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11 The earliest occupation of Europe: Scandinavia

This paper examines claims for Middle and Lower Palaeolithic finds from Scandinavia, within the context of the geological history of the area, where glaciers repeatedly modified Pleistocene landscapes. Though no unambiguous primary context traces of pre-Hamburgian occupation are known yet, a review of various localities in southern Denmark shows that this area has a great potential for such finds, to be exploited in future research.

1. Conditions for human settlement

A study of the physical conditions for settlement is essential for an understanding of the migration of humans. Our knowledge of the Scandinavian landscape during the Pleistocene is, however, extremely fragmentary due to the fact that Scandinavia was affected by a number of glaciations. Organic sediments found intercalated in moraines throughout the whole of Scandinavia have been interpreted as pre-dating the Holsteinian Interglacial in certain cases, although their actual age is still highly uncertain. It is not until the Holsteinian Interglacial that locations of profiles investigated by pollen analyses exhibit a sufficient geographical distribution throughout the whole of Scandinavia to permit a schematic impression of the ecological conditions. The data are far too incomplete, however, to permit the relationship between land and sea, for example, to be examined with a view to identifying any physical obstacles to human expansion. During the Eemian Interglacial, the available data present an image of southernmost Scandinavia divided into a number of quite large islands similar to the present-day situation in eastern Denmark (Strand Petersen 1985; Houmark-Nielsen 1989) (Figs 1 and 2). Jutland may itself have been separated from the European mainland by a sound during certain parts of the Eemian Interglacial. This would have prevented migration during the peak of the interglacial, although hardly during its early part, when a considerable volume of water would still be trapped in the ice sheets.

Apart from the direct evidence for occupation, finds of various mammal remains can be used in the discussion on possible migration routes. Only a small number of fossils from the Cromerian and the Holsteinian have been found in lacustrine deposits in Denmark. The oldest Quaternary bone, a piece of antler from a red deer (*Cervus elaphus*) was found in Jutland, in gyttja possibly dating from the Cromerian Interglacial (Aaris-Sørensen, 1988). An ulna of a wild horse (*Equus ferus*), was recovered from freshwater deposits, dated to the Holsteinian on the basis of pollen analysis. This find was also made in Jutland.

It is not until the Eemian Interglacial that the fossil record becomes more abundant, with beaver (*Castor fiber*), straight-tusked elephant (*Elephas namadicus* (= *Palaeoloxodon antiquus*)), Merck's rhinoceros (*Dicerorhinus kirchbergensis*), fallow deer (*Dama dama*), red deer (*Cervus elaphus*), and bison (*Bison priscus*). Some of these species were found only in secondary contexts in moraine deposits, and their specific relation to the Eemian Interglacial is based on more southern find contexts. All these finds were made in Jutland which suggests a possible migration route to that part of southern Scandinavia during certain parts of the Eemian Interglacial. Mammal finds from other parts of Scandinavia are unfortunately absent. This can be taken as an indication that larger mammals did not exist in this area. However, since the known locations of material from Eemian find spots, as those from earlier interglacials, are very few in number, the absence of finds is not a good argument for inferring that migration routes to the Scandinavian peninsula were entirely lacking.

The claim that the Eemian water basin covering parts of the present-day Baltic may also have had a connection with the Arctic Ocean via Karelia is disputed by new research. Had this been the case, there would have been a suitable migration route for terrestrial fauna including humans. Pollen analyses from northern Finland indicate deposits dated to a period before the Eemian Interglacial, presumably the Holsteinian Interglacial, with a succession of vegetation that was ecologically equivalent to that of the current interglacial (Ambrosiani 1990). This also applies to a considerable extent to the Eemian (Robertson 1991). If a land link had existed in present-day Karelia, the appropriate conditions would have existed for the migration of several species of terrestrial mammals adapted to a boreal flora.

The occurrence and the extent of the glaciations within the early Weichselian of Scandinavia remains a challenging area of research. A number of partially conflicting

