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## PROCESSES OF EARLY IRON AGE URBANISATION OF EASTERN EUROPEAN FOREST-STEPPE: THE STATE OF THE ART



*This study explores the processes of social complexity and urbanisation in the forest-steppe Scythia, arguing that at least some settlements can be classified as urban centres. The article examines fortifications, production centres, trade networks, and ritual spaces as key indicators of urbanisation.*

*Key words: Scythia, forest-steppe, Early Iron Age, urbanisation, city, hillforts, social inequality and complexity, warfare, trade, cult*

The Late Bronze — Early Iron Age period in Europe was a time of great changes and challenges. The predominantly agrarian population was facing the Late Bronze Age — Early Iron Age environmental and economic crisis. Eastern and Central Europe had to deal with Iranian nomads, and the lands with access to the Mediterranean were experiencing the expansion of the Greek and Phoenician worlds. An important factor of this period was the appearance of iron, which allowed for the quick and cheap production of household and economic items. This, in turn, significantly boosted the development of crafts, trade, and economy. Over time, significant growth population had become common in temperate Europe. In the territory of the Eastern European forest-steppe, examples of this process include the Chornyi Lis culture (Chernoles culture) and the population of the Scythian period. Despite the vast territories affected by this process, the European societies of the Late Bronze — Early Iron Age are characterised by similarities and close interconnectivity. Trade and mobility of the

population of temperate Europe were evident not only in contact with the Mediterranean world, but also among themselves. All these processes led to pronounced social inequality and centralisation. In archaeological sites, this is evident in the appearance of elite burials, large agglomerations in terms of area and population, and structurally complex enclosures. These processes fall under the term urbanisation (Fernández-Götz 2018).

Urbanisation processes reflected in archaeology are not only a cultural or economic marker: they are the product of profound structural changes in society. As the expert on classical antiquity, R. Osborne points out, “*The formation of denser population clusters opens up new possibilities for social interaction which may have cultural consequences in terms of social structure and organization or cult practices as well as in terms of politics or economy*” (Osborne 2005, p. 3). Therefore, urbanisation changes established social processes, transforming society in the context of specific conditions.

This study is an attempt to analyse the concept of urbanisation and outline its archaeological traces. By characterising the Forest-Steppe Scythia based on the defined parameters, I will suggest that at least some centres of the Scythian period can be considered cities and outline a further direction for research on this topic. Without illusions about constructing a comprehensive concept of this process at this moment, I want to stimulate discussion on this topic and encourage colleagues to study urbanisation processes in Scythia.

I intentionally avoid complex issues of chronology and geographical division in this study, describing the society as a whole. The work will consider Scythian period sites between the Don and Dnister Rivers as a cohesive phenomenon of the forest-steppe Scythia, which I understand as a society that lived in the forest-steppe zone between the late 7<sup>th</sup> and early 3<sup>rd</sup> centuries BC.

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## ***Definition of a Process and an Occurrence***

Urbanisation and the concept of the city are currently fields of study for sociologists, philosophers, and anthropologists. They are seen as direct reflections of social complexity (see e.g.: Weber 1958). L. Wirth, describing the city, identifies several key parameters. These include a large number of socially heterogeneous populations that constantly engage in social and cultural interactions, relatively large settlement sizes, and dense construction (Wirth 1938).

The criteria for defining a modern city are determined either by administrative division, where a certain settlement is designated as an urban centre, or by the number of inhabitants. It is typical that the required population varies from 200 people in Norway to 50,000 in Japan (Reba, Reitsma, Seto 2016). All other factors, which relate to living standards and opportunities, arise automatically when a certain number of people accumulate in one place. Population numbers are the main criterion in the most well-known lists of cities from ancient times to the present. Both T. Chandler and G. Modelski use population size and density as determining factors for defining a settlement as a city (Chandler 1987; Modelski 2003).

Modern concepts of a 'city' or 'urban' are seen as multi-dimensional and are defined by various criteria across different disciplines. Therefore, contemporary criteria can be summarised in a concise statement: *"If there is some commonality to the conceptualization and definition of a city throughout history, it is that urban areas are often associated with a higher quality of life than non-urban places, manifested through more opportunities and more services"* (Reba, Reitsma, Seto 2016). It is important to note that archaeological research remains an integral part of modern urban studies (see, e.g.: Ortman et al. 2020).

### **Overall Perspective.**

The beginnings of the urbanisation process can be traced far back in history and are reliably documented by written sources and archaeology. Describing the origins of urbanisation in the ancient world, V. G. Childe developed the concept of the 'Urban Revolution' and proposed a list of ten criteria a settlement must meet to be considered a city. These include: large and densely populated settlements; full-time employed specialists; some form of taxation in favour of secular or spiritual authorities; truly monumental public structures; the presence of a 'ruling class'; writing;

knowledge of science and engineering; art; foreign trade; a state organisation now based on residency rather than kinship. His research focused on sites in China, the Indus Valley, Mesopotamia, Egypt, the Andes, and Mesoamerica. This geography was chosen, among other reasons, to demonstrate that urbanisation developed independently in different centres (Childe 1950).

Despite criticisms of specific elements and an overly Marxist approach, this work became one of the most cited articles written by archaeologists and significantly influenced the study of social processes in ancient societies (Smith 2009, p. 3). Although most of Childe's criteria describe societal complexity, they include both specific formal features — such as writing — and relative categories, like the development of science and engineering, art, and foreign trade. The latter exist in all societies, meaning their sufficient level and scope are subjectively determined by scholars. Given these observations, it can be suggested that the criteria concerning statehood and technological development can be merged into a general "level of societal development." Essentially, V. G. Childe was referring to something similar to F. Engels' social formations.

Another issue is that writing, in addition to being a formal parameter, often serves as a source of information about some of the other criteria. For example, details about state organisation or taxation policies are easier to read in texts than to identify through their archaeological traces. This reliance on historical rather than purely archaeological sources created several problems in studying urbanisation processes in regions and periods where writing was absent (Fernández-Götz et al. 2014, p. 6-7). Consequently, societies without writing or those not described by literate societies were deprived not only of one of the checklist criteria, but also of a primary source of information about their adherence to other criteria.

A historical overview of the definition of the 'city' in archaeology is provided by M. Fernández-Götz (Fernández-Götz et al. 2014). The researcher describes several parallel discussions in the literature. Among them, three main debates stand out.

The first one is the varying significance of writing as a criterion and the use of written sources about societies in general. Texts provide crucial insights into the status and specific characteristics of cities in Egypt, the Near East, Greece, Phoenicia, and Rome. On one end of the spectrum are scholars following a more traditional approach to developing Childe's ideas (Kolb 1984, 2004),

while on the other are those who emphasise purely archaeological criteria (Cowgill 2004; Hänsel 2005).

The second one is the persistent opposition between Mediterranean and Central European urbanisation traditions in the context of research about antiquity. J. Collis divides these traditions into 'city-states' and 'tribal states,' with the latter representing the tradition of temperate Europe (Collis 2014). However, this distinction has reinforced the opposition between 'civilised' Mediterranean societies and the 'barbarian' periphery, prompting scholars to study Central European urbanisation as a derivative of the Mediterranean tradition (Fernández-Götz et al. 2014). This dualism leaves little room for alternative models and often forces early centres to be classified under one of the two traditions, thereby stripping them of their right to independent emergence and uniqueness.

Perhaps the most important conceptual debate concerns defining urbanisation and the city itself. The development of criteria for identifying settlements or societies as urban has led to the creation of checklists for comparing different societies. While this approach has been widely criticised (Osborne 2005, p. 7), it still delineates the framework within which we analyse urbanisation and the features we focus on when attempting to justify such processes in society.

#### **Scythian Perspective.**

Although the term 'urbanisation' was not typically applied to Scythian sites, researchers have described some hillforts as cities. The existence of cities in Scythia has been a subject of debate since the beginning of Scythian studies. This discussion was prompted by Herodotus' description of a 'wooden city' called Gelonus, located in the land of the Budini in Scythia. At various times, different fortifications in the Forest-Steppe Scythia have been identified as possible candidates for this title (Медведев 2002). However, the most widely accepted association is between the city described by Herodotus and the Bilsk hillfort, the largest Scythian-period fortification in the forest-steppe (Шрамко 1987). Other Scythian-period fortifications were frequently designated as cities by researchers. Large hillforts were considered as already developed cities — major political, economic, and religious centres (Болтрик 1993).

The discussion must begin with Gelonus itself and its identification. Several factors were used to argue whether a particular hillfort could be

identified as Herodotus' Gelonus. The primary factor was the size of the hillfort. When describing Gelonus, Herodotus stated that the fortification had walls 30 stadia in length (Herod. IV, 108), meaning a total perimeter of approximately 22–26 km. Although these dimensions appear exaggerated, they are comparable to the size of Bilsk hillfort, while some other fortifications in the forest-steppe also have smaller but comparable sizes<sup>1</sup>. Another argument is its geographical location, which, however, is somewhat confusing and contradictory in Herodotus' text (Медведев 1997). Additional supporting factors include the presence of large quantities of Greek imports at the site and its central position in a complex settlement structure. Essentially, the main approach was to find a hillfort that corresponded best to the textual description. Given that Herodotus' account described extraordinary dimensions, the primary argument became the size of the Bilsk hillfort. Even the quantity of Greek imports found at the site was used more as a supporting argument for Herodotus' claim that Gelonus was home to Greek settlers among others (Herod. IV, 108). However, there is no substantial reason to fully trust Herodotus' calculations on this matter. When describing Babylon, he exaggerated its dimensions tenfold (Медведев 2002, с. 134-135), casting doubt on the validity of arguments built upon this comparison.

Aside from the Bilsk hillfort, there are several other giant hillforts in the Forest-Steppe Scythia that have also been referred to as cities. M. Ignaczak (Ignaczak 2011) provides a succinct summary of the main interpretative models regarding the origins of these giant hillforts. The first model interprets them as a response to the arrival of nomads in the forest-steppe, linked to the high socio-economic development of the local agricultural population (Ильинская, Тереножкин 1983, p. 260). The second model posits that the Scythian nomads conquered the forest-steppe and formed an alliance with the local agricultural population, leading to the construction of massive fortifications intended for joint defence against other nomadic groups (Скорый 1990, с. 96). The third model argues that the hillforts were built by the Scythians themselves

<sup>1</sup> Khodosivka, approximately 2,000 ha (Максимов, Петровская 2008), the hypothetical Karatul hillfort, approximately 40,000 ha (Крютченко 2018), Trakhtemyriv hillfort, 600 ha (Петрашенко, Козюба 1999, с. 86; Болтрик, Фіалко 2003), Zhurzhyntsi >326 ha (Дараган 2017a, с. 404).

