Tomasz Gralak

Architecture, Style and Structure in the Early Iron Age in Central Europe

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And my songs
and everything
you will forget

A song by Papusza, the Roma poetess

Introduction

This work concerns questions occasionally raised in archaeological publications. Analysis of construction is a commonly applied procedure, while metrological analysis is undertaken extremely rarely. The methodology is to search for repeatable distances perceptible in the arrangement of postholes or other archaeological features. The outcome does not result from arithmetic calculation, but from the analyses of a geometric nature. There were analysed mainly the remains of dwelling or economic structures. Graves constructions usually did not allow to carry out such a research. That is why they were done only in the case of one archaeological culture. Hence, a search for the length of prehistoric units of measurement will constitute a large part of this book. However, it will be only a starting point for further work. Metrological analysis allows researchers to determine the arrangements of buildings relatively accurately and, due to this, their structure can be identified. This allows us to ask why the spatial arrangement of buildings and settlements was organised in one way and not in another. This applies to physical spaces and ritual and social ones. The aim of this work is to study the means of thinking about the world – and more specifically how and why they were used in a certain way. To answer such questions the constructions techniques of building were compared with other products of material culture. A thorough stylistic analysis was undertaken and an attempt was made to determine the paradigms of individual artistic styles. All these phenomena will be analysed against the background of the contemporary transformations of social structure. These issues are part of so-called cognitive archaeology.

In the course of the narration there will repeatedly appear the issue of the modular system. For the purposes of this study a very broad understanding of this term was adopted; this is a composition (structure) composed of repeteable elements (modules, segments). Such a broad definition enabled the identification of many aspects of this phenomenon. The analysis of this issue, however, was not a goal itself – as a result of the adopted research method, this phenomenon appeared to be a very important one.

In territorial terms this work will focus broadly on areas of Central Europe – between the Rhine and the Vistula Rivers as well as the Baltic Sea and the Danube. However, as the author is most familiar with the territory of Poland and especially that of Lower Silesia, the archaeological sites from this region will be most frequently analysed.

In chronological terms the analyses will encompass the Hallstatt through to the La Tène and the Roman periods to the Migration period. In Central Europe, this whole period can be described as the Early Iron Age (see Kmieciński 1981, 377-385, Fig. 121). This considerable timeframe will allow us to discuss the essence of changes in construction, the perception of space and the culture(s) of that time. In the individual chapters will be analised the aforementioned issues in successive chronological periods – which is clearly defined by their titles.

The assumption is made in this work that ideology is an important cause of social and political changes. It is reflected in material culture which is largely its physical realisation. It was assumed that ideas which are understood as 'common mental models' (including religious beliefs) are primary factors that allow for co-operation between human groups (Fukuyama 2012, 490-494).

It was assumed that every object is a carrier of meanings. Of course not every object carries the same amount of information. Because of the value of individual items for communities, certain categories of objects were chosen. Such a choice in itself already indicates the priorities of different cultures. The Greeks classified a category of objects known as *gnôrismanta* – mainly weapons and jewellery that served to identify its owner. Similar objects can also be found amongst the Celts, Germans and Slavs (Kowalski 2001, 127-128, 2005, 238). Hence, material culture was treated as a type of language, or perhaps more accurately, as a communication medium. This assumption can be described by the following scheme:

Material object: function + message

Three variants of the relation:

function = message
function < message
function > message

Function is understood as the direct purpose of the object, for example, activities executed by it. In contrast, the message transmits information about its user, for example, about his status, age, beliefs, etc. The function and the message as well as their relationship are negotiable and subject to changes; they are comprehensive depending on the cultural competence available to a potential user or recipient. Therefore, they have never been (and never will be) available to all to the same degree.

The consequence of such an assumption is the opinion that material objects embody an idea – a myth, as do cultures. It is difficult to imagine a deliberate execution of anything without a prior plan (intention). This concept became the basis for stylistic analysis in the individual periods in question. It was carried out assuming that style as 'a way of doing' something (Hodder 1990, 45) is expressed through different media (Uspieński 1977, 181-212; Gombrich 2009, 195-209). Hence, when comparing successive elements of culture one can expect to capture

a set of repeatable features – paradigms*. To a certain degree, this assumption corresponds to the one proposed by P. Bourdieu, the concept of habitus, i.e. ways of perceiving and classifying the world and the structures that result from them as well as manners of behavioural and emotional functioning (Bourdieu 2007, 454). Such a method of analysing cultural products is also confirmed by the results of psychological research, indicating that people, and especially children do not draw what they see, but what they know about the world around them (Popek 1985, 25-27, 42-43, 55, 69; Arnheim 2013, 347-357). Research of this type seems particularly useful for prehistoric communities, probably because their description of the world largely relied on the sense of sight. According to Lévy-Bruhl, the languages of primitive peoples describe shape, position, movement and the manner of acting in the space of individual objects, people and animals very accurately. Therefore, they are of a pictorial nature, i.e. the descriptions refer primarily to the sense of sight (Lévy-Bruhl 1992, 182-195).

Regarding the manifestations of the plastic expression of prehistoric communities in this work the term 'art' is used. This was done knowing that this name and related values were probably unknown to their creators (Mierzwiński 2001). It is accepted, however, that by granting the rank of art to archaeological artefacts, one could read their meaning using methods of artistic description and analysis (Mamzer 2008, 65-80). It seems that such an approach corresponds to pre-modern concepts of art, which was treated rather as a kind of craft; for Thomas Aquinas: *'ars est recta ratio factibilium'* – art is a proper knowledge of making things (Summa Theologiae, I-II.57.4). According to Alexander of Hales, *'ars est principium faciendi et cogitandi quae sunt facienda'* – art is a principle of action and reflection on what needs to be done (Summa Alexandri, II.12.21).

The interpretation of the principles of styles in individual periods is primarily based on the analysis of ancient written sources. This was undertaken because of the almost total lack of information on the ideology of barbarian peoples in Europe during the Iron Age. Despite some doubts, it seems that such a procedure is completely justified. The areas of Greek and then Roman civilisations in all respects constituted an unrivalled example for northern peoples. It has been stressed many times that relations of a centre-periphery type occurred between these areas (Frankenstein and Rowlands 1978; Rowlands and Frankenstein 1998; Kristiansen 1998, 249-254; Cunliffe 1988, 177-186, 199-200). It was from the same areas that elements of ornamental styles used by the barbarians were also derived. It seems likely that the ideology behind them was also accepted. It was probably understood in a specific way and only selected elements were accepted. It could also have

* The paradigm according to N. Goldman is defined as a general set of commonly accepted principles, concepts and methods related to a certain area of human experience (the same 2001, 363). In this paper, the term is used mainly in the sense of the pattern of conduct, a repetitive and unquestionable rule. Generally, because of the described subject, the sociological or cultural studies terms sometimes required interpretation in terms of archaeology, which could have led to a partial abridgement of their content.

reached the northern zone with a significant delay in relation to the output areas (Kadrow 2001, 37-38, Fig. 3). It should also be noted that written data were not analysed as historical sources. They were treated as a collection of information on general culture, including ways of understanding the world, its mythologizing and ways of thinking. That is why in this paper were used historiography and literature works, and especially philosophyones. To some extent, the inspiration for this approach were classic works by R. Barthes (1957), and in Polish historical literature the ones by J. Banaszkiewicz (1986).

The analytical procedure originally was meant to lead to a determination of the structure of the analysed cultures. Because the chronological sequence includes successive groups, the question also arises of the causes of cultural changes. It seems that accurate, error-free repetition and precise imitation guaranteed the maintenance of knowledge in preliterate societies that did not have any recording system (Ong 2011, 81-83). Hence, deep conservatism, reluctance and hostility to changes were pragmatic ways to defend culture (knowledge) as a system (structure) ensuring the survival of a population. The immutability of material culture was the guarantee of its survival. Any deviation, in fact, led to the possibility of forgetting the primary, but already thoroughly proven, pattern. Thus, a transformation of culture occurs when these patterns no longer fulfil their role*. Otherwise, there would be no need to change anything. Hence, such situations can occur only in connection with a deep crisis or simply with the collapse of a system. A cultural change has to reflect a fundamental transformation of cultural patterns. It concerns ideological rather than technological questions. Apart from direct causes (climate change, political unrest, natural disasters, etc.), a cultural change consists in the adoption of new paradigms. These fundamental and unquestioned assumptions about the structure and the way the world functions directly affect the thinking processes of individuals and entire communities. Human actions and choices (*modus operandi*), therefore, depend on the kind of knowledge that different groups and individuals have at their disposal. In this manner, the perception of the world creates repetitive behavioural patterns. It seems that they can also be described as kinds of cognitive schemes that cause the denial or rejection of information and events that are inconsistent with the accepted paradigm (Aronson et al. 1997, 128-136).

Finally, it should be added that a great, albeit a secondary hero of this work will be ancient Greece. The culture of this country will be a constant point of reference for all the analysed periods. It can be even said paradoxically that the Greeks created the barbarians. Not only did they gave them their name and defined who they were, but they also transmitted the most important ideas that were accepted by northern peoples. Without Greek culture, the barbarian cultures of Central Europe could not have existed.

* The problem of understanding the causes and nature of cultural change is constantly discussed and reinterpreted by archaeology (see Gediga et al. 2012). In this work only some of its aspects were described.

CHAPTER I

The Hallstatt Period

(...) but thou hast ordered all things in measure and number and weight.

King James Bible, Wis. 11.20

1. Construction and metrology in the Hallstatt period in Silesia

Man is the measure of all things.
Protagoras

The Hallstatt culture in the 7th to the 6th century BC occupied extensive areas of western and Central Europe. Even though it was differentiated mainly internally, it was a realisation of a cultural current, which clearly integrated very extensive areas. It was created based on cultures of the Urnfield circle, but many multidirectional interactions contributed to its development. It was during this period when a new raw material – iron began to be widely used. In addition, the large fortified settlements that began to be built, and the burial grounds indicate a diverse social structure. It was also the time when links with the Mediterranean world were very evident. This concerned both material culture and ideology (Jażdżewski 1981, 385-418).

The Hallstatt C period in Lower Silesia in south-western Poland brought a significant transformation in material culture as well as a radical change in the perception of space. In the assemblages of the Lusatian culture (a local variety of the Urnfield culture) elements typical of the Hallstatt culture appeared. These occurred as imports but constituted an integral part of that culture (Gedl 1991, 2000; Jarysz 2008). Due to this, it has been stated that a Silesian variant of Hallstatt style developed in this area (Gedl 1973, 86), and it can be seen as a province of Hallstatt culture (Angeli 1970, 25; Gediga 2007, 2009, 131-132, 2010).

This chapter provides a metrological analysis of the construction remains. The results were compared with the ornamentation of contemporary pottery vessels. The comparison began with a measurement analysis of buildings, which allowed for the reconstruction of their layout. Then the resulting plans were compared with decoration on pottery vessels. On the one hand, this was aimed at verifying assumptions concerning construction and, on the other hand, to determine the ways that culture and the organisation of space were perceived by human popula-

tions in the past. In addition, an attempt was undertaken to validate the results of the author's previous metrological research (Gralak 2009a, 2010a, 2013a, 2013b) by comparing them with the results of analyses of other archaeological sites.

The first site on which a measurement unit was determined was the Lusatian culture's settlement from the Hallstatt C period in Wojkowice, site 15, Wrocław district (Gralak 2010a). While analysing features, which were the remains of buildings, it was noted that different types of them were characterised by a repeatable size. For buildings of post construction, it was found that the distances between the postholes were almost identical. It led to the assumption that a single unit of length was used during their construction. In order to verify this hypothesis the plans of such structures were compared. The longest regular arrangement of postholes was the northern wall of building B48. The length of the line measured from the centres of the two extreme posts was 9.42 m. It was divided into six equal sections designated by the postholes. This unit of length was 1.57 m. Based on this a network was drawn with a grid of the unit's length. On it the plans of buildings B8, B7 and B9 (all post construction) were overlaid (Fig. 1). The use of this method may result in small inaccuracies. The calculations were based on plans drawn during excavations at a scale of 1:100. Therefore, any inaccuracies may have been caused by the width of a pencil line. Moreover, when using this method of measurement, the possibility of determining a unit was greatly diminished in smaller structures. They had too little repeatable elements that were relevant to the analysis. It should also be emphasised that the method is based on geometric analysis designed to perceive repeatable size – sections and geometric shapes (modules). A network with repeatable grids, therefore, simply consists of a type of ruler.

Building B8 was the first one to be analysed. It was constructed using three pairs of posts that survived in a very clear and well-preserved arrangement. The small, inner stakeholes were not included because they were not considered essential in construction terms. Two eastern pairs of postholes created a pronounced square, with the side two times longer than the distance between the posts in building B48. In contrast, the western pair of posts were arranged in a manner corresponding to 1.5 times the distance between the posts of building B48. It led to the conclusion that the determined distance – 1.57 m was double the unit of measurement, which was approximately 0.785 m. The exact same layout and dimensions were recorded in the next post construction buildings of B7 and B9. The plans of these building were overlain on a grid corresponding to the reconstructed unit, i.e. 0.785 m (Fig. 2: A). Based on such suppositions, buildings B8, B7 and B9 would have consisted of two modules – a square with sides of 4 x 4 units and a rectangle measuring 4 x 3 units. The entire structure was built on a rectangular plan with a side of 4 x 7 units (Fig 2: B). Below is the list of the reconstructed metric data:

1 unit of length = 0.785m
1 unit^2 of surface area = 0.616225 m^2

Square module

4 units x 4 units of length = 3.14 m x 3.14 m
16 units² of surface area= 9.8596 m²

Rectangular module

3 units x 4 units of length = 2.355 m x 3.14 m
12 units² of surface area= 7.3947 m²

Standard size building

4 units x 7 units of length = 3.14 m x 5.495 m
28 units² of surface area= 17.2543 m²

The ratios of the modules' sides and the entire buildings probably resulted from techniques used in the course of establishing their plans. A probable tool for this purpose was a string with marked units of length. It can be assumed that the Pythagorean triangle was used in order to determine the right angle. In the rectangular module the *catheti* with a length of 3 and 4 units corresponds to the hypotenuse with a length of 5 units. The complete structure was determined using a right-angled triangle with the *catheti* of 4 and 7 and a hypotenuse of 8 units. A slight inaccuracy in the latter's size probably did not affect the quality of construction significantly – in the metric system its value is: 0.048827 m.

$c^2 = a^2 + b^2$	$c^2 = a^2 + b^2$
$c^2 = 3^2 + 4^2$	$c^2 = 4^2 + 7^2$
$c^2 = 9 + 16$	$c^2 = 16 + 49$
$c = \sqrt{25}$	$c = \sqrt{65}$
$c = 5$	$c = 8.0622$

The measurement unit – 0.785 m belongs to common anthropometric measures, i.e. those resulting from the dimensions of the human body. This phenomenon was widely known throughout the world (Kula 2004, 34-37). Differences in sizes resulted from the different techniques of measuring and the physical differences between populations. In this particular case the unit may be the equivalent of a half fathom usually identical to a step, the value of which was 0.76 m in the folk measurement system in Russia (Rybakov 1949, 70, Fig. 1) (Fig. 3). In the identified unit, there also seems to be a dichotomous division, i.e. 1 fathom (1.57 m) is divided into two half fathoms – 0.785 m. It is also worth noting that measuring stick found within the mound from the early period of the Bronze Age from Borum Eshøj in Denmark indicated the use of almost identical unit with a value of 0.7855 m (Randsborg 2011, 181, Fig. 1).

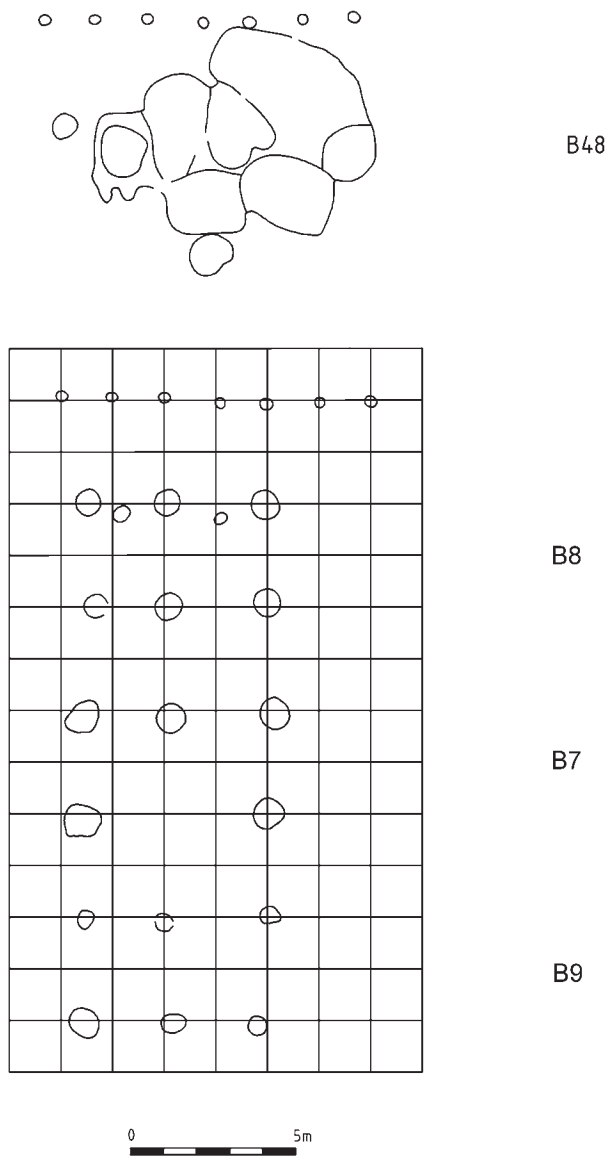


Fig. 1. Wojkowice 15, Wrocław district, Poland. Plans of buildings B48, B8, B7 and B9 against the network of a grid size of 1.57 m. After T. Gralak 2009a, 2010a.

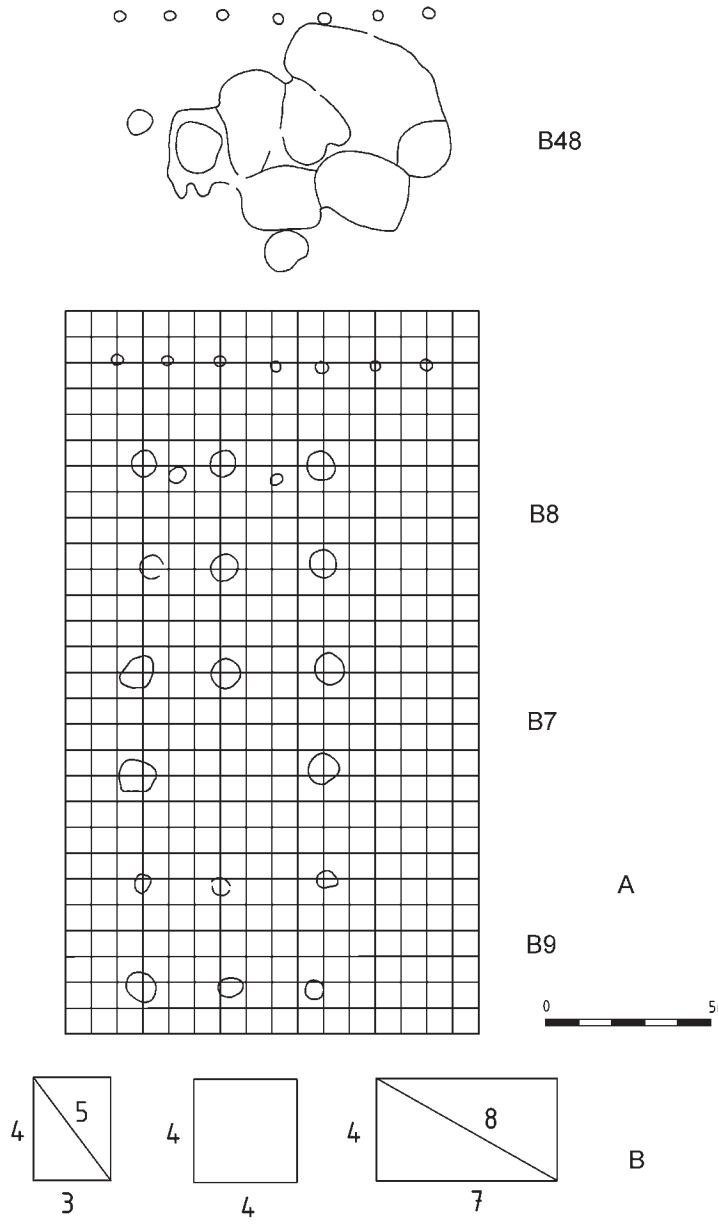


Fig. 2. Wojkowice 15, Wrocław district, Poland. Plans of buildings B48, B8, B7 and B9 against the network of a grid size of 0.785 m; B - Identified construction modules. After T. Gralak 2009a, 2010a.

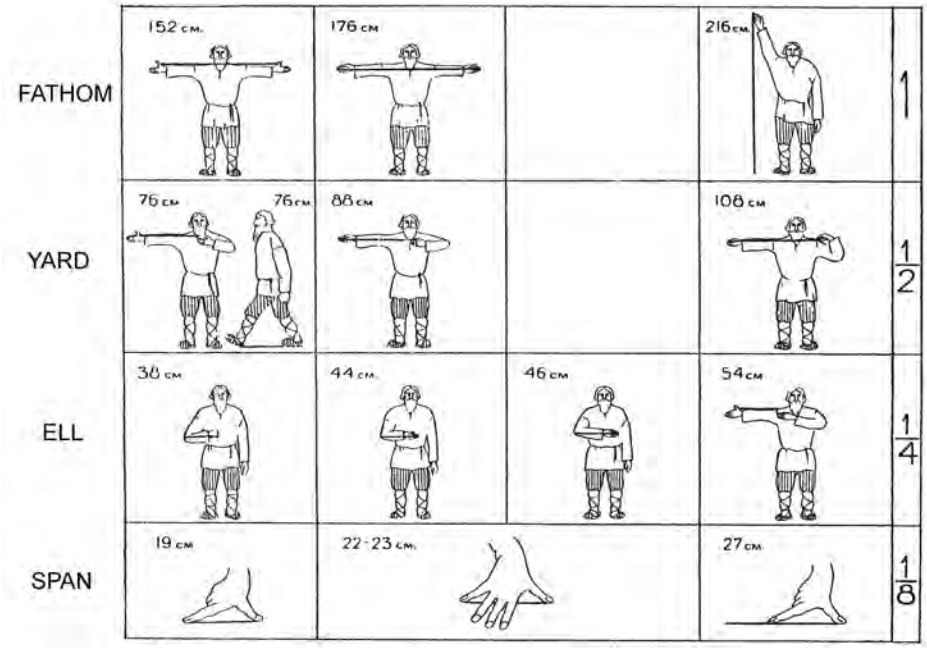


Fig. 3 The system of traditional anthropometric length measures in Russia (for a human 170 cm in height). After Rybakov 1949, Fig. 1 B.

