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THE TIME OF THE WILLENDORF FIGURINES AND NEW RESULTS OF PALAEOLITHIC RESEARCH IN LOWER AUSTRIA

ABSTRACT: The article deals with the time of the Willendorf figurines and new results of Palaeolithic research in Lower Austria. The first part concentrates on the finding of the Willendorf figurines whereas the second part is dedicated to the time when the Venus from Willendorf was deposited. As to Venus I, the description of raw material probably coming from a Moravian source and the carving traces are discussed in more detail. The contribution also contains a short characteristic of the Figurines II and III. Apart from mentioning the very few sites of this period so far known in Lower Austria, the main focus of the second part is put on the site Grub/Kranawetberg in the area of Stillfried where excavations started in 1993. For its geographical position, chronology and stratigraphy as well as clear differences between cultural layers the site is worth being discussed in a broader regional context. The voluminous assemblage of ivory beads and pendants of Grub/Kranawetberg is also presented.

KEY WORDS: Gravettian – Pavlovian – Willendorf figurines – Geography – Ivory

INTRODUCTION

In 1908, when the railroad cut through the loess at Willendorf II, seven Palaeolithic layers could be distinguished at first sight. Josef Szombathy, curator of the anthropologic-prehistoric collection of the museum as well as Hugo Obermaier and Josef Bayer, then two young scientists, knew at once that this would be an excellent opportunity to study almost the entire cultural development of the Upper Palaeolithic in Central Europe. On August 7, 1908 the Venus from Willendorf was found during excavations of the Natural History Museum in Vienna. Apart from that the Venus from Willendorf was the best documented and best preserved Palaeolithic figurine of that time.

Having a look at the time when the Venus was deposited in Willendorf we find only very few sites in the area of Lower Austria which correspond to this period. One of them is Aggsbach near Willendorf where Bayer made the first investigations (Bayer 1928). Two other sites – Grub/Kranawetberg near Stillfried and Ollersdorf/Heidenberg – are situated in the March Valley at a considerable distance from Willendorf. A special focus will be put on the new excavations at Grub/Kranawetberg which give new insight to the life at that time.

THE WILLENDORF FIGURINES

Apart from the incomparable sequence of archaeological layers at the site of Willendorf II the most outstanding finds are three figurines from the uppermost layer and the horizon between layer 8 and 9: the well-known Venus I made of oolithic limestone, the probably unfinished ivory figurine Venus II and the so-called Venus III.

From the stratigraphical point of view only the so-called Venus III was found within a layer (layer 9); Venus II was deposited in a deep pit, which was attributed by Bayer to layer 9. The famous Venus I was found approximately 25 cm below layer 9.

VENUS I

The Venus I from Willendorf is a rather realistic representation of an obese woman which combines the natural form with the stylistic scheme of Palaeolithic statuettes reflecting past transcendental ideas. The composition of the body is symmetrical, only the head seems to be turned slightly to the right. Hundred years after the finding of the Venus from Willendorf the first comprehensive presentation of the documentation was published (Antl-Weiser 2000–2001, 2008a).

On August 7, 1908 the Venus from Willendorf was found during excavations of the Natural History Museum of the Imperial Court in Vienna. Willendorf had already been known as a Palaeolithic site for 25 years when the excavation started in 1908 (Szombathy 1910). In 1908, when the railroad cut through the loess at Willendorf II, seven Palaeolithic layers could be distinguished at first sight. Szombathy, Bayer and Obermaier decided to study the new sequence. Josef Szombathy planned the project and organized finances for the excavation. As a very experienced excavator he gave advice with respect to measuring and the excavation method itself. Hugo Obermaier was already known within the scientific community and had worked together with Szombathy for several years. Therefore it was not unusual that he directed the excavation on behalf of the museum supervised by Szombathy. Obermaier was responsible for the documentation. His excavation diary contained indispensable documents of the excavation at Willendorf II.

Josef Bayer was co-directing the work in Willendorf. As the direct representative of the museum in Willendorf he held the money and kept records of the workers. In the morning of the 7 August Bayer, Obermaier and the employed workers carefully scraped off a horizon with only a few stone tools. They had already finished layer 9 at this place. On that day Szombathy paid a visit to the excavation in order to control the progress of the works.

