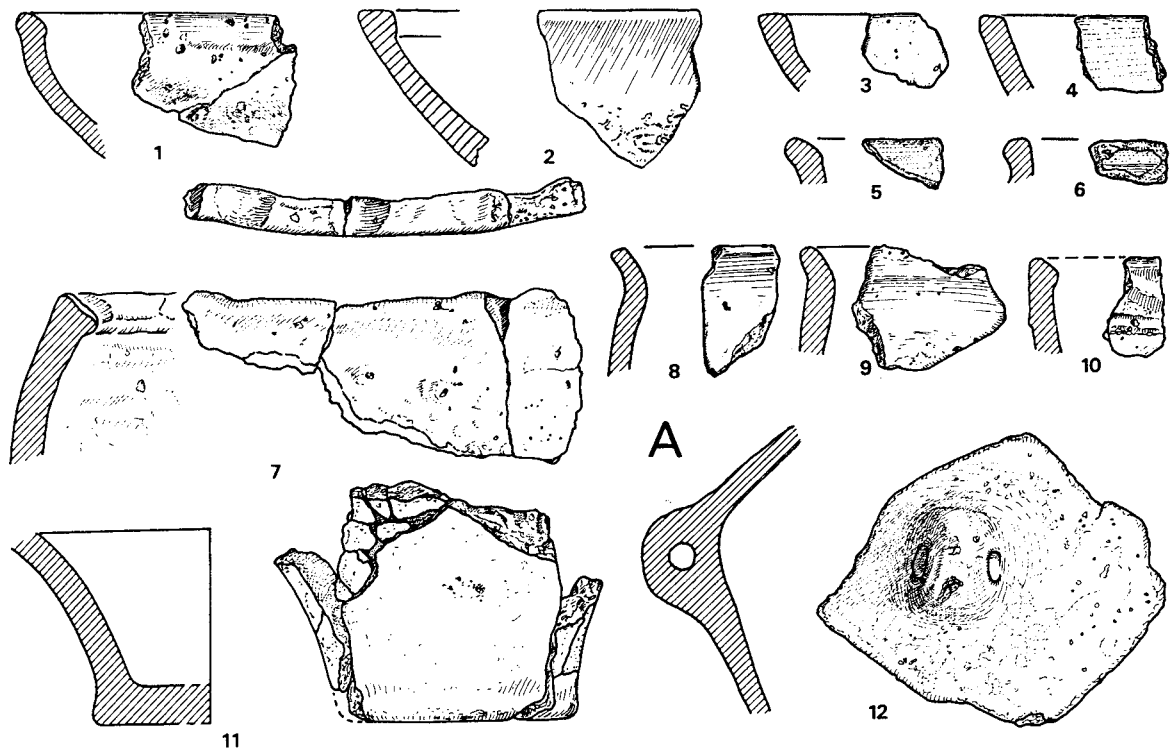


Fig 6.2. Pottery from Trench 2, context (101).



Fig 6.3. The finger impressed rim from Trench 2

Piepenkopf cermaics, Hohenschwert 1978, plate 8.



Tönsberg cermaics, Schnitt III, Hohenschwert 1978, plate 5.

Fig 6.4. Pottery from the previous excavations at the Piepenkopf and the Tönsberg, (Hohenschwert 1978, plate 7 and plate 5).

7. Charcoal

by Dana Challinor

Samples were submitted from the Grotenburg and Piepenkopf hillforts for the identification of charcoal and selection of suitable pieces for C14. Standard identification procedures were followed according to appropriate identification keys (Hather 2000) and modern reference material. Individual charcoal fragments selected for dating were placed in separate tubes and bagged separately. Other fractured fragments were grouped by taxa and placed in labelled bags (within the main sample). Note that additional fragments for dating could be easily selected from these bags.

7.1 The Grotenburg

The charcoal in this sample was small and in poor condition. Both *Quercus* sp. (oak) and *Fagus sylvatica* (beech) were identified. The oak was either all heartwood or too small and no sapwood or heartwood transition could be identified.

