

Non-flint from the Middle Pleistocene site of Bilzingsleben (excavation from 1971 to 2002)

Die Gesteine aus der mittelpleistozänen Fundstelle Bilzingsleben (Ausgrabungen 1971-2002)

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ABSTRACT - From 1971 to 2002, Dietrich Mania excavated at the Middle Pleistocene travertine deposit of Bilzingsleben (Thuringia, Germany). This study presents an analysis of the c. 23'000 rocks from this excavation. Only travertine and rock types from local bedrock, local glacial and fluvial deposits are present. Spatial distribution of small and large rocks is roughly the same as for small and large animal bones. Spatial distribution and orientation of refitted antler fragments, human bones and rocks show that the find-bearing sediments accumulated apparently naturally. No clear evidence of heat-altered stones is present. Intentionally modified pebbles are rare since only nine rocks bear negatives of removed flakes and could be considered cores or pebble tools. Three pieces, two flakes and a core refitted by Dietrich Mania 30 years ago are the only evidence of knapping so far.

ZUSAMMENFASSUNG - Von 1971 bis 2002 grub Dietrich Mania auf der Steinrinne bei Bilzingsleben (Thüringen, Deutschland) ein umfangreiches Fundmaterial aus, das in ein mittelpleistozänes Interglazial gehört. Die vorliegende Arbeit behandelt die darin enthaltenen, etwa 23'000 Felsgesteine, d.h. die Nichtfeuersteine. Mit Travertin, Kalk-, Sandsteinen, Quarz, magmatischen und metamorphen Gesteinen kommen ausschließlich Gesteine lokaler Herkunft vor, die aus zeitgleichen Travertinvorkommen sowie aus lokalen Plateau- und Hanglagen beziehungsweise Moränen- und Schottervorkommen stammen. In der Grabungsfläche dominieren kleine und große Gesteine dort, wo auch kleine und große Knochen gefunden wurden. In Verbindung mit der räumlichen Ausrichtung der Zusammenpassungslinien von Geweihfragmenten, Menschenknochen und Gesteinen wird dies als Hinweis auf eine natürliche Akkumulation des archäologischen Fundhorizonts gesehen. Es liegen keine Gesteine vor, welche eindeutig Spuren von Feuereinwirkung aufweisen. Nur neun Gesteine sind eventuell anthropogen modifiziert. Als eindeutiger Beleg für Steinartefakte gilt ein vor über 30 Jahren von Dietrich Mania realisierter Zusammenpassungskomplex aus Gneiss, bei dem zwei große Abschläge auf einen Kern passen.

KEYWORDS - Middle Pleistocene, interglacial, spatial distribution, site formation, refitting, core and flakes, *Mittelpleistozän, Interglazial, räumliche Verteilung, Fundplatzgenese, Zusammenpassen, Kern und Abschläge*

"The past (...) sediments in unpredictable ways and according to material trajectories that are beyond, or unrelated to, human control and intervention"
- Olsen (2010: 110)

Introduction

The site Steinrinne near Bilzingsleben (County Sömmerda, Federal State of Thuringia, Federal Republic of Germany) is a travertine deposit with bones of Pleistocene animals and Nordic flints. The site is most famous for its human fossils which are the oldest human remains in Central Germany (Street et al. 2006: Tab. 1; Vlček et al. 2002). Palaeontological research indicates their biostratigraphic position in a Late Middle Pleistocene interglacial, often designated as the 'Holsteinian' (Kahlke 2002: 217; Maul 2002: 193-194; Meyrick 2002: 154-155; Stebich &

Schneider 2002: 127-128). From 1971 to 2002 Dietrich Mania excavated c. 1'800m² of a sandy sediment below the travertine, containing a huge amount of rocks, flints and animal bones, which was interpreted as representing a Lower Palaeolithic living-floor of a camp site on a lake shore with huts, hearths, remains of hunting a diverse range of animals as well as thousands of pebble and flint tools (Mania & Mania 2005; Mania et al. 2017). In contrast, the data from the excavation conducted between 2003 and 2007 by the University of Jena has shown that the archaeological layer of the Steinrinne had been accumulated naturally, incorporating fluvial and limnic sediments as well as parts of the former Middle Pleistocene landscape (Beck et al. 2007; Liebermann & Pasda 2014; Müller & Pasda 2011;

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Pasda 2012). However, small isolated flint flakes and three animal bones with cut marks indicate an allochthonous character of ‘Holsteinian’ human presence. Recently, the material excavated between 1971 and 2002 was re-investigated in two studies: first, Brassler (2017) examined the large mammal remains and found that the spatial distribution and the skeletal representation of elephant, rhinoceros, bovid and bear is likely a result of sorting through natural processes. Natural scratches occur on the surface of the majority of bones. Up to 7% show traces of carnivore activities while human activities are limited to 19 bones with cut marks and six bone artefacts. Secondly, an analysis of non-flint rocks was undertaken. The results of this research are present in the following sections.

