

Re-evaluating ‘Denmark’s Stonehenge’

Bronze Age communal activities in a distinctive landscape setting

Lone Claudi-Hansen^{1,3} and Arne Anderson Stamnes²

¹ Museum Vestsjælland, Forten 10, 4300 Holbæk, Denmark

² Dept. of Archaeology and Cultural History, NTNU University Museum, Trondheim, Norway. Guest researcher at the National Museum of Denmark, Guest researcher at the Department of Geoscience in Aarhus, Denmark

³ Corresponding Author (lch@vestmuseum.dk)

ABSTRACT

In 1965, an aerial photograph from eastern Denmark revealed three concentric circles surrounding a large hill. In the following years, the National Museum conducted two small excavations, which seemed to confirm that these circular marks reflected concentric circles of features and large stone holes, but the reports were never completed. The site was later classified as a ‘stone- or woodhenge’.

In this paper we assess the interpretation of the aerial photograph and archaeological features around the prominent hill based on a re-excavation and ground-penetrating radar survey of a part of the site. While no circular structures can be identified, we argue that clusters of fire pits at the side of the steep hill represent communal activities from the Bronze Age, which combines the transformative elements of fire with the distinctive landscape of the large hill and the surrounding burial monuments. The site thereby serves as an example that links prominent hilltops surrounded by burial mounds, with the event of establishing fire pits in clusters.

ARTICLE HISTORY

Received
19 August 2022;
Accepted
13 December 2023

KEYWORDS

Circle structures;
Crop marks; Ground-penetrating radar; Fire pit clusters; Bronze Age

Introduction

In the spring of 1965, an aerial photograph taken near Kalundborg in western Zealand by the Danish Geodetic Institute, revealed three large concentric circles of crop marks surrounding the large hill Overdrevsbakken. The outer circle is approximately 320 m in diameter and the inner circle 220 m (Figure 1). At the centre is a protected Late Neolithic tomb and scattered by the sides and foot of the hill are several Bronze Age burial mounds and Neolithic dolmens, reflecting a high degree of prehistoric activity in the area (Figure 2). The photograph was presented to archaeologist and Curator at the National Museum of Denmark Thorkild Ramskou in 1967. Two years later, he initiated the first of two small excavations at the site, drawn by the hypothesis that the circular crop marks could reflect holes and foundations of now missing stones (Ramskou 1970, 61).

While Ramskou published two articles to the public about the site, he never completed reports

of the excavations. In the articles, Ramskou concluded that the excavations confirmed his interpretation of the site as consisting of three concentric circles of features and large stone holes, mainly corresponding to the aerial photograph (Ramskou 1970, 64, 1972, 17). Consequently, the site was later classified as a Cultural Heritage Site of National Importance, described as a ‘stone- or woodhenge’. Given the rarity of this interpretation, the site has continually attracted the attention of amateur archaeologists and the local public. Correspondingly, the area has been avoided in planning new roadworks, assuming it would entail a substantial expense to contract archaeology.

Ramskou's interpretations were limited by the methodological challenges that were prevalent at this early point of modern archaeology. As such, the experimental removal of the topsoil was uneven, which might have affected the recording of features (Ramskou 1972, 16). The excavation trench was of limited size compared to the



