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THE MIDDLE PALAEOLITHIC AT THE GEISEL VALLEY – RECENT EXCAVATIONS AT THE FOSSIL LAKE NEUMARK-NORD 2 (SACHSEN-ANHALT, GERMANY)

In 2006 the archaeology of early humans lost two great scientists and the research at Bilzingsleben and Neumark-Nord lost two great friends and supporters. We devote this paper and our work at Neumark-Nord to the memory of Vadim Alexandrovitch Ranov (1924–2006) and Emanuel Vlček (1925–2006).

Becoming a real archaeologist means staying a curious open minded child
Vadim Alexandrovitch Ranov in Liège 2001

For decades the Geisel valley has been well known for its wealth of Eocene fossils, discovered during the exploitation of lignite in one of Europe’s largest open-cast mines. But in the last two decades the Geisel valley lignite mine, and especially the exploitation area Neumark-Nord, became also famous for palaeontological and archaeological remains from the Pleistocene. In this exploitation area, situated 20 km south of the city centre of Halle and 8 km south-west of the famous cathedral of Merseburg (Figs 1–3), the geologist Matthias Thomae discovered in 1985 an interglacial lake basin (Mania and Thomae 1987: 32) that, in the following ten years, was partly excavated by an interdisciplinary research group managed by Dietrich Mania. During the still ongoing researches the Intrasaalian age of the interglacial lake – recently called Neumark-Nord 1 – was recognized and two archaeological layers were discovered (Mania 2004: 26; Brühl 2005: 555). Owing to the ongoing mining, the possibilities for field studies and excavations at Neumark-Nord 1 ended in the middle of the 1990s.

During the final field works, in 1995, Dietrich Mania discovered a second interglacial lake basin – called Neumark-Nord 2 – about 400 m east of the Neumark-Nord 1 lake. The deposits of this lake crop out at the final slope of the exploitation area. The outcropping deposits were of Eemian and early Weichse–
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lian age. Within the early Weichselian section he discovered an archaeological horizon in 1998 and established a probe excavation at the slope. The material uncovered during this excavation showed that during the Early Weichselian Interstadial a hunter-gatherer group belonging to the cultural tradition of the Mico-quo-Prądnikian lived at the sandy shores of a shallow lake at the northern edge of the Geisel valley. The Geisel valley open-cast mine is now in the state of re-development and will become one of the largest artificial lakes in central Europe. These redevelopment works endangered the find horizon and required a rescue excavation at the lake basin Neumark-Nord 2. In summer 2003 the State Office for Archaeology Saxony-Anhalt (since 2004 the State Office for Heritage Management and Archaeology Saxony-Anhalt) instructed the authors to excavate the Lower Palaeolithic site Neumark-Nord 3 (Brühl and Laurat 2006) and the Middle Palaeolithic site at the lake Neumark-Nord 2 (Laurat and Brühl 2007). The excavations were financed by the Lausitzer und Mitteldeutsche Bergbau-Verwaltungsgesellschaft mbH (LMBV). During the excavations at the Neumark-Nord 2 basin a trench was made through the whole deposition sequence. In the lower part of the section, a second archaeological horizon was discovered while the deposits between these two main archaeological horizons also contained scattered artefacts and bones. The Early Weichselian archaeological horizon is called Neumark-Nord 2/0, the scattered finds below NN 2/0 were summarized as find complex Neumark-Nord 2/1 and the basal archaeological horizon is called Neumark-Nord 2/0. In the paper we present our present state of knowledge of December 2006, while fieldwork and detailed researches are still ongoing.
Fig. 2. Neumark-Nord. The situation of the site in the central Elbe-Saale region

Fig. 3. Neumark-Nord 2. The situation of the lake basin in the Geisel valley open-cast lignite mine
THE GEOLOGICAL SEQUENCE OF NEUMARK-NORD 2

The geological background for the genesis of the NN 2 basin structure (Fig. 4) is the mollisoldiapirism of the subjacent lignite (see Thomae 2003: 509). These autoplactic-gravitative motion events are connected with the glacial-interglacial succession and formed basin structures during periglacial periods (Thomae 2003: 509). Also the basins Neumark-Nord 1 and Neumark-Nord 3 were developed by lignite motion (Fig. 5).

Fig. 4. Neumark-Nord. The geoelectric-based reconstruction of the lake basin ground (Thomae, Rappsilber 2006), the location of the excavation fields Neumark-Nord 2/0, Neumark-Nord 2/2 and the probe excavation Mania (ME) in the lake basin.
Corresponding to this genesis, the profile section of the Neumark-Nord 2 basin (Fig. 6) starts with a mixture of Eocene lignite and sands.

The Eocene deposits are covered by the ground moraine till of the Drenthian glaciation (layer 0). The thickness of the till is on average 200 cm. Above the till there is a silt – about 50 cm thick – composed of redeposited ground moraine till material. This silt passes over to loess of brown colour that is about 1 m thick. There is no strict border between the silt and the loess, thus these glacial deposits were summarized as layer 1. It ends with a denudation surface.

This denudation surface is a former shore surface of the lake Neumark-Nord 2 and the living floor belonging to the archaeological horizon Neumark-Nord 2/2. It is covered by light grey fine sands and silts, reaching a thickness of 50 cm in maximum (layer 2). The faunal remain in layer 2 verify an optimal interglacial climate during its deposition.

Above layer 2 follows a complex of limnic silts and clay up to 4 m thick (layer 3). Sometimes small lenses of light grey fine sands are embedded into the grey and brown green silts. The Eemian pollen succession starts within the base of layer 2.

On top of layer 3 a thin, black alga gyttja was deposited. In the profile section follows a light grey to white lime gyttja and then again a black alga gyttja. This complex is on average 20 cm thick and has been summarized as layer 4. This layer complex contains the palynological record of the climatic maximum of the Eemian. After the deposition of the alga and lime gyttja layers, again limnic silts and clays were deposited (layer 5), with a thickness of about 80 cm. The Eemian pollen succession ends within the lower part of layer 5. On top of layer 5 follows a 50 cm thick solifluction horizon (layer 6) of redeposited limnic clays and silts. Layer 6 ends with a denudation surface. From this surface pedological processes formed a wet soil. The formation of this wet soil required warmer climatic conditions, thus this soil marks at least an interstadial climate. Between the Eemian climatic optimum and the wet soil no hiatus within the deposition complex was recorded,
Fig. 6. Neumark-Nord 2. Standardized profile section of the Neumark-Nord 2 lake basin based on the main profile sections 1, 2, 3, 4, 5 and 6:

1 – archaeological finds, 2 – roots traces and gypsum congregations, 3 – solifluction traces and ice wedges, 4 – gravel, 5 – silt, 6 – silty remains of a subaquatic Dy soil, 7 – traces of soil formation, 8 – limnic silt, 9 – lime gyttja with algae gyttja on top and on bottom, 10 – fine sand lenses, 11 – silt, 12 – clay rich silt, 13 – fine to middle grained sands, 14 – loess, 15 – melting water sands and laminated clays, 16 – limnic clay, 17 – ground moraine till; NWES – North Western European Stratigraphie, LA – Lake Aschersleben Stratigraphy
the soil from there is dated to the first Weichselian Interstadial (Amersfoort s. str.; Amersfort/Brørup; OIS 5c). The denudation surface, which is also the shore surface during the formation of the archaeological find complex Neumark-Nord 2/0, is covered by shore sands (layer 7). In the northern parts of the excavation area the sands are mostly fine-grained, sometimes lenses of coarse sands are embedded, but the sands get finer in the upper parts of the layer. To the south, layer 7 is getting thicker, up to 40 cm, and the fraction of the shore deposits becomes finer; sometimes horizons with a silty fraction were recognized. Also in this area lenses of coarse sand occur. These lenses seem to be the results of later cryoturbatic fractioning of the shore sands. The archaeological finds were found mainly in the lower parts of the shore sands, directly at the denudation surface. The finds are, as it will be shown later in this paper, in parautochthonous position.

The shore sands are covered by a light grey silt, in the northern part of the excavation area this silt is sometimes just a millimetre thick, in the southern part the thickness of this silts reaches up to 10 cm.

The grey silt passes over from a dark grey to black silty sediment that is a remnant of a subaquatic Dy soil formed under shallow water. This black silt is about 5 cm thick, sometimes small lenses of light grey silt and fine sands interfinger with it. The peat remnant and the subjacent thin silt layer were summarized as layer complex 8. Above layer 8 follows a light grey to brown-coloured silt (layer 9), with a thickness of 30 to 40 cm. The silt is disturbed by cryoturbations. At the moment it is not certain if these cryoturbations are syn- or postsedimentary. This problem is caused by the fact that the silts of layer 9 were cut off discordantly by local rivulet gravels (layer 10).

The gravels are strongly deformed by cryoturbations and ice wedges reaching down from the gravel to the solifluction horizon layer 6. The gravel yielded allochthonously, as well as parautochthonously deposited Middle Palaeolithic artefacts. Since the gravels spread over the area of the Neumark-Nord 2 basin, this find complex has been named Neumark-Nord 4.

In the area of the excavation the profile section ends with the gravels of layer 10. The higher parts of the deposit sequence were destroyed by the mining and redevelopment works.

North of the excavation area, at the edges of the lake basin, the deposit sequence is still complete. With the help of a profile trench (TP in Fig. 4) it was possible to connect the main profile section 1 (P1 in Fig. 4) with the profile section (P3.1 in Fig. 4) through the upper part of the deposit complex.

In profile section P3.1 the silts of layer 9 are 170 cm thick. The silts end with a denudation surface with a wet soil formation. The denudation surface is covered by a 10 cm thick sandy gravel. This horizon is the local variation of the rivulet gravel layer 10. Above layer 10 again limnic silts similar to that of layer 9 were deposited (layer 11). This silt horizon is about 90 cm thick and ends like layer 9 in a denudation surface with a wet soil formation.

The soil is covered by a 50 cm thick sandy gravel that continuously passes over to a loessic deposit complex of about 200 cm thickness (layer 12).
The lower part of layer 12 is formed by loesses which were redeposited under fluviatil conditions. This redeposited material passes over to genuine aeolian loess. The deposit sequence closes with the Holocene tshernosem soil (layer 3) on top of the aeolian loess.

**DATING OF THE LAKE BASIN AND THE ARCHAEOLOGICAL LAYERS**

For the dating of the deposit sequence the following facts are important:
- the subjacent situation of the Drenthian ground moraine till;
- the covering of the sequence by the Vistulian loess;
- the record of the Eemian pollen succession beginning within the base of layer 2 and ending within layer 5 and the climatic optimum within layer 4;
- the faunal record of layer 2 which verifies optimal climatic conditions during its deposition;
- the possibility to connect the deposit sequence of the lake basin Neumark-Nord 2 with the deposit sequence from Neumark-Nord 1;
- the existence of two completely developed interglacial phases after the Drenthian glaciation;
- the clear palynological characterization (Kremenetski 2006) of the interglacial sequence as Eemian (OIS 5e);
- the absence of any hiatus between the Eemian optimum within layer 4 and the upper archaeological horizon Neumark-Nord 2/0;
- the ending of the Eemian pollen succession below layer 7;
- the wet soil formation on top of layer 6.

These facts date the upper archaeological horizon Neumark-Nord 2/0 to the first Weichselian interstadial (OIS 5c; Amersfoort s. str.). The shore sands of layer 7 were dated by the OSL method (Table 1) at the University of Gdansk (personal communication; Fedorowicz and Gaigalas 2004). While three of the five dating samples are in the range of the common dating of OIS 5c, it is still uncertain why two of the dates are older. Several other dating methods were used at the Neumark-Nord 2 deposit sequence but no final results have been reported so far.

At the same time proves the clear correlation of the upper interglacial sequence with the Eemian the strongly debated existence of an interglacial stage after the Drenthian glaciation and before the Eemian. At this point the possible connection of the sequences from Neumark-Nord 2 and Neumark-Nord 1 becomes of special importance. Also at Neumark-Nord 1 it was possible to recognize a post-Drenthian and pre-Eemian interglacial (Mania 2004: 27). The limnic interglacial sequence is covered by two loess sequences, deposited under periglacial conditions. Between both deposit sequences two soils were recognized.
It was possible to follow the lower periglacial deposit sequence outside of the Neumark-Nord 1 basin structure (cf. Fig. 5). The loesses spread over the lignite diapir that forms the border between the Neumark-Nord 1 and the Neumark-Nord 2 basin structures, forming the loesses of layer 1 in the Neumark-Nord 2 sequence. The lower soil from Neumark-Nord 1 passes over to the limnic layer 4 in Neumark-Nord 2, which contains the pollen of the Eemian optimum. The upper soil of Neumark-Nord 1 passes over to the wet soil on top of layer 6 in Neumark-Nord 2. The correlation of the lower periglacial sequence and the lower soil with the layers 1 and 4 at Neumark-Nord 2 show clearly that the pre-Eemian interglacial at Neumark-Nord 2 is younger than the pre-Eemian at Neumark-Nord 1. At least it was accordingly possible to recognize two phases of optimal interglacial climatic conditions, divided by glacial deposits before the Eemian. The existence of two interglacial phases within the Saalian-complex at Neumark-Nord corresponds very well with internal differentiation of oxygen isotopic stage 7 that shows two well-developed climatic optima (OIS 7c and 7a, according to Martinson et al. 1987: 24).

Apart from the two very important archaeological layers and their rich find assemblages, these stratigraphical results are probably the most important result of the ongoing researches.