The modules used and the measurements evident in the reconstructed units became one of the criteria for a typological division of features in the settlement in Wojkowice. Using the criteria above, all the well-preserved remains of buildings were classified (Gralak 2010a, 10-70). It was assumed that this is also confirmation of the existence of the modules.

The next stage of verification involves a comparison between the repeatable types of construction from Wojkowice and the results of excavations on the following sites from the Hallstatt C period in Silesia: Stary Śleszów and Milejowice, Wrocław district and Polwica/Skrzypnik, Oława district. In these settlements, the same unit of measurement and the planning method based on modules were used. In addition, analogies from a site in Zabrodzie, Wrocław district were used, where – because of the manner of the results' publication – metrological analysis was not carried out. All the aforementioned sites are located within the Wrocław-Strzelin settlement region of the Lusatian culture (Mierzwiński 1994b, 21), situated in the region between the Bystrzyca and the Oława Rivers. All of them can be placed inside a circle with a diameter of approximately 25 km.

The first category of structures recorded in Wojkowice was a row of buildings of post construction. They were characterised by consistent distances between the posts and by having regular rectangular shapes. All were built by driving two parallel rows of posts into the ground. A division criterion is the number of posts used during construction.

There were two, four-post structures, B4 and B5 (Fig. 4). In both of them, the arrangement of postholes marked the outlines of rectangles with a side of 3 x 4 units, i.e. 3.14 m x 2.355 m. Hence, their surfaces were 12 units², i.e. 7.3947 m². In both structures, the postholes were located on the inner side of the outline designated by the modules. It is probable that the posts were inside the building. Four-post structures were also recorded in the settlement in Zabrodzie (Baron et al. 2011, 347, Fig. 3). The similar size and construction suggest that they had the same function. Such remains are often interpreted as those of granaries or sheds built using the post construction method (Michalski 1983, 142).

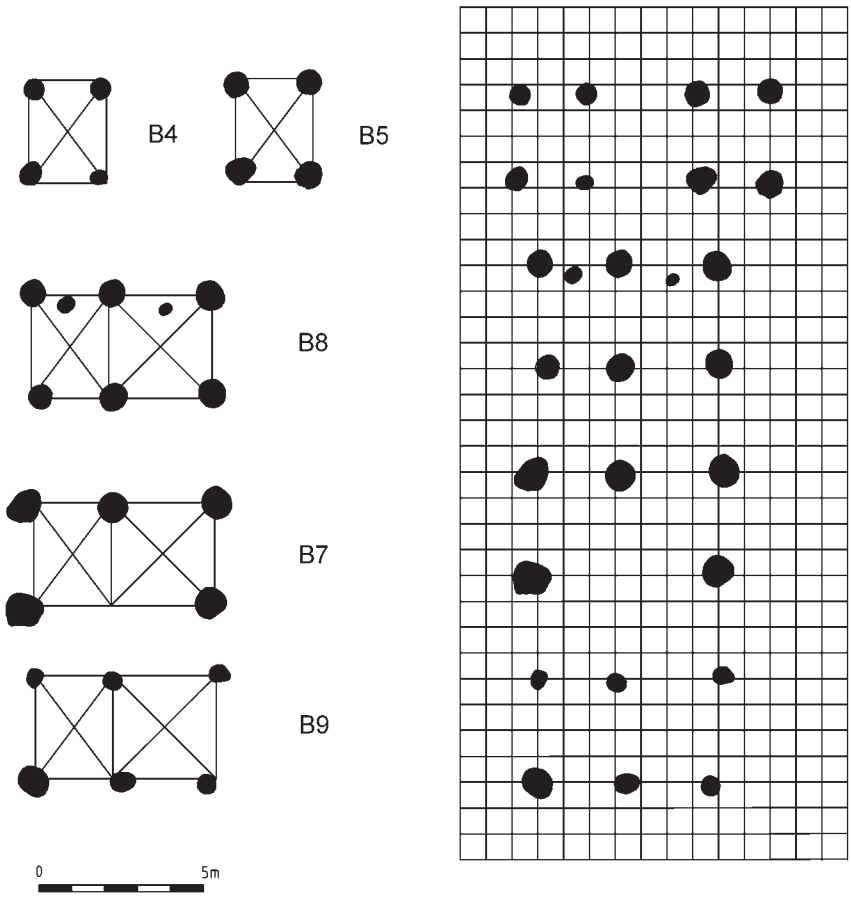


Fig. 4. Wojkowice 15, Wrocław district, Poland. Plans of row post buildings B4, B5, B8, B7 and B9, against the network of a grid size of 0.785 m and identified construction modules. After T. Gralak 2010a, 2013b.

The six-post structures, B7, B8 and B9 consisted of two rows of three postholes, arranged parallel to each other (Fig. 4). These systems defined regular rectangles. In their construction, there were two modules – square and rectangular. Hence, each structure had the same size – 4 x 7 units, i.e. 3.14 x 5.495 m, and a surface area of 28 units², i.e. 17.2543 m². One structure was found where the postholes of only one wall were recorded. Six-post buildings were also discovered in Milejowice, for example, 31, 41 and 48 (Fig. 5). They were characterised by comparable dimensions and construction. The use of small internal posts and columns placed in the middle of the length of the shorter wall of the rectangular module was also recorded. This is similar to the solution adopted in building B8 in Wojkowice, although there internal posts were also recorded in the square module. Six-post structures were also recorded at Stary Śleszów 17. The first one was building IV and the second one building V (Kopiasz 2003, Fig. 6) (Fig. 5). There were also the remnants of one structure composed of three postholes 166 (Fig. 5), 84 and 85, which defined the wall of a building. The difference in respect to Wojkowice consisted in the use of two rectangular modules. Six-post buildings were also found in the settlement in Zabrodzie (Baron et al. 2011, 345, 347, Fig. 3).

In Wojkowice two eight-post structures – B11 and B12 were identified (Fig. 6). They were evidenced by two parallel rows consisting of four postholes. Their arrangement indicates that both were erected on a plan consisting of two rectangular and one square module. The dimensions were 4 x 10 units, i.e. 3.14 x 7.085 m, and the surface area reached 40 units², i.e. 24.649 m². Generally, the reconstructed plan indicates that they were of six-post construction that was widened by another rectangular module. A comparable construction, No. 38, was discovered in Milejowice (Fig. 6). On that site were also structures constructed of eight posts: 103(Fig. 6) and 104, but built on a plan consisting of three square modules. In Stary Śleszów two, eight-post structures were recorded. Buildings II and III were composed of square modules (Fig. 6). Moreover, from the settlement in Zabrodzie buildings comprising eight-posts are known (Baron et al. 2011, 345, 347, Fig. 3).

Another type of structure identified in Wojkowice were buildings of mixed construction with the interior divided into four parts. These were buildings erected on a rectangular or square plan, consisting of four modules. Postholes and the lower levels of the occupation layer were all that survived. The latter defined more or less three parts of the building, with one part clearly deeper. The fourth one was a space with no traces of an occupation layer. Along with the size and shape, the space is the basis of this type. Due to differences in size, three size standards were isolated.

The remains of three buildings B38, B39 and B40 were included into the surface area standard of 42 units² (Fig. 7). It was assumed that each of them was erected on a plan consisting of two modules – square and rectangular, and to the longer side of the resulting rectangle a half of each module was added. Therefore, the dimensions were 7 x 6 units, i.e. 5.495 x 4.71 m, and the surface area was 42 units², i.e. 25.88145 m². Outside of Wojkowice such features were not found on any of the studied sites.

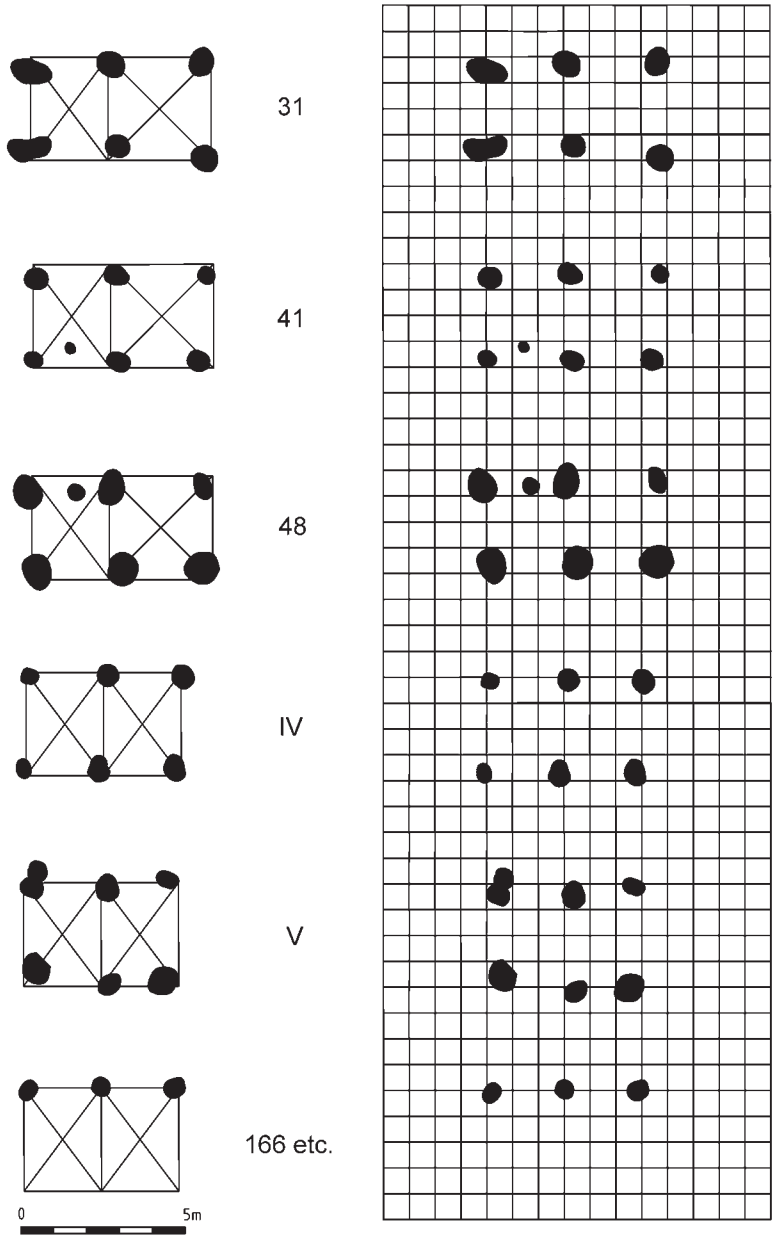


Fig. 5. Milejowice 19, Wrocław district, Poland, buildings 31, 41 and 48; Stary Śleszów 17, Wrocław district, Poland, buildings IV and V, features 166, 84 and 85 against the network of a grid size of 0.785 m and identified construction modules. After T. Gralak 2013b after E. Bugaj and J. Kopiasz 2006; J. Kopiasz 2003.

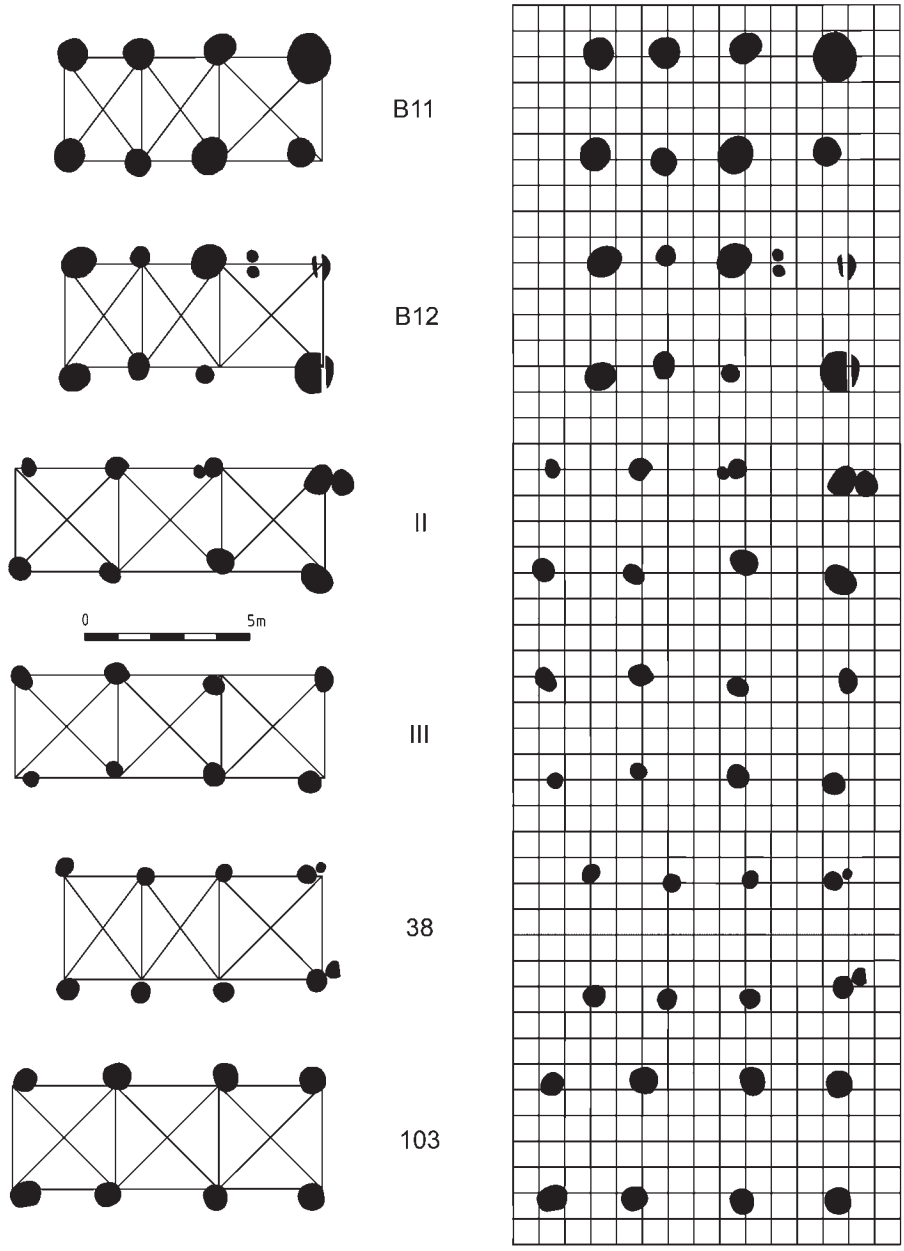


Fig. 6. Wojkowice 15, Wrocław district, Poland, buildings B11 and B12; Stary Śleszów 17, Wrocław district, Poland, buildings II and III; Milejowice 19, Wrocław district, Poland, Buildings 38, 103, B11 and B12 after T. Gralak 2010a, 2013b; Buildings II and III after T. Gralak 2013b after J. Kopiasz 2003; Buildings 38 and 103 after T. Gralak 2013b after J. Kopiasz 2006.

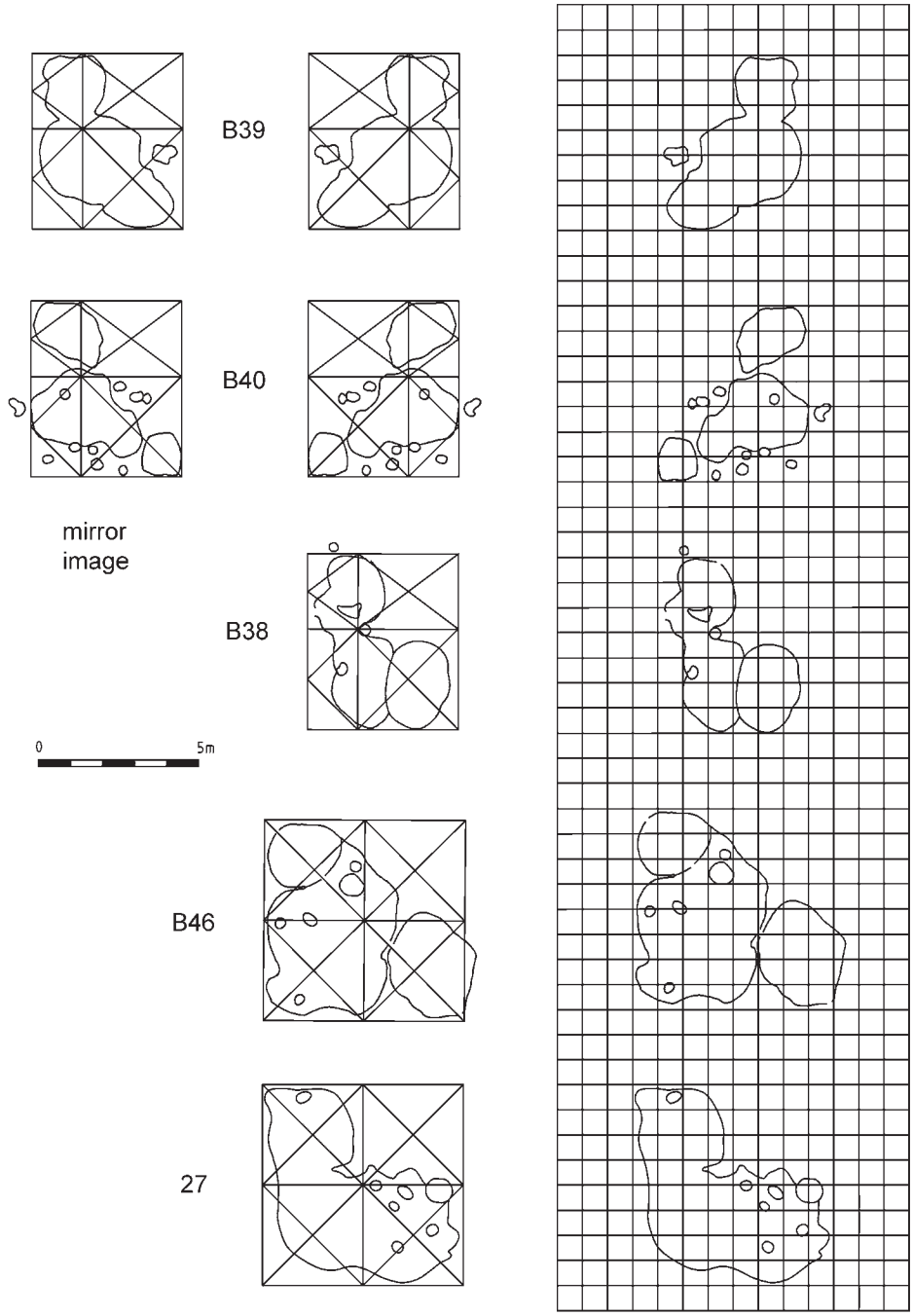


Fig. 7. Plans of buildings of mixed construction with the interior divided into four parts against the network of a grid size of 0.785 m with a surface area standard of 42 units^2: Wojkowice 15, Wrocław district, Poland B39, B40 and B38 with a surface area standard of 64 units^2: Wojkowice 15, Wrocław district; B46, Stary Śleszów 17, Wrocław district, Poland. Feature 27 after T. Gralak 2010a, 2013b; Feature 27 after J. Kopiasz 2003.

The remains of four buildings – B41-B44 were included into the surface area standard of 48 units² (Fig. 8). They were built on a plan consisting of two rectangles, attached by their longer sides; thereby they were composed of a pair of rectangular modules. The dwelling's dimensions were 6 x 8 units (4.71 x 6.28 m), and its reconstructed surface area was 48 units², i.e. 29.5788 m². The remains of a similar building, recorded as feature 367, were found in the settlement in Milejowice (Fig. 8). It also seems that the building can be divided into three parts, including a deeper part located on one of the edges. Accompanying postholes were also recorded (Bugaj and Kopiasz 2006, 189, Fig. 9).

Building B46 was included into the surface area standard of 64 units² (Fig. 7). It was built using four square modules. Therefore, the dwelling's dimensions were 8 x 8 units (6.28 x 6.28 m), and its reconstructed surface area was 64 units², i.e. 39.4384 m². A similar building, recorded as feature 27, was also discovered in the settlement in Stary Śleszów 17, Wrocław district (Kopiasz 2003, 124-125, Fig. 8) (Fig. 7).

In addition, some buildings, which do not have exact equivalents on other sites, were recorded. This applied to large buildings. In Wojkowice two such buildings were discovered. They were probably erected in a mixed construction method. The first of them B47 (Fig. 9) was rectangular in plan, in which at half of the length a rectangular spread occurred, and a row of three postholes was placed at its extension. The main parts of the building were designed using three modules: on the inside was the square one, with the rectangular ones on the sides. Another rectangle, rotated 90°, added to the side of a square was the foundation of the entrance part and porch. The reconstructed surface area was 52 units², i.e. 32.0437 m².

The boundary of another building – B48 (Fig. 9) was identifiable only on one side, where it was marked by a row of postholes. The other features defining the plan of the structure were extensive dark areas which were the remains of an occupation level. The postholes indicated that one of the longer walls was supported by posts. This building was erected on a plan consisting of six square modules arranged in two rows and one rectangular module constituting the foundation of the isolated entrance. The surface area of the building was 104 units², i.e. 64.0874 m².

