NON-FLINT STONE TOOLS FROM TWO LATE NEOLITHIC SITES AT KOLHORN, PROVINCE OF NORTH HOLLAND, THE NETHERLANDS

E. DRENTH & H. KARS
Rijksdienst voor het Oudheidkundig Bodemonderzoek, Amersfoort, Nederland

ABSTRACT: This article considers non-flint stone tools, including querns, hammer stones, rubbing stones, grinding stones, 'cubic stones', battleaxes and axes from two Late Neolithic sites at Kolhorn in the Province of North Holland, the Netherlands. The different types, their function and intra-site distribution are discussed. Finally, the raw data are presented in a catalogue.

KEYWORDS: Non-flint stone tools, querns, hammer stones, rubbing stones, grinding stones, 'cubic stones', battleaxes, axes, provenance, Late Neolithic, Kolhorn, the Netherlands.

1. INTRODUCTION

During the period 1979-1986 two sites of the Late Neolithic Single-Grave Culture (further abbreviated as SGC, Dutch: *Enkelgrafcultuur*) were excavated at Kolhorn, in the province of North Holland, by the Biological Archaeological Institute of the University of Groningen. They are closely situated to each other and are referred to as the northern and the southern sites; their locations are 122.28/534.22 and 122.28/534.29 respectively (Topographical Map of the Netherlands: 14G 1:25.000) (fig. 2). On the basis of pottery the two sites are preliminary dated in the Late SGC (c. 2600-2450 BC), phase 4 after Drenth & Lanting (1991). This is in accordance with the stratigraphical position of the site, namely on top of Calais-IV a2 sediments (Banga & van Dijk, 1979).

In this article macroscopically defined stone tools bearing traces of hammering and/or rubbing/polishing found during these excavations are discussed. All flint material has been excluded and will be discussed in a forthcoming article by Deckers. Attention is paid to the tool types distinguished, their functions, any possible relationship between lithology and tool type, and to the provenance of the rock types. A catalogue completes the study.

This investigation was primarily carried out to present the Late Neolithic stone tools from Kolhorn as a separate entity, and to enable comparison with other SGC settlements[1] and SGC graves. It is hoped that this study will make possible comparisons of the Kolhorn material with that from other cultures and periods. Other studies dealing with the Kolhorn sites include a preliminary analysis of the post holes (Kielman, 1986) and a discussion of the aims and methodology of the excavations (van der Waals, 1989a). A general description of a well discovered at the southern site is given by van der Waals (1989b). Detailed studies of this well have covered the following aspects: mites, (Schelvis, 1989), bones (Zeiler, 1989), insect and plant remains (Hakbijl et al., 1989) and geochemistry (Zuurdeeg et al., 1989). A preliminary report on shell middens is presented by Niklewicz-Hokse (1990). Studies of the pottery (I.M. Roorda), the local geology (P. Banga), the flint (P.H. Deckers), the perforated ornaments (E. Drenth & H. Piena) the human bones (T.S. Constandse-Westermann), and the other bones (J.T. Zeiler) are in preparation.

2. TYPES AND FUNCTIONS

2.1. Introduction

Table 1 lists the different tool types distinguished and their frequencies. The typology was established by combining the size and the shape of complete tools and their traces of wear and fabrication. A comparison was made between tool types and lithologies to assess whether an underlying relationship between function and the physical properties of the rock type was present. Any such relationship once observed was used with care to help classify some of the originally undetermined fragments.

Only artefacts with macroscopically visible traces of hammering and/or smoothening/ polishing were studied. The distinction made between traces of smoothening and polishing is based on the degree of wearing of the mineral grains in the stone. Smoothening denotes an artificially flattened surface, which does not, however, display a mirror-like gloss. This latter characteristic is regarded as typical of a polished surface. The mirror-like gloss results from the severe wearing down of the mineral grains. However, intermediate stages also occur.

The minimum number of individual tools (MNT)

Table 1. Minimum number of individual non-flint stone tools (MNT) from the Late Neolithic sites at Kolhorn. The numbers also include the determinations with the adjectives 'probable' and 'possible'; see catalogue.

Type	Northern site	Southern site	Unknown
Querns	29	6	3
Hammer stones	14	9	2
Rubbing stones	6	2	1
Grinding stones	6	2	1
Cubic stones	3	3	1
Battleaxes/axes	3	1	–
Rubbing or hammer stones	–	3	–
Rubbing or grinding stone	–	1	–
Undetermined	23	16	–
Possible tools	9	5	1

was based on the refitting of fragments and, the attribution of non-fitting fragments to the same tool by considering the rock type in combination with traces of wear and/or fabrication.

Each type is further discussed in the following sections of this chapter.

2.2. Querns

Due to the fragmented character of the material, it is difficult to gain an insight into the types used. Only two complete specimens were identified and, due to their size and in one case the grinding surface is slightly convex and in the other flat, they are both regarded as upper stones (cf. Harsema, 1979). The almost circular specimen (KH'82, 133.26/38.19, layer 2) has a rim bearing traces of hammering which indicate that the shape of the quern was deliberately produced by pecking (fig. 1). Its size corresponds to the hand-span of a modern adult man and the slightly smoothened appearance of the side opposite the working side could actually be the result of handling (cf. Bauche 1984-1986; Shea, 1991: p. 63). According to Hennig (1966) flat circular upper stones are used with bowl-shaped lower stones (Dutch: *schaalkweern*). At Anloo a more or less circular upper stone was indeed found together with a bowl-shaped lower stone (Waterbolk, 1960: PL. X 1). A fragment of a lower stone (KH'81, coordinates and layer unknown; fig. 2), could actually be derived from such a quern type. However, this fragment is too small to allow a definite conclusion to be made and, therefore, it is only tentatively concluded that bowl-shaped querns were used at Kolhorn.

The other complete upper stone (KH'82, 131.98/36.42, layer 2; fig. 3) is loaf-shaped and was probably pecked, as indicated by the traces of hammering on one short end. Normally this type of upper stone is associated with saddle querns (Dutch: *zadelkweern*; cf. Harsema, 1979; Hennig, 1966). Again the lower stone fragments

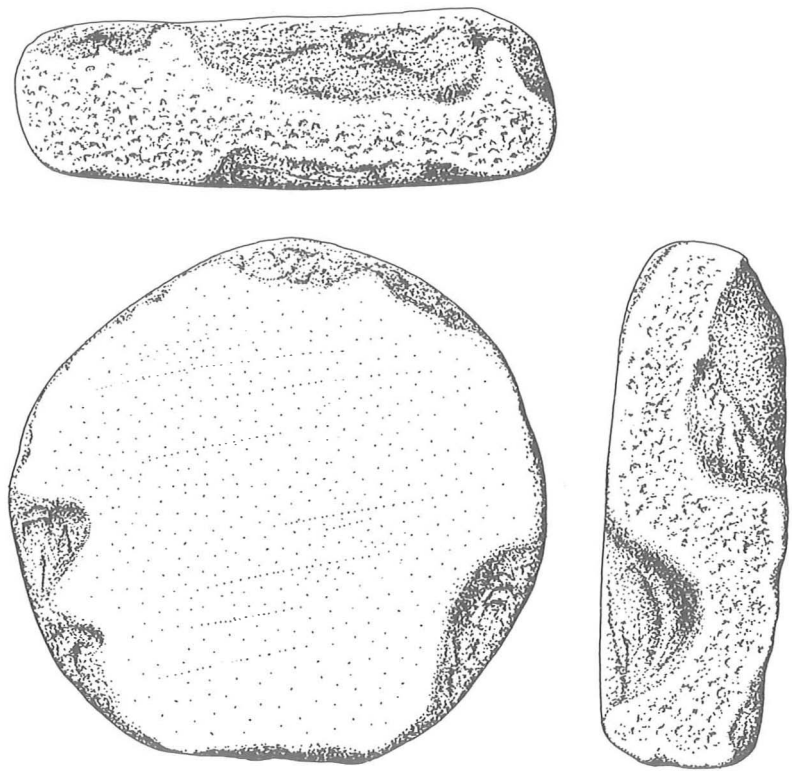

Fig. 1. A quern upper stone (KH'133.26/38.19, layer 2). The smoothened working surface is indicated by parallel dotted lines. The small side is pecked. Scale 1:2.

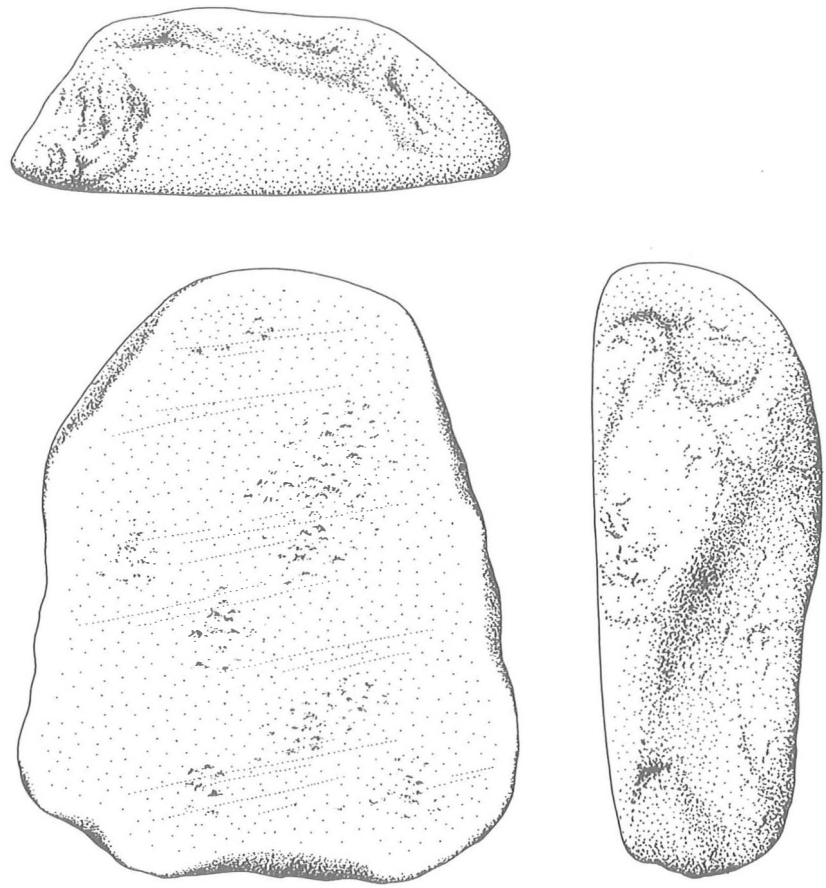

Fig. 2. A fragment of a lower stone, perhaps of a bowl-shaped quern (KH'81, coordinates and layer unknown). Scale 1:2.

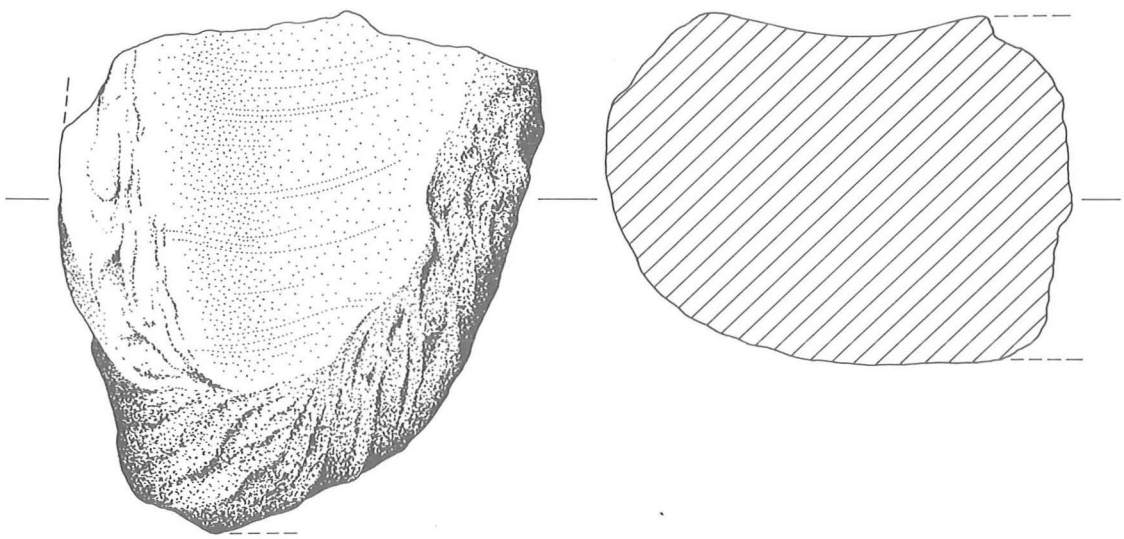

Fig. 3. A loaf-shaped upper stone. (KH'82, 131.98/36.42, layer 2). The working surface is indicated by dotted, parallel lines. Traces of hammering, interpreted as roughening, are dotted. Scale 1:2.

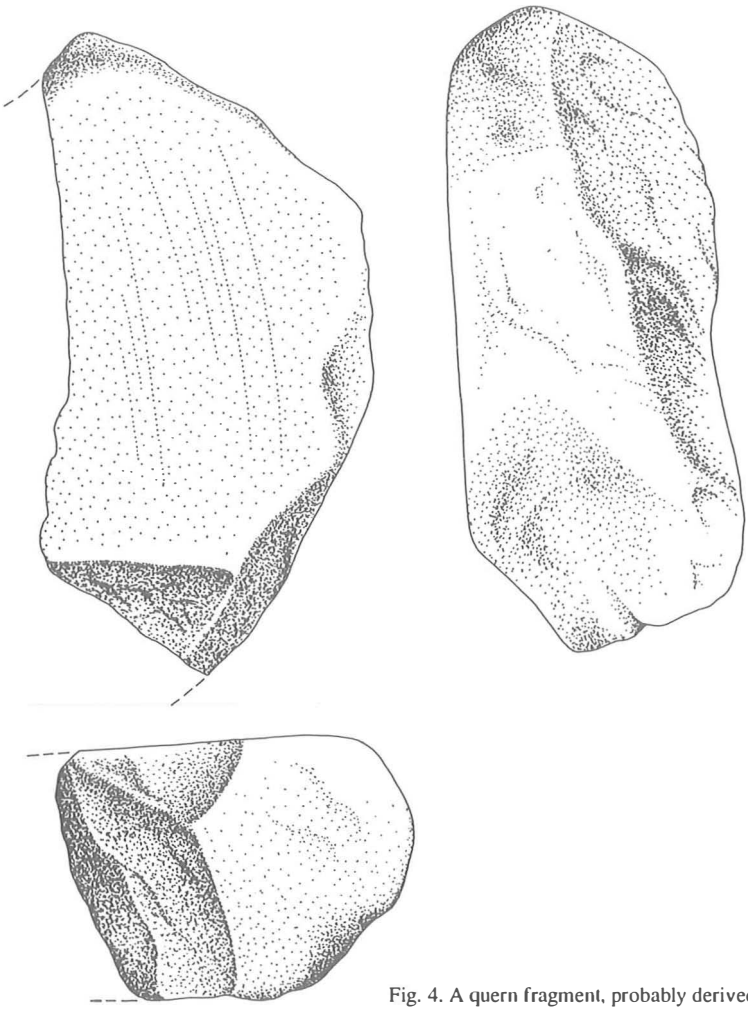

Fig. 4. A quern fragment, probably derived from a saddle-quern (KH'82, 147.80/56.65. Scale 1:2.

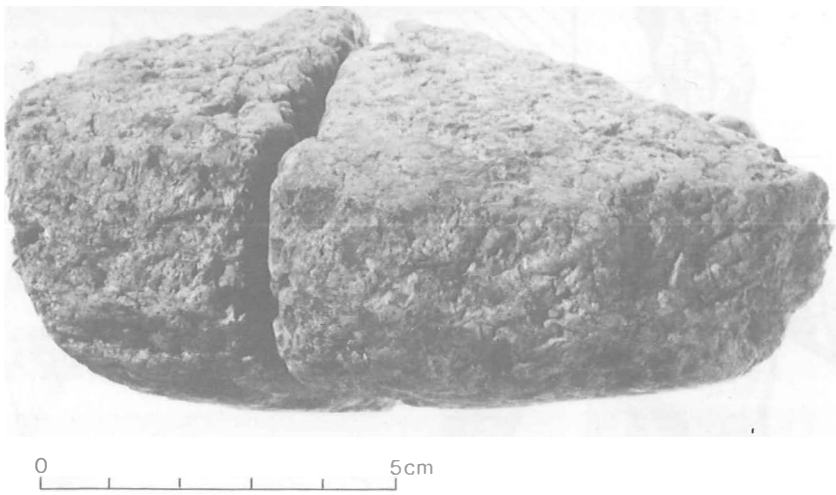

Fig. 5. Edge of a refitted quern with traces of hammering (KH'80, 160.50/46.50, layer 2/3 and KH'81, 147.50/20.50, plough layer).

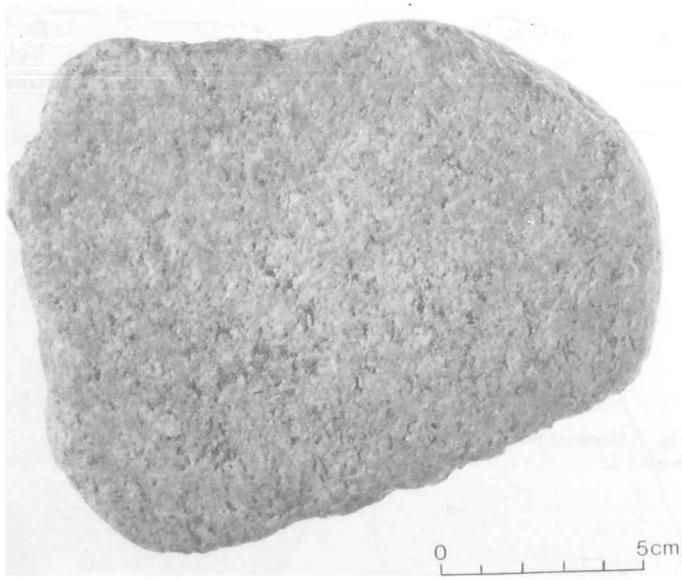

Fig. 6. Working surface of a quern with traces of hammering, interpreted as the result of roughening (KH'82, 131.98/36.42, layer 2).

are too small for conclusive determination, but their shape indicates that some could indeed be fragments of saddle querns (fig. 4).

The fragment of another upper stone, probably loaf-shaped, shows a convex, smoothened lower part suggesting that it was shaped intentionally. This feature was observed in several upper stones as well as lower stones. Curiously enough, querns from the province of Drenthe lack this feature (Harsema, 1979; J.R. Beuker, pers. comm.). The reason for this is not understood. Furthermore, several querns bear traces of hammering, like those of the circular upper stone shown in figure 3a, particularly on their edges (fig. 5). These traces are most probably the result of shaping by pecking.