### THE ARCHAEOLOGICAL HORIZON NEUMARK-NORD 2/2

The archaeological horizon Neumark-Nord 2/2 was discovered in spring 2004 by the authors during the setting of a geological trench from the Neumark-Nord 2/0 excavation area to the undisturbed profile section P 3.1 north of the basin (Fig. 4).

During the campaigns of 2004 and 2005, 142 square metres of the former shore horizon were excavated. In this area 62 244 find objects were uncovered. 5350 flint objects, about 200 other stone objects and 10 750 bone and teeth remains were 3-dimensionally documented. About 45 000 objects, mostly smallest flint and bone

<table>
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<tr>
<th>Sample</th>
<th>No. Lab. UG</th>
<th>(d_\alpha) (Gy/ka)</th>
<th>(d_\beta) (Gy/ka)</th>
<th>(d_\chi) (Gy/ka)</th>
<th>(D_r) (Gy/ka)</th>
<th>(E_D) (Gy)</th>
<th>TL age (ka BP)</th>
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<td>156.0 ± 23</td>
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<td>0.79</td>
<td>1.19</td>
<td>237.3</td>
<td>199.4 ± 26</td>
</tr>
</tbody>
</table>

Table 1. The TL dates for layer 7 from Neumark-Nord 2/0 (by Stanislaw Fedorowicz, the University of Gdansk)
pieces were found during the sieving of the find horizon deposits. In the north of the excavation area the basal part of the find horizon has an altitude of 101.50 m a.s.l. and slopes constantly down to 100.50 m a.s.l. in the southernmost part of the excavation area. Further 40 m south, at the main profile section, the find horizon Neumark-Nord 2/2 was found again at an altitude of 94 m a.s.l. Also in the main profile section bones and flints were found in layer 2. In the excavation area the archaeological horizon shows a structure that gets more complex from the north to the south. In the south-eastern and central part of the excavated area the find horizon is about 80 cm thick and divided into several layers (Fig. 7). The lower most part of layer complex 2 is formed by fine sands with a thickness of a few millimetres. The sands contain many mollusc remains and were often solidly cemented by lime congregations, sometime the congregations were build up around small teeth or bone fragments and look similar to loess puppets. In these sands, situated directly on top of layer 1, the density of archaeological finds is very high. Up to 100 finds per square meter were found. The thin sandy layer is called Neumark-Nord 2/2 B3 Basis.

The B3 Basis layer is covered by grey limnic deposits with a clayey to silty fraction. This layer is also rich in finds and named Neumark-Nord 2/2 B3 (layer 2.1). The thickness of the B3 layer varies between 1 and 20 cm.

The B3 deposits pass over to a sandier layer of a lighter grey colour (horizon 2.2). This B2 layer is up to 15 cm thick and contains a smaller number of finds than the subjacent parts of layer 2. This finds are also remarkably smaller than the B3 and B3 Basis finds.

B2 is covered by a dark grey solifluxionally redeposited loessic deposit with a thickness of up to 10 cm (horizon 2.3). This layer is mostly free from finds. This redeposited loess was only locally deposited and does not cover B2 in the whole area of the excavation. Above this horizon follows a horizon similar in composition and colour to Neumark-Nord 2/2 B2 (layer 2.4). The layer is about 10 cm thick; it con-
tains again a much smaller number of finds than the subjacent layer and also the di-
mensions of the finds are smaller than that of the finds from B3 Basis, B3 and B2. In
the area where the sterile loess was not deposited, a differentiation between B2 and
B1 is not possible. In the basal parts of the covering limnic silts of layer 3 several
single finds, flints and small bones fragment, were found. This finds were uncovered
in parts of the deposit which show strong postsedimentary cryoturbations and prob-
ably originate from B layer deposits, mixed into the basal parts of layer 3 during
the cryoturbation processes. This layer is called Neumark-Nord 2/2 A (layer 2.5).

In the western part of the excavation area the complete B section is only
20 cm thick. B3 is only a few centimetres thick and a differentiation between
B2 and B1 is not possible because of the absence of the layer 2.3 loess. In the
northernmost part of the excavation area the cryoturbations spread down through
layer 2. A separation of the different layers is not possible, just the limnic silts of
A and the limnic silty fine sands that cover the shore (layer B) are dividable.

To the south-east the former shore surface slopes down, in the direction of the
former lake centre. In this area the fine sand layer Neumark-Nord 2/2 B3 Basis is
absent and substituted by a dark to light grey silt with a thickness of up to 20 cm.
While the fine sand was deposited under terrestrial conditions, the silt was depo-
sited under limnic conditions. The silts are very poor of any finds, but in its basal
parts, directly on top of layer 1, larger objects occur.

The research into the genesis of this almost find-free layer is still in progress,
but the situation of the site, the structure of the deposits and the find distribution
indicates a local solifl uction process – probably caused by heavy rain – that hap-
pened synchronously with the activities of the early humans at the lake shore.

Above that layer the common Neumark-Nord 2/2 B3 deposits with its typical
finds are present.

In the area of the 2004 and 2005 excavations the find horizon is limited in the
west by the modern mine slopes, in the east by the slopes of an older open-cast
mine, opened in the 1920s. Refilled trenches connected with this old mine build
the southern boundary of the excavation area. Further works in 2005 have shown
that theses trenches did not destroy the find horizon completely and the basal parts
of B3 were still preserved, thus a direct connection to the part of the find horizon
in the south of the trenches is possible. In the north of the excavation area, on
higher parts of the basin shore, layer 2 was disturbed by solifl uctional processes
and further north eroded during the Weichselian.

THE ORGANIC FINDS FROM NEUMARK-NORD 2/2

The group of 51 787 find objects comprises bones and teeth, or their frag-
ments. The preservation of the finds is excellent, only a few antler objects are
more strongly decayed.

Most of the finds, the bones and teeth of the lager animals, have an artificial
taphonomic background and are the remains of hunted game. During a prelimi-
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Unary analysis of the fauna, the following species were identified: *Bison priscus*, *Bos primigenius*, *Cervus elaphus*, *Capreolus capreolus*, *Equus* sp., *Asinus hydriuntinus*, *Ursus aff. spelaeus* and *Elephas antiquus*. There are also remains of two different carnivore species, most probably *Canis lupus* and *Vulpes* sp. The bovid and equid remains are the most numerous, followed by the cervid remains. Apart from these remains, which were accumulated because of the human hunting activity, there are also remains, of the local microvertebrate fauna. Small mammals are represented by *Clethrionomys glareolus* and *Arvicola arvalis/agrestis* (personal communication, W.D. Heinrich 2005). There are also remains of different bird species, uncertain if they occur accidentally or as a result of hunting. Among these bird remains, recently identified is *Falco* sp. Reptile remains belong to *Emys orbicularis*, *Vipera berus* and *Lacerta vivipara*, the identifiable amphibian remains belong to *Rana* sp. (personal communication, G. Böhme 2005). The identified fish species are *Esox lucius* and *Scardinius erythrophthalmus*.

