

HUNTER-GATHERERS ON THE LOWLAND: SOME REMARKS ON THE HAMBURGIAN RE-COLONISATION OF NORTHERN EUROPE

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Abstract

The process of the recolonisation of northern Europe after deglaciation is related to groups of hunter-gatherer societies called Hamburgian culture. The process itself, the range of Hamburgian settlement, and the organisation of settlement, as well as mobility strategies, are key issues in Early Late Glacial studies. In this paper, the implications of the wide dispersion of Hamburgian settlements on a hypothetical scenario for colonisation due to territorial organisation will be presented.

Key words: Hamburgian culture, re-colonisation, mobility, lithic technology.

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Introduction

The withdrawal of the ice sheet from the North European Plain in the Late Glacial enabled the resettlement of the lowland by groups of hunter-gatherer societies which, during the Last Glacial Maximum, survived in refugia in the southern part of the continent. The first inhabitants of the 'new northland' were groups which are defined archaeologically as Hamburgian culture. A specific set of tools has been distinguished featuring that cultural unit, and consists of shouldered points, zinken-type perforators, burins, and endscrapers with retouch on both edges. Hamburgian sites are concentrated in a few regions: in the west in the Netherlands, in southern and northern Jutland, and in northern Germany. Looking at the east, a significant concentration of sites can be distinguished in western Poland. However, the single traces of a Hamburgian presence probably indicated less permanent occupation, occurring on the periphery of the North European Lowland. In the west, the most extended site was found in Scotland. In the north, some single finds of shouldered points were recognised in northern Jutland and southern Sweden. In the east, a Hamburgian-like inventory was found in Lithuania. The cultural identification of these finds, especially the latter one, are still the subject of discussion. The area of the European Lowland can be described by distinguishing two zones: a core area, with a significant concentration of Hamburgian occupation (the Netherlands, Germany, Denmark and Poland), and the periphery, where single sites, or even just single finds associated with Hamburgian technology, occur (Lithuania, southern Sweden, northern Jutland, eastern Scotland).

Distribution of sites

The most significant concentration of sites is located in the Ahrensburg valley in the vicinity of Hamburg (northern Germany). The Meiendorf site, rich in organic artefacts, such as harpoons, and bone and antler tools, was discovered by A. Rust in the early 1930s. Over the next few decades, Rust continued his research in the Ahrensburg valley, which resulted in the discovery of several other sites with almost as great a research potential as Meiendorf: Stellmoor, Borneck, Poggenwisch and Hasewisch (Rust 1958). Later on, after the reanalysis of lithic collections from 19th-century excavations, G. Tromnau revealed that more sites of Hamburgian culture can be identified in northern Germany (Tromnau 1975). In the 1950s, the important sites of Grömitz near Lubeck (Brückner 1954) and Ahrenshöft (Claussen 1998) were discovered. Besides the concentration of sites in northern Germany, a few sites and collections were found in Lower Saxony as well, such as Deimern and Heber, creating another smaller concentration.

The first find related to Hamburgian culture in Denmark was a single classic shouldered point found at Bjerlev Hede in central Jutland, and published by C.J. Becker in 1969 (Holm 1996, 44). However, that find was not at first assumed to be evidence of Hamburgian occupation in Scandinavia. The explanation rather pointed to the possibility of the accidental occurrence of a point so far north, which could have been transported there by a wounded reindeer. According to J. Holm and F. Rieck (1992, 83), a similar single find was found in Braenore in the early 1960s. After the recognition of quite dense Hamburgian settlement in Schleswig-Holstein, the possibility of the appearance

of similar sites in southern Jutland increased. The researcher returned to analyse archival material, and found Hamburgian inventories discovered by amateur archaeologists as early as 1968 (but at that time not yet attributed to Hamburgian). The excavation undertaken in the early 1980s derived two important sites at Jels, consisting of very rich lithic inventories (Holm, Rieck 1992). Soon afterwards, another site at Slotseng was excavated (identified during archival enquiries as well). It derived not only lithics, but also rich organic materials deposited in a kettle hole (Holm 1993). In the following years, other smaller sites were registered: Sølbjerg (Petersen, Johansen 1996) and Krogsbølle (Riede 2014, 34).