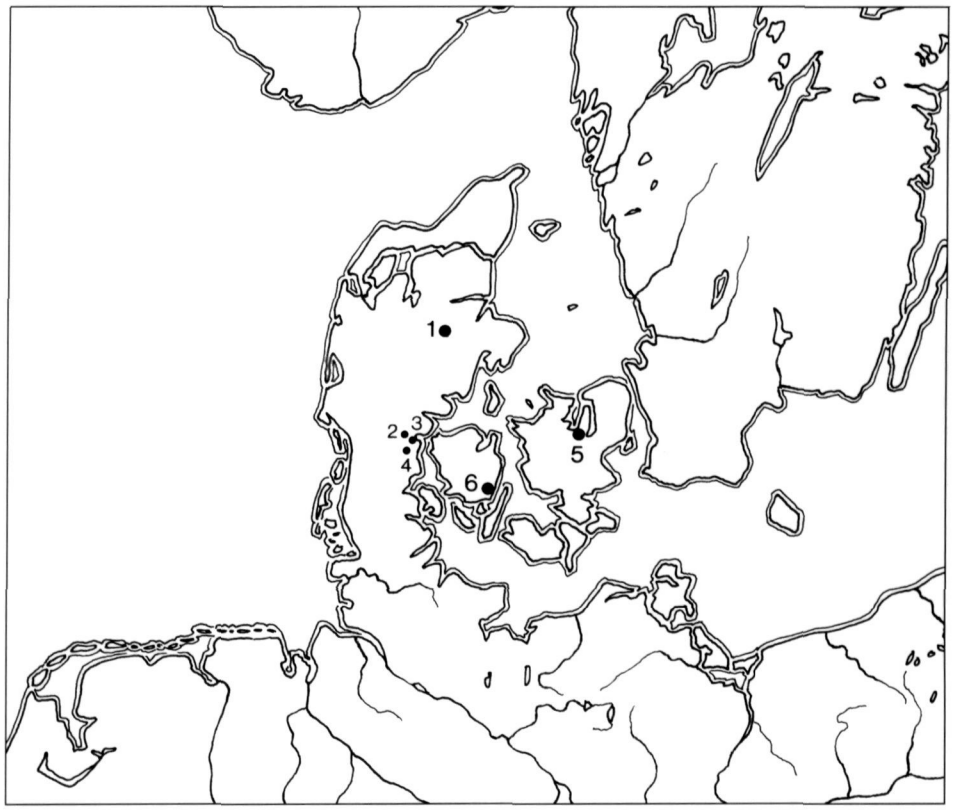

Fig. 1. Map of Southwest Scandinavia, showing the most important find locations referred to in the text.
1. Hollerup; 2. Seest; 3. Kolding Fjord; 4. Vejstrup Skov; 5. Ejby Klint; 6. Vejstrup Ådal.

proposals for further work have been submitted (Berglund and Lagerlund 1981; Strand Petersen 1985; Houmark-Nielsen 1989; Forsström and Eronen 1991; Mangerud 1991). Glaciations of varying extent have been dated to oxygen isotope stages (OIS) 5d and 5b, as well as to the transition between OIS 5 and 4. These are believed to have covered large parts of the Scandinavian peninsula, although the two oldest thawed completely during interjacent interstadials. The later glaciation, however, is understood to have varied in its extent until achieving its maximum distribution during the Late Weichselian. Of the interstadials, the Brørup appears from pollen analyses conducted in Denmark to have included the afforestation of the southern part of the Scandinavian peninsula.

Moraine deposits have yielded a considerable number of finds, consisting mainly of the tusks and teeth of the woolly mammoth (*Mammuthus primigenius*) in both southern and northern Scandinavia (Berglund *et al.* 1976; Aaris-Sørensen *et al.* 1990; Lepiksaar 1992). C14 dating has revealed that a number of finds give infinite values, or finite values at the range limit of the method, indicating that they belong to an early part of the Weichselian. With the exception of a couple of Late Glacial dates, the samples give values of between 32 and 22 Kyr BP. This very probably coincides with the Hengelo and Denekamp Interstadials, for which pollen analyses indicate a sparse population of pine and birch and a predominance of Cyperaceae and Gramineae. This environment, compatible for the mammoth, existed as far as the southern parts of northern Sweden, where several woolly mammoth finds have been made.

Woolly rhinoceros (*Coelodonta antiquitatis*), giant deer (*Megaloceros giganteus*), reindeer (*Rangifer tarandus*), steppe bison (*Bison priscus*), musk ox (*Ovibos moschatus*), and saiga antelope (*Saiga tatarica*), also occur during the Middle Weichselian. The mammoth steppe, with its good grazing for both large and small herd animals, was an environment which covered considerable parts of Europe during the glacial periods and also served as suitable hunting grounds for humans. The presence of an abundant fauna suggests the existence of appropriate migration routes for hominids from both the southwest and the east.

2. Indications of settlement during the Lower and Middle Palaeolithic

A number of uncertain Danish finds of a Lower or Middle Palaeolithic character are examined below. What is immediately clear is the fact that *all* these finds were made within the area once covered by the Weichselian ice. This

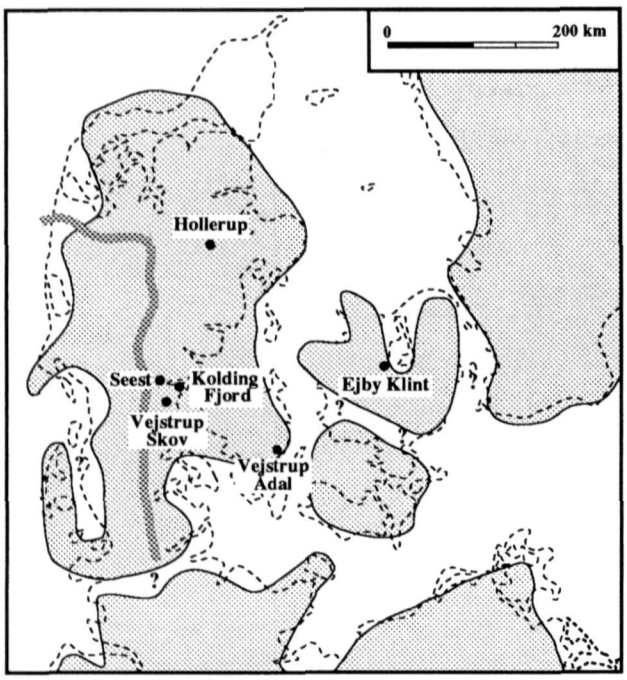

Fig. 2. Map of Southwest Scandinavia. The hatched areas indicate land during the Eemian Interglacial. The maximum extent of the land ice during the Weichselian – the Main Stationary Line is indicated.

is the area where the small number of people who have concerned themselves with the problem live, and it is only in this area that a search for early Palaeolithic artefacts has been undertaken.