Context	Sample	Identifications	C14 sample
2015	001	<i>Quercus</i> h-w, <i>Fagus sylvatica</i>	<i>Fagus sylvatica</i> x 1

Table 7.1. Grotenburg Charcoal Identification

7.2 The Piepenkopf

The majority of the charcoal derived from *Fagus sylvatica* (beech), with two samples also including large pieces of *Quercus* sp. (oak) heartwood. Notably, the beech was in a significantly rotten/decayed condition, riddled with insect tunnels, to the extent that in smaller fragments anatomical structure was almost completely obscured by insect frass. This indicates that the wood had been heavily attacked by wood boring beetles prior to burning.

Context	Sample	Identifications	C14 samples
017	001	<i>Quercus</i> h-w, <i>Fagus sylvatica</i>	<i>Quercus</i> sp. x 2
106	002	<i>Fagus sylvatica</i>	<i>Fagus sylvatica</i> x 1
301	003	<i>Fagus sylvatica</i>	<i>Fagus sylvatica</i> x 1
302	004	<i>Quercus</i> h-w, <i>Fagus sylvatica</i>	<i>Quercus</i> sp. x 2
302	005	<i>Fagus sylvatica</i>	<i>Fagus sylvatica</i> rw x 1

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Appendix 1 - Context Lists

Piepenkopf

Trench	Context No.	Description
1	001	Top soil - Dark brown decomposed humic layer under leaf litter. Very frequent bioturbation. Overlies 002
1A	002	Orangey brown silty sub soil situated directly underneath the top soil 001. Infrequent small rock inclusions. Equal to context 003.
1B	003	Silty orangey brown deposit with very frequent roots throughout. Some small-medium angular rocks. Loosely compacted. Lies beneath top soil 001. Also includes very rare inclusions of small charcoal fragments. Equal to 002
1A	004	Compact orange brown silt deposit below 002. Some small stone inclusions. Small roots also present. Upper natural?
1A	005	Rubble deposit between 001 and 002. Medium to large angular rocks with a yellow/orangey brown silty soil between. No other inclusions. Possible stone wall tumble
1b	006	Rubble layer situated in lighter yellow/orangey brown soil. Large angular rocks and some smaller rubble from (029)
1A	007	Pale beige heavily weathered bedrock natural. Situated below 006, with 004 also overlying it.
1A	008	Silty soft pale beige/grey deposit. Rare charcoal inclusions, some small roots. Peters out before the back of the rampart. Possible Iron age gorund surface?
1A	009	A darker brown silty deposit emerging through the rampart - may be a continuation of the burn layer at the back of the rampart (017). Has frequent charcoal inclusions. Situated below 006 and above 010
1A	010	Light beige silty layer from centre to right edge of section containing frequent charcoal inclusions. Situated below 009 and above 013. May be continuation of burn layer at the back of rampart.
1A	011	Light beige silty layer with rare charcoal flecks runing from the left edge of the section to left of centre. Above deposit 013.
1A	012	Red-Orangey brown layer, slightly darker than 006. Runs from stone in left edge of section to left of centre. Situated below 006 and above 011. Similar to 301 in rampart.
1A	013	Brown-orange deposit more compact than 006. Situated below layers 010 and 012, and has context 011 running through it. Deposit runs across the whole trench. Equal to (30 & 31) wall matrix
1B	014	Rubble layer within 003 - possibly tumble from rampart. Large angular rocks.
1B	015	Slightly more compact orangey silty layer, very similar to 003. Includes some large angular rocks, small and medium roots and very occasional charcoal flecks. Equal to (20)
1B	016	Natural bedrock - fractured.
1B	017	Very loose dark black silty soil deposit with very, very frequent charcoal inclusions - charcoal varies in size from small flecks to large chunks up to 5cm diameter approx. Occasional inclusions of small to midsized burnt sandstone rocks towards top of context. Appears to go into the rampart. Equal to 302. Sample taken - Sample no 001
1B	018	Soft and friable dark brown/black silty sand with areas of dark mottled red. Lies directly over 017 in the northern edge of the section. Has occasional mid-sized chunks of charcoal, small and medium roots and smal burnt sandstone. Equal to 301.