The first Hamburgian lithic inventories were described in the Netherlands. H.J. Popping identified a new taxon unit based on older materials from the Elspeet site in 1930 (Paddayya 1971). Further investigation revealed more small sites in the northern Netherlands, most of them were surface collections gathered in the 19th century by amateur archaeologists. The most important site in this region is definitely Oldeholtwolde, located in the valley of the River Tjonger, excavated in 1980 and 1981 (Johansen, Stapert 2004). The excavations provided almost 7,000 lithics, distributed around a well-preserved hearth. During the last decade, several small sites, consisting of up to a few hundred lithics, were recognised in the Netherlands, e.g. Stroe, Vledder (Rensink, de Kort 2012).

The history of research of Hamburgian settlement in Poland goes back to the 1930s. For a long time, only two locations related to Hamburgian were known: the Liny site, discovered by the local teacher O. Dobrnt in the 1930s (Kobusiewicz 2016, 11–12), and Hamburgian-like tools, mostly shouldered points, found in the mixed inventory at Rogów Opolski in southwest Poland (Rother 1936). The Liny site was fully excavated in the 1970s by M. Kobusiewicz (1973; 1975). A concentration of varied sites in the Kopanica valley was discovered and studied in the next few years by J.M. Burdukiewicz (1987). A significant increase in data came with the excavation of the Mirkowice site. A fireplace with preserved burnt bones enabled a direct radiocarbon date of settlement to be obtained, and provided new information on subsistence strategies (Kabaciński et al. 1999). Over recent decades, two new important sites were recognised due to research on a motorway project. The Kragola site became the easternmost trace of Hamburgian settlement in Poland (Kobusiewicz, Kabaciński 2007), while Myszęcín, located close to Liny, became the largest site in terms of the number of specimens (Kabaciński, Sobkowiak-Tabaka 2013).

Outside the central area of the European Lowland, a few single sites are related to Hamburgian culture, or at least they consist of some significant typological traits of it. Howburn Farm in Scotland is definitely the westernmost Hamburgian site with small lithic inventories (approximately 1,000 specimens) with some Havelte points (Ballin et al. 2010). The presence of Hamburgian settlement at Howburn Farm raised the question of the possible existence of Hamburgian societies in the area of Doggerland. The Mollerod site in southern Sweden derived some tools and points which could be regarded as Hamburgian (Larsson 1994). During the last decades, a discussion on findings was held in Lithuania (Štavičius 2002), where Hamburgian-like shouldered points with endscrapers and zinken-type perforators were found. However, it needs to be emphasised that the identification of these single finds as Hamburgian still needs to be proven (Bobrowski, Sobkowiak-Tabaka 2006).

Considering the distribution of Hamburgian sites in the European Lowland, the problem of a gap between the German concentration and Polish Hamburgian encampments should be presented. There are two opposite approaches to explain this situation. The first claims that the lack of sites in Mecklenburg and Pomerania is the result of the state of research. The second recognises this lack as the real, uneven distribution of Hamburgian settlements due to environmental conditions. G. Tromnau argues that the main reason for the gap in settlements was the lack of a food source (particularly reindeer moss) necessary for the survival of reindeer herds in winter (Tromnau 2005, 9).

To sum up, the distribution of sites recognised as Hamburgian shows clearly that settlement is clustered, and concentrated in a few regions: the northern Netherlands, southern Jutland, northern Germany (particularly the Ahrensburg valley), Lower Saxony and western Poland (Fig. 1). Moreover, episodic occupation probably reached further areas: Scotland (through Doggerland), southern Sweden, central Jutland and the eastern Baltic. The area occupied by Hamburgian societies was therefore more extensive than was previously assumed. Until now, more than 130 sites of Hamburgian culture have been recognised, but it must be noted that only some of them represent large sites consisting of several thousand lithics, and only six sites have produced organic materials. Hamburgian settlements were usually considered as ‘flat’, non-diverse and non-hierarchical in terms of size and function, which has an impact on the interpretation of mobility and the settlement system (Riede 2014, 44–45). However, some researchers disagree with that statement, and emphasise the greater diversity of encampments than was assumed. Stapert indicates at least two different groups of sites in the