2.1. Vejstrup Skov (Vejstrup wood)

Amateur archaeologists have been collecting rough flint artefacts from several localities close to the town of Christiansfeld in Southeastern Jutland since the 1960s. A feature shared by all these finds is that they derive from the bottom of V-shaped erosion gulleys up to 15 m in depth, created by the melt water from the Weichselian ice, which covered the area on a number of occasions. In 1971 a test excavation at the most promising of these localities, Vejstrup Skov, was carried out by the Institute of Prehistoric Archaeology of the University of Aarhus, under the direction of S.H. Andersen. The layer from which the finds had been washed out was successfully identified on this occasion. The layer is now the bed of the brook which flows through the valley. A small number of worked flints, similar to the finds already made in secondary contexts at the bottom of the valley, were found in a layer of rust coloured sand and gravel covered by about 8 m of moraine clay.

Larger excavation followed in 1972, this time with the involvement of quaternary geologists. A number of trenches were dug on the western slope in order to expose the primary layers, which had been covered by recent landslips prior to the excavation. The find bearing layer was a freshwater deposit, consisting of larger stones and coarse gravel mixed with sand and overlaid by two or three Weichselian moraines, representing the same number of advances by the ice, and underlaid by the Saalian moraine. The geologists were able to establish that this was an Eemian freshwater deposit, although it is important to point out that the layer also contained many foraminifera characteristic of the Holsteinian Interglacial. This circumstance, combined with the fact that a number of the flint artefacts were rolled and thus showed signs of re-deposition, led to the assumption that the finds most probably dated from the Holsteinian. Not only Danish archaeologists, but also experts from other countries drew particular attention to the close similarity with the Clactonian industry. The find material, which does not include any handaxes, consists predominantly of rough flakes and cores, some of which may be interpreted as choppers/chopping tools, retouched flakes, end and transverse scrapers and pieces with notches and denticulates (Fig. 3).

The *Vejstrup Skov* excavation became an archaeological sensation. A degree of calm has settled on the subject since then and the finds now receive only brief mention (Andersen 1981; Becker 1977; Holm 1986). No scientific presentation has actually been made to date. This is attributed mainly to the fact that considerable uncertainty has arisen over the years about the circumstances and dating of the finds. There is a tendency to regard the find bearing deposit as a Postglacial brook layer that became covered during the Holocene by reworked moraine deposits. This view, *inter alia*, is borne out by the observation that the find bearing layer tails off rapidly within the western slope and that the layer slopes down towards the bottom of the valley. It is difficult to reconcile this view with the dating of the layer to the Holsteinian/Eemian Interglacial. Furthermore, two core samples taken in the vicinity have revealed a similar stratigraphy – an Eemian layer with redeposited or mixed Holsteinian materials.

2.2. Kolding Fjord

At Kolding Fjord, in Southeast Jutland, amateur archaeologists have collected a few thousand flint flakes, cores and rough implements of an early Palaeolithic character, which have been described in a brief, interim article (Stevnhoved 1992). The finds were made over a distance of 20-30 m at the foot of an approximately 30 m high coastal cliff. Immediately above this area, a recently uprooted tree exposed parts of the primary layers. These consist of a layer of brown clay – attributed to the Saalian glaciation on the basis of provisional geological analyses – visible at the very bottom, followed by a

