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Ancient hunters, modern butchers : Schöningen 13II - 4, a kill-butchery site dating from the northwest European Lower Palaeolithic

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3 CONCLUSIONS: SCHÖNINGEN 13II-4 AND ITS MEANING FOR THE HUNTING VERSUS SCAVENGING DEBATE

3.1 Schöningen 13II-4, hunting versus scavenging, implications for the debate

Apart from horse remains, the Schöningen 13II-4 faunal sample yielded the remains of bovids and deer. From the foregoing sections it has become clear that the three taxa represented differ in various characteristics. The horse component stands out on the number of bone specimens, MNIs and overall skeletal element representation. Deer and bovid remains are represented by far smaller amounts and both yield a butchered MNI of only 2 compared to a butchered MNI of 16 for the documented horses. Butchery evidence encountered on the remains of the three taxa also differs. Deer remains yielded a cut-marked percentage of 16.9% against a carnivore gnawed of 21.6% (Table 3.1.1). Among the deer long bone shaft specimens, 6.6% bear impact notches or scars from long-bone shaft breakage, but clear indications exist that carnivores could be involved with regard to encountered deer bone fractures. Shed antler parts point to natural depositions on the former Schöningen lake shore and could indicate that part of the encountered post-cranial deer remains also originate from natural depositions which could explain more pronounced carnivore involvement and differential survival of deer skeletal elements. Encountered cut marks resulting from hominid butchery of deer point to dismembering of deer body parts, both leg and axial. The observed dismemberment of rib slabs from deer carcasses has not been observed on any of the horse vertebrae or ribs, and the same is true for the dismemberment of the astragalus-calcaneus unit. This indicates different butchery systematics for deer compared to horses. The reason for this difference in butchery systematics may be related to body size differences between the two species. Differential butchery related to limited carcass availability or facilitating transport of butchered body parts can also be considered to be of relevance though. If found in a Late Upper Palaeolithic cave shelter context, this butchery spectrum could easily be interpreted as to reflect transported deer body parts away from kill-sites into the shelter. However, apart from being a lake shore site, the available Schöningen 13II-4 amount of deer butchery data and ambiguous nature of deer remains deposition makes a distinction between different causes impossible.

Data derived from the bovid remains also yield differences when compared with the horse remains but they are comparable with the deer remains. Cut marks created during butchering by hominids constitute 32.6% for the bovid remains against 22.9% for the horse remains. Also the percentage of impacted bone specimens, the result of marrow processing, is higher for the bovid remains with 34.7% against 12.8% for horse remains. This is however partly caused by the dominance of marrow-bearing bone specimens among the bovid remains pushing up these percentages. Compared to the horse remains, the amount of carnivore-gnawed bone specimens is lower among the bovid remains with 9.7%, against 16.2% for horse remains. Bovid skeletal elements also are dominated by leg element bone specimens. Contrary to the deer remains, among the bovid remains the pelvis and lumbar vertebrae are represented. Hominid butchery of bovid individuals is indicated by cut marks and impact notches and scars from bone-marrow processing.

	NISP	%	NISP-gnaw	% gnaw	NISP-cut	% cut	NISP-imp	% imp
Equus sp.	2809	60.7	456	16.2	642	22.9	423	15.0
Cervus sp.	60	1.3	13	21.6	10	16.9	4	6.6
Bos/Bison sp.	92	2.0	9	8.7	30	32.6	32	34.7
Taxon indet.	1669	36.0	126	7.5	153	9.1	362	21.7
Totals	4630	100.0	604	13.0	835	18.0	821	17.7

Table 3.1.1: Frequencies of counted bone remains with actor-related diagnostic traces encountered in the Schöningen 13II-4 faunal sample. "-gnaw" = carnivore gnawed, "-cut" = cutmarked, "-imp" = yielding impact scars.