It is generally accepted that querns were primarily used for grinding seeds, particularly grain. It is assumed that the same is true of those from Kolhorn, since both charred emmer wheat (*Triticum dicoccum*) and naked barley (*Hordeum vulgare* var. *nudum*) are recorded (Lanting, 1981: p. 205).

In addition to grinding grains, querns may also have been used for crushing ochre (cf. Bauche, 1988: p. 153; Hahn, 1991: p. 241). Although not actually found at Kolhorn, this material is known from Aartswoud, municipality of Opmeer (F.R. van Iterson Scholten, I.P.P., written comm.), which is (partly) contemporaneous and located close to Kolhorn. Therefore, the possibility of ochre milling at Kolhorn cannot be excluded.

After a certain period of use the milling surface of a quern becomes smoothened to polished due to wearing of the mineral grains. Its surface must then be roughened to sharpen the mineral grains and allow further efficient use (Bauche, 1988: p. 153; Hahn, 1991: p. 241; Teegen et al., 1990: p. 113). Experiments have shown that the most effective method is to roughen both the upper and lower stones (Teegen et al., 1990: p. 113). This was most probably done using hammer stones (Zimmermann, 1973: p. 155; cf. section 2.3).

Several querns from Kolhorn show traces of roughening (eg. KH'80 165.50/42.50, layer, sublayer unknown). Shallow pits, visible locally in the smoothened to polished working surface, give a rough appearance (fig. 6). This feature has been noted in at least one upper stone and in several lower stone fragments.

Particularly interesting are a number of flakes which, on the basis of their smoothened surfaces and lithology, are believed to derive from querns. These may have resulted from lowering of the edges of the lower stones in cases where the working surface became too deep and consequently ineffective. This phenomenon should probably be ascribed to bowl-shaped quern types (cf. Harsema, 1979: p. 9), but since no flake negatives on lower stones were observed it seems rather unlikely that the edges of Kolhorn querns were lowered.

2.3. Hammer stones

Hahn (1991: p. 237) defines hammer stones as follows: "Es handelt sich hierbei um Werkzeuge, die durch den Gebrauch als Schlaginstrumente entstehen. Sie werden durch mindestens ein konvexes Feld von Narben, Aussplitterungen oder Rissen bestimmt, wie sie beim Auftreffen auf ein mehr oder weniger hartes Material entstehen".

Despite the scarcity of complete specimens hammer stones seem to fall into two main groups. Group A comprises specimens with one or two short ends with traces of hammering (fig. 7). Group B is characterized by an edge more or less covered the whole way round with traces of hammering (fig. 8). A more or less similar

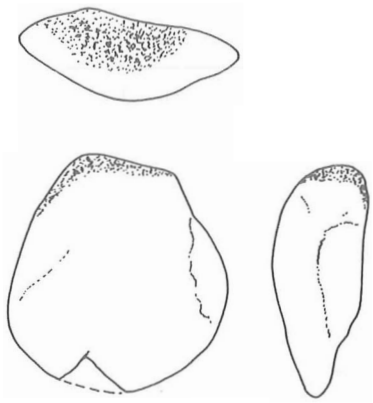

Fig. 7. Hammer stone of group A (KH'86, 141.50/34.50, layer 3). Scale 1:2.

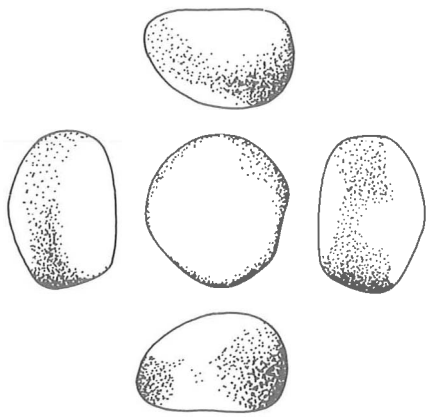

Fig. 8. Hammer stone of group B (KH'83, 218.50/31.50, plough layer). Scale 1:2.

division was also found for a Neolithic site in Seeberg, Burgäschisee-Süd, Switzerland (Zimmermann, 1973: p. 156).

The Kolhorn groups could reflect a different degree of use, as Willms (1980: pp. 110 ff.) assumes for a Cortaillod site at Twann, Switzerland. A specimen from group B (KH'85, 221.00/37.52) bears traces of hammering similar to those on hammer stones in group A. Moreover, the flake negatives at one of the used short ends of this hammer stone are also known from hammer stones of group A.

Flake negatives were frequently observed at the working end(s) of hammer stones in group A. These tools are believed to be damaged, probably due to hard percussion. The majority must have served for flint knapping – a study of the flint from Kolhorn is currently being prepared by Deckers. Indications for such a function are provided by flint knapping experiments in which hard percussion is used: these produced similar flake negatives (J.R. Beuker, pers. comm.; Shea, 1991: p. 97). Hammer stones with similar scars from Volgograd, USSR, have also been interpreted in this way (Semenov, 1964: p. 41 and fig. 4).

In one case it proved possible to refit a flake to a hammer stone (KH'80, 164.50/42.50, layer 1 to KH'82, 162.50/20.50, layer 2; fig. 9). Several other flakes with traces of hammering possibly have the same origin. The size of a flake negative on a hammer stone, (KH'81, 150.50/12.50, layer 4), 4.8x3.9 cm, gives an indication of the maximum size of this type of flake.

Two hammer stones (KH'81, 150.50/12.50, layer 4

Fig. 9. Refitting of flake (KH'164.50/42.50, layer 1) to hammerstone of group A (KH'82, 162.50/20.50, layer 2).

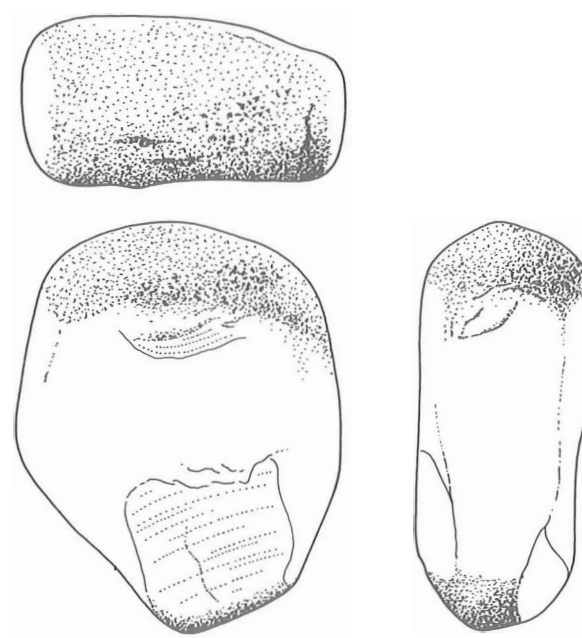

Fig. 10. Hammerstone with slightly facetted working end and a large flake negative probably sustained during use (KH'81, 150.50/12.50, layer 4). Scale 1:2.

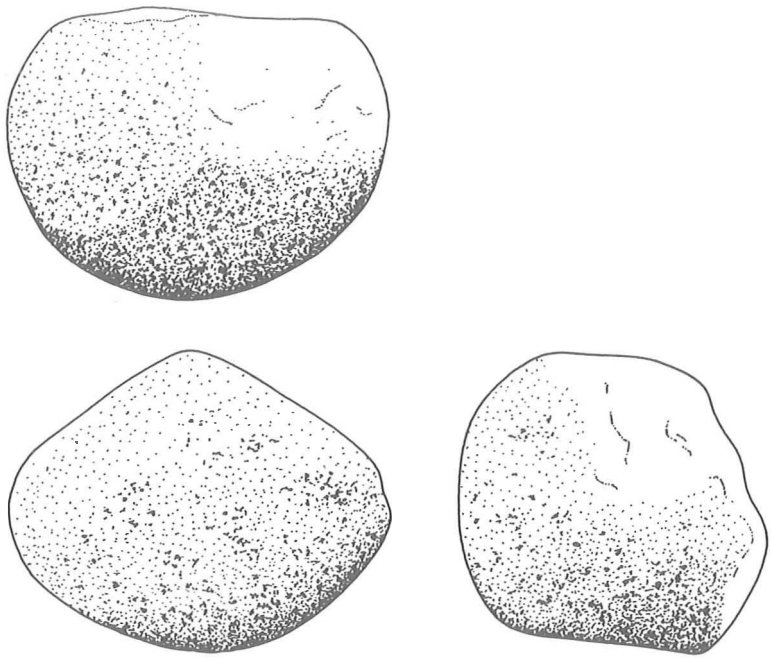

Fig. 11. Hammer stone (KH'82, 135.80/36.25, layer 4) with shallow pits, which may have been used for abrading. Scale 1:2.

and KH'85, 225.50/33.50, plough layer) are notable due to their facetted working ends (fig. 10). According to Beuker (pers. comm.) this feature could be the result of changing the striking side during flint knapping. A damaged short end bearing a large flake negative may indeed indicate such a function in one specimen.

Three hammer stones from group B (KH'81, 150.50/31.50, plough layer; KH'84, 225.50/42.50, layer 1; KH'86, 146.50/30.50, plough layer) have relatively shallow, fine traces of hammering. Flake negatives were not observed and, therefore, it is assumed that they have not been used for hard percussion. Comparable traces of hammering were also registered for hammer stones of group A. The specimen in question (KH'84, 225.50/42.50, layer 1) apparently sustained damage during use, judging from several flake negatives.

A hammer stone (KH'82 135.80/36.25, layer 4) could, considering its relatively shallow pits (fig. 11), have been used for abrading as described by Shea (1991: p. 96) "Abrade describes sliding contact between the surface of a stone tool and a worked material".

One hammer stone (KH'81, 156.50/33.50, plough layer) has traces of hammering, particularly on the areas directly adjacent to the short ends. This suggests a sidewards movement, which can be described as striking.

Particularly interesting is a hammer stone (KH'81, coordinates unknown, plough layer) having two pointed short ends (fig. 12) measuring approx. 0.3x0.2 and 0.4x0.3 cm. It is possible that these ends were intentionally shaped and that this stone was used as a pressure tool (for retouching flint?).

The size of the hammering traces seem to correspond with the purpose for which the hammer stone was used. According to Fiedler (1979: p. 131) the traces of hammering become smoother and finer if the hammer stones are used in the following sequence: frontal knapping, pecking, pounding, striking and crushing and abrading. However, without the aid of results from experimental archaeology it is currently impossible, if possible at all, to specify the function of each hammer stone, but taking other finds from Kolhorn into account, the following uses are suggested:

- knapping flint;
- shaping non-flint stone tools by pecking;
- roughening querns (section 2.2);

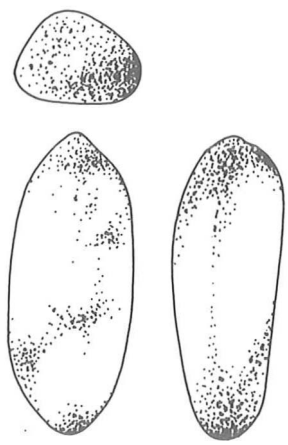

Fig. 12. Hammerstone with two pointed short ends (KH'81, coordinates unknown, plough layer). Scale 1:2.

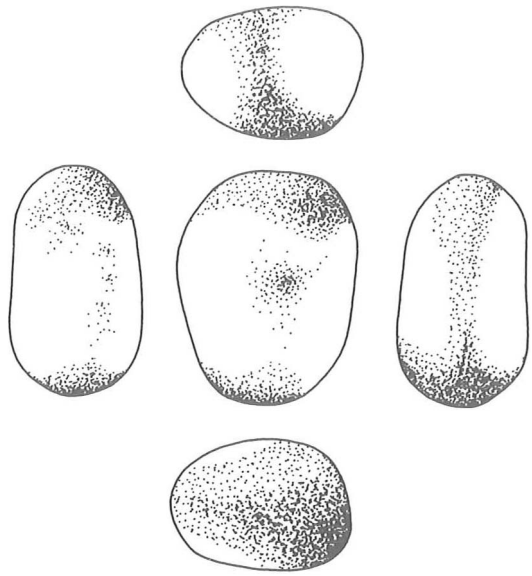

Fig. 13. Hammer stone, probably also used as an anvil (KH'85, 225.50/33.50, plough layer). Scale 1:2.

– pounding material, such as loam and rock fragments, to serve as temper for pottery (section 2.8);
– cracking hazelnuts, as suggested by the presence of their shells;
– splitting bones to obtain marrow;
– knapping bones to obtain splinters for the fabrication of bone tools (bone tools are known from these sites).

Other functions, such as crushing charcoal and perhaps ochre, are also possible.

The traces of wear on several hammer stones suggest an additional function as anvils (fig. 13). Stones which were only used as anvils were not identified, with the possible exception of one 'cubic stone' (cf. section 2.6) which could have been used for flint working.

2.4. Rubbing stones

Rubbing stones are rounded in upper view and have traces of hammering on the edges. They would therefore appear to have been shaped by pecking (cf. Hahn, 1991: p. 242). The shape of one rubbing stone (KH'84, 225.50/48.50, layer 3) could have been produced by flaking prior to pecking (fig. 14a), although it may have been reshaped later. The working surfaces are smoothened or unevenly polished. Sometimes they are covered with spots of mirror-like gloss (eg. KH'81, 142.50/25.50, plough layer) the presence of this depends on the intensity of use and the material rubbed. Some working surfaces of rubbing stones display traces of hammering, which indicate that these tools were roughened (fig. 14b). Ethnographical sources also mention this practice (cf. Schön & Holter, 1988). The complete working surface was treated in this way to some degree. On one rubbing stone (KH'79, field survey 10-4), however, the traces of hammering are limited to the centre. Although this pitted area could be roughened, an additional use or reuse (see section 2.9) as an anvil seems more probable.

The authors are unable at the present time to ascertain the exact function(s) performed by these stones; the wear observed, the signs of roughening, the other finds from Kolhorn, and the suggested functions for specimens found at other sites, indicate that rubbing stones were probably used for:
– rubbing vegetable material such as seeds;
– rubbing ochre and charcoal.

2.5. Grinding stones

The grinding stones recovered are very fragmented. They may have one or two longitudinal grinding

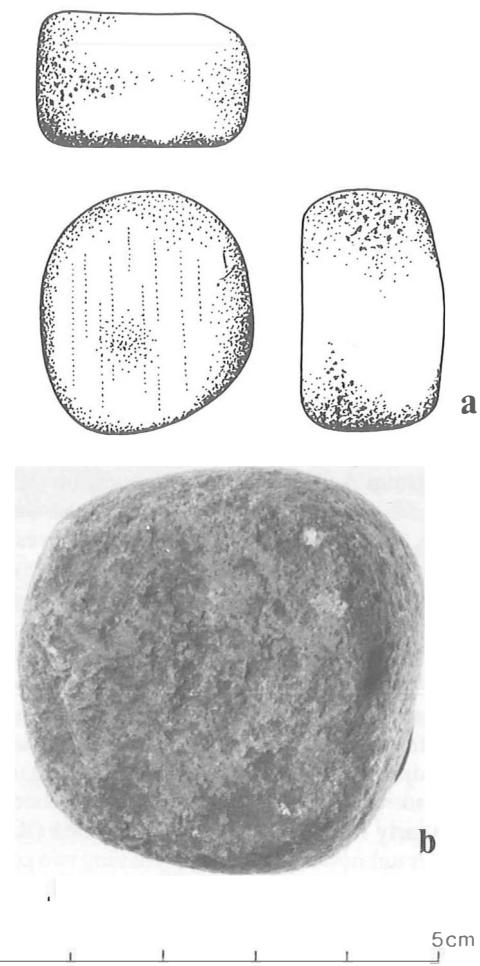

Fig. 14. a. Rubbingstone (KH'84, 225.50/48.50, layer 3); b. Photograph showing a rubbing stone with traces of roughening (KH'81, 143.50/26.50, plough layer). Scale 1:2.

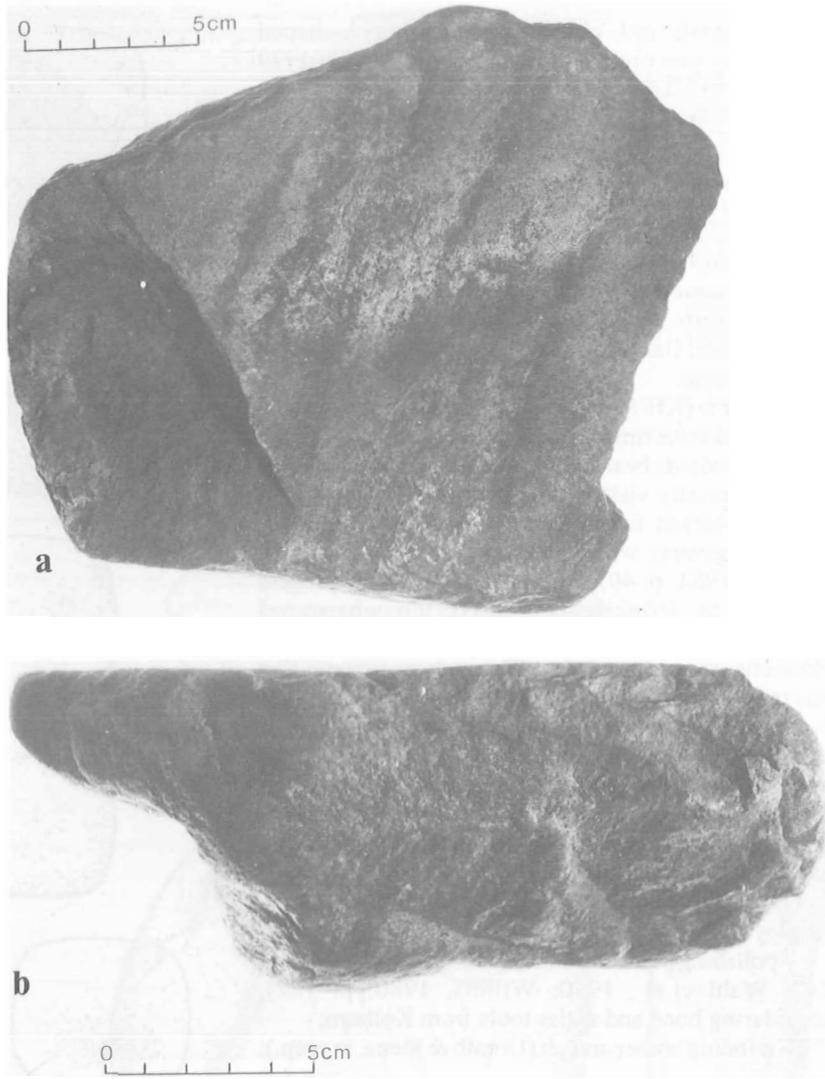

Fig. 15. a. Block-shaped grinding stone discovered during a field survey prior to the excavation. Notice the mirror-like gloss; b. Retouched side of the grinding stoneshown in a.