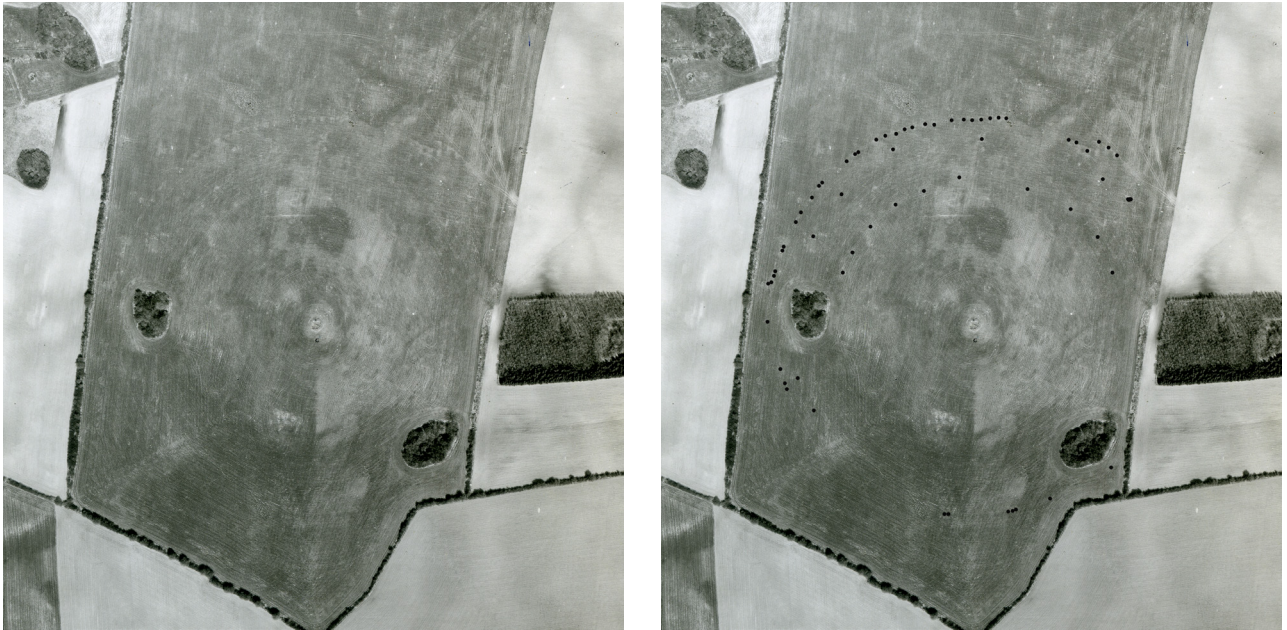


Figure 1. Aerial photograph from 1965 (left) reproduced with the circle structures highlighted by Thorkild Ramskou 1970, 60 (right) (Photo: SDFE).

standards of archaeological excavations today, and the orientation of the trench followed the presumed orientation of the stone holes, making it difficult to assess if there are equivalent features on the outer- or inner side of the circle structure.

The site's categorisation as a stonehenge is spectacular in the context of prehistoric Southern Scandinavia, where no comparable sites are known. In that respect, as the extent of Ramskou's excavations was limited, the pro-

fessional archaeological viewpoint has been sceptical overall. The interpretation of the site as a stonehenge has been reproduced, mainly online, by popular science-, historical and ancient-astronomy internet sites, as well as the description of the site as a stone- or woodhenge in the National Register of prehistoric sites in Denmark¹. Together with Ramskou's two popular articles, these descriptions have initiated discussions and queries about why such an important site is not