The present cut-marked bovid thoracic spinous process is proof of muscle meat removal. As documented for the deer remains, also during dismemberment of bovid hind legs the astragalus-calcaneus unit has been cutmarked. With regard to bovid remains, like for the deer remains, a presence of natural depositions apart from butchery remains is indicated. The presence of a heavyweight bovid pelvis and remains of the upper hind limb bones could indicate bovid butchery at or near the findspot. The amount of bovid remains though is not sufficient enough to explain observed differential survival of bovid body parts, being a possible result of bone density mediated destruction or subsistence behaviour related causes. The bovid and deer remains are far less represented and represent fragmentary skeletal profiles (Figure 3.1.1). Indications for long-bone shaft destruction by carnivores has been detected for the deer remains and this could point to possible destruction of other more vulnerable skeletal remains by carnivores. Among the bovid and deer remains, axial skeletal elements are scarce, and the remains of both bovid and deer show a head and leg dominated skeletal profile. These head to leg dominated skeletal profiles and the apparent concentration of butchery traces on primarily leg elements could be interpreted as the collection and butchery of carnivore left-behind legs with scraps of meat and bone marrow, following primary carnivore consumption of the meat-rich axial body parts, e.g. scavenging. The cut-marked deer rib and bovid vertebrae spine found in the Schöningen assemblage are however proof of deer and bovid trunk processing and the placement of cut marks comparable to far more modern butchery debris from butchery sites. This provokes questions on the actual role of hominids with regard to the deer and bovid remains. For the present author the deer and bovid samples are considered too small and too ambiguous though to derive conclusions from.

The more straightforward Schöningen 13II-4 horse component demonstrates the reconstruction potential of well-preserved bone assemblages, but at the same time it demonstrates the vulnerability of butchery traces and patterns to possible destructive processes. For instance, axial horse skeletal elements are very well represented but together yielded the lowest percentages of cut marks created during butchery. Encountered cut-mark locations on the horse axial skeletal elements concentrate on rib parts and the spinous processes of vertebrae. These parts also exhibit the highest amounts of wolf gnawing traces, and of the vertebrae processes often the upper parts have been destroyed by wolf gnawing. It is likely that part of the original amount of cut marks present on the upper parts of vertebrae spinous processes have been gnawed away by ravaging wolves. More destructive ravaging of horse axial elements by wolves or by a more destructive carnivore, like

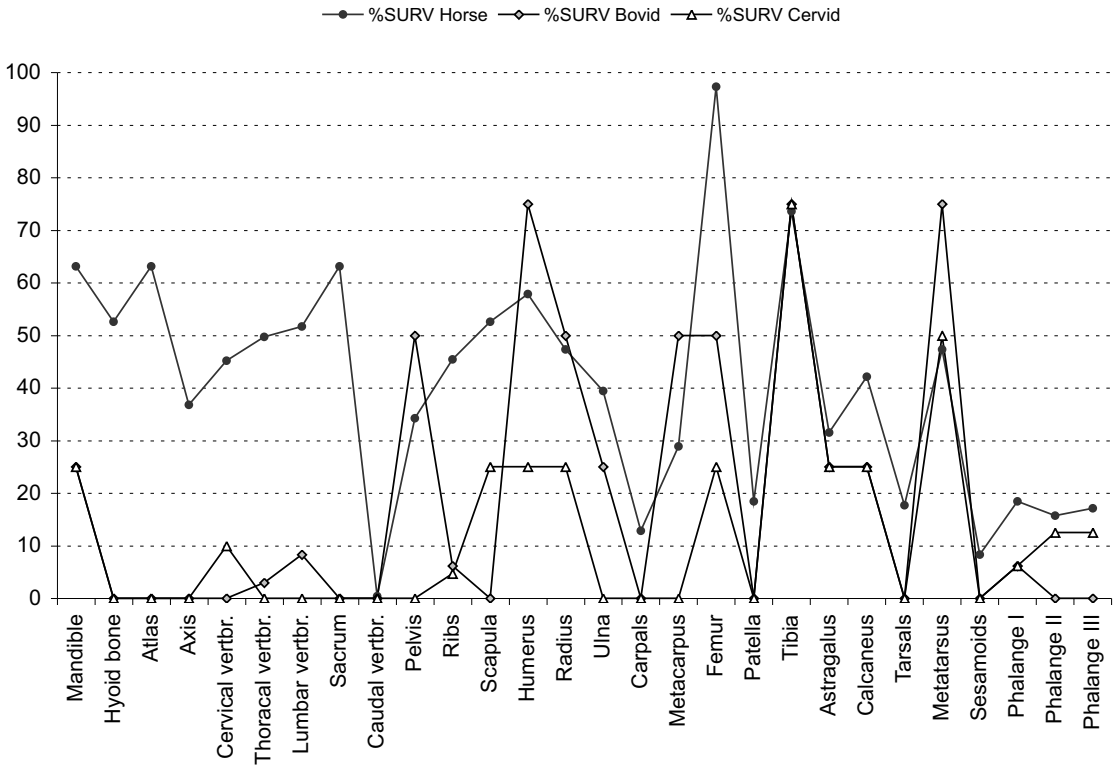

Figure 3.1.1: Comparison of the %SURV values for the Schöningen 13II-4 horse, deer and bovid skeletal elements.