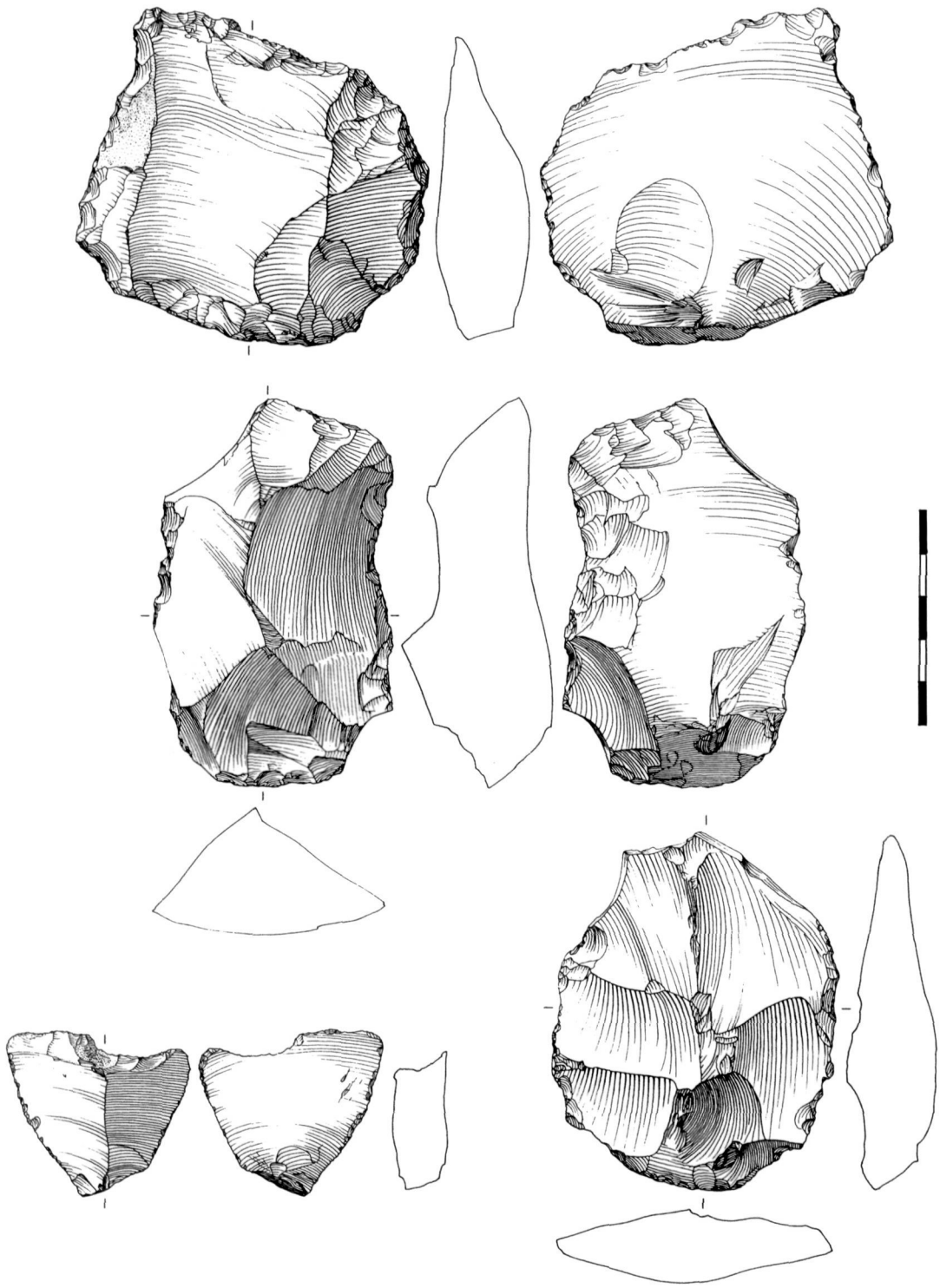

Fig. 3. Flint artefacts from Vejstrup Skov. Drawing: Orla Svendsen. Scale in cm.

50 cm layer of melt water sand, and at the top several layers of grey/greyish brown clay containing an abundance of Senon flint, presumably representing one or more Weichselian moraines. The melt water sand has been given a provisional TL-date of 170 - 210 Kyr BP. In those places where it can be observed, the foot of the cliff consists of a blackish brown solid layer of clay, probably from the Saalian.

In spite of determined efforts over many years, it has still not been possible to find any artefacts *in situ* in the cliff. A proper excavation is, in fact, ruled out by the steepness of the cliff and the frequent landslips. Stevnhoved bases her view that the artefacts must originate from a time before the most recent glaciation on two principal arguments: on the one hand the technological features and on the other hand the fact that the flint artefacts display various forms of patination which have not been observed on Danish Late Glacial and Postglacial artefacts. This includes amongst others pitted erosion surfaces, "orange-peel" (wind erosion), rounding of edges, depressions and ribs (wind erosion) and a strong, partial or full surface glaze-like polish (wind erosion). In addition, approximately 50% of the material exhibits frost fissures. These observations concur with the findings of Dutch and northern German investigations (Stapert 1976; Hartz 1986).

By far the largest proportion of the find material consists of cores and flakes. Some small cores closely resemble choppers or chopping tools. A rough, Levalloisian technique is found in conjunction with smaller cores. As a general rule, the flakes have a large striking platform, occasionally facetted, and a large (blunt) striking angle. A few irregular blade-like artifacts are present too. Only about twenty tools have been found. These are substantial flakes with high, steep edge retouche, blades with retouching on the long edge, and flakes with partial, scraper-like retouching.

Stevnhoved herself cautiously suggests a dating of the artefacts to the Eemian, or to one of the earliest Weichselian interstadials.

2.3. Ejby Klint (Ejby cliff)

An amateur archaeologist collected several thousand coarse flint flakes and cores from the beach beneath an approximately 20 m high coastal cliff at Ejby, near Isefjorden, North Zealand, including chopper-like pieces (Madsen 1963; Madsen 1968a; Madsen 1968b). In his opinion the material shows a striking similarity with the Clactonian industry (Fig. 4) (1).

Unfortunately, all these finds come from reworked deposits. In the middle of the cliff, Madsen found an Eemian marine gravel deposit, which separates an upper and a lower moraine from the Weichselian and Saalian respectively. The flint artefacts may have been washed out from the lower moraine clay but that remains to be demonstrated.

2.4. Vejstrup Ådal (Vejstrup river valley)

In 1978, one of the authors of this article (J.H.) found a number of flint artefacts of a Lower or Middle Palaeolithic type on the bottom of the *Vejstrup Ådal* (river valley) on Southeast Funen. Somewhat less than 1000 flint items were recovered from the bottom of the river in the course of repeated visits to the site over a number of years (Holm 1986; Holm 1987).

The valley has a NW-SE orientation, is approximately 5 km long, and reaches depths of 15-20 m. This is actually a V-shaped erosion valley, presumably formed by melt water – and perhaps even a drainage channel for the dead ice from Central Funen. The river flows into the Storebælt strait less than 4 km from the site. There is no doubt that the area was covered by ice on several occasions during both the Saalian and the Weichselian glaciations. A small number of core samples taken in a different connection in the vicinity of the site did not reveal any layers older than the Weichselian. However, a test trench dug into one slope of the valley in 1981 has revealed the presence, at a depth of about 10 m, of an approximately one metre thick series of fluviatile sands, severely displaced by the pressure of the ice, which separate an upper and a lower moraine. It must be assumed that the artefacts were washed out from deep lying layers in the slopes of the valley, although no artefacts could be found in primary contexts during the aforementioned test excavation. Another possibility is that they originate from the lower, grey, stony moraine clay that was noted during the exploratory excavation and is also encountered directly below the river bed.

