

# The Smile of the Lion Man. Recent Excavations in Stadel Cave (Baden-Württemberg, south-western Germany) and the Restoration of the Famous Upper Palaeolithic Figurine

*Das Lächeln des Löwenmenschen. Neue Ausgrabungen in der Stadel-Höhle (Baden-Württemberg, Südwestdeutschland) und die Restaurierung der berühmten jungpaläolithischen Figur*

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**ABSTRACT** - In four caves located in south-western Germany, figurines carved from mammoth ivory were discovered in find horizons dating to the Aurignacian. In one of the cave sites, the Stadel Cave in Hohlenstein, excavators in 1939 uncovered a therianthrope figurine, with the head and front legs of a cave lion but with the lower body and legs of a human being. It was thus named the Lion Man. During recent excavations in the Stadel Cave between 2008 and 2013, a stratigraphic sequence was discovered that extended from the Middle Palaeolithic to the Aurignacian. It became clear that the location of the Lion Man during the excavations of 1939 corresponded to layer Au of the recent 2008-2013 excavations. This lowest Aurignacian layer yielded a radiocarbon date of 39-41 ka calBP. The Lion Man therefore belongs to the oldest known figurative artworks in the world. During the recent excavations, part of the back dirt from the 1939 excavation was also uncovered. Here, surprisingly 575 fragments of mammoth ivory were found that were partially worked and thus probably belonged to the Lion Man figurine. In 2012 and 2013 the Lion Man was therefore newly restored. During this work, critical areas of the figurine were at times fully reconstructed. It became apparent that the Lion Man did not represent a female, as sometimes earlier presumed, but in fact a male.

**ZUSAMMENFASSUNG** - In vier Höhlen Südwestdeutschlands wurden in Fundschichten des Aurignaciens einzigartige figürliche Schnitzereien aus Mammutelfenbein entdeckt. In einem dieser Fundplätze, der Stadel-Höhle im Hohlenstein, fand sich bei Ausgrabungen 1939 die Figur eines Mischwesens. Diese Figur besitzt den Kopf und die Vorderläufe eines Höhlenlöwen, aber den Unterleib und die Beine eines Menschen. Sie wurde Löwenmensch genannt. Bei modernen Ausgrabungen in der Stadel-Höhle zwischen 2008 und 2013 wurde eine Schichtenfolge entdeckt, die vom Mittelpaläolithikum bis zum Aurignacien reichte. Es konnte deutlich gemacht werden, dass die Fundlage des Löwenmenschen während der Arbeiten von 1939 der Schicht Au der Grabungen von 2008-2013 entspricht. Diese unterste Aurignacienschicht erbrachte ein <sup>14</sup>C-Datum von 39 – 41 ka calBP. Der Löwenmensch gehört somit zu den ältesten bekannten figürlichen Kunstwerken. Während der modernen Ausgrabungen wurde in der Stadel-Höhle ein Teil des Abraums der Ausgrabungen von 1939 entdeckt. In diesem Abraum fanden sich überraschenderweise auch 575 Fragmente aus Mammutelfenbein, die teilweise bearbeitet waren und daher wahrscheinlich zu der Figur des Löwenmenschen gehörten. Deshalb erfolgte in den Jahren 2012 und 2013 eine Neu-Restaurierung des Löwenmenschen. Während dieser Arbeit konnte die Figur in entscheidenden Teilen ergänzt und vervollständigt werden. Hierbei stellte sich heraus, dass der Löwenmensch nicht weiblich, wie früher verschiedentlich diskutiert wurde, sondern tatsächlich männlich ist.

**KEYWORDS** - Hohlenstein, Stadel Cave, Upper Palaeolithic, Aurignacian, Mammoth ivory figurines, Lion man, Beginning of figurative art, Swabian Jura, south-western Germany, Hohlenstein, Stadel-Höhle, Jungpaläolithikum, Aurignacien, Mammutelfenbeinfiguren, Löwenmensch, Anfänge figurativer Kunst, Schwäbische Alb, Südwestdeutschland

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## Introduction: Art from the Aurignacian

More than 40 000 years (calBP) ago, anatomically modern *Homo sapiens* arrived in Europe, also reaching south-western Germany (Higham et al. 2012; Conard & Bolus 2008). According to current knowledge, figurative art began to develop after *Homo sapiens* started spreading across Europe. However, the origins of figurative art are until today not completely understood and new information and discoveries might contradict this assumption (e.g., Aubert et al. 2014).

In Europe, the earliest forms of artistic expression are associated with the Aurignacian of the Upper Palaeolithic. Included among the oldest forms of artistic expression in Europe are the painted rocks from the Grotta di Fumane (Broglia & Dalmeri 2005; Broglia et al. 2007) and possibly some cave paintings in Spain like the stippled red disk from El Castillo (Pike et al. 2012). In France we have examples of what A. Leroi-Gourhan defined as Style I from the Aurignacian (Leroi-Gourhan 1965; Delluc & Delluc 1991). Included among these examples are the depictions from La Ferrassie and Belcayre. Also dated to the Aurignacian is the small figurine of a dancing woman from Stratzing in Austria (Neugebauer-Maresch 1989), carved from green schist. At least some of the paintings from Grotte Chauvet (Chauvet et al. 1996; Clottes 2001; Clottes & Geneste 2007) were also created during the Aurignacian, even though the age of these cave paintings has more recently been called into question (Züchner 2007, 2014; Pettitt 2008; Combier & Jouve 2012, 2014; Pettitt & Bahn 2014).

Findings from Baden-Württemberg in south-western Germany play a special role in interpreting the artwork from the Aurignacian. Complex stratigraphies in some of the caves of the Swabian Jura have also yielded important Aurignacian find horizons. There are four caves among these that are especially important: Geißenklösterle (Hahn 1988) and Hohle Fels (Conard 2009) in the Ach Valley, and Vogelherd (Riek 1934; Conard et al. 2007; Conard 2007a) and Hohlenstein Stadel Cave (Wetzel 1961; Schmid et al. 1989) in the Lone Valley. Works of art were uncovered in the Aurignacian layers from those caves. The works are not paintings but figurines carved from mammoth ivory and depicting animals and human beings. Among these are well known objects such as the horse figurine (Riek 1934, pp. 284-285) and the small mammoth (Conard 2007a) from Vogelherd, the Orans from Geißenklösterle (Hahn 1988), the Lion Man from Stadel Cave in Hohlenstein (Hahn 1970, 1971a, 1971b; Schmid et al. 1989), as well as the oldest known representation of a woman, the "Venus" from Hohle Fels (Conard 2009; Conard & Malina 2009). Additionally, flutes made from bird bones or mammoth ivory were found at three of the four sites (Hahn & Münzel 1995; Conard 2007b; Conard et al. 2004; 2009a; 2009b). Dates from the find layers in question place the artworks and the flutes in the time span between 35

and 40 ka calBP (Floss 2007; Conard & Bolus 2008). New dates indicate that the oldest statuettes may in fact be as old as 43 ka calBP (Higham et al. 2012). Thus, the figurines provide some of the earliest proof of figurative art in the world. Moreover, the flutes belong to the oldest known examples of musical instruments. The largest of these figures from the caves of the Swabian Jura, the Lion Man from Stadel Cave in Hohlenstein, plays a unique role here.

