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The archaeological record of the Gravettian open air site Krems-Wachtberg

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ABSTRACT

Since 2005, annual excavation campaigns have been conducted at the open air site of Krems-Wachtberg in eastern Austria. This paper provides an overview of the preliminary archaeological results, including a presentation of the site's Upper Palaeolithic features and find inventories, as well as a discussion of its position within the Gravettian of the Middle Danube region.

The site is characterized by a well-developed occupation layer with associated features like hearths and burials. From a local perspective, the station is part of an extensive Gravettian settlement cluster on the Wachtberg promontory. Beyond that, more far-ranging connections can be established to sites of the older Gravettian forming the regional group of the Pavlovian. These analogies apply to topographic position and economic factors, as well as to technological and typological criteria of the lithic inventories. Furthermore, parallels in burial rituals and art are evident.

1. Introduction

The loess landscapes of the Middle Danube region rank among the important finding zones of the Central European Gravettian (Fig. 1). In Austria, these include the Danube's Wachau valley as well as adjacent areas located further downstream. In general, most open air find spots are found on slopes along the Danube and its tributaries, typically positioned between a main and a secondary valley. This is also the case for the site of Krems-Wachtberg which is located about 50 m above the Danube valley on the so-called Wachtberg hill, a loess-covered spur facing southeast and situated between the valleys of the Danube and Krems river (Fig. 2). The Wachtberg's surface relief is characterized by an up to 25 m thick loess coverage sitting either directly on the Bohemian Massif's crystalline rock, or on intermediary Neogene to Early Pleistocene gravels.

In terms of research history, the Wachtberg hill is primarily well-known due to the Krems-Hundssteig site, which is an important reference locality of the Early Upper Palaeolithic, i.e. Aurignacian (Strobl and Obermaier, 1909; Broglio and Laplace, 1966; Laplace, 1970; Hahn, 1977; Teyssandier, 2005). After Joachim Hahn (1972) had already presented a smaller Gravettian inventory from the Hundssteig, new excavations conducted from 2000 to 2002 confirmed that the site had also been occupied during the Middle Upper Palaeolithic, and systematic prospection has since developed our picture of Gravettian settlement patterns in the Wachtberg area (Neugebauer-Maresch, 2003, 2008; Fladerer and Salcher, 2004; Mussi, 2011, 196–198; Einwögerer et al., 2013). The site of Krems-Wachtberg proper is of particular importance within this cluster of find spots. Here, Josef Bayer conducted an excavation in 1930 and exposed part of a Gravettian occupation surface (Einwögerer, 2000; Fladerer, 2001). In its proximate neighbourhood, the Austrian Academy of Sciences has been carrying out fieldwork since 2005 (Händel et al., 2009a). To date, in the course of eight excavation campaigns, Gravettian find horizons have been investigated in an area of ~130 m^2 and more than 88,000 single finds and samples have been recorded (Simon et al., 2013, 76). Here, the Upper Palaeolithic findings are well-preserved because they have been protected by a sediment cover of more than 5 m, being embedded in an 8 m sequence of loess (Händel et al., 2013, Figs. 2–7).

In principle, the new excavations document several stratigraphically separated find layers. However, with the exception of archaeological horizon (AH) 4, these are spatially limited find scatters characterized by small lot sizes and non-significant artefacts (Händel et al., 2013, Table 1). In the following, we will therefore focus on the archaeological remains of the main Gravettian layer AH 4 only.

The prominence of AH 4 within the loess sequence is established by the abundant presence of anthropogenic inclusions. Its highly

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variable thickness and heterogeneous appearance led to a finer stratigraphic differentiation during excavation. The most important archaeological sediment units are AH 4.11 which occurs in the entire excavated area, and AH 4.4, an *in situ* find zone of ~45 m^2 situated at the base of AH 4. While AH 4.11 contains, most notably, larger animal remains, besides many lithic artefacts and charcoal fragments, AH 4.4 beneath is determined by a dense and compact find layer of many deliberately fragmented animal bones next to charcoal fragments, stone artefacts, and colour material. Due to its characteristics we describe AH 4.4 as a living floor.

According to our present perception of the site's formation (Händel et al., 2009b, 2013) large parts of AH 4 have been influenced by considerable dislocation caused by periglacial processes. Our current model of the layer's formation assumes transport of sediment and finds down the slope by solifluction in the course of which find material of the underlying AH 4.4 was incorporated into AH 4.11. The interpretation of the micro-stratigraphy, as well as refittings of the archaeological material have shown that additional periglacial phenomena like cryoturbation and frost heave also played their role in this process of dislocation (Ziehaus, 2007, 92–100; Händel et al., 2013). In contrast to its well-preserved base, the upper part of AH 4.4 is therefore generally missing. Radiocarbon dates support the find layers' stratigraphic interpretation (Einwögerer et al., 2009). The formation of the living floor can be dated to ~27.0 ^{14}C ka BP (Table 1). The radiocarbon dates for the find horizon with dislocated material, AH 4.11, scatter over a larger time span (~26.8–28.3 ^{14}C ka BP). This can be explained by the described dislocation processes in the course of which older find material from an unknown position had been deposited above AH 4.4.