Buildings with ground sills were also noted. Long trenches defining the edges of buildings indicated the use of this feature. Hence, they probably were frame structures. Additional support elements were posts, as evidenced by the numerous postholes. In Milejowice such a structure was feature No. 12 (Bugaj and Kopiasz 2006, Fig. 3) (Fig. 10). Metrological analysis showed that it was erected on a plan consisting of nine rectangular modules. The entire building was erected on a rectangular plan with sides of 12 x 9 units (9.42 x 7.065 m). Therefore, its reconstructed surface area was 108 units², i.e. 66.5523 m². The proportions of this building's sides correspond again to the Pythagorean triangle:

$$c^2 = a^2 + b^2$$
$$c^2 = 9^2 + 12^2$$
$$c^2 = 81 + 144$$
$$c = \sqrt{225}$$
$$c = 15$$

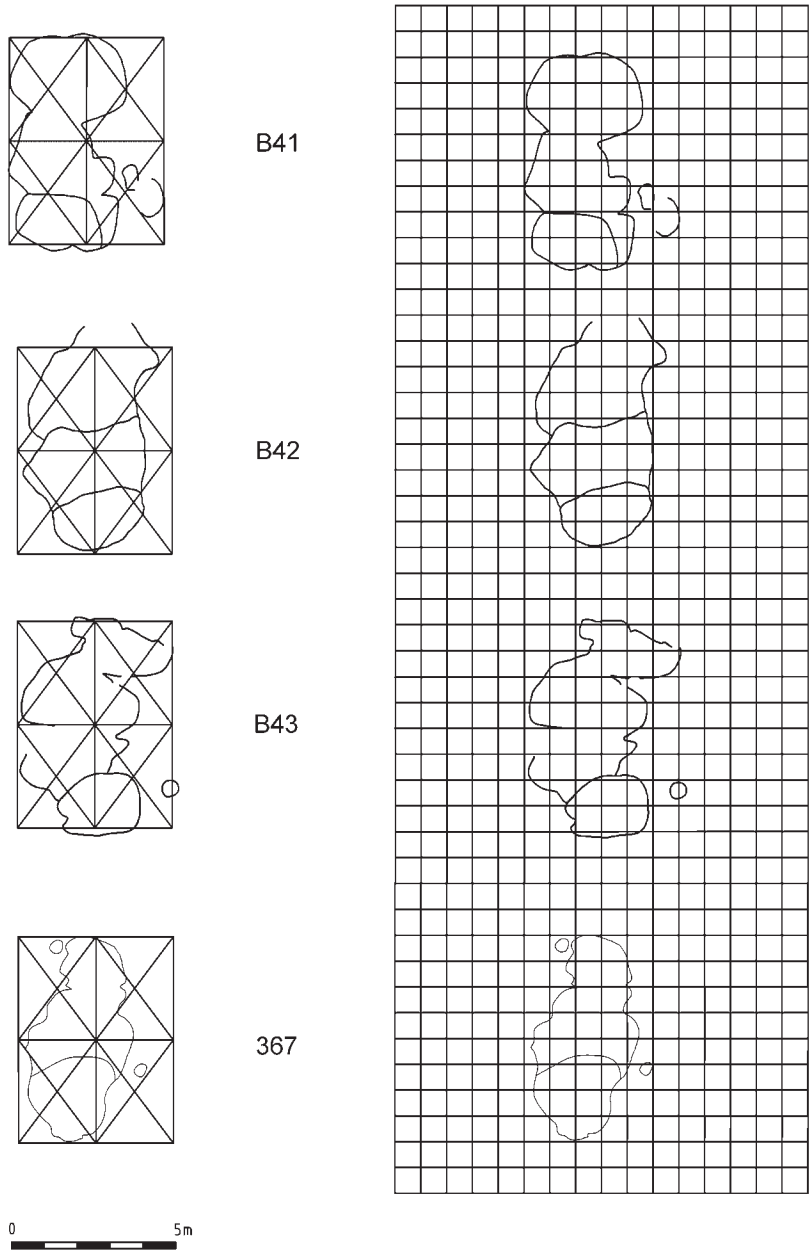


Fig. 8. Plans of buildings of mixed construction with the interior divided into four parts with a surface area standard of 48 units^2 against the network of a grid size of 0.785 m: Wojkowice 15, Wrocław district, Poland; B41 - B43, Milejowice 19, Wrocław district, Poland. Building 367 after T. Gralak, 2010a, 2013b; Building 367 after E. Bugaj and J. Kopiasz 2006.

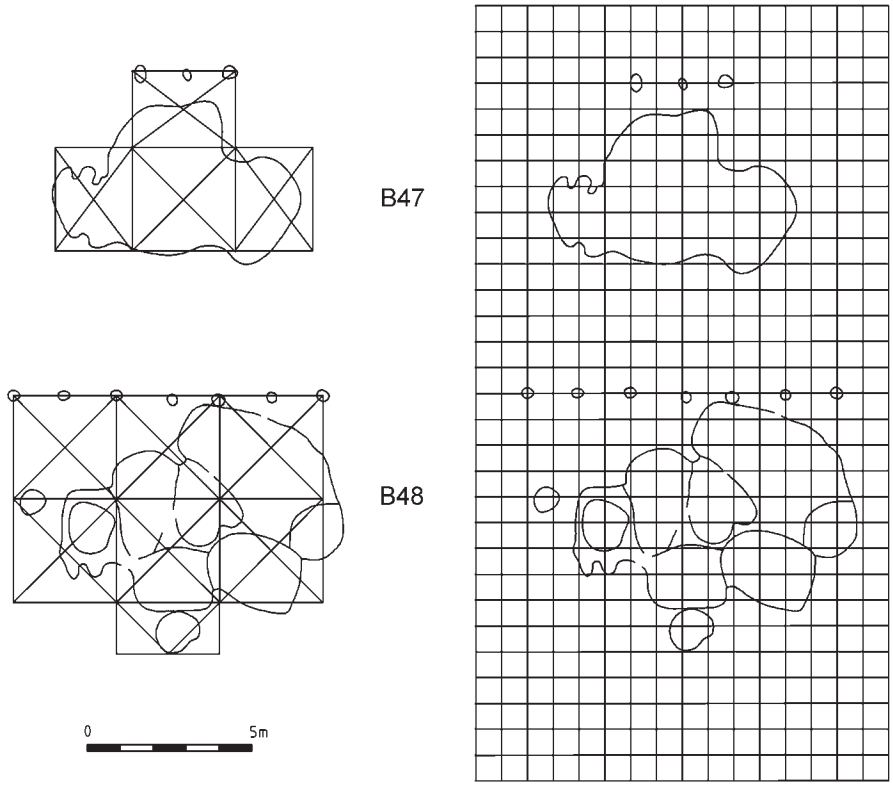


Fig. 9. Wojkowice 15, Wrocław district, Poland. Plans of buildings of mixed construction B 46 and B 47 after T. Gralak 2010a.

Another building of this type from Milejowice was No. 96 (Bugaj and Kopiasz 2006, Fig. 10) (Fig. 10). It was built on a plan consisting of two square modules and four rectangular modules. The entire building was erected on a rectangular plan with sides of 8 x 10 units (6.28 x 7.85 m). Therefore, its reconstructed surface area was 80 units², i.e. 49.298 m².

The remnants of a building with a ground sill were found in a settlement in Polwica/Skrzypnik. The arrangement of features referred to as P4/815 and related ones (Dobrakowski et al. 2001, 139, Fig. 18) indicate that three successive structures were erected in one place (Fig. 10). The state of preservation allowed only two of them to be analysed. In the first arrangement of ground sills and postholes, it was possible to partially determine the course of two walls. Hence, the reconstruction has a considerable risk of error. The building was probably erected on a rectangular plan consisting of three square modules and three rectangular modules. In the next building only a trench for the ground sill of one longer wall was identified. Its length corresponded to two rectangular modules and two square modules. Most probably, the plan of the whole building was composed of them. Buildings with ground sills were a characteristic construction element during the Hallstatt period. Many analogies are known from a fortified settlement in Heuneburg in southern Germany. The arrangement of beams creating the ground sills was composed of repeatable modules (Gersbach 1995, 106-108, 130-131, 165-167, 170-172, Figs. 67-69, 77-78 &

91-92, 1996, 120, 125, Figs. 52 & 55). The remains of dwellings placed on frames are also known from another fortified settlement − in Dürrnberg (Lobisser 2005, 138-141, Figs. 11-13 & 76, Photos 3-5 & 7-9).

Two unique post structures were recorded in Milejowice. They were documented as features 35 and 109 (Bugaj and Kopiasz 2006, Figs. 4 & 10) (Fig. 11). Their plans were characterised by the same dimensions of 14 x 6 units, i.e. 10.99 x 4.71 m. Therefore, the entire surface area was 84 units^2, i.e. 51.7629 m^2. The arrangement of postholes indicated that, apart from four rectangular modules, four previously unrecorded square modules with sides of 3 x 3 units were also used. To create these units a measuring string with a length of 12 units was used. Its use provided the opportunity to design a regular square with proportions corresponding to this particular module easily.

The comparison showed that for buildings with rows of posts their repeatability on all the studied sites was evident. The only exceptions are the remains of granaries and large structures from Milejowice. The repeatability was also recorded in buildings divided into four parts. However, they were definitely the most numerous in Wojkowice, and a unique subtype (size standard of 42 units^2) was discovered on this site. Nevertheless, the arrangement system itself was well known and repeated. The frequent repeatability of applied construction solutions, recorded on the aforementioned sites, seems not to be accidental. This phenomenon is characteristic of the 'folk style' typical of traditional communities. The basic value is a canon, and individuals or groups can implement it in the form of variants (Jackowski 1981, 190). The increased changeability of large buildings is probably due to their less frequent occurrence. In their case, however, the use of a modular system was also recorded.

Formal and metrological analysis was also applied to the layouts of the entire settlements in question. In Wojkowice the settlement was concentrated in two distinct clusters. In the first one three different zones were recorded where features formed: (1) an amorphous cloud; (2) a linear system; (3) a regular quadrangle. The first cluster probably also formed a linear system which, however, is not clear because of the limitations of the excavated area (Gralak 2010a, 208). When there was a concentration of features within a quadrangle, it was assumed that the picture obtained in the course of archaeological excavations was not random, but due to the implementation of a specific plan. Measurement analysis showed that the features were located within a square with dimensions of 48 x 48 units, i.e. approximately 37.68 x 37.68 m (Fig. 12: A). Therefore, the surface area was 2304 units^2, which is 1419.7824 m^2. Taking into account the proportions, it seems that a square module with a side of 12 x 12 units was used for the planning of the described arrangement; hence, it was 9.42 x 9.42 m, i.e. 144 units^2 of surface area or 88.7364 m^2. The clearest were the two edges of this cluster, the northern and southern ones. Trenches of 24 units long were located exactly in the middle of the course of the northern edge. The second, opposite edge, was marked by the remains of the shorter walls of buildings that were grouped there. It should be noted that, both line of trenches as well as heaps possibly located next to them,

were very likely visible during the settlement's use. Inside the arrangement was an empty space. The entire arrangement was located within a square with sides of 4 x 4 modules. The proposed reconstruction, despite the course of the alleged border being only perceptible in a relatively short section of the course of the trenches, seems probable because of the very close and certain parallels.

A similar concentration at one wall of the palisade and an empty central space were recorded in the settlement in Stary Śleszów 17, Wrocław district (Kopiasz 2003, 110-112, Fig. 4). Measurement analysis showed that this arrangement was erected on a quadrangular plan consisting of square modules of 12 x 12 units (Fig. 12: B). Only its south side was perceptible, and its reconstructed length is 72 units, i.e. 56.52 m. Assuming that originally it was a regular square with sides of 72 x 72 units (6 x 6 modules), its surface area would be 5,184 units^2. The planning probably began with marking a centrally located square with sides of 12 x 12 units. Its corners were the centres of circles with diameters of 60 units. Their course marked the line of a palisade. In addition, as in Wojkowice, a clear boundary (palisade) was perceptible only in a particular section. This was not due to the state of preservation, but resulted from a deliberate decision by the builders. It seems that it was situated within a regular square, while the palisade had rounded corners. Moreover, beyond this arrangement traces of a scattered settlement were recorded, which did not form regular systems.

In the settlement in Milejowice three clusters of features enclosed by palisades or ditches were recorded (Fig. 13). All of them were characterised by more or less perceptible quadrangular plans with rounded corners (Bugaj and Kopiasz 2006, 184, 185, Figs. 4 & 5). Outside of them the remains of the settlement that did not form regular systems (buildings, storage pits and postholes) were located. All the enclosed arrangements were characterised by empty central areas. The largest of them was rebuilt at least twice. This is indicated by the different courses of palisades and ditches that created its boundaries. Measurement analysis showed that the first arrangement was also a square consisting of square modules with sides of 12 x 12 units (Fig. 14). Its side consisted of 9 modules, hence its length was 108 units or 84.78 m, and its surface area 11664 units^2, i.e. 7187.6484 m. During the first reconstruction, the square's side was reduced by the length of one module, thus, it was 96 units or 75.36 m, and its surface area was 9216 units^2 or 5679.1296 m. During the second reconstruction, the original regular arrangement was abandoned, which is indicated by the course of the palisade not matching the modular network. The phenomenon of changing the original plans occurred in the compact buildings that were long in use (Tobolczyk 2000, 146-149, Fig. 112).

A module of 12 x 12 units was probably also used due to its proportions consisting of two right-angled triangles:

$$c^2 = a^2 + b^2$$
$$c^2 = 12^2 + 12^2$$
$$c^2 = 144 + 144$$
$$c = \sqrt{288}$$
$$c = 16.97$$

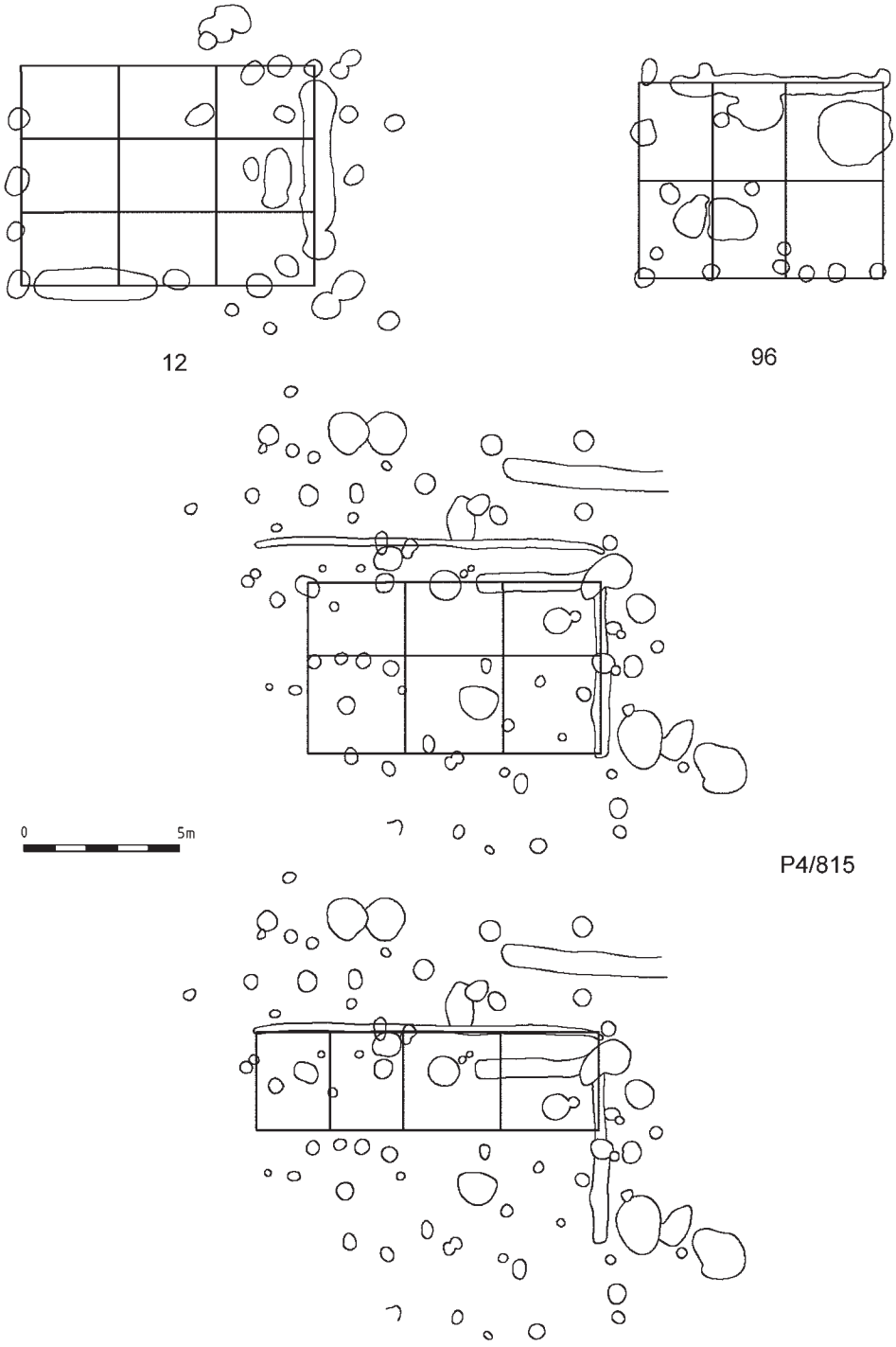


Fig. 10. Plans of building of frame construction against marked construction modules. Polwica 4, 5/Skrzypnik 8, Oława district, Poland: feature P4/815 and related ones; Milejowice 19, Wrocław district, Poland. Buildings 12 and 96. Drawing by T. Gralak after E. Bugaj and J. Kopiasz 2006.

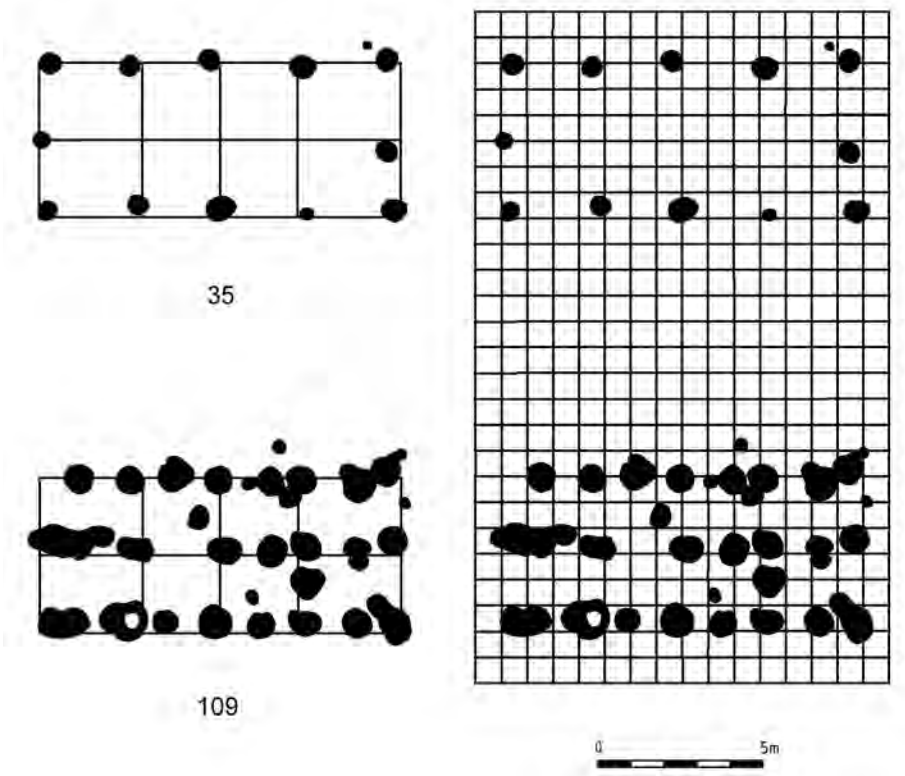


Fig. 11. Milejowice 19, Wrocław district, Poland. Plans of post construction buildings 35 and 109 with marked construction modules and against the network of a grid size of 0.785 m. Drawing by T. Gralak after E. Bugaj and J. Kopiasz 2006.

It can be assumed that the length of the hypotenuse was treated as the integer 17, and a slight inaccuracy had no major impact on the obtained plans. In the context of this module, it also seems likely that the basis of the counting system was the number 12. This is also suggested by the length of the square module's side used in construction – the number 4 is a factor of the number 12. This becomes even more evident in the case of an occasionally used module of 3 x 3 units, the circumference of which was exactly 12 units. This value is also the result of adding the length of the sides of a triangle (3+4+5), and was probably used to determine the right angle. Another settlement in which a palisade was recorded is Zabrodzie. In was an irregular oval shape in plan, although it seems that it could be inscribed in the quadrangle. Inside, the remains of post houses with the shorter walls facing inward were noted (Baron et al. 2011, 344-345, Figs. 3 & 4).

Therefore, it seems that during the Hallstatt C period in Lower Silesia a repeatable pattern of settlement layout was in use. The buildings were placed radially around a central square, towards which their shorter walls faced. It was enclosed by a palisade or ditch in the shape of a quadrangle with rounded corners. This plan was implemented to varying degrees on different sites, which explains the differences between them.

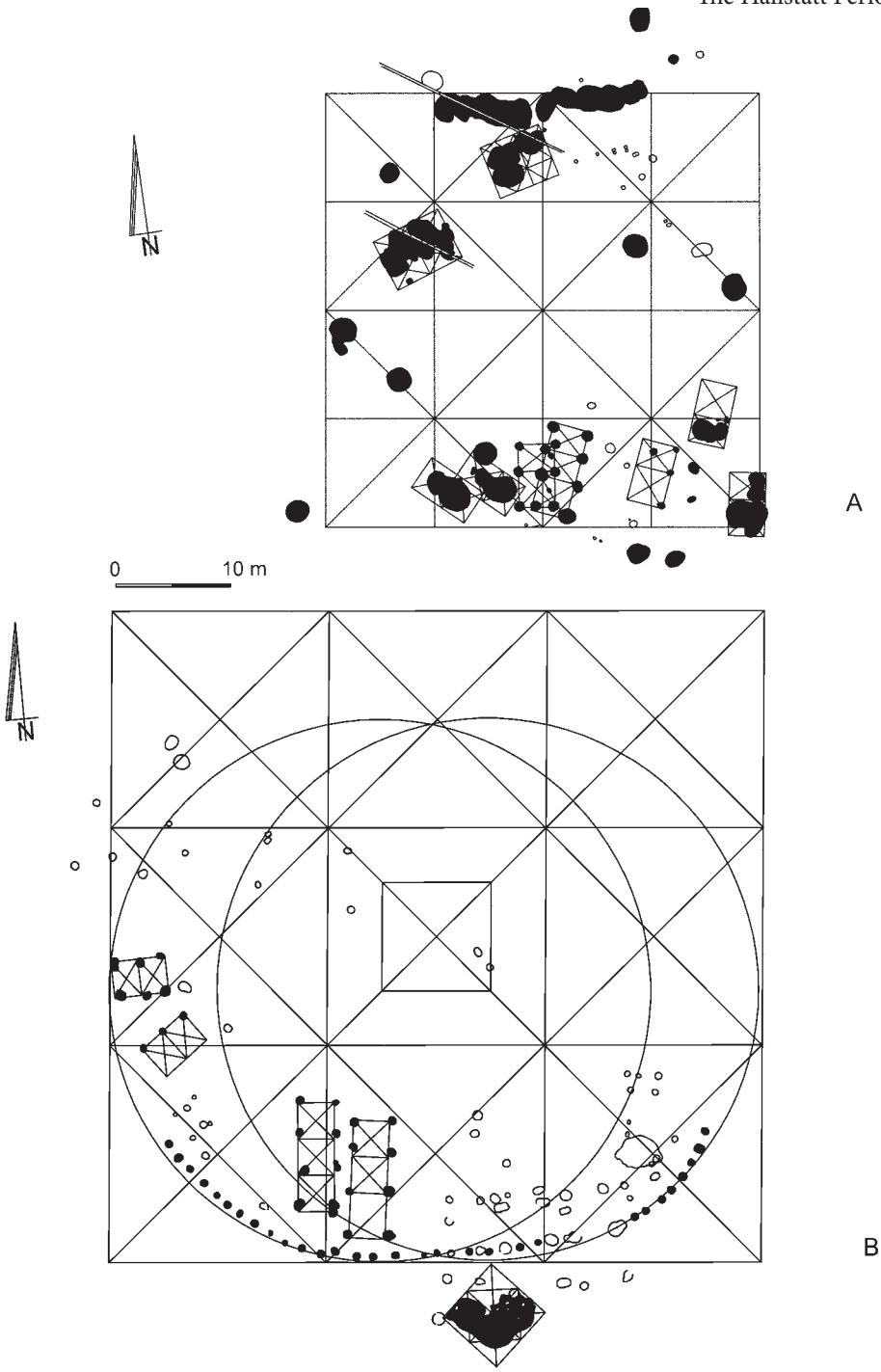


Fig. 12. A – Wojkowice 15, Wrocław district, Poland. Layout of settlement against the network of a grid size of 12 x 12 units. B – Stary Śleszów 17, Wrocław district, Poland. Layout of settlement and reconstruction of the method determining the course of the palisade against the network of a grid size of 24 x 24 units. One grid consists of four square modules of 12 x 12 units. A after T. Gralak 2010a, 2013b; B after T. Gralak 2013b, after J. Kopiasz, 2003.