## Stadel Cave

### Description

Hohlenstein (hollow rock), a large rocky massif, is located ca. 25 km northeast of Ulm, in Baden-Württemberg (Southwest Germany), on the southern edge of the Lone Valley and in the township of Asselfingen (Fig. 1). At Hohlenstein there are three sites with Palaeolithic find layers (Fig. 2). On the western part of the massif is the Bärenhöhle (cave of bears) with mostly Middle and Upper Palaeolithic find material. Further east is the rockshelter Kleine Scheuer (small barn), where Late Upper Palaeolithic artefacts were discovered. In the east we have the Stadel Cave or Stadel (barn, shed), which is beyond doubt the most important of the three sites.

### History of research at Stadel Cave

The history of research at Hohlenstein began in 1861/62 when the German natural scientist Oscar Fraas led a small prospecting excavation in Stadel Cave and more extensive excavations in Bärenhöhle (Fraas 1862, pp. 157-158; Reinhardt & Wehrberger 1994). Years later, the German anatomist and prehistorian Robert Wetzel directed excavations in Stadel Cave between 1937 and 1939 and also between 1956 and 1961 (Wetzel 1961). Between 1936 and 1944 Robert Wetzel was actively involved in the Nazi Regime at the University of Tübingen. His excavations were at the time financed through Heinrich Himmler's SS-supported scientific organization "Ahnenerbe" (Ancestral Heritage) (Scharer 2014).

The excavation area from the 1930s was divided into strips with a width of 1 m at a right angle to the longitudinal axis of the cave (Beck 1999, pp. 19-28). These were excavated in sequence. Along with this, the sediment was removed per meter strip in so-called spits with thicknesses of 20 cm (Fig. 3). Archaeological layers with Middle Palaeolithic, Aurignacian, Magdalenian, Late Palaeolithic and Mesolithic artefacts were discovered.

The most important find from Stadel Cave was the Lion Man. Shortly before the beginning of World War II, on 25 August 1939, the excavation was hastily ended. On this day, numerous fragments of worked mammoth ivory were uncovered in a small chamber-like extension of the back portion of the 40 m deep cave (Schmid et al. 1989, pp. 34-37). They were found in the 6<sup>th</sup> spit of the 20<sup>th</sup> excavation strip and could be



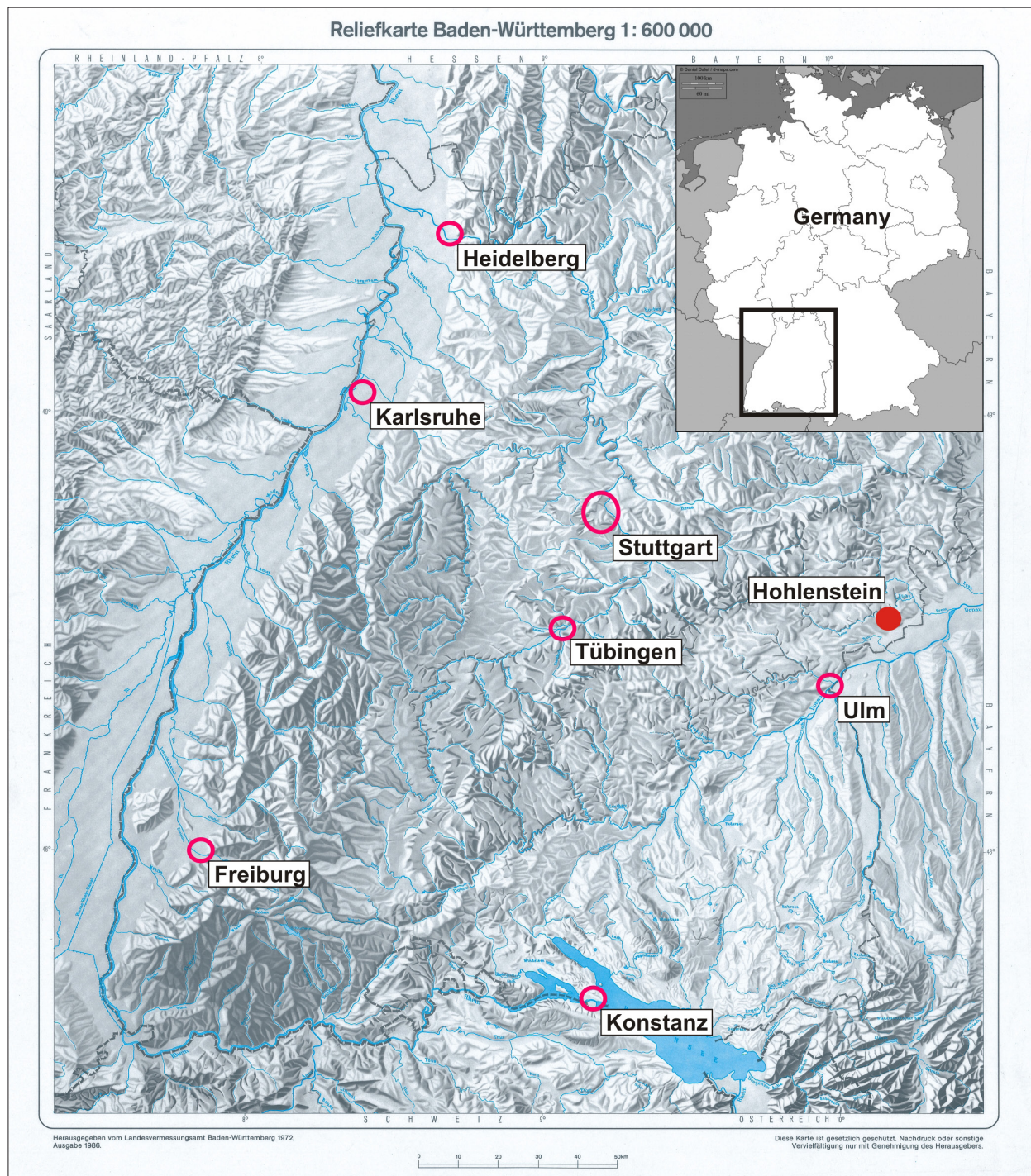


Fig. 1. Map of south-western Germany with the location of the Hohlenstein Stadel Cave. © Landesamt für Geoinformation und Landentwicklung Baden-Württemberg (<http://www.lgl-bw.de>), Az.: 2851.3-A/218; modified.

Abb. 1. Landkarte Südwestdeutschlands mit der Lage der Hohlenstein Stadel-Höhle.

assigned to the Aurignacian. Although these fragments were recognized as the broken pieces of an ivory statuette in 1939, they were not given any further attention. Lithic artefacts were rare in the small chamber.

In 1956, Wetzel bequeathed all objects from his excavations to the city of Ulm. After his death in 1962, the Ulmer Museum acquired the finds. In 1969, the German prehistorian Joachim Hahn began taking

inventory of the artefacts from Stadel Cave. Among the finds he discovered the ivory fragments and identified them as part of a figurative representation. From the broken fragments he and two colleagues were, within just a few days, able to piece together a figurine that he realized was a therianthrope (Hahn 1970, 1971a, 1971b). The figurine was missing significant pieces and the head was only preserved in fragments. The upright posture with the long torso





**Fig. 2.** A view from the north looking toward Hohlenstein with the Bärenhöhle to the right and the Stadel Cave to the left and the course of the Lone River in the foreground. © State Office for Cultural Heritage Baden-Württemberg.