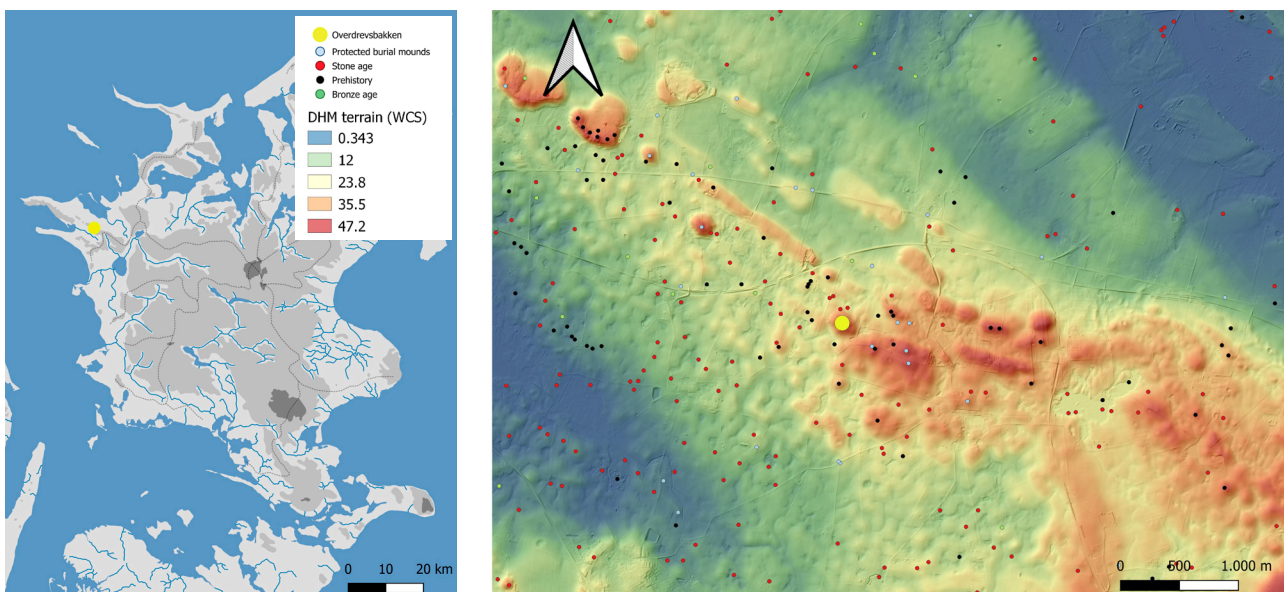
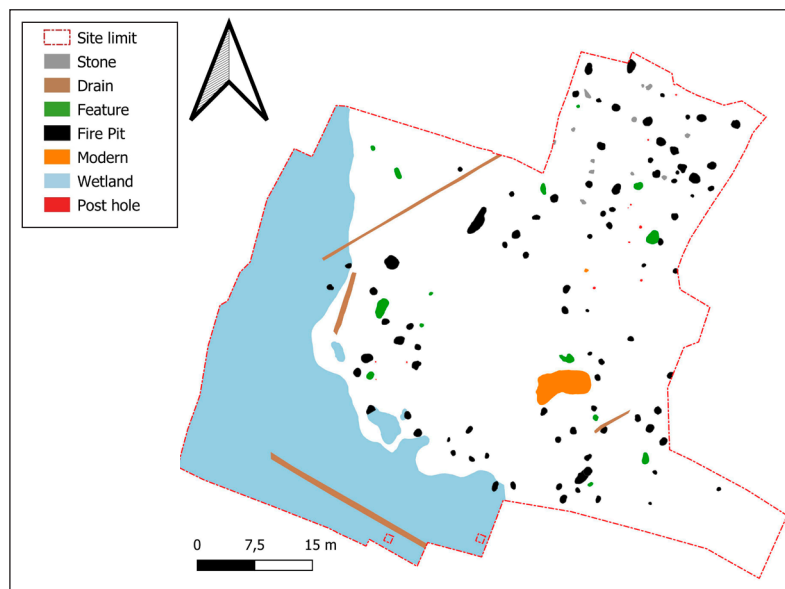


Figure 2. The location of Overdrevsbakken (yellow dot) and surrounding registered prehistoric sites. The hill is situated near Kalundborg on a ridge between Saltbæk Vig and the former Kalundborg Inner Inlet (Graphics: SDFE and digitalised map by Claus Dam).

Figure 3. The interpreted excavation site.

properly excavated and made accessible to the public. Therefore, this paper aims to assess the interpretation of the site as a henge-monument based on new information from re-excavation and a ground-penetrating radar survey and suggest possible re-interpretations of the function and role of the site.

The re-excavation of the site

In 2019 the possibility arose for Museum Vest-sjælland to conduct a small trial excavation north of the hill. The excavation exposed postholes and features, including stone holes and a few fire pits. Only a thin layer of plough soil covered these, and agriculture strongly affected the preservation conditions of the site.

In order to clarify if the features were arranged in circles around the hill or if they just represented a high degree of prehistoric occupation, it was necessary to examine a larger area. With the financial support of The Danish Agency for Culture², this was pursued in the summer of 2021, undertaken as an archaeological excavation of *c.*3000 square m northwest of the hill, combined with a non-destructive geophysical survey of *c.*17.000 square m using a ground-penetrating radar.

The circular structures from the 1965 aerial photograph were georeferenced and marked in the landscape northwest of the hill. The topsoil was removed in an area of *c.*25 x 25 m to expose both sides of the outer and middle circle

structure. It became apparent that a dark-soiled wetland area covered one-third of the excavation site. Besides this dark wetland area, 88 fire pits, 12 small postholes and 14 features were uncovered. The features had a light sandy fill, and some might reflect natural rather than cultural events. Similarly, some of the postholes were questionable, and no structures could be recognised in their internal layout. On the contrary, the fire pits were of a solid appearance, generally one m in diameter, 40-50 cm deep with a rounded bottom, containing charcoal and packed with fire-cracked stones. The fire pits were distributed on a large part of the hillside, mainly along the edge of the former wetland area and on the foot of the steep slope by the hill's western side (Figure 3).

