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Palaeolithic and Mesolithic: introduction

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THE
PREHISTORY
OF THE
NETHERLANDS

VOLUME 1

Edited by

J.P. Louwe Kooijmans



The Prehistory of the Netherlands

Volume I

Edited by

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Note on the dates used in this book

Dates before 50,000 are based on various physical dating techniques, other than radiocarbon, and expressed as 'years ago'.

Dates in the period 50,000-10,000 years ago are based on uncalibrated radiocarbon dates and expressed as 'years ago' or 'years BP' (= Before Present).

Dates in the last 10,000 years are based on calibrated radiocarbon dates and expressed as 'years BC'. Only these dates can be equated with calendar or solar years.

See chapter 1, section 'periods and dates' for the principles of radiocarbon dating.

Part I

Hunters and gatherers

The Palaeolithic and Mesolithic together span a relatively long period of 2.5 million years, in which the only means of subsistence were hunting, fishing and gathering. As the great majority of the Palaeolithic and Mesolithic artefacts known to us are made of stone, this period is referred to as the 'Stone Age'.

In the Palaeolithic, or Old Stone Age, the earliest hominids gradually evolved into modern humans, first of all exclusively in East Africa and from 1 million years ago also elsewhere, but only in the past 500,000 years in Europe, too. Towards the end of the Palaeolithic, 'fully modern man' or *Homo sapiens sapiens*, developed an efficient tool kit that enabled him to survive the severe last ice age as a specialist hunter of the large herds of migrating ungulates. His rich spiritual world he expressed in various art forms, the best known being the cave art of the Dordogne and the Pyrenees. The archaeological differences between the Upper Palaeolithic and the preceding period are so great as to have triggered an intensive discussion as to how much the behaviour of the earlier hominids, such as Neanderthal man, resembled that of those later, modern, humans.

At the end of the last ice age, around 10,000 years ago, the hunters switched to an entirely new hunting strategy comprising the broad-range exploitation of the wide diversity of resources that were to be found in the forests and lakes that characterised the landscape of those days. This period of hunters in a temperate climate we call the Mesolithic, or Middle Stone Age. The key archaeological characteristics of this period are small, geometric flint artefacts, or microliths, with which the wooden and bone hunting implements were equipped. In many regions man developed a sophisticated system with strategically positioned sites and seasonal use of different resources. An important innovation was the intensive exploitation of water using canoes, fish weirs and fishing nets.

4 Palaeolithic and Mesolithic: introduction

Wil Roebroeks and Annelou van Gijn

INTRODUCTION

After shaking off the 'Great Chain of Being' – a chain in which the beings created by God all had a fixed and unchanging place – Western mankind has since the 19th century constantly been preoccupied by the question as to what distinguishes us from our evolutionary ancestors and relatives: 'What is a human being?' This question has been answered in anatomical terms (shape of the skull, brain size, upright gait, etc.), in terms of cultural criteria (use of tools, 'art', language) and also with a genetic definition (obtained via DNA research). The different perspectives vary considerably and are difficult to combine, because it has been found that for example anatomical characteristics cannot always be correlated with particular types of material culture.

The answers that have been given to the question 'What is a human being?' differ substantially from a historical viewpoint, too. Some anthropologists around the transition to the 20th century maintained that many hunter-gatherers were to be regarded as human beings who were (culturally and anatomically) 'not modern': Tasmanians, Aborigines, Bushmen and Inuit were seen as contemporary 'primitives', as 'savages' who had remained behind on some lower rung of the evolutionary ladder (fig. 4.1). Nowadays such synchronous distinctions are no longer made and the origins of modern man, *Homo sapiens sapiens*, have been pushed back tens of thousands of years. According to one scenario for the origins of modern humans, *Homo sapiens sapiens* individuals originated in Africa more than 200,000 years ago and then gradually spread from there to other parts of the world, where they ultimately replaced the earlier, 'more primitive', occupants. Another theory claims that groups of hominids (*Homo erectus*) spread across the world from Africa at least a million years ago and then gradually evolved into our own species in the different parts of the world.²



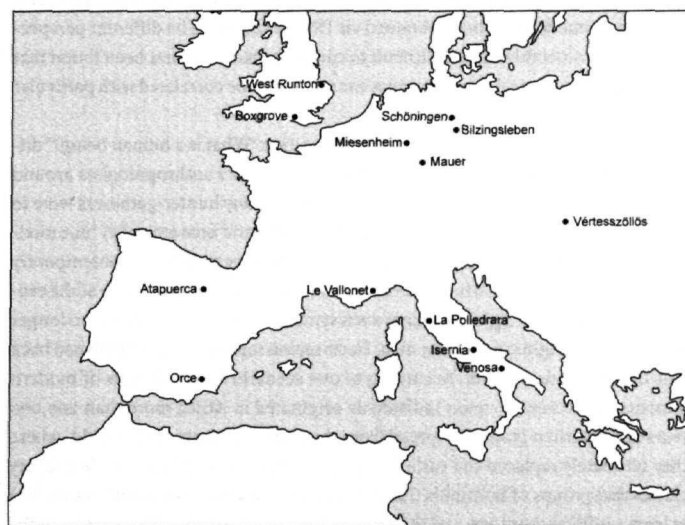
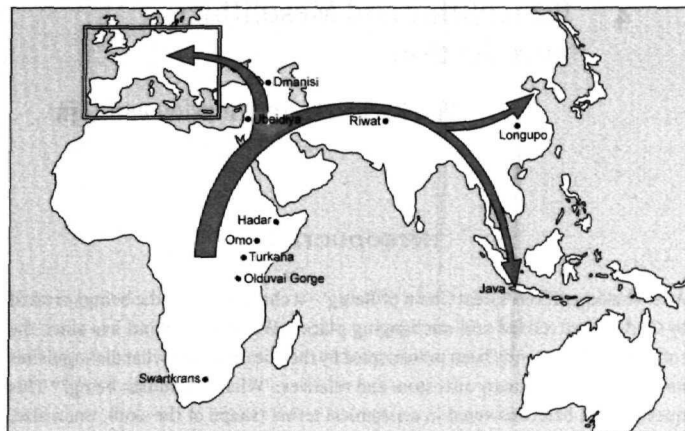
fig. 4.1

A hundred years after James Cook's draughtsman had depicted occupants of Tierra del Fuego in front of their huts, people from this archipelago who had been taken prisoner were exhibited as 'cannibals', as here at the 1889 World Fair in Paris. This group was later to be exhibited in England and Belgium, too. These people were regarded as direct representatives of 'primitive man' who had roamed Europe in the distant past. They were thought to belong to some subhuman species, and were treated accordingly.