1B	019	pale grey-beige deposit lying directly under 017/302. Features some charcoal inclusions. Possible feature 024 cuts through 019 and 020.
1B	020	Fairly compact orangey clayey silt with occasional small subangular rocks. Lies directly above the bedrock (016) and below the soft beige layer (019). This may be equal to 015.
1B	021	Fairly soft and loosely compacted orangey yellow silty deposit. Upper fill of rampart below top soil 001. Very large sub angular rocks as well as medium sized sub-angular rocks. May be equal to context 006 & 300. Frequent small roots, occasional large roots. Bioturbation.
1B	022	Possible feature. Slightly conical in shape, undisturbed but cut by 027. Filled by 023. Can be seen in south facing section of trench. Situated west of back of rampart. (cut)
1B	023	Dark brownish-grey silt deposit which is interrupted by the black layer 027. No inclusions.
1B	024	Possible feature. Circular/conical shape cutting through 019 and 020. 017 sits directly above. Can be seen in West-facing section of rampart.
1B	025	Dark brownish-grey silty deposit. Fill of 24
1B	026	Thin pale beige/grey silty deposit visible in south-facing section. Similar to 008 in North-facing section.
1B	027	Cut of 1939 trench
1B	028	Fill of 1939 trench,
1A	029	Large angular rocks protruding from south facing section - wall. Lie within context 030
1A	030	Silty yellow/orange blanket deposit. Contains large angular rocks (029) and smaller rubble rocks (031). Wall matrix
1A	031	Small rubble situated in context 030, in the south facing section of trench. Rubble matrix.
1B	032	Silty orangey brown deposit with very frequent roots throughout. Some small-medium angular rocks. Loosely compacted. Lies beneath top soil 001. Also includes very rare inclusions of small charcoal fragments. Equal to 003
1B	033	Slightly more compact orangey silty layer, very similar to 003. Includes some large angular rocks, small and medium roots and very occasional charcoal flecks. Equal to 015
2	100	Soft dark brown/black humic layer lying directly under leaf litter. Overlying 101. Very frequent roots - small and large - throughout the context.
2	101	Loosely compacted yellow/orange silt deposit underlying the heavily bioturbated humic topsoil 100. Very infrequent large stone inclusions to the east end of the trench. Also in the north side of the trench varies in thickness across site, in NE sondage is approx. 30cm thick, in N sondage context is approximately 60-30 cm thick. Frequent pottery sherds. May be equal to 002 and 003 in Trench 1.
2	102	Gritty (degraded finesandstone/mudstone) silty deposit, yellowish grey with a silver green tinge (due to the nature of the degraded stone). Dense and well mixed, with infrequent stone inclusions. Similar to 007
2	103	Friable deposit of degraded stone underlying 102. Revealed by an inspection slot/sondage cut through 102. Green-grey in colour, root damaged. No finds. Equal to 103 and possibly equal to 007.
2	104	Darker orange, compact layer beneath context 101. Very clean silt, very few inclusions - some pottery fragments of mixed size within context, possibly at the border between this context and 101 above. Infrequent charcoal flecks across southern half of the 2x2m sondage within trench.
2	105	Fairly rounded possible feature - a loose 'B' shape in plan. Southern half of 2x2m sondage. Very shallow cut with potentially steep curving edges (which may have been overcut). Filled by 106 and 107. Feature appeared within context 101/104.

Appendices

2	106	Upper fill of possible feature 105. Relatively dark grey silt which is fairly compact whilst excavating but easily crumbles when removed. Includes infrequent flecks of charcoal. No other inclusions.
2	107	A second deposit within possible feature 105. Context doesn't appear in the section but was very different to 106 - much more compact, solid pale mottled grey clayey silt with red flecks throughout. No other inclusions.
2	108	Very dense light yellow/orange silty-clay. Fragments of stone (possibly limestone and sandstone mix) scattered across deposit. More compact and dense than 104. Flakes off when troweled.
2	109	Very dense hard rock deposit. Rock inclusions. Sandstone and limestone mix. Cuts cleanly. Degraded in some areas. Highest point directly North point of 2x2m sondage. Undulates within 108, disappears below sondage in North East corner and at Western point in the east facing section. A dense brown silt spread across context.
1	300	Tumble of medium to large stones. Equal to 006.
1	301	Orange-red burnt sandstone with charcoal inclusions. Frequent fire-cracked medium sized rocks. Lies under and next to 300.
1	302	Dark brown/black charcoal deposit with frequent charcoal inclusions. Equal to 017.