This faunal association shows a fully developed interglacial character, best verified by the occurrence of *Elephas antiquus*, *Clethrionomys clareolus* and especially *Emys orbicularis*.

Also the vertebrate fauna underlines the interglacial character of the find horizon. The mollusc association shows all accompanying species of the *Helicigona banatica* fauna and *Cepea hortensis*, while *Helicigona banatica* itself is absent (personal communication, Mania 2005; Meng 2005).

As mentioned above, most of the bone and teeth remains have an artificial taphonomic background. Most of the bones were intentionally cracked. Only small vertebrae and small phalanges were found undestroyed. Among the intentionally destroyed bones phalanges, metapodia and skulls are frequent. Long bones like humeri and femora, as well as ribs and vertebrae are rare. The fracture edges of the bones show clearly that the bones were split in a very fresh state, thus a weathering decomposition as the background for the high degree of the bone destruction is clearly excluded. The numerous bone fragments with impact traces – split holes – show that a specific technique was used for the destruction of the bones. It was a hammer and anvil technique; the bone was put on a pointed anvil and then hit by a pointed copper or chopping tool. Chopping tools made from quartzite were found in the artefact assemblage. Beside these manipulations there are also numerous clearly visible cut marks on the bones. Bone splinters were also modified to tools. This is indicated by bone flakes and the tools themselves. Two bone tools with chisel-like working edges were identified. One of these tools was also used as a pressure retoucher and shows a characteristic linear structured scar field. Similar scar fields characterize two other bones also as pressure retouchers.

**THE LITHIC ASSEMBLAGE FROM NEUMARK-NORD 2/2**

On the 142 square metres of the former shore horizon, 10 236 flint objects and 215 objects from other rocks were found.
The flint assemblage contains about 78% flakes, 14% debris and natural pieces, 5% cores and about 3% tools. Very remarkable is the fact that almost every artefact looks like freshly knapped, no smoothing of the surface, no rounding of the edges or any other kind of rolling traces were recognizable. There are also no strong patinations on the flint objects. There are about 20 flint pieces with crackling traces caused by the influence of fire. Among the natural flint pieces there are
some larger nodules, as well as some globular or platy pebbles among the finds from other rocks. Considering the genesis of the shore horizon, a natural appearance of these nodules and pebbles within the deposits seems impossible. The find horizon deposits naturally contain no objects larger than middle to coarse sand grains. All larger objects are manuports.

The cores from Neumark-Nord 2/2 show different reduction techniques (cf. Fig. 8). The most frequent types are discoid and levalloïd cores, apart from these there are also unspecific globular and prismatic types. Most of the cores are between 40 and 60 mm long, longer specimens are very rare.

Among the Levallois cores, some genuine turtle cores show the very well-developed state of the Levallois-technique used at Neumark-Nord 2/2. These cores characterize the assemblage as a fully developed Middle Palaeolithic one.

Among the centripetal cores there is a group of a few specimens marking the peculiarity of the Neumark-Nord 2/2 industry. These cores have a pentagonal shape formed by centripetal knapped Clacton notch-like flake scars. The produced flakes are much too small to be used in any further way. Most probably, these cores-like specimens are multiple notched tools. Such cores or tools are unknown in the European Middle Palaeolithic, only one single specimen from the layer 14 of the Kůlna cave (Valoch 1988: 81) is in shape similar to the Neumark-Nord 2/2 specimens.

The flakes in the assemblage (cf. Fig. 9) are commonly very short, most of them are not longer than 20 mm. These extremely small flakes are the waste products of the core preparation and also the tool retouching. The largest unmodified flake is 69 mm long, among the larger flakes the portion of broken specimens is very high. Most probably, the unmodified preservation of these specimens is caused by the fact that they had been broken before a modification could be done. Among the unbroken specimens there are lots of Levallois blades and blade-like flakes. The Levallois flakes in the assemblage are very thin and oval to expanded oval in shape. The dorsal surfaces of the Levallois flakes show the scars of centripetal reduction sequences; the remnants of the striking surfaces show many fine facettes. This finely done core preparation at the reduction cores is also recognizable at some flakes that carry core edges at the dorsal surfaces.

Some of the larger flakes show visibly splinter scars at the sharp edges. These scars verify the use of these specimens for cutting works.

Most of the tools in the assemblage were made of flakes, other blanks are very rare, just a few angular debris were used for further modification (cf. Fig. 10).

The tools are in majority between 25 and 50 mm long. Among the tools, the notched pieces are the most frequent specimens. Most of the notches are Clacton-notches, which are commonly very flat. Much rarer are retouched notches. Apart from some tools with several notches at different edges, there are tools with several Clacton notches at one edge, thus they are typologically classifiable as denticulated tools. Further analysis of the tools will show if the teeth between the notches or the notches itself were the used parts of the working edges.
The third largest group of tools is simple edge retouched tools. Some of them are classifiable as scraper-like tools, but it is not possible to put them into one of the defined types of Middle Palaeolithic scrapers. Beside these tools there are some Tayac points and also some small tools with saw-like denticulated working edges.

Surface retouches – unifacial or bifacial – were not found in the assemblages. Also edge retouches, which spread over the surface, are not known.

Among the non-flint lithic finds – mostly globular quartz, quartzite, porphyry, arenite, and limestone pebbles – there are two pointed chopping tools, about a dozen hammer stones with characteristic scar fields and some porphyry pebbles and limestone plates with flake scars and the according flakes.
The main technological feature of the lithic assemblage from the Neumark-Nord 2/2 site is the well-developed Levallois technique that characterizes it as a developed Middle Palaeolithic industry. There are some similarities between the Neumark-Nord 2/2 tool kit and the Taubachian in the definition of K. Valoch (1984: 193). Tools, as well as the flakes and cores, are very small. Owing to the good raw material situation in the surroundings of the site we assume that this smallness of the flint lithics is intentional.
The toolkits form the assemblages of Taubach (Valoch 1984: 193; Valoch 2000: 53) and Weimar-Parktravertin (Schäfer 1993: 82) and the lithics from the outer shore area of the Intrasaalian Neumark-Nord 1 lake (Mania 1990: 110; Brühl 2005: 555) are technologically comparable. But there are also some very significant differences especially to the last mentioned, in space and time very close, assemblage. While the Levallois technique is very frequently used at Neumark-Nord, the traces of its use are very rare at Neumark-Nord 1 (Mania 1990: 99; Brühl 2005: 556). The Levallois technique is known at Neumark-Nord 1 but displaced by a quite rough discoidal reduction technique.

Also remarkable is the preparation of the notched tools. In Neumark-Nord 1 about 50% of the notches were Clacton ones and 50% were retouched. In Neumark-Nord 2/2 almost all notches are Clacton notches; retouched notches are not absent but extremely rare. Also the Clacton notches of these assemblages show differences; the ones from Neumark-Nord 2/2 are much flatter than the notches from Neumark-Nord 1.