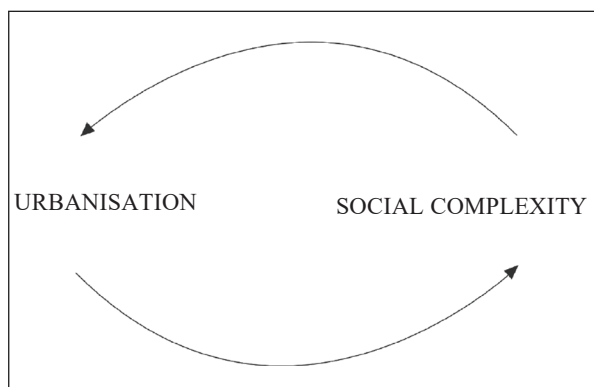


Fig. 1. Casual loop of increasing social complexity

to defend against the local population (Мурзин, Ролле 1996, с. 181-182). The fourth model suggests that the large hillforts served as communal defensive refuges for a significant population in times of crisis (Ignaczak 2011, s. 181).

Researchers primarily interpreted the giant hillforts as urban centres. This term was used for fortifications covering areas from several dozen to several thousand hectares. Such sites were considered political, economic, and religious centres of their respective regions (Скорый 1990, с. 96), city-states akin to Greek poleis (Шрамко 1987, с. 162), or capitals of small principalities (Павленко 1994).

A common feature of all these studies was a hypothetical and deductive approach, where the assumption that a hillfort was a city was made first, and then supporting evidence was sought. The primary arguments included the size of the fortifications (from which a large population and a complex, labour-intensive system of fortifications), the presence of substantial production activities (usually inferred from the quantity of iron and bronze objects discovered), and the site's location on hypothetical trade routes. While the texts suggest that researchers considered cities as complex social phenomena, their investigations focused primarily on traditional issues of history, technology, and ethnicity.

B. Shramko's work (Шрамко 1984) stands out in this regard. Referring to V. Masson, he constructed a list of criteria by which a site could be considered a city. These included: a population exceeding 5,000; secular and religious monumental architecture; and centres of craft production (Массон 1976, с. 144). Based on this, he definitively classified several large Scythian hillforts as cities and debated the possibility of about a dozen smaller sites (Шрамко 1984).

Thus, most researchers who wrote about cities in Scythia followed two primary approaches. The first was based on very general criteria such as population size, site dimensions, and similar factors. Additional criteria were often included, which depended on subjective assessments or the presence of specific objects ("high cultural and technological development," monumental architecture, crafts production, etc.). The second approach can be described as inductive. In this case, researchers examined the finds and structures discovered at a site and, based on these observations, concluded whether a particular settlement could be identified as a city.

### Methodological Thoughts.

As it is evident from the discussion above, the methodology for identifying certain sites as cities remains highly debated. A city is primarily a complex social structure, serving as "*an expression of, and a catalyst for, increasing social inequality*" (Fernández-Götz, Ralston 2017, p. 261). Therefore, defining a site as a city also entails assessing the complexity of the society that built it (fig. 1). If we exclude literacy as a necessary criterion, determining the complexity of society must rely primarily on the archaeological record left by the people who built the settlement. Another crucial factor in the diversity of approaches and methodologies is the variety of societal adaptation strategies, sometimes leading to opposing mechanisms in the formation of social complexity. For these reasons, I find the approach of M. Fernandez-Götz and D. Krausse particularly compelling, as they propose a "context-dependent definition of a 'city'." This approach emphasises the vast diversity of different urbanisation traditions (Fernandez-Götz, Krausse 2013, p. 480).

Another significant factor in constructing a methodology is the specificity of Scythian society. Researching it has always been particularly challenging due to numerous factors — ranging from viewing ancient societies through the lens of Soviet ideology to debates about fundamental concepts such as the polyethnic nature of Scythian society. A striking example illustrating both the diversity of adaptation and development models, as well as the local specificity of the forest-steppe, is the 'nomadic factor'. Examining the westernmost extent of Scythian expansion, we see how societies in Śląsk (South-Western Poland) quickly declined upon encountering nomads, whereas in Alföld (Hungary), they merged with the local population, leading to the emergence of the powerful Vekerzug culture (Chochorowski 2014). In the case of the

forest-steppe Scythia, we observe a mutually beneficial coexistence. However, unlike in the Vekerzug culture, there was no noticeable mixing of material culture. This highlights the diversity of interaction patterns between the Scythians and the sedentary agricultural populations they encountered.

If we consider solely the archaeological record left by the forest-steppe society, we see a strong resemblance to contemporaneous sites in temperate Europe during 600–400 BC. Although this connection in enclosure traditions, economy, and society has been explored by various scholars from different perspectives (see, e.g.: Светличная 1996; Кашуба 2012; Kashuba, Levitski 2012; Chochorowski 2014; Darahan, Gavrish 2017; Grechko 2020; Топал 2021), it can hardly be considered fully studied. Nevertheless, all these works clearly indicate its existence.

From this perspective, it is evident that the development of parameters for identifying cities in Scythia and studying a forest-steppe society extends beyond the scope of this introductory paper. Their detailed development is a task for the future. Therefore, as parameters, I have decided to utilise those most commonly applied to temperate European regions of the same period, with some modifications.

These include:

- site areas over 10 ha;
- emergence of agglomerations and elite burials;
- social inequality, societal complexity, and elite distinction;
- production centres and workshops;
- internal and external trade;
- areas of social gatherings;
- areas with group rituals, cult performing, and results of collective work.

### ***Arguments Indicating Urbanisation Processes in the Scythian Forest-Steppe***

#### **General Information.**

The sites examined in this paper cover the entire period of the Scythian material culture complex in the Northern Black Sea region and the Eastern European forest-steppe. This includes the time span from the late 7<sup>th</sup> century BC to the early 3<sup>rd</sup> century BC. However, the formation of the forest-steppe society began earlier in the Chornyi Lis culture and the Zhabotyn stage, with its influence traceable in the Crimea until the late 3<sup>rd</sup> century AD. The study of these societies requires separate research.

By using the term ‘forest-steppe scythia’ or ‘Scythian forest-steppe’, I refer to the areas where this material culture was distributed. The westernmost sites include the Chotyniec hillfort in Poland (Czopek, Trybała-Zawiślak, Tokarczyk 2022) and the Western Podolian group in the Dniester basin, while the easternmost sites are located in the Don basin (fig. 2). The southern boundary is defined by the distribution of sedentary population sites, which generally do not extend into the steppe zone. The northern boundary is determined by the distribution areas of cultures distinct from the forest-steppe, such as the Lusatian, Mylohrad, Yukhniv, Upper Oka, and Gorodets cultures.

The term ‘forest-steppe society’ refers to a syncretic, polyethnic union of nomadic and agricultural societies, essentially forming the concept of the forest-steppe Scythia (Медведев 2004, p. 6-18; Білинський 2019b). In some cases, different ethnic components can be distinguished within this society (Гречко 2023); however, the development of criteria for their identification and mechanisms of interaction remains far from a definitive resolution.

A key note in this context is the diversity of processes observed today. For example, the hillforts of Kamianka (Граков 1954), Kapulivka (Фатеев 2013), and Elizavetinskoie (Марченко, Житников, Копылов 2000), which emerged at the boundary between the Scythian and Greek worlds, were likely influenced by Greek traditions. Therefore, these and similar sites will not be considered in this study.

It is also important to highlight that the social dynamics and intensity of activity in different centres within the forest-steppe varied across periods. Large hillforts located near each other did not necessarily exist simultaneously, just as some areas were settled and then abandoned at different times. The movement of large population groups within the forest-steppe is clearly observed through its territorial and chronological divisions. A well-documented example of this can be seen in the thoroughly studied left-bank Dnipro region (Гречко, Билинский, Кушнir 2021).

#### **Huge Area of the Sites, Agglomerations and Demography.**

At present, accurately estimating the number of Scythian-period sites in the forest-steppe remains quite challenging. The most up-to-date calculations have been published only for the left-bank Dnipro region, where over 620 settlement sites have been identified from the late 7<sup>th</sup> to the early 3<sup>rd</sup> centuries

ВС (Гречко, Билинский, Кушнir 2021). If we add known sites from occasionally outdated studies on other regions, the total number of hillforts and unfortified settlements in the forest-steppe Scythia exceeds 1,000. However, considering how the number of sites has increased in the Left-bank region, we can confidently estimate approximately 2,000 settlement structures in total. The research on the Siverskyi Donets River region provides a striking example. In P. Liberov's work (Либеров 1962, с. 22), 89<sup>2</sup> sites were known in the region, whereas D. S. Grechko (2010, с. 138) recorded 218, with major survey efforts in Kharkiv Oblast occurring after the latter study was published.

**Unfortified settlements** are generally small, most of them ranging from 1 to 5 ha. However, some settlements cover around 100 ha (Ляшко 2017). Estimating the density of habitation in such sites is extremely difficult, as they have not been fully excavated. For example, at Mykhailivka settlement, researchers noted that earlier and later materials were concentrated in different areas, indicating that the settlement expanded gradually over time (Ляшко 2017, с. 299). Thus, not all 100 ha were inhabited simultaneously.

It is much easier to assess fortified settlements, where the area enclosed by ramparts and ditches can be measured, although in many cases, adjacent areas outside the fortifications were also inhabited. As with unfortified settlements, determining the exact number of fortifications is difficult. However, since most hillforts were actively identified during the second half of the 20<sup>th</sup> century, we can approximate their total number based on summarising regional studies — though some of these works are now outdated. By compiling data from the Don basin (Медведев 1999), left-bank Dnipro region (Крютченко 2019), Siverskyi Donets basin (Гречко 2010), right-bank Dnipro region (Ковпаненко, Бессонова, Скорий 1989), and the Eastern and Western Podillian groups (Очеретний 2017; Могиллов 2020), we reach a figure of at least 280 hillforts.