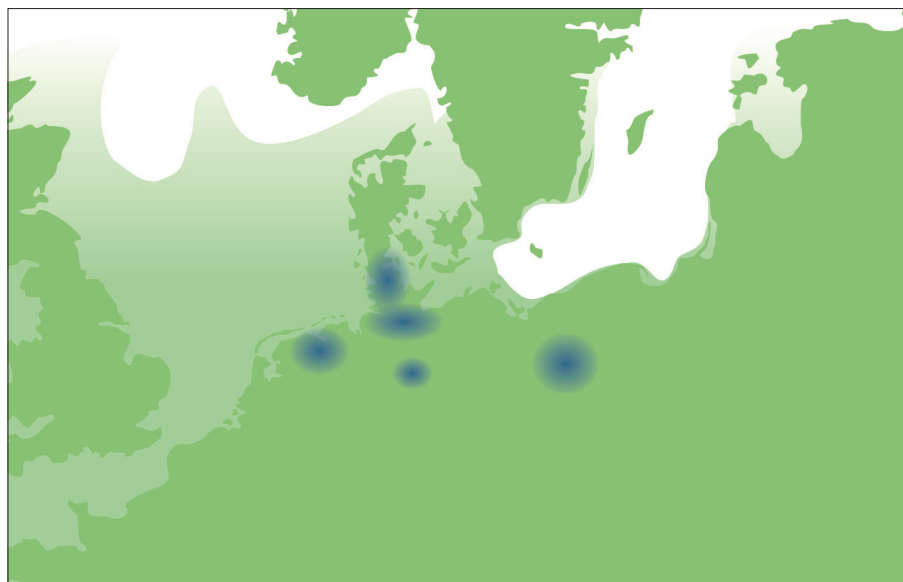


Fig. 1. Main concentrations of Hamburgian settlement in central regions of European Lowland.

Netherlands (Stapert 1984, 86). In western Poland, after recent discoveries, three groups of sites can even be distinguished: 1) single-concentration sites consisting of only a few hundred lithic artefacts; 2) medium-size camps with a central hearth and several other lithic concentrations, with several thousand lithic specimens in total; 3) large encampments with more than 10,000 lithics, grouped in many concentrations. Moreover, the sites differ in structure: the predominant type of tool at Jels is points, at Mirkowice perforators are most numerous, while in Kragola cores are an unusually large group. The special character of the Kragola site is confirmed by the very high ratio of refittings.

Technology and technique

A complex technical analysis of Hamburgian inventories conducted over the last decades in the main regions of Hamburgian settlement allows us to establish a macro-scale intra-regional description of its techniques (Madsen 1992; Johansen, Stapert 2004; Weber 2012). A clear homogeneity can be seen in terms of the general technical system. The raw material used for processing is exclusively local erratic flint. Nodules chosen for processing are usually plated-like, with one dimension significantly shorter. The operational chain of Hamburgian technique starts with the specific configuration of the nodule, where the reduction face is usually placed on the longest and narrowest side of the nodule. The preparation is limited to the platform and side of the core. The natural or unifacial frontal crest was removed at the beginning of exploitation. The angle between the platform and reduction face was usually acute, between 50° and 70°. The bidirectional

blade exploitation was the main mode used for detaching the blade semi-product. The most elaborate mode was alternatively used platforms; however, the use of one platform for a controlling purpose was frequent as well. Simple reduction based on single platform cores is also present in inventories. A change of orientation in the very last stage of exploitation occurred in inventories. During processing, the edge between the platform and the striking face was abraded, small isolation chips were also detached to prepare the point of impact. The mineral hammer technique was used for detaching blades from the core. However, some traces of the possible use of an organic (antler) hammer can be found in the western part of Hamburgian settlements (the Dutch sites, particularly Oldeholtwolde), as well as the single *en éperon* type of butts that occurred in inventories from the Ahrensburg valley (Weber 2012). Despite minimal differences relating mostly to techniques, the technique can be described as uniform and homogenous: a clear Hamburgian concept emerges from the analysis of lithic inventories, which shows the same significant attributes (Fig. 2).