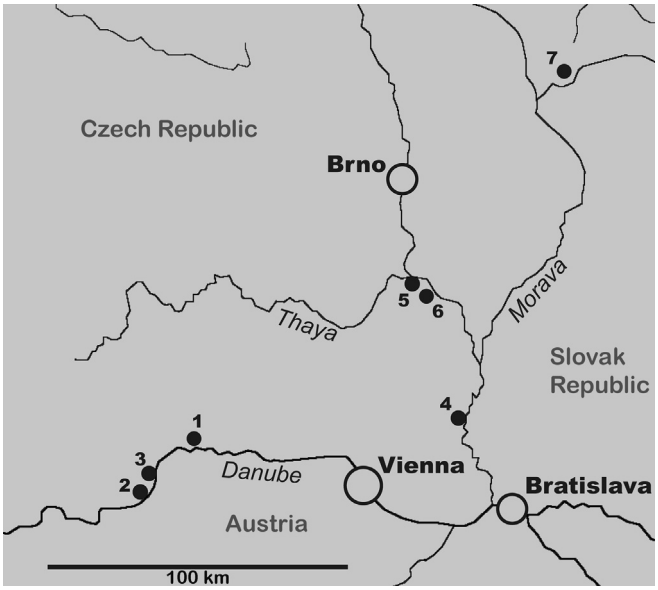

Fig. 1. Map of the Middle Danube region showing the location of Krems-Wachtberg (1) and a selection of other Gravettian sites: 2 Aggsbach, 3 Willendorf II, 4 Grub/Kranawetberg, 5 Dolní Věstonice and Pavlov, 6 Milovice, 7 Předmostí. The site of Brno II is located in the urban area of Brno (Graph: Austrian Academy of Sciences).

Table 1
Krems-Wachtberg: AMS-Radiocarbon dates determined for bone (ID 10913) and charcoal samples. Data listed with 1δ-uncertainty. Calibration with CalPal-2007^{online} (Danzeglocke et al., 2011) considering the higher standard deviation in case of asymmetric errors. For a comparison of the calibrated dates with results of other approaches see Hambach et al. (2008), Hambach (2010), Lomax et al. (2013) and Zöller et al. (2013).

Laboratory number	Sample name	Geological horizon	Archaeological horizon	Sample context	^{14}C-age [BP]	Calendric age [calBP]
VERA-4538	ID 100362	GH 25	–	*Double ash layer*	26050 ± 200	30994 ± 356
VERA-3932	ID 8886	GH 26	AH 4.11	Horizon with dislocated material	28300 ± 270	32726 ± 379
VERA-3933	ID 17176	GH 26	AH 4.11	Horizon with dislocated material above *Burial 1*	27420 + 240/−230	32048 ± 223
VERA-3934	ID 17775	GH 26	AH 4.11	Horizon with dislocated material	27190 + 230/−220	31879 ± 176
VERA-4533	ID 39440	GH 26	AH 4.11	Horizon with dislocated material	27230 + 230/−220	31905 ± 180
VERA-4534	ID 40983	GH 26	AH 4.11	Horizon with dislocated material	28000 + 250/−240	32498 ± 335
VERA-5196	ID 10913	GH 26	AH 4.11	Horizon with dislocated material	26800 ± 220	31561 ± 251
VERA-3819	ID 18075	GH 26	AH 4.3	*Burial 1*	26520 + 210/−200	31271 ± 367
VERA-3935	ID 19771	GH 26	AH 4.4	*Hearth 1*	27220 + 230/−220	31898 ± 179
VERA-3937	ID 21423	GH 26	AH 4.4	*Pit 3*	28240 + 270/−260	32677 ± 369
VERA-3938	ID 22056	GH 26	AH 4.4	*Pit 3*	27000 ± 220	31755 ± 174
VERA-4536	ID 71968	GH 26	AH 4.4	*Hearth 1*	26980 ± 210	31743 ± 171
VERA-3941	ID 23775	GH 26	AH 4.4	*Living floor*	26870 ± 220	31645 ± 208
VERA-4532	ID 33435	GH 26	AH 4.4	*Living floor*	26840 ± 220	31612 ± 224
POZ-12920	ID 9105	GH 28	AH 4.4	*Living floor*	26580 ± 160	31331 ± 341
VERA-3939	ID 22156	GH 28	AH 5	Layer below AH 4	28750 ± 270	33235 ± 436
VERA-3940	ID 22191	GH 28	AH 5	Layer below AH 4	28470 + 280/−270	32897 ± 428
VERA-4535	ID 64186	GH 28	AH 5	Layer below AH 4	28700 + 290/−280	33172 ± 459

2. Evident features

A multiplicity of archaeological features in the sense of *structures évidentes* (Leroi-Gourhan and Brézillon, 1972) is stratigraphically connected to AH 4.4. Among these are two hearths, several pits, and two burials (Händel et al., 2013, Fig. 9.). A hearth with a diameter of almost 1.5 m is located in the find distribution's centre (Fig. 3). *Hearth 1* is a complex multi-phased feature with a number of distinguishable layers and three associated pits. During excavation, the complex has been subdivided in 5 separate features and more than 30 sediment units. These have been synthesized to three main utilization phases based on stratigraphic criteria. Accordingly, the pits can be attributed to specific phases (Table 2).

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