500,000 years ago to 5300 BC

fig. 4.2

It is generally assumed that the first hominids originated in East Africa, on the basis of the many fossil human remains found in that region from the period of 4 to 1 million years ago. From there, these hominids gradually spread all over the world. The map shows some of the key sites in the discussion of the earliest occupation of Eurasia. Evidence found at some of these sites yielded ages suggestive of a very early hominid presence, from 1.8 MA (Java, Longupo) or even earlier (Riwat), though these claims are contested, as are those for a comparable early presence in Europe, e.g. at Orce (Spain).



Whether one opts for the first or the second scenario, there is one thing that remains the same and that is that Africa is to be seen as the cradle of humankind (fig. 4.2). Almost all the locations that have yielded human fossils and implements of more than 1.5 million years old lie in Africa. The earliest hominid³ is *Australopithecus*, with the respectable age of 4 million years. Of the various forms of this hominid, *Australopithecus afarensis* has become very famous thanks to the discovery of 'Lucy', a large part of the skeleton of an approximately 1.10-m-tall adult female who lived in East Africa more than 3 million years ago. Sometime between 2 and 2.5 million years ago the first representatives of the genus *Homo* appeared: *Homo habilis*. The earliest archaeological sites – small concentrations of stone tools and the waste formed in tool manufacture and bones – date from this same period. It is to this tool manufacture that *Homo habilis* thanks his name of 'handy man'. The oldest fossils of *Homo erectus* are some 1.6 million years old, which is also the possible age of the earliest hominids venturing out of Africa, for example into what is now Georgia. They do not seem to have made their appearance in Europe until some time later: that actually makes Europe a periph-

eral area, in terms of both its earliest occupation and its situation relative to the African area of origin. For historical reasons Europe is however a very important archaeological area, for thanks to its long tradition of geological and archaeological research, the history of occupation of this rich part of the Old World is better known than that of any other area. Consequently, extensive research can be carried out in Europe into the differences in the archaeological remains left behind by 'modern humans' and their ancestors, the Neanderthals and earlier hominids. The key question in this research, however, is again how to define 'modern humanity'. Different perspectives (anatomical, cultural or genetic) yield different answers to this question.

HISTORY OF THE RESEARCH

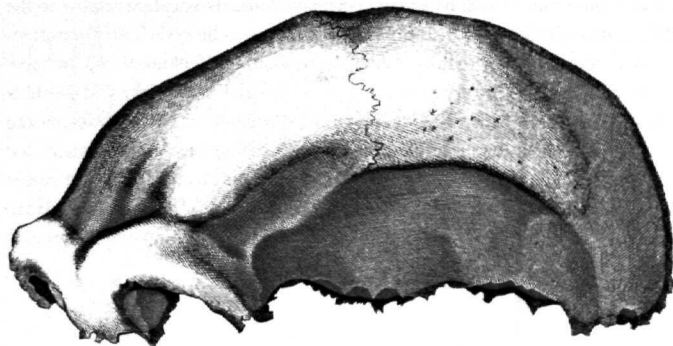
Our present chronological framework is rooted in nineteenth-century attempts to classify the overwhelming quantity of archaeological remains that came to light in the second half of that century. Many of those remains were found during building and digging projects launched in the wake of the industrial revolution. The chronological sequences that were set up in those days can also be seen in the light of the contemporary economic and social changes: archaeology and geology demonstrated that change was actually something that took place in all eras, something 'natural' that led to progress. This evolutionary perspective, in which 'old' stood for 'primitive' and 'young' for 'complex', more 'developed', had a profound influence on archaeological frameworks; our current chronological sequences are in fact still based on this same perspective.

In the early 19th century Thomsen divided prehistory into three ages: a Stone, Bronze and Iron Age. The many new finds that were discovered in the course of that century led to refinements in this Three Age System. In 1865 a *période de la pierre taillée* or period of chipped stone tools (the Palaeolithic or Old Stone Age) and a *période de la pierre polie* or period of polished stone tools (the Neolithic or New Stone Age) were distinguished. It was assumed that these two periods were separated by a hiatus (in occupation). However, around the end of the 19th century researchers discovered more and more occupation layers between the horizons containing typical Palaeolithic and Neolithic finds. It was only in the 1920s that the term Mesolithic came to be commonly used for this transitional phase.⁴ The adherents of the aforementioned theory of evolution found it difficult to accept the Mesolithic as a transitional phase, for the material culture of this phase was found to be very poor compared with that of the reindeer hunters of the last phase of the Palaeolithic with its mobiliary art and its well-known rock paintings. For many years the Mesolithic was regarded as a period of degeneration, a view that was not particularly conducive to research into this period.⁵

Dutch research has played virtually no role in these chronological debates; it has in fact played virtually no role in prehistoric archaeology at all. Nevertheless, one of the researchers of the early years of prehistoric archaeology was a Dutchman (be it of Austrian birth), namely the physician Schmerling (1791-1836). In 1833-34 he published the results of his research in caves in the surroundings of Liège, which in his opinion demonstrated that people had lived in those caves in times when extinct animals like mammoths, woolly rhinoceros and cave-bears had roamed those areas.⁶ Schmerling's views met with a good deal of scepticism, like those of a later pioneer, Boucher de Perthes (1788-1868), who studied fossils of extinct mammals found in association with stone tools in the gravel pits in the valley of the Somme in northern France. Boucher de Perthes' findings were not to

fig. 4.3

Skullcap of a Neanderthal man which was found along with other bones when a cave near Düsseldorf was emptied in 1856. After a long search, German archaeologists have recently traced part of the cave's fill, including some skeletal remains that proved to fit the original Neanderthal skeleton.



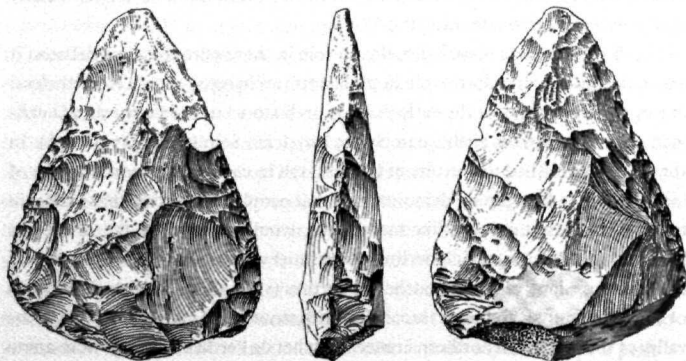
receive scientific recognition until 1859, the year in which Darwin's 'On the Origin of Species' was published.