Point variability

Shouldered points were the main attribute by which the sites were identified as Hamburgian, and chronological and spatial divisions were proposed. The classic shouldered point is an asymmetrical point made on the blade, with one distinctive barb and an oblique truncation on the same edge of the blade. In classic types, an unretouched break between the truncation and the barb is present, forming a trapezoid-like shape. The different form of classic shouldered points are Havelte

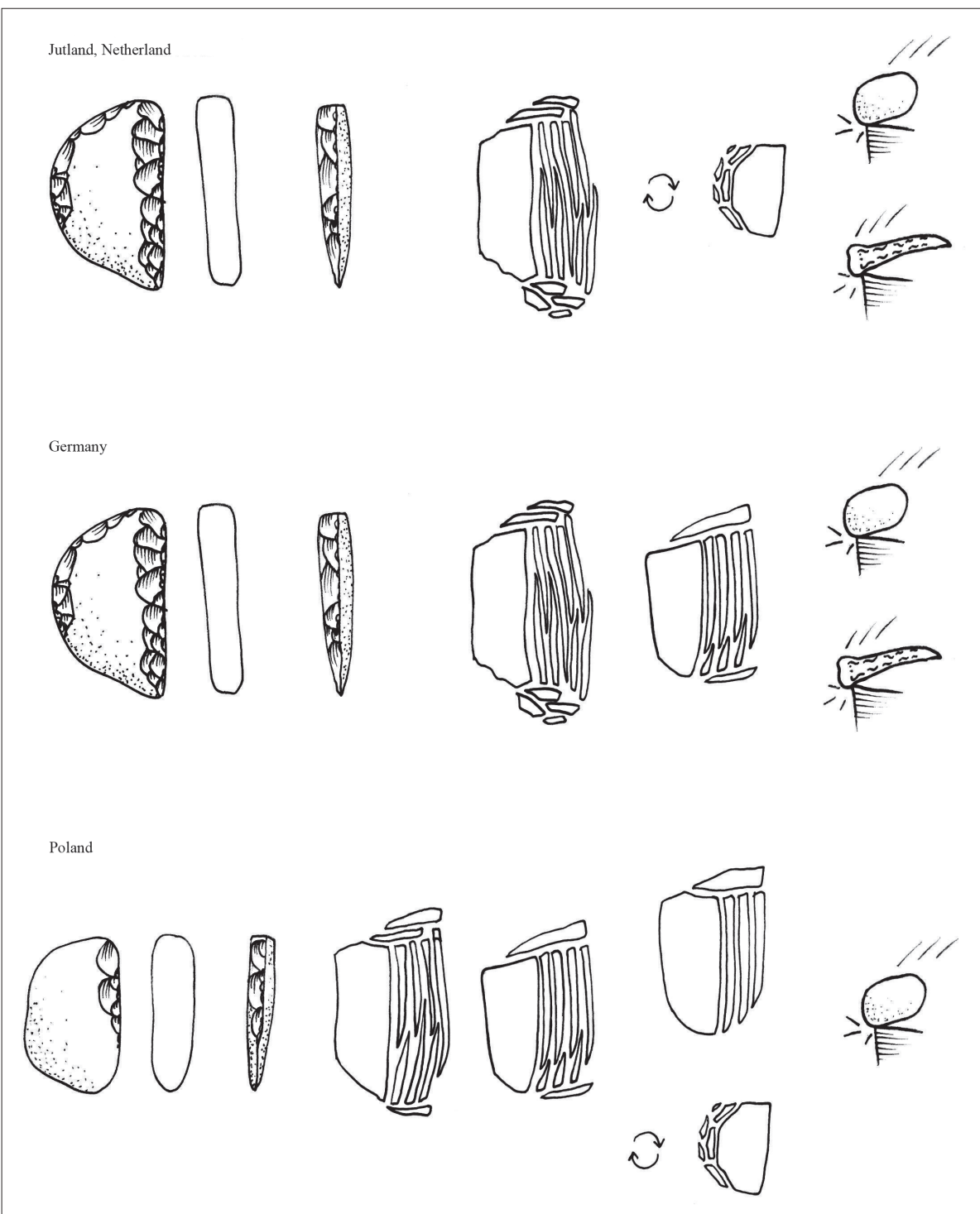


Fig. 2. A simplified schematic presentation of the technological concept (according to Madsen 1992, Johansen, Stapert 2004, Weber 2012, with additions): preparation mode, geometry of volume, initialisation of exploitation, modes of exploitation, technique. Note the differences in the more elaborate preparation phase (on the back of the core) and using organic hammer technique in the Netherlands/Jutland and German regions.