**Abb. 2.** Blick von Norden auf den Hohlenstein mit der Bärenhöhle (rechts) und der Stadel-Höhle (links) und dem Lauf der Lone im Vordergrund.

and two separate legs resembled a human being. The form and position of the left ear - the only one existing at that time - indicated, however, that the head was that of a bear or a lion.

In the following years, at times in most unusual circumstances and from a variety of sources, more fragments were discovered. In 1982, the Swiss prehistorian Elisabeth Schmid added the newly discovered fragments in a provisional way to the existing figurine. It then became clear that the figurine indeed had the head of a large cat (Seewald 1984).

The first professional restoration of the figurine was carried out in 1987-1988 by the restaurateur Ute Wolf in the workrooms of the Württemberg State Museum in Stuttgart. The statuette was partially taken apart to its original form and then re-assembled. It became clear that the head had the features of a cave lion (Fig. 4) while the lower body appeared to be human (e.g., Schmid et al. 1989; Reinhardt & Wehrberger 1994; Wehrberger 2007). Nevertheless, 57 fragments could no longer be refitted. The statuette was 29.6 cm high. Large gaps still existed, especially on the head, in the area of the back and on the right side of the body.

### Excavations between 2008 and 2013 in Stadel Cave

Apart from the Lion Man figurine, there has been very little information available concerning Stadel Cave in Hohlenstein. Especially as regards the stratigraphy, there is little clarity due to the existing publications being at times very fragmentary (e.g., Wetzel 1961). It was assumed that the cave was completely excavated (Wagner 1984), though this was no way certain. Therefore, the State Office for Cultural Heritage Baden-Württemberg decided to conduct limited test pits inside and in front of Stadel Cave from 2008 to 2013. The site was to be examined again and possibly intact find horizons were to be localized.

In the cave, a small sondage (only a few square meters) at a distance of 25-30-m from the entrance was excavated (Fig. 5). A rich stratigraphy was uncovered here. Eleven layers (C to K) belong to the Middle Palaeolithic (Fig. 6). Within these layers a few dozen artefacts were found, as well as thousands of animal bones. The small number of stone artefacts appears to reveal typical characteristics of many Middle Palaeolithic layers from caves in south-western Germany (e.g., Conard et al. 2012; Böttcher et al. 2001). Available radiocarbon dates place the Middle





Fig. 3. Hohlenstein Stadel Cave. Excavation of 1937. © Ulmer Museum.

Abb. 3. Hohlenstein Stadel-Höhle. Grabungssituation aus dem Jahr 1937.

Palaeolithic find layers C to E in a time period dating before 40 ka calBP (Fig. 7). By contrast, the upper layers Ao, Am and Au belong, according to the radiocarbon dates, to a time period between 35 and 41 ka calBP. They could therefore be assigned to the Aurignacian. Animal bones appear within these layers, while lithic artefacts were extremely rare and appeared only in the form of small chips. Find horizons from the Gravettian, the Magdalenian and the Late Upper Palaeolithic are missing in this part of the cave. The stratigraphy ends with a surface level revealing mixed finds containing Middle and Upper Palaeolithic lithics as well as ceramics.

Until now, researchers could only speculate as to the age of the Lion Man. The Lion Man was discovered in 1939 in the 6<sup>th</sup> spit (i.e., at a depth of 1 to 1.2 m) in the 20<sup>th</sup> excavation meter. The find box with the fragments is clearly labelled. With this stratigraphic specification, nothing else could be determined beyond a general ordering to the Aurignacian. It has though become possible to correlate the removals from 1939 with the stratigraphy from the recent excavations (Fig. 8). Sediment remains from the cave wall served as an indicator of the former surface. In this way it has been possible retrospectively to date the figurine. The 6<sup>th</sup>

spit from 1939 corresponds to layer Au of the recent excavations, the lowest Aurignacian horizon. For layer Au a radiocarbon date exists of ca. 39-41 ka calBP (ETH-38797: 35 185 ± 270) (see Table 1). This age for the stratigraphic correlation can also be assumed for the Lion Man. Even in consideration of all the uncertainties in the dating of this time period, it has been revealed that the Lion Man is in fact one of the oldest examples of figurative art not only in the Swabian caves but also worldwide.

During the new excavations, an area was discovered that was filled with mixed sediments, which did not lie *in situ* (Kind & Beutelspacher 2010; Beutelspacher et al. 2011; Beutelspacher & Kind 2012). This area was identified as correlating to the 19<sup>th</sup> and 20<sup>th</sup> excavation meter strips from the 1939 excavations, the last excavation strips of the field season before the outbreak of World War II. On the last day of excavations, on 25 August 1939, the most recently excavated sediment was, apparently, not taken out of the cave but rather served as re-fill material. The mixed sediments found thus represent the back dirt of the excavations from the last day of the 1939 field season. But on this day, 25 August 1939, the fragments of the Lion Man were recovered from the 20<sup>th</sup> meter strip.





**Fig. 4.** Hohlenstein Stadel Cave. Aurignacian. Statuette of the Lion Man after completion of the new restoration in 2013. Height of the figure is 31.1 cm. © State Office for Cultural Heritage Baden-Württemberg and Ulmer Museum; Photos by Yvonne Muehleis.

**Abb. 4.** Hohlenstein Stadel-Höhle. Aurignacien. Statuette des Löwenmenschen nach Abschluss der Restaurierung 2013. Höhe der Figur 31,1 cm.





In the back dirt there were objects that were overlooked in 1939. Animal bones are numerous among these, while lithic artefacts are seldom. Lithics that could be clearly dated to the Aurignacian were not found. However, it was a great surprise when more than 500 fragments of mammoth ivory were discovered in the back dirt. Revealing clear indications of being worked, at least some of them belong to the Lion Man. Many of these are only a few millimetres in size, along with larger pieces that are several centimetres in length. Also found in the back dirt were pendants like perforated animal teeth (from red deer, fox and wolf) and an ivory pearl (see discussion and Fig. 12). Additionally, one perforated fox tooth was discovered in layer Au. The pendants fit within a series of similar personal ornaments from the 1939 excavations (Schmid et al. 1989, p. 110; Wolf et al. 2013).

### The Lion Man figurine

#### Technical description

The Lion Man figurine was made from the right tusk of a mammoth. The figurine is standing upright, with arms resting at its sides. This static posture is determined by its dimensions and position within the length and the circumference of the tusk. The tusk was fully developed, bending slightly left as a result of its natural growth. The head of the figurine is oriented towards the tip of the tusk. The tip of the pulp cavity is found in the groin of the figure (Schmid et al. 1989, p. 71; for the structure of the tusk and ivory see, e.g., White 1995; Locke 2008; Wolf in press). The outer sides of the arms are formed by the outer cement layer. The outside of the upper portion of the back is also formed by this cement. This indicates that the circumference of the tusk decreases slightly from the feet to the top of the head of the figurine while the entire tusk was used in the carving. The statuette is made essentially of massive dentine. In the groin of the Lion Man the nerve canal is visible as a small point that extends through the figurine to the head.