As fire pits are the dominant feature at the excavation site, it was necessary to examine if their distribution could have caused the circular structures identified in the 1965 photograph. No obvious circle structure was apparent in the layout of the pits, so it was explored if the depth and fill of fire pits located near the georeferenced marks differed from the other fire pits. This was not the case, as pits of similar size, depth and fill were scattered across the site (Claudi-Hansen 2021a, 11-12). Furthermore, no traces of fire pits or other features were present in the wetland area, where at least three marks should have been located, according to the photograph. Conversely, the wetland area would be expected to appear darker than its surroundings in the aerial photograph if marks of features beneath the soil did, but this was not the case.

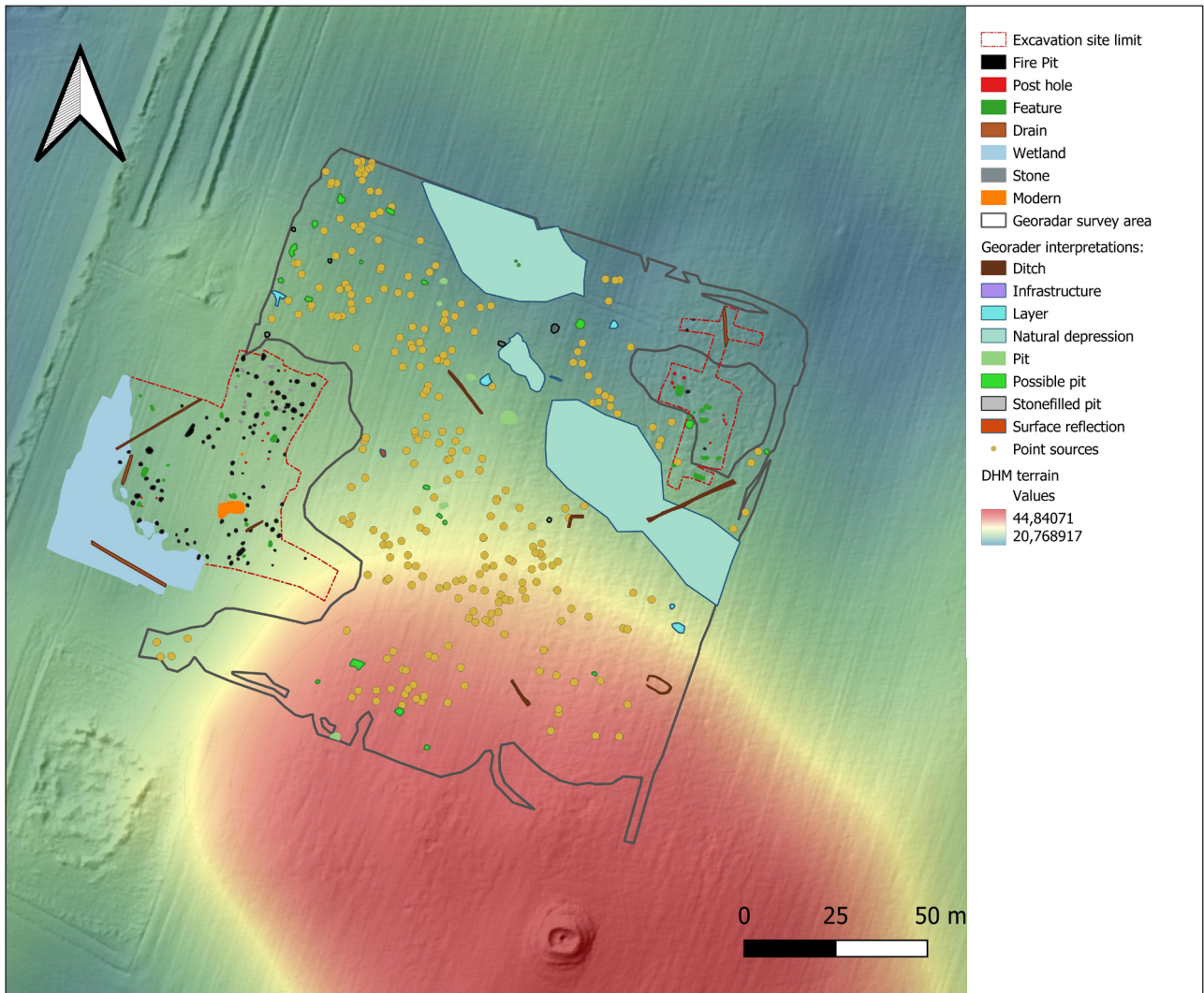
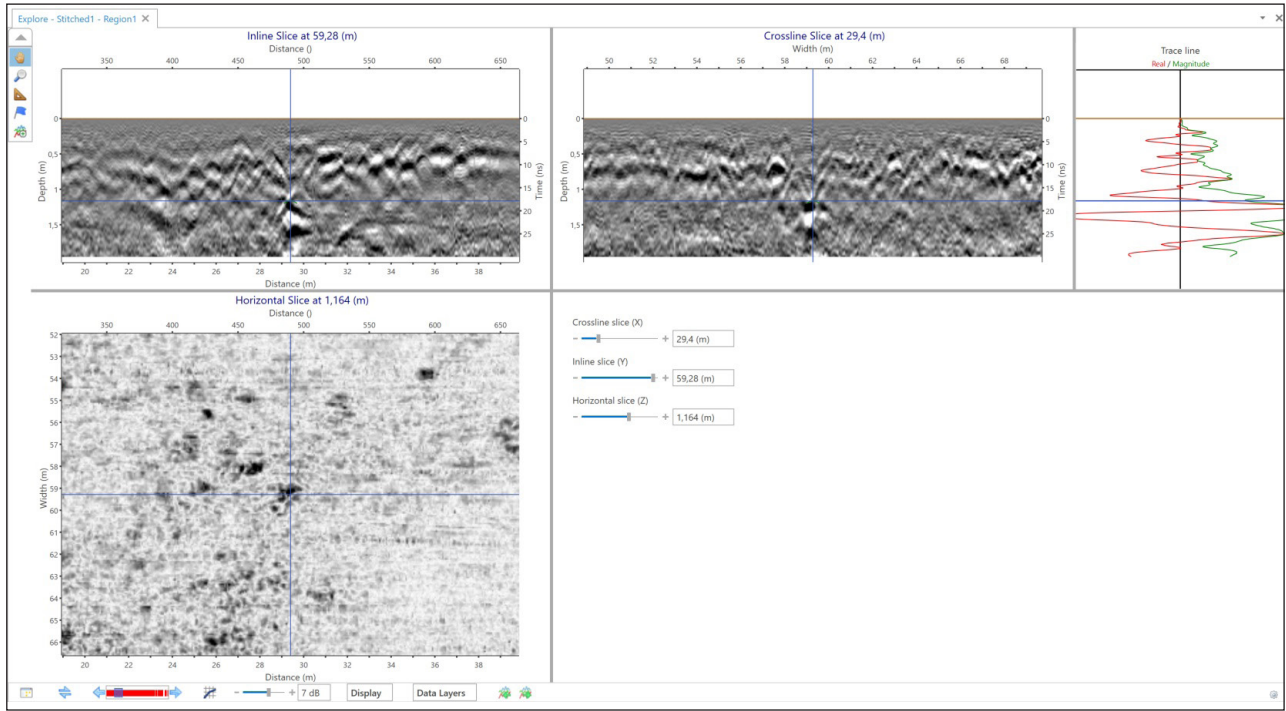