The main similarities between the Neumark-Nord 2/2 and the Neumark-Nord 1 assemblages are the very simple toolkit with a clear dominance of simple notched and denticulated pieces, the complete absence of bifacial and unifacial surface retouches, as well as the absence of typical Middle Palaeolithic tool types. Most probably these similar features were caused by similar ecological conditions. Two quite similar biotopes were used by early humans in a quite similar way and that leads to a similar tool kit at the sites.

The excavations at Neumark-Nord 2/2 are still in progress, thus all the following information and interpretations have only a preliminary character. During the excavation it was recognizable that most of the finds were found directly on top of the underlying loess respectively the solifluctionally redeposited loess. The lithics and bones in this basal part of the find horizon show no signs of redepositions or any special orientation of the finds length axis. In this basal part large finds like hammer stones or large bones occur as well as the smallest flint chips or mice teeth, sometimes pressed into the surface of the subjacent deposits. Closer to the former lake basin centre, in the area where the finds were on top of the solifluction horizon and the deposits show more signs of permanent moisture, some finds were placed deeper into the subjacent deposits, most probably as a result of some gravitative vertical redeposition.

Directly on top of the subjacent deposits some remarkable find concentrations were found. These concentrations are connected with circular pit-like depressions (Fig. 11). These depressions have a diameter of 60 to 80 cm and a depth between 15 and 25 cm. Seven depressions have been found so far, six of them form a circle with a diameter of about 3 m. Between the individual depressions there are quite equal distances of about 1.5 m. The walls of the depressions are pavement-like, covered with only one layer of bones and lithics; the finds do not occur in more than one layer at the depression walls (Fig. 12). In the centre of six of the seven depressions there was a free space of about 15 to 20 cm diameter not covered with
any finds. At the moment we do not know any comparable find situation or any natural processes that could form such depressions and place finds in this special style. The depressions were deepened into the subjacent genuine loess as well as into the redeposited loess. In the overlaying parts of the find horizon the number of finds decreases. Also the dimensions of the finds get smaller. Within the deposits of B3 and B2 it is remarkable that the concentrations at the base of the find layer are still recognizable. This find situation indicates a vertical redeposition by suspension under limnic conditions. Because of this situation these find objects are in parautochthonous position. But there is also a horizontal redeposition of finds,
The Middle Palaeolithic at the Geisel Valley

which is indicated by their clear visible orientation, especially the small bone splinters longitudinal axis. The find within the deposits of B2 are again smaller than the finds from B3. These two silt and sandy silt layers are separated from B1 by a mostly find-free redeposited loess. The finds from B1 are again smaller than the finds from the subjacent layers of the find horizon. The remarkable find concentrations in B3 Basis, which had their “blueprints” also in B3 and B2, are no longer recognizable in B1. The same situation is given in A, but there is no orientation of the finds axis recognizable because the finds were moved horizontally and vertically by cryogenic processes. Several larger objects occur in layer A; this may indicate a human presence during the time of the deposition of these sediments. This question will be taken into account during the research of the material after the end of the excavation. All the lithics and also the bones from the different layers of layer complex 2 show a similar state of preservation, no traces of rolling are recognizable. The redepositions that happened were only on short distances in a very fine-grained material, as it is the find-yielding silt. There are no indications of an entry of lithics and bones from other, possibly older sites. The close morphological and morphometrical and preservation character of the lithics indicates a homogenous find assemblage. The use of fire at the site is evidenced.

Fig. 12. Neumark-Nord 2/2. Detailed map of one of the pit-like depressions with the finds from the horizons B3 Basis and B3. Well visible is the find-free space in the middle of the pit.
by the existence of a number of burned flints, mostly very small chips. Carbonated wood is frequently present in the layers but, because of the close lignite sources and the occurring of lignite in all layers, this is no indication of the use of fire. Further analysis of the carbonated wood samples may allow for a differentiation between lignite and charcoal.

Researches like refitting and spatial analysis will start after the end of the field work that depends at least on the rising of water in the future Geisel valley lake.

Our recent state of knowledge about the Neumark-Nord 2/2 site indicates that the excavated objects belong to an early Neanderthal camp site where the hunters disembowelled games, used parts of the game as food and prepared themselves for future hunting raids.

THE ARCHAEOLOGICAL ASSEMBLAGE NEUMARK-NORD 2/1

Above layer 2 with the archaeological find layers of Neumark-Nord 2/2, follows a complex of limnic sediments; the layers 3, 4 and 5, with a thickness of about 6 m. Only the alga and lime gyttja of layer complex 4 did not contain any archaeological finds. Skeleton remains of fishes and mollusc shell fragments are the only finds from these limnic deposits. The finds from the layers 3 and 5 were summarized as find complex Neumark-Nord 2/1. The find complex itself is again divided into several find groups, according to the horizon they yielded. The finds from the uppermost layer 5 are summarized as Neumark-Nord 1a, the finds from the silts and clay directly below layer 4 were summarized as Neumark-Nord 1b. In the area of the main profile section a complex of fine sands interfingers with the silts of layer 3. In this about 40 cm thick sand, the number of finds was higher than in other parts of the profile section. The finds from these sands are summarized as Neumark-Nord 2/1c. During the field works in December 2006 it was possible to establish some larger openings of layer 3. In this profile section it was possible to recognize that the sands belong to a real shore horizon that spreads over large areas of the lake basin. Polygonal structures in the limnic clays and silts below the sand indicated a wet soil formation or several cycles of moisture penetration and drying of these sediments. Both possibilities underline the interpretation of the sands as deposits on a shore plain. Several bones and also a levalloid blade fragment were found at the base of the sand layer during the preparation of the profile sections; indicating a genuine find layer. During the next excavation campaign, this sand layer will be closer researched. The finds from the silts below that fine sand and above layer 2 were summarized as complex Neumark-Nord 2/1d.

Till the preparation of this paper all the Neumark-Nord 2/1 finds were discovered during works over the profile sections. A test excavation in the Neumark-Nord 2/1a horizon was done during the 2004 campaign, a probe of three
square metres was opened, but layer 5 contained in this area only a few very small and strongly weathered bone splinters, which decayed completely during the uncovering.

The whole assemblage from Neumark-Nord 2/1 is still very small but shows significant Middle Palaeolithic characteristics, further classifications are not possible because of the small number of artefacts (Fig. 13). The bones are very small and much more strongly weathered than the bones from the Neumark-Nord 2/2 and Neumark-Nord 2/0, there are no traces of manipulation at the organic finds.

Fig. 13. Neumark-Nord 2/1. Lithic finds

THE ARCHAEOLOGICAL HORIZON NEUMARK-NORD 2/0

In 1998, Dietrich Mania and Matthias Thomae discovered artefact and bone yielding shore sand, at present called layer 7, within the upper deposits of the Neumark-Nord 2 lake basin. In the same year, a probe excavation (ME in Fig. 4) was opened, parallel to the slopes of the modern exploitation field Neumark-Nord of the Geisel valley open-cast mine. During this field work the early Vistulian age and belonging to the Micoquo-Prądnikian cultural tradition lithic assemblage was recognized by Mania.