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points, which are symmetrical and slim, made on long, narrow blades, in general terms less stumpy than the classic type. Two barbs, usually one bigger than the other, form a tang. The tip of the point is retouched, but the edge is not as oblique or as invasive as in the classic point, rather it follows the shape of the blade on the tip part. These two different types of points were used to divide Hamburgian settlement into two chronological phases, where the Havelte phase is younger, and follows the classic phase with shouldered points (Bohmers 1947; Grimm, Weber 2008). An examination of radiocarbon dating confirmed this chronological sequence of Hamburgian. The spatial distribution of sites with Havelte points shows clearly that it was a phenomenon limited to the western part of the settlement. However, the argument of differentiation within the Havelte group has been raised (Johansen, Stapert 2004, 41). The re-analysis of points shows clearly that in classic sites, the most common sets of points are three types: 1) shouldered points; 2) shouldered points with a retouched base; and 3) points where the barb is oblate and lacks a break between truncation to form a triangle shape. A notch in the basal part on the opposite side in all types occurs as well. This set of points was found in Dutch, German and Polish sites. The specifics of the Polish region and Lower Saxony in this matter is the great homogeneity: classic shouldered points occurred exclusively in inventories, there is no other variation. Besides the central regions, single classic shouldered points were found in northern Jutland, southern Sweden and Lithuania. The Havelte group is not a homogenous group: in the Netherlands, various types of point, particularly with a non-pronounced tang, or slightly pronounced barbs, occur. The exceptional form of points predominant at Jels is the very standardised slim tanged points. In Havelte inventories, points with fully retouched edges inverse on the barbs are also present. The inverse retouching concept, where the tip part is retouched on a different side of the blade than the basal part, is a feature which can be found mainly in the Havelte group, but also in some sites considered as classic Hamburgian as well (such as from the Ahrensburg valley). However, this was not recognised in western Poland and Lower Saxony. A summary of the distribution of different forms of points shows a great variability in central regions, with the exception of the west Poland area (Fig. 3).

Mobility and subsistence strategies

The mobility of hunter-gatherers is one of the key issues in Late Palaeolithic studies. Since the excavations in the Ahrensburg valley, where a large amount of organic materials were found in layers of peat, mobility

has been considered to be closely related to hunting strategies. The dominance of reindeer remains in peat deposits suggests that Hamburgian societies were dependent strictly on this type of prey. The theory of specialised reindeer hunters who followed herds the long distance between summer and winter pastures was very influential, especially in the early stages of Hamburgian studies. A few different theories of reindeer (and human) movements across the European Plain were established. The first one was presented by A. Rust, the excavator of classic Ahrensburg valley sites, who highlighted the north-south direction of migration between summer pastures in the north of the Lowland, and winter in a south-southwestern unspecified area (Rust 1937). The theory attracted many critical remarks: the season of hunting activities in the Tunnel valley were the main point of disagreement. As a further osteological analysis of bone and antlers from peat deposits confirmed, the mass killing of reindeer herds was conducted from late summer to early winter (Bratlund 1994). Another important element was the reduced snow cover in the northern Lowland during the autumn and winter season, which created favourable conditions (shrub vegetation) for reindeers. Therefore, the second theory, proposed by D.A. Sturdy and K. Bokelmann, located reindeer herds in northern Germany and Jutland in the autumn. In the Bokelmann model of migration, the herds of reindeer were north of the River Elbe in winter, and to the south in the summer (Price et al. 2008, 125). Therefore, the spring and summer camps of Hamburgian would be located in the western part of the European Plain, and could be identified with Dutch sites. The Hamburgian settlements in these regions were considered as winter hunting camps. However, the south-north axis of migration remained in their hypothesis. M. Degerbøl presented a contrary concept of where the movement of reindeer took place in a west-east direction, from northern Germany and Jutland in the autumn and winter, to the Polish lowland in the spring and summer (Degerbøl, Krog 1959). Some scholars add to this hypothesis another region where herds of prey could migrate: the North Sea. These theories have a common feature, which is the supposition of strong dependence on reindeer, which affects the long-distance migration of groups of humans on the lowland. A more diverse economy similar to the annual hunting cycle of Magdalenian culture was proposed by B. Bratlund (1994). The very close cultural origin related to Magdalenian culture strengthens this hypothesis. As she points out, there is still no evidence of reindeer hunting from seasons other than the autumn. The 'dual' annual cycle of hunting could comprise of autumn/spring collective hunting of reindeer herds and summer/winter hunting of horse. The