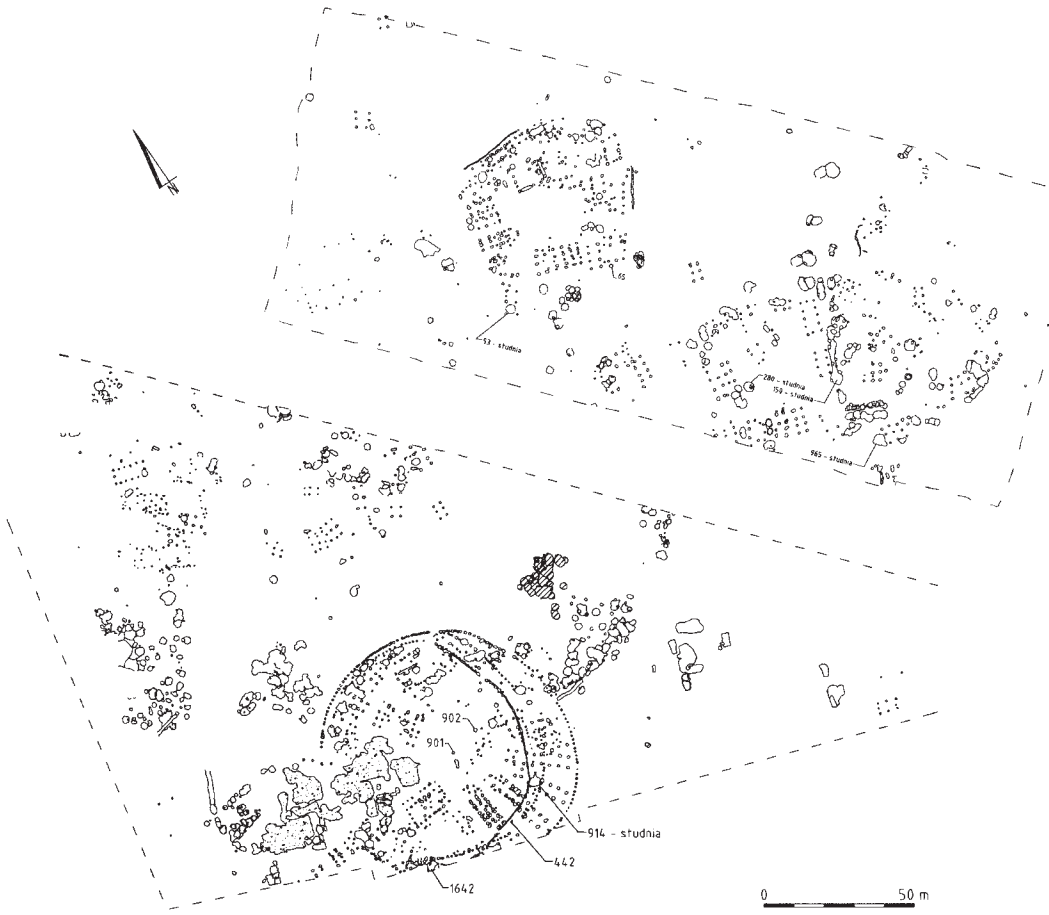


Fig. 13. Milejowice 19, Wrocław district, Poland. Plan of site after E. Bugaj and B. Gediga 2004.

Very similar arrangements are known within the west Hallstatt culture in Bavaria (Fig. 15), where they are referred to as *Herrenhof* (the lord's mansion), (Reichenberger 1994, 187-215; Kas and Schußman 1998, 93-106). It had the characteristic shape of a quadrangle similar to a square with rounded corners (Christlein and Braasch 1982, 53, Fig. 36; Donat 2006, 110-127, Figs. 4, 9, 10 & 11). Settlements of this type are also referred to as chieftains' farmsteads (Kristiansen 1998, 259-260, Fig. 134). It is also worth noting that in a settlement of this kind in Kyberg near Munich – ditches delimited only one side of the palisade or ramparts (Pätzold 1963, 101-103, Fig. B. 1; Härke 1979, 89, Fig. 23). Such enclosures are also known from the Czech Republic from the Hallstatt period in Opatovice nad Labem (Vokolek and Sedláček 2010, 268-276, Figs. 3 & 10-12) and in Štítary nad Radbůzou-Hostětice (Chytráček 2006) and they are quadrangles with rounded corners. Therefore, the existence of a supra-regional rule determining their layout can be assumed.

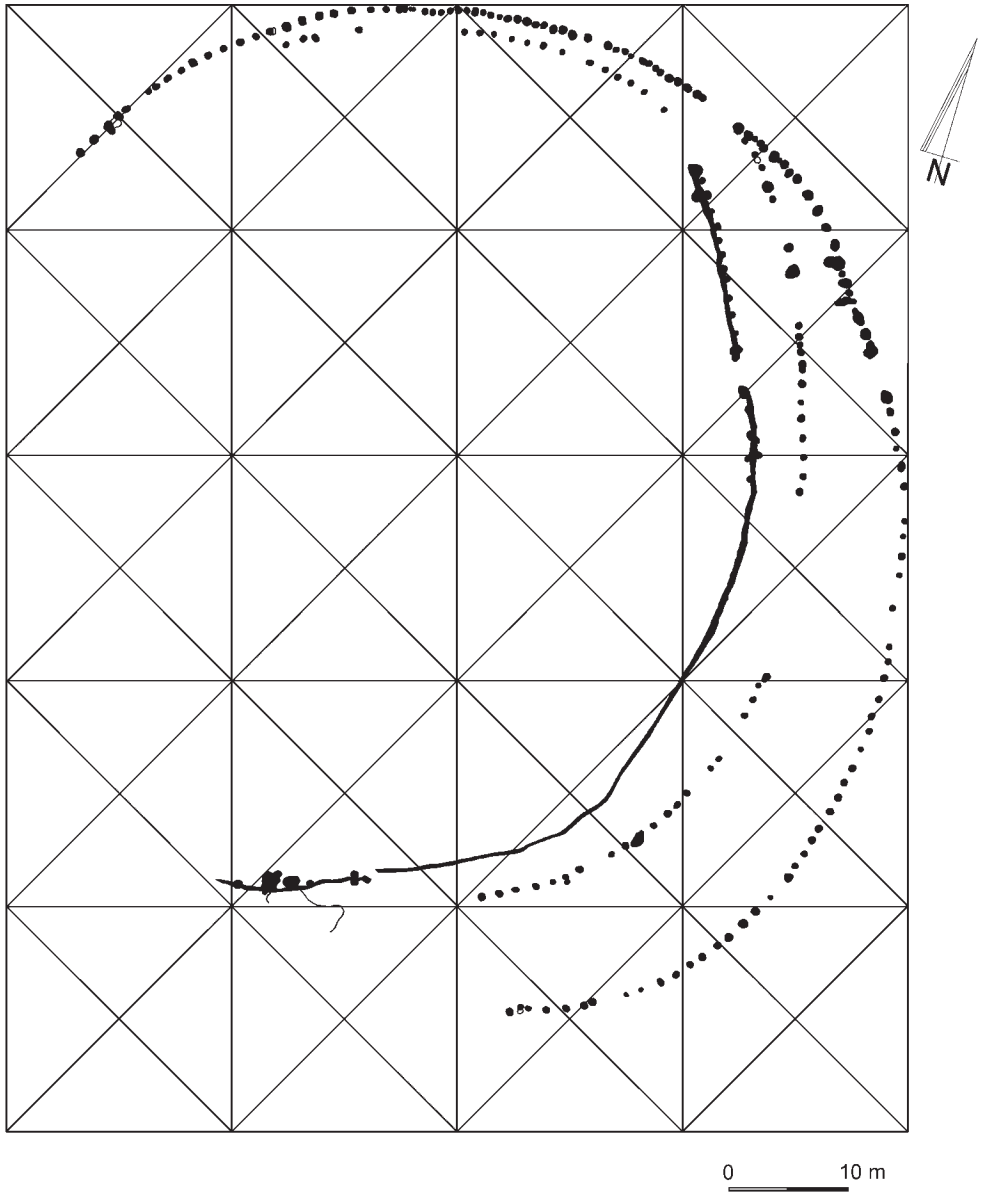


Fig. 14. Milejowice 19, Wrocław district, Poland. Layout of palisades against the network of a grid size of 24 x 24 units. One grid consists of four square modules of 12 x 12 units. After T. Gralak 2013, 2013b; after E. Bugaj and J. Kopiasz 2006.

It seems that a prototype of such a settlement is described in Homer's Iliad:

But when they were come to the hut of Peleus' son, the lofty hut which the Myrmidons had built for their king, having therefor beams of fir − and they had roofed it over with downy thatch, gathered from the meadows; and round it they reared for him, their king, a great court with thick-set pales; and the door thereof was held by one single bar of fir (…)
Homer, Iliad, XXIV.449-455

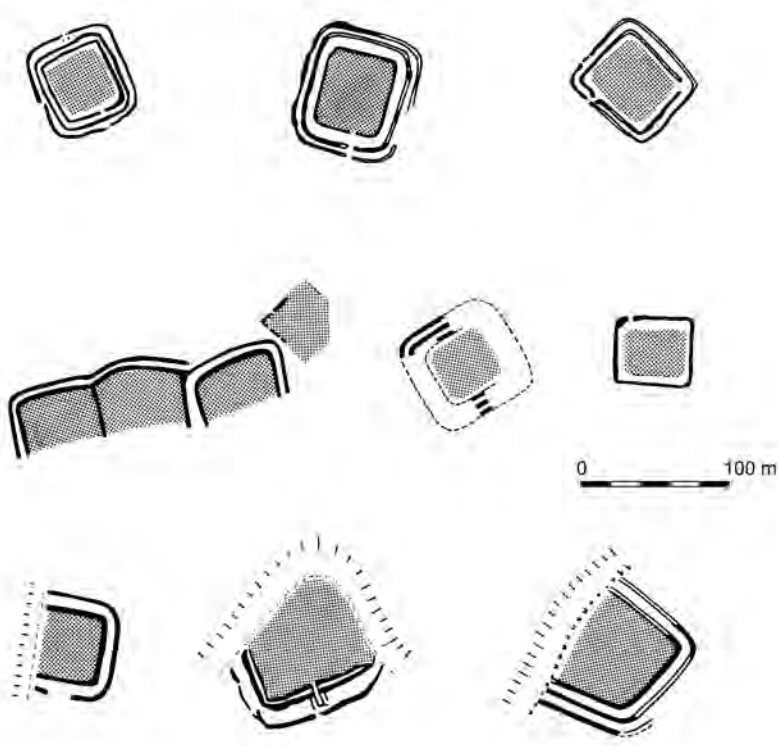


Fig. 15. Plans of farmsteads from the Hallstatt period in the Landshut region, Bavaria - Germany. After K. Kristiansen 1998, Fig. 134.

Such a farmstead (inhabited by Achilles), is mentioned a second time (XVI.230-235) – this time in the context of offering sacrifices in it.

This cup he then took from the chest and cleansed it first with sulphur, and thereafter washed it in fair streams of water; and himself he washed his hands, and drew flaming wine. Then he made prayer, standing in the midst of the court, and poured forth the wine, looking up to heaven; and not unmarked was he of Zeus, (...).
Homer, Iliad, XVI.229-235

The essential question concerns the utilisation of such arrangements. Terms such as chieftains' farmsteads or *Herrenhof* suggest that they were used by people with a high social status. Archaeological artefacts from them, however, do not confirm this premise. A good example is Wojkowice 15, where a chieftain's farmstead and an open settlement were discovered (Gralak 2010a, Fig. 1). No significant differences between the finds from both areas were recorded. On the contrary, they are characterised by a great deal of similarity. However, the question remains as to why two groups of people living next to each other opted for a completely different form of spatial organisation. In terms of the forms of features associated with production no major differences were noticed. In both cases kilns

for unspecified purposes, wells, storage pits, etc. were all noted. Within the farmstead, the same types of post buildings as outside were evident. The same ritual activities in the form of foundation sacrifices in postholes were also observed inside of them (Gralak 2010a, 209). These comprised pottery or bronze vessels, stone axes or concentrations of animal bones.

Differences were noticed on the site in Milejowice. The analysis of spatial distribution of so-called prestigious pottery (thin-walled painted vessels with graphitised surfaces) indicated that it was more numerous within the palisades (Kopiasz 2008, 221-223, Figs. 3-8).

Because of the relatively small size of the palisades and ditches around the farmsteads, a defensive function seems unlikely. A purely prestigious role cannot be excluded. Assuming, however, that they had utilitarian functions, they could have been used as cattle kraals. The large number of these animals is confirmed by the results of osteological analyses from Wojkowice 15 – cattle bones were the most frequent (Gralak 2010a, 199, Table 2). Neither can horse breeding be excluded. This is suggested by the finds of metal parts of horse harnesses and moulds for their production from Milejowice 19 (Bugaj et al. 2002, Figs. 6: 9, 10 & 11; Bugaj and Gediga 2004, Fig. 14: 7; Bugaj and Kopiasz 2006, 189). In this context, it is worth noting the aforementioned information contained in the Iliad. Priam drove to such a settlement with a wagon full of gifts for Achilles (Iliad, XXIV.441-460), and he removed the body of Hector using the wagon (Iliad XXIV: 691-703). Taking into account the peculiar fascination for wagons in the Hallstatt culture (Pare 1992) their widespread use must be suspected. The empty space inside the farmstead could have been a place for the parking and manoeuvring of wagons. Palisades and ditches surrounding settlements were impassable barriers for horses.

Generally both individual houses and settlements were characterised by a modular structure. The question remains as to whether a similar system was used in the settlement network. In the area of Lower Silesia between the Bystrzyca and the Oława Rivers during the Hallstatt C period, three main settlement forms were recorded: large fortified settlements (strongholds), open settlements and chieftains' farmsteads. The latter were discovered only in the region between the Bystrzyca and the Oława Rivers. It was the most densely populated part of Silesia during the Hallstatt period. The absence of fortified settlements in this area is typical. They occurred only on its borders – in the northern part were two strongholds in Wrocław-Osobowice; in the south in Niemcza and there were another two in Witostowice (Mierzwiński 1989, 187, Fig. 1). This distribution indicates the defensive function of strongholds. This does not concern chieftains' farmsteads. In contrast, open settlements were located throughout the entire area. Distribution of all settlement forms and the burial grounds linked to them does not allow us to state that space was organised in accordance with the modular paradigm. In the area in question, apart from its borders, there are virtually no major obstacles and it is almost completely comprised of plains. Therefore, land conditions ensured that the whole area could have been exploited.

In southern Germany during the Hallstatt C period three main settlement forms were also recorded: large fortified settlements, chieftains' farmsteads, and open settlements. In addition, it was found that various settlement forms did not occur in the entire inhabited area, but only in selected zones in this region (Härke 1979, 238-239, Figs. 57 & 58). It seems, therefore, that this type of spatial gradation is a repeatable form of its organisation in the Hallstatt circle.

It seems that modular thinking about space may have existed outside of the plains in the mountain regions. This was partially compelled by geographical conditions. Individual settlement clusters were located in valleys or basins, which were separated by mountain ranges. Hence, the whole settlement area consisted of various parts (modules) in the form of isolated settlement clusters. This situation was noticed in the Western Beskid Mountains in southern Poland, where, in the Early Iron Age, habitation in a network of upland settlements, often fortified was common (Chorąży & Chorąży 2003, 2010). Due to their location on the hills, they had mutual visual contact. Their location probably also stemmed from the need to control and maintain communication (Chorąży & Chorąży 2003, 574, 2010, 483). Typically, the biggest settlement did not have to be located on the highest elevation. It should have been, however, located centrally to allow for visual control up to the mountain ranges that constituted the borders of a given settlement cluster. An example of such an arrangement is Góra Grojec (Gołąb 1985, Gołąb and Madyda-Legutko 2005) located almost exactly in the centre of the Żywiec Basin.* From its summit, passes leading to the basin and other settlements such as Janikowa Grapa or Czarny Grojec are also visible.

A settlement structure that enabled visual communication could also have been used during the Geometric period in Greece. According to ancient legends, information about the fall of Troy was transmitted by a system of fire signals to Mycenae during the Trojan War. Fires were lit on hilltops at a distant of approximately 30 km or even more from each other. In 1908, Richard Henning confirmed the possibility of transmitting signals in this manner during an experiment (Gleick 2012, 22).

Despite the supposed cultural continuity and a relatively small chronological difference, in the Hallstatt D period in Lower Silesia (Mierzwiński 1994, 61-67, 116-124) changes occurred in the planning of construction. In a settlement in Nowy Śleszów, Wrocław district dated to this period (Gralak 2004), a small amount of the preserved remains of structures did not allow for the identification of the unit of measurement by comparing the size of the preserved construction elements. Therefore, the plans of the discovered buildings were compared with the results from Wojkowice and they were overlain on a network with a grid size corresponding to the reconstructed unit. The results allowed to us to state that the same unit length (0.785 m) was used (Gralak 2009a, 88, Fig. 12). For planning, a rectangular module of 3 × 4 units and a square one of 3 x 3 units were used (Fig. 16). The latter only spo-

* The author is currently conducting excavations on this site.

radically occurred in settlements from the Hallstatt C period - it was recorded only in two buildings in Milejowice. Other combinations of modules were also used. Two buildings consisting of rectangular and square modules were recorded. The entire construction was formed by rectangles with sides of 3 x 7 units. Another one was erected on a rectangular plan consisting of three rectangular modules adjoined by their longer sides. Another building was not completely preserved. The excavated portion was erected on a plan consisting of two rectangles composed of three rectangular modules joined together with their longer sides.

Another way to verify the results of the metrological analysis is to compare them with ornamentation on artefacts. Due to the nature of archaeological material this mainly concerns pottery. In addition, it is a period in which, due to the exceptionally careful execution, rich decoration, and the large amount of vessels found in graves, it could be assumed that pottery represented an important carrier of meanings. According to the concept of style it can be expressed by various media, and similar rules concern different elements of culture (Uspieński 1977, 181-212; Hodder 1990, 45-51). It is assumed that decoration is a manifestation of spatial organisation at the micro level. Assuming the existence of a particular style, one should expect structural similarities between construction and pottery decoration.

During the Hallstatt C period in Silesia and Greater Poland, so-called painted pottery emerged (Fig. 17). Its appearance is also considered as a manifestation of influence from the Hallstatt circle (Alfawicka 1970; Gedl 1991, 140). It is found primarily in graves (Brosseder 2004, 338; Łaciak 2010, 302), which suggests its strong relationship with the spiritual culture and indicates that applied decorations were important carriers of meanings. Such vessels were decorated with geometric patterns, often in modular systems (Fig. 18) with curvilinear elements being limited to circles and occasionally triskelions. The basic motif was the triangle. It was represented in a number of variants, often as a so-called chequered triangle (Alfawicka 1970, 36-37, Tables XVII & XIXa; Łaciak 2010, 305-308, Figs. 3 & 4). Usually, it constituted a repeating module. Much less frequently were chequered systems formed by rectangles.

Rich decoration, but made by the engraving technique, can also be found on thin-walled so-called graphitised vessels (Fig. 19, 20). Vessels of this type were found in graves (Gediga 2009, 125-126, Fig. 6), but were also commonly found in settlements. They are usually referred to as table pottery (Hensel 1988, 279). In the finds from Wojkowice a set of repeating forms of bowls and cups were identified (Fig. 19). It was recognised that a high level of standardisation and rich decoration indicated the existence of certain habits of consumption, possibly of a ritual nature. Therefore, the strong valorisation of these objects and the meanings carried by them should be taken into account. A characteristic of such vessels is that they were decorated with patterns and motifs analogous to painted pottery (Gralak 2010a, 181-183, 186, 191). This convergence confirms the conjecture of the existence of particular styles of decorations, which were

made in different techniques and on different media. Similar vessels were also documented in the settlement in Milejowice and, together with several fragments of painted forms, were described as prestigious pottery (Kopiasz 2008, 216-217). It seems that this pottery is a manifestation of influence from the centre of the Hallstatt culture's circle, in which an extensive tradition of feasts and libations existed (Jażdżewski 1981, 410). It is also worth noting that humans and animals were represented as compositions consisting of modules – in the form of triangles (e.g. a vessel from Sopron) or squares in the Hallstatt culture (e.g. a vessel from Reichersdorf), (Dobiat 1982, Figs. 12, 13: 1 -25, 14: 1-3, 20 & 21; Reichenberger 2000) (Fig. 21).

It was noted that in the decoration on bronze vessels the multiplication rule was used. Ribbed buckets (Rippenzisten) have so-called transverse ribs, i.e. circumferential plastic bars repeated many times (Stjernquist 1967). Such forms were manufactured in northern Italy, and they also occurred in areas occupied by cultures of the Hallstatt circle (Łuka 1959, 3-11 Figs. 1-5; Parzinger et al. 1995, 75). It has been pointed out that the shapes of these vessels resulted from the imitation of specimens made of organic materials (Łuka 1959, 3-4), which suggests that they were also made according to the modular paradigm. In a specimen found in Solniki Małe, Oleśnica district (Łuka 1959, 7-8, Fig. 2) decoration in the form of circumferential, repeatable meander motifs between the ribs was also found (Fig. 22: C). The decoration was made by individual stamped knobs. Thus, the ornamentation consisting of repeatable motifs was formed from individual, almost identical elements. Therefore, the multiplication rule not only concerned decorative patterns, but it also affected their execution.

Modular construction was also used in the manufacturing of everyday items. It was noted that bronze belts (Fig. 23) found in Woskowice Małe, Stanomin, but also in Býčí Skála in Moravia and Vetulonia in Italy (Bouzek 1997, 233, Fig. 284; van den Boom 2002, 244-245, Fig. 3) were made of links of a repeating size. Similar specimens are also known from Regöly (Szabó and Fekete 2011, Table 20), and moulds for their production from nearby Szárazd-Regöly (Fekete 1986, Fig. 13) in Hungary. An iron belt has a similar construction, which is defined as a chain one. It was found in Dębniałki Kaliskie, while individual links were found in Biernatki, Kalisz district as well as in Osiek and Przybysław, Jarocin district (Pudełko 2007, 244-245, Figs. 8 & 9). It should be emphasised that modular thinking concerns not only the construction of the objects themselves, but also the manner of their execution.

Heads of pins from northern Italy and the Alps areas also show evidence of modular decoration (Fig. 22; A). They were constructed with repeating elements – globules and rings (Carancini 1975, Tables 68-76). Such items are known from various sites in Central Europe (Trefný 2002, 368, Fig. 6). Pins from the burial ground in Hallstatt were similarly made (Hodson 1990, 113-116, Figs. 3: 4110, 4120, 4130, 4140 & 4150).