The ivory figurine has corroded over thousands of years of being under the surface and the collagen is in places fully decomposed. Therefore the material is brittle. The statuette broke along its natural growth layers into numerous fragments. The dissolved and in part worn away original surface of the figurine is mainly due to the influence of water.

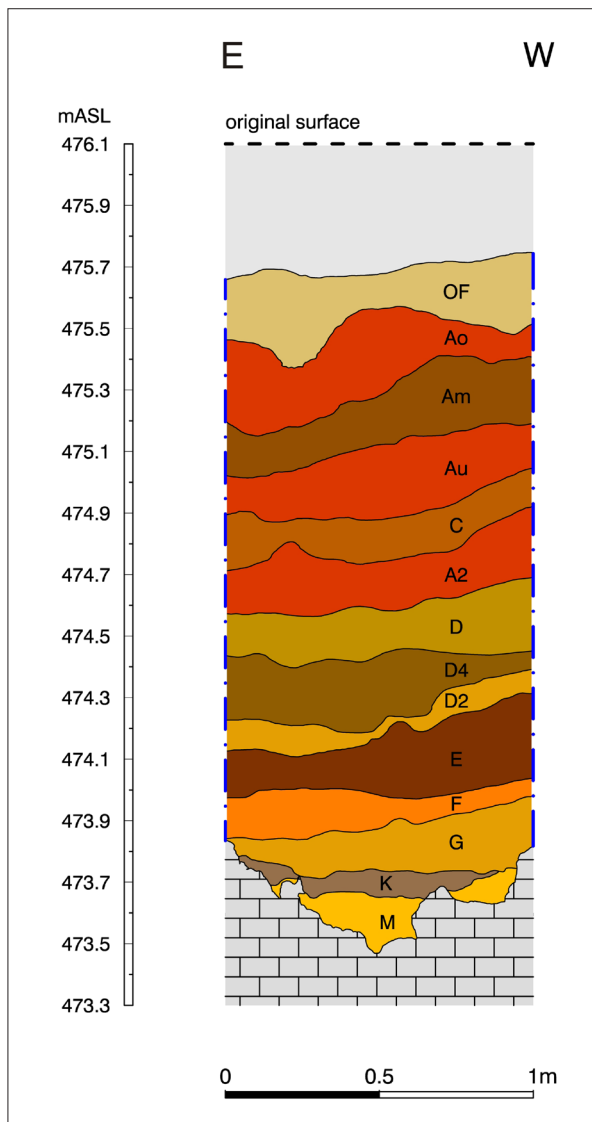
#### The new restoration work of 2012 and 2013

The first non-systematic attempts at reconstruction of the ivory fragments from the recent excavations revealed as early as the fall of 2010 that some of the new pieces would fit onto the figurine. Therefore it was decided that the Lion Man should be completely



Fig. 5. Hohlenstein Stadel Cave. Excavation work 2012. © State Office for Cultural Heritage Baden-Württemberg.

Abb. 5. Hohlenstein Stadel-Höhle. Ausgrabungsarbeiten 2012.



disassembled and rebuilt with the old and new fragments in order to bring about its complete form (Fig. 9). This occurred in 2012 and 2013 in the workrooms of the State Office for Cultural Heritage Baden-Württemberg. The figurine in its earlier reconstruction included about 200 suitably large fragments. Along with these, 57 pieces from the older excavations were available that could not be used in the earlier reconstructions. Finally, 575 fragments uncovered in recent excavations were available that were in part made up of very small pieces. Thus, at the onset of this new restoration work, there were 632 additional fragments.

The detached fragments as well as the new pieces were brought into re-assembling the great puzzle. In the lower third of the figurine a total of 28 layers of dentine could be determined that ranged in various degrees of strength. The separate fragments varied in terms of colour and weathering due to their position in the tusk or in the figurine, as well as due to the conditions in which they were found. Moreover, the edges of their breaks were often rounded. In general, the mammoth ivory was heavily weathered. This

Fig. 6. Hohlenstein Stadel Cave. Idealized stratigraphic sequence of the new excavations from 2009-2013. The layers K to C belong to the Middle Palaeolithic, the layers Ao, Am and Au to the Aurignacian. Layer M is archaeologically sterile, layer OF is a surface with sediment mixing. © State Office for Cultural Heritage Baden-Württemberg.

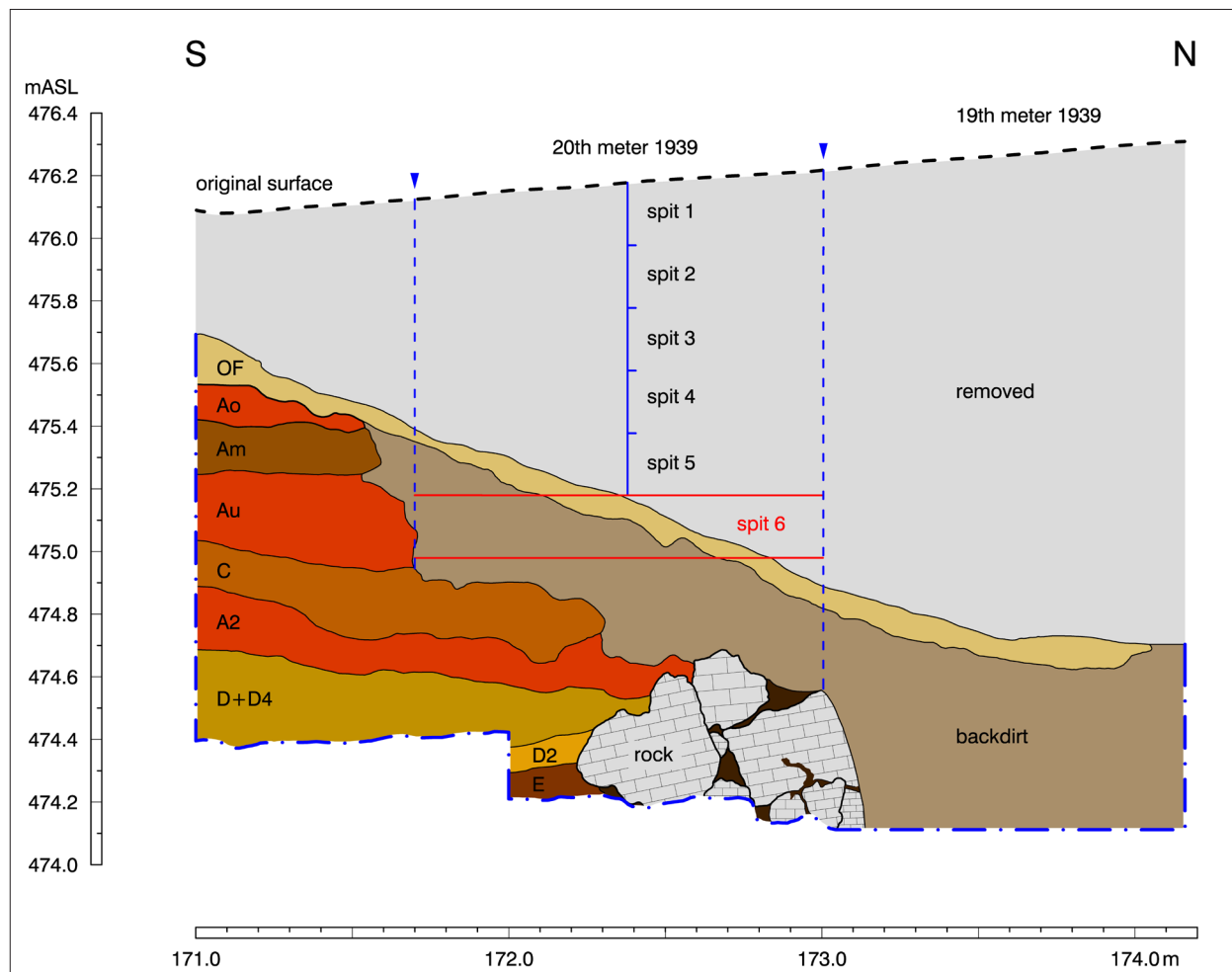
Abb. 6. Hohlenstein Stadel-Höhle. Ideal-Stratigraphie der neuen Ausgrabungen 2009-2013. Die Schichten K bis C gehören in das Mittelpaläolithikum, die Schichten Ao, Am und Au in das Aurignacien. Schicht M ist archäologisch steril, Schicht OF ein vermischtes Oberflächen-Sediment.