Johann Veran, one of the workers, found the statuette (*Figure 1*). Szombathy, who stood nearest to Veran, saw the figurine first and showed it to Bayer, who worked not far away from Veran. Szombathy took some photographs of the situation (*Figure 2*). Obermaier excavating further to the west heard of the find in the evening. He wrote about this moment of finding that all of them, the workers, Bayer and he himself, were excavating in a line when the figurine was found. Therefore it was not unusual that at that very moment none of them – neither Bayer nor Obermaier – was present. This passage led to doubts that the finding had been documented adequately. But Obermaier did not mean that they had not been at the site when the Venus was found. He only said that none of them stood behind Veran, because all of them were working. Only Szombathy went along this line of workers and saw the figurine near Veran or perhaps even watched Veran unearthing the Venus.

Two authentic statements support the above-mentioned interpretation of Obermaier's passage about the finding. Although Obermaier's diary got lost in Freiburg, Switzerland, we have a handwritten transcript of some parts of the diary written by Felgenhauer. Obermaier wrote into his diary that Veran would have found the Venus. He also mentioned the names of the eye witnesses: Szombathy and Bayer.

The second statement was made by Szombathy on his visit on the 7 August in Willendorf. He wrote the following note into his diary: *"Dr. Bayer and Dr. Obermaier are busily excavating layer II/7 (later on counted as 9). They have*

FIGURE 1. Venus I from Willendorf.
FIGURE 2. Photographs of the findspot with J. Bayer in the front.

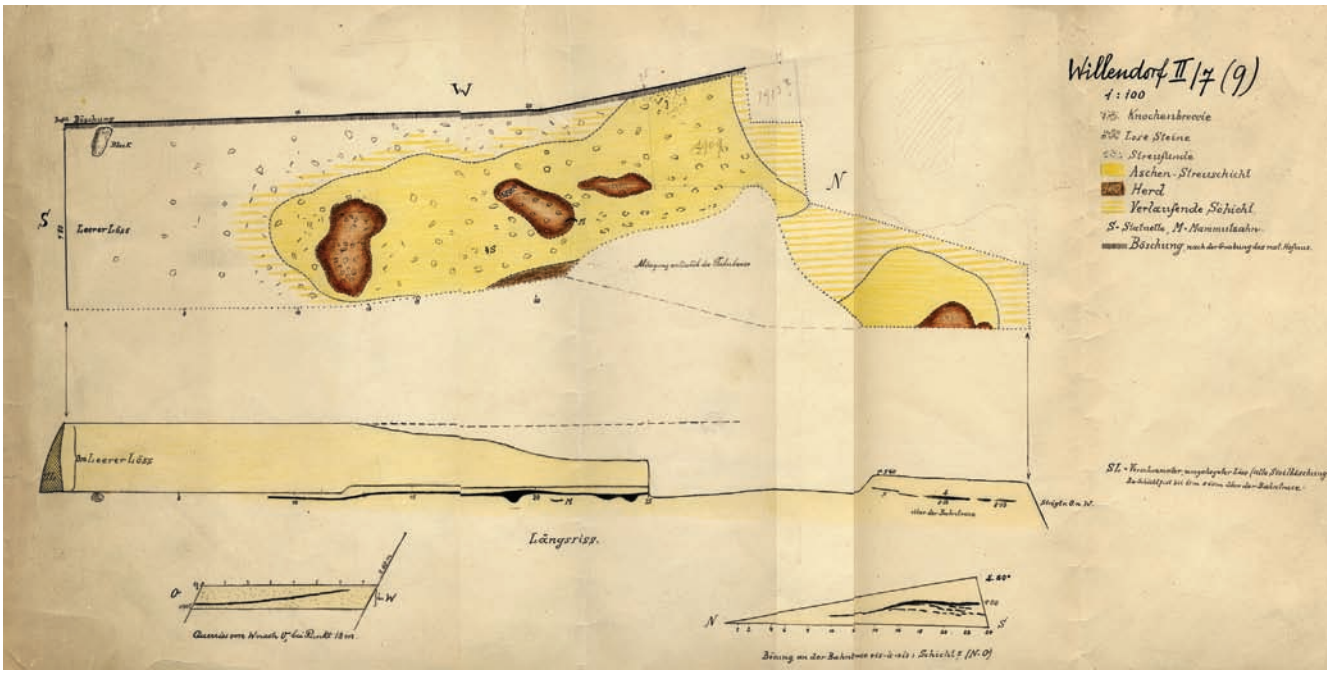

FIGURE 3. Copy of the original plan of layer 9 drawn by H. Obermaier.

already finished half of it. Layer 7 contains some dark spots and in one place a 40 cm deep hearth. (FA-PA, Willendorf) Photo 5 and 6 findspot from the north."