The sizes of these sites vary significantly, ranging from 0.3 ha to giant hillforts covering several thousand hectares. The proportion of fortified to unfortified settlements and the distribution of larger and smaller settlements differs significantly by region. No global statistics exist for the total area of hillforts, but well-

documented data from the Left-bank region provides useful insight (fig. 3). If we exclude giant hillforts as statistical outliers, we obtain a chart that demonstrates a gradual increase in site sizes from smaller to larger settlements (fig. 4). Within this distribution, sites of 10–15 ha and 25–40 ha are clearly distinguished. These settlements, along with giant hillforts, were likely small regional centres, functioning as urban or proto-urban ones.

A unique phenomenon in the forest-steppe Scythia is the presence of **giant hillforts**, sites covering over 100 ha (Дарган 2017a), which are more than twice in size among the largest hillforts of a lower rank. The highest concentration of such hillforts is found in the right-bank Dnipro region. Most of them share common features:

- circular ramparts, ranging from several to several dozen km in length;
- not only longer, but also stronger fortifications, with ramparts rising over 10 m above the ditch;
- one or more smaller fortifications within the main enclosure;
- a variety of landscapes and resources inside the fortified area, enabling agriculture within the walls;
- often, water sources — sometimes entire rivers — are found within the fortified perimeter.

These giant hillforts were not entirely settled; rather, multiple separate settlements existed within the fortifications or nearby, showing clear signs of permanent habitation. This pattern is particularly evident at the Bilsk hillfort (fig. 5). The function of the remaining enclosed territory remains unclear. It may have been used for agriculture by the population or served as wintering grounds for large nomadic groups.

An essential element of the Scythian period settlement structure is the formation of **settlement agglomerations**. Many scholars have noted that medium and large hillforts are often accompanied by numerous smaller settlements located within few kilometres. A significant challenge, however, is determining the precise chronology of these settlements — not just their existence within the Scythian period, but their synchronisation. No large-scale investigations integrating comprehensive survey methods and modern data have been conducted on the topic.

The most studied settlement complexes in this regard are those of the Seim River region. These sites are particularly useful, because of their narrow chronological window — the Eastern Seim region was settled only for a few decades in the late 6<sup>th</sup> to early 5<sup>th</sup> centuries BC, which allows considering

<sup>2</sup> Although both scholars wrote about the Siverskyi Donets River region, their research areas do not fully overlap. Therefore, I excluded from P. D. Liberov's list of 104 sites those located outside the research area of D. S. Grechko

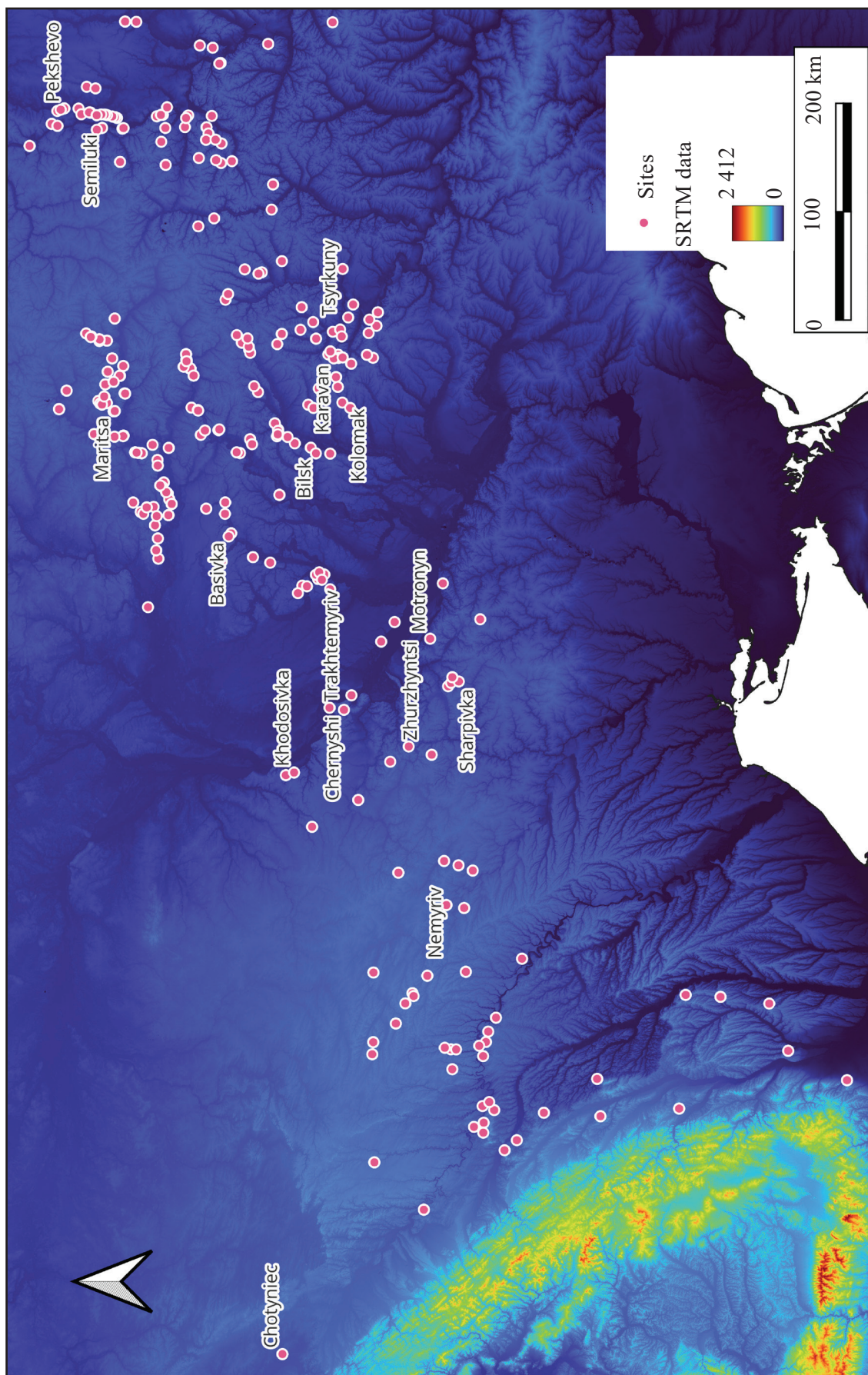


Fig. 2. Map of major hillforts of Forest-Steppe Scythia

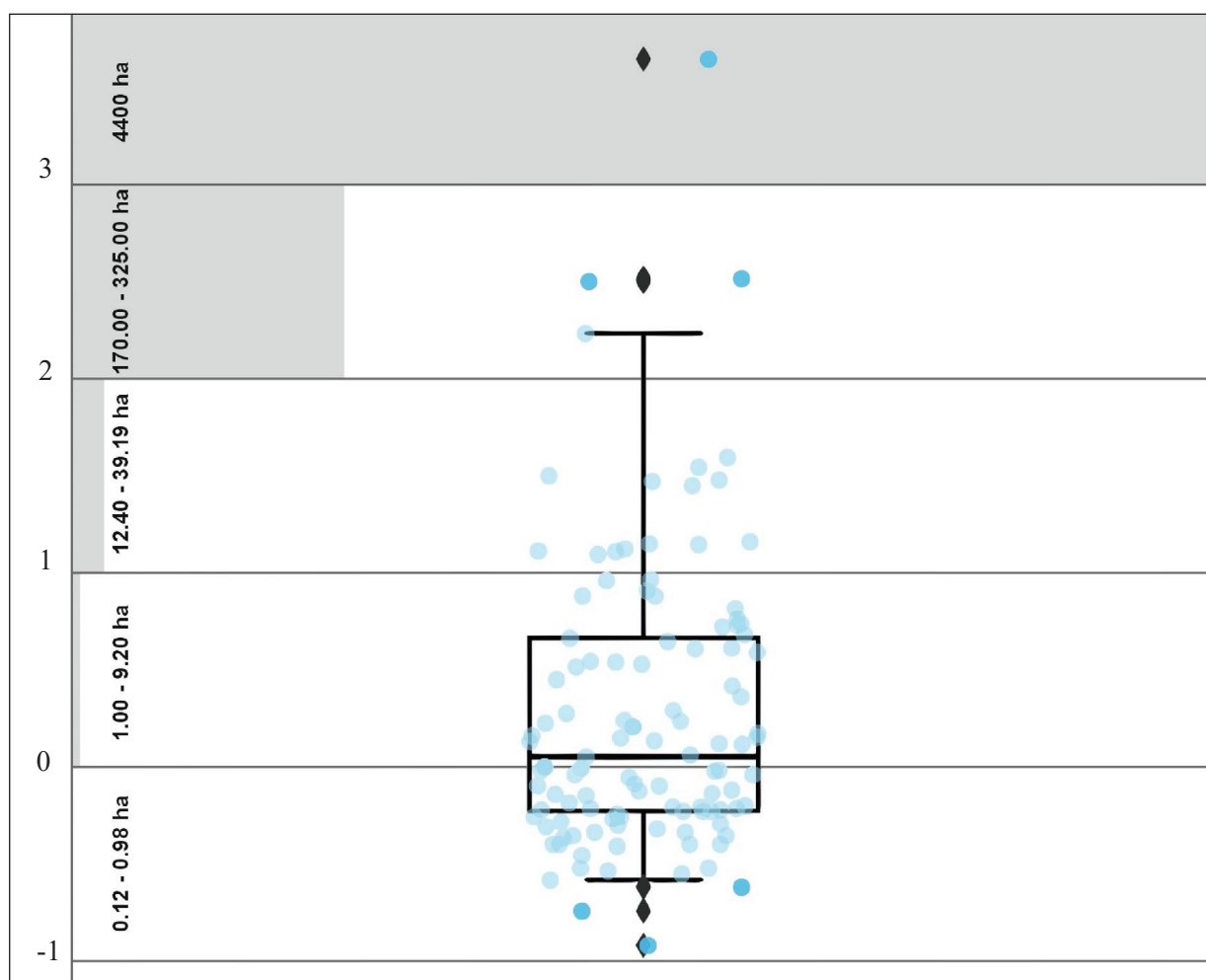


Fig. 3. Logarithmic scale of the Dnipro Left-bank hillforts square with ranges of real values (in hectares)

most of the sites as roughly synchronous. A three-tier model was applied to classify settlements, with distances calculated using breakpoints in a distance chart generated via the QGIS distance matrix tool. The resulting classification distinguished:

- locality with distances no greater than 831 m;
- agglomerations with distances no greater than 3,325 m;
- micro-regions with distances up to 10,749 m (Білинський 2019а, с. 101)

Overall, 161 settlement sites were grouped into 64 agglomerations, of which only 29 contained a single site (Білинський 2019а, с. 105). Given that the Seim River eastern basin likely had the lowest level of centralisation in Scythia, it is reasonable to suggest that nearly all hillforts over a few hectares in size had multiple smaller settlements around them, forming agglomerations.