The same type of worked flint can be found in the river over a distance of more than 1 km; this circumstance can be explained by the fact that the material was transported by the occasionally strongly flowing water. This means that the place of origin of the artefacts must be sought at the point at which they first occurred upstream. Artefacts are also found on the bed of a man-made canal of more recent date, which could indicate that the finds are not restricted to the river course but can occur over the entire width of the valley.

The find material consists to a great extent – more than 90% – of rough, large flakes, and a few irregular blades (Fig. 5). The flakes have large striking platforms (struck with a stonehammer – hard percussion), broad and occasionally facetted platforms, and blunt striking angles (110-120°). There are also about 25 cores, some of which are very large.

The number of actual tools is quite small, approximately 20 in number, including 2 amygdaloid handaxes (or, at any

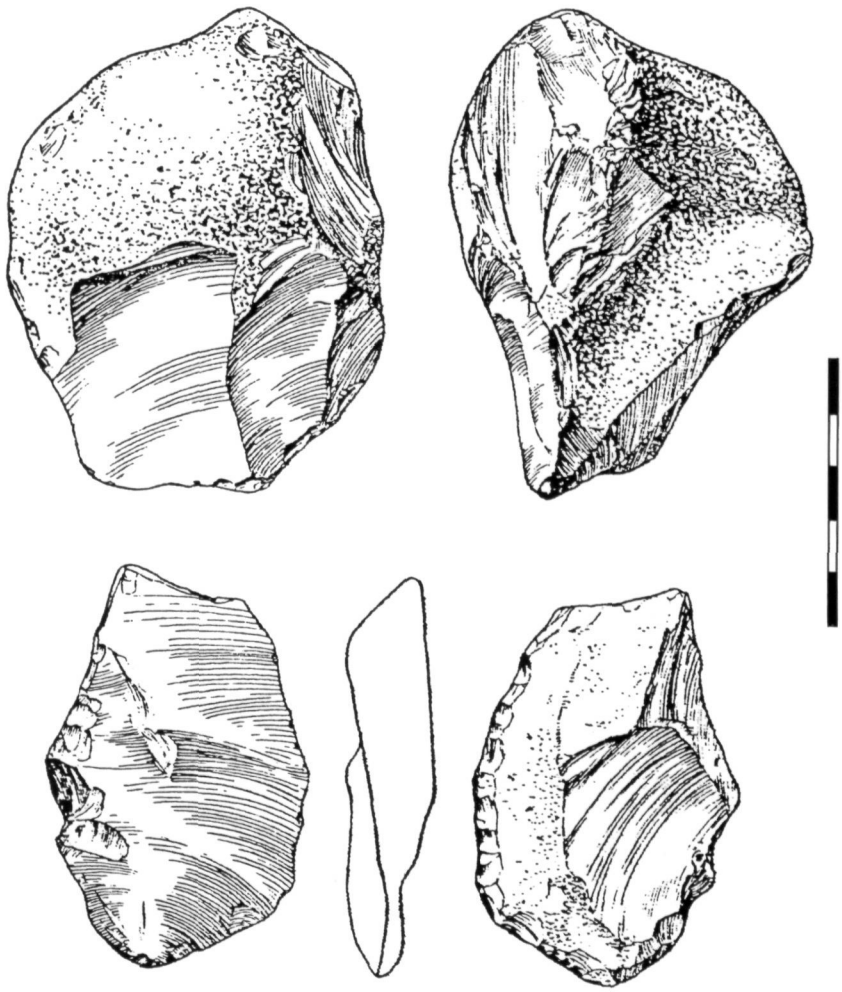

Fig. 4. Flint artefacts from Ejby Klint. Drawing: John Wymer. Scale in cm.

rate, pieces resembling handaxes), end and side scrapers, denticulates, and oblong core implements of triangular cross-section (trihedral picks). A fragment of a polished Neolithic flint axe was the only distinctly younger find.

A representative selection of the material has been shown to colleagues from other countries (2). They were unanimous in pointing out, independently from each other, the early Middle Palaeolithic (Acheulean) characteristics of the material and its close resemblance especially to the finds from Markkleeberg, near Leipzig (Baumann *et al.* 1983). Indications of a proto-Levallois technique were found in the material.

2.5. Hollerup

A well-known Danish find of an early Palaeolithic character, consists of the marrow split fallow deer bones found in Eemian freshwater deposits at Hollerup, on the northern side of the Gudenå valley to the west of the town of Langå (Central Jutland). The commercial extraction and utilization of diatom mud was conducted here from 1895 until about 1960. The geologist and botanist N. Hartz established in 1896 that the lacustrine layers extended for about 250 m, and were underlaid by layers of sand with a thickness of more than 10 m. Above this and at the deepest point is a 4 m layer of calcium rich mud, and above that in turn is a layer of about 5 m of diatom mud, the top of which has an admixture of clay and sand. Above the diatom mud lies approximately 10 m of stratified sand, and at the very top a quite thin capping of moraine gravel. The mud layers represent the whole of the Eemian Interglacial, whereas the clay bearing mud and the sand were deposited at the beginning of the Weichselian. The glaciers of the

latter glacial period did not leave any traces other than the thin layer of moraine gravel.