The Prehistoric Department of the Natural History Museum in Vienna also possesses drawings from Szombathy, Bayer and Obermaier concerning the stratigraphy. In 1909 Bayer made a copy of Obermaier's plan of layer 9 (*Figure 3*). We also have a drawing of the layer according to scale. In both plans the position of the Venus is fixed. With regard to all these documents the Venus from Willendorf was the best documented and best preserved Palaeolithic figurine of that time. In spite of some divergences the drawings of the three diaries correspond very well. Obermaier's drawing contains two horizons and the Venus beneath. Szombathy only saw the lower horizon at his visit because Bayer and Obermaier had already dug off layer 9. Therefore he drew only this lower horizon. Bayer who did not distinguish the two horizons of layer 9 only outlined layer 7 or 9, and the figurine 25 cm beneath. In a later description of the finding Bayer wrote that they worked very carefully on this level because there were some scattered finds between layer 8 and layer 9. Despite obviously the same location of the find in each of the three diaries, the position thereof is interpreted in different ways. Although Bayer had mentioned a separate horizon between 8 and 9, he seemed to have added the scattered finds of the Venus level to the finds of layer 9 when elaborating the inventory of the Willendorf finds. In fact he attributed the horizon with the Venus and the two horizons of layer 9 to one and the same group of hunter-gatherers. More than 100 years later it is difficult to decide whether or not the 25 cm of loess below the charcoal layer belonged to layer 9. Having a closer look at the picture taken by Szombathy on the 7 August 1908 we can see the two horizons of layer 9 as well as the hearth in the west. The position of Bayer at the pictures trying to fix the findspot is not very helpful because he covers an important part of the stratigraphic context.

The making of Venus I from Willendorf

The Venus I was carved out from oolithic limestone. The origin of the raw material was often discussed (Eppel 1950). In 2007 A. Binsteiner started an investigation concerning the source of the oolithic limestone on behalf of the Natural History Museum. In cooperation with Godfried Wessely and Antonín Přichystal he analysed a series of samples from sources in Lower Austria and Moravia. Finally a sample of the collection by Antonín Přichystal from Stránská skála near Brno turned out to be most similar to the material of Venus I (Binsteiner *et al.* 2008b). This provenance, although rather far from Willendorf, is quite possible regarding the distance to the material sources of erratic flints from moraines in Northern Moravia or Poland (Binsteiner *et al.* 2008a). As the Venus is the only piece of oolithic limestone at Willendorf, the figurine might have been already finished when it was brought to Willendorf.

The composition of the body is symmetrical, only the head seems to be turned slightly to the right. The hairstyle or cap on the head was achieved by a combination of transversal scratches and concentric lines. Especially in the cavities of this design remains of red ochre are very well preserved (*Figure 4*).

Looking at the breast it can be seen that the artist made rather long cuts to produce the fingers of the right hand. These cuts are crossed by the main line of the breast which was deepened in order to accentuate the breasts. In the same way both hands were underlined by corresponding lines. In the middle of the body it appears that breast, belly and the thighs were first modelled by deep vertical scratching. These scratches were smoothed by horizontal scraping (*Figure 5*).

FIGURE 4. Venus I. Detail of the head with red ochre.

FIGURE 5. Venus I. Detail of the body with traces of carving.

FIGURE 6. Venus I. Back of the figurine.

FIGURE 7. The ivory figurine Venus II.

A view to the back of the figurine shows traces of horizontal smoothing and parts where horizontal traces are overlain by vertical ones (*Figure 6*).

Summarizing the different working traces on the figurine we can observe a constant overlay of traces from different directions in order to smooth the surface. It seems that the last step of modification should underline the specific character of the worked part: vertical traces at the back and the thighs, horizontal ones at the belly or the breast, the vulva etc. Border lines between individual parts of the body such as arms and breast, breast and belly, belly and thighs were once again deepened by further scratching thus contributing to the plastic impression of the figurine.

VENUS II

In 1926 Bayer found the Venus II from Willendorf (*Figure 7*) examining a hole which was dug into the sequence of cultural layers by clandestine excavators. In 1927 he made a systematic excavation on this spot. In the course of this excavation he found the evidence of a deep pit which was dug out from layer 9 down to layer 5. The pit contained bones from mammoth and a mammoth jaw. Bayer reports that the original position of the ivory figurine Venus II was on top of the jaw (Bayer 1930).