The find layer – layer 7 in the recent nomenclature of the deposit sequence – is formed by fine- to medium-grained shore sands. The sands contain the lithics and bones but they are clearly concentrated at the base of the sand, directly on the subjacent denudation surface. Some of the finds were pushed into layer 6 or strangled into it by later cryoturbation processes.

The altitude of the find yielding shore horizon is about 102 m a.s.l., quite constant within the whole excavated area (Fig. 14).

The shore sands get finer to the east of the site and the portion of silt in the deposit rises. Also the thickness of the layer rises from the west to the east; while in the western part of the excavation area, close to the main profile section 1, the shore sands are 20 cm thick; the thickness in the eastern part reaches 50 to 60 cm.
The above-mentioned basal concentration of the artefacts is common in all parts of the excavated area.

The excavation is situated on a small ridge between two open-cast mines, an older one in the north-east and a modern one in the south-east. The slopes of the north-eastern mine cut the find horizon in the area of the highest find density; in the west the slope of the modern mine – where also the probe excavation of Mania was made – cut the find horizon in an area with a remarkably lower find density.

In the year 2003 and 2004, 385 sq m of the shore horizon were excavated; 330 sq m as a joint area in the north-western and central part of the site.

About 3250 lithic object and 2150 bones and tooth remains were documented three-dimensionally. About 9000 objects, half lithics and half bones, were found during the sieving of the shore sand; 877 objects were found at the 84 sq m of the 1998 probe excavation.

THE ORGANIC FINDS FROM NEUMARK-NORD 2/0

During the 2003 and 2004 excavation campaigns, 7293 bones and teeth were found. The find objects are often destroyed by the pressure of the covering deposits.
Apart from these crackings, the bones are in a quite good state of preservation but their surfaces show weathering traces. In the area close to the old open-cast mine, where some larger trees were growing on top of the slope, their roots destroyed some of the larger bones.

The strongest weathering and decaying of the bones happened most probably during the last decades, after the opening of the near open-cast mines. This is indicated by the rising of the weathering traces on the bones in the areas closer to the older north-eastern open-cast mine. While the surface destruction rises when getting nearer to the mine, the quantity of fluorite concretions in the bones increases too. The cause for this fact may be a change in the ground water and oxygen circulation after the opening of the mine.

The remains of *Bison priscus* and *Equus* sp. predominate the mammal bone and tooth collection. Then follow the remains of cervids. Single finds belong to *Asinus hydruntinus* and *Ursus spelaeus* as well as to some carnivores, most probably to *Vulpes* sp. A small, strongly weathered ivory lamella is the only Proboscidian remain in the assemblage. Very remarkable is a number of larger birds’ bones, probably duck, gull and swan.

The anatomical affiliation of the mammal bone remains shows that carpal and tarsal bones, as well as metapodia and teeth, are very frequent while all other bones, like ribs and vertebrae, are very rare. The structure of the fracture edges indicate the smashing of mostly all of the bones during a very fresh state. Several traces, especially on the larger bones, are frequent and indicate that the cracking of the bones was intentionally made. There are series of split wholes along the fracture edges found at several large bovid long bones. Beside the traces of anthropogenic influence on the bone and teeth assemblage, there are also gnawing traces of rodents and carnivores. Some bones show root traces at their surfaces, indicating that the bones were laying for some time at the shore surface and this shore surface was covered by some vegetation.

Bone splinters were also used as tools and tool blanks: diaphysis splinters were used as blanks for pressure retouchers; four retouchers have been found till today. A number of bone flakes indicates also the production of retouched bone tools, the flakes could be also interpreted as accidental products during the smashing of the bones.

**THE LITHIC ASSEMBLAGE FROM NEUMARK-NORD 2/0**

The Neumark-Nord 2/0 assemblage consists of 8103 flint objects. The first overview shows that approximately 75% are flakes and chips, 10% are tools, 5% cores, 8% debris and 2% natural pieces, which are by their size clearly recognizable as manuports.

With 114 specimens the group of non-flint lithics objects is quite large. Within this group there are objects made of quartz, quartzite, limestone, arenite, granite and porphyry. There are some modified objects like choppers and chopping tools, as well
as unmodified manuports. These manuports belong to different size classes, from small pebbles to large blocks. Also the small pebbles are recognizable as manuports because the shore sand contains naturally no objects larger than coarse sand grains.

The flint artefacts are lightly patinated, show a strong surface glance and have a yellow to red brown and black colour. There are also traces of weathering and rolling at the flint surfaces; at the moment it is uncertain if these traces originate from transport in a sandy matrix or from circulating ground water. The second interpretation is the most probable because we found such traces also at specimens which could not have been transported.

Among the cores clearly predominate unspecific angular specimens, reminding on lower Palaeolithic techniques (Fig. 15). Levallois cores occur but are very
The quality of the Levallois technique is not as high as, for instance, in the Neumark-Nord 2/2 assemblage. The Levallois, as well as the unspecific angular cores, are very small. The length varies between 40 and 60 mm. Among these small cores there are initial cores as well as residual ones. Some unspecific pieces with flake scars are most probably simple tools and tool blanks. These specimens are between 40 and 60 mm long. Similar lengths were shown also for the debris in the assemblage. Single specimens are about 75 mm long. The flakes are in average remarkably rare.

Fig. 16. Neumark-Nord 2/0. Lithic finds. Scrapers, leaf points and hand axe-like tools
smaller, common are the flakes with a length of between 10 and 20 mm. These small flakes are quite thin and have dorsal surfaces which are completely covered with flake scars. These pieces are the waste of the core and tool preparation. Only a few aimed flakes were found; these specimens are again between 40 and 60 mm long (Fig. 15).

Very remarkable are a few larger flakes with length of about 70 mm. The flakes have an irregular shape and show no traces of further modification or use.

The tools in the assemblage are very characteristic. Similar to the cores, debris and aimed flakes, also the length of the tools is very small. The tool length varies between 30 and 60 mm.

Classical Middle Palaeolithic scraper types predominate over the tools kit (Fig. 16). There are simple, double and pointed scrapers with mostly convex shaped working edges. The retouches of the working edges are fine and stepped, sometimes genuine Quina retouches occur. There are simple edge retouched scrapers as well as completely unifacially retouched examples. Bifacially modified scrapers occur but much more seldom than edge retouched or unifacial specimens. There is a fluid boundary between the bifacial scrapers and the backed bifacial knives, the Keilmessers.

The backed bifacial knives – the Keilmessers – are the most characteristic tools in the Neumark-Nord 2/0 assemblage (Fig. 17). These Keilmessers do not differ in their dimensions from the other tools.