Estimating the **population size** of hillforts or settlements is particularly difficult. Due to low efficiency (Гречко, Корост, Коротя 2019) and other factors, large-scale geomagnetic surveys

have not been conducted, meaning that evidence of dwellings relies solely on excavation or surface surveys.

Bilsk hillfort provides the most striking example in this regard. The presence of numerous settlements within and adjacent to its fortifications led to population estimates of 40,000–50,000 inhabitants (Шрамко 1984, p. 225). While I agree with the view that not all of these settlements were occupied simultaneously and that this number of sedentary inhabitants is overestimated (Дарган 2017b, p. 27), the case illustrates the scale of the issue. Another challenge is evaluating the nomadic population, which did not leave permanent dwellings or settlement sites. Despite this, nomads lived in or near these sites and were integrated into local social and economic processes, as indicated by their burial mounds located next to hillforts. This phenomenon is particularly evident in the Don region, where we observe a distinct material culture at hillforts, contrasting with kurgan cemeteries nearby, demonstrating cohabitation

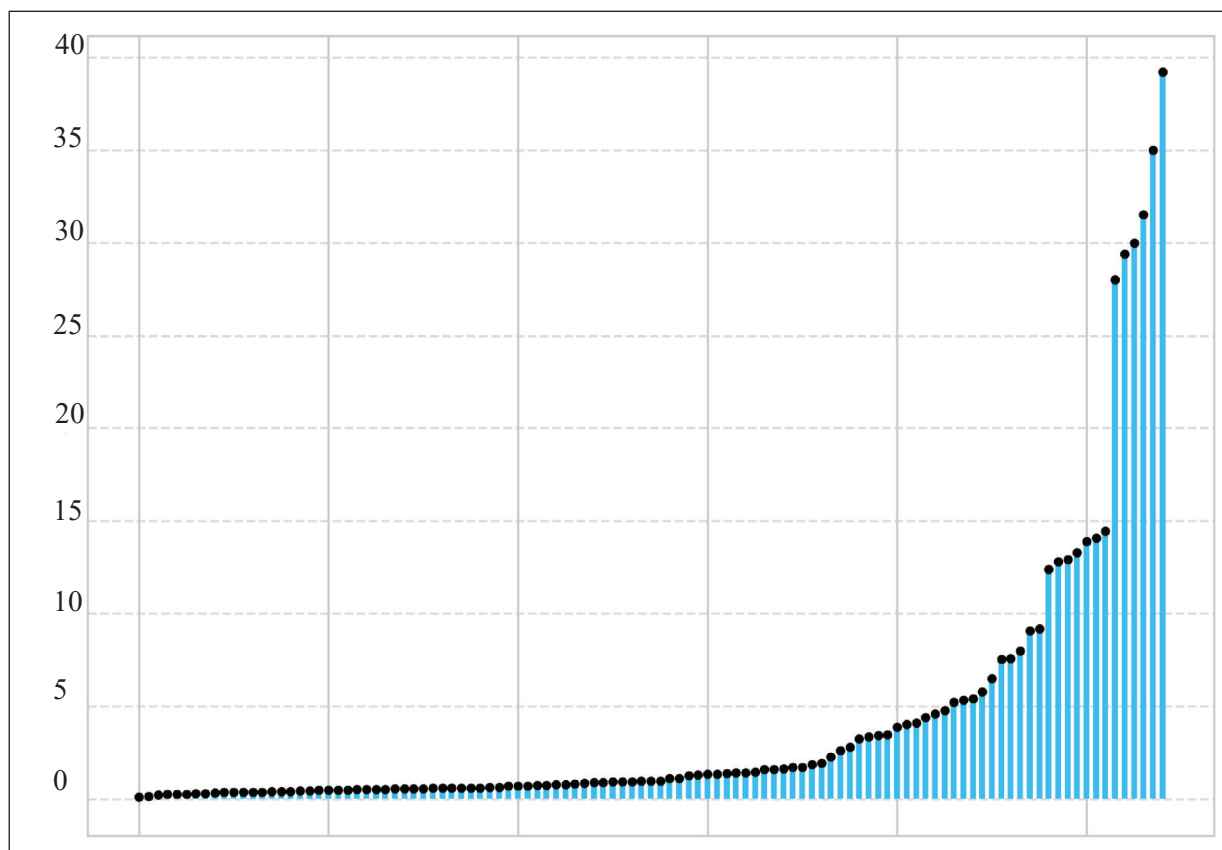


Fig. 4. Dnipro Left-bank hillforts, square in hectares

between agricultural and nomadic populations, and likely indicating the elite status of the latter (Медведев 2004, p. 36).

Overall, two primary settlement planning traditions existed in the forest-steppe (Билинский, Кабанов 2018): densely concentrated dwellings and storage facilities (typical of small fortified sites under 1 ha) and separate homesteads with multiple dwellings and outbuildings, covering 300–600 m<sup>2</sup>, spaced tens of metres apart (Бессонова, Скорий 2001, с. 53)

If we examine fully excavated sites, the best examples come from the Seim basin. Several nearly completely excavated hillforts contained about 20 dwellings within their ramparts, sometimes extending outside (Пузикова 1981; 1997), suggesting a population of around 100 inhabitants per site. The prevalence and uniformity of such fortifications in the region suggest that settlements of similar size were typical for this society. However, when considering hillforts ranging from 5 to 35 ha, taking into account the scale of their defensive structures and the presence of agglomerations around the fortifications, this population estimate can be safely increased several times.

Overall, I believe that the population assessment of the Motronynske hillfort are closer to reality, with researchers estimating its population at approximately 5,000 inhabitants (Безсонова 2002). This figure includes both the sedentary agricultural and nomadic populations. Depending on the size of a given site, this number may fluctuate. Agglomerations on the scale of the Bilsk hillfort could have housed several times more inhabitants, whereas hillforts of 10–30 ha likely had several times fewer. However, it is essential to note that these calculations also account for the nomadic population, as the sedentary inhabitants alone would likely constitute only about half of this number.

#### Elite Distinction and Burials, Social Inequality and Complexity.

The greatest challenge in reconstructing the social structure of the Scythian forest-steppe society is its heterogeneous nature. It consisted of the local agricultural population and nomads, who likely conquered this population and lived alongside them, forming a single community (Бессонова 1999; Гречко 2023, с. 37). For this reason, the search for elites often coincided with attempts to distinguish ethnic differentiation in

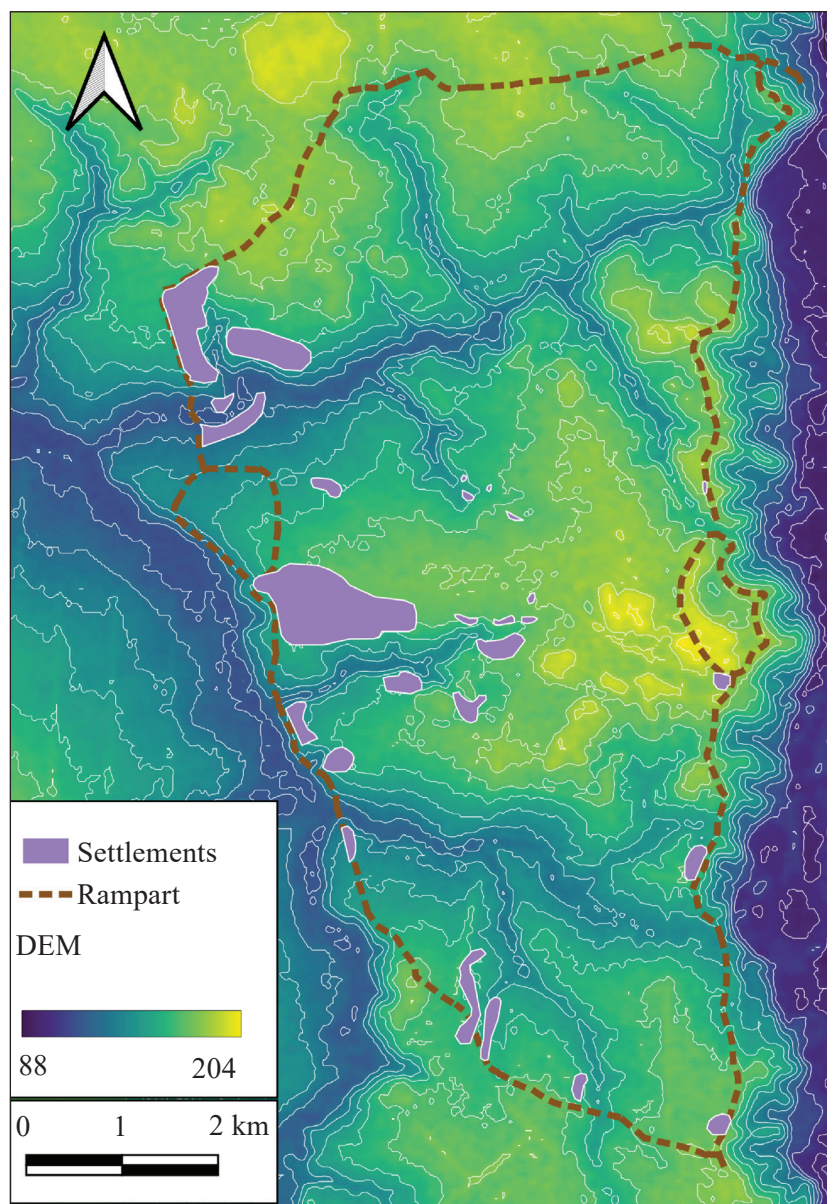


Fig. 5. Bilsk hillforts with inside settlements

burials, ultimately leading to a division between agricultural and nomadic burials (Скорый 2003), which automatically positioned the latter as the privileged class. Without delving into this discussion or the division of burials by ethnicity, we can characterise the burial practices in general.