hyenas, would have suppressed axial skeletal element numbers significantly. Moreover, ribs and vertebrae are vulnerable to weathering and fracturing, such as caused by trampling or sedimentary deformation. Significant more influence of these processes, together with carnivore-induced destruction, would have led to far lower amounts of recognisable butchery traces among the axial horse remains, with serious consequences for the interpretations of hominid involvement. With horse marrow-bearing skeletal elements being the most cutmarked in the assemblage, this would have led to a head – leg dominated butchery profile for the horse remains. In such a case the survived butchery mark spectrum could be interpreted as a focus on the defleshing and processing of primarily horse leg and head marrow bones. Such a pattern could be interpreted as being the result of scavenging horse carcasses.

Much of the available Lower Palaeolithic faunal assemblages have been proven to be the result of complex taphonomic histories related to unstable geological contexts and great time depth within assemblages. This resulted in the deletion of especially weaker skeletal elements or bone parts, as well as to diagnostic traces being obscured by biasing processes. Assemblages often yield though at least some indicators of hominid involvement with the encountered faunal remains. Comparison of the site of Schöningen 13II-4 with the site of Schöningen 12b provides an example of the importance of referential archaeological faunal assemblages derived from micro-regional contexts representing different degrees of archaeological resolution. The site of Schöningen 13II-4 constitutes the richest and best-preserved faunal assemblage found within the interglacial former lake shore sedimentary sequences at Schöningen. The abundance of Lower Palaeolithic archaeological remains from the sedimentary sequences indicates that the former lakeshores were visited repeatedly by Lower Palaeolithic hominids during the Middle Pleistocene, as testified by finds of numerous stone artefacts with or without faunal remains. The faunal assemblage from the somewhat older but also Reinsdorf Interglacial site of Schöningen 12b has been proven to be the result of a complex taphonomic history and was found within reworked sediments. Only few bone remains yielding cut marks from butchering are proof of hominid involvement with faunal remains encountered at that site. The complex history and meagre butchery data made it impossible to derive at inferences about possible hominid subsistence behaviour related to the site (Voormolen, 1997). The Schöningen 12b assemblage is dominated by horse remains though they are present among a wide diversity of mammalian species and with a NISP of only 85. Also at Schöningen 12b, bone remains from bovids were second best represented. Horse dental elements dominate the assemblage, and axial and leg element bone specimens are represented in approximately equal numbers with long-bone shaft specimens slightly dominating. On horse dental elements, a horse MNI of 3 has been established and on the postcranial horse elements an MNI of 2 was derived. Unambiguous cut marks resulting from butchery by hominids have only been encountered on two right-side distal horse humeri which represent a butchered horse MNI of 2. Further possible cut marks were found on one bovid bone specimen and one cave bear bone specimen (Voormolen, 1997). The cut-marked distal horse humeri specimens easily fit in the butchery mark spectrum encountered among the horse remains from Schöningen 13II-4 (compare Figure 2.5.10 with Figure 3.1.2). This together with the dominance of horse remains at the site could indicate that part of the encountered faunal assemblage at Schöningen 12b originally derived from butchery debris accumulations on the former lakeshore, comparable to that encountered at Schöningen 13II-4 but dispersed, reworked, distorted and reaccumulated with other bone depositions. Or, the specimens represent the biased remnants of horse butchery events involving fewer horse individuals. Although it is not possible to provide a solution for this problem, the two Schöningen sites provide an example of different archaeological resolutions determining the possibilties of the reconstruction of Lower Palaeolithic hominid subsistence behaviour found within the same microregional context. The well-preserved Schöningen 13II-4 faunal assemblage is the exception, the Schöningen 12b assemblage though is of a nature generally to be encountered in Lower Palaeolithic contexts.