Lab-No.	GH	AH	Technocomplex	<sup>14</sup> C BP	δ <sup>13</sup> C (‰)	calBP (oxcal)
ETH-41231	Ao	1o	Aurignacian	31 950 ± 210	- 18.5 ± 1.1	35 589 - 36 906
ETH-41232	Am	1m	Aurignacian	33 390 ± 245	- 21.1 ± 1.1	37 286 - 38 835
ETH-38797	Au	1u	Aurignacian	35 185 ± 270	- 23.0 ± 1.1	39 421 - 41 105
ETH-38798	C	3	Middle Palaeolithic	39 805 ± 420	- 22.4 ± 1.1	43 103 - 44 555
ETH-38799	A2	4	Middle Palaeolithic	41 920 ± 545	- 23.2 ± 1.1	44 523 - 46 187
ETH-38800	D	5	Middle Palaeolithic	40 560 ± 480	- 22.3 ± 1.1	43 577 - 45 238
ETH-41234	E	6	Middle Palaeolithic	46 440 ± 1050	- 21.4 ± 1.1	out of range

**Fig. 7.** Hohlenstein Stadel Cave, new excavations. Radiocarbon dates, all samples are ultrafiltered. Calibration using oxcal (IntCal 09: Reimer et al. 2009; oxcal v 4.1.7 Bronk Ramsey 2009). Calibrated dates calculated before 1950. All samples taken from bones. GH = geological layer, AH = archaeological layer.

**Abb. 7.** Hohlenstein Stadel-Höhle, neue Ausgrabungen. <sup>14</sup>C-Daten, alle Proben ultrafiltriert. Kalibriert mit oxcal (IntCal 09: Reimer et al. 2009; oxcal v 4.1.7 Bronk Ramsey 2009). Kalibrierte Daten wurden vor 1950 kalkuliert. Alle Proben bestanden aus Knochen. GH = Geologischer Horizont, AH = Archäologischer Horizont.



**Fig. 8.** Hohlenstein Stadel Cave. Attempt at correlating the find spot of the Lion Man from 1939 and the stratigraphy from 2012-2013. The figurine was discovered in the 6<sup>th</sup> spit of the 20<sup>th</sup> excavation strip. Sediment remains on the cave wall serve as a clue to the former course of the surface. The 6<sup>th</sup> spit from 1939 corresponds to layer Au of the recent excavations with an age of 35 185 ± 270 years BP (ETH-38797). © State Office for Cultural Heritage Baden-Württemberg.

**Abb. 8.** Hohlenstein Stadel-Höhle. Versuch der Korrelation des Fundortes des Löwenmenschens von 1939 und der Stratigraphie von 2012/13. Die Figur wurde 1939 im sechsten Hieb im 20ten Abbaumeter entdeckt. Sedimentreste an der Höhlenwand dienen als Hinweis auf den ehemaligen Verlauf der Oberfläche. Der sechste Hieb von 1939 entspricht der Schicht Au der modernen Ausgrabungen mit einem Alter von 35 185 ± 270 Jahren BP (ETH-38797).



**Fig. 9.** Hohlenstein Stadel Cave. The restoration of the Lion Man in 2013. © State Office for Cultural Heritage Baden-Württemberg. Foto by Yvonne Muehleis.

**Abb. 9.** Hohlenstein Stadel-Höhle. Die Restaurierung der Figur des Löwenmenschen 2013.

means that the exact refitting of pieces was at times impaired. Especially the attempt at localizing the fragments within the inner area of the figurine was often very difficult. Despite these difficulties, it was possible to refit 44 of the new pieces into the reconstruction of the Lion Man. It was also possible to refit 24 fragments from the 1939 excavations that could not be used in the former reconstruction of the figurine.

## Results and discussion of the restoration work from 2012 and 2013

### Alterations to the figurine

The Lion Man figurine was not complete in its former condition. Large parts were missing on the right side of the body, such as the right arm, while a large gap existed in the back as well. During the restoration work in 1987 and 1988, the fragments were glued together, with the missing gaps to the figure filled in with a wax mixture, with a pole of plexiglass built into the Lion Man as a means of static support.

After the new restorations, the figure still is clearly recognizable as a therianthrope, part human and part cave lion (Wehrberger 2013). The head and the front legs belong to a cave lion (Fig. 10, as well as Fig. 4). The circumference of the head has increased, while the original extent of the snout has been added to. It

