

Ältestbandkeramische Kultur, La Hoguette, Limburg, and ... What else? – Contemplating the Mesolithic-Neolithic transition in southern Central Europe

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ABSTRACT – *Arguing against a sole migrationist or sole diffusionist model for the Neolithization of southern Central Europe, a combined scenario is presented. The result might have been Early Neolithic societies in which immigrant farmers and local hunter/gatherer/horticulturalists interacted in diverse ways. This interaction led to an assimilation of the local population, however not always in a pleasant way.*

POVZETEK – *Pri neolitizaciji južnega dela srednje Evrope ne zagovarjamo zgolj migracijskega modela ali zgolj modela difuzije, ampak predstavljamo kombiniran model. Rezultat so bile morda zgodnjeneolitske družbe, v katerih so na različne načine vplivali drug na drugega priseljeni kmetovalci in lokalni lovci/nabiralci/hortikulturalisti. Ti medsebojni stiki so pripeljali do asimilacije lokalnega prebivalstva, ki ni vedno potekala na prijeten način.*

INTRODUCTION

The transition to farming has been a major focus of research in Central Europe. Since the times of Gordon Childe (1929), the introduction of the new economy has been linked to the migration of people from Trans-Danubia up to the Rhine and Elbe Rivers and into Little Poland, and ultimately – in the later stages – to the Paris basin and Moldavia (e.g. *Butler 1938; Quitta 1964; Bogucki 1988; Lüning 1988; Modderman 1988; Thorpe 1996*).

However, this picture became somewhat complicated by the notification of typological and technological links between Late Mesolithic and Early Neolithic lithic assemblages (*Taute 1973/74; Gronenborn 1990; 1994*) and the recent discovery of new pottery styles and indications for small-scale farming among hunter-gatherers in southwestern Central Europe (*Jeunesse 1986; Erny-Rodmann 1996*). Thus the previously neglected role of the local Mesolithic population in the process of the Neolithization has had to be reviewed. In the course of these reconsideration, some researchers have presented models of

a solely autochthonous development of the Neolithic economy in southern Central Europe. Arguments for the various models are evaluated and a combined model of migration and local assimilation is presented.

MESOLITHIC PRELUDE

Sometime between 7200 and 6700 BC Mesolithic assemblages in central Europe and elsewhere on the continent undergo remarkable typological and technological changes. After a transitional phase between 7200 and 6700 BC, during which early trapezes make their appearance (*Gronenborn 1997 c*), the whole set of Late Mesolithic artefacts appears with the typical regular blades and various trapezoidal microliths. These assemblages are subsumed under the term Late Mesolithic (*Taute 1973/74 a; 1973/74 b*).

A remarkable phenomenon of the Late Mesolithic is the decrease in the number of sites. This decrease

has been interpreted as a shift in settlement pattern: Jochim (1990) and, following him, Tillmann (1993) have hypothesized that during the Late Mesolithic, groups lived in more stable base camps which would have been located along water courses and are now buried by sedimentation. From these base camps parts of the group would have radiated to small hunting/fishing camps. The concentration into larger base camps would have resulted in larger social entities, which then led to an increase in complexity (Tillmann 1993). This model, attractive as it is, still awaits archaeological proof, as in central Europe large Late Mesolithic base camps have escaped archaeological recognition, only small temporarily occupied hunting/fishing camps have been discovered so far.

Among the little archaeological remains we have from the Late Mesolithic there are some indications that times might actually have been quite stressful. Good evidence comes from the Ofnet cave in Bavaria, where 34 skulls have been found, deposited in two "nests". Excavated early this century (Schmidt 1913) the material has been examined repeatedly. Already during excavation it became clear that some of the skulls show definite indications of violence inflicted by polished celts (Mollison 1936), a hypothesis backed by a recent reexamination (Orschiedt 1998). The crania with definite indications of trauma seem to belong to a group deposited in a single event, the cause of death of the others is not clear. Some skulls show cutting marks on the cervical vertebrae, indicating beheading. In total, seven C14 dates have been obtained, both conventional and accelerator dates, all of which lie between 6400 and 6200 BC (Hedges et al. 1989).

A similar situation has been discovered at Hohlestein rock shelter, where crania of three individuals, one male adult, one female adult, and one child with indications of hydrocephaly were found grouped together (Orschiedt 1998). Cutting marks on the cervical vertebrae again suggest beheading after death, and break patterns on the crania suggest the infliction of death by a strong blow with a hard and heavy object, possibly a club. 14C dates place the untimely death of the Hohlestein family between 6760 and 6480 cal BC, thus a few centuries earlier than Ofnet (Haas 1991). Comparable cases, less well known, can be named from other parts of southern Central Europe (Orschiedt 1998).