The head of the figurine is broken off. The front view shows that the sculpture is slightly twisted in the middle of the body. The area of the shoulder is well modelled. Below the neck on the left side of the breast there is a rather indistinct structure possibly representing the left arm. Between belly and thighs there is only a roughly cut depression. The back of the figurine seems to be unmodified, only the transition from the bottom to the legs is clearly cut. In the area of the shanks the separation between left and right leg is clear (Antl-Weiser 2008b). The Venus II is rather roughly cast in most parts, only the shoulders and the legs seem to be well modelled. Perhaps it was left unfinished when the head broke off.

VENUS III

The so called Venus III from Willendorf (discovered in layer 9 of the site Willendorf II) is a modified piece of ivory but was often doubted to be a figurine (*Figure 8*). A cut mark on the front side was regarded as delimitation of the head. Only the side view gives an illusion of the shape of a human sculpture possibly with head, bottom, feet, belly and neck. An almost identical piece is known from the Russian site Zaraysk, the female figurine No. 2 (Amirkhanov, Lev 2008: Fig. 5), where the head is also marked by an incision on the front side. The shape is the same like Willendorf III. In contrast to the piece from Willendorf it shows also two cut marks at the back – one separating the head from the body and the other one marking the bottom.

We cannot be sure what the Venus III meant to the ice age hunter. In ethnological contexts wooden pieces are used as puppets but would never be recognised as such without a description. From a formal point of view there are too few indications to classify the piece as a figurine.

FIGURE 8. The so-called Venus III.

OTHER GRAVETTIAN SITES FROM AROUND 25,000 BP IN LOWER AUSTRIA

The Venus from Willendorf cannot be dated directly because we only know that it was found 25 cm below layer 9. All fragments corresponding to that horizon seem to have been united with the finds from layer 9. Taking into account the radiocarbon dates of layers 8 and 9 the horizon with the Venus from Willendorf lying between these layers might have been deposited around 25,000 BP – slightly before or after. From a cultural point of view layer 8 is generally attributed to the Pavlovian *sensu stricto* – 27–25 ka BP (Moreau 2009: 42) whereas layer 9 is part of the Willendorf-Kostenkian complex. Due to the similarities between the Venus from Willendorf and the Russian figurines we are tempted to draw the horizon of the Venus nearer to layer 9 than to layer 8, but only from a cultural point of view.

Having a look at the radiocarbon dates we can find only a very small number of sites in Lower Austria which fit into this period of Willendorf II/layer 8 or 9 (*Table 1*). First of all there is Aggsbach some kilometres south of Willendorf, which was excavated by Bayer (Bayer 1928: 9 ff.) and attributed to his newly defined culture called Aggsbachian – a denomination which was never generally accepted and disappeared soon. Due to the old excavations the function of the site remains uncertain. The second is Langenlois, a shortly used hunting camp excavated by Fritz Felgenhauer and first published by Thomas Einwögerer (Einwögerer

TABLE 1. Radiocarbon dates of Lower Austrian sites which, according to their dates, appear closest to layer 9 from Willendorf.

Site	Layer	Dating
Willendorf II Nigst *et al.* 2008, tab. 2	Layer 8	GrA-894 24,710+/ -180 BP
		GrN-17801 25,230+/ -320 BP
		GrN-21680 25,400+/ -170 BP
		GrN-20767 25,400+/ -170 BP
		GrN-17802 25,660+/ -350 BP
		GrN-11191 25,800+/ -800 BP
	Layer 9	GrA-5005 23,180+/ -120 BP
		GrN-21898 23,860+/ -270 BP
		GrN-22208 24,370+/ -290 BP
		GrA-5006 24,910+/ -150 BP
Langenlois A Einwögerer 2008, tab. 5		GrN-16564/bone 25,340+/ -170 BP
		GrN-16564/charcoal 25,700+/ -400 BP
Grub/Kranawetberg Antl-Weiser *et al.*, in print	Main layer/hearth I	GrA-9066 24,830+/-230BP
	Main layer/posthole	GrA-9065 24,930+/-240 BP
	Main layer	GrA-9065 24,930+/-240 BP
	Main layer	VERA 36 25,300+/-90 BP
	First upper layer	GrA-28,183 24,780+/-140 BP
	First upper layer	GrA-28,185 25,010+/-150 BP
	First upper layer	GrA-28,184 25,640+/-160 BP
Ollersdorf/Heidenberg	Lower layer	VERA 366 25,450+/ -90 BP
Aggsbach A Vogel, Zagwijn 1967		GrN-1354 25,760+/-170 BP
		GrN-2513 26,800+/ -200 BP