Another important 19th-century researcher was the Dutchman Eugène Dubois, whose investigations on Java led to the discovery of *Pithecanthropus* (now *Homo erectus*). Dubois, from the village of Eysden near Maastricht, was greatly influenced by the important discoveries that had been made in the vicinity of his home region, such as the Neanderthal skeletons found in the Neanderthal near Düsseldorf (1856, fig. 4.3) and in the cave of Spy in Belgium (1886). One of the excavators of the Spy remains, the archaeologist De Puydt from Liège, described a number of 'Mousterian' tools that had been found in the vicinity of the Neolithic flint-mining site between Rijckholt and Sint-Geertruid, where Dubois had also collected stone tools.⁷ This site yielded a large number of Middle Palaeolithic artefacts, which attracted the attention of mostly Belgian archaeologists at first, especially archaeologists from Liège. Among the latter was professor Hamal-Nandrin, who conducted excavations at Rijckholt until the 1950s.⁸

In the Netherlands, research into the Old Stone Age and the Mesolithic was for many years carried out essentially by amateur archaeologists. It was only around 1920 that Upper Palaeolithic and Mesolithic assemblages were identified as such in the Netherlands, in both the northern and southern parts of the country; Middle Palaeolithic artefacts remained scarce. The first hand axe in the northern half of the Netherlands came to light in 1939, near the village of Wijnjeterp in Friesland (plate 8A).⁹ The 1950s and 1960s saw an increase in excavations of Palaeolithic and Mesolithic sites, in both the north and the south of the country. Much of the impetus behind this activity came from the fruitful cooperation in excavations and

fig. 4.4

Hand axe that was found near Anderen on the boulder clay plateau of Drenthe. The artefact shows an intense orange patination, similar to the hand axe from Wijnjeterp (plate 8A) and is – especially at the top – severely weathered. Scale 1:2.



publications between the archaeologist Bohmers from Groningen and the friar Aq. Wouters, who performed research in the south of the country. Their main concern was establishing typological and chronological sequences.

That was also the primary objective of the excavation of the alleged Middle Palaeolithic site Hoogersmilde, which was discovered by the amateur archaeologist Vermaning in 1965 and was excavated by archaeologists of Groningen University. Ten years and several site publications¹⁰ later, archaeologists of that same university reported that the artefacts were forgeries. The main giveaway was the artefacts' lack of wear: the absence of evidence of natural changes on the surface of stones that must have lain close to the surface for tens of thousands of years made it highly unlikely that the finds were genuine. Another argument was that many of Vermaning's finds showed characteristics (such as rounded edges) that are not observable on natural flints from that region. The commotion caused by Vermaning's finds drew the attention of amateur archaeologists to the older phases of the Stone Age. This found expression in for example research into the deposits that had been pushed up by the advancing Saalian ice sheets in the central part of the Netherlands (fig. 4.5). These deposits were found to contain artefacts from before the Saalian glaciation, which consequently had to be at least 150,000 years old. Palaeolithic finds came to light at many locations in other parts of the country, too, for example in the valley of the Meuse in Limburg.

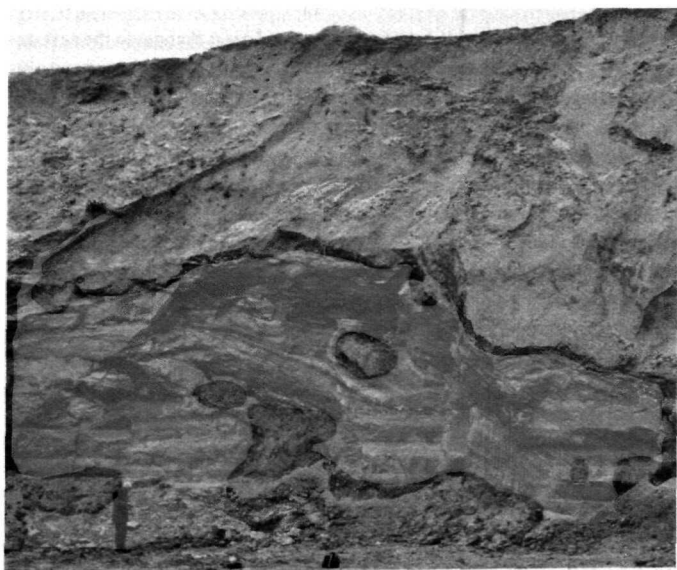


fig. 4.5
River deposits pushed-up by the ice during the Saalian glacial in the Kwintelooijen quarry near Veenendaal. In the 1970s many flint artefacts were found in this and other quarries in the ice-pushed ridges in the central part of the Netherlands. They show that the Netherlands was occupied already before the advance of the Saalian glaciers, 150,000 years ago.

During the 1970s, the former aim in Palaeolithic and Mesolithic research of establishing typological and chronological sequences gradually gave way to a different approach. One of the main new research topics concerned aspects of early settlement systems, both on site level, as in the thorough excavation of a large Mesolithic site near the Bergumermeer,¹¹ and on a much larger scale, as in the model developed for the hunting territories of Late Glacial hunter-gatherers.¹² In view of the absence of organic remains, the emphasis in this research was on the interpretation of flint scatters; site typologies were set up for the Mesolithic sites on the basis of the composition, shape and size of those flint scatters.¹³

The 1980s saw a major revival of interest in the Palaeolithic and Mesolithic. One

of the projects launched in this period involved the gathering of all the available data on Lower and Middle Palaeolithic occupation remains in the southern part of the Netherlands; that led to the discovery of a series of Middle Palaeolithic sites in the Belvédère gravel pit near Maastricht.¹⁴ The first Magdalenian sites were discovered and excavated in the loess region of southern Limburg and an inventory was made of all the Upper Palaeolithic and Mesolithic sites in the coversand areas of the Kempen region¹⁵ and the three northern provinces.¹⁶ Much of the research in those years was conducted on a regional level and focused on the reconstruction of subsistence patterns, seasonal occupation cycles and site locations.¹⁷ Typological and chronological questions remained important, but the emphasis had clearly shifted to the behaviour of Pleistocene and early Holocene hunter-gatherers.