These skull depositions have been interpreted as ordinary burials and in the case of Ofnet, as a com-

munal grave (Jochim 1990; Orschiedt 1998). While certain communal activities may be reflected, the indications of violence have been somewhat neglected. However they do strongly testify to remarkable social processes, namely the outbreak of inter-group (Hohlestein) and possibly intra-group (Ofnet) violence, and Keeley (1996:102) goes so far to speak of "trophy skulls" for Ofnet. While this explanation must await some further support, Ofnet and Hohlestein nevertheless indicate severe social stress during the 7th millennium cal BC in southern central Europe. Despite these violent inter- and intra-group disagreements, bands had far-reaching contacts: snails recovered at Ofnet came from the Lower Danube (more than 3000) and also from the French Midi (few) (Rähle 1978). These are precisely the regions where, some centuries later, the earliest elements of a Neolithic economy originated; thus the entry routes were already known a thousand years before the arrival of farming (Gronenborn 1994).

The burials from Ofnet and Hohlestein remain the only more extensive group of burials for the southern Central European Late Mesolithic. While in the coastal regions of southern Scandinavia (e.g. Madsen 1986; Andersen 1993), along the Atlantic coast (Schulting 1996), or in the extensive woodlands of North-Eastern Europe (Zvelebil & Dolukhanov 1991) burial grounds do indicate a somewhat stationary life, in inland Central Europe only occasional burials of small children were unearthed in rock shelters (e.g. Grote 1994:82), certainly indications of a continuously mobile way of life with brief, intermediate stops. Also, as already noted above, the few known open-air sites are small and seem to have been occupied only briefly in the course of hunting/fishing excursions (e.g. Kind 1997).

Indeed it becomes increasingly questionable whether large sites as they are known from the Iron Gates region (e.g. Radovanović 1996) ever existed in southern Central Europe. While a model accounting for more sedentary groups, and maybe increased complexity in societal structure seems appealing, there is still no evidence, even in areas which would be favorable for the location of such base camps like large river flood plains, or lake shores. If Late Mesolithic sites are found, they are always the remains of briefly occupied hunting/fishing camps. Nevertheless an increasing degree of territoriality may be evidenced in the Ofnet burials, with indications of inter-group stress and also, much later, in the evidence from Schötz 7 (5900–5700 BC) in Switzerland (Wjss 1979), where deer remains show a decrease in size,

possibly indicating intensive hunting, hence pressure on resources. Such a behavior is unusual for hunter/gatherer populations as over-exploitation is usually avoided. Thus, it is quite likely that Late Mesolithic times in Central Europe were not as pleasant as the evidence from Lepenski Vir might suggest; on the contrary, it must have been a time of social and economic insecurity. Nevertheless, steps towards a more stable settlement pattern seem the logical consequence of the evidence at hand; however, it seemingly did not result in increased complexity, and also a transitional stage between hunter-gatherer/farmers cannot be established for wide parts of Central Europe.

However, exceptional palaeo-botanical evidence has recently been published from the western Alps and the Alpine foreland. It does seem that already during Late Mesolithic times people engaged in small-scale farming, the earliest evidence might even date back to the latter part of the 7th millennium cal BC (Erny-Rodmann *et al.* 1997). Secure evidence dates after 5750 cal BC and should thus be roughly contemporaneous to the early secure dates for pottery and animal husbandry in southern France.

Pottery, stylistically linked to southern France (Jeunesse 1987; Lüning *et al.* 1989) made its appearance in western Central Europe and western Europe probably around the same time, shortly after 5750 BC. Two different stylistic groups are differentiated, one being the so-called La Hoguette (LH) pottery groups, with its distribution in SW Germany, Switzerland, Upper Rhone valley and also towards Normandy (Fig. 1) (Van Berg 1990; Lüning *et al.* 1989). The other group is the so-called Limburg (LB) pottery group, which is mainly distributed in the NW-European lowlands, with extensions towards the south (Fig. 1).

LH pottery is characterized by applied bands with single or twin rows of pointed incisions; LB pottery is decorated with incised lines, chevron motifs, and bands filled with lines. In a recent article, Jeunesse (1998) has suggested a continuation of these decorative styles and an adaptation by the *Rubané moyen* and *récent* in the west. This is indeed a tempting hypotheses, as the lithic industry of the western LBK also shows remarkable Mesolithic traditions, notably projectile points. Indeed, Löhr (1994) has shown that the *lateralization*¹ of certain types of LBK projectile points can be linked to Mesolithic microliths and long term stylistic provinces can be

established, even beyond the onset of the 7th millennium cal BC. Moreover, if plotted on a map, the distribution of LH pottery shows a remarkable overlap with microliths with left *lateralization*, and LB pottery shows a remarkable overlap with microliths with right *lateralization* (Fig. 1). These long-term stylistic provinces should reflect Mesolithic territories of intense interaction that persisted well into Early Neolithic times.