Despite post-processual critique, the Binford-Saxe-Goldstein theory remains a classical approach in archaeology for studying social inequality through burial rites. If we summarise the key works on this subject (Saxe 1970, 1971; Binford 1971; Goldstein 1981), several important parameters emerge:

- the cost of the burial, including labour expenditure and grave goods placed in the tomb;
- the territorial distinctiveness of elite burials within a cemetery or in a separate burial site;

- claim on territory, where even after death, the deceased symbolically claims a resource or land, expressed by their burial near or within this area.

These criteria are well-suited for analysing Scythian society, and a useful example for applying them is the burial sites of the Sula region. According to the 19<sup>th</sup>-century accounts, they stretched 50 km along the right bank of the Sula River, in some places forming cemeteries with up to 600 mounds (Ильинская 1968, с. 8). The most notable site is Staikyn Verkh, near the village of Oksiutyntsi (fig. 6). In the 1970s, the largest kurgan, Starsha Mohyla, 20 m high, alongside 13 other mounds ranging from 4 to 11 m in height, and about 300 smaller burial mounds (Ильинская 1968, с. 9). The estimated volume of the Starsha Mohyla is 16,000 m<sup>3</sup>, and the

grave goods included a large number of weapons and horse harnesses. Since the burial was looted in antiquity, the presence of precious items cannot be confirmed, yet the mound's scale and preserved artefacts clearly indicate the high status of the buried individual.

This burial site also serves as strong evidence for the territorial separation of elite burials. The four largest kurgans were located within the cemetery, but were compactly arranged in its south-eastern part, near the slope leading to the Sula River valley. A particularly striking example of claiming territory is that the burial ground lies just 2 km from one of the giant hillforts, Basivka. This suggests that the nomadic elite marked their ownership over the hillfort and its population, similar to how elite Hallstatt burials were placed near salt mines (Saxe 1970, p. 199).

Recent studies on the social structure of Scythian society have been conducted using statistical analysis within a processual framework (Burghardt 2017; Korokhina, Grechko 2021). Based on an analysis of 247 burials, M. Burghardt identified several social strata within the population, classified according to burial rites and grave goods (Burghardt 2021, 2022).

In contemporary research, preferred is a structured approach to social inequality in archaeology around three main domains. Accumulation — the concentration of essential resources, valuable objects, and wealth in the hands of a few. Access — individuals' ability to obtain or utilise key goods and knowledge, such as trade routes, social networks, or imported goods. Action — the ability of individuals or groups to make decisions affecting the entire society, including settlement systems, social mobility, and specialised roles such as warriors or craftsmen (Beck, Quinn 2022) (fig. 7).

The accumulation domain in the Scythian forest-steppe society is evident from the significant variation in burial monument sizes, the presence of gold objects, jewellery, and weapons in certain burials. Additionally, monumental tombs with vast earthen mounds demonstrate substantial investment of human and material resources. High-status burials frequently contain Greek pottery, horse burials, and even dependent individuals buried alongside the deceased.

The access domain is reflected in the presence of imported goods, primarily Greek pottery, often in the form of amphorae filled with wine or oils. Another indicator is specialised burial items, such

as insignia of power, pole-tops, and complex burial structures with dromoi, multiple chambers, and connecting corridors. This suggests that not all members of society had equal access to resources, funerary practices, or advanced construction techniques, reinforcing the existence of social stratification.

The action domain is observable in the presence of specialised social roles, such as warriors and craftsmen, who constituted a significant proportion of the population. The ability of the elite to command labour from the wider population is evident in cyclopean fortifications and burial mounds, which required not only a workforce, but also skilled builders.

Both processual and post-processual studies clearly highlight the existence of elite burials in Scythian society, which is sufficient to describe this criterion as a factor in urbanisation processes. However, the overall study of the social structure of Scythian society remains a topic for future research. Despite a number of studies on this subject (Хазанов 1975; Генинг 1984; Бунятян 1985; Бойко 2017), it cannot be considered well-developed yet. Notably, with the exception of the last work, most of these studies focused on the steppe population rather than the forest-steppe population.

### **Production Centres and Workshops.**

The Scythian period in the forest-steppe zone differs significantly from both previous and subsequent periods due to the large quantity of metal artefacts. The black and non-ferrous metallurgy of this period can be evaluated using two primary approaches.

The first approach focuses on the study of **production sites, tools, and technology**. During the Scythian period, devices for ore enrichment, charcoal production, bloomery iron extraction, and even medium-carbon steel production were well-known. Blacksmiths could heat metal billets to produce high-quality items. Among blacksmith tools, axe-hammers, chisels, punches, and tongs have been identified (Паньков 2014, с. 167, 173). In general, blacksmiths of this period were familiar with solid iron forging, bloomery steel, carburised steel, layered metalworking, various welding techniques, and surface cementation (Паньков 2014, с. 202).

Non-ferrous metallurgy often functioned parallel to blacksmithing. Evidence for this includes special furnaces for metal smelting, slags indicating ore-based metal extraction, and small droplets of metal. The tools of non-ferrous metalworkers included casting moulds,



Fig. 6. Staikyn Verkh mounds, available at: <https://shorturl.at/x5XGB>

crucibles, casting spoons, and small chisels for ornamentation. Well-documented technologies included stone mould casting, lost-wax casting, wire drawing, plating, and embossing.

It has long been observed that all traces of production are linked specifically to the forest-steppe sites (Шпамко 1971, с. 96-97). Notably, these production centres were not located exclusively in large hillforts. Alongside Bilsk, Trakhtemyriv, and Motronynske, smaller but well-studied sites within large settlement agglomerations also functioned as production hubs. Blacksmith workshops have been identified at Liubotyn (4 ha), Knyshivka (5.35 ha), Tsyркuny (2.61 ha), and Sharpivka (16 ha) hillforts. In the case of Kolomak hillfort, metalworking workshops were found not only within the hillfort, but also in two adjacent settlements (Ольговський 2022, с. 158). Additionally, a major non-ferrous metalworking centre was discovered at Hryshchyntsi settlement, located 7 km from the contemporaneous Chernyshy hillfort (12 ha). Finds from this site include bronze slags and droplets, metal blanks, copper ingots, miniature bronze chisels, unfinished and defective bronze pins, earrings, and thin wire products (Петренко 1967, с. 10-11).

Currently, only a small number of metallurgical workshops have been identified. Their quantity clearly does not match the scale of production, as suggested by indirect evidence. For example,

casting spoons have been found at nearly all well-excavated Scythian-period sites. The low number of recorded workshops can be explained by the common practice of locating production facilities outside settlements, due to the noise, odour, and other disturbances they generated.

However, when workshops are found within settlements, they are often concentrated in specific quarters. This was the case at the Bilsk hillfort, where entire craft districts existed, producing iron, bronze, and bone items (Шпамко 1977, с. 393-394). A similar situation is observed at Sharpivka hillfort, where the northern sector was significantly more industrialised. This is also reflected in the high proportion of Greek pottery fragments, which accounted for up to 30 % of all finds in this area (Ольговський 2022, с. 152).

The second approach to assessing Scythian metallurgy focuses on the **products** themselves. While the quality and refinement of many items are undeniable, in this context, quantity is far more revealing. The range of bronze and iron objects from the Scythian period is extensive, but here we focus on the most numerous categories.

Scythian **swords and daggers** — akinakes were predominantly made of iron, with the earliest examples featuring bronze hilts. Nearly 400 swords are currently known from the forest-steppe sites (Shelekhan 2020). Across all of European Scythia, over 1,500 blades have been recorded (Топал