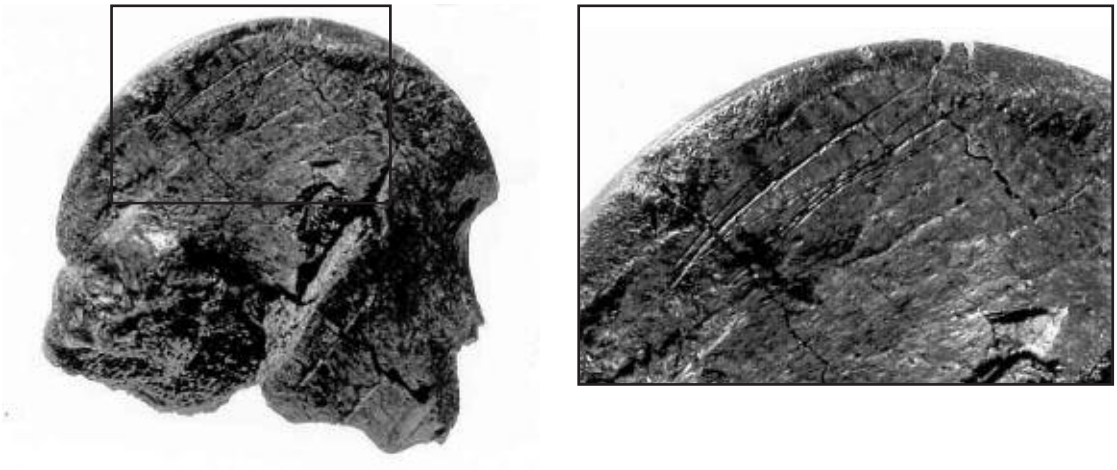

Figure 3.1.2: One of the cut-marked right horse distal humeri from the Schöningen 12b faunal assemblage resulting from dismemberment of the humerus-radius/ulna joint, taken from Voormolen, 1997, p. 81. Photos by J. Pauptit, Leiden.

3.2 Schöningen 13II-4, a horse kill – butchery site from the Lower Palaeolithic

A comparison of the Schöningen assemblage with two much younger archaeological horse assemblages yields some striking similarities. Especially sites originating from the Upper Palaeolithic Magdalenian archaeological period yielded some faunal assemblages with abundant horse remains. The classic site of Solutré, from the Saône et Loire region in France, provides one of the largest samples of bone remains resulting from hominid horse exploitation known from the European Upper Palaeolithic. The site is interpreted as a hunting and kill site, being the result of the interception of horse groups passing the valley in which the site is situated. Horse remains originating from the Magdalenian levels at Solutré have been examined by several researchers (Berke, 1989; Levine, 1983; Turner, 1996, 1999). High MNI counts on represented horse individuals from only small assemblage samples have been derived, ranging from 6 to 9 horses for Sector L11 and 30 to 45 horses for Sector P16 (Turner, 1996, 1999). Of the P16 horse assemblage only 1.9 % of the bone remains show hominid-induced butchery traces, while of the L11 horse assemblage 5.1 % exhibit butchery traces (Turner, 1999). Butchery systematics, based on observed cut mark placement, mainly focused on primary butchering, like dismemberment, and some butchery-like meat filleting and periosteum removal prior to marrow processing, as indicated by a few impacted shaft specimens (Turner, 1996, 1999). Among the P16 horse remains, cut marks are concentrated near joints (scapula, humerus-radius, radius-carpals-metacarpus, tarsals-metatarsus and phalanges). Meat removal has been observed on the pelvis and radius, tibia, femur and metacarpus shafts. Further, removal of the tongue is indicated by cuts on the lingual side of the mandible as well as by cleaning of the buccal side of the mandible (Turner, 1999). A pattern indicative of transported anatomical horse units is lacking, although some thoracic segments could have been moved away from the site. There are no clear indications for removal of carcass parts from the site and it seems that meat was removed directly at the kill-site from disarticulated body units, while some body units were left at the site in an articulated condition. Due to the relatively good representation of the phalanges, a focus on (and transport of) hides probably can be ruled out (Berke, 1989). The age ranges of the represented horse individuals from the P16 sector indicate the presence of 'family groups' with individuals from the 0 to 4 year age group and female horses in the 6 to 10 year age range. Some dominance of horses in the 8 to 10 year age range can be observed (Turner, 1999). Remains from more than one hunting season are indicated by foetal bone remains of horses in different developmental stages. Cut marks indicative of dismembering have been left on long-bone ends of fused elements of horses older than 3.5 years (all fused), but also on two distally unfused humeri and one unfused proximal ulna which are proof of the exploitation of relatively young (0-3.5 years) animals (Turner, 1996). From the Late Magdalenian period comes the site of Hauterive-Champréveyres, Switzerland (Morel and Müller, 1997). The site has been found on a former lakeshore of Lake Neuchâtel embedded in a thin layer of silt that covered the site soon after deposition of materials. Archaeological and faunal data from this site point to an occupation primarily associated with hunting and butchering of game directly at or very near the kill site. The location on the lakeshore, as well as the inferred presence of a series of comparable sites along the lakeshore, point to strategic locations favoured for game hunting. At the site the remains of 20 different animal species have been identified, among which are 10 mammalian species. Among the mammalian species, horse (Equus ferus) remains dominate with an MNI of 21, with reindeer following