Grotenburg

Trench	Context No.	Description
Area A 1	001	Sandy silt topsoil, uniform small to medium sub-angular to sub-rounded pebbly inclusion, blacky brown soil. Covers entire trench.
Area A 1	002	Very frequent small to medium and occasionally large angular and subangular limestone fragments in a matrix of a brownish grey sandy silt with very frequent small rounded and subrounded gravel.
Area A 1	003	Large sandstone boulders deliberately placed. Angular and subangular. In a matrix of smaller angular and subangular rocks and covered by topsoil 001, Approx 3.5m from the west side, the layout becomes random and boulders become smaller, also covered by topsoil 001 and has a similar matrix of smaller rocks.
Area A 1	004	Yellow with patches of grey, firm to compact. Redeposited sandstone. Sub angular and angular sandstone blocks both medium and large in size. Occurs in patches across context. Contains lenses of black humic material derived from 005. Interface with 002 is clear. Lower deposits more compact than the upper deposits.
Area A 1	005	Black silty sand. Moist and humic. Occasional angular, subangular and subrounded small to medium sandstone rocks. Fill of 006
Area A 1	006	Linear cut running SE-NW curving to the north. Shallow with flat base and concave sides. Filled by 005. Cuts 007.
Area A 1	007	Pale grey to light grey sandy silt. Compact to firm. Sub angular, angular and sub rounded sandstone very frequent throughout context. Sizes vary from small to large.
Area A 1	008	Circular cut, possible post hole. Shallow and filled with 009. Steep gradient on NE edge. Shallow gradient on SW edge.
Area A 1	009	Black clungey soil, sandy silt. Fill of 008.
Area A 1	010	Mottled brown layer with shades of light and dark brown. Infrequent subangular and subrounded medium sized rocks. Sandy-silt texture. More frequent rocks than centre of trench.
Area A 1	011	Thin, compact sandy silt layer. No inclusions.
Area B 1	1001	Loose humic deposit underlying leaf litter, dark brown to black in colour, heavily bioturbated with large amounts of buried wood and live tree roots. Infrequent rock inclusions, likely derived from the natural rock layer beneath 1002. Large amount of 20th century glass has also been recovered from this layer.

Area B 1	1002	Weathered grey sandstone, natural bedrock deposits. Very dense, closely packed, angular sandstone, set with grey silt and degraded stone. Two test sondages cut through context at the N/E and SW corners of the trench. Neither bottomed through the natural, revealing only the non-weathered material underneath.
Area B 1	1003	Cut of possible feature in S end of trench. Shallow in profile, round in plan. Cuts natural.
Area B 1	1004	Fill of 1003. Soft silty humus, dark brown in colour.
Area B 1	1005	Cut of possible feature to the north of 1003. Shallow in profile, round in plan. Cuts natural.
Area B 1	1006	Fill of 1005. Soft silty humus, dark brown in colour.
Area B 1	1007	Cut of possible feature to the north of 1005. Shallow in profile, round in plan. Cuts natural.
Area B 1	1008	Fill of 1007. Soft silty humus, dark brown in colour.
Area B 1	1009	Cut - shallow in profile, round in plan - approximately 30 cm wide with steeply sloped sides and a very gently rounded base.
Area B 1	1010	Fill of 1009. Soft silty humus, dark brown-black colour. Traces of decomposed roots and wood, infrequent stone inclusions. Overlain by 1001.
Area B 1	1011	Cut of possible feature to the west of 1009. Shallow in profile, round in plan. Cuts natural.
Area B 1	1012	Fill of 1011. Soft silty humus, dark brown in colour.
Area B 1	1013	Cut of possible feature to the east of 1009. Shallow in profile, round in plan. Cuts natural.
Area B 1	1014	Fill of 1013. Soft silty humus, dark brown in colour.
Area B 1	1015	Cut of possible feature to the west of 1007. Shallow in profile, round in plan. Cuts natural.
Area B 1	1016	Fill of 1015. Soft silty humus, dark brown in colour.
Area B 1	1017	Cut of possible feature to the north of 1009. Shallow in profile, round in plan. Cuts natural.
Area B 1	1018	Fill of 1017. Soft silty humus, dark brown in colour.
Area B 1	1019	Cut of possible feature to the east of 1007. Shallow in profile, round in plan.
Area B 1	1020	Dark fill of 1019 surrounding a pale 'clay packing' (1021)
Area B 1	1021	Yellow clay packing in 1019
Area B 1	1022	Cut of possible feature to the east of 1013. Shallow in profile, round in plan.
Area B 1	1023	Yellow clay fill of 1022
Area B 1	1024	Cut of possible feature to the south of 1022. Shallow in profile, round in plan.
Area B 1	1025	Fill of 1024. Soft silty humus, dark brown in colour.
Area B 1	1026	Cut of possible feature to the South-east of 1024. Shallow in profile, round in plan.