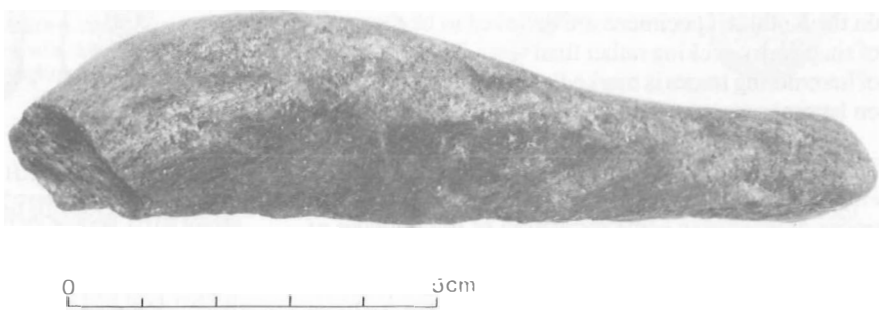

Fig. 16. Working surface of a grinding stone (KH'80, 139.50/52.50, layer unknown) with macroscopic striations.

surfaces. Only one almost complete block-shaped specimen, came to light during a field survey in 1979 (fig. 15a). This type is also known from other areas (cf. Fokkens & Schinkel, 1990). It is polished on one side, which has a mirror-like gloss due to intensive use (cf. Semenov, 1964: p. 70). Its retouched side (fig. 15b) is probably the result of a process described by Berg (1973: p. 70): "if the longitudinal polishing surface became too hollow, rising towards the edges of the stone, the stone could not be used any longer. Therefore the steep parts were removed by splitting them off". Several small flakes having polished sides could have such an origin.

One stone (KH'80, 139.50/52.50, layer unknown), is interpreted as the rim fragment of a grinding stone, it has one polished side bearing a mirror-like gloss and clearly macroscopically visible parallel striations (fig. 16). It probably served for grinding axes or battleaxes, of which fragments were discovered (see section 2.7). Madsen (1984: p. 49) defines grinding as the process producing the definitive shape of axes through removal of material leaving macroscopic traces in the form of striations or crushing spots. The authors assume that this process will not only produce striations on the axes but also on the grinding stones. Polishing, on the other hand, is understood by Madsen (1984: pp. 48-49) to be a process which does not result in macroscopic striations. The use-wear on the block-shaped grinding stone found during the field survey in 1979 might be due to finishing axes and/or battleaxes.

Other uses in which grinding stones were possibly employed are:

– polishing bone and antler tools (cf. Hahn, 1991: p. 242; Wahl et.al., 1990; Willms, 1980: p. 122), considering bone and antler tools from Kolhorn;

– grinding amber and jet (Drenth & Piena, in prep.).

2.6. 'Cubic stones'

This category covers tools with a more or less cubic shape (fig. 17a).[2] The fine traces of hammering observed on the Kolhorn specimens are believed to be the result of shaping by pecking rather than wear. The percentage of hammering traces is markedly higher than that found on hammer stones.

It is difficult to ascribe a specific function to this type of tool. A link between shape and function is assumed, although not proven. Only in a few instances do the traces of wear give some indication of the function of cubic stones. One specimen from Kolhorn (KH'85, 225.50/39.50, plough layer; fig. 17b) is believed to be an anvil, because it has two shallow pits centred on two of its sides. One cubic stone from an Iron Age pit at Colmschate, in the municipality of Deventer, is believed to have served as a hammer stone (Groenewoudt, 1987). Cubic stones from Iron Age sites in the Meuse delta are characterized by use-wear at the corners in the form of small, regular pits (Kars & Kars, in press). They are assumed to have been used for working material of approximately the same hardness, such as pounding granite to produce pottery temper.

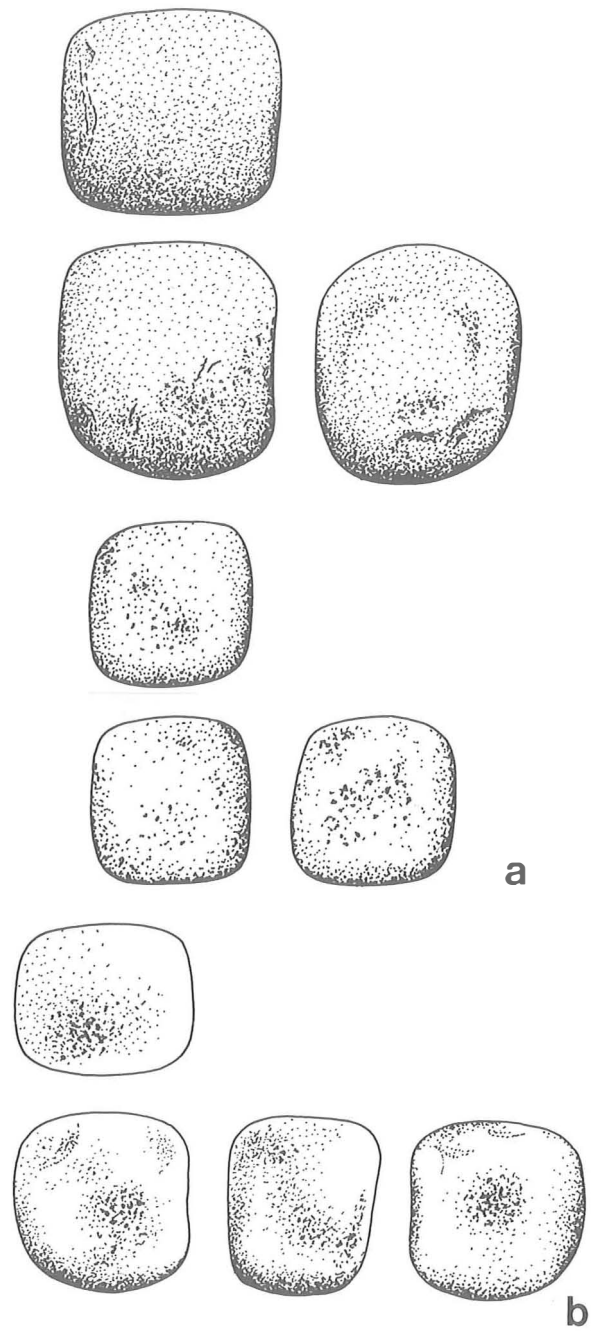

Fig. 17. a. Cubic stones (KH'81, 147.50/23.50, plough layer; KH'85, 223.50/35.50, plough layer); b. Cubic stone (KH'85, 225.50/39.50, plough layer). Because the centres of two sides are slightly pitted it is believed to have been used as an anvil. Scale 1:2.

2.7. Battleaxes and axes

Morphologically recognizable fragments of battleaxes and/or axes[3] were not discovered during the excavations.

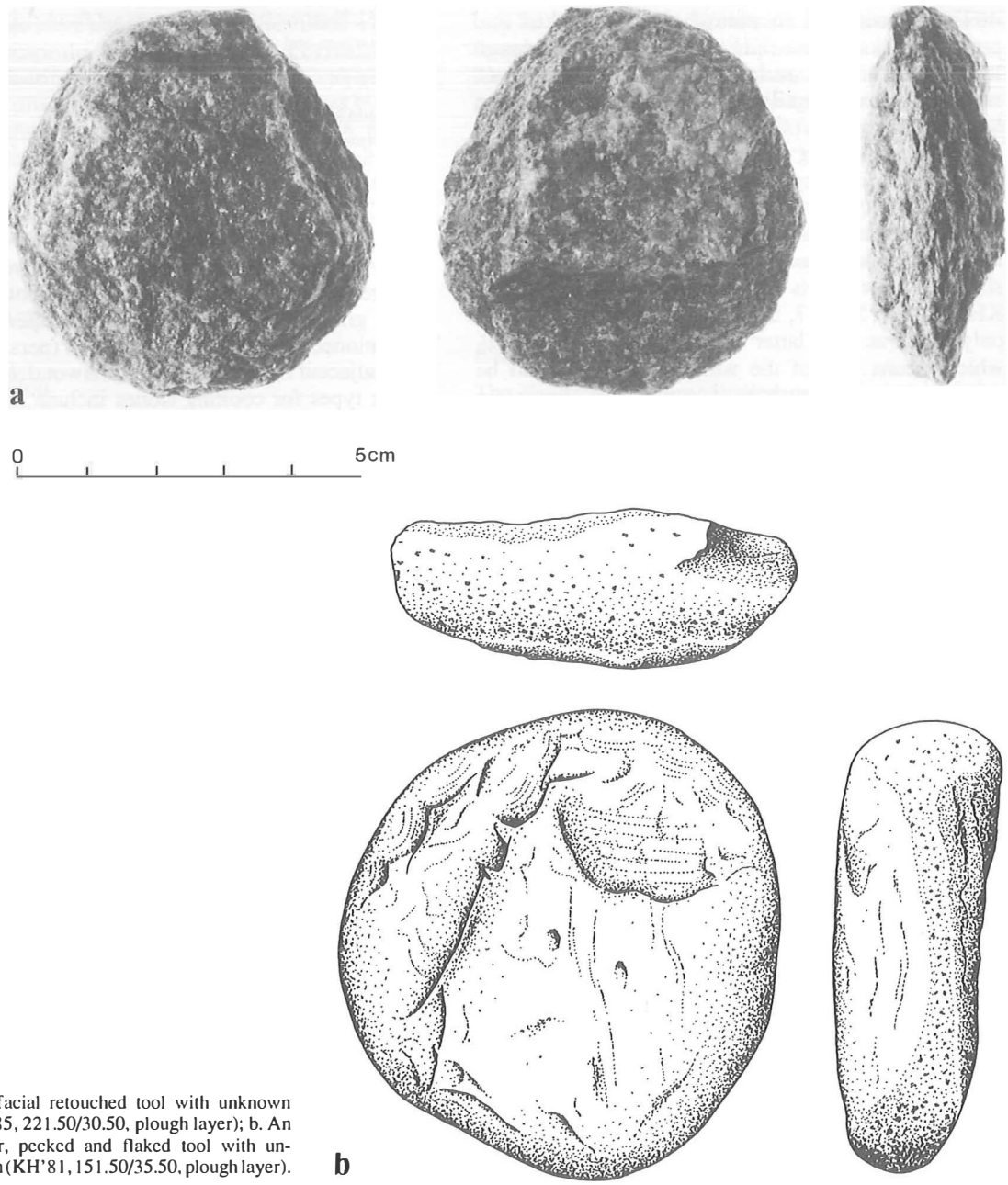

Fig. 18. a. Bifacial retouched tool with unknown function (KH'85, 221.50/30.50, plough layer); b. An almost circular, pecked and flaked tool with unknown function (KH'81, 151.50/35.50, plough layer).

However, on the basis of a polished surface and the rock type, four small fragments are assumed to be derived from these tool types. One of them (KH'81, 142.50/23.50, plough layer) probably belonged to a tool with a rectangular cross-section and rounded corners, apparently a *Fels-Rechteckbeil* (Brandt, 1967). Part of its surface was pecked, judging from the traces of hammering. This technique is frequently used in fabricating battleaxes and axes (cf. Semenov, 1964: p. 66).

2.8. Undetermined tool fragments and possible tool fragments

Several fragments with traces of hammering are too small to be attributed to certain tool types. In the case of smoothened or polished fragments from undetermined tool types, it can at least be stated they do not derive from hammer stones.

One worked stone (KH'85, 221.50/30.50, plough layer) is flat and almost circular and has a virtually complete bifacial retouch (fig. 18a), it also has a cutting edge; its function is unknown.

The function of an almost circular pecked and probably flaked stone (KH'81, 151.50/35.50, plough layer) also remains unclear (fig. 18b). Its shape and working traces are similar to those of the circular quern upper stone shown in figure 1. However, it has no flat, smoothened working surface. In view of the rock type – quartzitic sandstone – it is also unlikely to be a quern roughout, as querns are usually found to be made of granites and gneisses (section 3). It is also unlikely to be a hammer stone, because of its relatively large size. The size and shape of this tool are comparable to those of KH'82, 163.15/22.47, layer 2, whose function we can only guess at. The latter is longitudinally fractured, which means part of the working surface could be missing. The rim has traces of hammering, suggesting a discoid shape was intended. The intact long side displays traces of hammering, which could point to use as an anvil.

In the catalogue sixteen stones are described as possible tool fragments. Whether their surface has an artificial or natural origin is difficult to determine, particularly as some of them have a weathered surface.

2.9. Reuse

Several tools were apparently reused. A number of tools were probably reused as 'cooking stones', as indicated by cracks and discoloring due to heat (fig. 19). It is notable that the majority of the stones with these characteristics are of granite or related rock types (table 2). Experiments carried out by Beuker (1989), have shown that these rock types are unsuitable for use as cooking stones, since they disintegrate quite quickly. It is more likely that the Kolhorn 'cooking stones' of these rock types were actually intended as pottery temper (cf. ten Anscher, 1990: p. 50 for the Middle Bronze Age site Vogelenzang). A survey of the Kolhorn pottery revealed that granite was used as pottery temper, a fact also mentioned by van Iterson Scholten (pers. comm.) for the adjacent Late SGC site at Aartswoud. More suitable rock types for cooking stones include sandstone and quartzite. They are more robust than granites and related rock types (Beuker, 1989: p. 160). The possibility that sandstones and quartzites from Kolhorn, bearing only traces of burning were used as cooking stones cannot, therefore, be excluded.

Table 2. Number of stones with cracks and discoloring of, respectively, the northern and southern site.

Rock type	Northern	Southern	Total
Granitic and gneissic rocks	8	4	12
Sandstone and associated rocks	11	0	1

A stone classified as a rubbing stone (KH'84, 225.50/48.50, cultural layer 3) is flaked, an unusual feature, perhaps indicating that it was reworked and reused. Judging from the traces of fabrication and use it could have been used as a hammer stone.

Two stones (KH'81, 149.50/27.50, plough layer and KH'81, 142.50/25.50, plough layer) are believed to be rubbing stones made from hammer stone fragments. Traces of hammering are not situated as usual on the rim, but on the curved side opposite the working surface.

A rubbing stone uncovered during a field survey in 1979 could have been reused as an anvil. This is indicated by a shallow pit in the centre of the rubbing surface.

Recent ethno-archaeological research has shown

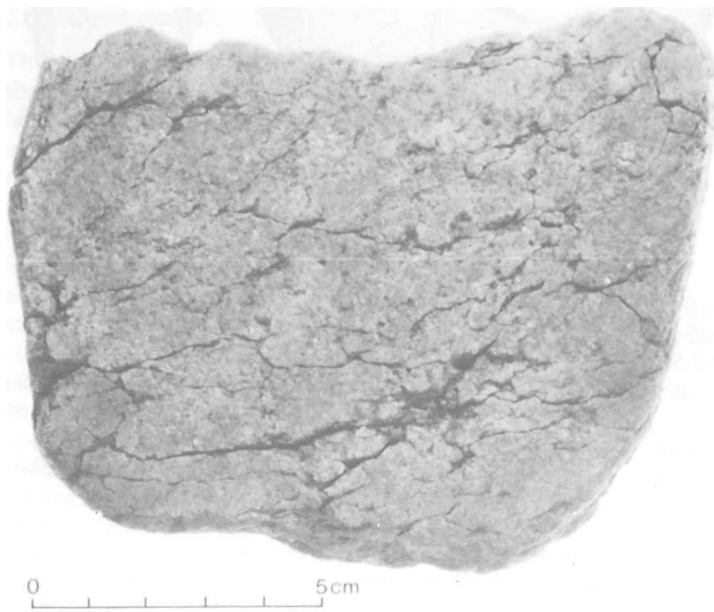

Fig. 19. Burnt quern fragment with cracks (KH'85, coordinates and layer unknown).

that querns can have other, secondary functions which may easily escape the archaeological eye. For instance, the Dogon, a tribe in Mali, reuse querns and quern fragments as drinking bowls for chickens and as bowls for the preparation of clay (J.D. van der Waals, pers. comm.). In other words, other utilisations of the Kolhorn querns are possible but cannot be recognized. In fact, the possibility of secondary use does not only apply to the querns, but also to all other tool types.

3. RAW MATERIAL

3.1. Description

The determination and classification of rock types has been based only on examination with the naked eye. This method proved satisfactory for recognizing and distinguishing different rock types present at Kolhorn and an additional thin section study was not required.

The artefacts comprise a restricted number of rock types with magmatic, metamorphic or sedimentary origins. The main body of the material is composed of several varieties of sandstone, quartzitic sandstone and quartzite. A second main group comprises different types of granite. The remaining rock types include gneisses and a few basic magmatic rocks such as gabbro and diorite; see table 3. Accessory rock types include amphibolite, schist, dolerite, and vein quartz.

Table 3. Rock types with their frequencies recognized in the Kolhorn tools of, respectively, the northern and southern site by macroscopic determination.

Rock type	Northern	Southern	Unknown
Sandstone	28	21	2
Quartzitic sandstone	14	5	2
Quartzite	2	3	–
Vein quartz	2	–	1
Granite, indeterminable	26	10	3
Leucogranite	12	3	–
Megacryst granite	1	–	–
Biotite granite	7	1	–
Muscovite granite	–	1	–
Hornblende granite	2	–	–
Mylonitic granite	1	–	–
Syenite	2	–	–
Gabbro?	2	1	–
Diorite	1	–	–
Gneiss	2	2	2
Banded gneiss	1	–	–
Biotite gneiss	5	1	–
Biotite amphibole gneiss	1	–	–
Amphibolite	1	–	–
Mica schist	–	1	–
Dolerite	1	–	–
Total	111	50	10

The sandstones and quartzitic sandstones have different range in colour, composition, and grain size. They were not therefore, quarried from one specific geological stratum. The same argument holds for the granites. The granites display different grain sizes and colorations; they have different compositions ranging from leucogranites to granites with significant quantities of mafic minerals such as biotite and amphibole.

Some of the artefacts show naturally rounded surfaces which provide evidence that these artefacts originate from pebbles and boulders.