The remains of 7 fallow deer skeletons were found in the diatom mud in the period between 1897 and 1925. In the 1950s a study was carried out on the bones from Hollerup, including one almost complete, but highly fragmented skeleton – find V from 1912 (Møhl-Hansen 1955). After refitting some of the bone fragments it was obvious that the bones not only had fresh fractures caused by being lifted, but also exhibited many old, primary fractures which have the same colour and black stains or dendrites (plant like precipitation of manganese oxide) as the rest of the bone surface (Fig. 6). In addition, the bones had been struck in pairs in the same way – the same pattern on the right and left shoulder blade and on the right and left humerus, etc. There were distinct striking areas with shattered edges, characteristic for bones cut to remove marrow and similar to those from Mesolithic sites. It is thought provoking that the only major limb bones that are missing are the two femora. It is also noteworthy, however, that practically the entire skeleton is present. There is no sign of fire having been used, just as the presence of cut marks could not be demonstrated. One of the other skeletons from Hollerup, No. 1, shows many signs previously interpreted as results of cutting to get at the marrow.

The fallow deer bones were found in the deepest part of the diatom mud, which presumably dates from a comparatively late part of the Eemian, the hornbeam/spruce period or the spruce period, i.e. after the mixed oak forest had reached its peak.

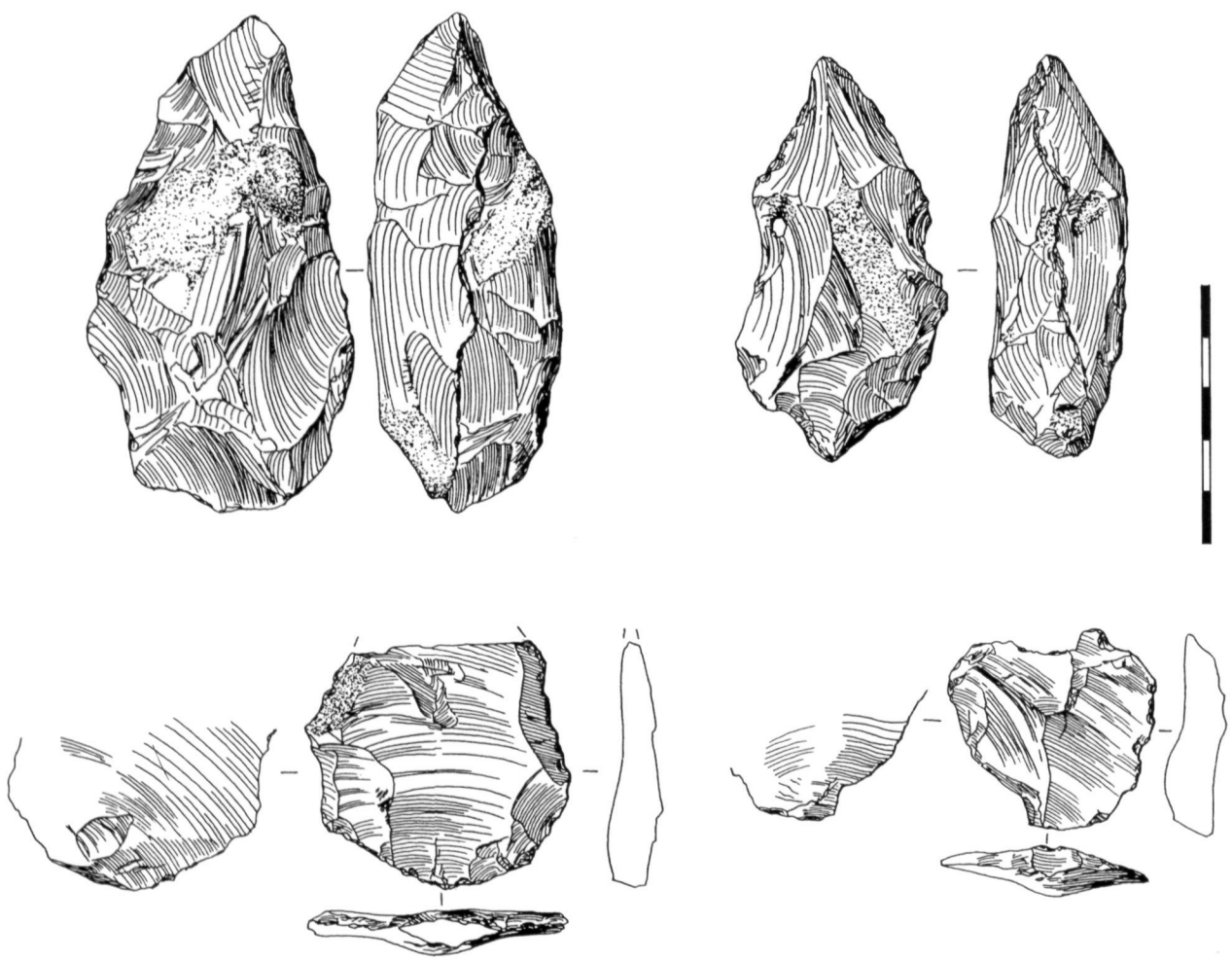

Fig. 5. Flint artefacts from Vejstrup Ådal. Drawing: Jørgen Holm. Scale in cm.

A new analysis of the bones from Hollerup is called for, with a special emphasis on discriminating between carnivore-induced and human breakage of the bones (Binford 1981).

2.6. SEEST

Approximately 100 animal bones and a few flakes and blades, which may date from the period prior to the most recent glaciation, have been found since 1950 in a series of gravel pits at Seest, on the western outskirts of Kolding, Southeast Jutland (Westerby 1957). According to the current view held by geologists, the Seest area is part of the East Jutland young moraine landscape that was created during the Weichselian glaciation. There is broad agreement that the area was covered by ice, at least during the major advance known as the Frankfurt stage, approximately 20 Kyr BP when the ice reached the principal Main Stationary Line 10-15 km to the west of Seest, perhaps also during the latest young Baltic transgression. One problem, however, is the absence of uncontested traces of moraine deposits in the upper part of the sequences.