So far, unfortunately, except for a few sites, either LH or LB pottery was found only in association with the LBK, or as single stray finds. Therefore, little is known about subsistence during this period generally termed the "Terminal Mesolithic". So far, only the site of Stuttgart-Bad Cannstatt has revealed faunal and botanical evidence in clearly undisturbed association with LH pottery. Apart from domesticated sheep/goats and cattle, remains from game animals was found and also charred cereals (Brunnacker *et al.* 1967; Meurers-Balke personal communication). However, a recently obtained 14C-date indicates an occupation around 5200/5100 BC, well after the appearance of LBK in the region. It is thus not very clear to what extent the settlers were influenced by LBK subsistence, as there is ample evidence of contact between LH and LBK (Gronenborn 1990, *in press*; Jeunesse 1998). Other evidence for possible subsistence during the Terminal Mesolithic stems from a site in the Doubs valley in Eastern France. The multi-layered rock shelter of Bavans has produced layers with LH, below those with LBK pottery. The LH layer contained some sheep/goat remains, about 3% of the total faunal remains. Similar evidence comes from other sites around the western and northwestern margins of the Alpine region (Chaix 1997). It can be considered as beyond doubt that already before the onset of the Earliest LBK, Terminal Mesolithic groups engaged in animal husbandry. These domestic animals must have been introduced from abroad, as no wild predecessors of sheep/goat existed in Europe. Albeit this transitional stage towards the Neolithic traditional patterns still continued. No firm domestic structures have been found up to this day, thus there is no evidence for extensive base camps. Data comes only from rock-shelters. So the introduction of animal husbandry and small scale horticulture into the western Alpine region is best understood as an adaptation of some Neolithic elements by local groups. Nevertheless, earlier hunter-gatherers' subsistence and settlement patterns continued and remained dominant.

1 For a definition and explanation of the term see Rozoy (1968) and Löhr (1994).

To sum up, it is presently possible to outline Late/Terminal Mesolithic cultural development as follows: a change in settlement patterns occurs in course of the Late ML. However, this change is hard to detect archaeologically and can only be inferred from a bundle of clues. While previously groups led a largely mobile way of life with seasonal shifts of camps by the whole group, during the Late Mesolithic, groups remained at a base-camp for prolonged stays with excursions of part of the group to utilized resources (hunting bands). These special activity camps have been discovered archaeologically, while the large base-camps remain have not yet been found. The postulated decreased mobility led to increased territoriality, which resulted in increased inter-group and intra-group stress. In some cases an outbreak of violence can be demonstrated archaeologically.

At least in parts of southern central Europe small scale farming was practiced sometime after 5700 BC, this economy originating very likely from northern Italy and/or the French Midi. However, it needs to be stressed that horticulture and animal husbandry played a minor role in the economic system and only supplied the earlier hunter-gatherer sub-

sistence strategy which continued to be practiced; no far-reaching consequences for settlement pattern and the social/political structure of groups can be traced archaeologically.

The Early Neolithic of the "Danubian Tradition" – the Linear Pottery Culture (LBK)

Meanwhile, "on the other side of Central Europe", remarkable changes were coming about: influenced by fully developed Neolithic societies in the southern Balkans, local groups began to incorporate animal husbandry, domesticated plants, and pottery into their subsistence and material culture. More or less permanently settled hamlet- or village-like structures sprang up (*see Whittle, this volume*). These Early Neolithic representations are subsumed as the so-called Starčevo-Körös-Cris cultures and their antecedents (Pavlu 1989; Pavúk 1995). The earliest evidence might date back to the end of the seventh millennium BC.

North and northwest of the Starčevo-Körös-Cris distribution a yet archaeologically unknown Late Mesolithic substratum is presumed to have existed. It is