2008: 79–90). The two other sites are situated in a considerable distance to these sites in the easternmost part of Lower Austria in the area of Stillfried at the border to Slovakia: Grub/Kranawetberg and Ollersdorf/Heidenberg. The radiocarbon dates of both of these sites range between those of Willendorf II/layers 8 and 9 or overlap to a certain extent. Especially Grub/Kranawetberg is of major interest because in this period from the end of the Pavlovian to the beginning of the Willendorf-Kostenkian two cultural layers with big differences in raw material spectrum and the use of personal ornaments were detected. Therefore this part of the paper will put a special focus on these sites.

GRUB/KRANAWETBERG

The Gravettian site Grub Kranawetberg is situated on a south-facing slope above the March Valley. The geographical position between the Southern Moravian sites in the north, Moravany in Slovakia in the East and the Gravettian sites in the Wachau Valley is important for a comparison of the site in a broader regional context (*Figure 9*). In 1993–1995 the Natural History Museum Vienna excavated an area of about 90 m^2 characterised by deposits of large mammoth and rhino bones. As the Palaeolithic layer does not follow present-day inclination of the slope, parts of the deposits are disturbed by ploughing.

In 1995 the investigation started in an area located 20 m to the east of this accumulation of large bones. Within this first trench we found the western margin of a dwelling structure which has been consequently excavated during the following years. In this area we face a multi-layer stratigraphy (*Figure 10*) which includes at least three to four periods of use. At the bottom of the lowermost layer (main layer) there are pits of various types and two hearths. The thickness of the main layer increases from 8 cm in the west to approximately 20 cm in the northeast. In some parts this layer is divided into two horizons. Although this separation is not evident throughout the whole main layer, it shows that the main layer is the result of more than one phase of use of the place. Around hearth II the surface of the main layer is characterised by an accumulation of larger bones which were partly not covered by the loess deposit separating the main layer and the first upper layer.

About 8 cm above the main layer there is a second one – “upper layer” – which again intensifies from southwest to

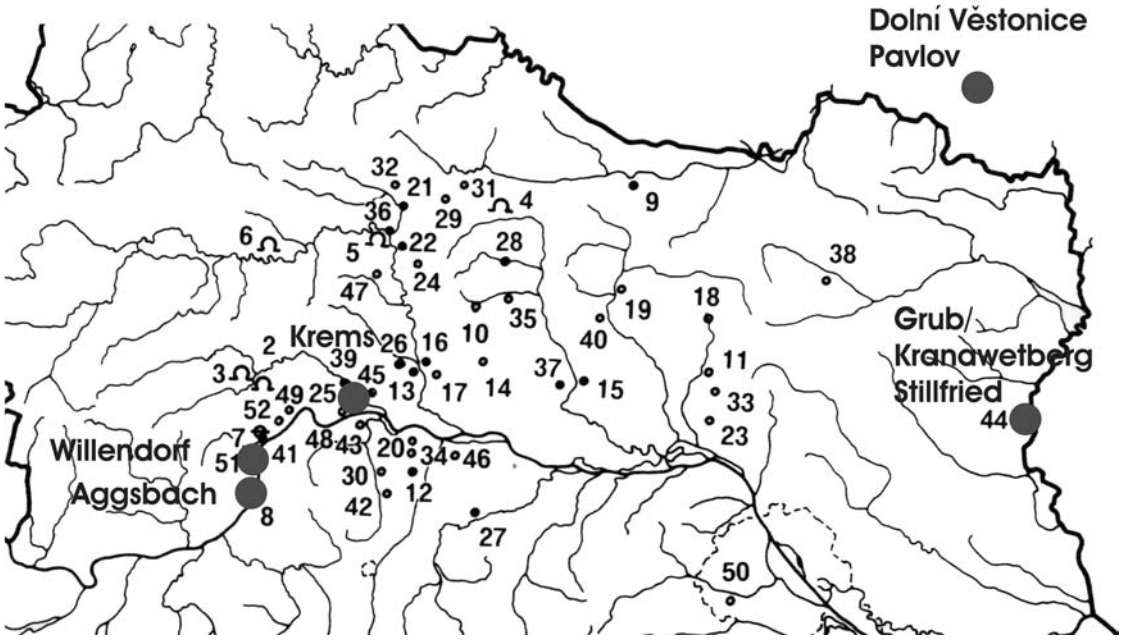

FIGURE 9. Map with Lower Austrian sites and Dolní Věstonice. The large points refer to sites mentioned in this text. After: Ch. Neugebauer-Maresch, Le paléolithique en Autriche, Grenoble 1999.