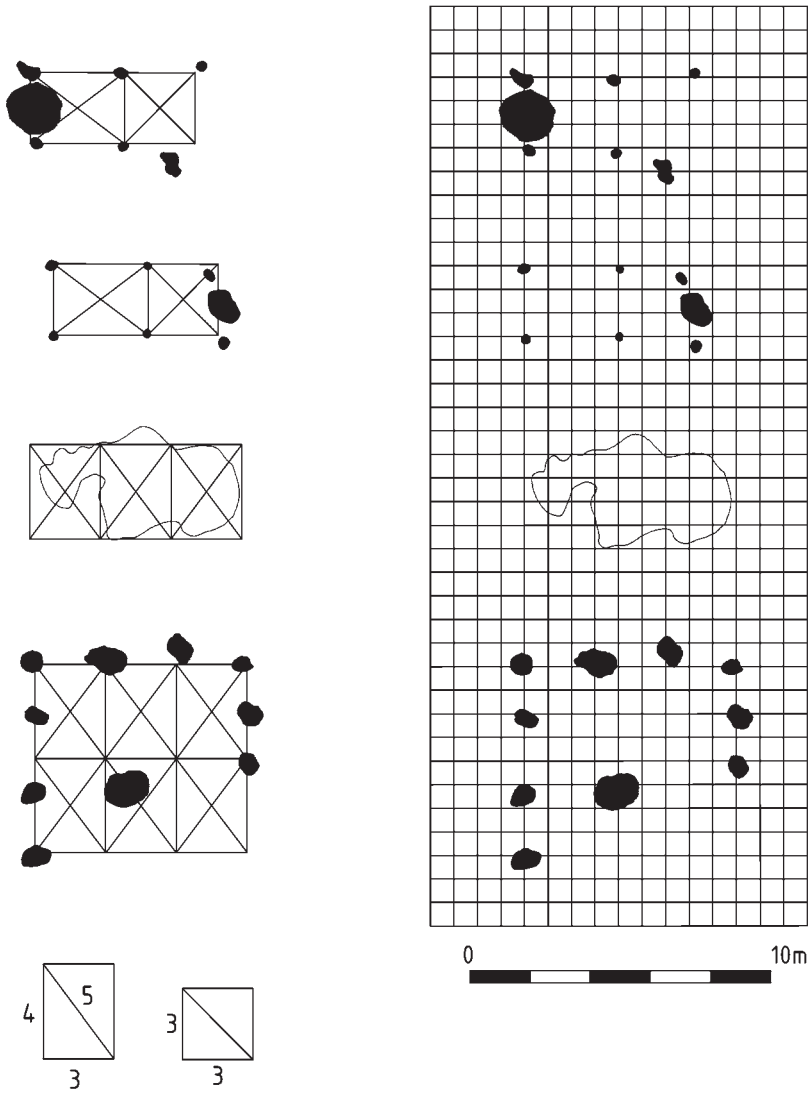


Fig. 16. Nowy Śleszów 4, Wrocław district, Poland. A – plans of buildings against the network of grid size 0.785 m; B – Identified construction modules. After T. Gralak 2009a.

Between buildings and pottery decoration, bronze vessels, and the construction of items, numerous structural convergences were noted. Firstly, the modular system was used. It was the basis for decorative organisation, buildings' plans and the construction of everyday objects. The triangle played an important role in construction and pottery decoration. It was the most common motif on pottery vessels. The triangle was also used for planning buildings. It has already been mentioned that right--angled triangles were used to determine the right angle in a rectangular module and when combining rectangular and square modules. Therefore, it can be assumed that this figure was one of the principles of spatial organisation in buildings.

Fig. 17. Pottery typical of the Hallstatt C period from Lower Silesia (SW Poland), including vessels with painted and graphitised surfaces. After H. Seger 1924, Table 4. Scale: c. 1:5.

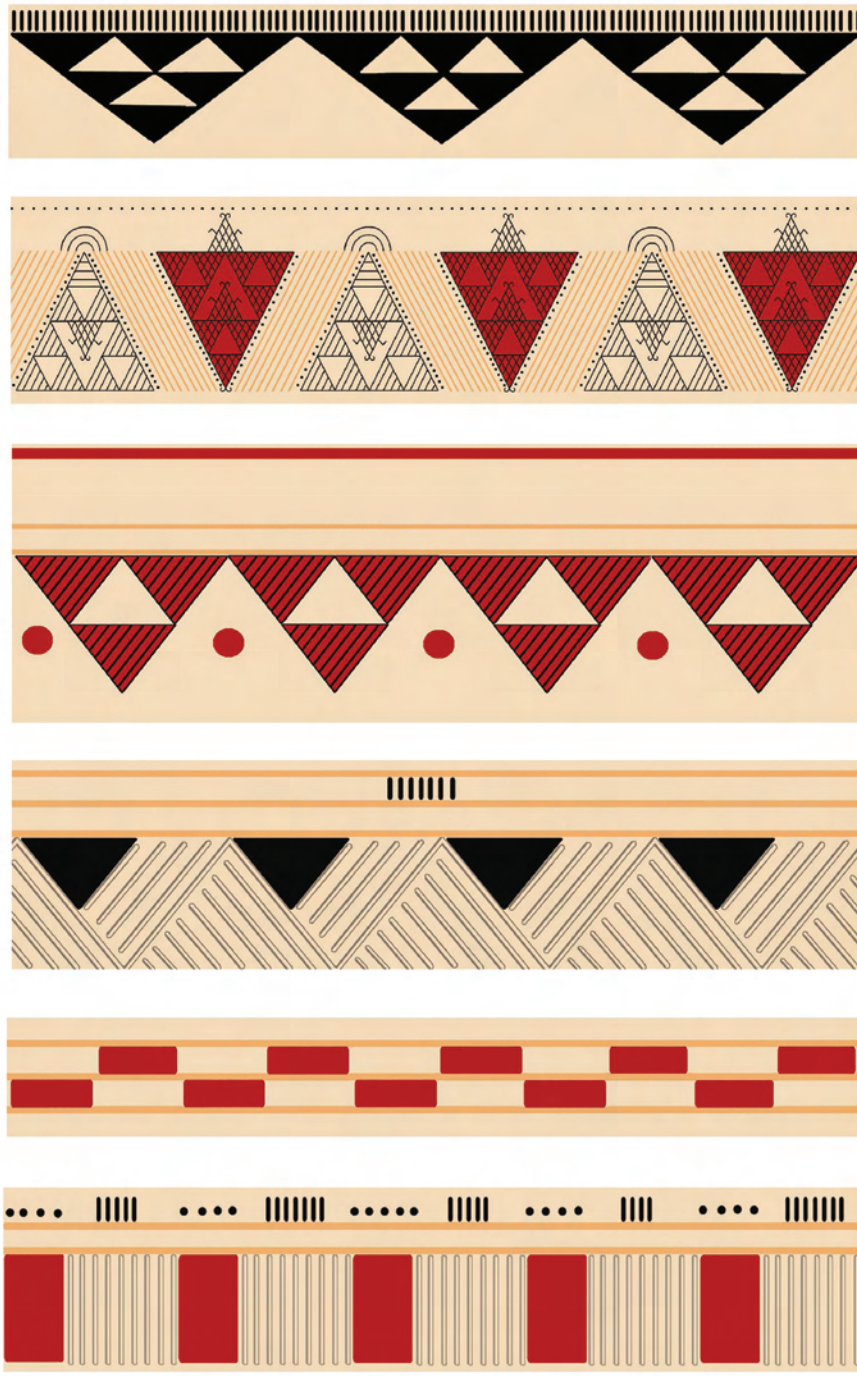


Fig. 18. Cieszków, Milicz district, Poland. Selected painted, engraved and plastic groove decorations. After D. Łaciak 2009.

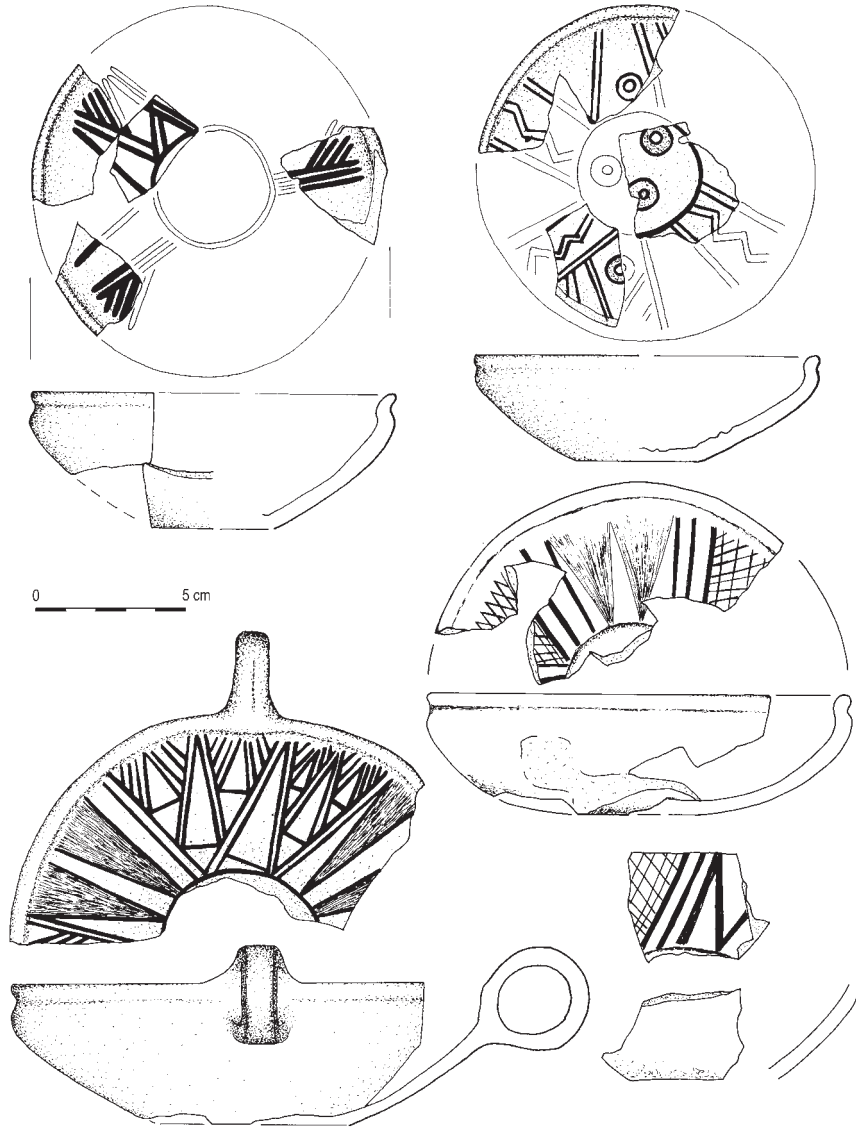


Fig. 19. Wojkowice 15, Wrocław district, Poland. Thin-walled, so-called graphitised pottery. After T. Gralak 2010a, 2013b.

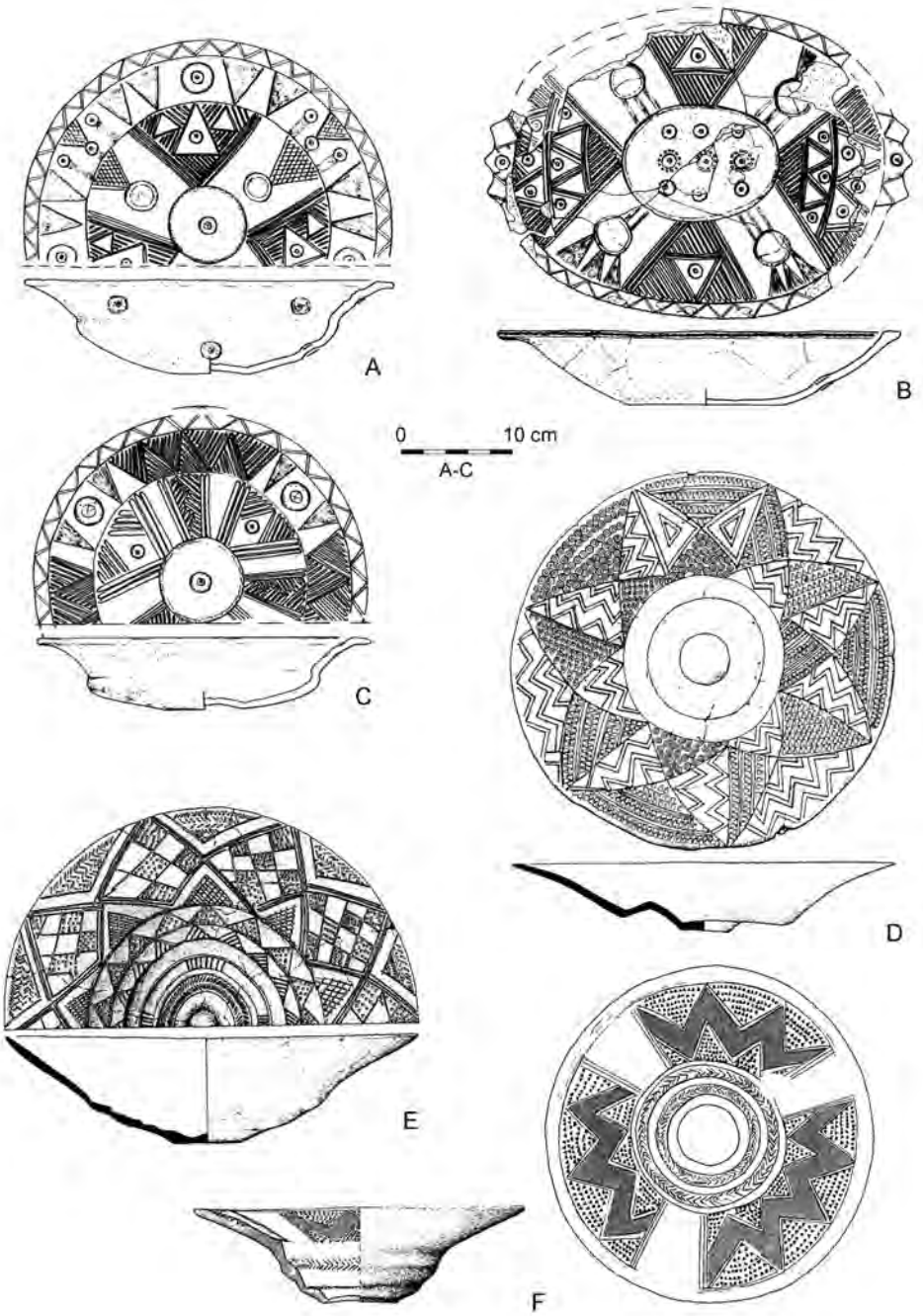


Fig. 20. Vessels with insides decorated with engraved patterns. A, B and C – pottery with graphitised surfaces from the burial ground in Domasław, Poland; D – Engstingen-Grossen-stingen, Germany; E – Burladingen, Germany; F – Tuttlingen-Nendingen, Germany. A-C after B. Gediga 2009, Fig. 6; D, E and F after van den Boom 2001, Figs. 5, 12 & 13. Scale: D – diameter 34.5 cm, E – diameter 36.6, F – diameter 32.5.

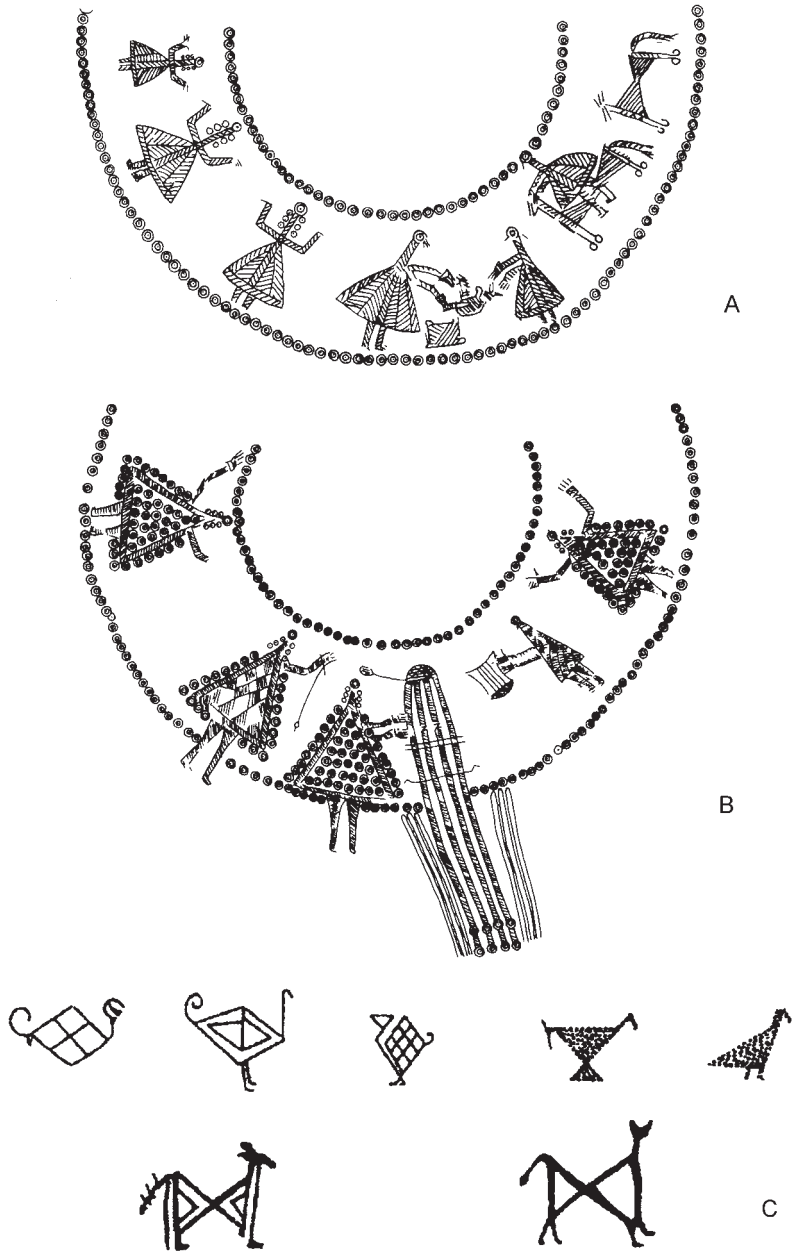


Fig. 21. A and B – Sopron, Hungary, vessels decorated with figural scenes; C – representations of animals – decoration of pottery of the Hallstatt culture (selection). A and B after F. Schlette 1984, p. 94; C after C. Dobiat 1982, Figs. 20 & 21.

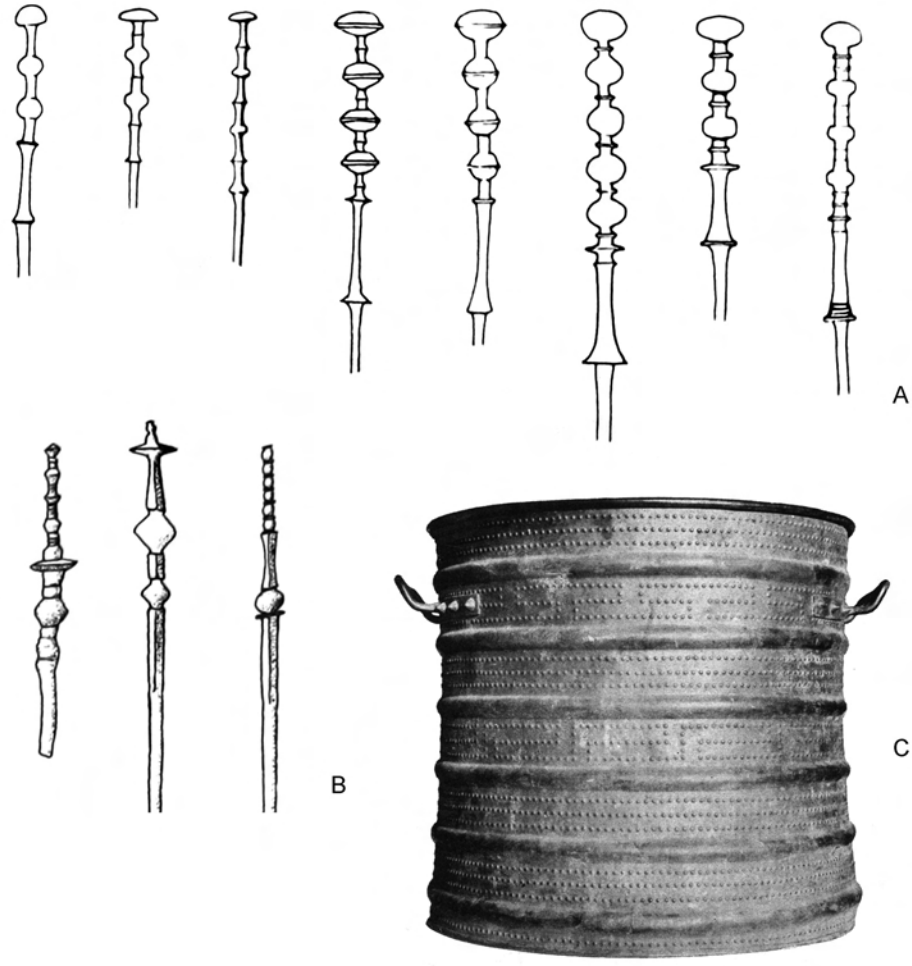


Fig. 22. A – construction scheme of the heads of pins from the cemetery in Hallstatt, Austria; B – pins from the late Geometric period, Greece; C – Solniki Małe, Oleśnica district, Poland, bronze vessel. A after F. R. Hodson 1990, Figs. 3: 4110, 4120, 4130, 4140 & 4150; B after J. Bouzek 1997, Fig. 122: 1, 2 & 4. Not to scale. C after W. Grempler 1904, Fig. 1. Scale: C c. 1:5.