The small size of the Keilmesser is one of the most remarkable differences between the Neumark-Nord 2/0 assemblage and other Keilmesser assemblages in central Europe. It is important that the knives often show unfinished bifacial surface retouches at both sides, thus it is clearly recognizable, that the knives were made with these preserved dimensions.

Also important is the absence of characteristic Central European Keilmesser types. Only one unfinished tool resembles the Bockstein type (Wetzel/Bosinski 1969: 41). The other Keilmessers are characterised by a segmental shape and fit to the eastern European Wolgograd type, also known as Suchaja Mečetka type (Burdukiewicz 2000: 162).

There are also some other bifacial tool types in the assemblage, but not as numerous as the bifacial scrapers and Keilmessers; they are very small hand axes and leaf points; especially the last mentioned specimens are very small, the smallest one is just 30 mm long.

Among the specimens having only one edge retouched, the scraper types predominated but there are also some grattoirs and Quinson-points.

Very remarkable are thin flakes with clearly visible use traces and naturally or intentionally thinned backs, sometimes with some shaping retouches as the lateral edges. These specimens are not useable with a bare hand, since their backs are sharp and have an “uncomfortable” pointed shape.

Additionally, there is a group of tools which do not fit into one of the defined Middle Palaeolithic types. Most of them are simple edge retouched debris.
Apart from the modified tools, there are also a few flakes with use-wear traces at the sharp edges, which indicate the use of these specimens as cutting implements.

Among the non-flint lithics there are unmodified pieces used as hammer stones as well as modified pieces, among them a chopper made from arenite and an uncharacteristic concave scraper made of metamorphic rock. Large granite and granodiorite blocks show significant striking marks, demonstrating their use as anvils. Among the unmodified non-flint lithics there are some globular erratic blocks with a weight of up to 25 kg. These large blocks, as well as much smaller ones, are manuports; their size and weight indicate that they could not have occurred naturally in the fine- and medium-grained shore sands.
THE NON-UTILITARIAN OBJECTS FROM NEUMARK-NORD 2/0

Beside the lithics and the bone and teeth remains, there are some very special find objects found in the shore horizon deposits. During 2003 and 2004 a collection of Tertiary and Triassic fossils was found. Four shark teeth belonging to the genus *Odontaspis* sp., four corals, one belemnite, two shells of the scaphopodia species *Dentalium sexangulum*, and a dozen of Tertiary mussel shells belong to the collection. Researches concerning the origin of these find objects are in progress. Owing to our recent state of knowledge about the genesis of the site and the find horizon it seems that this non-utilitarian objects were collected by the Micoquo-Prądnikian people of the Geisel valley and intentionally brought to the camp site. The size of the find objects denies natural occurring of these objects in the fine- and medium-grained shore sand.

PRELIMINARY INTERPRETATION OF THE ASSEMBLAGE AND THE SITE NEUMARK-NORD 2/0

Remarkable are the outstanding small sizes of the lithics, especially the tools from Neumark-Nord 2/0 and the fact that they have an intentional origin. Besides the above mentioned fact of the occurring of flint cortex and/or natural surfaces on both surfaces of the small Keilmessers, there are several other indications for this intentional smallness. The raw material situation at Neumark-Nord, as well as at the whole Geisel valley, is very good because the Elsterian and the Drenthian ground moraine tills and also the gravels of the Geisel contain a lot of excellent, fresh, homogenous and large flint nodules, thus it is not possible to connect the small size of the tools with the raw material situation. The following facts speak against the resharpening-caused smallness: 1. the tools show no significant signs of more than one retouching sequence; 2. the already mentioned occurring of cortex on both surfaces, which proves the fact that the blanks were not remarkably larger than the finished tools; 3. among the unmodified blanks, flakes as well as debris, there are no specimens remarkably larger than the tools, the length variability of the blanks shows quite similar proportions to those of the tools.

Traditional behaviour, cultural behaviour in its broadest meaning, seems to be the reason for the small dimensions of the tools and therefore also of the whole assemblage.

As also mentioned above, some of the modified specimens have shapes which prevent their use with the bare hand; however, sharp and pointed backs are frequent, which allow to fix them easily into a grip made from organic material, most probably wood or bark.

The birch pitch finds from Königsau A and B (Mania and Toepfer 1973, Koller *et al.* 2001: 99), only one interstadial phase younger than the finds from
Neumark-Nord 2/0, show clearly that the early Weichselian men were able to produce an artificial clue that would fix tools like those found at Neumark-Nord 2/0 into different grips.

Also very remarkable is the pragmatism in the raw material at the site. Unuseable material like inhomogeneous flint or even metamorphic rock was used as raw material for the production of tool blanks. There seems to be a contradiction between the excellent raw material situation and the use of bad quality pieces for further modification. But this contradiction is otherwise a sign for the excellent craftsmanship of the early Weichselian people of the Geisel valley, which is furthermore underlined by the fact that the quality of the retouches at the bad quality raw material does not clearly differ from the quality of the retouches at pieces from excellent raw material. Not only was the raw material selection very pragmatically done, but also in the selection of the blanks a very pragmatic style can be recognizable. Among the blanks angular debris predominate; intentionally produced blanks are clearly rarer. This fact is a clear similarity to other sites from the early Weichselian, belonging also to the Micoquo-Prądnikian tradition (see Wetzel and Bosinski 1969: 65).

The toolkit from the Neumark-Nord 2/0 with the clear dominance of scrapers and Keilmessers and the absence of Mousterian hand axes verifies the affinity with the Micoquo-Prądnikian. Several Keilmesser sites are known in the Elbe-Saale region (Fig. 18) but besides the main similarity – the presence of the backed bifacial knives – there are also some remarkable differences between Neumark-Nord 2/0 and the other mid-German as well as Central European Keilmesser sites. The Micoquo-Prądnikian in Central Europe is divided into several groups which are commonly marked by special typological variations of the Keilmesser concept (Burdukiewicz 2000: 156) and which differ in their regional and chronological spreading (Jöris 2003: 110). But Neumark-Nord does not fit into our recent knowledge about the different groups and the chronology of the Central European Micoquo-Prądnikian. First of all, there are no examples of the known mid-European Keilmesser types in the assemblage, instead of this the Neumark-Nord 2/0 Keilmessers are typologically close to the segmentally shaped Keilmessers of the later Eastern European Keilmesser sites. The specimens from Neumark-Nord 2/0 are classifiable as Wolgograd knives; especially the knives from the eponymous site of this type Suchaja Mečetka, also known as Stalingradskaya or Wolgogradskaya stojanka (Zamjatnin 1961: 5), and the specimens from Richta (Kouchartchouk 1989: 55) near Zitomir in Ukraine are very similar to the Neumark-Nord 2/0 specimens.