with an MNI of 7. Pre- and post-depositional weathering of bone caused the destruction of much of the weakest bone parts and vulnerable skeletal elements of juvenile individuals. Originally the numbers for skeletal elements susceptible to destructive forces are believed to have been higher and the highest MNI values for horses have been derived from horse teeth (Morel and Müller, 1997). However with a NISP of 2610, the discovered horse non-dental skeletal elements provide a useful sample. Cut marks created during butchering of horses have been frequently encountered and are present on 10% of the horse bone specimens. Cut marks present on horse skeletal elements point to dismembering and filleting of meat. Bone breakage facilitating bone-marrow processing has been done systematically and meat removal from marrow-bearing long bones was done thoroughly (Morel and Müller, 1997). Horse leg elements yielded the highest percentages of cut-marked specimens, from 26% for the scapula, 50% for the humerus, 13% for the radius, 22% for the metacarpus to 20% for the femur, 17% for the tibia and 26% for the metatarsus. The marrow-bearing horse mandibles yielded a cut-marked percentage of 27%. Of the 191 encountered bone specimens originating from horse vertebrae, only 7 specimens have been cutmarked (3.6%). Of the 112 bone specimens originating from horse ribs, 22 specimens have been cutmarked (20%) (all frequencies calculated from Morel and Müller, 1997, p. 54, Fig. 70).

Documented cut-mark locations on the Hauterive-Champréveyres horse skeletal elements are for a large part in agreement with those encountered for the Schöningen 13II-4 horses, like the presence of dismembering marks specifically on the third horse tarsals resulting from the disarticulation of the metatarsus. At both sites, Solutré and Hauterive-Champréveyres, horse leg elements yielded the highest cut-mark percentages because leg element have been defleshed thoroughly, as also observed at Schöningen 13II-4. At all three sites dismembering, filleting, defleshing of marrow bones and marrow processing have been observed. The Schöningen 13II-4 horse remains yielded the highest overal cut-mark percentage of 23%, against 2% and 5% for Solutré, and 10% for Hauterive-Champréveyres. At all three sites horse mandibles have been cleaned of meat to facilitate marrow processing, and at Solutré and Schöningen 13II-4 the removal of horse tongues is also indicated. Establishing of exact horse age profiles at Hauterive-Champréveyres was hampered by the loss of juvenile horse skeletal elements due to weathering processes, but horse dental analysis indicated the presence of horse foals up to 1 year of age, sub adults and fully adult horse individuals (Morel and Müller, 1997). Also at Solutré both horse foals, sub-adults and adults are represented. The Hauterive-Champréveyres horse MNI is almost identical to Schöningen 13II-4, while at Solutré much higher MNI counts have been derived, but at both sites, as at Schöningen 13II-4, it is likely that parts of or complete horse family groups have been killed. At all three sites concrete indications for the removal and transport of horse body parts are lacking.