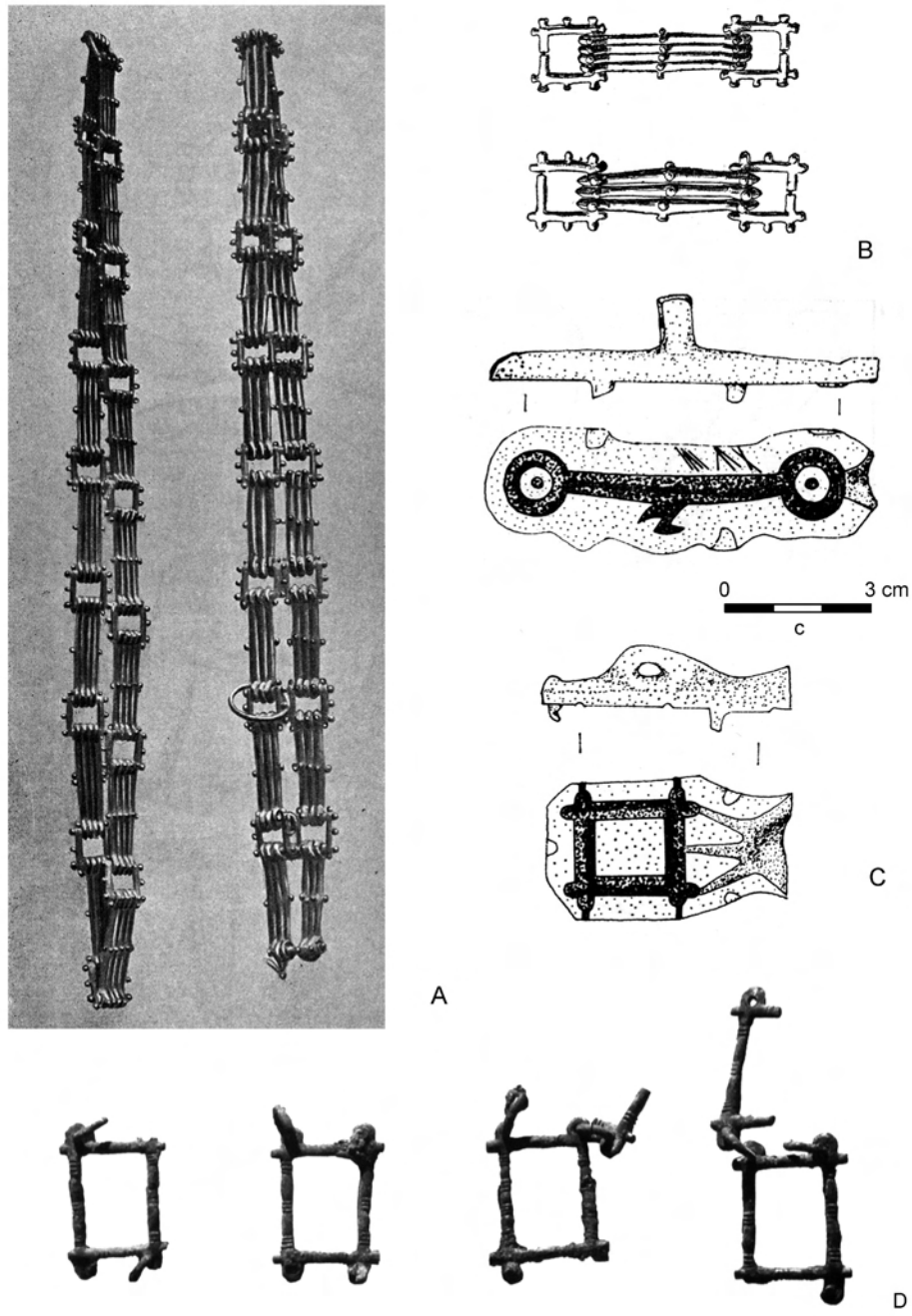


Fig. 23. A – Woskowice Małe, Poland, bronze belts; B – Woskowice Małe, Namysłów district, Poland, bronze belts - details; C – Szárazd-Regöly, Hungary, casting moulds; D – Regöly, Hungary, links of belts. A and B after W. Grempler 1897, Figs. 8, 9, 11 & 12; C after M. Fekete 1986, Fig. 13, D after G. Szabó and M. Fekete 2011, Table 20. Scale: B c. 1:3.

The identification of the unit's length facilitated an attempt to reconstruct the overground parts of buildings from the Hallstatt C period in Silesia (Fig. 24: A). The same value was probably used in the construction of the entire structure. It can also be presumed that these structures (understood as solid figures) were constructed according to the paradigms of contemporary style. Hence, the modular system was used. The reconstruction based on these two principles is very probable. It was noted that in all the identified forms of buildings, where the occupation level was recorded, it ranged from a dozen to approximately 30 cm in thickness. Taking into account the thickness of the topsoil on the site in Wojkowice – from 30 to 80 cm (Chmal 2001, 9); it appears that they reached a depth of 1 unit, i.e. 0.785 m. This phenomenon did not occur in the post buildings for which traces of occupation layers were not noted. It seems that, regardless of the building's size, there were ground-floor structures. At least it suggests analogies in traditional timber construction in Poland (Tłoczek 1985, 47). Assuming the use of a modular system in building walls, it should be expected that their height was 3 or 4 units – i.e. as much as a side's length in rectangular and square modules. In both cases it ensured the opportunity for an upright man to move freely – 2.355 and 3.14 m respectively. It seems that these values could be used interchangeably. No data is available to determine whether these buildings had ceilings. A gable was probably formed in accordance with the principles of geometric ornamentation – i.e. it resembled a chequered triangle. A skylight in the roof may also have been a feature. According to the rules of style, it could have been triangular or in the form of a lozenge or a square set at a corner. It also seems that the hook-shaped or spiral ends of triangle motifs on pottery are also prototypes of buildings' gables. Confirmation of this interpretation is the similarly constructed ends of roofs' entablatures, recorded on models of buildings used as urns in the Villanova culture in Italy (Bartoloni 1998, Figs. 29: 1A, E, F & 8). A further representation of gables on buildings might be an engraving on a stone from the Lusatian culture's burial ground in Mikowice, Namysłów district (Petersen 1936, 53-54, 1937, 9-10) (Fig. 24: C). Such a reconstruction may also be confirmed by the style of so-called folk construction on the northern borders of the Central European oecumene (Fig. 24: B, D). This concerns, however, mainly elements of the gable, such as the chequered arrangement of decorations and characteristic hook-shaped ends (Pokropek 1976, 111). Such solutions are also typical of wooden buildings made in the timber-framed technique (Pelczyk 1991, Fig. 13).

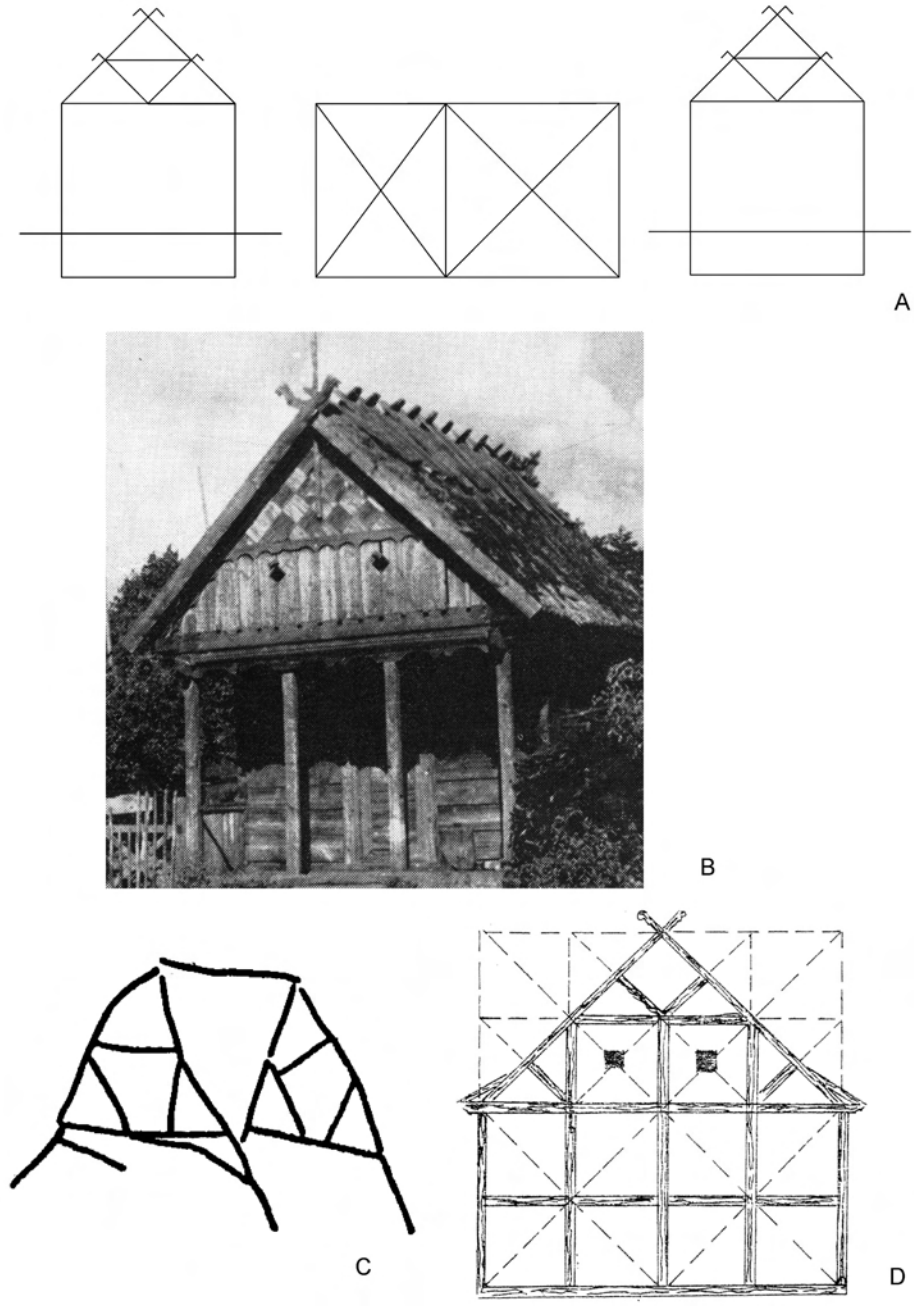


Fig. 24. A – Reconstruction of the building erected on a plan consisting of modules: square 4 x 4 units and rectangular 3 x 4 units; B – Łodziska, Ostrołęka district, Poland, wooden granary (built in 1924); C – Mikowice, Namysłów district, Poland, petroglyph; D – modular network of the wall of a traditional Kashubian building, Poland. A, drawing by T. Gralak; B after I. Tłoczek 1985, Fig. 62; C after E. Petersen 1936, Fig. 1; D after A. Pelczyk 1991, Fig. 13.

2. The *koine* of geometric ornaments

MENE; God hath numbered thy kingdom, and finished it.
TEKEL; Thou art weighed in the balances, and art found wanting.
PERES; Thy kingdom is divided, and given to the Medes and Persians.
Dan. 5:26-28

The decorative style that was dominant in Silesia in the Hallstatt period arrived along with a cultural wave that originated in the Middle East. Artistic expression based on geometrisation and modular paradigms was an enduring phenomenon that occurred in various areas. J. Bouzek associates it with a certain way of thinking and identifies it as a *koine* of geometric ornaments. Such decoration is noticeable as early as at the end of the Bronze Age in Luristan in northern Iran. The *koine* also includes areas of the Caucasus, Phrygia, Mycenaean Greece, the Villanova culture and cultures of the Hallstatt period in Central Europe (Bouzek 1997, 60-63, 2008). Significant examples of this occurrence are the decorations on belts from the royal tomb of Gordion in Asia Minor. Geometric motifs (swastikas) have close parallels in the Villanova culture, while decorations made in the openwork technique are similar to those from the Balkans (Vasić 1973, 1-13 Tables I & II) and rich graves from Bavaria (Kristiansen 1998, 220-222, Fig. 112). This cultural wave carried a cultural package which included, amongst others, iron production, anthropomorphic representations, modular geometric decoration, and probably the ideology linked with them (Bouzek 1997, 2007, 260, Figs. 2-7, 2008, 126, 133). Similarly decorated pottery is known from the Hallstatt culture (Brosseder 2004; Bouzek 2008, 135, Fig. 12).

Geometric style during the Hallstatt period was probably also expressed in woodworking. This is evidenced by vessels found in southern Germany decorated with so-called *Kerbschnitt*, which resembles woodcarving (Harding 2007, 34). With the large bowl-shaped vessels from Domasław, Wrocław district, and particularly the elongated bowl-shaped form (Gediga 2009, Fig. 6), it seems reasonable to suspect that they are imitations of wooden vessels. The style was probably also executed in music and weaving (Fig. 25). Normally, representations of people engaged in these activities are found in decoration on situlae and pottery from the Hallstatt circle (Bouzek 1997, Figs. 241 & 242). The style is also suggested by a few finds of fabric decorated with geometric motifs, such as a fragment discovered in grave 26/1969 in a cemetery of the Villanova culture in Verucchio (Bentini and Boiardi 2007, 128, Figs. 2 a & b) or in chieftains' graves in Hochmichele (Megaw 1970a, Fig. 7) and Hochdorf (Hundt 1985, 107-115, Figs. 120-132; Banck 1996, 42-63). The fabric fragment from Hallstatt (HallTex186) decorated with a meander motif inscribed in a triangle, has an exact equivalent in pottery decoration from this period (Grömer 2013, 87-88;). In western Hallstatt culture the convergence of decorative motifs between textiles and items made of bronze sheets was also noted. It was even assumed that the decoration on the latter was an imitation

of patterns used during weaving (Hoppe and Schorer 2012, 211-213, Figs. 268 & 269). It is noteworthy that the weaving technique forces the geometrisation of representations - curvilinear motifs are simply too difficult to execute. A similar pattern also occurs in wickerwork. Hence, it cannot be ruled out that the decoration of vessels from the Hallstatt period (especially the insides of bowls) represent an imitation of forms made in the weaving technique. This phenomenon was observed in the Early Bronze Age Andronovo culture in Central Asia (Rutkovsky 2013, 42, Fig. 3). In addition, lexical convergences between vocabulary describing weaving and pottery have been found in Indo-European languages. This indicates that originally a large percentage of vessels were made of organic materials that required braiding (Kowalski, A. P. 2014, 387-401).

In searching for the sense and meaning of the Hallstatt style, an analysis of selected elements of the culture of the area from which it arrived directly to Central Europe was undertaken. Its origins are clearly linked with the culture of Greece in the so-called Dark Ages (Geometric period), (Bouzek 1997). It is assumed that these times are largely described by the works of Homer, which were written during this period (Lord 2010, 69-76). This concerns both the content, which relates mainly to earlier times, and the technical system of these epics (Havelock 2007, 150-163). In their composition a very specific meter - the hexameter is used. Every line consists of six dactylic feet, with a specific and repeatable length of sound (Sądejowa 1959, 14-22; Landels 2003, 132-134). In the classical period, however, more types of poetic meter were used (Sądejowa 1959; Mond-Kozłowska 2011, 90-91, 102-103).

Such a text had, therefore, a modular structure. Its content was also presented in a very specific way. Several characteristic features were identified: additivity - adding new elements without their ordering (time sequence, hierarchy of importance, etc.), and various messages are connected by the word 'and' (Ong 2011, 76-77); redundancy - this technique consists of multiple repetitions and enables the more complete provision of the information in question. It is much more communicative, and it facilitates memorising (Ong 2011, 80-81). Redundancy is connected with another phenomenon described as 'variations on a theme' (Havelock 2007, 126). The repeated information is presented slightly differently each time. Such a style of composition and the methods of the content's presentation are typical of oral cultures, i.e. preliterate ones (Ong 2011, 75-117). Both the meter and the multiple and varied repetition make the content easier to memorise (Havelock 2006, 90-91, 2007, 126; Lord 2010, 109-167). For preliterate societies, the ability to memorise is essential for the survival and preservation of culture. In Geometric Greece another very distinctive feature was also recorded; the quality and value of emotions, feelings and the characteristics of each individual were described by multiplications. In Homer's language such terms as muchknowing, much-devising, much-suffering, to demand much, to exhort much appear (Snell 1953, 18-19). Similarly noted was the lack of a word describing the human body as a whole - it is instead an assemblage of individual parts (Snell 1953, 5-8).

Fig. 25. Textiles from the Hallstatt period – reconstruction based on finds. A-C and E-G Hochdorf, Germany; D – Dürrnberg, Austria. A-C after K. Grömer 2010, Figs. 90 & 92; E-G and H-J after H. J. Hundt 1985, Figs. 128 & 130.

The lack of one word describing the human body determines the lack of the term describing the soul. Three words were used: *psyche*, *thymos* and *nos*, describing the psycho-physical functions of the human body, which disappear after death (Snell 1953, 8-14). *Psyche* (ψυχή) - breath, a life function; it leaves man at the moment of death, but also during fainting. *Thymos* (θυμός) - causes movement and reactions and refers to emotions. *Noos* (νόος) - brings ideas, it is related to the intellect. Hence, these terms describe three different organs corresponding to three different functions. Essentially, they do not differ from other human organs (Snell 1953, 8-14; Onians 2000, 44-65, 82-83, 93-122). Similar ideas existed in Semitic culture. In the Old Testament three types of a soul were distinguished: *Nephesh* שפנ (neck and throat) - the soul as a human or animal life, *Ruah* חור (wind) - life energy, emotions and will, and *Neshamah* המשנ (breath) - spiritual intelligence, human or divine (Filipiak 1979, 33-40, 43-48, 65-68, 116-120; Onians 2000, 480-505; Ravasi 2008, 81-97). Correspondingly, in Egypt, it was believed that a human had several different souls (Ravasi 2008, 46-50). Hence, it is clear that this was a typical perception of a man in the eastern Mediterranean. Interestingly, even an appeal to one person referred directly to several organs, functions and features:

When wisdom entereth into thine heart, and knowledge is pleasant unto thy soul; Discretion shall preserve thee, understanding shall keep thee.
Proverbs, 2.10-11

The works of Homer and other Greek poetic texts were performed in the form of rhythmic recitation with musical accompaniment, usually played on a lyre (Kumaniecki 1965, 101). Together with repetition and rhythm, the movements of the speech organs as well as the rest of the body facilitated memorisation. It also considered the audience, as this type of presentation evoked rhythmic movements, i.e. dance (Havelock 2006, 90-91, 2007, 184-187; Ong 2011, 116-117; Mond-Kozłowska 2011, 94-95). The 'Foot' - the meter used in the hexameter was probably a unit of dance movement (Landels 2003, 134). In classical Greece, in the course of performances, the principle of unity of the semantic expression of the body, voice and instrumental music (music, dance and poetry) was accepted. This accordance was called *choreia* (Zwolski 1979, 10-14; Mond-Kozłowska 2011, 11, 94-99). Legal formulas and rulers' decree were rhythmical and subjected to meter too (Havelock 2007, 142-143). This is also confirmed by use of one word to describe both song and law - Νόμοι (Maykowska 1960, 609).

In preliterate societies cultural identity is maintained through traditions passed down orally. The information contained in songs form the 'oral encyclopaedia' of an individual group of people (Havelock 2006, 75-78). This occurrence is confirmed by the source texts on education in Classical Greece:

Athenian: Shall we assume that the uneducated man is without choir-training, and the educated man fully choir-trained?
Clinias: Certainly.
Athenian: Choir-training, as a whole, embraces of course both dancing and song.
Clinias: Undoubtedly.
Athenian: So the well-educated man will be able both to sing and dance well.
Plato, Laws, 654. A-B

The artistic expression of the Geometric period in Greece could be interpreted as a visualization of perception of the world and man presented by Homer. Pottery vessels were decorated with patterns built from frequently repeated elements (Fig. 26). They consisted of triangular or rectangular motifs (often meanders), which were arranged in circumferential bands (see Coldstream 2003). Human figures were also highly geometric; often the torso and other parts of the body (especially the legs) are depicted as triangles. The torso is depicted as disproportionately large, which may have corresponded to the belief that feelings, emotions and consciousness were situated in the lungs and heart (Onians 2000, 13-43). There was also a specific approach to individual parts of the body - they were a collection of elements rather than one unit (Snell 1953, 6-8, Fig. 2) (Fig. 27: A). Animals are similarly represented (Lanngdon 2008, Figs. 2.28 & 4.2). Everyday items were also produced with repeatable elements. Pins from the Geometric period and partly from the Archaic period, decorated by adding successive globules or rings is very characteristic (Kilian-Dirlmeier 1984, Tables 29-81) (Fig. 22: B). The bows of brooches from the Balkans were also decorated with such elements (Bader 1983, 79-84, 91-92, 99-101, 118-119, Tables 27: 180-194, 28, 29: 217-223, 31: 241-250, 34: 294-300, 38, 51 & 52).

The modular perception of the world also inspired the philosophers of the Classical period. As the first in this manner described matter the natural philosophers: Leucippus and especially his pupil Democritus. According to the latter the whole of nature is made of indivisible particles (atoms). Their geometric properties and relationships (shape, position and order) explain the properties of all objects in the world (Tatarkiewicz 1970, 34-40). Aristotle writing about the views of Democritus, the relationships between the atoms compared to the compilation of letters: A differs from N in shape, AN from NA in order, Π from H in position (Aristotle, Metaphysic I 4, 985b 4). Instead according to Plato's dialogue, 'Timaeus' the creation of the world's soul occurred according to certain numerical proportions (35b-c). Below is further information on the correct proportions as well as the modular structure of the world:

In the first place, then, as is evident to all, fire and earth and water and air are bodies. And every sort of body possesses solidity, and every solid must necessarily be contained in planes; and every plane rectilinear figure is composed of triangles; and all triangles are originally of two kinds, both of which are made up of one right and

two acute angles; one of them has at either end of the base the half of a divided right angle, having equal sides, while in the other the right angle is divided into unequal parts, having unequal sides.
Timaeus, 53cd

From these triangles in turn, solid figures are formed (Fig. 27: E), which consist of individual elements - fire, air, water and earth:

The first *will be the simplest and smallest construction, and its element is that triangle which has its hypotenuse twice the lesser side. When two such triangles are joined at the diagonal, and this is repeated three times, and the triangles rest their diagonals and shorter sides on the same point as a centre, a single equilateral triangle is formed out of six triangles; and four equilateral triangles, if put together, make out of every three plane angles one solid angle, being that which is nearest to the most obtuse of plane angles; and out of the combination of these four angles arises the first solid form which distributes into equal and similar parts the whole circle in which it is inscribed.* ***The second species*** *of solid is formed out of the same triangles, which unite as eight equilateral triangles and form one solid angle out of four plane angles, and out of six such angles the second body is completed. And the* ***third body*** *is made up of 120 triangular elements, forming twelve solid angles, each of them included in five plane equilateral triangles, having altogether twenty bases, each of which is an equilateral triangle. The one element [that is, the triangle which has its hypotenuse twice the lesser side] having generated these figures, generated no more; but the isosceles triangle produced the* ***fourth elementary*** *figure, which is compounded of four such triangles, joining their right angles in a centre, and forming one equilateral quadrangle. Six of these united form eight solid angles, each of which is made by the combination of three plane right angles; the figure of the body thus composed is a cube, having six plane quadrangular equilateral bases. There was yet a fifth combination which God used in the delineation of the universe.*
Timaeus, 54d-55e

The correct scheme of elements, i.e. the proper structure of triangles also affects the condition of the human body:

There are four natures out of which the body is compacted, earth and fire and water and air, and the unnatural excess or defect of these, or the change of any of them from its own natural place into another, or - since there are more kinds than one of fire and of the other elements - the assumption by any of these of a wrong kind, or any similar irregularity, produces disorders and diseases.
Timaeus, 82a

Tetractys also have the form of triangles, and are referred to as the great four (Fig 27: C). It is a graphical notation of the first four integers - 1, 2, 3 and 4.

Fig. 26. A and B – Attic krater by the Dipylon master (No. A. 517); C – Athens (Agora) D – Vessel 1899, 2019.1 from London. A, B, and D after E. Bugaj 2013 Figs. 2, 3, & 8; C after E. Bugaj 2010, Fig. 12.

According to the Pythagoreans, it defined, based on the harmony of numbers, the internal structure of the world (Tatarkiewicz 1962, 98). Tetractys express the harmony of three major musical chords and their relations (West 2003, 251; Świercz 2008, 174).