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Area B 1	1027	Yellow clay fill of 1022
Area B 1	1028	Cut of possible feature to the east of 1024. Shallow in profile, round in plan.
Area B 1	1029	Dark brown fill of 1028
Area B 1	1030	Yellow clay packing in 1028
Area B 1	1031	Cut of possible feature to the east of 1028. Shallow in profile, round in plan.
Area B 1	1032	Fill of 1031. Dark in colour. Contained small find no. 500 - glass bottle neck fragment approx. 1800s onwards.
Area B 1	1033	Fill of 1031. Yellow clay packing. Root damaged.
Area B 1	1034	Cut of possible feature on south edge of trench 1.5m from SE corner. Shallow in profile, round in plan.
Area B 1	1035	Patch of orange clayey silt fill in 1034
Area B 1	1036	patch of yellow clay packing in 1034
Area B 1	1037	Cut of possible feature to the west of 1017 along western edge of the trench. Shallow in profile, round in plan.
Area B 1	1038	Dark brown fill of 1037
Area B 1	1039	Cut of possible feature to the east of 1017. Shallow in profile, round in plan.
Area B 1	1040	Loose dark sandy soil. Fill of 1039
Area B 1	1041	Cut of possible feature to the east of 1039. Shallow in profile, round in plan.
Area B 1	1042	Loose dark sandy soil. Fill of 1041
Area B 1	1043	Cut of possible feature north of 1037 on western edge of trench
Area B 1	1044	Dark sandy fill of 1043 with frequent small roots throughout the top of context.
Area B 1	1045	Cut of possible feature
Area B 1	1046	Loose dark sandy soil. Frequent small roots. Fill of 1045
Area B 1	1047	Cut of possible feature
Area B 1	1048	Loose dark sandy soil. Frequent small roots. Fill of 1047
Area B 1	1049	Cut of possible feature
Area B 1	1050	Loose dark sandy soil. Frequent small roots. Fill of 1049
Area B 1	1051	Cut of possible feature
Area B 1	1052	Loose dark sandy soil. Frequent small roots. Fill of 1051

Area B 1	1053	Cut of possible feature
Area B 1	1054	Loose dark sandy soil. Frequent small roots. Fill of 1053
Area B 1	1055	Cut of possible feature
Area B 1	1056	Loose dark sandy soil. Frequent small roots. Fill of 1055
Area B 1	1057	Cut of possible feature
Area B 1	1058	Loose dark sandy soil. Frequent small roots. Fill of 1057
Area B 1	1059	Cut of possible feature
Area B 1	1060	Loose dark sandy soil. Frequent small roots. Fill of 1059
Area B 1	1061	Cut of possible feature
Area B 1	1062	Loose dark sandy soil. Frequent small roots. Fill of 1061
Area B 1	1063	Cut of possible feature
Area B 1	1064	Loose dark sandy soil. Frequent small roots. Fill of 1063
Area B 1	1065	Cut of possible feature
Area B 1	1066	Loose dark sandy soil. Frequent small roots. Fill of 1065
Area A 2	2000	Top soil - pine needles cover a dark black/ash colour soil. Organic matter.
Area A 2	2001	Mottled dark orange brown sub soil, equal 2014
Area A 2	2002	Orangey yellow/brown mottled layer. Lighter in colour than 2001, equal to 2020. Possibly old land surface.
Area A 2	2003	Masonry - rampart stones and tumble
Area A 2	2004	Cut - Linear feature running through trench - East to West. Full of dark ash grey fill with charcoal flecks. 'U' shaped in profile
Area A 2	2005	Fill of linear feature. Dark ash brown with flecks of charcoal.
Area A 2	2006	Dark mottled brown with charcoal flecks. -- VOID NO FEATURE
Area A 2	2007	see context 2006 -- VOID NO FEATURE
Area A 2	2008	Mottled dark brown with light grey brown patches ad charcoal flecks, with angular stone. Probably a tree throw.
Area A 2	2009	Mottled dark brown with small orange patches and charcoal
Area A 2	2010	Dark grey/black deposit with light grey patches
Area A 2	2011	Cut for possible post hole -- VOID NO FEATURE