The employed research methods have also changed over the years. Among the latest dating methods are thermoluminescence and electron spin resonance¹⁸ but more important information can be obtained from for example refitting experiments and microwear analysis¹⁹ and from new methods for the spatial analysis of Stone Age sites.²⁰ In some cases the combined use of several of these methods and techniques can lead to a clear understanding of the dynamics of prehistoric sites, even those that consist of nothing more than flint scatters.²¹

CLIMATE AND ENVIRONMENT

The Quaternary saw major climatic fluctuations and great changes in the environment. In the coldest phases of the glacials large volumes of water from the oceans were absorbed into the expanding continental glaciers, causing the sea level to fall several dozens of metres worldwide. One of the consequences of this was that the North Sea basin between the Netherlands and Great Britain dried out. During the interglacials the land/sea ratio was largely the same as it is today (see chapter 3).

Most of our information on climatic and environmental conditions during the various Palaeolithic and Mesolithic occupation phases in the Netherlands comes from non-archaeological sites, because organic remains have been preserved at only very few archaeological sites. One of those is Maastricht-Belvédère, where excavations have yielded a wealth of interglacial faunal remains with an approximate age of 250,000 years.²² Here early humans had camped in a marshy river valley with a dense vegetation surrounded by thickly forested higher grounds. The sites lay along former meanders of the Meuse that were slowly drying out. The mammalian fauna (25 species) and the molluscs (over 70 species) show that the area was visited during the climatic optimum of an interglacial. The mammals included straight-tusked elephant, steppe rhinoceros, giant deer, bear, red deer and roe deer. Remains of the pond tortoise (*Emys orbicularis*) indicate that the mean summer temperature must have been slightly higher than it is today. Northern Europe was at this time probably covered with dense deciduous forests. The river valleys, however, will have contained large clearances, created by for example grazing herbivores. The Pleistocene vegetation differed somewhat from one interglacial to another. It has been pointed out that Europe was covered with a fairly uniform deciduous forest vegetation during interglacials when the sea level was high, whereas the vegetation must have been more open in interglacials with a relatively low sea level.²³

There is much discussion about the ecological tolerances of pre-sapiens sapiens-groups. Whereas some researchers claim that before the arrival of modern humans in northern Europe full-interglacial environments saw no human occupation as pre-moderns were only able to adapt to intermediate conditions – neither

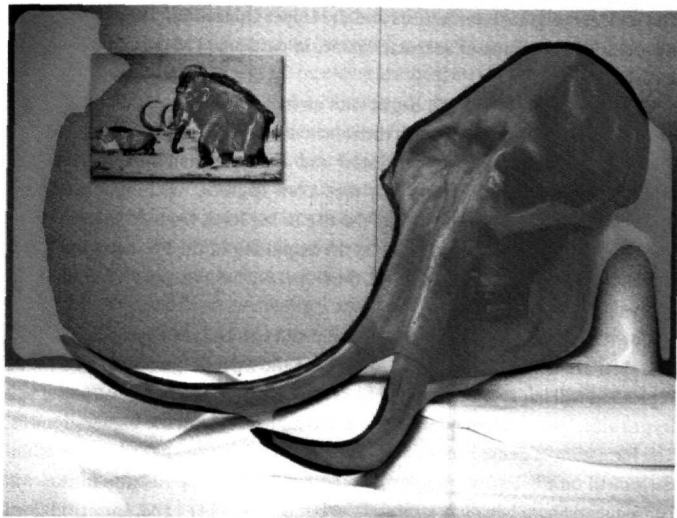


fig. 4.6

Skull of a young mammoth dredged up in the river district. During the last glacial the landscape in this part of the world consisted of a steppe-like environment, inhabited only in the summertime by cold-resistant animals such as mammoths.

too cold nor too warm (and densely forested) –, others state that the ‘archaics’ were capable of survival in a wide range of environments and that only the oldest glacial phases led to local occupation gaps. But then, a hiatus of more than 15,000 years is also observable in the Upper Palaeolithic occupation remains, around the glacial maximum of the Weichselian.²⁴ The cold loess steppes were already being exploited during the penultimate glacial, the Saalian, and probably much earlier, too.²⁵ This is not surprising, though, as it has been demonstrated that these regions had a wealth of faunal resources.²⁶ There is little sense in attempting to use present-day arctic tundras to model the vegetation at the time of the Pleistocene occupation of these regions, because both fauna and vegetation were then both far more productive. One of the great differences between the arctic tundras and the former ‘mammoth steppe’ is that the latter had no polar nights or polar days; in the summertime, with the sun high in the sky, it must indeed have been quite warm. The term ‘mammoth steppe’ is used to indicate an association of vegetation and fauna for which there are no modern parallels. The vegetation included both tundra species and a wide range of grasses and herbs: food for the large herbivores, which, as appears from their fossils, lived here in large numbers (fig. 4.6). In the interstadials the treeless mammoth steppe with its large game population alternated with a vegetation largely dominated by trees, in particular birch and pine. It is in those environments that we are to envisage the Late Glacial occupants of the Netherlands: open types of vegetation with herds of migratory animals like reindeer during the stadials, and denser forest vegetations with mainly sedentary game like elk and roe deer during the warmer phases, such as the Bølling and the Allerød. Each period will however have been characterised by a considerable degree of spatial diversity, with substantial differences between for example the vegetations of river valleys and those of higher grounds.

The transition from the Late Glacial to the present interglacial, the Holocene, took place in very much the same way as previous glacial/interglacial transitions. The first Holocene climatic phase, the Pre-Boreal (9000-8000 BC), was characterised by the expansion of birch forests; coniferous forests were dominant in the southern part of the Netherlands from the start. The steppe-tundra vegetation disappeared entirely. The substantial rise in sea level caused the amount of area available for occupation to decrease considerably in the course of the Pre-Boreal.

The reindeer migrated northwards and the Upper Palaeolithic fauna was gradually replaced by a fauna of sedentary game, in particular red deer, roe deer, elk, aurochs and wild boar.

The Boreal (8000-7000 BC) began with an increase in hazel; that species will have dominated the forests, which then also started to include pine and, later on, oak and elm. The forests became denser and more impenetrable. The evidence suggests that the temperature slowly rose a few degrees, reaching a maximum in the Atlantic. As a consequence of the rise in sea level, from 60 metres below Amsterdam Ordnance Datum (NAP) at the beginning of the Pre-Boreal to 8 metres below NAP in the Middle Atlantic, the North Sea basin gradually became submerged.