Fig. 3. Distribution of different Hamburgian shouldered/tanged points. Notice variability of forms in Northern German and Netherlands and homogeneity of set in western Poland.

importance of reindeer in Hamburgian subsistence strategies was confirmed not only by the discoveries from the Ahrensburg valley, but also by finds from the kettle hole in Slotseng, where exceptional direct evidence, in the form of a point pounded in reindeer bone, was found. However, the rare discoveries from the Mirkowice site suggest that Hamburgian economic strategies could be more elastic, consisting of fishing and small game hunting as well.

A different approach to the mobility and settlement system of Hamburgian was presented by O. Grøn, who proposed the concept of a territorial organisation settlement pattern based on his ethno-archaeological research on Siberian Evenk groups (Grøn 2005). He indicates that the large-scale killing sites of Hamburgian fits the clan territorial system organised around rivers observed in Evenk societies. Moreover, he emphasises that this type of settlement model could have resulted in a small-scale cultural mosaic, where the clan's identity was maintained by the differentiation in material culture. Grøn's model of settlement shows that the Hamburgian mobility and settlement pattern is affected not only by environmental conditions and reindeer behaviour but social, ideological and cultural factors as well.

Colonisation of unsettled areas

The colonisation process has been an important issue in archaeological and historical studies for a long time. However, the colonisation of empty inhabited areas occurring in the history of humans is relatively

rare. Therefore, the migration process, in terms of diffusion, cultural contact between settlers and natives, is more widely discussed. As was pointed out by M. Rockman, there are two aspects in which colonisation is considered (Rockman 2003, 8). The first is the motivational aspect indicated in the classic analysis of push-pull factors, where the condition inside societies and the environment which forced groups to migrate are described, as well as the conditions outside, which attracted people to move to other areas. The second physical aspect of colonisation is movement, its orientation, scale and rate. The two main different patterns of colonisation were distinguished in previous research into colonisation movements: the point and arrow model (leapfrog movement) and advancing front pattern (wave-advance model) (Anthony 1990, 903). In the archaeological analysis of colonisation, the second model is more common, e.g. the Neolithisation of Europe. We used to see the process of migration as an expanding wave from one centre of origin. Sites closer to the centre are older than sites further away, which can be identified with the later phase of an expanding wave. The point and arrow mode suggests that sometimes migration streams leave an unsettled gap between the points of group departure and arrival. The need to colonise the area as widely as possible, and to fill the new niche can lead to such an insular mosaic pattern of settlement (Tolan-Smith 2003, 118). In the advanced phase of the colonisation process, with the familiarisation of the landscape, the gaps can be settled. Therefore, the migration process is non-linear, it consists of a series of back-and-forth pulses, and can also lead to the isolation of some groups. An impor-