3.2. Provenance

The Kolhorn sites are situated on tidal flat deposits, consisting of fine-grained sands and clays (Banga & van Dijk, 1979). Stones of the size of the studied artefacts do not occur naturally at and close to the sites. Therefore, all stone material, whether worked or unworked, must have been brought by man to the sites. The fact that some of the artefacts are derived from pebbles or boulders, and the fact that from a total of 171 stones, more than 20 different rock varieties are recognized provide evidence that they derive from a sedimentary deposit. The small moraine deposit at Wieringen (Zandstra, in press), situated at 15-20 km from Kolhorn, and on the isle of Texel (Zandstra, 1971) could have provided the raw material. These moraine deposits, composed of boulder-clay, contain pebbles and boulders which are large enough to produce querns and grinding stones. All rock types represented in the archaeological record of Kolhorn can be found in these deposits. So, it can be safely assumed that most of the raw material was gathered from these moraine deposits. The same conclusion is drawn for the SGC stone material from Aartswoud (van Iterson Scholten & de Vries-Metz, 1981: pp. 130-131). It is also emphasized that some of the smaller tools, for example the hammer stones, may have been made from pebbles found on the beaches of the North Sea estuary.

Although all rock types are available in the boulder clay area of Wieringen and Texel, other sources cannot be completely excluded. This applies particularly to the stones uses for the battleaxes and axes. These tool types were exchanged during the Neolithic. Jade axes (Schut et al., 1987) and the axes made of *Wiehengebirgslydit* (Beuker, 1990: pp. 21-22) were certainly exchanged in this period. An import of battleaxes has been mentioned by Addink-Samplonius (1968: pp. 236-238).

3.3. Lithology and tool type

Table 4 shows the relationship between tool types and rock types. It shows that all querns are made of granitic and gneissose rocks. Querns from the SGC site Aartswoud were also mainly manufactured from granite and gneiss (van Iterson Scholten & de Vries-Metz, 1981: pp. 131-132). A preference for granite is also

Table 4. Relation between tool type (minimum numbers) and rocktype of. respectively. the northern and southern site. The numbers also include the determinations with the adjectives 'probable' and 'possible'; see cataloque.

Tool type	Rock type	Northern	Southern	Unknown
Querns	Granite	23	4	2
	Gneiss	5	2	2
	Syenite	1	–	–
Hammer stones	Sandstone	5	5	1
	Quartzitic sandstone	3	2	–
	Quartzite	2	1	–
	Vein quartz	–	–	1
	Granite	3	–	–
	Schist	–	1	–
Rubbing stones	Sandstone	4	1	1
	Quartzitic sandstone	2	1	–
	Quartzite	–	1	–
Grinding stones	Sandstone	5	2	1
	Quartzitic sandstone	1	–	–
Cubic stones	Sandstone	1	2	–
	Quartzitic sandstone	2	1	1
Axes/battleaxes	Gabbro?	1	–	–
	Dolerite	1	–	–
	Amphibolite	1	–	–

known from other areas in the Netherlands (cf. Beuker, 1990: p. 13; Harsema, 1979).

Hammer stones are principally of sandstone, quartzitic sandstone and quartzite. Sandstone and quartzite hammer stones also occur frequently at Aartswoud (van Iterson Scholten & de Vries-Metz, 1981: p. 132; Beuker, 1990: p. 11). These rock types are suitable for hard percussion, because of their tough nature. The granite hammer stones do not exhibit damaged ends in the form of flake negatives typical of the sandstone, quartzitic sandstone and quartzite specimens. The schist hammer stone is an exception. This rock type is unsuitable for the manufacture of hammer stones, since it fractures easily along the schistosity.

The rubbing stones are of sandstone. This rock type is also mentioned as raw material for specimens from Aartswoud (van Iterson Scholten & de Vries-Metz, 1981: p. 132). Beuker (1990: p. 11) also mentions the use of these rock types for the fabrication of these tools. Cubic stones are made from sandstone and quartzitic sandstone. The same rock types were also used for Iron Age specimens from the Meuse delta (Kars & Kars, in press).

Grinding stones are made from a variety of sandstones. A similar observation was made in a study of grinding stones from the province of Friesland (Fokkens & Schinkel, 1990. The use of sandstone for grinding stones is also mentioned by Beuker (1990: p. 11).

Battleaxes and axes from Kolhorn are made from tough and hard rock types. This is in accordance with material from other areas of the Netherlands (cf. Addink-Samplonius, 1968; Beuker, 1990; Beuker et al., in prep.; Schut, 1991: table 4 and 5).

It may be concluded that the relationships seen between rock and tool types at Kolhorn do not deviate from those reported from other areas from the Netherlands.

4. DISTRIBUTION

4.1. General remarks

From a paleogeographical map (fig. 20) it can be seen that the Kolhorn sites are situated on levees and adjacent to a creek with a more or less N-S trend. The creek was probably inactive during the time of inhabitation (Banga & van Dijk, 1979). In 1973 the tops of the levees were levelled and a large part of the layer was shoved into a ditch (van der Waals, 1989a). The remaining layer was destroyed by subsequent ploughing. It is possible that many artefacts may have been removed from the site during levelling.

During the excavations very little attention was paid to the stratigraphy of the layer, drawings were only produced from sections of the working units, generally measuring 10x10 m. Further, the stratigraphy on the levees was, as mentioned above, disturbed. Only the border zones remained relatively intact. This meant that it was very difficult to take the vertical distribution of the finds into account. The creek area was better protected being covered by a layer of peat and then clay. However, erosion of the western slope of the creek probably lead to the redistribution of artefacts in that area. The possibility that the stratigraphical positions of (part of) the finds in the creek do not represent a chronological sequence can, therefore, not be excluded.

Unfortunately, due to many restrictions and

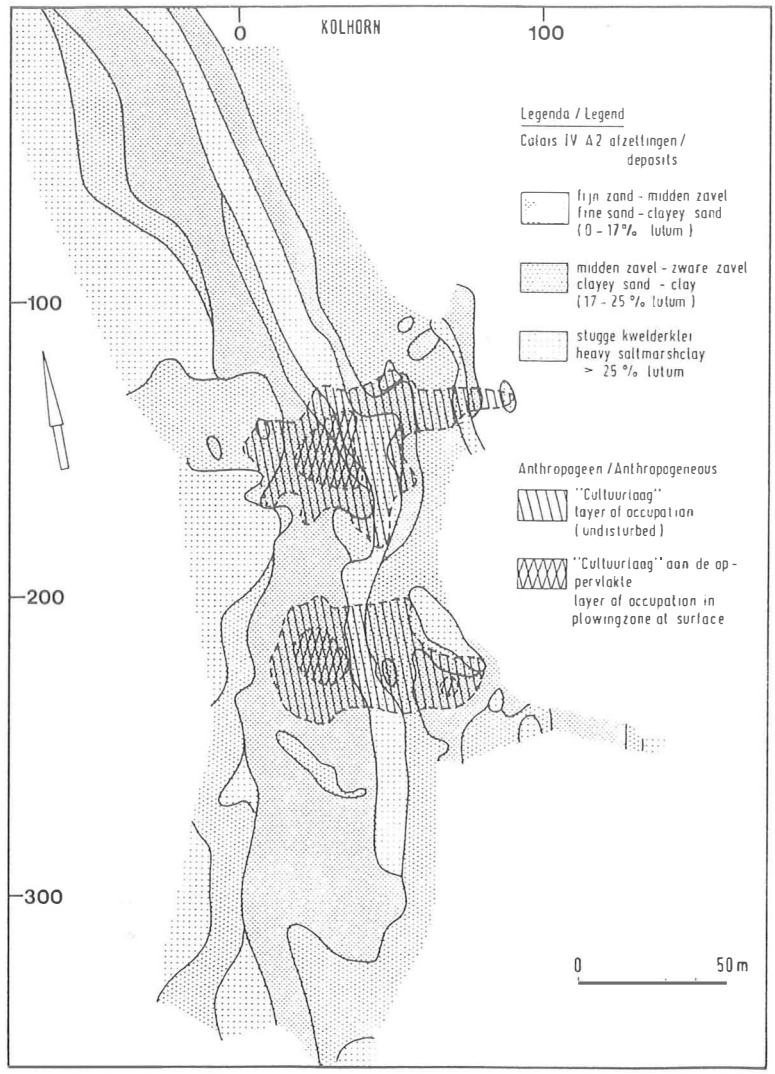

Fig. 20. Palaeogeographical map showing the situation of the Kolhorn sites on the levees (fine sand-clayey sand) along the more-or-less N-S orientated creek (heavy saltmarshclay). After Banga & van Dijk (1979).

uncertainties imposed by both the excavation methods used and post depositional processes only general statements can be made regarding the distribution of the artefacts.

4.2. The northern site

A distribution map of the northern site (fig. 21) shows that the tools were found mostly on the levelled part of the levee and in the creek. The number of finds decreases towards the borders of this area, particularly in working unit 1. A similar pattern is also observed for the flint artefacts (P.H. Deckers, pers. comm.). The main occurrence of complete tools on the levee suggests that activities were concentrated within this area (fig. 22). This is supported by the distribution of postholes (Kielman, 1986: fig. 3). The concentration of damaged and broken tools in the creek suggests that this served as a refuse area. The same probably holds for the direct surroundings of the levelled levee. Discarded tools and tool fragments were apparently not disposed of regularly in rubbish pits. Only one pit yielded a fractured quern. The horizontal distribution of burnt tools is similar to that of the unburnt tools and tool fragments (fig. 22).

In general the horizontal distributions of the different tool types seems to coincide as shown in figure 21. The cluster of finds in the creek area of working unit 9 is notable consisting of two complete querns (upper stones), several large quern fragments, a complete hammer stone and a complete cubic stone plus other broken tools. This cluster probably represents a storage and/or a dumping area.

A zone in the western part of the creek lacks stone finds (fig. 21). One explanation of this could be that erosion transported the tools and their fragments from the higher western part of the creek to the lower eastern area. The number of flints from this zone is relatively low (P.H. Deckers, pers. comm.).

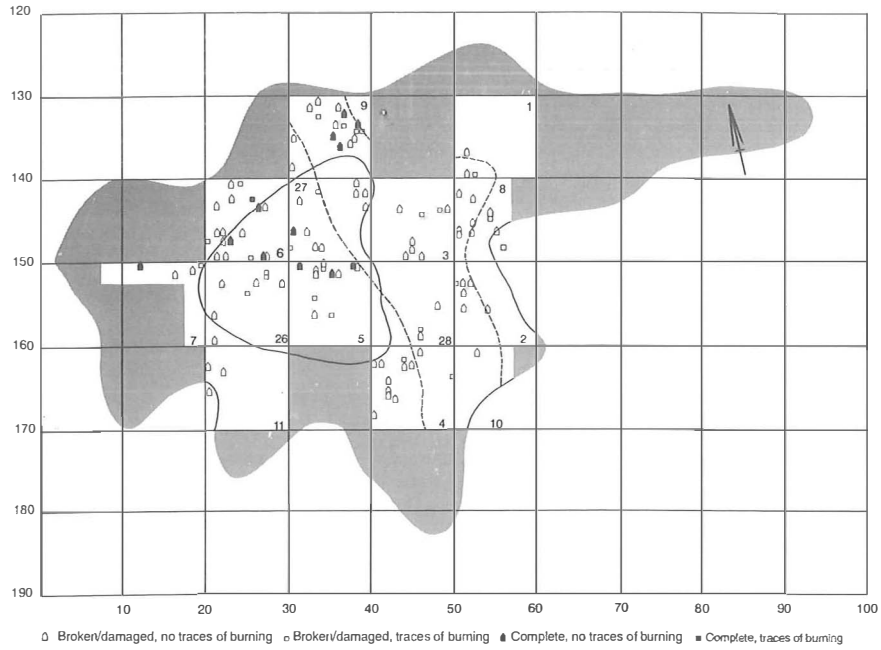

Fig. 21. Distribution map of the stone tool types from the northern site of Kolhorn. The creek is indicated by the dotted line. The unbroken line indicates the area disturbed by levelling and ploughing. Black symbolizes the part of layer unexcavated. The map includes the tool types with the adjectives 'probable' and 'possible'; see catalogue.

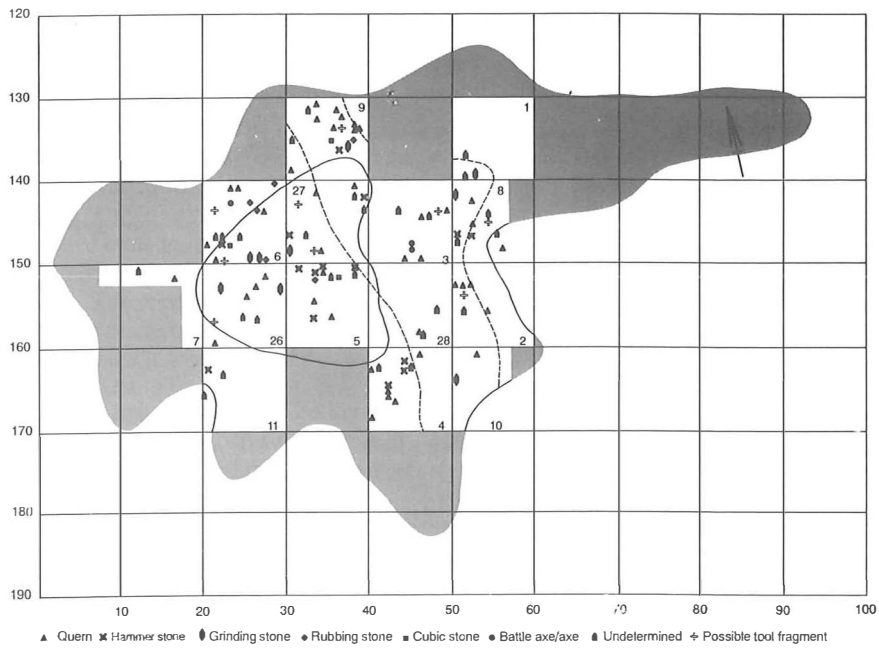

Fig. 22. Distribution map of complete, broken/damaged, unburnt and burnt stone tools in the northern site of Kolhorn. The creek is indicated by the dotted line. The unbroken line indicates the area disturbed by levelling and ploughing. Black symbolizes the part of layer unexcavated.

It was possible to refit several quern fragments or, attribute non-fitting fragments to the same stone. Several non-fitting fragments were found to derive from two grinding stones. Two fragments could be attributed to the same battleaxe or axe. Finally, a flake could be refitted to a hammer stone. No fragments of tools from the northern site could be refitted to fragments from the southern site. The same holds for fragments which are assumed to be derived from the same tool. Therefore, the northern and the southern sites could be two (chronological, social and/or economic) separate entities.

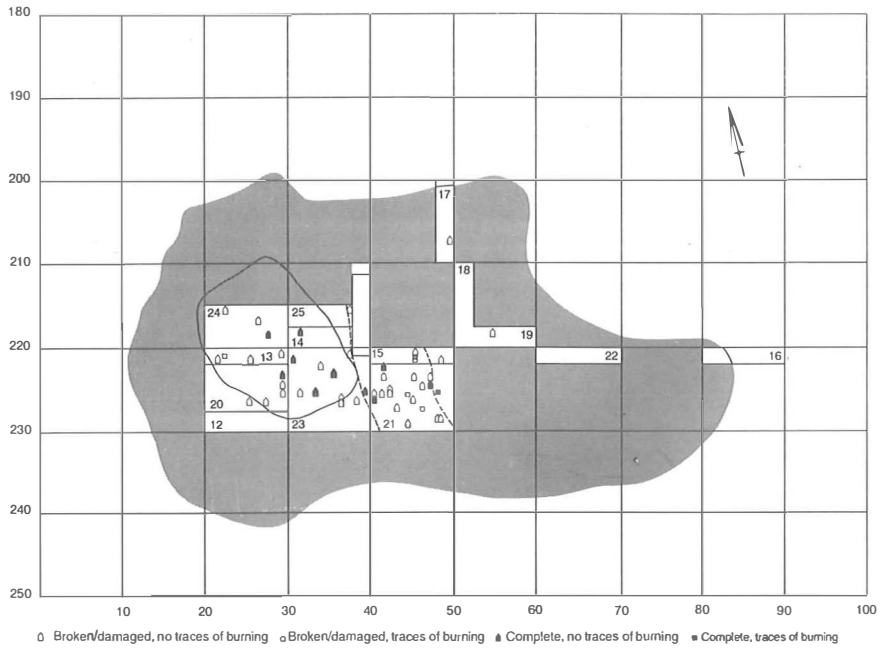

Fig. 23. Distribution map of the stone tool types in the southern site of Kolhorn. The creek is indicated by the dotted line. The unbroken line indicates the area disturbed by levelling and ploughing. Black symbolizes the part of layer unexcavated. The map includes the tool types with the adjectives 'probable' and 'possible'; see catalogue.

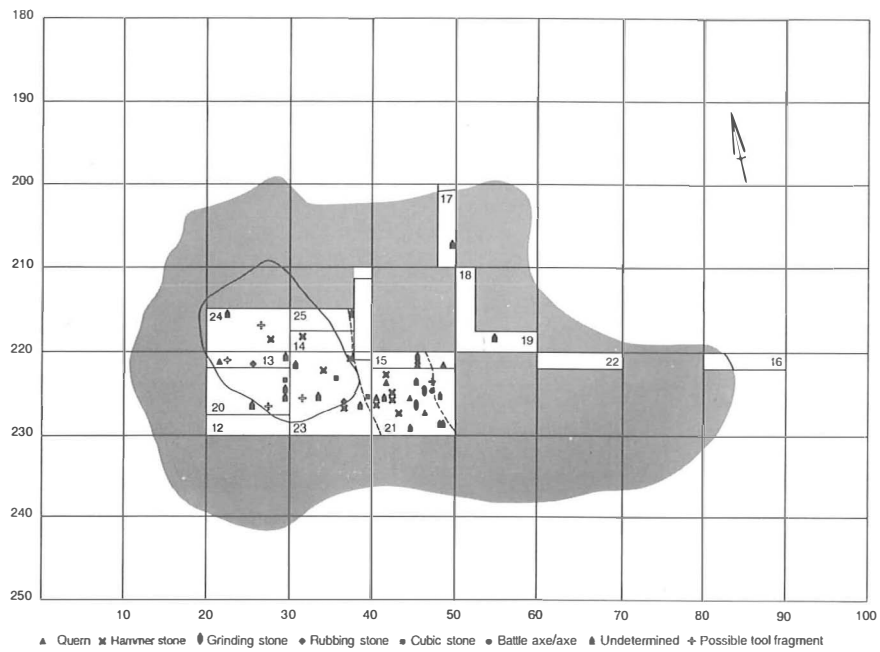

Fig. 24. Distribution map of complete, broken/damaged, unburnt and burnt stone tools in the southern site of Kolhorn. The creek is indicated by the dotted line. The unbroken line indicates the area disturbed by levelling and ploughing. Black symbolizes the part of layer unexcavated.