northeast. Above hearth II and especially north of it, the thickness of the upper layer increases up to 16 cm. Within this layer no pits or hearths have been detected so far. This first upper layer differs clearly from the main layer by the choice of raw materials and the use of personal ornaments. In the area above hearth II the upper layer is also partly divided into two horizons. Radiocarbon dates illustrate that the main layer and the first upper layer of Grub/Kranawetberg have been deposited shortly one after the other.

In 2002 another horizon – the second upper layer – was recognised with scattered artefacts and animal bones a few centimetres above the first upper layer, mainly in the area above hearth II. Among the finds are bone fragments, lithics and adornments. A few scattered lithics and bone fragments were discovered even 50 cm above the main layer. A fragment of a mammoth tusk from G 11 near hearth I could already be part of this third upper layer. Above this horizon there is a marked change of the loess structure.

A correlation between the sedimentation sequences in the northern periphery of the dump zone (B1/B2) and in the west from the dwelling structures (S3 East 1996) suggests that both the dump zone and the main and upper layers of the dwelling area might belong to the same period of occupation (Peticzka, Riegler 2004).

The main layer

The main layer is characterised by two hearths and a series of pits of different shape. Hearths and pits are dug into the ground from the bottom of the main layer. The main layer and both trough-shaped hearths indicate a repeated use of the site.

As to the settlement structures, we can distinguish areas of different activity. In the west there are traces of a dwelling – small pits, hearth. The distribution of lithics west of hearth I shows a clear border effect (Nigst 2003, 2004a, 2004b). Outside this border to the north, west and south not only an abrupt decrease in artefacts can be detected but also an end of the brown-coloured cultural layer changing into a horizon with scattered finds only.

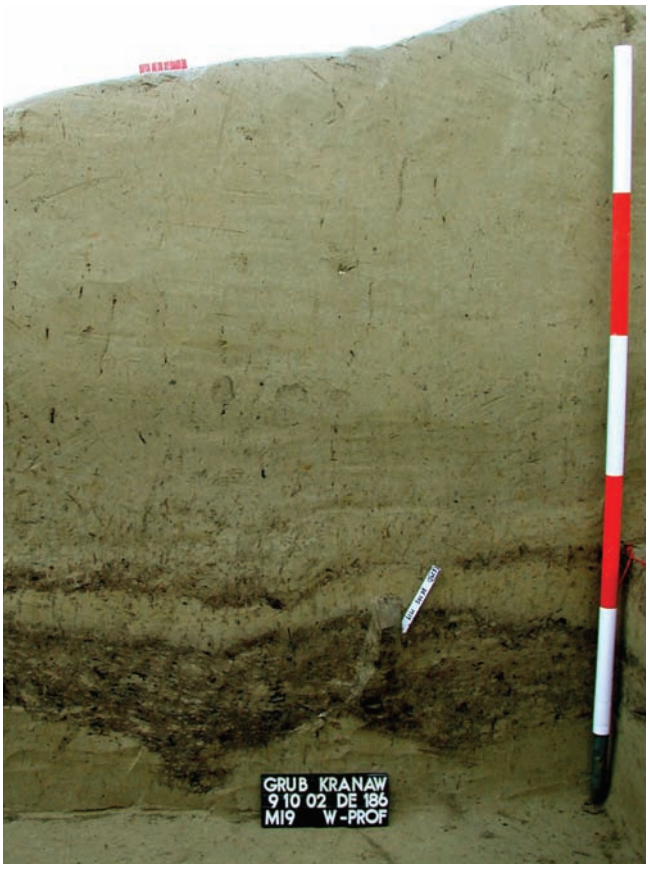

FIGURE 10. Sequence of archaeological strata near hearth II from Grub/Kranawetberg.

Inside the cluster of pits the cultural layer is light brown with plenty of red ochre, fossil snail-shells, ivory beads and stone tools. There are only a few rather fragmented animal bones. Between hearth I in the west and a second hearth several metres northeast of it we noticed a high density of stone tools, flakes and bone fragments probably representing a central zone of activities. In this area there were no pits at all. Hearth II in the northeast is again a flat mould dug into the ground and is like the first one surrounded by small pits. Unlike hearth I the different phases of firing are not exactly one above the other but only overlapping to a great extent. Around hearth II there are many pieces of ivory, brown and red ochre, ivory beads and microgravettes.