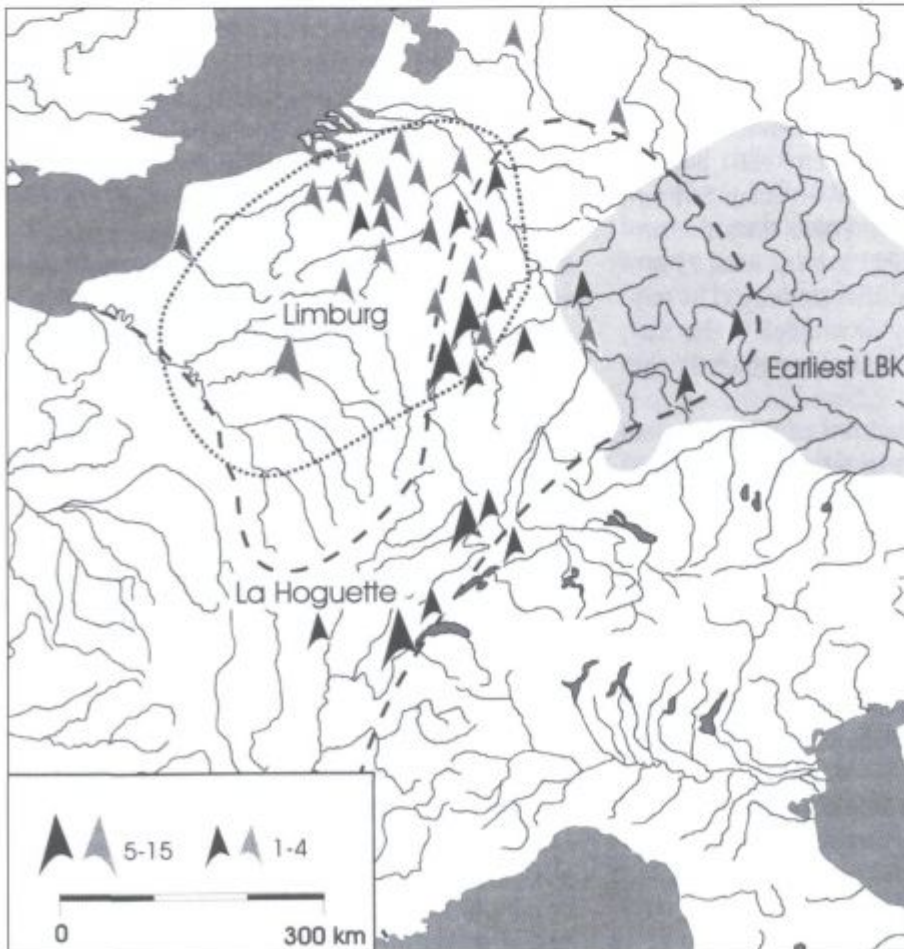


Fig. 1. Distribution of La Hogue and Limburg pottery (after van Berg, 1990), and so-called Danubian points from Late Mesolithic and Earliest LBK sites (after Löh, 1994).

precisely here where the characteristic ware of the Earliest Linear Pottery Culture (German: *Linienbandkeramische Kultur*, LBK) evolved which is also termed "LBK of Central European Type" or "Trans-Danubian LBK", to distinguish it from a similar phenomenon in the Great Hungarian Plain (*Alföld*), the so-called AVK (after the Hungarian *Alföldi Vonaldiszes Kerámia* (Kalicz & Makkay 1977:12)).

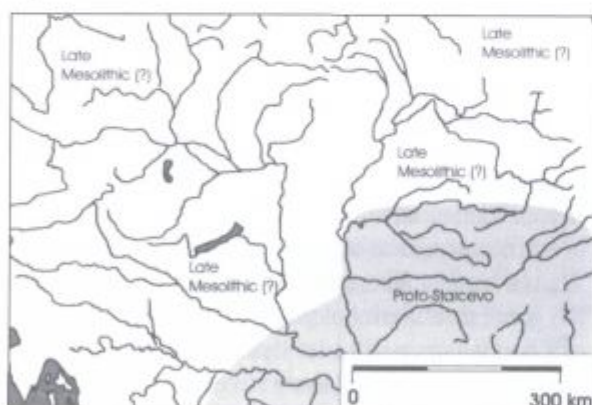
Stylistic influences between Starčevo-Körös-Cris and Earliest LBK can be made out in pottery forms and decorations (e.g. Kalicz 1993) notably in the earliest sites such as Brunn II, near Vienna (Stadler online). These early stylistic traits in LBK pottery are limited to the northwestern Carpathian basin (Pavúk 1996), where this initial phase should date between 5700 and 5600 BC (Fig. 2). With the onset of the fifty-fifth century BC, LBK began to spread northward and westward and reached the site of Schwanfeld in Franconia as well as Eitzum, north of the Harz mountains around 5500 cal BC (Gronenborn 1994, in press). At the same time the early Vinča Culture evolved in the Banat area and its vicinity

(Schier 1997), bringing about many economic changes in the northern Balkans (Whittle 1996; Gronenborn in press).

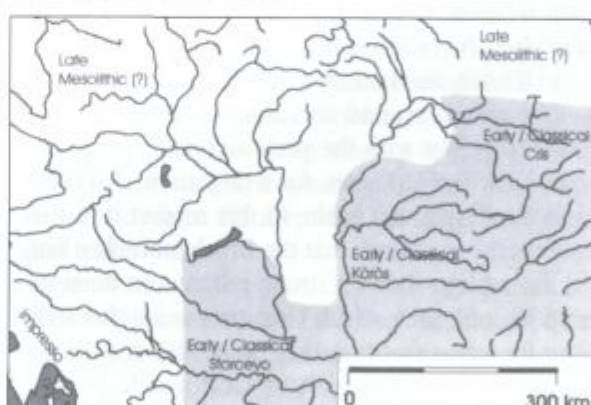
This first expansion of the LBK up to Schwanfeld and Eitzum was followed by a halt, maybe for a generation. In a subsequent, second advance, loess territories up to the Rhine were settled. Here a complex situation of increased contact and interaction with the Terminal Mesolithic groups, the manufacturers of LH pottery, developed, lasting between 5400 and 5250 BC, after which the LBK spread further westwards, settling in the Rhineland and Dutch Limburg (Gronenborn 1990 in press).