But not only the Keilmessers from Neumark-Nord 2/0 have their closest similarities in Eastern Europe, also the scraper types and the composition of the toolkit are very similar to those of the Wolgograd-group, as stated by Otté (1996: 230).
of the Kûlna cave, both dated to the second Weichselian interstadial – OIS 5a (Jöris 2003: 92), have been placed at the beginning of the Micoquo-Prądnikian in Central Europe. In the case of the Kûlna layer 9b the stratigraphical correlation is a still debated issue: while Jöris (2003: 94) correlates the layer mainly on the basis of ESR-dating (Rink et al. 1996) with OIS 5a, Valoch (1988: 70) correlates it in accordance with the stratigraphical position with the first Weichselian interstadial (OIS 5c).

The stratigraphical position of Neumark-Nord 2/0 clearly indicates a correlation of the find horizon with the first Weichselian interstadial, thus Neumark-Nord 2/0 and the small assemblage from Kûlna layer 9b are at the moment the oldest assemblages of the Micoquo-Prądnikian in Central Europe.

The spatial analysis of the find objects shows a quite regular distribution with a decrease of the finds number towards the south. The distribution indicates a short distance transport of the finds by the lake water during a transgression of the water over the shore horizon. This redeposition is marked by a regular orientation of finds length axis and the deposition of the finds in linear accumulations (Fig. 19).
These linear accumulations were found in quite regular intervals over the whole excavated shore area, they were formed by an ashore washing of small finds during the transgression of the lake. This genesis is verified by the fact that the linear accumulations run parallel to the contour line of the lake basin as they were recognized by the geoelectric and georadar researches (Thomae and Rappsilber 2007).

As shown above, most of the finds were deposited in parautochthonous location, but beside these redeposited finds there are also objects in an autochthonous location. First of all, there are large, weighing up to 25 kg erratic blocks. A clear concentration of these objects was found in the central part of the excavation area. This concentration is formed by a dozen of these blocks and forms an irregular circle with a diameter of about 3 m (Fig. 20). The few blocks found outside the mentioned concentration are smaller, most probably hammer stones, or they show clear areas of striking marks, thus mark the objects as anvils. The blocks belonging to the circular concentration show no striking marks. Most probably this block concentration is the remains of a settlement structure, a dwelling structure of an unknown construction.

Such an interpretation of the remains is supported by several facts. In the area of the block concentration the highest density occurs in the whole excavated area. Up to 250 objects per square meter were found. Large bones, often
with clearly visible cut marks and/or impact traces are very frequent outside the stone circle. These larger bones are in autochthonous position, a fact that is proved by the absence of any regular axial orientations and by the occurrence of articulated bones in this area. There is also a change in the composition of the lithic finds. The number of tools rises in the adjacent area and especially inside the stone circle. Among the tools there is a lot of very well-made specimens.

Important is also the fact that the linear find accumulations break off in that area; the erratic blocks served as wave breakers, thus there were no redepositions inside the stone circle during the water level changes. The absence of any regular axial orientations verifies this interpretation.

The find situation at Neumark-Nord 2/0 and the above described finds allow to interpret the site as a short time base camp, where early Vistulian humans disembowelled hunted game, produced their tools and built a dwelling structure. The number of bones refers to quite a short time of using the site, while the high portion of well-manufactured tools and the large blocks on remains of a dwelling structure speak against an interpretation as a short time hunting camp, where the hunters just stopped for hours or days during a hunting raid. The occurrence of a quite large amount of non-utilitarian objects also speaks for an interpretation as a base camp.
THE ARCHAEOLOGICAL ASSEMBLAGE NEUMARK-NORD 4

The lake basin deposit sequence of Neumark-Nord 2 is discordantly covered by local rivulet gravel. The gravel was deposited also outside the Neumark-Nord 2 basin and was recognizable in the area of the Neumark-Nord 1 lake basin, thus the finds from this gravel were summarized as assemblage Neumark-Nord 4, in order to separate it clearly from the find horizons, which were connected with the basin itself.

During the slope development works at the edges of the Neumark-Nord exploitation field, the deposits above the gravel layer 10 and also the upper parts of layer 10 were destroyed in the area of the excavation, thus only the basal parts of the layer were preserved. In the spring of 2004, the first artefacts were found within the gravels. After this discovery the deposits of layer 10 were systematically researched. The covering deposits of 30 square meters of the Neumark-Nord 2/0 excavation layer 10 were preserved and researched also during the excavation of the Micoquo-Prądnikian layer. Besides this also two probe areas were opened, in the gravels close to the main profile section 1. In the gravels, 46 flint artefact (Fig. 21), 17 bone fragments and two teeth fragments were found.

The finds show different states of preservation. Besides strongly rolled and rounded specimens there are also some which look like freshly knapped; no redeposition or weathering traces are visible. It seems that the Neumark-Nord 4 assemblage is a combination of redeposited specimens originating from other sites and specimens which were made synchronously with the deposition of the gravels.

Most of the lithic finds are simple flakes and flake fragments but there are also thin levalloïd blades, Levallois flakes and two tool fragments, one of them a medial fragment of a small bifacial tool. The lithics belong to a Middle Palaeolithic context, but due to the mixed character of the assemblage and the small finds number, no further interpretation of the finds is possible. The bones and teeth fragments are strongly weathered and very small, they show no signs of artificial influence.
Since 2003 the State Office for Heritage Management and Archaeology Saxony-Anhalt has been conducting excavations in the area of the Neumark-Nord 2 lake basin.

During the first excavation campaign the main researches were done in the early Weichselian shore horizon, which uncovered the remains of a Middle Palaeolithic camp site with dwelling structures. The camp existed during the first Weichselian interstadial at the shores of the Neumark-Nord 2 lake and was used by humans of the Micoquo-Prądnikian cultural tradition.

Apart from the dating, also the close typological similarities to much later assemblages of the Eastern European Micoquo-Prądnikian will become very important in the further analysis of the site and the assemblage.

In the spring of 2004 a second archaeological layer was discovered in deeper layers of the Neumark-Nord 2 lake basin. The excavation of this lower layer was the main work during the second half of the 2004 campaign and during the campaigns in 2005 and 2006. The numerous finds discovered in this layer were the remains of an early human camp that existed during the early beginning of the Eemian interglacial.

Pit-like depressions, pavement-like on their slopes and covered with bones and lithics indicate the existence of settlement structures at the lake shore during this period of human activity at the place. With more than 60 000 find objects unearthed during 2004 and 2005, the find assemblage from the lower horizon at Neumark-Nord 2 is one of the largest and most complex Middle Palaeolithic assemblages excavated in Central Europe within the last decades.

The excavations and researches at the Neumark-Nord 2 lake basin are still in progress and, in December 2006, the third shore horizon, again connected with archaeological finds and situated between the Intrasaalian and below the climatic optimum of the Eemian interglacial stage layers, was recognized.

Also Vistulian deposit cover of the lake basin yielded artefacts, proving the presence of Middle Palaeolithic humans in this area also after the disappearing of the Neumark-Nord 2 lake in the first half of the Vistulian glacial stage.

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