The majority of lithics of the main layer are grey or white patinated. As to the raw material used for stone tools, a certain quantity thereof resembles the material from Southern Moravian sources. There are also probable pieces of northern flint. Special raw materials include a piece of obsidian from Eastern Slovakia and some pieces of crystal rock. Ivory beads and pendants are exclusively found within this layer. But there are also perforated mollusc shells and *Dentalium.*

The upper layer

Concerning the raw material spectrum a radical change took place between the occupation of the "main layer" and the "upper layer". Within the upper layers most of the artefacts and flakes are made of brown to green radiolarites and hornstone. Radiolarites can be found in the Carpathian Mountains in the east or in the river gravels.

Rather thick-pointed blades with steep Aurignacian retouch, end scrapers and retouched blades and bladelets with fine marginal retouch have been found. There are only few backed blades and bladelets. Tools from bone and antler are abundant in the northeast where the upper layer is partly split into two horizons. This makes us think that the upper layer is also the result of at least two occupations.

Perforated shells of *Melanopsis* as well as shells of *Dentalium* and *Bivalvia* were used as adornments. *Melanopsis* and *Bivalvia* are more frequent in this layer than in the main layer. Finds are concentrated in the area above hearth II.

Lithic artefacts

Approximately 50% of the lithic artefacts from Grub/Kranawetberg are already classified. The first list of types – counted in 2008 – contains 630 modified pieces, 1,180 unmodified blades and 821 unmodified bladelets. Most of the blades and bladelets are fragmented. There are also 22 cores and 58 burin spalls. Among the stone tools backed pieces with 350 items are dominant – 281 microgravettes, 22 microliths, a triangle and 46 backed bladelets. The backed pieces are followed by blades and bladelets with lateral modification – 130 pieces. 14 blades show truncations combined with lateral modifications. End scrapers, burins and borers are distinctively less frequent.

Faunal remains

First results of zooarchaeological studies show remains from mammoth, rhino, reindeer, wild horse, arctic fox, arctic hare, wolf and wing parts of birds. Mammoth specimens are dominating, followed by reindeer and wild horse. Eggshells could also be identified at the periphery of the dwelling in the north and south (Antl-Weiser, Fladerer 2004).

In contrast to many modified pieces there are only a few bone and ivory tools. The variety is also limited – points, spatulas, awls, haftings, fragments of pins and modified antler of reindeer. A series of ivory fragments in the area of hearth II show clear marks of modification.

Ivory – beads, pendants, points, pins

More than 190 beads and pendants of ivory – counted in 2008 – were found exclusively inside the main layer. The assemblage of carved ivory objects from Grub/Kranawetberg comprises different types of beads and pendants (Antl-Weiser 1999, 2005) such as beads with two heads, cylindrical beads with a notch all around the centre of the bead, beads with two heart-shaped heads, different variants of perforated beads (*Figure 11*). Most of the perforated beads are fragmented. The perforation was carried out from both sides of the piece. There are also a few complete perforated beads with central perforation and a curved longitudinal section.

The pendants are single pieces of entirely different types. One pendant possibly used as a sort of button resembles the beads with two heads but is distinctly larger than all of them. Another one is similar to basket-shaped beads although its corpus is thinner than that of the typical basket-shaped beads. A pendant shaped like the canine tooth of a deer is almost complete. Another type is a pointed pendant with perforation. In 2005 one half of a spherical pendant with central perforation was found near hearth II.

Two pointed ivory artefacts with an almost spherical or thickened head could have been used as buttons or plugs. Apart from that there are also 35 fragments of pins which were found in areas with a high density of finds.

Mollusc shells

Approximately 100 pieces of *Dentalium* and perforated shells of molluscs were used as adornments. The perforation was achieved by abrasion or by cutting. In some cases the hole could also be natural. The mollusc shells are supposed to have been collected from old marine sediments of the region.

Bird bone filled with red ochre

Red and brown ochre are abundant within the main layer with special concentrations near the hearths. Graphite is rather rare. In 2005 a tubular bone filled with red ochre was detected. According to F. Fladerer it is a tubular bone of a bird. The concentration of red ochre inside cannot be explained by the partly high concentration of red ochre in this area. Although the tubular bone was full of red ochre there were no traces of red ochre outside (*Figure 12*).