Earliest LBK settlements varied somewhat in their extent and structure. Many of them seem to have been more or less widely-spaced hamlets or villages, such as Schwanfeld (Gronenborn 1997a), Nieder-Eschbach (Hampel 1995), or Brunn (Stadler online). However, denser house clusters also seem to have existed, as is the case in Bruchenbrücken (Gronenborn 1997b). Houses differ somewhat from later LBK

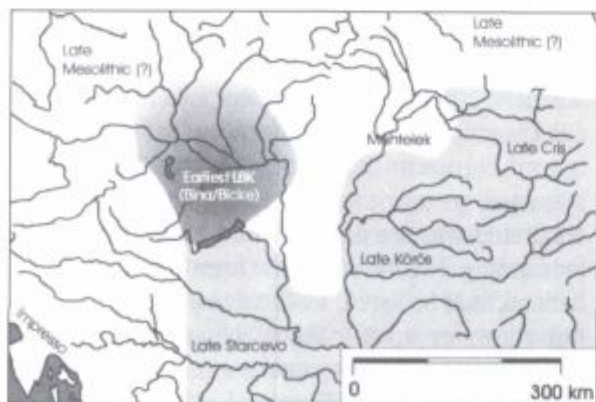
a) ~ 6000 BC



b) ~ 5900–5800 BC



c) ~ 5700–5600 BC



d) after 5500 BC

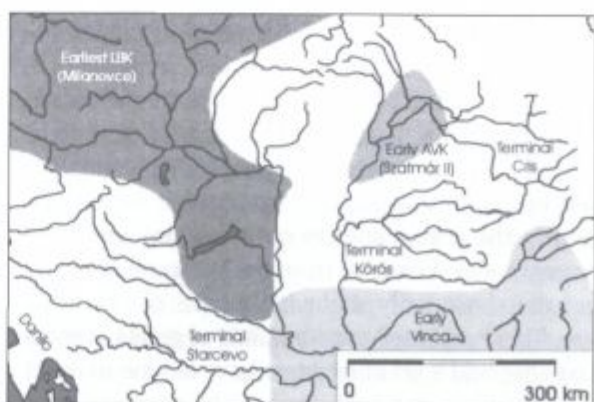


Fig. 2. Hypothetical development and expansion of earliest LBK in the Carpathian Basin during the first half of the sixth millennium BC.

constructions, notably through the presence of so-called wall trenches, the real purpose of which remains unclear. The fact that some of the Earliest LBK houses do not show interior roof support posts might indicate two differing building traditions, one influenced by the Carpathian basin, where interior posts are equally absent during the Early Neolithic (Gronenborn *in press*), the other constituting a central European innovation with heavy roof structures (Lenneis 1997). During the Earliest LBK a mixed farming system, with the cultivation of *emmer*, *einkorn*, lentils, and peas, was practiced (Kreuz 1990). Faunal remains show that cattle were domesticated, but some of the sites show a preponderance of sheep/goat, notably those further southeast, similar to the economy of the Starčevo-Körös-cultures in Carpathian Basin (e.g. Bökönyi 1992). However, the northern sites at Eilsleben and Eitzum show a heavy dependence on cattle (Döhle 1994), perhaps as an adaptation to the specific environmental conditions. The earliest LBK faunal assemblages also contain a high percentage of game (Uerpmann and Uerpmann *in press*), which has recently been interpreted as an indication of an autochthonous development on a Late Mesolithic basis (Kind 1998). However, we need to bear in mind that Starčevo-Körös sites also often show a high percentage of wild animals (Whittle, *this volume*), thus the argument might well be turned around and taken as a further indication, together with the preponderance of sheep/goat at Earliest LBK sites, for a migration of settlers from the Carpathian basin. In this respect it is also noteworthy to remark that the Bruchenbrücken faunal assemblage shows a strong reliance on domesticated pig and game, which I interpret as another indicator for intensive contacts between LBK and Terminal ML, the manufacturers of La Hoguette pottery (Gronenborn *in press*).

Burials dating to the earliest LBK are rare. The data for the only burial ground excavated so far, Vedrovice in Moravia, has so far only been published in preliminary form (Podborsky 1993). Some burials here, as well as a settlement burial at Schwanfeld (Gronenborn 1997a:41; Caspar 1997), contained sets of trapezes which were made solely for deposition in the graves and do not show any use wear traces. A shoe-last adze from the Schwanfeld burial equally shows only slight indications of extensive use. These repeated combinations of goods, a shoe-last adze and a set of trapezes have led me to interpret them as standard symbols of members of a

hunter/warrior association which is still visible in later LBK times (Gronenborn *in press*). At Vedrovice, some burials also contain objects, which are interpreted as indicators of a certain social status, notably *spondylus* armlets (Nieszery 1995; Müller 1997). I have argued that the occurrence of such objects already in Earliest LBK times would indicate a more diverse social differentiation from the beginning of the LBK onwards (Gronenborn *in press*), such has so far been only hypothesized for later LBK (Jeunesse 1997; Van de Velde 1990). A remarkable burial in Little Poland might indicate another group of individuals with specific assignments within Earliest LBK society. At Samborzec, an interment of an adult woman with red ocher sprinkled around the cranium and a necklace of animal teeth was discovered within the settlement (Kulczycka-Leciewiczowa 1988). This woman might have been occupied with magic and religious practices; perhaps she was a shaman. The red ocher is reminiscent of the little clay figurines typical of early LBK phases, which equally show a red-dyed hairdo (e.g. Hampel 1989). Hence, these figurines might not be stylized "idols", but rather represent actual individuals with obligations in the realm of the supernatural². Otherwise, very little is known about the Earliest LBK societies.