Do the horse remains from Schöningen 13II-4 provide information concerning hominid-induced signatures indicative of hunting of horses, as inferred from the finds of supposed hunting spears? Taking together horse skeletal element frequencies and the butchery evidence, the site of Schöningen 13II-4 should be condsidered to represent a horse kill/butchery site exhibiting traces of primary butchery of horse carcasses. Horse butchery was directed at the procurement of meat and the systematic procurement of bone marrow on the spot. There are also indications that horse hides have been exploited. Horse butchery patterns and horse body part representation are proof of an availability of complete horse carcasses at the butchery location. This is strengthened by the identified secondary, scavenging, role for carnivores at the site. The sites of Solutré and Hauterive-Champréveyres are both situated at tactical locations facilitating the interception and killing of horse groups. As at Hauterive-Champréveyres, the Schöningen 13II-4 horse remains have been found within a former lakeshore context. Lakeshores are attractive ecological settings for every carnivore capable of ambushing prey drinking at the waterline. Wild horses regularly return to known predictable water resources (West, 1996). However, horses are strong and fast moving species, not easily intercepted and killed. For example, to capture a wild horse alive, most of the time it is necessary to ride a horse oneself to chase it (Levine, 1999). The most suitable way to capture or kill wild horses is to corral or ambush them, which can lead to the capture of more than a single horse individual (Levine, 1999; West, 1996). Although wooden spears, like those found associated with the Schöningen 13II-4 horse remains, could have been used to wound an animal from a certain distance, a more ambushing and stalking approach of horses would have been necessary to actually kill them. Regarding the possible use of spears during large mammal hunting by Palaeolithic hominids Geist (2000) remarks that:

"....even, if the throwing spear hits a vital organ and does not skewer hunter number two holding onto the prey, the killing power of the thrown spear is much too

low to kill or disable the prey quickly, and allow hunter number two to terminate his dangerous rodeo-ride quickly-….and….-one has to know how to kill a large mammal quickly and safely- a task that requires a bit of study even if you are armed today with a modern rifle of adequate design!".

If known, a location where horse groups gather to forage or drink should provide the most suitable location to surprise and outsmart them. A horse group drinking at the waterline of a lakeshore could provide such an opportunity. If surprised and rapidly closed in by a group of hominids equipped with spears, it should be possible to drive the animals into the wet soft lakeshore zone to minimize their mobility. This would have enabled the killing of horses with the use of multiple spears by throwing and stabbing at close distance, minimizing the risk for the hominid hunters of horse defence attacks. Ambushing a whole horse group at once could explain the presence of multiple horse individuals and the presence of foals which are normally only to be found within horse family groups. It is likely however that multiple horse kill/butchery events are represented in the Schöningen 13II-4 horse assemblage. Normally horse family groups consist of a stallion and between 2 to 6 mares and their foals, while horse bachelor groups can be as large as 2 to maximally 15 individuals (Levine, 1999). This could mean that several horse killing events are represented by the butchered horse individual counts observed. Parameters on which multiple depositional events can be clearly distinguished are lacking though, and rather a homogeneous spectrum is present. Moreover, refit possibilities and weathering characteristics indicate fast cover and sealing of the deposited remains. This could mean that the actual number of possible events is limited. Formation of the findbearing horizon has been estimated to have lasted little longer than one season, and the autumn (late summer to early winter) has been postulated as the most likely season during which bone remains have been deposited on the former Schöningen lakeshore, because of low precipitation, low water levels and decay of plant materials (Thieme, 2005). Horses form larger herds during the autumn, coming together on migration routes (West, 1996). If known by hominids, these congregations could provide good opportunities for ambushing and killing multiple horse individuals. Also during the autumn, horse hides are in the best condition (Berke, 1989; West, 1996), which is relevant with regard to the suspected exploitation of horse hides at the site.

Summarised, the observed patterns of horse butchery conducted at the site indicate selective butchery, which probably is related to complete horse carcass abundance involving several events of killing multiple horse individuals. The co-occurrence of wooden spears with the butchered horse remains seems no coincidence. The site of Schöningen 13II-4 yields the first known European Lower Palaeolithic archaeological assemblage in which a complete early hominid subsistence toolkit is preserved, tools used to kill and tools used to butcher what has been killed. The present author would like to define hunting as "the exploitation of faunal products facilitated by tactical intentional killing and systematic butchery of animals". The studied horse remains found at the site of Schöningen 13II-4 fit this definition and in the author's opinion represent an example of Lower Palaeolithic hunting. One well-preserved faunal assemblage such as from Schöningen 13II-4 does not suffice to resolve the many questions in Lower Palaeolithic subsistence research though. It will however hopefully provide an important contribution to our understanding of Lower Palaeolithic faunal assemblage variability and early hominid faunal exploitation, which in the future will assist the development of more elaborate models for Lower Palaeolithic hominid subsistence strategies. For now it can be concluded that about 350 to 300,000 years ago at least along one European lakeshore there were ancient hunters who butchered in a modern fashion.