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Area A 2	2012	Stone feature, fill of 2011 -- VOID NO FEATURE
Area A 2	2013	Friable orangey yellow natural. North end of trench.
Area A 2	2014	Orangey yellow mottled deposit. Equal to 2013. Found at south end of trench.
Area A 2	2015	Light orange brown silt. Some dispersed charcoal flecks throughout deposit. Sampled for carbon dating (sample number 001). A large area of the rubble sandstone is burnt and a deep red/orange colour. Friable mixed layer of angular burnt rubble and light orange-brown silt in the lower levels of the rampart core. 2017 and 2016 were revealed by its removal. Does not appear clearly in section.
Area A 2	2016	Well fitted stone layer/rubble layer below 2015. Stones are larger than those in 2015 but are the same composition and some are slightly burnt. Context does not appear clearly in section.
Area A 2	2017	Dense charcoal layer found underneath 2016. Very shallow deposit, initially thought to be a post hole but when half sectioned revealed itself to be approx 2cm deep. Some very degraded, deep grey sandstone in this deposit although its colouration may derive from the charcoal rich nature of the soil. Sampled for carbon dating - sample number 002.
Area A 2	2018	Leached silt deposit below 2016 and 2017 - below rampart facing.
Area A 2	2019	Lighter grey degraded stone/silt deposit within/constituting part of the lower core of the rampart on the N. side of the rampart. Can be seen in section.
Area A 2	2020	Equal to 2002, at the south end of the trench.
Area A 2	2021	Stone setting/feature in/below 2016 but on 2002

Appendix 2 - Small Find List

Site	SF #	Bag #	Context	Trench/Area	Find type	Description
Piepenkopf	01		03	Trench 1b	Spindle Whorl	Spindle whorl - in two pieces. New break and an old break. Some small pieces missing. Hole on one side wider than the other side.
Piepenkopf	02		101	Trench 2	Pottery	10 x pot sherds - 7 x rim sherds, buff brown in colour, finger impressed rim. All from same vessel.
Piepenkopf	03		101	Trench 2	Pottery	3 sherds, buff orange red in colour, all from same vessel.
Piepenkopf	04		29	Trench 1a	Pottery	2 sherds, buff brown in colour. Found within wall matrix (29) eastern side of rampart. Smoothing lines inside. Has a quartzite temper.
Piepenkopf				Trench 1	Pottery	Modern ceramic - possible jug pieces (2 bits of a rim that conjoin) and tile.
Piepenkopf		01	101	Trench 2	Pottery	8 small sherds, light orange red in colour, abraded.
Piepenkopf		02	101	Trench 2	Pottery	4 sherds, buff red in colour.
Piepenkopf		03	101	Trench 2	Pottery	5 sherds, light orange buff in colour
Piepenkopf		04	101	Trench 2	Pottery	8 sherds, all small fragments
Piepenkopf		05	101	Trench 2	Pottery	3 sherds & 1 small rim, black grey in colour, all from same vessel, small bowl.
Piepenkopf		06	101	Trench 2	Pottery	9 small fragments.
Piepenkopf		07	101	Trench 2	Pottery	1 rim & 2 sherds. Buff brown in colour.
Piepenkopf		08	101	Trench 2	Pottery	1 rim, Buff brown in colour, finger impressed rim.
Piepenkopf		09	101	Trench 2	Pottery	1 sherd, orange buff in colour. Fine fabric.
Piepenkopf		10	101	Trench 2	Pottery	2 sherds, light orange buff in colour.
Piepenkopf		11	101	Trench 2	Pottery	1 sherd, yellow buff in colour (grey fabric).
Piepenkopf		12	101	Trench 2	Pottery	1 rim, Buff orange in colour.
Piepenkopf		13	101	Trench 2	Pottery	1 sherd, Buff orange in colour.
Piepenkopf		14	101	Trench 2	Pottery	3 sherds light yellow/orange buff in colour, fired well, fine fabric
Piepenkopf		15	101	Trench 2	Pottery	4 sherds, light orange buff in colour. Coarse fabric
Piepenkopf		16	101	Trench 2	Pottery	9 sherds, light orange red in colour.
Piepenkopf		17	101	Trench 2	Pottery	3 sherds, light orange buff in colour, all from same vessel.
Piepenkopf		18	101	Trench 2	Pottery	2 rims & 1 sherd with incised line. Grey black in colour, all from same vessel, a small bowl.
Piepenkopf		19	101	Trench 2	Pottery	2 rims, buff brown in colour, finger impressed rim. Same vessel.