The main question: "demic diffusion" or autochthonous development?

Probably going back to Gordon Childe (1929), the sudden appearance of the LBK has for a long time been interpreted as an immigration of groups from Trans-Danubia. The main arguments for this were the general similarity of pottery over wide distances of Central Europe and its stylistic affiliation to certain ceramic forms and decorative modes of the Starčevo-Körös cultures (e.g. Quitta 1960; Kaufmann 1991). In 1964, Quitta for the first time presented an elaborate model of the LBK expansion through migration: a late Mesolithic population in Trans-Danubia comes into contact with the Starčevo culture and hence the Neolithic economy. Farming becomes quickly adopted, as does pottery, but with distinctive central European traits. Starting from Trans-Danubia, small groups migrated into the loess patches north and westward and started clearing the land for farming. The forests on the loess soils were uninhabited, it is believed, as the dense vegetation did not allow for a high annual biomass production, hence hunter-gatherers would not find enough game. This hypothesis of immigration has been held up by

² See also Biehl (1996) for a similar interpretation.

researchers for years (e.g. Modderman 1988; Lüning 1988) and found its culmination in the "demic diffusion" model of Ammermann & Cavalli-Sforza (1984). Recently, however, the model of immigrating "Neolithic people" has come in for severe criticism. The starting point of these considerations was the analysis of Late Mesolithic and Neolithic lithic assemblages (Taute 1973/74) and specifically those from the earliest phase of LBK. At the Bruchenbrücken site, typological and technological indications were found which strongly suggest a Mesolithic contribution (Gronenborn 1990; 1994; 1997b); moreover, at many sites, local Mesolithic influences are visible in the microlith forms (Gronenborn 1994; 1997a). These observations and the implied overlap of the distribution of Mesolithic groups with LBK territory have led Tillmann (1993) to propose a local autochthonous development of LBK which has recently been supported by Kind (1998). Certainly, it is tempting to interpret the many "Mesolithic traits" in the earliest LBK lithic assemblages in such a way, but to reduce the view to lithics alone is simply the wrong way. All components of LBK material culture need to be considered. Certain traits in pottery clearly show links to Starčevo and Körös (Kalicz 1993; Pavúk 1994; 1996); even more evident are these links in the realm of the ritual: clay altars or bone *spatulae* (Kaufmann 1991). Furthermore, all of the domesticates, except perhaps pigs, stem from regions abroad, and this is true for plants as well as animals (Kreuz 1990; Döhle 1994). Even if there is a higher component of wild animals in the earliest LBK diet – which can be linked to Starčevo-Körös patterns – it does not indicate "complex hunter-gatherers" as suggested by Kind (1998). Still, domestic animals do constitute a good proportion of the spectrum and the expertise to manage farming successfully should have come with the stock and seeds.

Based on an analysis of Earliest LBK lithic artefacts, I have suggested a combined model, where immigrating farmers set up pioneer settlements which then attract the local Mesolithic population. My main argument was the appearance of Szentgál-type radiolarites on sites as far afield as Schwanfeld (Fig. 3), which could be interpreted as the archaeologically visible remains of a far-reaching exchange network maintained by groups with close social, possibly kinship, ties (Gronenborn 1994; 1997a). The fact that LBK is at least partly a result of immigrating groups from Trans-Danubia becomes very obvious in the west, along the Rhine river. Here the immigrant farmers were in vital contact with the local Mesolithic groups (Gronenborn 1990; 1994; 1997a). It is like-

ly that in eastern parts such contacts resulted in the relatively rapid assimilation of the local population into the newly emerging early Neolithic societies. Also, no Terminal Mesolithic economy with partial yet minimal reliance on domesticates and the manufacturing of pottery can so far be established for the east. Furthermore, these regions had long established contacts with the Carpathian basin, as indicated by snails from the Middle Danube in some southern German rock shelters (Rähle 1978). Towards the west, however, contacts and local resistance against all too rapid acculturation seem to have persisted into the Flomborn phase of LBK. It is only then that the characteristic LH sherds disappear from the LBK sites (Lüning et al. 1989) and, shortly after, pottery forms appear on LBK sites which show a blend of LBK and LH, or LB decorative styles (Jeunesse & Winter 1998). In the NW and the Paris basin, contacts probably endured much longer; however, a certain Mesolithic contribution has also been suggested for the emergence of the Middle Neolithic in southern Central Europe, where notably the burial rites show influences from practices known from the Mesolithic of the northern European lowlands (Häusler 1994). The sometimes implied revival of a Mesolithic economy has, however, recently been disproved as, at least in western Central Europe, Middle Neolithic faunal assemblages do not indicate notable amounts of wild animals (Jeunesse & Arbogast 1997). Indeed the question emerges: from where would those influences have come? Where were those late Mesolithic survivors; where did they hide for some three hundred years?