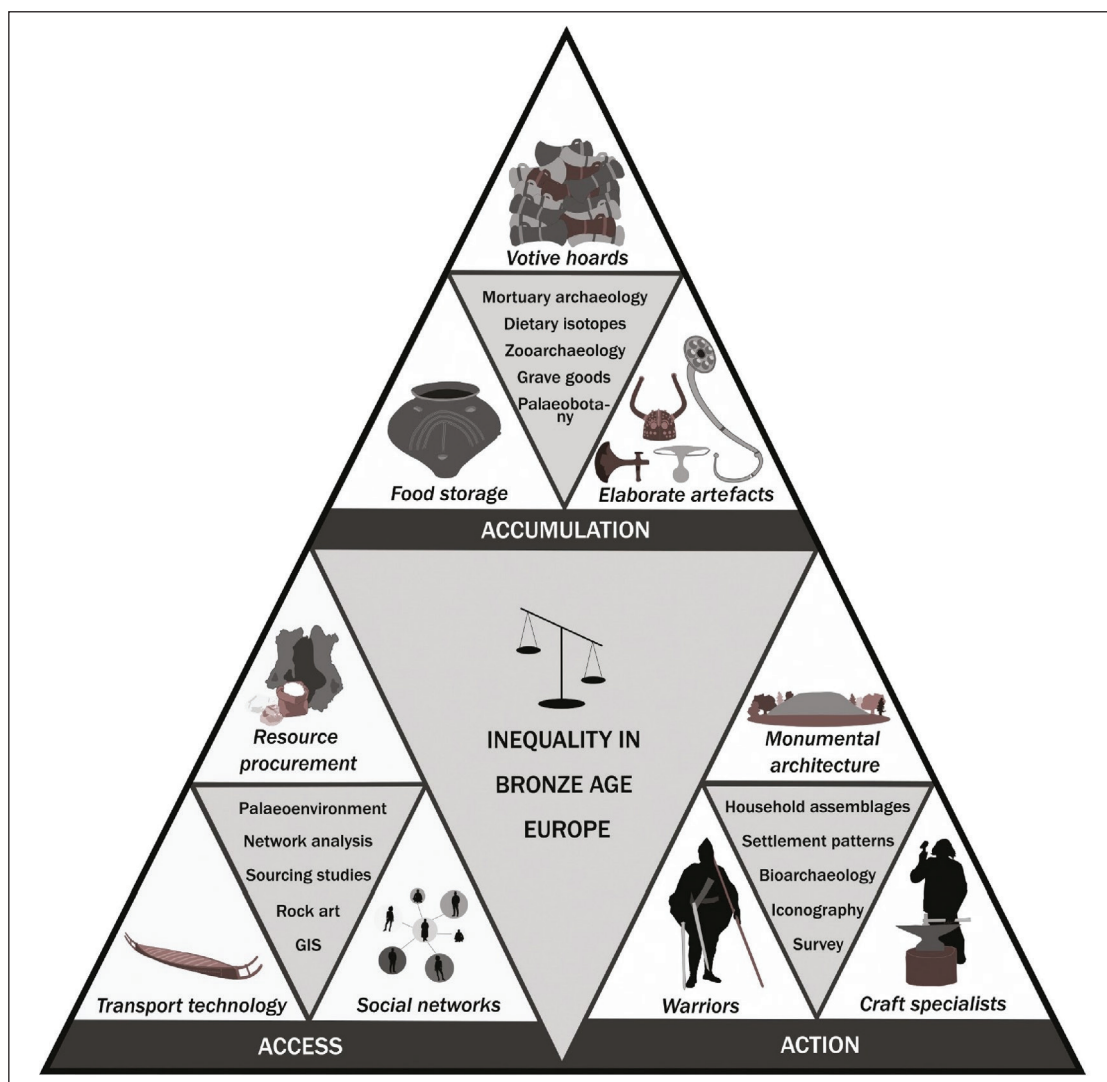


Fig. 7. Domains of inequality, after: Beck, Quinn 2022

2021, c. 58). While not all of these were produced in the forest-steppe, this figure clearly reflects the scale of blades manufacturing. It is also logical to assume that certain akinakes types were produced in specific regions. A good example is the Solokha-type sword, which probably were produced at the Bilsk hillfort (Шрамко 1992, c. 222).

Another widespread weapon was the **arrowhead**. With rare exceptions, these were made of bronze. The continuous evolution of the Scythian bow and its widespread use led to a high degree of variation in arrowhead types, complicating their typology. Collections of arrowheads have been recovered from nearly every excavated Scythian settlement in the forest-steppe. Some researchers have even proposed that arrowheads functioned as proto-monetary units, similar to coinage (Граков 1968, c. 112-113). The sheer quantity of arrowheads can be inferred from steppe burials of

the 5<sup>th</sup>—4<sup>th</sup> centuries BC, where grave inventories often contained quivers, sometimes up to 16 in a single grave, each holding 10 to 200 arrows (Даран 2015, c. 109). While no comprehensive census of known arrowheads exists, their total number undoubtedly reaches tens of thousands. Arrowheads were produced using lost-wax casting, stone moulds, and in some cases, specialised metal matrices. Many such finds come from the forest-steppe sites, especially the Bilsk hillfort and the right-bank Dnipro region (Даран 2015).

Finds of **horse gear** is also extremely numerous. In the forest-steppe zone alone, at least 6,330 items have been recorded, including psalia, cheekpieces, plaques, browbands, buckles, pendants, breastplates, bells, and whips (Могилев 2008, c. 13). More than 80 % of these objects were made of iron and bronze. Notably, most horse gear from the Scythian period is associated with nomadic material culture. This

is evidenced by the low number of finds in regions lacking nomadic burials, such as the Seim basin (Білінський 2019а, с. 167). Identifying the precise locations where these items were produced remains challenging, though many unfinished pieces and production waste, particularly from bone workshops (e.g.: Severynivka hillfort (Shelekhan, Lifantii 2016)), suggest that workshops were located at the forest-steppe sites.

Among Scythian-period jewellery, **pins and earrings** are the most abundant in the forest-steppe. The evolution of pins can be traced back to the Bronze Age and is closely linked to Central Europe. Their near-total absence in steppe burials (Петренко 1978, с. 7) strongly indicates that they were part of the local, forest-steppe costume tradition. This is further supported by the fact that three-quarters of known pins have been found at settlement sites, with only one-quarter recovered from burials (Ходукина 2021, с. 219). The same applies to shield-shaped earrings, or 'zausznice' (in Polish). These are predominantly found in the forest-steppe, and their origins are also likely linked to Central Europe (Gawlik 2007). The last comprehensive catalogue of these items was compiled in 1978, listing 541 pins and 606 earrings of various types. Many of these, however, follow Greek traditions and were likely produced in the Greek Black Sea settlements (Петренко 1978). Currently, the estimated number of pins is around 1,000, with several hundred shield-shaped earrings<sup>3</sup>.

The last notable category of finds consists of mass **household and agricultural items**. Due to their uniformity, researchers have recently paid less attention to them, and the main studies on the topic rely on outdated data (Краснов 1971). These include various awls, borers, needles, chisels, mattocks, and other tools, but the most numerous are knives and sickles. In recent studies focusing on specific regions of the forest-steppe, we find the following numbers: 110 knives and seven sickles in the Don basin (Меркулов 2018), over 40 knives and sickles from the Siverskyi Donets River region (Гречко 2010), and 50 knives and sickles from the Seim basin (Білінський 2019а). The total number of these artefacts from the forest-steppe sites can be estimated at no less than 500 objects.

This overview clearly demonstrates the high level of production in the Scythian period. The quantity of artefacts and the diversity of manufacturing

techniques used by craftsmen highlight a thriving metallurgical industry. Even though workshops themselves are rarely found, multiple indirect factors confirm their existence and scale.

#### **Internal and External Trade.**

The Scythian period is characterised, among other things, by huge connectivity and the growth of trade. Assessing the level of **internal trade** through the standardisation of material culture is quite difficult. Most craftsmen's products found at the forest-steppe sites are homogeneous, making it hard to determine whether they were produced locally or imported. However, the dominance of certain types of artefacts in specific regions suggests the active development of internal trade. For example, in V. H. Petrenko's study of the forest-steppe jewellery, it is evident that many types of pins had a primary distribution area, where at least half or more of the known examples were concentrated in a specific region, with only a small number found elsewhere (Петренко 1978). D. S. Grechko also noted the prevalence of specific pin types in various regions (Гречко 2010, с. 99). This suggests that pins were manufactured in certain areas, where most remained in local settlements, while some were exported to neighbouring regions. A good example of this is Type 13 pins with a ball-shaped head. V. H. Petrenko documented nine such pins, five of which were found at Liubotyn hillfort, while the rest were distributed in the Vorskla basin and the right-bank group (Петренко 1978, с. 14-15). A similar mechanism can be observed in the production of the Solokha-type swords I mentioned above, which are primarily found in the Sula and Vorskla Rivers regions (Шрамко 1992, с. 222).

Another example is high-quality tableware. The distribution of ladles with tall handles, black-glazed bowls, and other similar items varies across different regions of Scythia, in some cases disappearing almost entirely. It is logical to assume that in such areas, black-glazed ceramics or ladles were imported as trade goods rather than produced locally. For instance, a cup typical for the Dnister region population was found in an ashmound on the Psel River (Bilynskyi, Khodukina, Pototskyi 2023, p. 11), over 500 km away from its primary area of distribution and probable manufacturing.

**External trade** is much more visible and is marked by imported objects found at archaeological sites. The quantity of these items and the dynamics of trade relations depended heavily on the societies surrounding Scythian forest-steppe communities. More isolated societies in the forest zone were less

<sup>3</sup> I'm grateful to Yu. M. Khodukina for the opportunity to familiarise myself with her catalogue, which is currently being compiled.

actively engaged in these processes. In the material culture of the Milograd and Yukhnove cultures, we often find Scythian weaponry and jewellery (Лощенков 2011, рис. 52, 53, 59–61, 64; Каравайко, Горбаненко 2012, рис. 1.15). While some pins and earrings may have been locally produced by craftsmen who imitated forest-steppe designs, the presence of Scythian arrowheads leaves no doubt that they were brought to these sites from elsewhere. Regarding ceramics, trade is evidenced by the presence of pottery from neighbouring cultures, which tends to concentrate in peripheral areas. For instance, at the Seim settlements, ceramic vessels typical for the Yukhnove culture have been found. Their quantity is always low, typically ranging between 2–3 %. An important note here is that they do not indicate trade in pottery itself, but rather result from the fact that other goods — such as honey, wax, etc. — were likely sold in these vessels, making it impractical to transfer them into different containers. A similar pattern is observed with isolated finds of ornaments typical for the forest zone cultures, such as pins with leaf-shaped openwork heads. These are generally associated with the Desna and Oka basins, but single finds are also known at Scythian forest-steppe sites (Чубуп 2012). However, the distribution of such objects may indicate not only trade, but also population mobility and individual migrations. This is likely reflected in the Scythian burial mound at the Yukhnove settlement of Kyselivka 2 (Каравайко 2010).

The connections between the forest-steppe population and the western Lusatian culture and the Hallstatt world have been relatively well studied. Most evidence comes from isolated imports, such as jewellery, weaponry, and tableware (Светличная 1996; Shramko, Zadnikov 2021), or similarities between mass-produced Scythian items and Western objects (Дараган 2010). This supports both cultural connections and the idea that certain Scythian-made objects were inspired by Western prototypes or shared common origins with Bronze Age societies. In the western regions of the forest-steppe, these connections were naturally stronger.

However, the most developed and well-documented aspect of the Scythian forest-steppe trade is its relationship with the Greek settlements of the Northern Black Sea coast, which acted as intermediaries for goods from across Greece. More than 200 settlement sites have been excavated in the forest-steppe Scythia, and almost each of them has yielded Greek imports, primarily amphorae,

though major centres also contain a wide variety of tableware and jewellery. The presence of Greek imported pottery, which entered Scythian sites through trade with Greek poleis and *emporía* along the Black Sea coast, is a defining feature of the Scythian period. Despite the continued existence of Greek cities on the Black Sea coast after the Scythian period, the intensity of trade and the number of imports declined significantly.