The finds of animal bones and flint artefacts originate from at least 7 gravel pits in the Kolding Ådal. The sediments in the gravel pits consist mainly of fluviatile sand and gravel deposits.

Unfortunately, all the remains of fauna and artefacts were found in secondary contexts, for example in the material already excavated, at the foot of slopes, and in sorted heaps of stones. The depth of the gravel pits ranges from a couple of metres down to as much as approximately 8 m.

Only part of the bone material has been identified to species level (Aaris-Sørensen 1988): *Elephas namadicus* (= *Palaeoloxodon antiquus*), *Dicerorhinus kirchbergensis*, *Megaloceros giganteus*, *Dama dama* and *Bison priscus*.

None of the bones shows traces of human involvement (such as cutting to get at the marrow and/or marks left by scraping/cutting), although it goes without saying that a location with such an abundance of bones is also a location of potential archaeological interest. The gravel pits have yielded a dozen or so unmistakable flint artefacts, including one blade about 8 cm long (Fig. 7). The piece has a yellow colour (ferric oxides) and exhibits a slight sheen in places, which may be attributed to sand polishing. The blade was found in a secondary context, but in a section of the gravel pit from which the top soil had been removed beforehand, thereby excluding the possibility of its admixture. A further consideration is the fact that sand was adhering firmly to the blade, that, according to the sedimentologists, could scarcely have come from the upper layers of the gravel pit.

The most likely explanation is that the find bearing deposits were deposited by melt water during the Late Weichselian (glacial outwash), although the possibility cannot be excluded that these are fluvial deposits dating from the Eemian and early parts of the Weichselian glaciation. There is a good deal of evidence to suggest that the Kolding valley already existed in the Eemian Interglacial. The current view of Danish as well as Swedish geologists is that the last Ice Age did not really produce the previously assumed violent transformation on the landscape. It is possible, therefore, that the Seest finds must be explained in relation to the existence of *Kolding Ådal* (Kolding river valley) at a much earlier stage than previously assumed.

Fig. 6. Right and left humerus of fallow deer from Hollerup - split in the same way to get at the marrow. Photograph: Geert Brovad. Scale in cm.

2.7. ISOLATED FINDS; ARTEFACTS RESEMBLING HANDAXES

Mention must also be made of a couple of Danish finds which bear a striking morphological and technological resemblance to Acheulean handaxes (Becker 1971). One of these is mentioned on a number of occasions in the

published literature and has been endorsed as a genuine handaxe by leading experts from other countries. However, the manner in which it was obtained and its provenance pose considerable problems. The artefact is said to have been found at Villestrup, in the north of Jutland, after which it passed into the hands of a wealthy collector. This amateur archaeologist purchased archaeological specimens from an archaeological dealer, who bought specimens in France. This has given rise to so many misgivings surrounding the provenance of the artefact, that it should now definitely be disregarded. The other artefact, which has also received the endorsement of foreign experts, was found on the beach at Fænö, an island situated in the Lillebælt Strait between Funen and Jutland. It could equally be a Mesolithic flint core axe or a Neolithic artefact. The problem facing us – at least in South Scandinavia – is the difficulty, if not impossibility, of distinguishing between genuine handaxes and Late Neolithic blanks for daggers, spearheads and corn sickles. This debate has continued in Denmark for many years and cannot, in all fairness, be said to be making any progress (Glob 1972).

A fragmented and heavily rolled artefact with an altered surface, resembling a handaxe, was found at *Karskov Klint*, a coastal cliff on Langeland, an island south of Funen; details were published by a German archaeologist and a Danish geologist (Grote and Maagaard Jakobsen 1982). The impression with which one is left after reading the article is that the artefact was found *in situ* in a moraine layer, having been deposited during the most recent – Young Baltic – transgression. This is not correct, however. It was found in secondary context on the beach below the cliff (cf. E. Maagaard Jakobsen, personal communication).

3. The oldest uncontestable traces of human occupation

The remains of what is generally accepted as the earliest settlement belong to the Hamburgian Culture. The oldest sites were investigated as late as 1981-84 at Jels, in southern Jutland (Holm and Rieck 1992). Further settlement remains have been confirmed in more recent years on southern Jutland (Holm 1993), and in eastern Denmark (Vang Petersen and Johansen 1993). One site in southernmost Sweden yielded artefacts which share certain features with the earliest finds in Denmark (Larsson 1994). Radiocarbon dating of reindeer bone associated with remains from the Hamburgian Culture have produced a date of 12,520±190 BP (AAR-906) (Holm 1993). The Bromme Culture from the Allerød Interstadial enjoys a rather more widespread distribution in the Scandinavian peninsula. It is not until the early part of the Preboreal that settlements spread rapidly as far north as northernmost Norway.

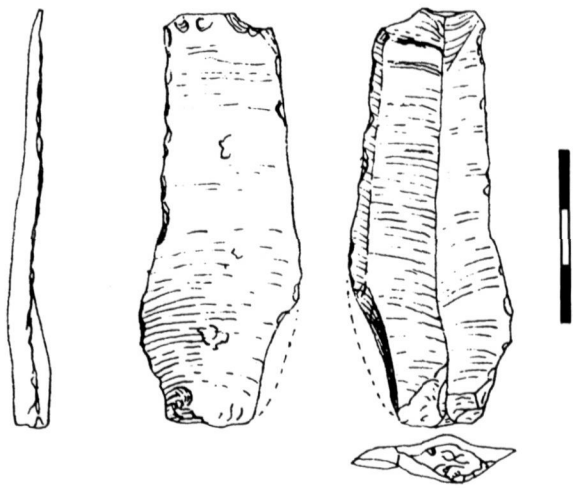

Fig. 7. Flint blade from Seest. Drawing: Erik Westerby. Scale in cm.