According to another concept, the triangle determined the shape of the entire universe. In spite of the fact that the information comes from Roman times, according to the author himself it was much older:

He said that the worlds are not infinite in number, nor one, nor five, but one hundred and eighty-three, arranged in the form of ***a triangle****, each side of the triangle having sixty worlds; of the three left over each is placed at an angle, and those that are next to one other are in contact and revolve gently as in a dance. The number of his worlds convicts him, since it is not Egyptian nor Indian, but Dorian and from Sicily, being the idea of a man of Himera named Petron.*
Plutarch, De Defectu Oraculorum, 22-23

The use of the number 60, which probably results from the application of the duodecimal system, is also characteristic.

In Plato's dialogue, 'Menon' the ways of dividing a square with a side of 4 feet were presented (82b-85b) (Fig. 27: D). The correct proportions of the two figures in such a relationship to each other are described as the side of one being half the diagonal of the second one (Tatarkiewicz 1962, 140; Świderek 2002, 42-43). These relationships are used in construction as well as Pythagorean triangles with side ratios of 3: 4: 5 (Tatarkiewicz 1962, 63-69, Figs. 1-7; Ghyka 2006, 91).

The modular and geometric worlds' views also affected the perception of the inhabited territory. In Classical Greece the shape of the entire *oecumene* as well as individual countries were described by comparing them to geometric figures: the square and triangle (Kochanek 2010, 309-321, Fig. 1). Especially meaningful is an example given by Herodotus regarding the land of the Scythians, which was supposed to have a square form (Historia, IV. 100-110).

It has been pointed out that before the Pythagoreans mathematical problems were dealt with by priests, accountants and surveyors. In addition, they treated numbers including spatial values (Tatarkiewicz 1970, 43), which seems to have resulted from the tradition of practical geometry. It is also worth noting that chequered systems, often as gnomons, both made of squares and of triangles were used as an aid in calculating techniques in ancient Greece (Świderek 2002, 23, 24; Ghyka 2006, 35, Fig. 1; Świercz 2008, 217).

Classical Greece developed a great theory of beauty that would result from the application of the appropriate proportion and measure, as reflected in a repeatable canon used in the visual arts (Tatarkiewicz 1962, 99). It is clearly indicated by information given by Aristotle:

The main species of beauty are orderly arrangement, proportion, and definiteness; and these are especially manifested by the mathematical sciences.
Aristotle, Metaphysics, 13.1078a-b

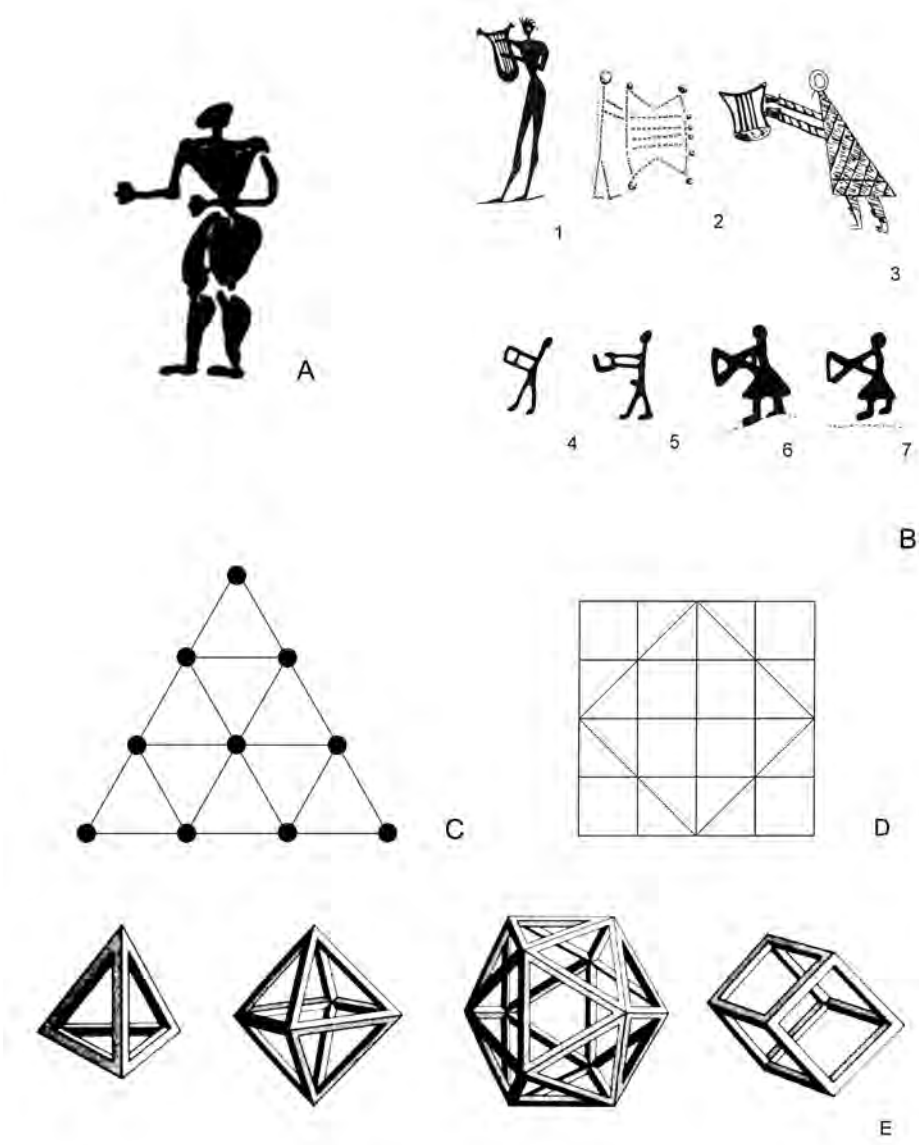


Fig. 27. A – a Greek man of the Geometric period; B – representations of people playing on lyres: 1. A late Geometric cantharus from Boeotia, Greece, decoration of the Hallstatt culture pottery; 2. Schirndorf, Germany; 3. Sopron, Hungary; 4-7. Nové Košariská, Slovakia; C – graphical representation of tetractys; D – division of a square with a side of 4 feet after Plato's dialogue 'Menon'; E – Platonic solids. A after B. Snell 1953; B after A. Reichenberger 2000, Fig. 196; E after E. H. Gombrich 2009.

Plato described the world in a similar way:

Socrates: He knows that any want of measure and symmetry in any mixture whatever must always of necessity be fatal, both to the elements and to the mixture, which is then not a mixture, but only a confused medley which brings confusion on the possessor of it.
Protarchus: Most true.
Socrates: And now the power of the good has retired into the region of the beautiful; for measure and symmetry are beauty and virtue all the world over.
Plato, Philebus, 1892.64

Architectural space was organised too in accordance with these principles. In the sacred architecture of ancient Greece repeatable canons were applied too. Typically, modules were also used in the planning of temples' facades; in this case, however, they were understood as repeatable distances. The rules of the construction were described in the work of Vitruvius:

The design of a temple ***depends on symmetry****, the principles of which must be most carefully observed by the architect.* ***They are due to proportion****, in Greek ἀναλογία.* ***Proportion is a correspondence among the measures of the members of an entire work, and of the whole*** *to a certain part selected as standard. From this result the principles of symmetry. Without symmetry and proportion there can be no principles in the design of any temple; that is, if there is no precise relation between its members,* ***as in the case of those of a well shaped man****.*
Vitruvius, The Ten Books on Architecture, III.1.1

In addition, according to Vitruvius, in ancient Greece the decimal system was used in construction, but there was also another one based on the number 6 (III.1.5-9). In the latter case, it was one of the varieties of the duodecimal system.

It seems that in the absence of or the poor knowledge of writing, construction was subjected to similar requirements of memorisation as literature and fine arts. This is indicated by use of the modular system and the high repeatability of construction solutions. Memorisation techniques facilitated the remembering of both the building structure and the sequence of tasks. It cannot be ruled out that various operations carried out during construction were also regulated by a rhythm provided by work songs. Such kinds of actions were observed in the Middle Ages and Post-medieval period (Rybakov 1949, 88-92; Kula 2004, 110, 114; Ghyka 2006, 100, 254). The relationship between rhythm and work is also indicated by a legend in which Pythagoras determined the harmonic proportions in music inspired by the sound of hammers in a smithy (Landels 2003, 150). It should be noted that mnemonic techniques were based on the memorisation of location within imaginary buildings in antiquity (Yates 1977, 13-39).

In ancient Greece anthropomorphic measures were also commonly used in construction. In the above quoted passage, Vitruvius pointed out that the proportions of a building followed the body of a well-built man. Then, this information was clarified:

Further, it was from the members of the body that they derived the fundamental ideas of the measures which are obviously necessary in all works, as the finger, palm, foot, and cubit.
Vitruvius, The Ten Books on Architecture, III.1.5

This too is confirmed by the famous maxim of Protagoras: 'Man the measure of all things.' In this context, it should be understood literally. This results directly from the method of perceiving the human body:

But is deformity anything else than the presence of the quality of disproportion, which is always ugly?
Plato, Sophist, 228b

It is also worth noting that anthropomorphic measures usually underwent dichotomous divisions. A fathom was divided into two half fathoms, and they, in turn, into two cubits, and the latter into two spans (Kula 2004, 36, 110). In this sense, man was again seen as a system of repeating units - in this case the units of length.

A specific antithesis of such a perception of man is the figure Thersites described by Homer. Physical imperfection is associated with an imperfect character:

Now the others sate them down and were stayed in their places, only there still kept chattering on Thersites of measureless speech, whose mind was full of great store of disorderly words, wherewith to utter revilings against the kings, idly, and in no orderly wise, but whatsoever he deemed would raise a laugh among the Argives. Evil-favoured was he beyond all men that came to Ilios: he was bandy-legged and lame in the one foot, and his two shoulders were rounded, stooping together over his chest, and above them his head was warped, and a scant stubble grew thereon. Hateful was he to Achilles above all, and to Odysseus, for it was they twain that he was wont to revile; but now again with shrill cries he uttered abuse against goodly Agamemnon.
Iliad, II.210-220.

Living within modular planned buildings and settlements, listening to modular songs and accompanying dance most likely also affected the movement of individuals. Therefore, in this way a specific body language was also shaped. It seems that this was one of the conditions of the formation of the phalanx (Fig.

28). In a given community all men capable of bearing arms, in the face of mortal danger, were able to move rhythmically (Zwolski 1978, 120-122) within numerically and geometrically organised groups (Connolly 1981, 37-43). Persian rulers were unable to organize these types of troops and they were forced to hire Greek mercenaries for this purpose (Nawotka 2004, 103-105). In Greece it was believed that knowledge about numbers was an essential skill in conducting a fight (Platon, Rep. 522 cde). According to a legend, the creator of arithmetic was one of the heroes of Troy. He taught Agamemnon how to use this knowledge in combat (Jaeger 2001, 882-883, after Plato, Rep. 522d).

In summary, it can be assumed that, during the Geometrical period in Greece, a culture dominated by a modular perception of the world developed. As was mentioned above, it resulted primarily from the need for the memorisation of individual elements of culture. Such a perception of reality was influenced primarily by recited or sung songs containing myths essential for this community. Therefore, they constituted an, 'oral encyclopaedia' The material culture was the realisation of such a perception of the world to a large degree. Both literature and music, but also the plastic style and construction expressed commonly accepted perceptions of the world (the modular one). Hence, the 'oral encyclopaedia' coexisted with the, 'visual encyclopaedia'. The latter played an important role in visual communication, but also in education, i.e. in the preservation and transfer of cultural patterns (Havelock 2006, 88). Therefore, it can be said that the modular paradigm is both a method of communication and a medium of communication. This culture also created a very specific society. The method of communication builds a community and its structure. The modular paradigm created a very characteristic behavioural pattern. In Greece it was expressed in the organisation of the phalanx. The existence of such a profound relationship between culture and the approach to thinking is also indicated by psychological research. It has been pointed out that along with the transformation of culture changes not only the content of consciousness, but also its structure. In addition, it influences various mental processes and, in particular, cognitive activity (Łuria 1976, 22, 30-31, 38-39).

It also seems that the Greeks themselves were aware that the metrology experience constituted their way of seeing and understanding the world:

But when you have learned what sounds are high and what low, and the number and nature of the intervals and their limits or proportions, and the systems compounded out of them, which our fathers discovered, and have handed down to us who are their descendants under the name of harmonies; and the affections corresponding to them in the movements of the human body, which when measured by numbers ought, as they say, to be called rhythms and measures; and they tell us that the same principle should be applied to every one and many;—when, ***I say, you have learned all this, then, my dear friend, you are perfect; and you may be said to understand any other subject, when you have a similar grasp of it****. But the infinity of kinds and the infinity of individuals which there is in each of*

them, when not classified, creates in every one of us a state of infinite ignorance; and he who never looks for number in anything, will not himself be looked for in the number of famous men.
Plato, Philebus, 1892.18

Fig. 28. Phalanx of hoplites marching to battle to a rhythm performed on an aulos. Chigi vase, proto-Corinthian style, Villa Giulia, Rome. After P. Lévêque 1973, Fig. 19.

3. Apollo's journey to the land of the Hyperboreans

Zamolxis, Pythagoras' slave, a Thracian by race, (…)
Hippolytus, Philosophumena, I.22

There are questions as to how and why the ideas associated with the modular perception of the world reached the North, to the communities forming the Hallstatt culture. It should be stressed that relations with the Mediterranean area had a much earlier tradition. From the Early Bronze Age, influence in the sphere of

symbolic culture in Central Europe and Scandinavia was evident from areas of Anatolia and Greece (Kristiansen and Larsson 2005, 142-231). This influence was palpable too during the period of the Lusatian culture in the territory of Poland (Szafrański 1987, 158-163). In the Bronze Age there is evidence of the existence of a mutual exchange of information between Greece and the barbarians. This is particularly true in the case of the cult of Apollo, which derived from the North - from lands inhabited by the mythical Hyperboreans (Eliade 1997, 176; Bouzek 2000, 346). These people were also supposed to have sent virgins and amber to Delos, to Apollo's oracle (Herodotus, IV.32-36). Abaris a priest of Apollo was also a Hyperborean (Eliade 1997, 178). According to Greek beliefs, Apollo, who resided in Delphi, left it every year for the three winter months. He travelled to the lands of the Hyperboreans in a chariot pulled by swans (Eliade 1997, 176). It is interesting that representations of this chariot are known from areas of Central and Southern Europe (Fig. 29). They are referred to as so-called cult wagons and dated to the V period of the Bronze Age and the Hallstatt period (Gediga 1979, 325-326, Fig. 210; Baron 2008, Fig. 1).

Decorative motifs and other elements typical of the Hallstatt circle are relatively rare in the southern Balkans (Sandras 1968, 212, 213, Fig. 85; Kristiansen 1998, 224-225). They appeared only in the Danube zone (Brosseder 2004, Fig. 1). In the Villanova culture and the Este culture that emerged in areas of northern Italy were also characterised by pottery decorated with patterns similar to the Hallstatt ones (Åkerström 1943, 124-144; Peroni 1975, 81-83, Fig. 16). Around the 7th century BC in that area, a decorative style derived from Greek ornamentation of the Geometric period (9th-8th century BC) appeared (Kossack 1993, 140). Between the Hallstatt circle and this region of the Mediterranean direct contacts are also evidenced by a large number of various types of imports (Merhardt 1969, 16-110; Shefton 1995, 9-44).

Generally, it has been stated that relations between the people of the Hallstatt culture and Mediterranean zone (mainly Italy) are an example of the dependence of peripheral areas on central ones (Frankenstein and Rowlands 1978; Rowlands and Frankenstein 1998; Kristiansen 1998, 249-254; Brun 1999; Dietler 1999). The elites of the Hallstatt culture built their prestige by participating in trade and then the redistributing of imported luxury goods. Such items constituted a clear carrier of information about the high status of their users.

Initially, the presence of richly decorated Hallstatt pottery was mostly typical of rich graves with weapons. These two elements occurred together (Brosseder 2004, 338). Therefore, it seems that the new decorative style was first adopted by the elites. As in the case of Italian and Greek imports, the reason for their adoption was to legitimise the high status of the elites. For the same reason, together with the decoration the ideology that it expressed was probably also accepted (Brosseder 2004, 340-341). Its physical carriers - in the form of songs - were the people responsible for their performance. They – the bards and poets were the depositaries of religious, legal, ritual knowledge, etc. (Kristiansen and Larsson 2008,

55). It is worth noting that a large number of representations of people with a lyre are evidenced in the Hallstatt circle (van den Boom 1995, 45, Fig. 8; Reichenberger 2000, Fig. 196; Gediga 2006, 88-90; Bugaj 2010, 117, Figs. 17: 9, 10 & 18) (Fig. 27: B). This instrument, as in Greece, was probably used for accompaniment during recitation. These representations have parallels in Greek pottery (Reichenberger 2000, 79, Fig. 196: 8). The presence of bards and the use of the poetic meter in Central Europe are also confirmed by written sources relating to the La Tène period (Ammianus Marcellinus, Roman History, XV.9.8). It is also known that medieval Irish law had a poetic form to facilitate memorisation (Eliade 1994a, 95-96).

It should be noted that the emergence of a new construction style coincides with the widespread use of iron. This material allowed for the more accurate processing of wood and probably also influenced the reception of foreign patterns. It can be assumed that the new style spread together with new tools and new carpenters' skills. A set of items was recorded that can be linked with this phenomenon. In the Hallstatt C period in Silesia and Greater Poland numerous iron axes with side protrusions occurred. Such items are considered to be tools or weapons (Gedl 1991, 29-30). The earliest axes of this type made of bronze were from the Middle East, and they appeared in Greece during the Late Helladic IIIC. There are known from Italy, Iberia and Britain. The younger iron axes spread within the Hallstatt circle (Bouzek 1997, 105-106, Figs. 100-102; Derrix 2001, 45-49, Figs. 13 & 14). Thus, their dispersion is associated with the spread of the geometric style. The next type of tool an iron axe with a quadrilateral socket has counterparts in the upper and middle Danube zone (Gedl 1991, 31-33; Derrix 2001, 51-53, Fig. 16). Socketed iron chisels are also known (Gedl 1991, 33-34; Derrix 2001, 72-75, Fig. 35). The use of wood in construction drives the application of rectangular and modular systems to some extent. This is due to the use of elongated elements with a repeating size (Tobolczyk 2000, 102). This phenomenon can also be the cause of the easy reception of new solutions.

Also according to the Greeks themselves, the use of woodworking tools meant that construction acquired specific metric features:

Socrates: The art of the builder, on the other hand, which uses a number of measures and instruments, attains by their help to a greater degree of accuracy than the other arts.
Protarchus: How is that?
Socrates: In ship-building and house-building, and in other branches of the art of carpentering, the builder has his rule, lathe, compass, line, and a most ingenious machine for straightening wood.
Plato, Philebus, 1892.56

Not only measuring skills, but also technical construction details in the Hallstatt culture originated from Greece. Apart from the modular system, there were also the forms of the modules themselves; 4 x 4 squares corresponded to

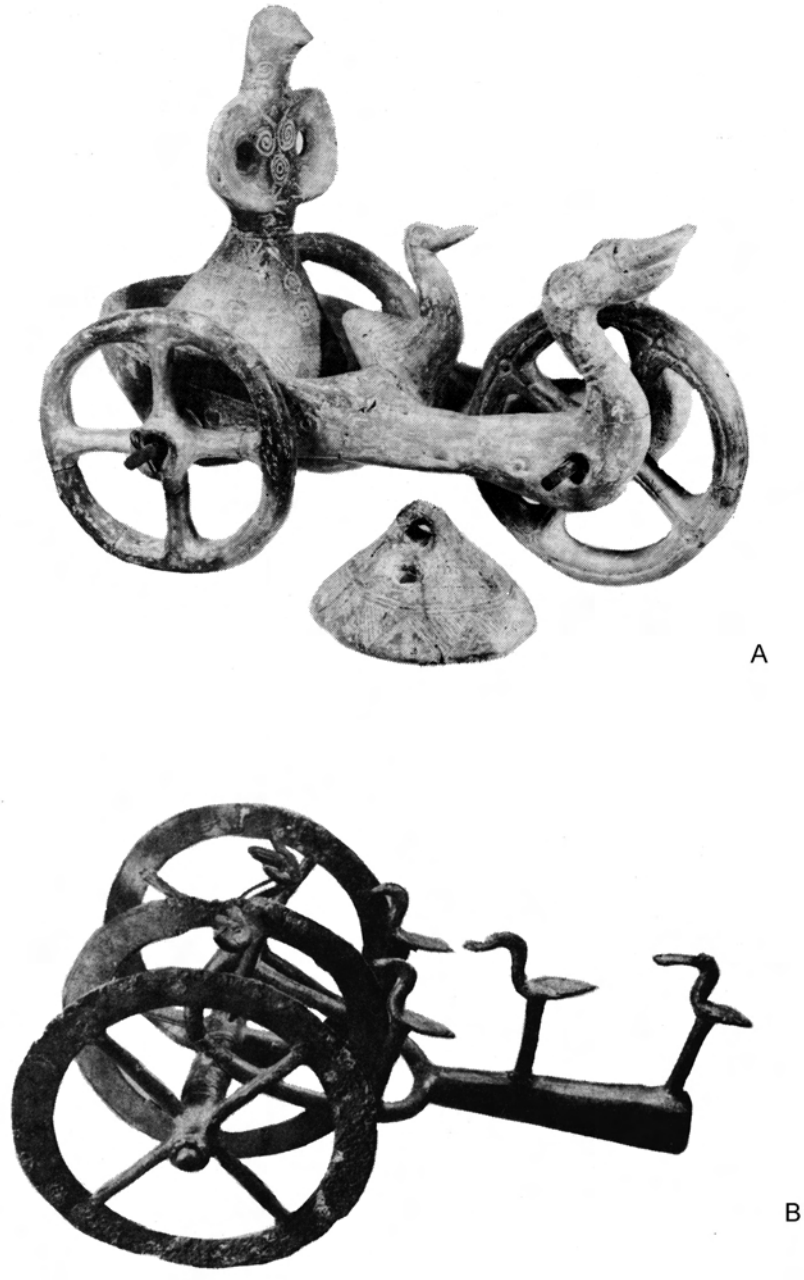


Fig. 29. So-called cult wagons. A – Duplija, S. Banat, Serbia; B – Kałowice, Trzebnica district, Poland. A after M. Garašanin 1984; B after W. Hensel 1988, Fig. 211.

Platonic squares. The use of Pythagorean triangles (Tatarkiewicz 1962, 63-69, Figs. 1-7), as well as anthropometric measures and a base founded on the duodecimal system has parallels in ancient Greece. Adaptation of these elements is even more likely, because mostly wood, reed and wattle were used in original Greek architecture. Stone buildings from the Classical period are very accurate imitations of such prototypes made from the aforementioned raw materials. This applies not only to the general appearance, but also to small details (Michałowski 1970, 40-47, 67-69). Mediterranean influence in construction is clearly perceptible in the settlement in Heuneburg. The defensive wall was made of mud brick - material completely unknown north of the Alps until that time. It was discovered that the bricks' dimensions corresponded to bricks used in the Greek cities of Gela and Appolonia (Dhen 1957, 94).