4.3. The southern site

The stone tools from the southern site, as with those from northern site, are found principally on the levelled levee and in the creek. In general, the distribution of tool types, seems random (fig. 23). On the basis of the distribution patterns from the northern site it is assumed that the levee has been used as the activity area and the creek as a refuse area. It is also assumed that the complete tools from the creek represent discarded material. Some subtle distribution patterns may, however, be present; cubic stones and some of the hammer stones tend to be distributed differently from grinding stones. This is probably the result of different

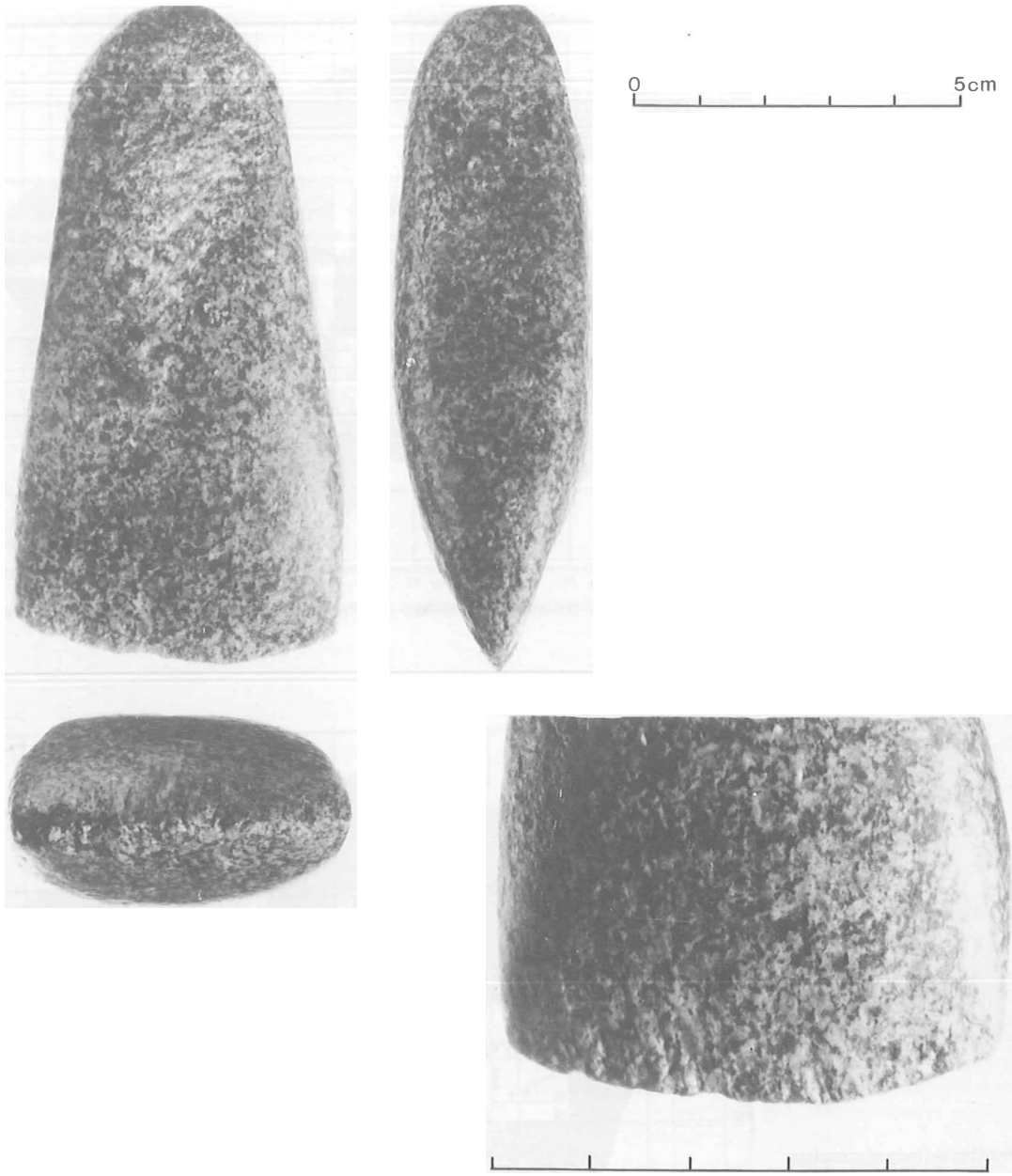

Fig. 25. Axe found prior before 1979, probably at one of the Kolhorn sites. Note the grooves at the cutting edge.

deposition processes. The grinding stones are fragmented and were probably thrown away in the creek. It is presumed that the cubic and hammer stones were left at their place of use. The horizontal distribution of burnt tools seems to be similar to that of the unburnt tools and tool fragments (fig. 24). Refitting does not reveal additional information, since only two fragments could be attributed to the same tool. Fractured or damaged hammer stones were found in three pits.

5. CONCLUSION AND FINAL REMARKS

The non-flint stone tools from two Late Neolithic sites at Kolhorn comprise a variety of types: querns, hammer stones, rubbing stones, grinding stones, 'cubic stones', and battleaxes or axes. Together with other finds they indicate that both sites were settlements with multiple functions.

From observation it seems that a pecking technique was most commonly used to produce the tools. This has also been noted by several other authors (cf. Beuker,

1990: pp. 35-36; Hahn, 1991: p. 228; Semenov, 1964: p. 68). Intentional smoothening and polishing is only known for querns and battleaxes/axes, while shaping by flaking appears to be incidental.

The deliberate roughening of the working surfaces is typically seen in querns and rubbing stones. This feature proved to be a useful criterion – in combination with the size, shape and rock type – by which to distinguish on the one hand grinding stones from querns and, on the other, grinding stones from rubbing stones. Fragments of battleaxes/axes are recognized by considering the rock type and traces of working. Cubic stones were distinguished by their characteristic shape, and also by the large number of hammering traces on their surfaces. Tools were classified as hammer stones on the basis of the presence of traces of hammering only.

Querns and hammerstones are most frequently found, and are, therefore, assumed to have been utilized for the most regular and frequently occurring activities. The scarcity of battleaxes/axes may indicate that these tools were regarded as valuable items.

The occurrence and distribution of the tool types distinguished in both sites does not point directly to economic, social or chronological differences between the sites. The presence of a relatively large number of fragmented and burnt artefacts suggests that the majority of the tools are settlement refuse. From distribution patterns it appears that the creek was used for refuse disposal, other discarded material is found on the living floors and only rarely in rubbish pits.

There seems to be a correlation between rock type and tool type. This is probably determined primarily by the intrinsic properties of the rock in relation to the function of the tool. This correlation indicates that the inhabitants of the Kolhorn sites were familiar with the physical properties of the locally available rock types.

The origin of the great majority of the raw material is probably the boulder clay deposits of Wieringen or, less probably, similar deposits occuring on Texel. However, some of the material could have been derived from nearby beaches.

6. ACKNOWLEDGEMENTS

During the preparation of this article we received support from several persons. We thank Prof.dr. J.D. van der Waals for permission to publish this material and for helpful advice.

Further, R.D. McDonnell (R.O.B., Amersfoort) for his useful comments on the text and petrological aspects. Thanks to J. Hulst (R.O.B.) and J.H. Zwier (B.A.I.) for the drawings and F. Hoedemans (R.O.B.) for the photographs. Further, the following persons are thanked for interesting discussions and providing information: G. Alders (Haarlem), P.M. Banga (Utrecht), J.R. Beuker (Assen), P.H. Deckers (Amersfoort), W.J.H. Hogestijn (R.O.B. Amersfoort), F.R. van Iterson Scholten (I.P.P., Amsterdam), Prof.dr. K. Kvamme (University of Arizona), A.E. Lanting (Groningen), J.N. Lanting (B.A.I., Groningen), W.H. Metz, (I.P.P., Amsterdam), H. van der Mey (Hoogwoud), Dr. A.D. Verlinde (R.O.B., Amersfoort), and P.J. Woltering (R.O.B., Amersfoort).

7. NOTES

1. The R.O.B. is presently carrying out a research programme into Late Neolithic sites, mainly of the Single Grave Culture, in North Holland (Hogestijn & Woltering, 1990).
2. The so-called cubic stones apparently were used during a long

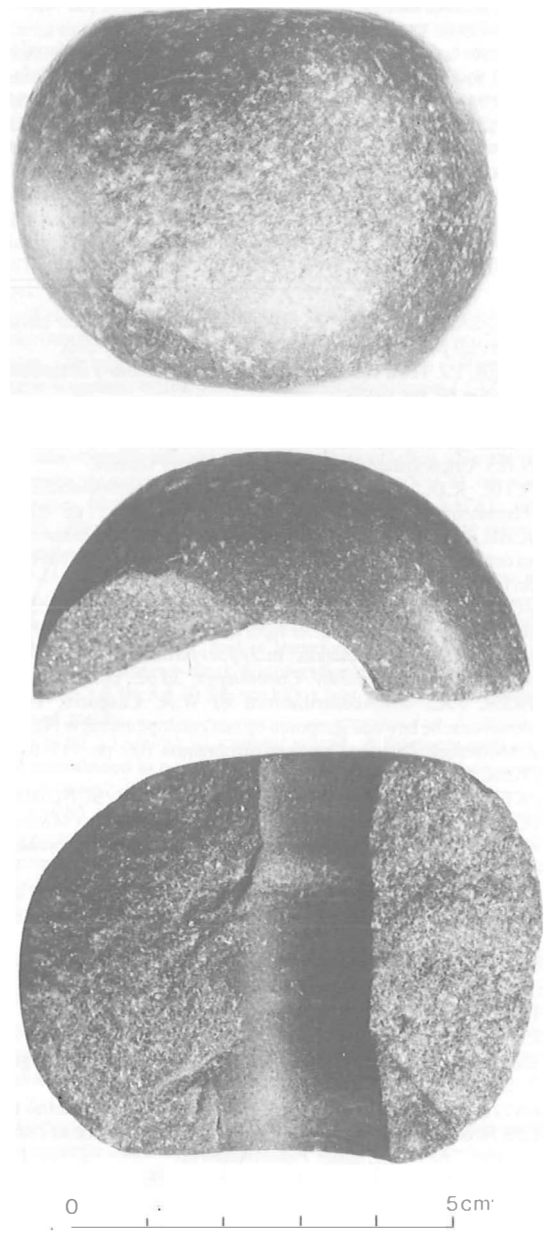

Fig. 26. Mace head, found before 1979, probably at one of the Kolhorn sites.

period of time. Apart from the Late Neolithic specimens from Kolhorn, cubic stones are known from the Bronze Age, the Iron Age and the Roman Period. Stray finds are known from (early-) medieval sites.

3. According to H. van der Mey, a local amateur archaeologist at Hoogwoud (pers. comm.), an axe (fig. 25) and half of a mace head were most probably discovered by a local amateur archaeologist, A. Donker, at the Kolhorn sites. Using the typology of Brandt (1967) the axe is classified as a *Fels-Rechteckbeil*. It is made of greenish black-grey, medium-grained gabbro. Traces of pecking are visible at and around the top, while the axe itself has been ground. The area near the cutting edge has parallel grooves which run obliquely to the long axis of the axe on both sides. These are considered as use wear similar to that described by Semenov (1964: p. 64, 2 and 3) and are assumed to be due to cutting wood. The blunted cutting edge displays microfractures which also could be due to use. The distribution pattern of the grooves and the asymmetrical cutting edge suggest that the stone was indeed shafted as an axe (cf. Semenov, 1964: pp. 126 ff.).
The mace head of a dark green dolerite has a cilindrical perforation which was made in several stages (fig. 26). This type of artefact is known from several other branches of the Battle Axe cultures/ Corded Ware cultures (f.e. Denmark: Glob, 1945; Schleswig-Holstein: Struve, 1955; Bohemia: Buchvaldek, 1967). The axe as well as the mace head are in the collection of a local museum in Hoogwoud.

8. REFERENCES

ADDINK-SAMPLONIUS, M., 1968. Neolithische stenen strijdhamers uit Midden-Nederland. *Helinium* 8, pp. 209-240.

ANSCHER, T.J. TEN, 1990. Vogelenzang, a Hilversum-1 settlement. *Helinium* 29, pp. 44-78.

BANGA, P.M. & P.J.A.M. VAN DIJK, 1979. Verslag van een kwartair-geologisch onderzoek in de omgeving van Kolhorn (N.H.). Unpublished M.A. thesis, University Utrecht.

BAUCHE, R.D., 1984. Untersuchungen an jungsteinzeitlichen Felsgesteingeräten. *Archäologische Informationen* 7, pp. 40-43.

BAUCHE, R.D., 1984-1986. Die Anwendung von Rauheitsmessungen bei der Untersuchung von Neolithischen Mahl- und Schleifsteinen. *Early Man News* 9/10/11, pp. 51-67.

BAUCHE, R.D., 1988. Gebrauchsspuren an neolithischen Mahlsteinen. *Archäologische Informationen* 11, pp. 152-155.

BERG, H., 1973. Yngre stenalder. In: *Jeg ser på oldsager, 880 danske oldsager i tekst og billeder*. Copenhagen, 3d ed., pp. 70-151.

BEUKER, J.R., with contributions of W.A. Casparie, 1989. Mesolithische bewoningssporen op een zandopduikingte Nieuw-Schoonebeek. *Nieuwe Drentse Volkalmanak* 106, pp. 117-186.

BEUKER, J.R., 1990. *Werken met steen*. Assen.

BEUKER, J.R., E. DRENTH, A.E. LANTING & P. SCHUDDEBEURS, in prep. Stenen hamers en bijlen uit het Drents Museum te Assen. Enkele opmerkingen m.b.t. gesteentesoort en verspreiding (preliminary working title). *Nieuwe Drentse Volksalmanak*.

BRANDT, K.H., 1967. *Studien über steinerne Äxte und Beile der jüngeren Steinzeit und der Stein-Kupferzeit Nordwestdeutschlands*. Hildesheim.

BUCHVALDEK, M., 1967. *Die Schnurkeramik in Böhmen*. Praag.

DECKERS, P.H., 1985. Coded Culture. Studies in Neolithic flint. Part I. *Palaeohistoria* 27, pp. 131-184.

DRENTH, E. & A.E. LANTING, 1991. De chronologie van de Enkelgrafcultuur in Nederland: enkele voorlopige opmerkingen. *Paleo-aktueel* 2, pp. 42-46.

DRENTH, E. & H. PIENA, in prep. Perforated ornaments from the Late Neolithic sites Aartswoud and Kolhorn, Province of North Holland, The Netherlands. *Palaeohistoria*.

FIEDLER, L., 1979. *Formen und Technik neolithischer Steingeräte aus dem Rheinland* (= Beiträge zur Urgeschichte des Rheinlandes III). Bonn, pp. 53-190.

FOKKENS, H. & C. SCHINKEL, 1990. Neolithische slijpstenen uit de provincie Friesland. *De Vrije Fries* 70, pp. 39-52.

GLOB, P.V., 1945. Studier over den Jyske Enkeltgraveskultur. *Aarbøger for Nordisk og Historie*, pp. 1-283.

GROENEWOUDT, B.J., 1987. Een IJzertijd-nederzetting aan de Schipbeek bij Colmschate (Gem. Deventer) – de mobilia. Unpublished MA-thesis, University of Amsterdam.

HAKBIJL, T., J.P. PALS & C.D. TROOSTWIJK, 1989. Plant and insect remains from the Late Neolithic well at Kolhorn. *Palaeohistoria* 31, pp. 157-163.

HAHN, J., 1991. *Erkennen und Bestimmen von Stein- und Knochenartefakten. Einführung in die Artefaktmorphologie* (= Archaeologica Venatoria 10). Tübingen.

HARSEMA, O.H., 1979. *Maalstenen en Handmolens in Drenthe van het Neolithicum tot ca. 1300 A.D.* (= Museumfonds van het Provinciaal Museum te Assen, publicatie nr. 5) Zwolle.

HOGESTIJN, W.J & P.J. WOLTERING, 1990. "Het woiffie van Soibekarspel": een Laat-Neolithisch vrouwengraf te Sijbekarspel. *West-Frieslands oud en nieuw* 57, pp. 152-164.

ITERSON SCHOLTEN, F.R. VAN & W.H. DE VRIES-METZ, 1981. A Late Neolithic settlement at Aartswoud I. *Helinium* 21, pp. 105-134.

KARS, E.A.K. & H. KARS, in press. Natuursteen uit IJzertijdvindplaatsen in het Maas mondgebied. *Boor-balans* 2.

KIELMAN, D., 1986. The postholes of Kolhorn (Northern Site): prelimiary data abalysis and pattern recognition. In: H. Fokkens, P.M. Banga & M. Bierma (eds), *Op zoek naar mens en materiële cultuur*. Groningen, pp. 21-35.

LANTING, J.N., 1981. Barsingerhorn: Kolhorn. In: P.J. Woltering, Archeologische kroniek van Holland over 1980, I: Noord-Holland. *Holland* 13, pp. 204-205.

MADSEN, B., 1984. Flint axe manufacture in the Neolithic: Experiments with grinding and polishing of thin-butted flint axes. *Journal of Danish Archaeology* 3, pp. 47-62.

NIKLEWICZ-HOKSE, A.T.L., 1990. Voorlopig verslag van het onderzoek naar de schelpconcentraties in de Laat-Neolithische vindplaats Kolhorn, provincie North Holland. In: A.T.L. Niklewicz-Hokse & C.A.G. Lagerwerf (eds), *Bundel van de Steentijddag 1 april 1989*. Groningen, pp. 122-136.

SCHELVIS, J., 1989. Mites (Acari) from the Late Neolithic well at Kolhorn (the Netherlands). *Palaeohistoria* 31, pp. 165-171.

SCHÖN, W. & U. HOLTER, 1988. Zur Gebrauch von Reib- und Mahlsteinen in der Ostsahara (1). *Archäologische Informationen* 11, pp. 156-160.

SCHUT, P., 1991. *Een inventarisatie van neolithische bijlen uit Gelderland, ten noorden van de Rijn* (= Nederlandse Archeologische Rapporten 11). Amersfoort.

SCHUT, P., H. KARS & J.M.A.R. WEVERS, 1987. Jade axes in the Netherlands: A preliminary report. *Helinium* 27, pp. 71-87.

SEMENOV, S.A., 1964. *Prehistoric technology. An experimental study of the oldest tools and artefacts from traces of manufacture and wear*. London.

SHEA, J.J., 1991. The behavioral significance of Levantine Mousterian industrial variability. Unpublished thesis, Harvard University Cambridge, Massachusetts.

STRUVE, K.H., 1955. *Die Einzelgrabkultur in Schleswig-Holstein und ihre konitinentalen Beziehungen*. Neumünster.

TEEGEN, W.R., E. HELLMICH & G. SCHULZ, 1990. Getreidemahlen auf einer Trogmühle. In: *Experimentele Archäologie in Deutschland*. Oldenburg, pp. 113-121.

WAALS, J.D. VAN DER, 1989a. Excavation of two Beaker domestic sites near Kolhorn. General introduction. *Palaeohistoria* 31, pp. 139-149.