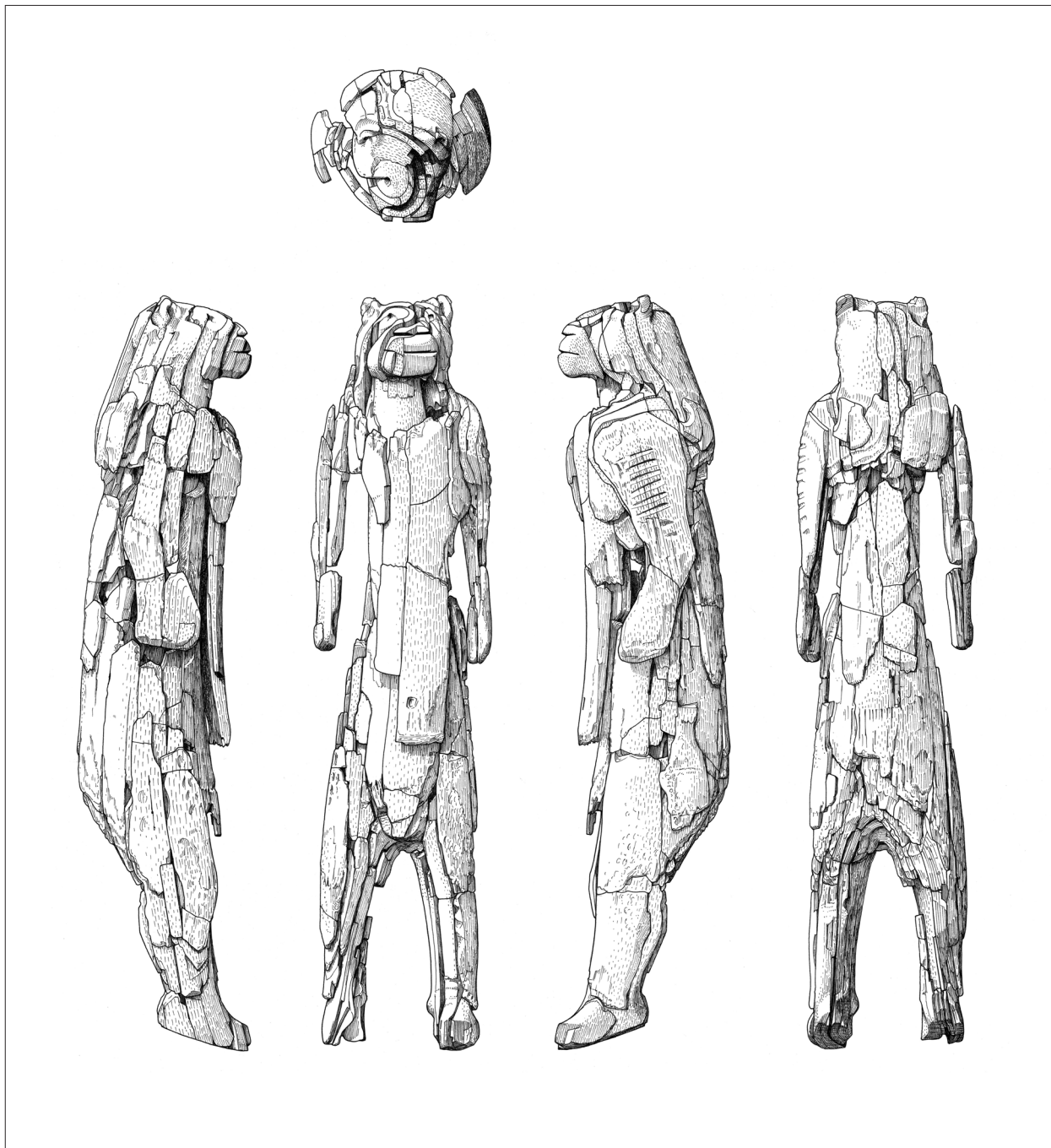
appears relatively wide and extends further out due to the newly found material. The left cheek is complete. Also, a critical part of the left ear was discovered and attached to the head. The figurine presents a relaxed facial expression that almost resembles a smile - the smile of the Lion Man.

The Lion Man possesses a very compact neck that extends into a broad shoulder girdle. Through the new restorations it was discovered that, in the place where a lion's mane was formerly assumed, we now see the sculptural rendering of shoulder blades. Both shoulder blades are pulled toward each other. This implies a dynamic movement that stands in contrast to the static position of the arms, whose form is, however, predetermined by the natural dimensions of the tusk. This could be confirmed by the position of the ears, which supposedly shows an alert animal. Furthermore, a mane is not recognizable.

The previously missing right arm has been reassembled with fragments that were in part discovered already in 1939 but that could not be fitted onto the statue. Both arms are clearly the front legs and paws of a large cat. They are slightly bent and rest close to the body.

The previously missing part of the back was also found. Consequently, the largest missing space in the Lion Man up until now could be closed through the new restoration. The figurine is now stabilized with





**Fig. 10.** Hohlenstein Stadel Cave. Aurignacian. Drawing of the Lion Man statuette after the completion of restoration in 2013. Height of the figure is 31.1 cm. © State Office for Cultural Heritage Baden-Württemberg and Ulmer Museum; Drawing by Christina von Elm.

**Abb. 10.** Hohlenstein Stadel-Höhle. Aurignacien. Zeichnung der Statuette des Löwenmenschen nach Abschluss der Restaurierung 2013. Höhe der Figur 31,1 cm.

original material and no longer requires additional artificial support. After the reassembly of the back, the Lion Man now measures 31.1 cm.

In contrast to the head and the arms, the lower body of the figurine and the legs belong definitively to a human being. These reveal details such as the navel. Particularly human in quality are the hollows of the knees, the calves, the ankles and the heels.

The Lion Man is standing on his toes, a posture that appears to indicate a movement or a leap. This

dynamic element has been strengthened through the effect of the pulled-in shoulder blades. But it might equally also depict a floating state and not a realistic behaviour at all.

#### Damage to the figurine

It had been proposed that the figure of the Lion Man from Stadel Cave fell apart in the cave sediment (Hahn 1971a, p. 12). It has also been assumed that it was already damaged in the area of the head, the right arm

and the back before it was deposited in the cave. The proposed damage was seen as the reason why the statuette was left behind as refuse (Hahn 1971a, p. 14). This assumption was later revised. It was not clear whether the damage to the figurine occurred intentionally or through the sediment (Hahn 1986, p. 143). Also it has been argued that the figurine possibly laid on its left side and was damaged on the upper right side during excavations through the blow of a handpick and that this would explain why the left side is intact while the right arm exists only in fragments (Schmid et al. 1989, p. 75).

Through the new restoration we now have a clearer image of the find. Even with parts still missing, the statuette appears after the reassembly to be close to complete in most places. Portions of the interior are still missing as well as a fragment of the right leg and parts of the right arm. According to our current knowledge, it is therefore almost certainly the case that the statuette was not considerably damaged back in the Aurignacian. With no substantial evidence of modern breaks existing on the figurine, we also can disclaim the assumption that the Lion Man was hit by a handpick during excavation.

Therefore, according to our current knowledge, we can assume that the figurine was in fact intentionally deposited in the small chamber of Stadel Cave and that over the course of thousands of years it fell apart in the sediment into numerous fragments. Supporting this notion of erosion in the sediment is above all the indication of numerous manganese deposits found on the inner surfaces of the fragments.

On balance it appears that upon its discovery in 1939 the figure was found already broken into numerous fragments. Only the larger fragments were collected, while the smaller ones were left in place. These smaller fragments were later discovered during modern examinations of the back dirt of the old excavations. One unanswered question pertains to where the still missing pieces of the Lion Man might still be found. We can only speculate here. Since the entire back dirt of the small chamber was carefully examined during recent excavations, it can be ruled out that these missing pieces are still to be found there. It is more probable that these fragments were indeed recovered in 1939 but have gone missing in the time between 1939 and 1969. Hahn interpreted the possible loss of fragments through a damage to the find box (Hahn 1971, p. 15).

### Details concerning the production of the figurine

In many parts of the figurine we find that the original surface of the ivory is no longer preserved and can therefore make no definitive claims as to the means of production involved here in its manufacture. By contrast, on other parts we do find remnants of the original surface revealing clear indications of working. These are especially clear on the left part of the snout (Fig. 11b) where we find distinctively fine striations that can be interpreted as the carving marks of a flint knife. After the statuette was made into its intended form, its surface was polished, as also recognized on this part of the Lion Man.