Data presentation

Among the c. 23'000 rocks 37% are Triassic rocks like *Schillkalk*, arenite, limestone or sandstone, approximately 30% consists of rock travertine (Fig. 1). Twenty-five percent of the assemblage is quartz, with small pieces predominating. All rock types derive from the immediate surroundings of the excavated area: the Upper *Muschelkalk* (lacustrine limestone), present today north of the Steinrinne, the Lower *Keuper* which occurs immediately below the Pleistocene deposits, pre-Elsterian fluvial gravels, Elsterian glacial fluvial gravels and the Elsterian moraine (Unger 1963). With a height of 30 m, this moraine once covered the Steinrinne but was eroded before the ‘Holsteinian’ (Unger 1963: 38, 50-51, 54). The travertine rocks also derive from the immediate ‘Holsteinian’ surroundings of the excavated area since both the sandy archaeological layer and the rock travertine directly above are contemporaneous formations which developed within the same, peak-interglacial conditions (Kahlke 2002).

Representativeness of the finds

When comparing data from the 1971-2002 excavation with that from the recent excavation, a contrast becomes clear: in the 2003-2007 excavations the sandy sediment was sieved and every single rock particle was retained (Pasda 2012: Figs. 14-16). This explains why the 60-100 cm thick sandy sediment of each square-meter of this excavation is characterized by approximately 1'600-3'000 rocks of which >90% are smaller than 5.4 cm (Figs. 2-3). When comparing these square-meters with their neighbouring, 1.5 x 1.5 m large quadrants of the 1971-2002 excavations not more than 20 rocks are present per square meter, 80% of which are longer than 5.4 cm (Figs. 2-4). This may indicate that, despite sieving the sandy layer (Mania 1990: 51), a selection was made during the 1971-2002 excavation. The reason to keep some rocks and discard the others remains obscure but it seems plausible that the focus was on large size rocks. Thus, it is impossible to ascertain exactly how many rocks were present in the area excavated in 1971-2002. When taking into consideration the c. 19'000 rocks of ten square-meters of the 2003-2007 excavations (Figs. 2-4), it seems possible that up to 3.4 million rocks could have been present in the sediment excavated in 1971-2002. However, even with very low numbers of remaining rocks from the 1971-2002 excavation, a dominance of Triassic limestone in the highest part is evident (Fig. 2). In contrast, the lowest area is characterized by 99% travertine (Fig. 4). In between these two areas (Fig. 3) travertine is more common, limestone is present in high numbers and quartz occurs very often.

Spatial distribution

No information on vertical distribution and geological context was available for the rocks of the 1971-2002

rock type	<5.1 cm	5.1-15.0 cm	15.1-25.0 cm	25.1-35.0 cm	>35.0 cm	total
travertine	2'940	3'245	676	94	9	6'964
quartz	5'766	180	2	-	-	5'948
<i>Schillkalk</i>	1'860	2'565	245	13	2	4'685
arenite	1'330	1'820	110	10	1	3'271
quartzite	424	393	57	7	-	881
magmatic rocks	213	260	35	-	-	508
limestone	296	159	6	-	-	461
sandstone	73	157	16	1	-	247
metamorphic rocks	105	62	7	-	-	174
conglomerate	2	7	2	-	-	11
lydite	8	-	-	-	-	8
others	2	1	1	-	-	4
total (n)	13'019	8'849	1'157	125	12	23'162

Fig. 1. Rock types and length classes of the 1971-2002 excavation at Bilzingsleben. (note: “others” includes two brownstones, one feldspar and one mineral).

Abb. 1. Rohmaterial und Längenklassen der Gesteine der Ausgrabungen in Bilzingsleben 1971-2002. („andere“ enthält zwei braune Sandsteine, ein Feldspat und ein Mineral).