The distribution of Greek pottery across the Scythian forest-steppe sites is uneven. This is influenced by both the general availability of Greek goods in different regions and the importance of specific sites in the trade network. Greek pottery is found in lower quantities in the Don River middle basin and in the Dnister and Southern Buh Rivers regions (Разуваев 2017; Могилов 2020), while it is much more abundant at sites in the Dnipro region, its left-bank, and the Siverskyi Donetsk basin (Онайко 1966, 1970; Бандуровский 2001). Greek imports also concentrate at giant hillforts and other major sites, with quantities decreasing as distance from these centres increases. This suggests that trade with Greek settlements likely operated on a hub-and-spoke system, where large caravans brought goods to major centres, from which they were distributed to smaller nearby settlements. The scale of this trade can be estimated from the quantity of finds. At the Bilsk hillfort, over 7,000 fragments of Greek pottery and complete vessels have been documented (Задников 2014). At some sites, Greek pottery accounts for 20–30 % of all ceramic finds — for instance, the Basivka hillfort: 22 % (Болтрик, Фиалко 1998) and Sharpivka hillfort: 30 % (Ольговський 2022, с. 152).

Trade was bidirectional. Objects from the forest-steppe are rarely found in Greek coastal settlements, suggesting that most exports were likely agricultural products. Herodotus, in his description of the *Σκύθαι ἀροτῆρες* ('Scythians who till the ground'<sup>4</sup>), noted that they grew grain for sale rather than for their own consumption (Herod. IV, 17). The primary export from the forest-steppe was probably grain. Demosthenes, in one of his speeches, stated that half of all grain imported to Athens came from the Pontic region. From the context, it is clear that this referred primarily to the Bosphoran Kingdom (Dem. *Lept.*, 28–31). During the 4<sup>th</sup> century BC, Athenian traders were granted privileges for exporting grain from the Bosphorus (Брашинский 1963, с. 122), which, from the

<sup>4</sup> Translation after: Macaulay 1890.

5<sup>th</sup> century BC, had become the primary trading partner of the forest-steppe, replacing Olbia in this role.

Other traditional exports from the region likely included furs, hides, wax, and honey — the same goods that were the main trade commodities between Kyivan Rus and Greece in the medieval period (ed. Толочко 2000, с. 432). The issue of the slave trade during the Scythian period remains controversial. In the Middle Ages, slaves may have been the main export (Толочко 2015, с. 219-237). In the mid-to-late 20<sup>th</sup> century, the topic was actively discussed among Scythian studies specialists, but the debate was largely driven by Marxist historiography and the classification of Scythia as a “slave-owning state” (Хазанов 1975, с. 133-148). Since this issue relates specifically to socio-political structures, I will not explore it in detail here, but will note that I agree with the view that the slave trade was not widespread (Хазанов 1975, с. 138), and was unlikely to have played a significant role in the economy or export trade.

Connections also existed with much more distant lands. Though rare, Scythian sites occasionally yield objects from Egypt, China, the Near East, and beyond. Such long-distance connections were likely facilitated by nomadic activity, military campaigns, and travel, which brought exotic goods and fashion trends to the Northern Black Sea region. A striking example of this is cowrie shells. These molluscs inhabit tropical and subtropical regions of the Indian Ocean, the Red Sea, and the Persian Gulf. They were popular ornaments in Near Eastern cultures, and with the arrival of nomads, they began to appear in large numbers in the Northern Black Sea region (Bruyako 2007). While precise counts of these finds are still being compiled, dozens have already been documented at forest-steppe sites, illustrating that trade encompassed not only utilitarian goods and raw materials, but also luxury items, rare materials, and prestigious objects.

In this context, **trade routes** are of particular importance. Numerous studies suggest that long-distance communication networks were primarily land-based, while rivers were rarely used for transporting goods. This reconstruction aligns with historical routes that followed watersheds, documented in later written sources (Болтрик 2002). These routes allowed traders to travel deep into the north from the Black Sea coast without crossing large rivers, following nearly straight

watershed paths. A strong argument in favour of this hypothesis is the location of many Scythian sites rich in Greek imports far from major rivers, as well as the correlation of their positions with later medieval and early modern trade routes such as the Black Route and the Muravsky Trail. Additional support comes from the proximity of the Scythian-period sites to historical river crossings and the concentration of stray finds of bladed weapons, likely marking the sites of military clashes (Билинский, Шелехань 2014).

Together with the scale of trade, as demonstrated by the distribution of imported objects, this suggests that during the Scythian period, a complex trade network existed, with exchange between the forest-steppe and Greek settlements forming its foundation. The majority of Greek pottery found at the forest-steppe sites consists of transport amphorae, which likely contained wine and oils.

#### **Places of Social Gatherings, Group Rituals, Cult Performing and Results of Collective Work.**

Despite the large number of the excavated Scythian-period sites, we still have a limited understanding of the internal layout of settlements, especially giant hillforts. Within these settlements, and sometimes in adjacent areas, separate settlements and additional fortifications have been identified. However, most of the territory within these sites remains unsettled. These conclusions are primarily based on the distribution of cultural layers rather than direct excavation data. Another major issue is the sheer size of these sites, which makes comprehensive excavations difficult. Additionally, there is a lack of geomagnetic and ground-penetrating radar surveys for the Scythian-period sites. This is due to both a shortage of equipment and specialists as well as previous unsuccessful attempts (Гречко, Корост, Коротя 2019). Together, these factors mean that our understanding of settlement planning and the presence or absence of specific structures is primarily based on excavation results.

The best examples for **places of social gatherings** are the “empty spaces” within fortifications, which are documented at many hillforts. For the Eastern Europe in archaeological literature, this layout has been explained as a military necessity (ensuring that houses were not located directly under walls or at a vulnerable distance) or as holding areas for livestock during times of danger (Моруженко 1985, с. 175; Ковпаченко, Бессонова, Скорый 1989, с. 23). However,

the presence of empty spaces within fortifications is also typical for the *La Tène* oppida. As with these settlements, unbuilt areas may have been used for social interaction within the settlement (Smith 2008; Stanley et al. 2012; Fernandez-Gotz 2018). This hypothesis regarding oppida has been supported by recent interdisciplinary studies (Hajnalová et al. 2024). Such spaces may have served as sites for public gatherings, markets, and hosting newcomers, making them an essential feature of urban life.

Our understanding of **cults and group rituals** in the Scythian forest-steppe period is based on several key categories of finds. Given the nature of this study, these elements should be considered primarily in terms of group activities, so I will focus on indicators of collective participation in rituals. The most numerous and distinctive ritual features are clay altars. These are typically circular or oval platforms of fired clay, ranging from 0.5 to 1.5 m in diameter. Some are coated with limewash, have incised decorations, or feature central depressions (Андрієнко 1974, с. 93-94). The tradition of building such altars is documented across the entire forest-steppe region. Examples have been found in the Don region (Пазубаев 2020), at Karavan hillfort in the Siverskyi Donets basin (Гречко 2010, с. 39), at the Basivka hillfort in the Sula basin (Макаренко 1907, с. 81), and at the Knyshivka hillfort in the Psel basin (Гавриш 2000, с. 151). However, the largest concentration of such altars is at the Bilsk hillfort in the Vorskla basin (Шпамко 1984, с. 127; Бертієнко 2017) and on the Dnipro's right bank, including the Trakhtemyriv and Motronynske hillforts (Безсонова 1996).

In some cases, altars appear to be individual, household-based structures. This is suggested by their smaller size (under 1 m in diameter) and their location inside or near dwellings. In other cases, multiple altars are clustered together, forming sacred spaces. At the Bilsk hillfort, these altars are located on the highest part of the settlement (Шпамко 1984, с. 127-128), while at the Knyshivka hillfort, 25 separate altars have been documented near outer ramparts (Daragan, Gavrysh 2016). Larger altars, which are generally not associated with individual dwellings, likely served as sites for group religious rituals. One of the most well-known group ritual sites is at the Karavan hillfort, where a clay altar in the shape of a dish was located near the fortification wall. A paved stone path led to the altar, and the entire complex was later covered by an ashmound (Шпамко 1987, с. 182-187).

Other ritual structures in the forest-steppe region include sacrificial pits, burial mounds used as sanctuaries, ashmounds, public buildings, and prayer houses (Русанова 2002). However, the interpretation of many of these features remains debated. Clay altars are rarely found intact, and they are often reduced to collapsed layers of burnt clay, making them difficult to distinguish from hearths. Similarly, “sacrificial pits” (Пазубаев 2021) are frequently classified as ritual features based on single artefact finds, rather than broader contextual evidence. Another issue is the isolated nature of many ritual features — they are often unique to a particular site and do not appear repeatedly across different settlements. This suggests that they represent localised traditions rather than a widespread religious practice shared by the entire society.

For this reason, the main criteria for identifying ritual sites in this study are: context — which artefacts are found in association with these structures; monumentality — size, labour investment, and other indicators of large-scale construction or use. Several categories of artefacts frequently found near ritual structures in the forest-steppe material culture include miniature pottery, clay models of grain and bread, anthropomorphic and zoomorphic figurines. Although these objects also appear outside ritual contexts, their association with sacred sites makes them a strong indicator of cultic activity. Another reliable marker is the presence of human bones. For example, at the Knyshivka hillfort, a clear correlation has been observed between skull finds and altar clusters (Daragan, Gavrysh 2016).

Good example in this context are ashmounds — mound-like formations measuring up to 3–5 m in height and up to 50 m in diameter, consisting mainly of ash and domestic refuse. Various interpretations of these structures exist in literature, associating them with abandoned dwellings, ritual sites, fireplace locations, refuse dumps, etc. (see: Дареган 1996; Русанова 1997; Пеляшенко 2017, с. 340; Могилов 2021, с. 31-34). However, recent studies suggest that ashmounds were likely multifunctional and chronologically and regionally specific (Могилов 2021; Bilynskyi, Pototskyi, Khodukina 2023). It appears that ashmounds were not a direct result of ritual activity, but often were formed at sites of abandoned dwellings or ritual spaces. For this study, an important observation is that ashmounds are a distinctive regional and chronological phenomenon in the forest-steppe.

Their high frequency (over ten known examples) and concentration near settlements (especially in the Psel, Vorskla, and Siverskyi Donets basins) support this idea. However, the presence of isolated ashmounds at giant hillforts outside these core regions, such as at the Basivka (Болтрик, Филалко 1995, с. 43) and Motronynske hillforts (Бессонова, Скорый 2001, с. 16-29), suggests that certain groups maintained traditions of ashmound construction, even when most inhabitants of large settlements did not.