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tant phenomenon during the settlement of new areas is learning the landscape. Knowledge of an environment is crucial in order to stabilise the social network. As R. Kelly suggests, topography can play a significant role in the movement of new settlers (Kelly 2003, 48–49). People may have avoided areas lacking visible landscape marks during the initial phase of colonisation. Valleys, coastline or linear moraine chains could be the best markers to navigate in an unfamiliar environment. This also strengthened the irregular pattern of settlement. There are several ways of learning the landscape, as Kelly highlights. Each group can memorise different values of the environment, depending on what is important due to their subsistence strategies, mobility system or cultural significance. For example, while the Inuit spend time learning about the habits of animals, the Kutchin put their efforts more into learning topography (Nelson 1986, 275–276; Kelly 2003, 50). Kelly also suggests that in a situation of non-region-specific knowledge, a group could create a general cognitive map with only a few well-known landmarks. To reduce the risk associated with searching for the best location, new inhabitants limited their movements: returning to known places is considered safer. They operated on a particular territory of new lands, not because of the special qualities of the landscape (biomass potential, rich sources of raw material), but rather because they simply knew it better (Kelly 2003, 50). Further, Kelly suggests that the learning process during colonisation affects two visible areas archaeologically: group size and mobility. Group size in hunter-gatherer societies is described in terms of the so-called ‘magic number’ of 25 people. This number is based on the foraging social system at its basic level. However, 25 people is not enough for biological and cultural reproduction; therefore, a number of different mechanisms can be established: increasing the size of the group, increasing the frequency of movement, limiting the territory to increase the chance of contact. Therefore, group size and mobility are in constant relation when settling new areas. The process of colonisation is described by most scholars in a two-stage model (Hazelwood, Steele 2003). The first stage concerns initial migration, when groups have limited knowledge of the landscape, mobility is highly residential, occupation of particular sites is short-term, and locations are scattered. In the second phase of more permanent settlement, the knowledge of the environment increases, and mobility is more logistical. In the initial stage of colonisation, settlers choose patches of landscape with familiar landmarks. When in the ‘estate settler’ phase, as Beaton called it, the occupation of territory is more permanent, the pro-

cess of advance colonisation of adjacent areas occurs simultaneously with population growth. In Webb and Rindon’s scenario of colonisation, the result of a poor knowledge of the environment is a strong dependence on a very narrow set of natural sources: they ‘skimmed the cream’ from the environment, which in turn results in a low resource return rate. The full exploration of natural resources comes with the second phase of colonisation.

Conclusions

Concerning the settlement pattern of Hamburgian societies in the European Plain, we can assume that the colonisation of the European Plain was a complex, non-linear process, which to some degree also included the point and arrow model of migration, which as a result probably led to the isolation of some groups and created gaps between settled areas, as is observed in most archaeological records. The dating of Hamburgian settlements so far confirms the non-linearity of the colonisation process: while there is agreement that Hamburgian originated from West Magdalenian (Cepoy-Marsangy group), the oldest dates came from Poland, one of the easternmost regions. As the discoveries in the Mirkowice site indicate, the expanding wave of new inhabitants was not limited by the environmental border of the young moraine landscape; therefore, the theory of the environmental cause of uninhabited areas in east Germany should be rejected. Hamburgian groups sought to fill an available niche, and extend their settlement to its very limits. However, the chronology of peripheral sites is still unrecognised; therefore, these migration pulses far beyond the area occupied by more permanent settlement cannot be placed in any stage of the colonisation process. Two hypotheses could be established: 1) the initial widespread colonisation failed, and the settlement stabilised after its contraction to a core area; 2) sites beyond the core area indicate several attempts to settle a new area in the stage of already developed/estate settlement in central regions, when hunter-gatherer groups were familiarized with the landscape. The settlement in central regions was territorially organised. The sites are concentrated in regions of western Poland, northern Germany, Jutland and the Netherlands. Some regions could be separated more permanently, depending on what effect on the different cultural development of the group operated in these areas. The kill sites/large sites play a significant role in the settlement structure within regions. Despite its function in collective hunting, the social dimension of large sites has to be mentioned. The aggregation of groups in one place allowed for the

maintenance of the social network through marriage exchanges, rituals, etc. These processes of socio-cultural reproduction through cyclical aggregation could be crucial in a situation of the colonisation new lands with limited demographic potential. This kind of territorial settlement pattern with aggregation sites could be the 'cultural scaffolding to support the cohesion of the social network' of the new settlers (Pearce 2014, 411–412).

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MEDŽIOTOJAI-RINKĖJAI ŽEMUMOSE: KELETAS PASTABŲ APIE HAMBURGO KULTŪROS APGYVENDINIMĄ ŠIAURĖS EUROPOJE

JAKUB MUGAJ

Santrauka

Straipsnyje pateikiamas dauginis požiūris į Hamburgo kultūros gyvenvietes, daugiausia dėmesio skiriant dinamiskam procesui, kai medžiotojų ir rinkėjų grupės adaptavosi naujose teritorijose pasitraukus paskutiniam Šiaurės Europą dengusiam ledynui.