Piepenkopf		20	101	Trench 2	Pottery	2 sherds, buff brown in colour. Possible lug/base
Piepenkopf		21	101	Trench 2	Pottery	1 rim, light orange red in colour, finger impressed rim. Very similar to SF 2
Piepenkopf		22	101	Trench 2	Pottery	2 sherds, buff brown in colour,
Piepenkopf		23	101	Trench 2	Pottery	1 sherd, Buff orange in colour.
Piepenkopf		24	104	Trench 2	Pottery	5 sherds, light orange buff in colour, coarse fabric
Piepenkopf		25	2	Trench 1a	Pottery	2 sherds, 1 buff orange in colour, the other brown in colour.
Piepenkopf		26	06	Trench 1a	Pottery	1 rim, grey brown in colour, finger impressed rim.
Piepenkopf		27	05	Trench 1a	Pottery	1 sherd (small), light orange buff in colour.
Piepenkopf		28	02	Trench 1a	Pottery	1 rim, buff brown in colour, fine fabric.
Piepenkopf		29	101	Trench 2	Flint	3 cortical flakes, one of them has proximal end retouch. (unkown period) but found in possible Iron Age context, may have been used then??

Appendix 3 - Sample Lists

Piepenkopf

Sample no. < >	Context/ Fill no. ()	Cut no. []	Feature type	No. of bags/ boxes	Volume in L (no more than 10L per bag!)	% of deposit?	Is it clay? Y/N	Reason for sample Charred Plant Remains? Waterlogged? Artefact retrieval?	Comments: Short description of context. Any artefacts noticed? Charcoal? Date known?
<001>	17	N/A	Rampart	1	5L		N	CPR	large amounts of charcoal from back of rampart
<002>	106	105	Feature	1	1L		N	CPR	Thin deposit of charcoal
<003>	301	N/A	Rampart	2	20L		N	CPR	Orange burnt layer back of rampart
<004>	302	N/A	Rampart	1	5L		N	CPR	Dark layer with charcoal in inclusions
<005>	302	N/A	Rampart	1	10L		N	CPR	Dark layer with charcoal in inclusions

Grotenburg

Sample no. < >	Context/ Fill no. ()	Cut no. []	Feature type	No. of bags/ boxes	Volume in L (no more than 10L per bag!)	% of deposit?	Is it clay? Y/N	Reason for sample Charred Plant Remains? Waterlogged? Artefact retrieval?	Comments: Short description of context. Any artefacts noticed? Charcoal? Date known?
<001>	2015	N/A	rampart core	2	20L		N	CPR	Silt from rubble matrix
<002>	2017	N/A	Deposit	1	0.5L		N	CPR	Charcoal deposit under the rampart

The excavations in 2017 at the Westphalian hillforts of the Grotenburg and Piepenkopf formed part of a pilot scheme intended to build upon existing collaborative working between Cardiff University (UK), Lippisches Landesmuseum Detmold (LLM) and Bochum University (Germany). A single four-week season of excavation was carried out at both the Grotenburg and Piepenkopf Hillforts from 30th July to 18th August 2017. The overall aims of this research at both sites were: to assess the condition and survival of the remains; to obtain dating material to help determine the construction, use and abandonment phases of the hillforts and to recover structural, artefactual and Eco-factual data relating to the occupation of the hillforts.

Investigations at the Piepenkopf concentrated on re-excavating and re-recording all contexts originally excavated by Nebelsiek in 1939 and the aim was to clean back the section, record it and extend the trench west into the hillfort interior. The Grotenburg excavations were designed to examine the outer rampart in detail and evaluate an area within the hillfort interior for potential occupational evidence.

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