The marked increase in the pollen of elm and oak and the appearance of lime and alder are taken to mark the beginning of the Atlantic (7000-3800 BC). The vegetation will have varied from mixed deciduous forests in stream and river valleys to alder carrs around pools and oak and lime forests on the higher grounds. The formation of dense canopies will have led to a decrease in the amount of undergrowth on the higher grounds. On the one hand, these Atlantic forests will consequently have been more accessible, but on the other hand, they contained a narrower range of animal and plant resources, making them less attractive for game and human occupation. In the Atlantic, peat started to grow in the Netherlands on a large scale for the first time, especially in Drenthe and eastern Brabant and along the coast.

CULTURAL TRADITIONS

The Old Stone Age has been divided into three phases, the Lower, Middle and Upper Palaeolithic, on the basis of developments in the manufacture of stone tools, which are often the only remains that have survived from this distant past.

Middle Palaeolithic flint industries differ from the industries of the preceding Lower Palaeolithic in that they were produced according to a more complex knapping technique, known as the Levallois technique. This technique enabled the prehistoric flint knappers to make much more efficient use of their raw materials than had previously been the case. The introduction of a blade technology (see feature A) has been taken to mark the transition from the Middle to the Upper Palaeolithic.

Within this general framework a number of 'cultures' or 'traditions' have been distinguished on the basis of typological features of the stone tools. The majority of the cultural sequences were set up in the 19th century, when attempts were made to classify archaeological remains according to a system resembling that used by geologists, with type fossils and type sites. The Lower Palaeolithic 'hand axe tradition' was consequently named the 'Acheulean', after the finds in the gravel quarries at St. Acheul near Amiens in northern France. The Neanderthal period was named the Mousterian, after the site Le Moustier in the Dordogne. Within these rough divisions finer subdivisions have been established. Nowadays, however, these specific cultural classifications are being used increasingly less for the Lower and Middle Palaeolithic because, rather than to provide information, these labels in fact tend to mask variation.

This is less true where the Upper Palaeolithic is concerned. The terms originally introduced for the cultures and traditions of that era are still frequently used today, although the boundaries between the different groups are often vague. The Netherlands has yielded almost exclusively finds from the last phase of the Upper Pal-

aeolithic, the Late Glacial (13,000 to 10,000 BP).²⁷ Within the short period of time spanned by this phase no fewer than five traditions have been distinguished on the basis of characteristic tool types. The oldest are the (Late) Magdalenian and Hamburgian traditions, which are in the Netherlands dated roughly between 13,000 and 12,000 BP. The Dutch Magdalenian sites lie along the northern periphery of the distribution area of this tradition, which covers large parts of Western and Central Europe. The Hamburgian tradition is a phenomenon of the North European Plain, covering an area from southern England to Poland. It is often assumed to have originated in the Middle Magdalenian.²⁸ Late Magdalenian finds have been found only in the southernmost part of the Netherlands. This phase is characterised by an advanced blade technology, which was used to produce small backed blades, scrapers on blades and burins. Remains of the Hamburgian tradition have been found in the northern part of the Netherlands. Conspicuous tools among this culture's lithic remains are shouldered points, tanged points and so-called 'Zinken', asymmetrically pointed boring tools.

The latest Upper Palaeolithic traditions, the Creswellian, Tjongerian and Ahrensburgian traditions, are dated between 12,000 and 10,000 BP. The Tjongerian tradition forms part of a large-scale Western European phenomenon, namely that of the *Federmesser* groups, which is characterised by a decrease in the importance of burins and an increase in the proportion of short scrapers, *Federmesser* and points with arched backs (known as Tjongerian points). In the Netherlands this tradition was in the past dated to the Allerød interstadial, but its time span is in fact greater than originally assumed, extending into the Younger Dryas at least and possibly even into the Pre-Boreal.²⁹

Little is known about the chronology of the Creswellian culture, but it is believed that it is to be dated to the first half of the Allerød (see chapter 6). Characteristic of this culture are points with one or two obliquely blunted ends, known as Creswellian and Cheddarian points, respectively. As with the Hamburgian tradition, it is not certain where the roots of this culture lie: some archaeologists associate it with the Hamburgian tradition while others prefer to class it with the *Federmesser* group.³⁰ According to Arts, the Creswellian assemblages that have been identified in the southern part of the Netherlands can in fact not be distinguished from the *Federmesser* remains found in that region.

The youngest tradition is that of the Ahrensburgian group, so called after the site of Ahrensburg-Stellmoor in northern Germany, a reindeer hunters' camp dating from the Younger Dryas. A small tanged type of point is the type fossil of this Upper Palaeolithic tradition, which differs from the other groups in terms of the morphology of the blades, too.³¹

The beginning of the Holocene, around 10,000 BP, is traditionally taken as the base line for the beginning of the Mesolithic. Until recently, there appeared to be a chronological hiatus between the Upper Palaeolithic and the Mesolithic, but that gap is now gradually being filled with ¹⁴C dates.³² Current views place the emphasis on the continuity observable between these two periods, both in a typological and technological respect and in the types of locations selected for occupation. The problem is that it is virtually impossible to define the limits of the Mesolithic on typological and technological grounds. From a typological viewpoint matters are complicated by the fact that microliths, the type fossils of the Mesolithic *par excellence*, were already being produced in the Upper Palaeolithic. Moreover, various Upper Palaeolithic point types are also encountered at Pre-Boreal sites. The theory that the Mesolithic is characterised by a highly specific form of adaptation to the changed environmental conditions (from a steppe-tundra to a forest vegetation) and the related changes in the composition of the fauna (from a fauna dominated

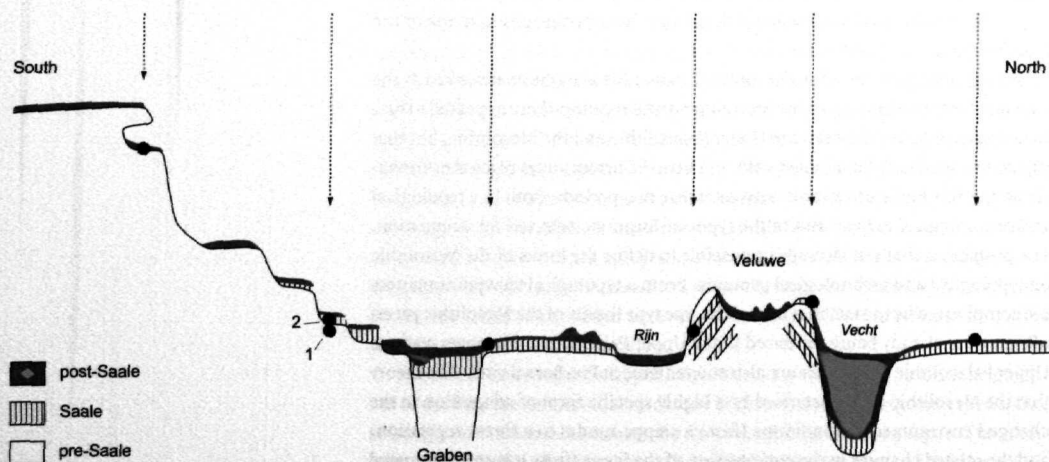
by herds of migratory animals like reindeer to one consisting of species with reduced mobility such as red deer, auroch and elk) is no longer tenable. It has been found that similar changes had taken place previously already, for example in the Allerød, without bringing about fundamental changes in the material culture.