Ledo atsitraukimas iš Šiaurės Europos lygumų leido čia sugrąžinti medžiotojų-rinkėjų bendruomenių grupes, kurios paskutinį ledynmetį išgyveno pietinėje kontinento dalyje. Pirmieji „naujojo šiaurės krašto“ gyventojai buvo grupės, kurios archeologiškai apibrėžiamos kaip Hamburgo kultūra.

Hamburgo kultūros gyvenvietės koncentruojasi keliuose regionuose: Šiaurės Vokietijoje, Jutlandijoje, Nyderlanduose, Žemutinėje Saksonijoje ir Vakarų Lenkijoje (1 pav.). Kai kurie regionai tapo labiau izoliuoti – atsirado neapgyvendintų kraštų tarp atskirų teritorijų. Be to, kai kurių archeologinių radinių buvo rasta už pagrindinės apgyventos teritorijos, regionuose, vadinamuose periferiniais: Škotijoje, Pietų Švedijoje, Lietuvoje. Tai aiškinama bendruomenių tolimojo išplitimo modeliu. Hamburgo kultūros grupės sekė šiaurės elnių bandas, migruojančias tarp ganyklų upių slėniais. Tačiau pastarųjų dešimtmečių atradimai rodo, kad šių medžiotojų-rinkėjų visuomenės ekonomika buvo lankstesnė, o gyvenimo būdui mažesnę įtaką darė griežta priklausomybė nuo šiaurės elnių (Rangifer tarandus) elgsenos, kaip buvo manoma anksčiau. O. Grøno duomenimis, teritorijų grupavimas keliuose regionuose gali reikšti teritorinę organizaciją, panašią į modelį didesnės gyvenvietės, kurioje grupės veikia lygiagrečiai apibrėžtoje teritorijoje, dažniausiai upių slėniuose.

Titnago dirbinių analizė atskleidė, kad, nepaisant minimalių skirtumų, kurie dažniausiai susiję su technologijomis, Hamburgo kultūros technologija gali būti

apibūdinama kaip vienoda ir vienalytė (2 pav.). Titnago įrankių inventorius rodo svarbius technologinius požymius ir aiškią gamybos tendenciją. Skeltėms atskelti naudoti mineraliniai arba organiniai muštukai (dažniau vakariniame Hamburgo kultūros paplitimo areale).

Ankstesni priešistorinių bendruomenių judėjimo tyrimai išskyrė du pagrindinius kolonizacijos modelius: 1) taško ir rodyklės (šuolio judesio) ir 2) priekinį (pažangos). Daugumos mokslininkų kolonizacijos procesas aprašytas dviejų pakopų modeliu. Pirmasis etapas susijęs su pradine migracija, kai grupės turi ribotų žinių apie naują kraštovaizdį. Antrajame – ilgalaikės gyvenvietės fazėje – išplečiamos aplinkos žinios, todėl mobilumas tampa labiau logistinis.

Kalbant apie Šiaurės Europos lygumų Hamburgo kultūros gyvenviečių modelį, galima manyti, kad šio regiono kolonizavimas buvo sudėtingas, nelineinis procesas. Žmonių grupės siekė užpildyti naują nišą ir išplėsti savo gyvenviečių arealą. Tačiau periferinių teritorijų chronologija archeologams vis dar nėra gerai pažįstama. Galima pateikti dvi hipotezes: 1) pradinė plataus masto kolonizacija nepavyko, o gyvenvietė stabilizavosi po atsitraukimo į pagrindinę teritoriją; 2) teritorijos, esančios už pagrindinės teritorijos, rodo keletą pastangų įsikurti naujoje teritorijoje, kai medžiotojų-rinkėjų grupės susipažino su nauju kraštovaizdžiu (3 pav.).

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STONE AGE
IN NORTHERN
EUROPE:
CHANGES IN
LANDSCAPE,
TECHNOLOGIES
AND BELIEFS