WAALS, J.D. VAN DER, 1989b. Kolhorn, Southern site: the well. General description. *Palaeohistoria* 31, pp. 151-156.

WATERBOLK, H.T., 1960. Preliminary report on the excavations at Anlo in 1957 and 1958. *Palaeohistoria* 8, pp. 59-90.

WILLMS, C., 1980. *Felsgesteinartefakte der Cortaillod-Schichten* (= Die neolithischen Ufersiedlungen von Twann 9). Bern.

ZANDSTRA, J.G., 1971. De zwerfstenen van Texel. *Texel* 4, pp. 2-7.

ZANDSTRA, J.G., in press. Zwerfstenen en tellingen van kristallijne gidsgesteenten. In: M. Rappol (ed.), *Keileem en Zwerfstenen op Wieringen-Hyppolitushoef*. Wieringen.

ZEILER, J.T., 1989. "Them wet bones...". Faunal remains from the Late Neolithic well in Kolhorn. *Palaeohistoria* 31, pp. 173-175.
ZIMMERMANN, K., 1973. Handmühlen, Schlag- und Schleifsteine sowei weitere Felsgesteinmaterialfunde mit Bearbeitungs- oder Benützungsspuren aus Seeberg, Burgäschisee-Süd. In: H.G. Bandi, E. Sangmeister, Ch. Strahm & H. Zimmermann, *Seeberg, Burgäschisee-Süd; Steingeräte und Kupferfunde* (= Acta Bernensia II, Teil 6). Bern, pp. 149-188.
ZUURDEEG, B.W., Y.M.A. COENEGRACHT, J. VAN DER WAL & J.J. REIJNDERS, 1989. Geochemical investigation of the Late Neolthic well of Kolhorn (province of North Holland). *Palaeohistoria* 31, pp. 177-190.

CATALOGUE

The information in this catalogue is arranged systematically as follows:

– sites (abbreviated to KH) and year of excavation;
– coordinates of the excavated square;*
– stratigraphic layer from which the artifact was recovered;**
– a brief description, if possible including a determination;***
– measurements are given using the subsequent abbreviations: L: greatest length, W: greatest width, T: greatest thickness, wt: weight. Lengths, widths and thicknesses are given in centimetres and weights in grams;****
– the coloration and lithology are then listed.

* The locations of the finds are indicated by the coordinates for the centre of the square metre from which they were excavated, e.g. 135.50/35.50. Only in a few cases were the find locations measured more precisely, using the exact X and Y coordinates of the find itself. No site coordinates or stratigraphic information are given for material found during field surveys for obvious reasons.

** The following stratigraphic subdivisions were defined. A main division was drawn between the plough layer and the cultural layer. An arbitrary subdivision of the cultural layer into strata of 10 cm was made. These are numbered 1, 2, 3, etc. the number of layers at any given part of the site is dependant on the local thickness of the cultural layer.

*** All fractures are considered to have a prehistoric origin unless otherwise stated.

**** Fragments which are considered as flakes are measured using the method described by Deckers (1985: p. 136).

KH'79, field survey 10-4. A cube-shaped stone with traces of hammering found on the short ends, ribs and corners, covering approx. 60% of its outer surface. The presence of two pitted sides may indicate its use as an anvil. A cubic stone. L: 5.6, W: 4.9, T: 4.2, wt: 210. Grey, fine- to medium-grained quartzitic sandstone.

KH'79, field survey 10-4. A rounded tool partly recently(?) damaged. The broad rim bears traces of hammering, while one of the large sides is slightly smoothened and has an artificially pitted centre (??). A rubbing stone, also used as an anvil(?). L: 4.3, W: 4.1, T: 3.1, wt: 86. Pinkish-grey very fine-grained sandstone.

KH'79, field survey 10-4. A partly damaged, block-shaped grinding stone with a slightly concave, evenly polished surface. A large central part of this surface displays a mirror-like polish (??). One side is artificially flaked. L: 20.5, W: 17.1, T: 8.3, wt: 3514. Grey to ochreous grey, medium- to fine-grained, slightly banded quartzitic sandstone.

KH'80, 136.50/51.50, cultural layer, sublayer unknown. A fragment (flake?) with one partly smoothened dorsal side. L: 6.7, W: 5.1, T: 1.9, wt: 70. Light-grey, fine-grained granite.

KH'80, 139.50/51.50, layer unknown. A flake with traces of hammering around the striking platform and the dorsal side. This side has probably been smoothened. The fragment of a rubbing stone? Perhaps derived from the same tool as KH'82, 134.50/30.50, cultural layer 2. L: 5.8, W: 7.6, T: 2.4, wt: 92. Brownish-grey, medium-grained quartzitic sandstone.

KH'80, 139.50/52.50, layer unknown. A fragment with one polished flat side, displaying a mirror-like gloss. This surface has clearly parallel, macroscopically visible scratches, running oblique to the long axis; this part of the stone is also discolored blackish, probably due to heat. A part of a grinding stone. L: 12.2, W: 6.4, T: 2.8, wt: 307. Grey, partly blackened (discolored), fine-grained quartzitic sandstone.

KH'80, 143.50/43.50, cultural layer 1. A flake with a smoothened to polished dorsal side and one smoothened, adjacent short side. L: 3.0, W: 5.3, T: 1.2, wt: 20. Light-grey, fine-grained leucogranite.

KH'80, 143.50/49.50, cultural layer 2. A flake bearing a flake negative covering approx. 40% of the dorsal side. The remaining part of this side is covered with traces of hammering, possibly alternating with smoothened areas. L: 5.7, W: 4.3, T: 1.1, wt: 34. Dark-grey, fine-grained quartzitic sandstone.

KH'80, 144.50/46.50, cultural layer 3. A fragment with one flat, smoothened side alternating with traces of hammering. Probably part of a quern with traces of roughening. Partly discolored black by fire. L: 10.4, W: 8.1, T: 5.7, wt: 510. Reddish-grey to secondary blackish, fine-grained biotite gneiss.

KH'80, 147.50/45.50, cultural layer 3. A flake, approx. 50% of its dorsal side is polished with a mirror-like gloss, the remaining part is made up of a flake negative. From consideration of the rock type and traces of working this is assumed to be a fragment of an axe or battleaxe. Derived from the same tool as KH'80, 148.50/45.50, cultural layer 2. L: 1.4, W: 1.3, T: 0.4, wt: 1. Black rock, probably gabbro.

KH'80, 148.50/45.50, cultural layer 2. A broken flake with a polished dorsal side displaying a mirror-like gloss. From consideration of the polished surface and rock type this flake is regarded as a fragment of an axe or battleaxe. Derived from the same tool as KH'80, 147.50/45.50, cultural layer 3. L: 1.5, W: 0.8, T: 0.3, wt: < 1. Black rock, probably gabbro.

KH'80, 149.50/44.50, cultural layer 3. An irregular, angular fragment with one flat side having alternating polished and hammered areas. The adjacent rim bears traces of hammering. A fragment of a quern fragment, which possibly has been roughened. L: 7.0, W: 5.7, T: 3.6, wt: 175. White-grey, fine- to medium-grained granite.

KH'80, 149.50/46.50, cultural layer 4. A rim fragment with one flat, smoothened side and a curved and smoothened adjacent rim. A fragment of a quern. Derived from the same tool as KH'81, coordinates unknown, plough layer (with L: 5.2) and possibly KH'81, 140.50/23.50, plough layer. L: 5.8, W: 5.8, T: 2.2, wt: 63. Light-grey, fine- to medium-grained granite.

KH'80, 152.50/50.50, cultural layer 2. A fragment with one partly smoothened side. Judging from the rock type and the traces of working this fragment is derived from the same tool as KH'86 158.40/46.30, cultural layer 4, and is therefore, believed to be a quern fragment. An uneven black discoloration from contact with fire is visible. L: 7.6, W: 5.4, T: 3.6, wt: 153. Light-grey, medium- to coarse-grained gneiss.

KH'80, 152.50/51.50, cultural layer 1. A fragment with a small flat smoothened to polished surface. Possibly derived from a quern. L: 3.0, W: 1.2, T: 0.9, wt: 5. Grey, medium-grained granite.

KH'80, 152.50/52.50, cultural layer 2. A heavily weathered fragment with a small, flat smoothened surface, perhaps derived from a quern. L: 5.9, W: 5.0, T: 3.1, wt: 88. Banded gneiss, a black-grey biotite-rich area and a greyish-pink, coarser-grained granitic area may be distinguished.

KH'80, 155.50/51.50, cultural layer 1. A flake with a slightly smoothened dorsal side. L: 1.2, W: 2.1, T: 0.3, wt: 1. Pink, fine-grained sandstone.

KH'80, 155.50/54.50, cultural layer 1. A rim fragment (flake?), with one small, flat smoothened side and one pitted side due to hammering. A fragment of a quern. L: 4.9, W: 3.8, T: 2.0, wt: 50. Pinkish-grey, fine- to medium-grained leucogranite.

KH'80, 160.50/46.50, cultural layer 2/3. A fragment with one flat, smoothened to polished side, traces of hammering are also present. The opposite side is smoothened. The intermediate rim shows traces of hammering. A rim fragment of a roughened quern (a lower stone). Fitting to KH'81, 147.50/20.50, plough layer and KH'81, 151.50/16.50, plough layer. Furthermore, derived from the same tool as KH'80, 162.50/40.50, cultural layer 1, KH'81, 146.50/21.50, plough layer, and KH'82, 138.50/30.50, plough layer. L: 8.2, W: 6.8, T: 5.7, wt: 253. Grey, coarse-grained leucogranite.

KH'80, 161.50/43.50, cultural layer2. An irregular hammer stone with two pointed short ends displaying traces of hammering, covering < 5% of the outer surface. One of the short ends is damaged probably due to exposure to fire judging from its partly blackish discoloration and the presence of a crack. L: 5.0, W: 3.0, T: 2.4, wt: 44. Grey, fine-grained sandstone.

KH'80, 162.50/40.50, cultural layer 1. A fragment with one slightly concave, smoothened side, alternating with traces of hammering (roughening). Believed to be a quern fragment from the fact that it is derived from the same tool as KH'80, 160.50/46.50, cultural layer2/3, KH'81, 146.50/21.50, plough layer, KH'81, 147.50/20.50, plough layer, KH'82 138.50/30.50, plough layer and KH'81, 151.50/16.50, plough layer. L: 5.1, W: 4.3, T: 2.7, wt: 70. Grey, medium- to coarse-grained granite.

KH'80, 162.50/41.50, cultural layer 1. A flake with part of its dorsal side covered by traces of hammering. L: 2.2, W: 1.8, T: 0.6, wt: 3. White-grey vein quartz.

KH'80, 162.50/44.50, cultural layer 1. A fragment with one flat, evenly polished side with a mirror-like gloss and one adjacent hammered rim. A fragment of a grinding stone. L: 1.8, W: 1.7, T: 0.8, wt: 3. White-grey, very fine-grained quartzitic sandstone.

KH'80, 162.50/45.50, cultural layer 1. Two fitting, recently broken, pieces with one flat, smoothened side. L: 5.8, W: 2.3, T: 0.8, wt: 11. Dark-grey, fine-grained diorite.

KH'80, 163.50/50.50, cultural layer 2. A fragment with one flat polished side, derived from a grinding stone. Partly blackened by fire. Derived from the same tool as KH'82, 135.50/37.50, cultural layer 5. L: 5.4, W: 3.4, T: 3.0, wt: 50. Grey to blackish (discoloration), very fine-grained sandstone.

KH'80, 164.50/42.50, cultural layer 1. A flake with traces of hammering on and around the striking platform. Fitting to the hammer stone KH'82, 162.50/20.50, cultual layer 2. L: 4.1; W: 2.7; T: 1.2, wt: 15. Brownish grey, medium-grained quartzitic sandstone.

KH'80, 165.50/42.50, cultural layer, sublayer unknown. A fragment with one flat, polished surface. Probably a fragment of a quern derived from the same tool as KH'80 166.50/43.50, cultural layer 1. L: 2.5, W: 2.3, T: 2.1, wt: 22. Dark-grey, fine-grained hornblende granite.

KH'80. 165.50/42.50, cultural layer, sublayer unknown. A rim fragment, originally flat and probably rounded, with two, opposite, more or less parallel running, flat smoothened sides with traces of hammering around the edge. Part of a roughened quern, probably an upper stone. L: 8.1, W: 5.3, T: 5.1, wt: 290. Light-grey, fine- to medium-grained leucogranite.

KH'80, 166.50/43.50, cultural layer 1. A fragment with one flat, polished side. Probably a fragment of a quern derived from the same tool as KH'80, 165.50/42.50, cultural layer, sublayer unknown. L: 2.3, W: 1.6, T: 1.8, wt: 8. Dark-grey, fine-grained hornblende granite.

KH'80, 168.50/40.50, cultural layer 2. A fragment (flake?) with, around the possible striking platform or opposite to it a flat, smoothened side. Probably a quern fragment. Derived from the same tool as KH'86 148.50/34.50, plough layer. L: 8.8, W: 5.1, T: 2.7, wt: 146. Dark-grey to pink-grey, fine- to medium-grained biotite gneiss.

KH'80, ?/44.50, cultural layer 2. A fragment (flake?) with an abraded and pitted surface. L: 8.3, W: 7.2, T: 3.3, wt: 240. Light-grey, fine- to medium-grained sandstone.

KH'80, ?/44.50, cultural layer 1. A fragment with one curved and polished side with a mirror-like gloss. From the traces of working in combination with the rock type this is assumed to be a fragment of an axe or battleaxe. L: 2.2, W: 1.1, T: 0.5, wt: 2. Needle-shaped white phenocrysts in blackish matrix: dolerite.

KH'81, coordinates and layer unknown. A fragment with one convex, smoothened to polished surface, probably part of a quern. L: 11.0, W: 8.3, T: 5.1, wt: 465. Grey to pinky-grey, fine-grained gneiss.

KH'81, coordinates and layer unknown. A flat, more or less oval pebble with two short ends with traces of hammering, covering < 5% of the outer surface, respectively a flake negative (L and W: 0.4x0.6; L and W: 0.9x0.9). A hammer stone. L: 4.6, W: 3.6, T: 1.5, wt: 37. White-grey, fine-grained vein quartz.

KH'81, coordinates and layer unknown. A heavily weathered stone with concave, smoothened sides and a curved, smoothened rim and lower part. A quern fragment (a lower stone). L: 13, W: 12.3, T: 8.2, wt: 2112. Grey, medium-grained gneiss.

KH'81, coordinates unknown, plough layer. An elongated rounded stone with a clearly pitted surface particularly at the two pointed short ends, but also along the sides. These traces of hammering cover approx. 60% of the outer surface (??): a hammer stone. L: 8.0, W: 3.1. T: 2.8, wt: 102. Light-grey, fine-grained sandstone.

KH'81, coordinates unknown, plough layer. A fragment with one flat smoothened side. Derived from the same tool as KH'80 149.50/46.50, cultural layer 4 and possibly KH'81, 140.50/23.50, plough layer. On this basis it is determined as a fragment of a quern. L: 5.2, W: 3.8, T: 1.6, W: 32. Light-grey, fine- to medium-grained granite.

KH'81, 140.50/23.50, plough layer. A flake with a smoothened, curved dorsal side. Possibly derived from the same tool as KH'80, 149.50/46.50, cultural layer 4 and KH'81, coordinates unknown, plough layer (with L: 5.2). Possibly a quern fragment. L: 3.5, W: 3.8, T: 1.1, wt: 20. Light- grey, fine- to medium-grained granite.

KH'81, 140.50/24.50, layer unknown. A rim fragment with one flat, smoothened side and one curved, smoothened adjacent surface. A fragment of a quern. The presence of small cracks, and the partial discoloration (blackening) of the surface, particularly the former working surface, indicate a contact with fire and a reuse as a 'cooking stone'. L: 4.9, Wt: 4.6, T: 4.3, wt: 105. Grey, fine-grained granite.

KH'81, 142.50/23.50, plough layer. A fragment with one rounded angled side, which displays a partly artificially pitted and smoothened surface. From the cross-section, the traces of working and the rock type this is assumed to be part of an axe (*Fels-Rechteckbeil*) or battleaxe. L: 3.4, W: 1.8, T: 1.4, wt: 10. Grey-black spotted, medium-grained amphibolite.

KH'81, 142.50/25.50, plough layer. A stone with one smoothened to polished flat side having locally a mirror-like gloss. This side is uneven because it also bears traces of hammering; these may indicate roughening. The rest of the outer surface, particularly on the rounded top, bears traces of hammering. A rubbing stone, possibly made on a hammer stone fragment. Discolored blackish by fire. L: 5.9, W: 4.8, T: 4.2, wt: 162. Grey to black discolored medium-grained sandstone.

KH'81, 143.50/26.50, plough layer. A rounded stone with one, flat smoothened side with intermediate traces of hammering, probably indicating deliberate roughening. The opposite side is also smoothened. The rim bears traces of hammering. A rubbing stone. L: 4.5, W: 4.4, T: 3.5, wt: 113. Dark violet-grey, fine- to medium-grained sandstone.

KH'81, 143.50/27.50, plough layer. A rim fragment with a flat, smoothened side and a rim with traces of hammering. A part of a quern. L: 8.9, W: 4.9, T: 6.4, wt: 409. Pink-grey to dirty black, fine-grained granite.

KH'81, 146.50/21.50, plough layer. A fragment with a flat, smoothened side. Determined as a quern fragment, since it is derived from the same tool as KH'80, 160.50/46.50, cultural layer 2/3, KH'81, 146.50/21.50, plough layer, KH'81, 147.50/20.50, plough layer, KH'81, 151.50/16.50, plough layer and KH'82, 138.50/30.50, plough layer. It shows cracks and was probably burnt. L: 1.6, W: 1.1, T: 1.4, wt: 2. Grey, medium-grained granite.

KH'81, 146.50/22.50, plough layer. A fragment with traces of hammering on one convex side. L: 4.4, W: 3.3, T: 2.6, wt: 36. White-grey leucogranite.

KH'81 146.50/24.50, plough layer. A fragment (flake?) one side shows traces of hammering in parts. L: 4.1, W: 2.7 T: 1.1, wt: 12. Grey, fine-grained sandstone.

KH'81, 147.50/20.50, plough layer. A fragment with one flat, smoothened to polished side and smoothened opposite lower side. The intermediate rim displays traces of hammering. Rim fragment of a quern (a lower stone). Fitting with KH'80, 160.50/46.50, cultural layer 2/3 and KH'81, 151.50/16.50, plough layer. Furthermore, derived from the same tool as KH'80, 162.50/40.50, plough layer, KH'81, 146.50/21.50, plough layer and KH'82, 138.50/30.50, plough layer. L: 7.1, W: 6.1, T: 4.2, wt: 186. Grey, coarse-grained granite.