It is also difficult to define the end of the Mesolithic in the Netherlands. The criterion used for the beginning of the Neolithic is the appearance of the first agricultural communities. However, they appeared in the southern part of the Netherlands much earlier than in the central and northern parts. It is moreover very difficult to say whether the western and northern parts of the country were around that time occupied by 'Mesolithic' hunter-gatherers or by communities with a more mixed subsistence economy, certainly given the shortage of data available for those parts. Apart from that, some traits that are traditionally considered typically Neolithic are observable in the Mesolithic already, such as the domestication of certain animal species and pottery production. Dogs, for example, were domesticated in the Pre-Boreal, and the Danish Late Mesolithic Ertebølle culture includes pottery. No indisputable cases of associations between Mesolithic flint types and pottery have however been found in the Low Countries (see chapters 8 and 9). The most common, if not entirely satisfactory, definition currently used for the Mesolithic is hence 'the period of the Holocene hunter-gatherers'.³³

The Early Mesolithic is characterised by a great homogeneity over large parts of Europe. Characteristic of the lithic industries of this period are a versatile blade technology, a fairly limited range of microlith types (most with unretouched bases) and the occurrence of Upper Palaeolithic point types. The transition from the Early

fig. 4.7
North-south cross-section of the Netherlands from the Ardennes (left) to the Drenthe Plateau (right) showing the projections of the locations of the most important Palaeolithic sites and their relation to the geology.

site	Sclayn	Belvédère	Bakel	Rhene	Mander	Wijnjeterp
region	Namur (B)	South Limburg	Noord-Brabant	Utrecht	Overijssel	Friesland
geomorphology	plateau edge, cave	middle terrace	Horst	hills	ice-pushed hills	boulderclay plateau
Pleistocene stratigraphy	-	2. between loess dep. 1. below loess	below cover sand	ice-pushed	-	below cover sand?
geological context	cave fill	2. erosion surface 1. top Meuse levee	on top of Meuse deposits	in river deposits	surface	top glacial till
age BP	40 - 130.000	2. 80.000 1. 250.000	> 35.000	> 150.000	< 120.000	< 120.000



to the Middle Mesolithic was very gradual.³⁴ The appearance of a wider range of microlith types, in particular types made on blade segments, triangles and points with surface retouch has been taken to mark the beginning of the Middle Mesolithic (7100 BC). In the course of the Boreal the degree of regional variation increased. The Late Mesolithic (from 6450 BC) saw the appearance of wide trapezium-shaped microliths across the whole of Europe. This type may definitely be regarded as a type fossil. Other characteristics of this period are an advanced blade technology and the appearance of needle-shaped points. Some archaeologists also distinguish a De Leien-Wartena Group in the Late Mesolithic.³⁵ That group's sites are very large and often lie on the shores of lakes or along rivers. The best-known site is that of Bergumermeer.³⁶ But whether these sites are large aggregation sites or palimpsests representing the location's frequent reuse is still a matter of debate.

The first farmers arrived in the loess regions in the south of the Netherlands, the Rhineland and parts of Belgium around 5300 BC (the *Linearbandkeramik* farmers). Most researchers assume that the Netherlands was occupied by groups with a hunter-gatherer way of life, often referred to as 'Late Mesolithic tradition', until the appearance of the Michelsberg culture. The remains of these groups consist largely of small sites, situated on the sandy soils. The nature of the relationship between the hunter-gatherers and the earliest farmers is still poorly understood.³⁷

THE REPRESENTATIVITY OF THE EVIDENCE

In the Netherlands, the number of places where Palaeolithic and Mesolithic occupation remains can be found is limited because large parts of the former landscapes are inaccessible for archaeological research. This is to some extent ascribable to the fact that a large area of the Netherlands has undergone subsidence. In



fig. 4.8

Thanks to calm sedimentation in a marine bay near Boxgrove in England, flint and bone scatters dating from some 500,000 years ago have survived in excellent condition. The figure shows an impression of such a scatter at site Q1B, which, besides many other finds, contained hundreds of hand axes and some human remains.

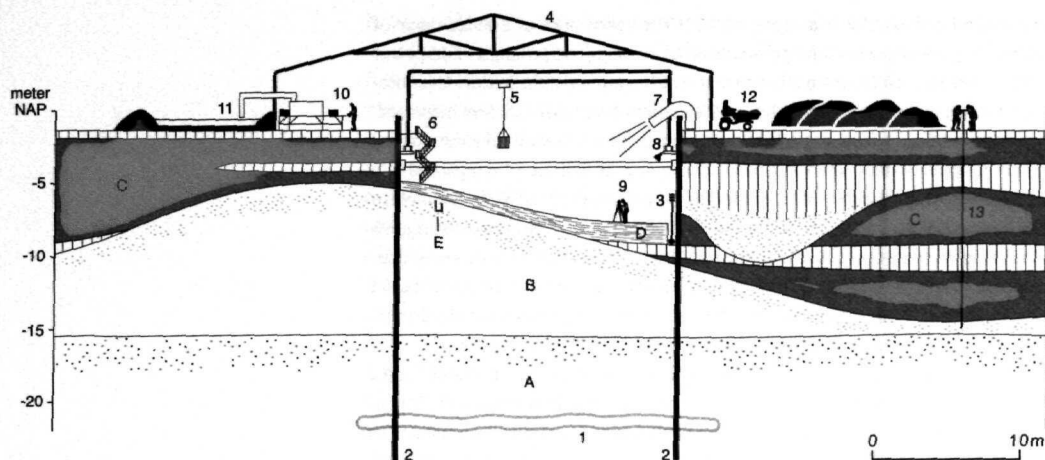


fig. 4.9

Schematic cross-section of the excavation pit of Hardinxveld-Giessendam Polderweg (1997-'98, feature D) showing the innovative techniques that make it possible to conduct excavations at such great depths beneath the surface. New legislation based on the regulations of the Malta Convention allows for financing of such excavation work. Cf. plate 11 and fig. 10.4.