A similar approach can be applied to cult buildings. In general, Scythian-period dwellings were quite small, rarely exceeding 30 m<sup>2</sup>. The average dwelling size in the Seim basin is 14.37 m<sup>2</sup> (Билинский, Кабанов 2018, с. 17). This figure, with some increase for post-frame buildings, can be extrapolated to the entire forest-steppe region. Cult and public structures stand out due to their larger size and distinctive contexts, which are marked by associated finds inside and around them. I. P. Rusanova mentions large buildings at the Bilsk hillfort, measuring 52 m<sup>2</sup> and 60 m<sup>2</sup>, where fragments of altars, anthropomorphic and zoomorphic figurines, clay models of bread, and fragments of a human skull cup were found (Пусанова 2002, с. 133-134). Buildings used for sacrificial rituals are marked by pits containing sacrificial animals inside and near the structures, as well as human skulls and dog skeletons incorporated into their construction. According to I. P. Rusanova, a separate type is represented by prayer buildings, which are significantly smaller in size, have a central hearth or altar, and are accompanied by cult objects such as figurines and grain models (Пусанова 2002, с. 130-137).

**Collective work** within society could manifest in various ways, from the construction of cyclopean structures, which required significant time and manpower, to the shared organisation of spaces such as cemeteries, sanctuaries, and cultic sites. The latter have already been discussed above, and the forest-steppe burial sites are a separate subject. Therefore, to illustrate examples of collective labour, I will focus on the most visible case — fortifications.

As mentioned earlier, more than 280 Scythian-period hillforts are currently known in the forest-steppe, but they differ significantly in size and fortification systems, suggesting variations in function and origin. All hillforts were integrated into the existing landscape, mostly occupying promontories or isolated hills, often bordered by ravines that provided natural defence, or taking

advantage of other topographical features. Their defensive systems included ramparts, ditches, palisades, and escarpments, with construction methods incorporating wood, stone, fired clay, and other materials<sup>5</sup>. There are several typological classifications in which researchers try to describe the location, fortifications, and sometimes even the functions of these sites (Моруженко 1985; Билинский 2018; Крютченко 2019).

Among these sites are small hillforts, up to 1–2 ha in size, with simple fortifications, typically consisting of a circular rampart, most pronounced on the vulnerable approach, and a ditch, which sometimes disappears along the ravine side or transitions into an escarpment. The ramparts of such hillforts are typically around 100 m long or less, meaning that labour demands for construction were relatively low and 100–200 inhabitants could have built them independently. This population estimate is based, for example, on the 26 contemporaneous dwellings at the Maritsa hillfort, which covers about 0.5 ha (Пузикова 1981). However, for larger hillforts with areas of 5–10 ha, it does not necessarily follow that 1,000–2,000 people lived there, yet the total length and complexity of fortifications increased with settlement size. From this point, it is reasonable to assume that not only the residents of the settlement, but also people from neighbouring villages took part in the construction, helping to create a common space that would benefit the entire community. In such a scenario, collective labour would have required a certain level of social organisation, as someone had to oversee general management, and the necessary construction techniques and planning knowledge had to be available.

This principle becomes even more apparent when examining giant hillforts. The total length of fortifications at the Maritsa hillfort is approximately 30 m. If its population is estimated at about 100 people, this means that each inhabitant was responsible for about 0.3 m of fortifications. In contrast, the fortifications of the Bilsk hillfort span 37 km (Крютченко 2017, с. 60). If we were to apply the same principle, the Bilsk's population would need to have exceeded 120,000 inhabitants, which is highly unrealistic. Thus, such large hillforts were undoubtedly the result of collective efforts beyond just their residents. This conclusion applies to all giant hillforts over 100 ha and likely to many smaller fortified settlements as well.

<sup>5</sup> Detailed information about the can be found in the work by O. O. Kriutchenko (Крютченко 2019).

Another approach to studying fortifications is labour cost estimation. According to O. O. Kriutchenko's calculations, excavations at the Liubotyn hillfort covered approximately 17 % of its area, revealing 18 homesteads, while the total volume of earthworks for fortifications was estimated at 40,000 m<sup>3</sup> (Крютченко 2017, с. 62). The total area of the hillfort is 4 ha (Білінський 2018, табл. 1). Assuming that each homestead housed a family with three adults capable of participating in construction, and that settlement density was proportional throughout the site, the total workforce would be approximately 300 people. Labour cost calculations for fortifications have been performed by various researchers. One key factor is the soil composition at the construction site, as its density and the presence of stones can significantly speed up or slow down the building process. Experimental archaeology has provided estimates of 0.09–0.27 m<sup>3</sup> of soil that a single person can move per hour (Garland 2017, p. 79). Thus, the total labour cost for the Liubotyn hillfort fortifications, under the most optimistic scenario, can be estimated at 148,000 person-hours, meaning that each worker would have needed to contribute 493.8 hours of labour.

These calculations are useful not only for assessing the workload of the local population, but also for highlighting the significance of their achievements. Many fortified sites served both as defensive structures and symbols of communal identity, strengthening internal social cohesion (see, e.g.: Garland 2020, p. 111-112).

The example of hillforts vividly illustrates collective labour in the Scythian society. In the steppe zone, another striking example is the construction of massive burial mounds, where mound volumes could reach 100,000 m<sup>3</sup>. These structures were primarily built from turf, which was cut from extensive areas and transported to the burial site. Notably, there is no evidence contradicting the idea that these mounds were built in a single phase, rather than gradually over time.

## **Conclusion**

From the overview of certain aspects of Scythia and the preamble to them, it is evident that we know a great deal about objects, but very little about society. The main reason for this, in my view, lies in the overall development and perception of archaeology in Ukraine and the former Soviet

Union. The ideological and theoretical monopoly imposed on science by the authorities primarily restricted theoretical advancements and the study of society. The lack of access to global perspective was also a significant factor. Additionally, there was the issue of the “nomadic factor”, which were believed to have developed along paths distinct from well-studied agricultural societies. Consequently, models proposed for Scythia were often insufficient, as they relied on outdated postulates or were constrained by the constant governmental control over science. Even the best studies lacked a well-developed and tested methodological background, and their success often depended more on the authors' knowledge than on systematic research approaches.

Another challenge is the lack of a unified perspective on Scythia in general. Its fragmentation across multiple modern countries and its 1,000 km span from east to west even during the Soviet era did not facilitate collaborative research or scholar mobility, and today, this issue is even more pronounced. As a result, a tradition has developed in which different parts of Scythia are studied separately — such as the Don basin, the Dnipro's left bank, the Dnipro's right bank with Podillia, and other regions that are more integrated into Central European archaeology. Due to this division, many processes have been described using localised examples, rather than being extrapolated to the broader society. Most studies (including my thesis on the Seim basin) focus on specific small regions or particular object categories, while broader studies covering large regions tend to describe historical processes rather than anthropology and social reconstruction. As a result, we have numerous isolated datasets and observations that haven't been integrated into a cohesive model of society yet.

The arguments presented in this article illustrate the Scythian forest-steppe as a complex society, comparable to temperate Europe during the HaC–HaD periods. All of these evidence support the thesis that Scythia underwent urbanisation processes that eventually led to the formation of a structure similar to that of temperate Europe. Therefore, by analogy with the latter, some Scythian-period settlements may be considered cities. This trend can be seen as a broader pattern of the time, and thus, these processes should be studied as a common phenomenon for the whole of Europe.

The key distinction in Scythia is the “nomad factor.” Based on current understanding, the emergence of elites in Scythia followed a different trajectory. The incoming nomads became the elites

of the indigenous society, meaning their rise to power was rooted in a different ethnicity and the “*might makes right*” principle. While this process led to similar outcomes as in temperate Europe, its fundamental nature was different, and its study remains a task for the future.

At present, the most obvious and important direction for research is the further examination of hillforts, their role and functions in society. Basic questions about fortification typologies have highlighted the diversity of this phenomenon in Scythia. Particularly interesting are the functions of hillforts as social centres, sites of production, and hubs of trade. Another promising avenue is the development of a settlement hierarchy, potentially identifying equivalents to “cities” and “towns.”

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The ultimate goal of such research should be the creation of a comprehensive model of the Scythian society, one that reflects social processes, demonstrates the mechanics of interaction among different groups, and describes this society as a unified entity.

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## ПРОЦЕСИ УРБАНІЗАЦІЇ РАННЬОГО ЗАЛІЗНОГО ВІКУ В СХІДНОЄВРОПЕЙСЬКОМУ ЛІСОСТЕПУ: ВСТУП ДО ТЕМИ

Дослідження присвячене темі процесів урбанізації в суспільстві лісостепу в скіфський час. Здійснено історіографічний огляд понять «урбанізація» та «місто», проаналізовано основні концепти та дискусії. Ця тема розглядається із загальноєвропейської перспективи та з точки зору того, як подібні процеси описувалися для Скіфії раніше. Попри зручність поняття «context-dependent definition of 'city'», для вступної статті як нові критерії запропоновано розглядати ті, що найчастіше згадуються для помірної Європи періоду HaC-HaD. Далі суспільство лісостепу проаналізоване за цими параметрами. Розміри поселень, агломерації та демографія описані на прикладі городищ скіфського часу. Складність

суспільства, соціальна нерівність, поява еліт та їх поховання розглянуті через низку досліджень в процесуальному та постпроцесуальному руслі. Виробничі центри та майстерні описані за двома підходами: аналіз місць виробництва та інструментів, а також за виробами металургів. Внутрішня та зовнішня торгівля висвітлені на прикладі циркуляції предметів із місць виробництва до знахідки всередині суспільства, численними імпортами із сусідніх культур та торговельними шляхами. Культові практики, результати колективної роботи та зборів суспільства описані на прикладі неутилітарних споруд та зольників. Результати групової роботи подано на прикладі масштабних городищ скіфського часу. У кінці статті констатується можливість інтерпретації деяких пам'яток лісостепу як ранньорбанізаційних центрів та надзвичайна подібність «археологічного сліду», який лишили процеси урбанізації в лісостепу скіфського часу, до того, що ми спостерігаємо в помірній Європі періоду HaC-HaD. Запропоновано основний напрямок дослідження цих процесів у майбутньому, а саме подальше розроблення теми ролі та функцій городищ у скіфський час.

**Ключові слова:** Скіфія, лісостеп, ранньозалізна доба, урбанізація, місто, городища, соціальна нерівність та складність, війна, торгівля, культ.

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