4. Discussion

Although a detailed knowledge of Palaeolithic settlements in South Scandinavia during the period 14 500 - 10 000 BP has gradually been built up, the study of the Lower, Middle and most of the Upper Palaeolithic is still at a controversial and pioneering stage. There is no lack of finds in Denmark which point to a fascinating technical and morphological similarity with Lower and Middle Palaeolithic types of implements in other countries. However, since most of these were found in secondary locations, detached from their original geological contexts, they are debatable. On the basis of an assessment of climatic and natural conditions, there is nothing that would have prevented humans from living in South Scandinavia, at least during interglacial periods and interstadials long before the last glaciation (Andersen 1979; Aaris-Sørensen 1988). In order to develop an idea of when the first people may have arrived here, it is obvious to take as a starting point the oldest finds in the neighbouring countries to the south. If we look at Germany and England, for example, it is clear that these sites belong to the earliest in Europe (Roebroeks *et al.* 1992).

What reasons are there that can explain why we are lagging so far behind our colleagues in countries to the south of Denmark? The most pessimistic explanation would be that we are searching for phantoms, and that, in spite of favourable climatic and natural conditions, there was quite simply no settlement so far north during the Lower and Middle Palaeolithic. However, we are more inclined to point to other reasons. First and foremost, there is no research tradition in this area, which will only be established once

we have tangible, reliable finds to work with. We also lack the expertise which can only be achieved through daily contact with and firsthand study of artefact material dating from these periods.

This is a vicious circle which is made even more difficult by the fact that, for many years, the majority of Scandinavian archaeologists have refused even to discuss the possibility of such an early settlement in Scandinavia. On the whole, this topic has been taken up only by unbiased and intrepid amateur archaeologists, who do not have a career to worry about, although they are known to approach their work in a somewhat uncritical and overenthusiastic manner on occasions. It is nevertheless typical that the Late Palaeolithic finds and the more or less uncertain finds of an Lower or Middle Palaeolithic character of which we are also aware have been discovered by amateur archaeologists in the majority of cases.

The defeatist attitude to the problem amongst professional Scandinavian archaeologists is not entirely without justification, however. It is however necessary to emphasise that, apart from its marginal, northern location, Scandinavia was repeatedly covered with icecaps over the long period with which we are concerned here. This hampers the discovery of finds dating from the Lower and Middle Palaeolithic, which in most cases may be expected to be in secondary context and deeply buried. By all accounts the Saalian icecaps covered the whole of Scandinavia which reduces the chances of discovering Lower Palaeolithic finds, for example from the Holsteinian Interglacial. Chances of discovering finds from the Eemian Interglacial and later periods are better, however. There is a distinct possibility of such finds being made in the landscape created by the Saalian ice in Southwest Jutland, as this area was not crossed by the ice during the Weichselian glaciation. In other words, there should be excellent chances of discovering archaeological material here going back at least 130,00 years.

There are grounds for optimism in the fact that totally reliable finds have been made in northwest Germany, in an identical landscape (the *Altmoränen*), for instance at Schalkholz, where flint flakes were found in a peat deposit which could be dated to the Brørup Interstadial (Arnold 1978; Hartz 1986). And a fairly large number of heavily modified flint artefacts, including a hand axe of convincingly Middle Palaeolithic character, was found on the surface of a hill near Drelsdorf in the Husum area (Kreis Nordfriesland), quite close to the German-Danish border (Hartz 1986).

The view of the authors is that the hypothesis, which maintains that all Lower and Middle Palaeolithic find occurrences in Scandinavia must be regarded as having been obliterated by subsequent ice transgressions and erosion, is too pessimistic and in fact represents the largest obstacle to a breakthrough in this area of research. One could state, with equal justification, that the very same glacial and erosional processes that are capable of destroying, are equally capable of protecting or, in favourable circumstances, of bringing originally deeply buried finds to the surface. This is supported by examples from other countries: High Lodge in England (Ashton *et al.* 1991) and finds from various gravel-pits in the Netherlands (Stapert 1981). In addition, Early Palaeolithic material in the northern parts of Scandinavia may have survived in rock fissures and caves, as were the approximately 200,000 years old finds from the Pontnewydd cave in North Wales, covered by ice on several occasions (Green 1984).

If one were to attempt a rough summary of the Danish finds referred to above, it is clear that none of these is sufficiently reliable to survive a thorough source-critical evaluation. Even if deeply buried, there are strong indications that the finds were not in primary context. One interesting consideration is that Scandinavian archaeologists have adopted a dismissive or extremely doubtful attitude to attaching a great age to the finds, whereas archaeologists from other parts of Europe with considerable expertise in Palaeolithic finds and the circumstances in which finds are made do not display the same negative attitude. Although they may not be entirely familiar with the material culture from South Scandinavia, the fact should not be overlooked that they have intimate knowledge of the problems associated with the finds. Archaeologists in other parts of Europe are also faced with the challenge of distinguishing between Neolithic and Palaeolithic artefacts collected as surface finds.

notes

1 John Wymer took part in the investigations and considers the material to possess Lower Palaeolithic characteristics.

2 The material was examined by Alain Tuffreau, who visited the locality in 1981, Gerhard Bosinski and Jan Michal Burdukiewicz.

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