The statuette reveals some remarkable details. Head, shoulders, elbows, knees and heels have been carved in a very naturalistic fashion. They prove that the artist had been very observant. By contrast, the paws, the groin and the feet appear strikingly stylized.

The left side and the right side of the Lion Man are differently formed. The left side of the figure is very carefully worked, while the right side appears rougher. This is particularly recognizable in the shaping of the right arm, which in contrast to the left arm appears very coarse or crude. Also the right ear has been formed simply through rough scraping while the left ear is perfectly set apart from the head. This could suggest that the carver began with the right side, perfecting his work on the left side.

The front, as well as the back, of the statuette was not uniformly carved, but rather in graded form down to the legs. This design element could indicate the belly fur of a large cat. It could also be possible that this is the clothing of a human with a lion skull and adjoining fur and legs.

### Ornamental elements on the figurine

The Lion Man figurine possesses ornamental elements in three places, all found on the left side of the body. An explanation for this could be that the side with the heart was supposed to be particularly emphasized. The left ear is decorated from behind with more than 12 parallel scratch marks (Fig. 11a). The exact number of lines cannot be determined due to the poor preservation of this area of the body. These scratch marks are clearly distinctive from the production traces such as, for example, those on the left side of the snout. Besides this, the left arm reveals seven deep horizontal notches that, in correlation with the lightly raised areas between them, produce a flat relief effect (Fig. 11c).

#### Legend of following page:

**Fig. 11.** Hohlenstein Stadel Cave. Aurignacian. Details of the Lion Man figurine. a) Left ear from behind with carved decorative elements. b) Left part of the snout with clear manufacture traces. c) Left arm with decorative elements. d) Groin area with stylized male genital. e) Left foot sole with carved decorative elements. © State Office for Cultural Heritage Baden-Württemberg and Ulmer Museum; Photos by Yvonne Muehleis.

**Abb. 11.** Hohlenstein Stadel-Höhle. Aurignacien. Details der Figur des Löwenmenschen. a) Linkes Ohr von hinten mit eingeritzten Verzierungen. b) Linke Schnauzenpartie mit ausgeprägten Bearbeitungsspuren. c) Linker Arm mit Verzierungen. d) Genitalbereich mit stilisiertem männlichem Geschlechtsteil. e) Linke Fußsohle mit eingeritzten Verzierungen.



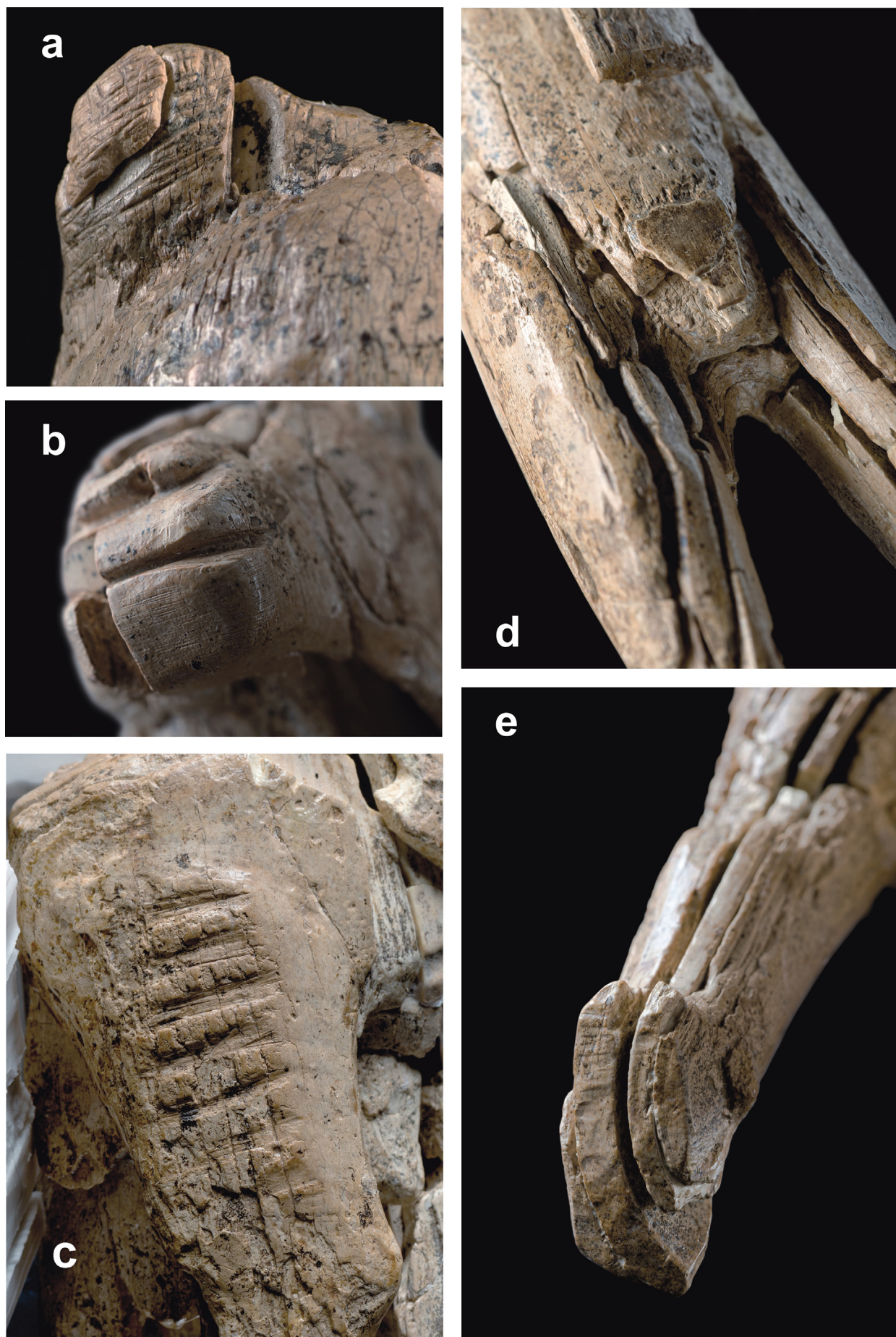


Fig. 11. Legend on previous page

These notches could be interpreted as representing a tattoo or decorative scarring. Finally, at least eight, relatively poorly preserved, parallel scratch marks are recognizable on the sole of the left foot at a right angle to its orientation (Fig. 11e). These can also be distinguished from the normal production traces left by manufacture.

### Sex of the figurine

Over the past decades an intensive discussion took place concerning the sex of the Lion Man. It was originally thought to represent a male (Hahn 1970, 1971a, 1971b), while later interpretations proposed a female figurine (Schmid et al. 1989, pp. 73-75).

Through the new restorations it is possible to present a more exact interpretation. The pubic area is depicted by several deeply carved notches (Fig 11d). Particularly striking is a triangular, originally rectangular, shaped plate. The plate was formerly described as being set apart from the groin, a feature explained as due to a supposedly missing fragment.

With the new reconstruction it is now revealed that this small plate is carved on all sides and therefore intentionally separated from the groin. Its entire surface is smoothed and appears worn off. This small plate may be interpreted then as the stylized genital of a male.