Figure 4. The 2019 and 2021 excavation sites shown with the results of the geophysical mapping and example of anomalies in the geophysical data interpreted as „point sources“, probably containing stones as viewed in both plan and section view above (after Stamnes 2021). Such responses are seen in the map as brown dots. Contains maps from SDFE.

Figure 5. Photograph from Thorkild Ramskou's excavation, illustrating cultivation in circle structures around the hill (Photo: The National Museum of Denmark, Thorkild Ramskou).



The geophysical mapping

A ground-penetrating radar survey investigated a larger area of about 1.73 hectares directly east of the excavation trench, mapping areas and features with an apparent electrical conductivity contrast to its immediate surroundings (Stamnes 2021) (Figure 4). A total of 48 anomalies and 280 point sources were identified and interpreted from this dataset. The anomalies were classified and interpreted based on their geophysical contrast, response, placement, and visual appearance.

The point sources, interpreted as singular natural occurrent rocks, were plentiful. Few of them had a location that coincided with the crop marks observed in the 1967 aerial photo. The same is valid for the anomalies interpreted as pits, stone-filled pits or similar. There were fewer stone-filled pits (interpreted as fire pits) visible in the dataset than expected based on the results from the nearby excavations undertaken simultaneously. Likewise, only a few fire pits were identified in the small trial excavation from 2019 north of the hill. This emphasises that the cluster of fire pits identified in the excavation is restricted to a limited area northwest of the hill. The survey results do not give additional strength in interpreting this site as a circular henge-monument. The geophysical observations are still of archaeological interest, as the interpretation of a pit and a layer close to the possible location of a dolmen or a passage tomb reveals new knowledge about the area and its cultural-historical constituents (Stamnes 2021, 4-23).

Modern-day cultivation marks

The excavation and geophysical mapping results demonstrate that no circular structures can be positively identified. So, what did the 1965 aerial photograph display, and what did Ramskou find? Recently, a box with photographs from Ramskou's excavations was located at the National Museum archives. From the photos, it appears that Ramskou's site II is located in the wetland area of the 2021 site, which was partly characterised by concentrations of smaller stones, corresponding to the irregular stone paving described by Ramskou (Ramskou 1970, 64; Claudi-Hansen 2021a, 15-17). Consequently, the described features in this area seem to reflect natural variations and stones in the dark wetland soil.

Among the documents was a sequence of aerial photographs taken during the excavation in 1970 (Figure 5). These illustrate that the field was cultivated in circle structures around the hill and orientated north-south to the north, in the flat part of the field (Ramskou 1970, 60). Prior to the introduction of heavy machinery, this kept the tractor from repeatedly crossing the steep hillside³. The reciprocal orientated cultivation of the newly prepared field in the spring of 1965 is likely to have created the observed spots in the photograph.

Clusters of Bronze Age fire pits

While no circular structures could be identified in the excavation or geophysical survey, the cluster of

firepits on the steep hillside reflects communal activities that took place in close connection to the many burial mounds on and around the distinctive hill. Nine of the fire pits distributed in different parts of the excavation site have been ^{14}C -dated on identified suitable charcoal (Table 1). The dates from eight fire pits correspond closely and lie between *c.*1200-900 BC (period III-IV of the Bronze Age), while a large flat fire pit of a different character than the others is younger (*c.*795-540 BC/period V-VI). All of the dates are carried out on charcoal, which might give a slightly older date, depending on the age of the used wood.

Clusters and rows of fire pits are a phenomenon found mainly on prominent hills or close to water in Northern Europe. Their exact function is unknown, but generally, the clusters and linear assemblies of fires are thought to represent social and ritual events in connection to either collective cooking and feasting activities or ceremonial performances involving fire, heat, and steam (Henriksen 2005, 96-99; Kristensen 2008, Martens 2005). Fire is a sensuous element with a highly transformative power in rituals and communal activities (Flohr Sørensen and Bille 2008). The concentration of fire pits is generally detached from the domestic sphere. While clusters are often situated on prominent hills or close to water, the fire pit lines can be seen as axes in the landscape, guiding movement and connecting landscape markers and monuments (Løvschal and

Fontijn 2019, 150-153; Kristensen 2008; Schaefer-Di Maida 2022, 476-479).

Overdrevsbakken is situated on a ridge together with other prominent hills, of which several are scattered with prehistoric burial mounds. As the extent of archaeological excavations in the area is low, we know little about what activities that took place in connection to the specific landscape elements and monuments. In the small town of Boeslunde near the coastline *c.*40 km to the south, the distinctive hill Borgbjerg Banke formed the centre of a unique concentration of votive offerings from the Late Bronze Age and rich grave finds from the Early Bronze Age (Jensen 2002, 411-416). Sporadic archaeological excavations in this area have repeatedly exposed the presence of fire pits in both lines pointing towards graves situated on hilltops, and in clusters as the only trace of activities in immediate connection to the impressive votive offerings (Henriksen 2005, 87-88; Claudi-Hansen 2021b, 15-20).