In recent years, models of the Neolithization of Central Europe have been enriched by another component. Notably, Kind (1997) has continuously argued that in some parts of southern Germany late Mesolithic groups and their traditional economy continued to exist throughout the Early Neolithic. He baptized the material remains of these survivors the *Buchauer Gruppe*. According to him (Kind 1997:144), these groups would be different from those engaging in small scale horticulture and would not use LH pottery, but instead have a highly mobile settlement pattern. He based his ideas on excavations in the Federsee region of Württemberg, where at some sites he obtained C14-dates which extend well beyond the 53rd century BC, the proposed date for the advent of Earliest LBK in the region. However, these dates stem from series which also include measurements which would date the sites before the advent of the Earliest LBK, and hence cannot be taken as proof of the contemporaneous presence of highly

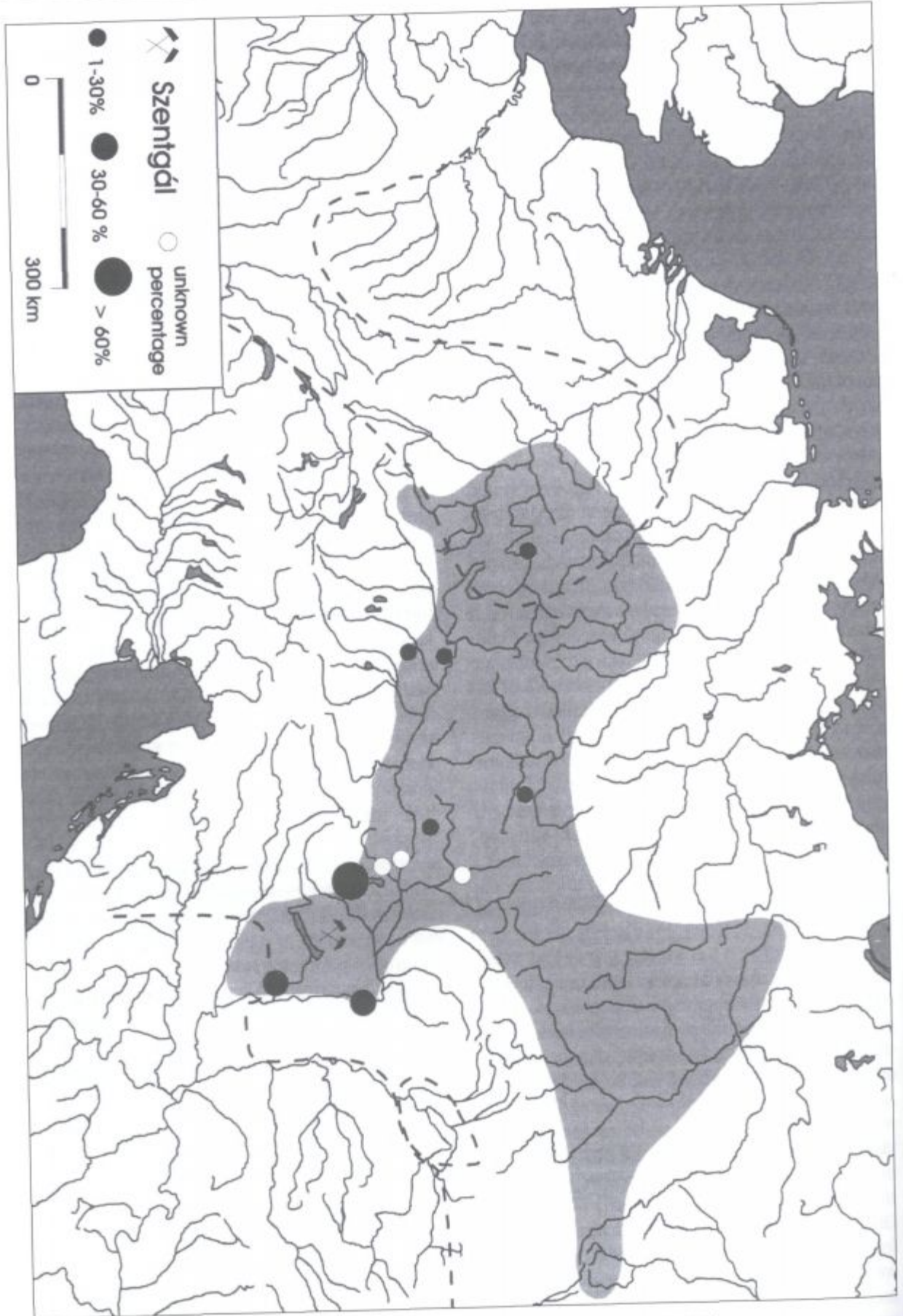


Fig. 3. Szentgál-type radiolarites on Earliest LBK sites (after Gronenborn 1997a).