KH'81, 147.50/22.50, plough layer. An irregular, broken tool with two short ends with traces of hammering, covering < 5% of the outer surface. A hammer stone. L: 5.0, W: 3.6, T: 2.6, wt: 52. Grey, medium-grained vein quartz.

KH'81, 147.50/23.50, plough layer. A cubic stone with traces of

hammering on the ribs, the corners and on most of the sides, covering approx. 85% of its outer surface. L: 6.2, W: 5.6, T: 5.3, wt: 334. Grey to violet-grey, fine-grained quartzitic sandstone.

KH'81, 149.50/21.50, plough layer. A fragment with two small more or less opposite smoothened sides, one flat the other slightly concave. Traces of hammering are found around the edge with the exception of a fracture plane. Possibly a quern fragment, the part of an upper stone? L: 8.5, W: 7.6, T: 4.7, wt: 472. Grey, fine-grained granite.

KH'81, 149.50/25.50, plough layer. A fragment with one flat, smoothened to polished side and an adjacent rim with traces of hammering. Probably derived from a grinding stone. Discolored black by fire. Derived from the same tool as KH'86 148.50/30.50, plough layer. L: 1.8, W: 1.1, T: 0.5 and wt: 1. Secondary dark-grey to blackish, very fine-grained sandstone.

KH'81, 149.50/27.50, plough layer. A fragment with a small flat evenly polished side, derived from a grinding stone?. L: 6.6. W: 4.2, T: 1.8, wt: 53. Grey, medium-grained sandstone.

KH'81, 149.50/27.50, plough layer. A flat, oval stone with one unevenly smoothened side. The other curved side shows traces of hammering. A rubbing stone, probably made from a hammer stone fragment. L: 4.2, W: 3.5, T: 1.4, wt: 28. Grey, fine- to medium-grained sandstone.

KH'81, 150.50/12.50, cultural layer 4. A flat, irregular oval stone with two short ends with traces of hammering and flake negatives (the largest measures: L. 4.8 and W: 3.9). One short end is slightly facetted. The traces of hammering cover approx. 15% of the outer surface. A hammer stone. L: 10.9, W: 8.7, T: 4.6, wt: 636. Grey, medium-grained quartzite.

KH'81 150.50/31.50, plough layer. A rounded, oval tool with traces of hammering at the short ends and intermediate ribs, covering approx. 40% of the outer surface. A hammer stone. L: 5.9, W: 5.8, T: 3.9, wt: 183. Grey, fine-grained granite.

KH'81, 150.50/34.50, plough layer. A fragment (flake?) with a hammered rim, probably derived from a hammerstone. L: 6.3, W: 5.3, T: 2.2, wt: 90. Grey, fine-grained sandstone.

KH'81, 150.50/34.50, cultural layer 2. A fragment with one flat smoothened surface and a smoothened edge and lower part. A part of a quern. Discolored dark-grey by fire, which has also caused some cracking. Derived from the same tool as KH'86 141.50/33.50, plough layer. L: 10.0, W: 7.5, T: 3.0, wt: 243. Discolored dark-grey, medium-grained leucogranite.

KH'81, 150.50/38.50, plough layer. A more or less rounded stone with traces of hammering at the short end, covering < 5% of the outer surface. A hammer stone. L: 5.4, W: 4.1, T: 3.5, wt: 112. Dark-grey, medium-grained quartzite.

KH'81, 150.50/38.50, plough layer. A fragment (flake?); part of one side shows traces of hammering. L: 4.4, W: 2.4, T: 1.1, wt: 13. Grey, fine-grained sandstone.

KH'81, 151.50/16.50, plough layer. A rim fragment from a tool with one flat, smoothened to polished side and one convex, smoothened opposite side. Fitting with KH'80, 160.50/46.50, cultural layer 2/3 and KH'81, 147.50/20.50, plough layer. Furthermore, derived from the same tool as KH'80, 162.50/40.50, cultural layer 1, KH'81, 146.50/21.50, plough layer and KH'82, 138.50/30.50, plough layer. A fragment of a quern fragment (a lower stone). L: 10.7, W: 8.7, T: 7.5, wt: 762. Light-grey, coarse-grained leucogranite.

KH'81, 151.50/33.50, plough layer. A fragment with localized traces of hammering on the side opposite to the fracture plane. Perhaps derived from a hammerstone. L: 10.4, W: 7.9, T: 3.2, wt: 313. Grey, fine- to medium-grained sandstone.

KH'81, 151.50/33.50, layer 3. A fragment with two flat smoothened sides and an edge bearing traces of hammering; a fragment of a rubbing stone. Black-grey, fine-grained quartzitic sandstone. L: 4.0, W: 3.6, T: 1.6, wt: 34.

KH'81, 151.50/35.50, plough layer. A flat, discoid tool with a hammered rim. Several flake negatives are visible at both sides. The largest flake negative measures: L: 3.1 and W: 4.2. L: 13.4, W: 13.3, T: 5.2, wt: 1224. Light-grey quartzitic sandstone.

KH'81, 151.50/36.50, layer unknown. A large fragment with traces of hammering on the rounded areas. A fragmented cubic stone. L: 7.1, W: 6.8, H: 5.3, wt: 296. Grey, medium-grained sandstone.

KH'81, 154.50/33.50, plough layer. A fragment with one slightly concave, smoothened side. A part of a quern. Several cracks are visible these may have resulted from natural weathering or reuse as a 'cooking stone'. Derived from the same tool as KH'81, 156.50/35.50 plough layer. L: 4.2, W: 2.9, T: 1.6, wt: 25. Dark-grey, medium-grained syenite.

KH'81, 156.50/33.50, plough layer. An oval stone with traces of hammering concentrated at the short ends. Traces from the ends and sides cover approx. 20% of the total surface. One end also has a small flake negative (L: 1.2, W: 1.5). A hammerstone. L: 6.8, W: 4.2, T: 4.2, wt: 180. Grey, fine-grained quartzitic sandstone.

KH'81, 156.50/35.50, plough layer. A fragment with two large flat, smoothened to polished sides, one side displaying a mirror-like gloss. A fragment of a quern. Several cracks could be the result of a secondary use as a 'cooking stone'. Derived from the same tool as KH'81, 154.50/33.50, plough layer. L: 9.1, W: 7.4, T: 5.0, wt: 322. Grey, medium-grained syenite.

KH'82, 130.50/33.50, cultural layer 2. A fragment with a rim bearing traces of hammering. Because this specimen is derived from the same tool as KH'86 152.50/26.50, plough layer, it is interpreted as a quern fragment. L: 4.6, W: 3.4, T: 3.3, wt: 65. Pinkish-grey, fine-grained granite.

KH'82, 131.12/35.80, cultural layer 3. A rim fragment with one, flat smoothened surface, with traces of hammering. The opposite, more or less parallel running side, displays an irregular but slightly smoothened surface. A fragment of a roughened quern. L: 7.0, W: 5.0, T: 4.4, wt: 188. Light-grey megacryst granite.

KH'82, 131.50/32.50, cultural layer 2. A fragment (flake?) of which one side has traces of hammering. L: 6.5, W: 4.9, T: 2.1, wt: 83. Grey, fine- to medium-grained sandstone.

KH'82, 131.98/36.42, cultural layer 2. A loaf-shaped quern (an upper stone) with a slightly convex, smoothened to polished working surface. The pitted spots on this side indicate roughening. One short ends bears traces of hammering. L: 15.9, W: 13.1, T: 5.5, wt: 1814. Grey, medium-grained biotite granite.

KH'82, 132.50/33.50, cultural layer 2. A fragment with a small, slightly concave, smoothened surface. Most probably a quern fragment (a lowerstone?). Partly discolored (blackened) by fire, particularly the former working surface. Perhaps reused as a 'cooking stone'. L: 4.6, W: 4.4, T: 3.1, wt: 77. Grey, fine-grained granite.

KH'82, 133.26/38.19, cultural layer 2. A discoid tool with one flat, smoothened to polished side. The opposite side is also smoothened, but unevenly. The complete rim shows traces of hammering. A quern (an upper stone). L: 14, W: 13.5, T: 4.9, wt: 1539. Grey to pink medium-grained granite.

KH'82, 133.50/35.50, cultural layer 1. A flake with a smoothened, slightly convex dorsal side. A quern fragment (of an upper stone). L: 8.1, W: 7.2, T: 2.0, wt: 134. Light grey, fine-grained biotite granite.

KH'82, 133.70/38.22, cultural layer 3. A fragment with a slightly concave, smoothened side. A fragment of a quern, most probably from a lower stone. The working surface is partly discolored black, the adjacent sides are also partially or completely blackened. This discoloration is due to heat. Fitting to KH'82, 133.75/38.80, cultural layer 3. L: 13.9, W: 13.3, T: 7.0, wt: 1463. Light grey, fine-grained granite.

KH'82, 133.75/38.80, cultural layer 3. A fragment with one small flat, smoothened side. The working surface and parts of two adjacent sides are discolored black and several cracks are also visible due to exposure to fire. A fragment of a quern (most probably of a lower stone). Fitting to KH'82 133.70/38.22, cultural layer 1. L: 15.3, W: 10.5, T: 7.0, wt: 1247. Light grey, fine-grained granite.

KH'82, 134.47/34.82, cultural layer 4. A more or less cube-shaped stone, approx. 65% of whose outer surface (four of the six planes) is covered by traces of hammering. L.: 5.9, W: 4.7, T: 5.0 and wt: 254. White-grey, fine-grained quartzitic sandstone.

KH'82, 134.50/30.50, cultural layer 2. A flake with a slightly concave dorsal side, may be smoothened, with traces of hammering, particularly around the striking platform. The fragment of a rubbing stone? Perhaps derived from the same tool as KH'80, 139.50/51.50, layer unknown. L: 2.8, W: 4.4, T: 0.6, wt: 9. Grey-violet, medium-grained quartzitic sandstone.

KH'82, 134.50/38.50, cultural layer 2. A flake with approx. half

of its dorsal side covered by traces of hammering and a small smoothened area. Probably derived from a rubbing stone. L: 4.4, W: 7.4, T: 2.4, wt: 73. Grey, fine-grained sandstone.

KH'82, 135.80/36.25, cultural layer 4. A rounded stone with approx. half of its outer surface, particularly the curved part, covered with traces of hammering. A hammer stone. L: 10.5, W: 8.1, T: 7.8, wt: 830. Light-grey to grey-pink, fine-grained granite.

KH'82, 135.50/37.50, cultural layer 5. A flake with one polished surface. part of a grinding stone. Derived from the same tool as KH'80 163.50/50.50, cultural layer 2. L: 5.2, W: 2.6, T: 1.6, wt: 15. Pinkish-grey, very fine-grained sandstone.

KH'82, 138.50/30.50, plough layer. A rim fragment with a small, flat smoothened surface and an egde bearing traces of hammering. From the fact that this specimen derives from the same tool as KH'80, 160.50/46.50, cultural layer 2/3, KH'162.50/40.50, cultural layer 1, KH'81, 146.50/21.50, plough layer, KH'81, 147.50/20.50, plough layer and KH'81, 151.50/16.50. plough layer it is identified as a rim fragment of a quern. L: 5.9, W: 5.3, T: 2.9, wt: 92. Grey, coarse-grained leucogranite.

KH'82 141.50/50.50, cultural layer 3. A fragment with one flat, smoothened to polished side, probably derived from a grinding stone. L: 4.4, W: 3.3, T: 1.4, wt: 21. Grey, fine- to medium-grained sandstone.

KH'82, 142.50/52.50, cultural layer 2. A flake with a partly flat and smoothened, and partly curved and pitted dorsal side. Probably a quern fragment. L: 3.3, W: 4.7, T: 1.2, wt: 17. Dark-grey to pink-grey, medium-grained granite.

KH'82, 144.50/54.50, cultural layer 3. A flake with its dorsal side completely covered with traces of hammering. L: 4.7, W: 6.0, T: 2.3, wt: 70. White-grey, fine-grained quartzitic sandstone.

KH'82, 145.50/52.50, cultural layer 3. A fragment with a slightly concave, smoothened side. The opposite lower side is more or less flat, displaying traces of hammering. A fragment of a quern, most probably of a lower stone. L: 12.4, W: 10.0, T: 6.8, wt: 1222. Grey, medium-grained biotite granite.

KH'82, 146.50/50.50, cultural layer 2. A fragment with a rim partly covered with traces of hammering. Probably derived from a hammer stone. L: 6.3 W: 6.1, T: 2.4, wt: 117. Grey, medium-grained granite.

KH'82, 146.50/50.50, A fragment (a flake?) with one smoothened surface. Probably derived from the same tool as KH'86 151.50/27.50, plough layer. L: 4.7, W: 2.1, T: 0.9, wt. 9. Pinkish-grey, fine-grained granite.

KH'82, 146.50/52.50, cultural layer 3. An irregularly triangular hammer stone. The short ends possess traces of hammering, covering < 5% of the outer surface. One of them displays several flake negatives (L: 2.5, W: 2.5), this damage was probably sustained during use. L: 6.0, W: 4.6, T: 3.7, wt: 102. Grey, medium-grained sandstone.

KH'82, 146.50/55.50, cultural layer 2. A fragment with one flat smoothened side. L: 3.5, W: 3.1, T: 1.2, wt: 13. Grey, fine-grained granite.

KH'82, 147.80/56.65, derived from a pit. A fragment with one slightly concave, smoothened side (??). A part of a quern (a lower stone). A fracture has a dark red secondary coloration probably due to contact with fire. L: 17.4, W: 7.9, T: 7.6, wt: 1343. Discolored granite with mylonitic appearance.

KH'82, 160.70/53.26, cultural layer 1(?). A weathered fragment with one slightly concave, smoothened surface. The opposite side was possibly also smoothened, but this is not clear due to weathering this in not clear. A fragment of a quern. L: 12.1, W: 10.2, T: 9.5, wt: 1672. Light-grey, weathered, medium-grained biotite granite.

KH'82, 162.50/20.50, cultural layer 2. A flat, pear-shaped hammer stone with two hammered opposite short ends, covering < 5% of the outer surface. Both dislay flake negatives, indicating damage during use, covering approx. 15% of the outer surface. A hammer stone. It was possible to refit a flake, KH'80, 164.50/42.50, cultural layer 1, to this hammer stone. L: 6.4; W: 4.4; T: 2.4, wt: 84. Brownish grey, medium-grained quartzitic sandstone.

KH'82, 163.15/22.47, cultural layer 2. A flat, almost circular tool. Nearly half of which has broken off longitudinally. The rim shows traces of hammering practically all the way round. Some traces of hammering are also visible on one of the flat planes, covering approx. 10% of its surface. Three flake negatives are also present on this side. L: 12.9, W: 12.3, T: 3.6, wt: 742. Grey, fine- to medium-grained sandstone.

KH'82, 165.50/20.50, cultural layer 1. A fragment with one side partially covered with traces of hammering. L: 8.2, W: 4.7, W: 3.0, wt: 124. Pinkish, dark-grey, fine-grained granite.

KH'83, 207.50/49.50, cultural layer 1. A fragment (flake?) with one flat polished side displaying a mirror-like gloss. L: 5.5, W: 3.8, T: 1.3, wt: 27. White-grey, fine-grained vein quartz/granite.

KH'83, 218.50/31.50, plough layer. A rounded hammer stone with the rim more or less completely covered with traces of hammering, making up approx. 20% of the outer surface. L: 4.1, W: 3.8. T: 2.7, wt: 56. Grey, fine-grained sandstone.

KH'83, 218.50/54.50, plough layer. A rim fragment (flake?) with traces of hammering on one side, covering approx. 30%. L: 4.5, W: 5.5, T: 1.8, wt: 45. Grey, fine- to medium-grained granite.

KH'83, 220.50/29.50, plough layer. A flake with a flat, smoothened dorsal side. L: 1.4, W: 1.2, T: 0.4, wt: 1. Grey, fine- to-medium grained sandstone.

KH'83, 220.50/45.50, cultural layer 1. A flake with a smoothened, dorsal surface. L: 2.1, W: 2.2, T: 0.5, wt: 2. Grey to pinkish-grey fine-grained granite.

KH'83, 220.50/45.50, cultural layer 1. Two small fragments with a smoothened surface. Cracks could be due to contact with fire and to a reuse as 'cooking stone'. L: 1.9, W: 1.6, T: 0.5; L: 1.3, Wt: 0.9, T: 0.2 and total wt: 2. Pinkish-grey, fine- to medium-grained leucogranite.

KH'83, 220.50/45.50, cultural layer 1. A fragment with one smoothened side. A fragment of a quern. The dark discoloring and several cracks indicate contact with fire and reuse as a 'cooking stone'. Derived from the same tool as KH'84, 225.50/44.50, cultural layer 2. L: 7.1, W: 3.6, T: 3.6, wt: 106. Grey-blackish (part of the outer surface) to pink (interior), fine-grained granite.

KH'83, 221.50/21.50, plough layer. A fragment, with one smoothened to polished flat surface, possibly derived from a quern. L: 3.4, W: 2.0, T: 1.1, wt: 5. Dark-grey, gneiss.

KH'83, 221.50/25.50, plough layer. A fragment with one, originally flat, smoothened side, the adjacent rim displaying traces of hammering. A fragment of a rubbing stone. L: 8.0, W: 5.3, T: 2.6, wt: 137. Grey medium-grained quartzite.

KH'83, 221.50/48.50, cultural layer 2. A rim fragment with one curved, smoothened surface. Perhaps a quern fragment. L: 5.6, W: 5.1, T: 2.7, wt: 82. Light-grey, fine-grained leucogranite.

KH'84 222.50/41.50, cultural layer 1. An irregular, rectangular hammer stone with two artificially pitted opposite short ends, covering < 5% of the outer surface. L: 6.1, W: 4.5, T: 2.8, wt: 97. Grey, fine-grained quartzite.

KH'84, 223.50/29.50, plough layer. A cubic stone with traces of hammering on the ribs, the corners and most of the sides, covering approx. 75% of its outer surface. L: 5.7, W: 5.7, T: 5.5, wt: 337. Grey, medium-grained sandstone.

KH'84, 223.50/41.50, cultural layer 2. A fragment with one convex, smoothened side. Probably derived from a quern. L: 10.0, W: 7.2, T: 4.2, wt: 317. Grey, fine-grained gneiss.

KH'84, 223.50/45.50, cultural layer 2. A flake with a part of the dorsal side covered by traces of hammering. L: 3.6, W: 2.8, T: 0.9, wt: 7. Light-grey, medium-grained sandstone.

KH'84, 224.50/29.50, plough layer. A flake with traces of hammering at the area around the striking platform. Several flake negatives on the dorsal side. L: 4.8, W: 3.1, T: 1.2, wt: 12. Dark-grey, very fine-grained quartzite.