Explanation:

- | | | |
|------------------------------|------------------------|-------------------------------|
| 1 injected impermeable layer | 8 floodlight | A Late Glacial river deposits |
| 2 steel sheet-piling | 9 total station | B Early Holocene river dune |
| 3 electric pump | 10 wet sieving machine | C peat and fluvial deposits |
| 4 tent | 11 water storage basin | D slope wash deposits |
| 5 portal crane | 12 caterpillar dumper | E burial |
| 6 staircase | 13 hand drilling | |
| 7 hot air blower | | |

the western part of the country and in the area of the major rivers in particular, many finds from the Old and Middle Stone Age lie too far beneath the present surface to be recovered (fig. 4.7). This is because the so-called Central Graben, a zone of long, parallel, geological faults between which the land subsides, extends beneath the Netherlands and part of the North Sea. Land has been subsiding between these faults for more than two million years. Over this period the rate of sedimentation has kept pace with the rate of subsidence and consequently deposits with a total thickness of 600 metres, here and there even 1000 metres, have been formed at an average rate of three to five centimetres per century. This means that in the subsidence areas the land surface of 200,000 years ago now lies buried beneath 60-100 metres of deposits, making it virtually inaccessible for archaeological research. The fluctuations in the sea level have also caused large parts of former settlement systems to disappear. This is for example true of the North Sea floor, which frequently emerged from the sea and must contain both Palaeolithic and Early Mesolithic sites.

Besides this 'geographical' distortion, the evidence, especially that from the older phases, also shows a climatological bias. As sedimentation was usually a much calmer process in interglacials than in colder phases, a large proportion of the well-preserved sites in Northwest Europe date from warmer phases (fig. 4.8). This is all the more remarkable because in total, those phases cover only a relatively small part of the overall Pleistocene time span: about ten to twenty percent. The fine-grained fluvial and lacustrine deposits from these phases are accessible in some gravel pits and other outcrops outside the subsidence areas. Good examples of sites found in fine-grained deposits are the well-preserved sites of Maastricht-Belvédère and the Mesolithic site of Bedburg-Königshoven (German

Rhineland).³⁸ The recently excavated Late Mesolithic sites of Hardinxveld are good examples in the Netherlands (fig. 4.9, see also feature D).

Such well-preserved sites are however exceptions in the Netherlands, where organic remains are only rarely found. Among the few organic remains that have come to light in the Netherlands are the well-known figurine resembling a male figure from Willemstad, the canoe from Pesse and the finely carved bone points from the Meuse plain. Most sites were not incorporated in deposits favouring their preservation (but at the same time reducing the chance of their recovery) and at such sites flint scatters are all that remain from the prehistoric occupants' activities (fig. 4.10). There is also a category of sites in areas where no sedimentation has taken place, where the occupation remains of successive short periods of use of specific 'magnetic locations' accumulated into substantial assemblages. In such cases the number of artefacts in itself may tell us nothing about a site's former function. This distorting effect has sometimes even been strengthened by the drifting of the sandy soil on which many of such sites lie.

A final distorting factor is the difference in the intensity of research carried out in certain areas; this has affected our picture of early settlement patterns in particular. We are, for example, well-informed about the Mesolithic occupation of the Belgian/Dutch Kempen region, thanks to the work by Vermeersch, Bohmers and Wouters, whereas we have much less information on other regions.

CURRENT RESEARCH PROBLEMS

The main current research problems concern issues that are not specifically 'Dutch', but are of importance with respect to the archaeology of hunter-gatherers in general. This is partly due to the fact that the archaeology of mobile hunter-gatherers can only be studied properly from a regional perspective; the

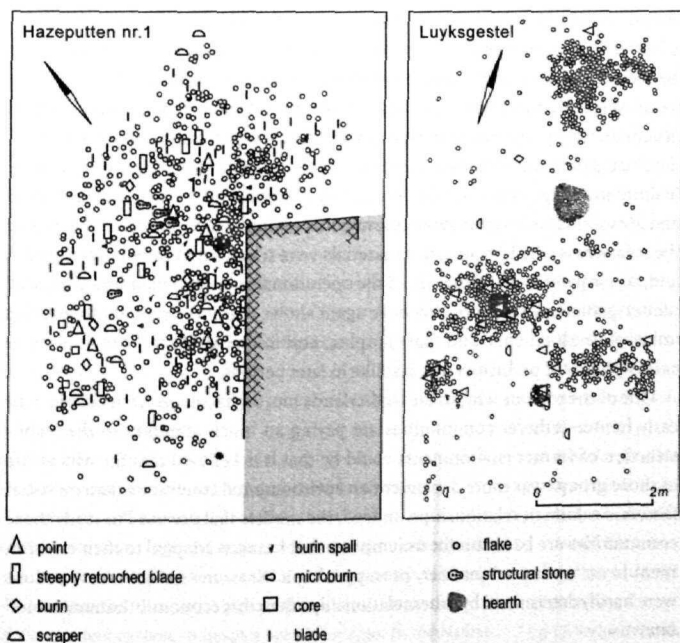


fig. 4.10
Typical plans of Mesolithic flint scatters. The typological composition of the assemblages and the dimensions of scatters of this kind are used to interpret the sites in functional terms. The Luyksgestel site is assumed to represent the remains of a series of short-lived hunting camps, while that of Sint-Oedenrode-Hazeputten is thought to be a hut site forming part of a base camp that was used for a greater length of time.

fig. 4.11

One of the two red deer skullcaps with antlers that were found in the fill of a small lake next to the Pre-Boreal Mesolithic dwelling site of Bedburg-Königshoven (Rhineland). The skullcap was perforated, indicating that it was used as a mask, either for stalking deer or in ritual performances.



studied region may vary from a so-called microregion³⁹ to the whole of Northwest Europe.⁴⁰

This is one of the main reasons why most researchers nowadays adopt what has been described as a 'landscape approach'.⁴¹ In this form of research the aim is no longer merely to arrive at detailed analyses of individual sites, but to integrate the results of the investigations of individual sites in a regional approach based on, among other things, studies of raw materials and technology. It is thanks to such studies that we now know that already at an early stage of the Middle Palaeolithic there were 'raw material links' between the southernmost part of the Netherlands and a region more than 100 kilometres further southeast: excavations in the eastern part of the Eifel have shown that tools made of flint from the Meuse region were discarded in that area during the penultimate and last glaciations. Such raw material links continued to exist in the Magdalenian. One of the questions we are now interested in concerns the processes behind these raw material transfers: are we to assume that a system of 'barter' or 'exchange' existed between neighbouring groups as early as 150,000 years ago or were the tools taken along in the course of the usual group movements and are we hence to regard them as records of prehistoric mobility patterns?⁴² The exotic raw materials of the Upper Palaeolithic and Mesolithic also reflect group movements and/or social contacts. The size of the area across which these exotic materials were transported varied over the ages and, consequently, so did the size of the operational environment of the groups of hunter-gatherers. This probably once again shows that it is irrelevant to look for univocal developments, and that complex, non-unilinear, changes took place in earlier phases of prehistory too, just like in later periods.