FIGURE 11. Adornments from the main layer of Grub/Kranawetberg.

FIGURE 12. Bird bone with red ochre.

FIGURE 13. Ollersdorf/Heidenberg, archaeological strata.

OLLERSDORF/HEIDENBERG

In 1997 a series of hearths and a big quantity of well-preserved faunal remains were detected during salvage excavations at Ollersdorf/Heidenberg. A flat mould in the north of the cultural layer was packed with bones. Among them reindeer and pieces of antler were dominant. The raw material of stone tools resembles that of the main layer of Grub/Kranawetberg whereas the stone industry is dominated by unretouched blades and bladelets, burins and borers.

In 2007 another salvage excavation was carried out only a few metres east of the previous excavation. This time two clear separate layers could be observed (*Figure 13*). The lower layer included numerous bone fragments from wild horse, reindeer and a few pieces of mammoth. We also found there a modified piece of a reindeer antler, many stone tools, most of them unmodified bladelets, a series of cores and burins and again not a single backed piece. Inside the upper layer there were only few artefacts. The whole layer was characterised by traces of fire. Among the finds there was a perforated shell of Glycimeris. About 60 m to the south at the precipice to the Marchfeld a second concentration of finds could be observed. This included only a few artefacts and traces of fire.

CONCLUSIONS

Willendorf II/layer 9 is one of the oldest horizons attributed to the Willendorf-Kostenkian. As far as shouldered points are concerned we should also mention Aggsbach and Willendorf I collected by Brun and Fischer as well as Willendorf I/North excavated by Bayer (Felgenhauer 1956–1959). The horizon including Venus I was certainly deposited before the occupation of layer 9. For the above-mentioned reasons it is not possible to give a cultural characteristic of this horizon although the style of Venus I is reflected by the Russian figurines.

Apart from Aggsbach, Willendorf I, II and Langenlois there are so far only Grub/Kranawetberg and Ollersdorf/Heidenberg which were used in this period. Therefore the site of Grub/Kranawetberg is of special interest, because the two phases of occupation are chronologically situated between layers 8 and 9 of Willendorf II. Although they were deposited shortly one after the other, the choice of raw material and that of personal ornaments is completely different in both layers.

The geographical position near a river is typical for base camps of the Early Gravettian (Pavlovian) (Svoboda 2000). As far as the main layer is concerned the choice of raw material indicates relations to the Pavlovian sites in Southern Moravia. The arrangement of settlements including numerous pits has, too, parallels in Southern Moravia and at Krems Wachtberg (Händel *et al.* 2008). Contacts to the east become evident through the piece of obsidian from Slovakian sources. Settlement arrangement and the incidence of finds indicate a longer period of use of the site.

The large assemblage of ivory pendants and beads from Grub/Kranawetberg shows a great variety of types. When we try to find similarities to the adornments of Grub/Kranawetberg, the closest parallels to the double-headed beads are found out among the material of the Pavlovian sites of Southern Moravia (Klíma 1997). Double-headed beads are also known from Kostenki IV (Abramova 1995) which leads us more to the east. There are so far no parallels to the beads from Kranawetberg at Austrian sites. The ivory beads from Willendorf and Krems/Wachtberg are of different types.

If we have a look at tools, the current list of types from Grub/Kranawetberg showing a big quantity of

microgravettes and microliths seems to correspond to the microlithic facies of Gravettian stage II according to Otte and Noiret (Otte 1993, Otte, Noiret 2004). Chronologically, the radiocarbon dates from Grub/Kranawetberg overlap with the very end of stage II (Pavlovian) and the beginning of stage III (Willendorf-Kostenkian) of the Gravettian evolution in Central Europe after M. Otte. From surface collections we have a single notched backed point indicating that we can expect occupation at Grub/Kranawetberg which can be attributed to the Willendorf-Kostenkian.

Whereas the main layer as presented indicates various connections to the north, not exclusively but to a large degree, the upper layers clearly do not. As far as the raw material is concerned, approximately 90% of the lithic material is made of radiolarites, which can be found in the Carpathian Mountains. The choice of personal ornaments is also completely different because there are no carved organic ornaments within the upper layer. This lets us suppose different personal preferences and possibly the use of a different territory. Therefore the sites in this region and especially Grub/Kranawetberg promise interesting insights into cultural processes at the beginning of a period with changing climatic conditions possibly leading to changes concerning subsistence strategies.

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