KH'84, 224.50/46.50, cultural layer 2. A medial fragment of a flake with two negatives on the dorsal side. Furthermore, approx. one third of this side is polished. Probably derived from a grinding stone. L: 1.0, W: 1.2, T: 0.5, wt: 1. Violet-grey fine- to medium grained sandstone.

KH'84, 224.50/47.50, cultural layer 1. An oval, flat stone with smoothened upper and lower faces and a rim showing traces of hammering. Hammering traces are also discernable on the complete working surfaces (??). A rubbing stone roughened or having an additional function as an anvil. L: 6.6, W: 3.6, T: 3.6 and wt: 224. Grey, fine-grained sandstone.

KH'84, 225.50/29.50, cultural layer 2. A flake with traces of

hammering situated around the striking platform. L: 6.2, W: 5.0, T: 1.7, wt: 65. Dark-grey, fine-grained sandstone.

KH'84, 225.50/40.50, plough layer. A flake with one small, smoothened surface at the striking platform. Probably a rim fragment of a quern. L: 4.3, W: 5.7, T: 1.6, wt: 42. Grey, fine-grained leucogranite.

KH'84, 225.50/41.50, cultural layer 3. A broken flake having a dorsal side bearing traces of hammering. L: 1.3, W: 2.1, T: 0.4, wt: 1. Grey medium-grained sandstone.

KH'84, 225.50/42.50, cultural layer 1. An elongated, irregularly rounded stone with one rib bearing traces of hammering, these cover approx. 5% of the outer surface. The opposite short end has flake negatives (largest one L: 1.0, W: 1.5), covering < 5% of the outer surface, indicating a function as a hammer stone, having been damaged during use. In addition a function as an anvil is likely, as indicated by the shallowly pitted surface of one of the flat sides. L: 7.7, W: 4.3, T: 3.9, wt: 163. Grey, medium-grained quartzitic sandstone.

KH'84, 225.50/42.50, cultural layer 1. A rounded stone with one flat plane. The rim is more or less completely covered with traces of hammering. These traces are also present on one of the large sides, totally covering approx. 30% of its surface ( ). A hammer stone. L: 7.3, W: 7.3, T: 3.9, wt: 313. Reddish-grey fine- to medium-grained sandstone.

KH'84, 225.50/44.50, cultural layer 2. A fragment with one smoothened side. A quern fragment. Contact with fire and therefore, reuse as a 'cooking stone' is indicated by several cracks and a slight discoloration. Derived from the same tool as KH'83, 220.50/45.50, cultural layer 1. L: 4.2, W: 3.7, T: 2.8 and wt: 58. Partly discolored grey-blackish (outer surface) and pink (interior), very fine-grained granite.

KH'84, 225.50/48.50, culture layer 3. A flat, almost circular stone with one flaked flat side. The maximum length of these flake negatives is 1.7, the maximum width 3.2. Some small smoothened spots are also present on this side. The centre of the opposite flat side and the complete rim bear traces of hammering (about 20% of the outer surface). The stone is partly discolored black by fire. A rubbing and/or hammer stone or a rubbing stone reworked to hammer stone. L: 6.4, W: 6.2, W: 3.5 and wt: 183. Grey, fine- to medium-grained sandstone.

KH'84, 226.50/25.50, plough layer. A fragment with one flat, smoothened to polished plane. The adjacent abraded, pitted surface suggests the tool was shaped by pecking or had a secondary or an additional use as a hammer stone. L: 9.0, W: 7.1 and T: 4.4, wt: 381. Grey, medium-grained sandstone.

KH'84, 226.50/40.50, plough layer. A more or less rectangular stone with rounded rims and corners. The corners and one broad rim bear traces of hammering. One long side also shows these traces. Approx. 10% of the outer surface is covered with these traces. A hammer stone, probably also used as an anvil. L: 7.9, W: 6.3, T: 4.1, wt: 326. Grey, fine- to medium-grained sandstone.

KH'84, 226.50/45.50, cultural layer 2. A fragment with one curved polished side having macroscopically visible parallel striations. The opposite side, which also shows traces of polishing, is flat. A fragment of a grinding stone. L: 5.4, W: 3.3, T: 1.3, wt: 30. Brownish-grey, fine-grained sandstone.

KH'84, 227.50/43.50, cultural layer 1. An irregular hammerstone with three areas with traces of hammering. Two of them are situated at the short ends and also bear flake negatives (Largest one: L: 1.5, W: 1.5), probably due to damage during use. These traces cover 5-10% of the outer surface. L.: 5.9, W: 4.5, T: 2.6, wt: 84. Grey, fine-grained quartzitic sandstone.

KH'84, 227.50/46.50, cultural layer 1. A fragment with one smoothened surface. Probably derived from a quern. Cracks and a partial discoloration of the working surface indicate contact with fire and probably its reuse as a 'cooking stone'. L: 6.2, W: 5.6, T: 3.5, wt: 155. Grey, partly discolored blackish, medium-grained muscovite granite.

KH'84, 228.50/48.50, cultural layer 2. A broken flake with traces of hammering on its dorsal side. L: 2.8, W: 1.6, T: 0.5, wt: 2. Brownish-grey, fine-grained sandstone.

KH'84, 228.50/48.50, cultural layer 2. A fragment (flake?) with traces of hammering on one side. L: 5.2, W: 4.7, T: 2.1, wt: 49. Weathered, yellowish pink-grey, medium-grained granite.

KH'84, 229.50/44.50, cultural layer 3. A flake, approx. half of the dorsal side is smoothened to polished, and is covered by flake negatives. A fragment of a rubbing stone or of a grinding stone. L: 5.4, W: 3.0, T: 1.2, wt: 16. Brownish-grey fine-grained quartzitic sandstone.

KH'85, coordinates and layer unknown. A fragment with one flat, smoothened to polished side. The opposite part consists of a curved, smoothened side. A fragment of a quern, an upper stone. Many cracks and a slight discoloring indicate a secondary use as a 'cooking stone'. L: 12.4, W: 9.3, T: 7.5, wt: 1189. Greyish, fine-grained granite.

KH'85, 215.50/22.50, plough layer. A fragment with one smoothened, concave side. L: 3.6, W: 3.0, T: 1.5, wt: 16. Grey, very fine-gained biotite granite.

KH'85, 215.50/37.50, plough layer. A flake with a partly smoothened dorsal side. L: 3.0, W: 3.8, T: 0.6, wt: 7. Grey-black, fine-grained sandstone.

KH'85, 218.50/27.50, plough layer. An irregular, stone with traces of hammering on part of the rim, covering approx. 10-15% of the outer surface. A hammer stone. L: 4.9, W: 4.5, T: 3.1, wt: 104. Light-grey, fine-grained granite.

KH'85, 221.00/37.52, derived from a pit. A flat, oval stone with traces of hammering on the broad rim (height: 1.4-3.6) and one flat side, covering approx. 45% of the outer surface. Further some flake negatives (maximum measurements L: 1.2, W: 2.5), probably sustained during use, are visible. A hammer stone. L: 5.5, W: 5.3, T: 3.6, wt: 144. Light-grey, fine-grained sandstone.

KH'85, 221.50/30.50, plough layer. A flat, oval to circular stone having a cutting edge almost all around and an bifacial retouch covering only part of both the large sides. L: 5.9, W: 5.5, T: 2.1, wt: 79. Dark-grey, fine-grained biotite gneiss.

KH'85, 222.58/34.13, derived from a pit (other finds from this pits include flint, bone and pottery). Rectangular-oval stone with traces of hammering at both short ends, covering < 5% of the outer surface. A large flake negative originates from one of these ends. A hammer stone. L: 5.9, W: 3.6, T: 2.3, wt: 68. Dark-grey fine- to medium-grained mica schist.

KH'85, 223.50/35.50, plough layer. A cubic stone. Traces of working and/or use could not be observed due to weathering. L: 4.5, W: 4.4, T: 4.3, wt: 143. Grey, medium-grained sandstone.

KH'85, 225.50/33.50, plough layer. A rounded stone with traces of hammering at the short ends, one of which has a facetted appearance. The intermediate ribs are also covered with traces of this type of working. The slightly concave upper and lower sides seem to be smoothened and moreover have artificially pitted centres. Traces of hammering cover in total approx. 60% of the outer surface. A rubbing(?) and/or hammer stone, which was also used as an anvil. L: 6.1, W: 4.6, T: 3.4, wt: 133. Grey, fine-grained sandstone,

KH'85, 225.50/39.50, plough layer. A cubic stone all the sides of which are covered with traces of hammering (approx. 95% of its outer surface). Two opposite sides have a more intensely worked centre resulting in two shallow pits and indicating use as an anvil. L: 4.7, W: 4.6 and T: 4.0, wt: 152. Grey quartzitic sandstone.

KH'85, 226.50/36.50, plough layer. A flake with a smoothened dorsal side. This side appears to have been roughened as indicated by the presence of the relatively deep pits between the smoothened areas. Traces of hammering occur on the striking platform. Probably derived from a rubbing stone. L: 4.8, W: 4.4, T: 1.3, wt: 28. Grey, medium-grained quartzitic sandstone.

KH'85, 226.50/38.50, plough layer. A fragment with one smoothened to polished side displaying a slight mirror-like gloss. L: 5.9, W: 2.7, T: 1.2, wt: 25. Greyish-black, medium-grained gabbro?

KH'85, 226.53/36.55, derived from a pit together with bone material. A fragment with traces of hammering on rims and on one flat side; a hammer stone, also used as an anvil?. L: 6.4. W: 5.1, T: 4.1, wt: 169. Dark-grey, fine-grained sandstone.

KH'86, 140.50/38.50, plough layer. A fragment with one smoothened side, probably a fragment of a quern. Derived from the same tool as KH'86, 151.50/27.50, plough layer and KH'86, 159.50/21.50, plough layer. L: 2.5, W: 1.8, T: 1.5, wt: 8. Greyish to pink-grey, medium-grained biotite granite.

KH'86, 141.50/33.50, plough layer. A fragment with one flat, smoothened to polished surface. A fragment of a quern. Partly discolored (darkened) by fire and cracked indicating its reuse as a

'cooking stone'. Derived from the same tool as KH'81, 150.50/34.50, plough layer (specimen with L: 10.0). L: 6.8, W: 4.6,. T: 2.8, wt: 74. Pinkish-grey, medium-grained leucogranite.

KH'86, 141.50/38.50, plough layer. A fragment with a polished surface on one side. L: 4.9, W: 2.6, T: 1.2, wt: 18. Light-grey, fine- to medium-grained biotite gneiss.

KH'86, 141.50/39.50, cultural layer 3. A flat, rounded hammer stone with one short end with traces of hammering, covering 5-10% of the outer surface. This end was probably damaged during use judging from a flake negative (L: 1.0, W: 2.7). The same is possible for the opposite side which shows several fractures. However, the nature of these fractures is not clear, especially since this short end bear no hammer traces. L: 6.3, W: 5.8, H: 2.4, wt: 90. Grey, medium grained quartzitic sandstone.

KH'86, 143.50/39.50, cultural layer 5. A fragment (flake?) approx. half of one side is covered with traces of hammering, the remaining area is made up by a flake negative. L: 3.0, W: 2.6, T: 1,8, wt: 9. Grey, coarse-grained sandstone.

KH'86, 146.50/30.50, plough layer. A rounded stone with two short ends with traces of hammering, covering approx. 40% of the outer surface. A hammer stone. L: 6.3, W: 4.9, T: 3.9, wt: 190. Grey, fine- to medium-grained sandstone.

KH'86, 146.50/32.50, plough layer. A fragment with one smoothened side. L: 2.9, W: 0.9, T: 0.7, wt: 2. Light-grey, fine- to medium-grained granite.

KH'86, 148.50/30.50, plough layer. A fragment with one smoothened to polished side, displaying a mirror-like gloss. Probably a part of a grinding stone. It is blackened due to contact with fire. Derived from the same tool as KH'81, 149.50/25.50, plough layer. L: 2.0, W: 1.8, T: 0.7, wt: 3. Grey to secondary black, very fine-grained sandstone.

KH'86, 148.50/34.50, plough layer. A fragment with one flat, smoothened side, probably derived from a quern. Derived from the same tool as KH'80, 168.50/40.50, cultural layer 2. L: 4.2, W: 2.5, T: 1.6, wt: 21. Greyish, fine- to medium-grained biotite gneiss.

KH'86, 151.50/27.50, plough layer. A flake(?) with about one third of its dorsal side smoothened, and which is partly discolored black due to contact with fire. Probably a fragment of a quern: derived from the same tool as KH'86, 140.50/38.50, plough layer and KH'86, 159.50/21.50, plough layer. L: 3.8, W: 4.4, T: 1.3, wt: 22. Grey to pink-grey, medium-grained biotite granite.

KH'86, 151.50/27.50, plough layer. A fragment with one small smoothened side. Partly discolored due to heat. Probably derived from the same tool as KH'82, 146.50/50.50. L: 3.4, W: 3.3, T: 1.8, wt: 23. Pinkish-grey, fine-grained granite.

KH'86, 152.50/22.50, plough layer. A fragment with one polished surface. Most probably a fragment of a grinding stone. L: 3.1, W: 2.7, T: 1.0, wt: 8. Grey, fine- to medium-grained sandstone.

KH'86, 152.50/26.50, plough layer. A rim fragment with one small, smoothened side and one adjacent hammered side. A fragment of a quern. Derived from the same tool as KH'82 130.50/33.50, cultural layer 2. L: 2.4, W: 2.1, T: 1.2, wt: 6. Light-grey to pink-grey, fine-grained granite.

KH'86, 152.50/29.50, plough layer. A fragment showing one smoothened side. L: 2.5, W: 1.9, T: 0.6, wt: 3. Light-grey, fine-grained granite.

KH'86, 153.50/25.50, plough layer: A fragment with a flat upper side and a slightly concave lower side, both are smoothened to polished. The major part has a dark colour because of contact with fire. Probably a quern fragment. L: 9.8. W: 7.7., T: 4.1, wt: 314. Grey to secondary brownish dark-grey biotite gneiss.

KH'86, 155.50/48.50, cultural layer 2. A fragment originally having, as far as reconstructable, two flat smoothened to polished sides. The intermediate area is characterized by traces of hammering. L: 4.0, W: 3.4, T: 1.5, wt: 34. Dark-grey, fine-grained quartzitic sandstone.

KH'86, 158.40/46.30, cultural layer 4. A fragment with one flat, smoothened side. The opposite side, probably originally part of a curved side is also smoothened and discolored black due to fire. A part of a quern, probably of a lower stone. Derived from the same tool as KH'80 152.50/50.50, cultural layer 2. L: 15.6, W: 13.0, T: 9.9, wt: 2250. Weathered, grey, medium-grained biotite gneiss.

KH'86, 158.50/46.50, layer 2. A fragment with traces of hammering at the short ends. Perhaps a hammer stone fragment. L: 4.9, W: 3.8, T: 1.6, wt: 32. Light-grey, very fine-grained sandstone.

KH'86, 159.50/21.50, plough layer. Probably a flake with a smoothened dorsal side, most probably a fragment of a quern. Derived from the same tool as KH'86 151.50/27.50, plough layer and KH'86 140.50/38.50, plough layer. L: 3.2, W: 4.3, T: 0.9, wt: 13. Grey, to pinkish-grey, medium-grained biotite granite.

POSSIBLE TOOL FRAGMENTS

KH'80, 143.50/48.50, cultural layer 3. A flake with a pitted dorsal side, perhaps of artificial character; partly discolored by fire. L: 6.3, W: 2.8, T: 2.0, wt: 52. Light-grey, fine- to medium-grained sandstone.

KH'80, 153.50/51.50, cultural layer 1. A flake, the dorsal side is covered with flake negatives; the striking platform possibly bears traces of hammering. L: 3.5, W: 3.8, T: 1.6, wt: 22. Light-grey, fine-grained granite.

KH'81, coordinates and layer unknown. A fragment with possibly one artificially smoothened surface. L: 5.4, W: 4.5, T: 1.5, wt: 43. Weathered, dark-grey, very fine-grained granite.

KH'81, 143.50/21.50, plough layer. A flake with a flat, possibly smoothened dorsal side. L: 2.4, W: 2,9; T: 0.3, wt: 4. Brownish-grey, fine-grained sandstone.

KH'81, 149.50/22.50, plough layer. A fragment with a partly smoothened, partly pitted surface, possibly of artificial origin. L: 5.3, W: 2.5, T: 1.3, wt: 18. Grey to dark-grey, fine-grained, massive sandstone.

KH'82, 133.50/36.50, cultural layer 4. A rim fragment with a possibly artificially smoothened side. Partly blackened by fire. L: 7.7, W: 5.5. T: 2.2, wt: 102. Grey to discolored blackish, medium-grained leucogranite.

KH'82, 144.50/ 54.50, cultural layer 3. A fragment with one small, possibly artificially smoothened surface; partly blackened by fire. L: 9.7, W: 8.7, T: 5.5, wt: 330. Medium-grained, light-grey sandstone.

KH'83, 221.50/22.50, cultural layer 1. A fragment with possibly one artificially smoothened side. Several cracks could indicate contact with fire. L: 2.6, W: 2.4, T: 0.8, wt: 5. Light-grey, fine-grained granite.

KH'84, 223.50/47.50, cultural layer 3. A flake(?) with one flat, possibly artificially smoothened side. L: 2.6; W: 2.2; T: 0.5, wt: 4. Fine- to medium-grained greyish sandstone.

KH'84, 226.50/27.50, plough layer. A flake with a slightly concave, possibly artificially smoothened dorsal side. L: 1.7, W: 1.3, T: 0.3, wt: 1. Dark-grey, very fine-grained sandstone.

KH'85, 216.50/26.50, plough layer. A fragment with possible traces of hammering. L: 4.5, W: 4.4, T: 3.0, wt: 84. Grey, medium-grained granite.

KH'85, 225.50/31.50, plough layer. A flake having possibly traces of hammering on its dorsal side. L: 2.8, W: 3.6, T: 0.9, wt: 10. Pinkish grey, fine-grained granite.

KH'86, 142.50/31.50, plough layer. A fragment with one possibly artificially smoothened surface. L: 3.2, W: 2.4, T: 0.9, wt: 7. Grey, fine- to medium-grained granite.

KH'86, 148.50/33.50, plough layer. A fragment with one possibly artificially smoothened side. L: 3.4, W: 1.6, T: 0.8, wt: 5. Light-grey, fine-grained sandstone.

KH'86, 156.50/22.50, plough layer. A fragment with one flat, possibly smoothened surface. L: 6.8, W: 5.9, T: 2.8, wt: 104. Dark-grey, fine-grained biotite-amphibole gneiss.