### Comparisons

With a height of 31.1 cm, the Lion Man is to date the largest known statuette from the Upper Pleistocene. There are three other known figurines made from ivory that are similar in size. A male figurine from a grave in Brno (Czech Republic) is at least 20 cm big (Valoch 1959), and the Venus II from Willendorf (Austria) is ca. 23 cm (Bayer 1930). Both statuettes date to the Gravettian and are then almost 10 000 years younger than the Lion Man. Furthermore, a stylised female figurine, which was discovered at the Magdalenian open air site of Andernach Martinsberg (Germany) is about 20 cm big (Veil 1982). It is more than 20 000 years younger than the Lion Man. Thus, the idea of making figurines out of large pieces of tusk is documented several times for the Upper Palaeolithic. Despite this, figurines made from ivory are generally seldom larger than 20 cm, making the Lion Man very much a unique specimen in the context of Upper Pleistocene statuettes (see, e.g., Delporte 1993).

Therianthrope figures with combined animal features and human attributes are also rare among the Upper Palaeolithic cave paintings and transportable art objects. Paintings and engravings of animal-human beings are only known from a few caves. Among these we have a "bison-man" of Le Gabillou in the Dordogne region of Southwest France (Gaussen 1964). In the cave Les Trois Frères located in the Ariège of southern France, at least two such representations have been found (Bégouën & Breuil 1958). One also presents a "bison

man" again, the other a human being with antlers that is described as a horned god ("dieu cornu"). In the cave of Chauvet-Pont-d'Arc (Rhône-Alpes) in the Ardeche a combination of bison head with a lower body of a woman has been uncovered (Chauvet et al. 1996; Clottes 2001).

Noteworthy is the location of many of these examples of therianthropes. They often are found in secluded places. The "bison man" of Le Gabillou was thus discovered at the far end of a low and narrow passage in the cave. Also in the Grotte Chauvet, the bison-woman combination is located in the far back portion of the cave, in the vicinity of the large frieze of lions. In the Les Trois Frères cave, the "dieu cornu" looks down on the observer from a height of 3.5 m at the end of a small side passage.

The animal-human being from Le Gabillou and Les Trois Frères have been dated to the Magdalenian (Lorblanchet 1999). The therianthrope from Grotte Chauvet is dated to the Aurignacian (Clottes & Geneste 2007), but there has been doubt expressed in the past as to this chronological attribution (see Introduction).

A few examples of transportable art objects could also be seen as therianthropes. In the Grotta di Fumane in the Lessini Mountains near Verona in northern Italy, several red-coloured paintings on limestone have been discovered in layers dating to the Aurignacian. Among these is the painting of a horned figure in a human posture (Broglio & Dalmeri 2005; Broglio et al. 2007). Furthermore, the combination of a head of an ibex with the legs and genitals of a woman can be observed on a Magdalenian spear thrower from Las Caldas cave in Spain (Corchón-Rodríguez 1990). Among the figurines from the caves of southwestern Germany are also two further examples that are seen as therianthropes. One is a small, 2.5-cm high figurine from Hohle Fels that has been called the "small Lion Man" (Conard 2003). Moreover, the orans from Geißenklösterle possesses therianthrope features (Hahn 1986, pp. 117-119; 1988, pp. 224-226).

## Discussion of the function of Stadel Cave and conclusions

The figurine of the Lion Man shows two components. The head and the arms belong to a cave lion while the lower body and legs to a human being. This figurine could represent a deity. Cave lions were the largest and most dangerous predators of the Upper Pleistocene in Europe. It could also represent a human being, perhaps a shaman, who is wearing the head of a lion. Both interpretations would indicate a religious significance to the figure.

The assemblage from the Aurignacian layer in the Stadel Cave contains relatively few lithic artefacts in comparison to other south German Aurignacian find horizons. In total only 313 lithic artefacts were



recovered from the Aurignacian layers during the excavations between 1935 and 1939. These include 47 intentionally retouched tools (Schmid et al. 1989, pp. 100-104) such as endscrapers and burins. Also among the finds are 9 carinated artefacts, which seem to represent bladelet cores (see, e.g., Chiotti 2000; Le Brun-Ricalens et al. 2005; Le Brun-Ricalens & Brou 2012). By contrast, the number of other finds is relatively high, with 58 artefacts of bone, tooth, antler and ivory, including projectile points, awls, smoothers, retouching tools and personal ornaments (Schmid et al. 1989, pp. 107-109). The low number of lithic artefacts may indicate that the cave was used as a habitation site for only short episodes (Schmid et al. 1989, pp. 115-118). Taking artefact distribution into consideration, the habitation occurred above all in the entry area of the cave (Hahn 1986, p. 30; Schmid et al. 1989, pp. 113-115).

The Lion Man was found in a secluded area in the back part of the cave, in a small chamber away from the habitation area at the cave entrance. The find assemblage from this small chamber is noteworthy. There are numerous animal bones (above all from cave bear without human modification), but neither

the 1939 nor the recent excavations uncovered a large number of lithic artefacts from the Aurignacian layers, even after wet sieving of the back dirt. While lithics are rare, there are some bone artefacts and personal ornaments (Schmid et al. 1989, pp. 113-115; Hahn 1986, pp. 30) as well as shed reindeer antlers. Among the ornaments (Fig. 12) are pendants made from ivory and perforated animal teeth from red deer, fox and wolf (Wolf et al. 2013).

In the Swabian Jura there are apart from the Stadel Cave, three more sites with figurines from Aurignacian layers. These sites are Vogelherd (Riek 1934; Hahn 1986), Geißenklösterle (Hahn 1988) and Hohle Fels (Conard 2009; Wolf et al. 2013). Data analysis has revealed that the carved ivory pieces from these sites were, unlike at Stadel Cave, found directly in the normal refuse of the settlement along with hundreds of animal bones and lithic tools (Riek 1934; Hahn 1986, pp. 18-22; 1988, pp. 223; Conard & Malina 2009; Wolf in press). The new excavations in Stadel Cave lend weight to the older interpretations (Schmid et al. 1989, p.96; Reinhardt & Wehrberger 1994) of this site as having a unique function in consideration of the find context of the Lion Man figurine (Floss 2007; Porr 2010). It may be supposed that the figurine and the



**Fig. 12.** Hohlenstein Stadel Cave. Aurignacian. Personal Ornaments from the chamber where the Lion Man was found (Upper row: 1939 excavation, lower row: 2008-2013 excavation). © State Office for Cultural Heritage Baden-Württemberg and Ulmer Museum; Photos by Yvonne Muehleis.

**Abb. 12.** Hohlenstein Stadel-Höhle. Aurignacien. Schmuckobjekte aus der Kammer des Löwenmenschen. Aurignacien. (Obere Reihe: Ausgrabung 1939, untere Reihe: Ausgrabung 2008 - 2013).

personal ornaments found in the small chamber in the depths of the Stadel Cave were deposited far away from the work and living areas of the settlement. This spot might be interpreted as a hiding place, and the statue was simply never again retrieved. It is however more probable, that the small chamber in Stadel Cave was a place chosen for cult-like or religious purposes, a sanctuary, in which the Lion Man played a special role. The Lion Man would in this case represent the oldest proof known to date for a numinous belief system among the first Anatomically Modern Humans in Europe.

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