mobile, Late Mesolithic hunter-gatherers and Earliest and later LBK (*Gronenborn 1997a*). Indeed, the situation is difficult to assess, as clearly visible contact finds are extremely rare. For southern Germany so far only the harpoon fragment from Griesen in the Upper Rhine valley (*Gersbach 1956*) can be named. Furthermore, of course, there are the LH sherds within the LBK context (*Lüning et al. 1989*). Possible indicators for an at least partial overlap stem from the Mesolithic sites of Henauhof-Nordwest in the Federsee-region (*Jochim 1993:109–110*), where a grinding stone seems to have been embedded in the Late Mesolithic layers (however, see *Tillmann 1997*), and Lautereck rock shelter (*Taute 1967*), in the Upper Danube valley, with a Terminal Mesolithic occupation which, according to a C14 date would be contemporary with the Earliest/Earlier LBK. LBK pottery stems from the layers above, but there are no definite contact finds. Furthermore, the situation at Stuttgart-Bad Cannstatt (*Brunnacker et al. 1967*) needs to be carefully examined. So to firmly establish Kind's *Buchauer Gruppe*, it would require, in my opinion, a little more hard archaeological evidence. In this way the situation is somewhat similar to that in NW Europe, e.g. the Hesbaye, where Keeley & Cahen (1989; *Keeley 1996*) have proposed a model of violent conflict between Late Mesolithic indigenous populations and LBK "invaders/conquerors"³. But here, too, hard facts that provide evidence for such a conflict cannot be brought forward; the model relies largely on the territorial exclusion of Late Mesolithic and LBK sites.

What happened to the last hunters?

I should stress at this point that I do not deny the existence of an indigenous, assimilated population within LBK (*Gronenborn 1997a*). However, the point is this: the fact that local groups became assimilated during Flomborn times, as the pottery evidence in Hesse and Baden-Württemberg suggests, reduces their visibility. It is questionable whether the lithic technology of the Late Mesolithic groups would not equally have undergone change, just as did the LBK technology; even more so when we have evidence of contact. It is even more surprising that those sites cited by Kind did not produce any evidence of contact, whereas it is quite frequent on LBK sites. I would therefore suggest that the sites named by Kind (1997) are not Late Mesolithic sites contemporaneous with LBK, but rather actually date before the advent of the Neolithic of the Danubian

tradition. So, where are those people that were indigenous? If I am correct, their material culture should be hard to detect as it became mingled with that of the immigrants. It might be helpful to look at the anthropological record, the evidence from burials. One site in particular has just very recently produced astounding evidence: at Vaihingen, in a fortified settlement, dating from Flomborn to a younger LBK, human bones from disarticulated skeletons in refuse pits differ from those stemming from ordinary burials in the refilled ditch surrounding the settlement in that they are more robust (*Krause 1997, online*). This circumstance reminds us of other cases where differences in robustness have been noted for LBK burials (for instance, in Rixheim; *Gerhardt & Gerhardt-Pfannenstiel 1984/85*). Robustness has a variety of causes, one of them being physical stress. Indeed, such is partly the case in Rixheim. But in addition, two different physical types were discernible there. Would it be possible to ascribe one of them to a local Mesolithic population? In Vaihingen, the robust remains were not properly buried. This allows two possible interpretations: firstly, their burial rites did not include interment. In recent years it has become increasingly clear that burial rites practiced in LBK were twofold: interment, and another type that largely escapes archaeological recognition, such as cremation or above-ground burial. I have suggested (*Gronenborn in press*) considering a Mesolithic tradition for the latter practice. If this was the case in Vaihingen, the bone remains of the decomposed burials made their way into the refuse pits through taphonomic processes. The other explanation is less pleasant. Disarticulated settlement burials have been considered to be the remains of those who led a marginalized life within societies (*Veit 1993*). Indeed, ethnographic evidence abounds for such practices, where prisoners of war were enslaved and occasionally sacrificed (*Weule 1916; Feest 1980; Keeley 1996; Donald 1997*). That a conflict-laden situation existed at Vaihingen is demonstrated by the fortification ditch around at least part of the village and, for the later LBK, warfare and harshly violent conflicts become increasingly evident (*Teschler-Nicola et al. 1996; Alt et al. 1997; Spatz 1998*). Those on the losing side in the conflict around Vaihingen may have led a less fortunate life and, after hard labour, were disposed of and left to decay. But it could well be that their ancestors were local hunter-gatherers.

Certainly these clues are far from being complete, and I am well aware that some colleagues will find

³ For a similar model for Dutch Limburg with less emphasis on violence Wansleben & Verhart (1990).

this approach hair-raising. But still I consider it a worthwhile path of inquiry since, if migrations occurred for which there are, in my belief, still very good arguments, differences between the locals and

the immigrants after the contact phase should be archaeologically visible only on a very subtle level.

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