In that light, the clusters of Bronze Age fire pits on the steep north-western hillside of Overdrevsbakken, can be seen as an example of communal activities combining the transformative elements of fire and heat with the atmosphere of the place. This emphasises a spatial conception of – and engagement with – the distinctive landscape of the large hill and the surrounding burial monuments. While several of the burial mounds at the foot of the hill most likely originate from the Bronze Age, the two monuments closest to the cluster of fire pits is re-

Laboratory number	Character	Material	Radiocarbon age BP	Calibrated age 1 σ	Calibrated age 2 σ
LuS 17744	Fire pit, A90	Charcoal, fagus	2525 \pm 35 BP	780-565 BC	795-540 BC
LuS 17745	Fire pit, A163	Charcoal, maloideae	2840 \pm 35 BP	1050-925 BC	1115-905 BC
LuS 17746	Fire pit, A191	Charcoal, ulmus, sp.	2790 \pm 45 BP	1010-850 BC	1050-820 BC
LuS 17747	Fire pit, A180	Charcoal, corylus sp.	2960 \pm 35 BP	1255-1115 BC	1285-1045 BC
LuS 17748	Fire pit, A188	Charcoal, maloideae	2880 \pm 35 BP	1120-1005 BC	1200-925 BC
LuS 17749	Fire pit, A122	Charcoal, alnus sp.	2920 \pm 35 BP	1200-1045 BC	1225-1005 BC
LuS 17750	Feature, A70	Charcoal, fagus sp.	630 \pm 30 BP	1295-1395 AD	1290-1400 AD
LuS 17751	Fire pit, A184	Charcoal, alnus sp.	2890 \pm 35 BP	1125-1010 BC	1210-935 BC
LuS 17752	Fire pit, A71	Charcoal, corylus sp.	2860 \pm 40 BP	1110-935 BC	1195-910 BC
LuS 17753	Fire pit, A222	Charcoal, corylus sp.	2840 \pm 35 BP	1050-925 BC	1115-905 BC

Wood identification: *Dendro.dk*

^{14}C -dates: Lunds University, Laboratoriet för ^{14}C -datering

Table 1. AMS radiocarbon ages from MVE03541-2 Overdrevsbakken.

spectively from the Early and Late Neolithic, stressing that the events of creating fire pits could relate to spatial markers across a wide range of time.

Concluding remarks

Henges have attracted massive public interest, and an interpretation of Overdrevsbakken as a large henge-monument in an area without any parallels makes this interpretation spectacular. However, without access and insight into excavation results and an understanding of the formation process behind crop marks, it is hard for the public to critically evaluate how sound such an interpretation is. The legend of Overdrevsbakken as a henge has, therefore, continued.

Based on the excavation and the results of the geophysical mapping, however, no circular structures can be identified in the investigated area. The observed marks on the 1965 aerial photograph appear to reflect structures from the field's contemporary cultivation, conducted immediately before the photograph was taken, and not to reflect traces of prehistoric activities preserved underneath the soil. Instead, concentrations of fire pits reveal that

communal activities took place on the hillside in the Bronze Age, combining fire and heat with the atmosphere of the distinctive hill and the burial monuments erected on and around it.

Funding and acknowledgements

The Danish Agency for Culture is thanked for funding the surveys as part of the resources for documenting archaeological sites prone to cultivation and erosion. The authors are very grateful for the helpful comments from Rune Iversen, Lasse Sørensen, Poul Otto Nielsen and Niels H. Andersen during the excavation process and the collaboration with Kalundborg Arkæologiforening, Camielsa Prévost and the engaged first-year archaeology students from the University of Copenhagen. We would also like to thank The National Museum of Denmark for providing access to Ramskou's material in their archives.

Declaration of interest

The authors declare no conflict of interests.

Notes

- 1) For example: Videnskab.dk: <https://videnskab.dk/kultur-samfund/det-danske-stonehenge-var-et-imponerende-soltempel> (2015); Historisk atlas: <https://historiskatlas.dk/@55.6639810,11.1953610,16z>; Ancient Astronomy.dk: <http://www.ancient-astronomy.dk/majmag99.htm>.
- 2) The excavation was funded by The Danish Agency for Culture's resources for the documentation of archaeological sites prone to cultivation and erosion. The full report of the excavation is accessible at Fund & Fortidsminder 030610-123.
- 3) Jens Kristian Nielsen is thanked for drawing the attention to this.

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