One of the reasons why, in the Netherlands too, archaeologists concerned with early hunter-gatherer communities are paying so much attention to the reconstruction of former environments could be that it is believed that the way of life of those groups was more dependent on environmental conditions than on social factors, i.e. human relationships. Indeed, the models that are used to study those communities are based on the assumption that humans adapted to their environment in an 'optimum' manner, presupposing a '*Homo economicus*' whose actions were hardly determined by other relationships than this economic 'human nature' one.

However, Dutch and Belgian researchers studying the later phases of the Palaeolithic and the Mesolithic consider social factors as well (fig. 4.11). Issues of current interest are the definition of ethnic units⁴³ and the degree of 'complexity' of late hunter-gatherer communities.⁴⁴ Of importance with respect to the latter topic is that many regard the hunter-gatherers of the Holocene as the people who created 'the breeding ground for the introduction of a farming economy'. The transition from the way of life of a hunter-gatherer to that of a sedentary food producer is a research topic for which many models have been set up.⁴⁵ The metaphor of the 'breeding ground' clearly illustrates the unfortunate teleological perspective that is implicitly employed in many of these models.

NOTES

- 1 See for example Corbey 1989 and Corbey/Theunissen 1995.
- 2 See Mellars/Stringer (1989) and Stringer/Gamble (1993) for a survey of the different theories in this field.
- 3 The family of *Hominidae* includes both the present human species and its extinct relatives. To be classed as hominids those relatives must have shown more affinities to modern man than to anthropoids.
- 4 Price 1987.
- 5 For many years views on the Mesolithic were largely influenced by Childe's interpretation of this period as a phase of cultural decline (1942). This picture changed with the publication of the lectures presented at the 'Man the Hunter' symposium (Lee/DeVore 1968), at which Sahlins introduced his concept of the 'affluent hunter-gatherer'. Basing himself on anthropological evidence, he argued that hunter-gatherers did not lead such a hard, marginal existence as had always been assumed, but were on the contrary capable of securing sufficient resources within a short space of time and consequently enjoyed a relatively large amount of spare time. Nowadays, anthropologists are however gradually coming to the conclusion that the picture of the hunter-gatherers presented in the 1960s is too idealistic and that their existence was indeed considerably hampered in various respects.
- 6 Schmerling 1833-'34.
- 7 For a historical survey of the Palaeolithic research at Rijckholt/Sint-Geertruid, see Roebroeks 1980.
- 8 See e.g. Hamal-Nandrin/Servais 1923.
- 9 Bohmers 1951.
- 10 See for example Van der Waals/Waterbolk 1973.
- 11 Newell 1980.
- 12 Arts/Deeben 1981.
- 13 Newell 1973; Price 1975.
- 14 Roebroeks 1989.
- 15 See for example Vermeersch 1990 and Gendel et al. 1985.
- 16 See for example Groenendijk 1993.
- 17 Grahame Clark (1936 and 1975) has had a great influence on the kinds of questions that are asked in Mesolithic research. His analysis of Star Carr (Clark 1954) in particular was most influential.
- 18 For a survey of these techniques see Aitken 1990. In the Netherlands, much use was made of these dating methods in the research at Belvédère (see Roebroeks 1988).
- 19 Van Gijn 1989, 1990.
- 20 Stapert 1990, 1992a.
- 21 One of the first examples of the systematic combined use of such techniques concerns the research at Meer (Belgium) (Cahen et al. 1979).
- 22 Van Kolfshoten/Roebroeks 1985.
- 23 Zagwijn 1992.
- 24 See Gamble 1986 and 1987 versus Roebroeks et al. 1992.
- 25 See Roebroeks et al. 1992.
- 26 Guthrie 1990. In publications on the Late Magdalenian sites Gönnersdorf and Andernach in the Neuwied Basin near Koblenz (Germany), Bosinski (1992) and others have repeatedly drawn attention to the high productivity of the Late Glacial loess steppe and the wide diversity of its fauna.
- 27 For the scarce finds from earlier phases of the Upper Palaeolithic, see chapter 6.
- 28 See for example Bosinski 1987, 129-130.
- 29 See for example Arts 1988, 299; Deeben 1988.
- 30 For a discussion of the different viewpoints see for example Stapert 1985b.
- 31 Arts 1988, 296. Arts has pointed out that the various Upper Palaeolithic groups can be distinguished on the basis of technological criteria besides on the basis of 'type fossils'.
- 32 Vermeersch 1989; Arts 1988, 1989.
- 33 Price 1987.
- 34 Vermeersch used this gradual transition as an argument for dividing the Mesolithic into only two phases, an Early and a Late Mesolithic (Vermeersch 1984).
- 35 Newell 1973.
- 36 Newell 1980; Odell 1977, 1980.
- 37 See Weelde-Paardsdrank in the Kempen region in Belgium (Huyge/Vermeersch 1982), the presence of Early Neolithic points in Late Mesolithic contexts (Van der Graaf 1988) and the research carried out by Verhart/Wansleeben (1990).
- 38 Street 1991.
- 39 Cf. Verhart/Wansleeben 1990.

40 Cf. Gamble 1986; Newell et al. 1990.

41 Villa 1991.

42 Roebroeks et al. 1988.

43 Gendel 1984; Newell et al. 1990; Verhart 1990.

44 See e.g. Price/Brown 1985.

45 See e.g. Rowley-Conwy 1984; Thomas 1988, 1991; Zvelebil 1986b. In the Netherlands this topic is being studied in the Meuse Valley Project (Verhart/Wansleebeek 1990) in particular.