In the context of the dialogue of Timaeus and the aforementioned ideas of the Pythagoreans, modular decoration, and especially the triangle motif was a manifestation of the perception of the contemporary world, and a description of its internal structure. The visualisation of the triangular division was a description of the basic principles governing the entire universe. As already mentioned on the pottery of the Hallstatt circle triangles formed not only abstract patterns, but also representations of people and animals (Dobiat 1982, Figs. 12, 13: 1-25, 14: 1-3, 20 & 21; Reichenberger 2000). From the perspective of the dialogue in Timaeus, such representations not only described their appearance, but also described their structure and internal structure. If a relationship is assumed between geometric decoration and the ideas of Plato, it seems that it is a development of a myth common in Anatolia, the Balkans and in Central Europe to some degree.

4. The culture of the Hallstatt period or the great loom and scales

My days are swifter than a weaver's shuttle, and are spent without hope.
Job. 7.6

The world of geometric *koine* cultures was organised. Each unit had its place in the structure of which it was only a part. The fate of all depended on the appropriate behaviour of individuals. Homer's vocabulary presenting the culture of the Dark Ages indicates that the people of those times had very few words to describe personal experiences. They did not know words describing the seeing process, while many terms were used to describe the way of seeing or someone's gaze (Snell 1953, 1-5). The culture was focused on reminding people of their responsibilities in relation to the whole community. This attitude meant that social hierarchy was rigid and was not subjected to rapid change. For this reason it was a period characterised by large differences in social class. It is perceptible in rich Hallstatt elite burials in the archaeological material.

It was assumed that the manner of the world and man's perception of it was presented by metaphors, which were used to describe them (Lakoff and Johnson 1980; Dzbyński 2011, 12-14). In Greek mythology the observance of the inexorable laws of the world was assured by the Moirai (the Fates). They were the three spinners on whom the fate of every human being depended. Human life was imagined as a thread that was spun on Clotho's spindle; its length was measured by Lachesis' measuring rod and it was finished by the cut of Atropos' shears (Graves 1974, 61). Similar figures are also known in Roman – the Parcae (Grimal 1987, 276), Germanic – the Norns (Słupecki 1998, 179-185), and perhaps also in Celtic – the matrons (Botheroyd and Botheroyd 1998, 42-44; Aldhouse-Green 2004, 73-76) and in Lithuanian mythology - Laimės (Greimas 2007, 163-164). Hence, it was probably a widespread myth describing human life in terms of weaving operations (Onians 2000, 416-419), and some measuring ones. It is characteristic that the word *moira* itself remains in connection with words *merizein* – to divide, or *meiresthai* - to be assigned. In the language of Homer in a broader sense it means 'part of anything'; while in a narrower 'assigned (designed) to man part of life' (Krokiewicz 2000, 126).

In Semitic cultures, very similar metaphors are known, as indicated by quotations from the Bible:

Mine age is departed, and is removed from me as a shepherd's tent: I have cut off like a weaver my life: he will cut me off with pining sickness: from day even to night wilt thou make an end of me.
Isaiah 38.12

My days are swifter than a weaver's shuttle, and are spent without hope.
Job. 7.6

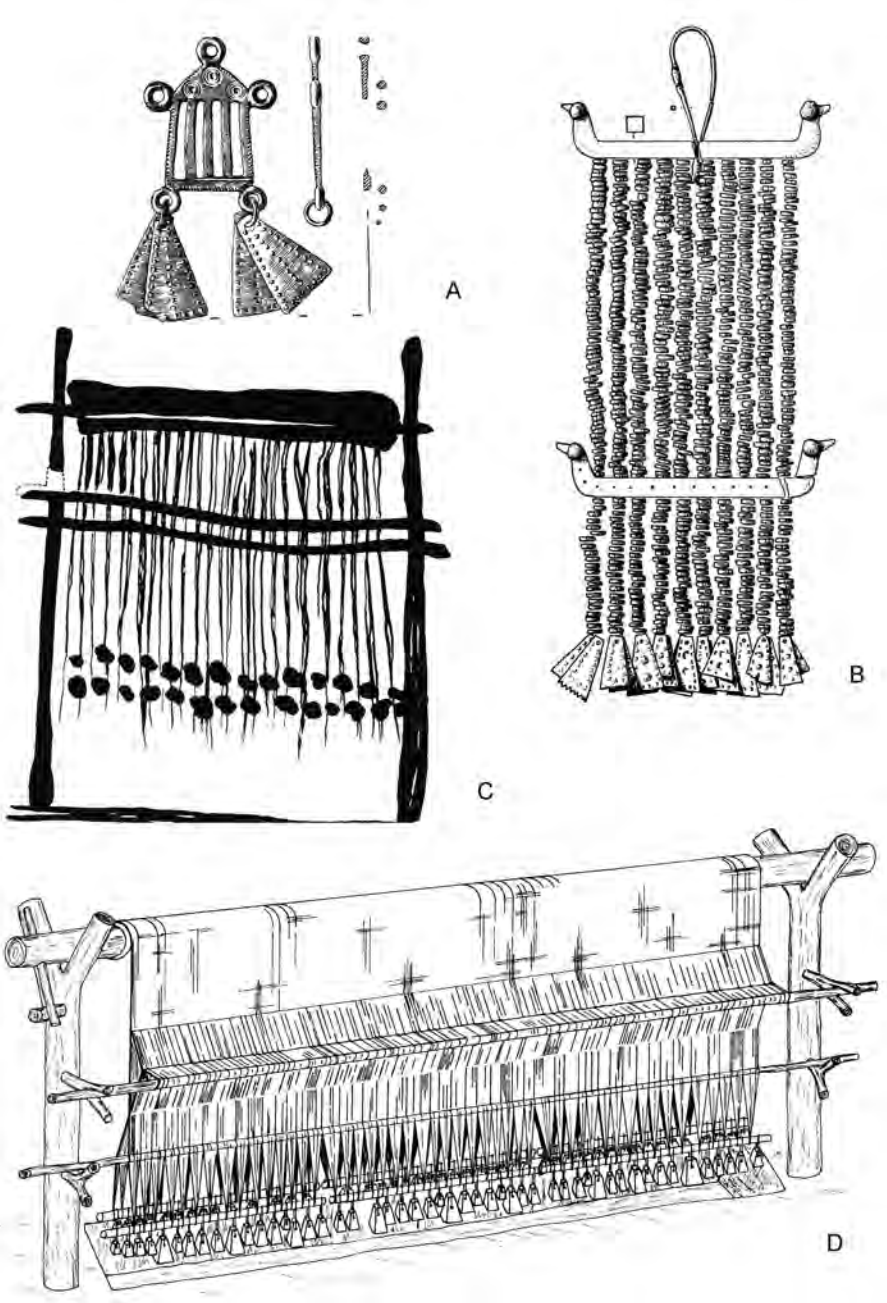


Fig. 30. A – Býčí Skála, Moravia, the Czech Republic, bronze pendant; B – Este Ricovero, Italy, pendant; C – Representation of a weaving workshop from a 6th-century Attic vase; D – reconstruction of a weaving workshop from Klainklein, Austria. A-C after B. Fath and B. Glunz-Husken 2011, Figs. 4; 9: 2 & 3: 3; D after C. Dobiat 1990, Fig. 5.

Therefore, in the Mediterranean, it was a widely used metaphor to describe human life. It was also imagined that the whole world revolved around the Spindle of Necessity (Platon, Rep, 616c).

Most likely these metaphors were accepted by the people of Central Europe. A strong, positive valorisation of the loom (Fig. 30: C, D) in the Hallstatt circle is indicated by jewellery finds, which, according to B. Glunz-Husken, are representations of looms (Fath and Glunz-Husken 2011, 258-269) (Fig. 30: A, B). They are various parts of attire (brooches, belts, etc.) fitted with vertically hanging chains completed with sheet metal trapezoidal pendants. Such finds come from Frög, grave 168, Este Ricovero 149; Hallstat grave 660, Hochdorf and Býčí Skála (Fath and Glunz-Husken, 2011 Figs. 3:1, 4, 8 & 9). Pendants are numerous (Kossack 1954, 42, 95, Table 15:9-14; Warneke 1999, 49-50 & 90-91, Figs. 18-20 & 42-44), which are interpreted as representations of loom weights (Fath and Glunz-Husken 2011, 262-263). These items appeared in a context definitely associated with the cult, for example, in Býčí Skála Cave in Moravia (Trefný 2002, 371-372, Fig. 10), or they represent a human figure (Warneke 1999, 101-102, 114-115, Figs. 48-50 & 55-57). The high value placed on the loom in the Hallstatt circle is confirmed by a famous scene on the Sopron vessel (Schlette 1984, 94-95). It shows a loom in operation along with two human figures, one with outstretched arms in a gesture of orans and the other playing a lyre. This context suggests that the related activities were of a ritual nature.

Another metaphor describing human life was the balance. In Greek mythology it was an attribute of Themis, the goddess of law and order (Parandowski 1989, 121), as well as of Nemesis (Kopaliński 1990, 443). Interestingly the name of the latter is associated with the word *nemein* (to assign), and also it can be considered as synonymous of the word *moira* (Krokiewicz 2000, 136). The balance was also used by Zeus. According to Homer, the outcome of the battle between the Achaeans and the Trojans depended on the result of the weighing as executed by Zeus:

(...) the Father lifted on high his golden scales, and set therein two fates of grievous death, one for the horse-taming Trojans, and one for the brazen-coated Achaeans; then he grasped the balance by the midst and raised it, and down sank the day of doom of the Achaeans.
Homer, Illiad 8.70-75

In a similar manner, the fates of individuals were weighed:

(…) the Father lifted on high his golden scales, and set therein two fates of grievous death, one for Achilles, and one for horse-taming Hector; then he grasped the balance by the midst and raised it; and down sank the day of doom of Hector, and departed unto Hades; and Phoebus Apollo left him.
Homer, Illiad 22.210-215

In ancient Israel, a comparable idea existed:

If I have walked with vanity, or if my foot hath hasted to deceit; Let me be weighed in an even balance, that God may know mine integrity.
Job. 31.5-6

According to the religion of the ancient Egyptians, after death Osiris weighed human hearts, while in Iranian Zoroastrianism gods weighed human deeds (Kopaliński 1990, 443).

The representation of the scales as an instrument by means of which human destiny was determined was common in the Mediterranean area. It also seems that human life was generally described using metrological categories. This is indicated by the famous phrase: '*mene, tekel, peres*' (counted, weighed, and divided), known from the biblical Book of Daniel (5.25-30), written by a disembodied hand on the wall of the palace of the Babylonian ruler Belshazzar (Bartoszewski 2004). It announced his final downfall. The whole world worked according to metrological rules:

(…) but thou hast ordered all things in measure and number and weight.
Wis. 11.20

It is not clear whether the metaphors of the weighed human were accepted by Hallstatt people. There is no evidence to suggest such an acceptance. During this period, however, the first scales appeared (Rahmstorf and Pare 2007, 278-279, Figs. 6:1-3), and the earliest weights date back to the Late Bronze Age (Rahmstorf and Pare 2007, 275-277).

CHAPTER II

The La Tène Period

Thrice to thine, and thrice to mine,
And thrice againe, to make vp nine.
Peace, the Charme's wound vp.

William Shakespeare, Macbeth, 1.3

1. Paradigms of the La Tène style

The shape of the heaven is of necessity spherical; for that is the shape most appropriate to its substance and also by nature primary.
Aristotle, On the Heavens, II.4.286b

The La Tène culture originated in areas of today's south-west Germany and eastern France and was based on the Hallstatt culture. The adoption of a new design for material culture products was accompanied by the abandonment of fortified settlements, and the transformation of burial rites and social structures. The population became more mobile, militarised and egalitarian (Arnold 1999, 50-52; Cunliffe 2003, 81-86, 322). The causes and course of this process have not been fully explained (Dietler 1999). It has been suggested that the collapse of the Hallstatt cultural system was the result of the interruption of trade links with the Mediterranean circle. This was induced by political changes in northern Italy (Frankenstein and Rowlands 1978; Rowlands and Frankenstein 1998, 368-371; Brun 1999). The lack of exchange and the decline in the inflow of imports undermined the position of the elites, who had used them to legitimise their position. The consequence of these events was that peripheral groups from the North gained control over the central parts of the Hallstatt culture (Kristiansen 1998, 292-295; Cunliffe 2011, 202-205, Maps 6.3 & 6.4). According to this concept, early La Tène style was fashioned in the peripheral zone of the Hallstatt culture (Kristiansen 1998, 294-295).

In general, La Tène culture is identified with Celtic tribes (Rieckhoff 2012, 26-36). However, it should be emphasised that some of them did not accept this model of culture. In the Iberian Peninsula only a few such elements appeared amongst the Celtiberian peoples (Cunliffe 2003, 166-177). Similarly, in Cisalpine Gaul to the south of the Alps, it was not accepted by some tribes who spoke Celtic dialects (Cunliffe 2003, 34-35, 89-90). On the British Isles La Tène culture and art was accepted only partially and not in all areas (Harding 2007, 140-188). Bearing in mind these reservations, it is assumed, however, that La Tène culture was a product of the Celtic people.

The rate and extent of cultural transformation led P. Jacobsthal to the conclusion that 'Early Celtic art has no genesis' (1944, 158). It is impossible to identify any evolutionary processes which led to the transformation of Hallstatt art into La Tène art. The change was sudden and profound, and La Tène art almost immediately appeared in a developed form. Italy (Etruscan) and Greece are most often regarded as sources of inspiration. This primarily concerns the so-called orientalising style, also known as animal style (Jacobstahl 1944, 155-157; Bouzek 1997, 253; Harding 2007, 58-63). A large number of the applied decorative motifs used in La Tène culture have such origins. They were, however, very specifically treated by the Celtic population, which gave them a completely different character. Elements of the orientalising style had appeared already in the Hallstatt period. They were prestigious objects, jewellery - bracelets, necklaces, etc. and were often imports. Such artefacts were recorded both in the western (Megaw 1970, 23-24) and in the eastern zone of the Hallstatt culture (Bouzek 2011, 86-101). Their appearance indicates that both Hallstatt decoration and ideology ceased to be attractive. This means that the process of system disintegration had already begun. It seems that this was a period of searching both for ideology and for reflecting its means of expression. The orientalising style itself appeared in Classical Greece, then amongst the Etruscans under inspiration from the areas of the Middle East: Syria, Assyria, Urartu, Phoenicia and Egypt (Bouzek 1997, 241). In these areas J. Bouzek distinguishes the *koine* of orientalising ornaments, which replaced the earlier *koine* of geometric ornaments (Bouzek 1997, 241-243). The situlae art that developed in areas of the east Alps was a periphery of the *koine* of orientalising styles (Bouzek 1997, 241-243). Scythian and Thracian art are candidates as a second source of inspiration, and so too is Persian art. The impact was perceptible mainly in goldsmiths' production (Jacobstahl 1944, 156; Megaw 2005).

It seems that an important but underestimated factor contributing to the creation of the period's art was the impact from areas of the Basarab culture. Within it, typical Hallstatt ornamentation coexists with curvilinear elements (Fig. 31). During the Hallstatt B3 – the Hallstatt D1 periods, decoration using the letter S motif appeared. Triskelions and spirals are also represented (Vulpe 1965, Figs. 1, 2, 4 & 9, 1986, Figs. 1: 17, 2: 21-25, 4: 14-15, 9, 12, 13 & 14). Such decoration later became very characteristic of La Tène culture (Jackobsthal 1944, 60-79, Pl. 270: 287-289 & 271: 296-297; Megaw 1972, 282, Fig. 15: 3; Maier 1990, 149, 161-164, Figs. 10-14 & 18). An important feature of this type of decoration is its geographical range, covering almost the entire Carpathian Basin (Vulpe 1965, Fig. 11, 1986, Fig. 19; Eibner 2001, Map 1) reaching far beyond the Basarab culture (Vulpe 1986, 69). It seems that their dispersion may be associated not with the expansion of specific groups, but with the values carried by them. It cannot be ruled out that the developing La Tène style adopted some of the motifs typical of the Basarab culture, perhaps along with the accompanying ideology. Therefore, it seems that this phenomenon was simply a continuation of the already commenced process of the dispersion of the new style. It is worth noting that elements of the Basarab culture

appeared in late Hallstatt assemblages (Metzner-Nebelsick 1992; Eibner 2001, 184). This also applies to the Silesian group of the Lusatian culture within which were noted imports in the form of vessels decorated with spiral patterns (Gediga 2010b, 437, Fig. 11). In addition, the triskelion motif was used in the decoration of vessels, which was perhaps acquired from this culture. It is worth noting that this was the only culture associated with the Hallstatt culture, where such motifs occurred.

In the early La Tène period a sudden abandonment of the majority of paradigms that were typical of the Hallstatt period art occurred. Firstly, the modular paradigm was abandoned and geometric motifs ceased to be used, both the rectangular and triangular ones. Circles and spheres, which can be frequently multiplied, became the predominant decorative motifs (Fig. 32: A-C). The circles were of various kinds of engraved or openwork patterns, often drawn by a compass (Fig. 32: D, E; 33, 38: H). Nonetheless, certain irregularities were found that excluded the use of this instrument in some cases (Jacobsthal 1944, 81; Lenertz-De Wilde 1977, 20, Table 7: 1A). This indicates, however, that the craftsman used circles deliberately at the design stage – he perceived and described space in this manner. Hence, the result did not depend on the applied technique – there were previously designed compositions. Representations of humans or animals were also composed using discs, circles and ellipses, which is especially perceptible in the manner referred to as Disney or Mickey Mouse style (Megaw 1966, 124, 1970b) (Fig. 34: C-E). Multiple spheres or hemispheres constituted very common elements of attire – bracelets, anklets and torcs (Fig. 35). On bronze belts (Fig. 36: A) individual links were comprised of varied circles (Filip 1956, 169-173). This clearly distinguishes them from such objects in the Hallstatt period, which had rectangular forms.

Representations of circular movement are another dominate element in La Tène art. They are various types of spirals, triskelions and overlapping, succeeding circles (Fig. 32: B; 35: A, B). The wavy lines that were frequently used may also be a specific form of expression of circular movement.

Figural representations are also characterised by a specific selection of motifs. On anthropomorphic representations representations of the head are the dominant element (Jacobsthal 1944, 12) (Fig. 36: B; 37: A). Very often large 'bulging' eyes are clearly highlighted (Jacobsthal 1944, 13) (Fig. 36: C, D). An example of this is the sculpture of a human head from Meščké Žehrovice in the Czech Republic (Waldhauser 2001, 345-346 – therein further references) (Fig. 37: B). All the marked elements are a combination of spheres, circles and semicircles. The head itself has a spherical form, of course, The mouth is depicted as a semicircle with downward facing ends. Above them a semicircular moustache completed with spirals was placed. The eyes are presented as hemispheres. Above them are semicircular eyebrows also completed with spirals. The hair on the head is a semicircular tonsure from one ear to the other. The individual strands are marked as overlapping succeeding semicircles. In addition, the ears are presented as semicircles with the ends bent to the inside. The torc adorning the neck is again a circle.

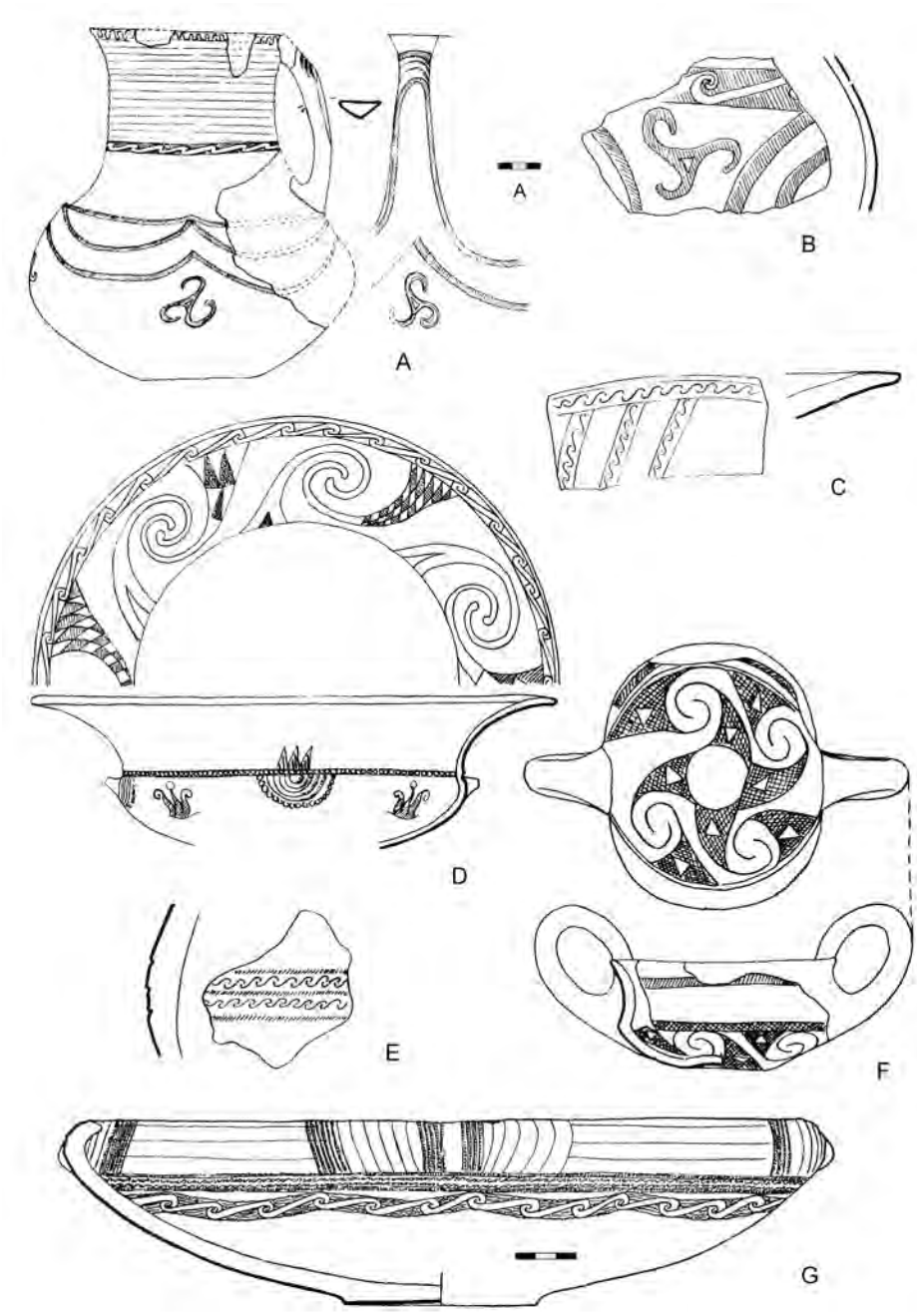


Fig. 31. Pottery of the Basarab culture. A – Popești 'Nucet', Romania; B – Popești 'Novaci', Romania; C – Židovar, Serbia; D – Blejești, Romania; E – Bădeni, Romania; F – Conțești, Romania; G – Poiana, Romania. After A. Vulpe 1986, Figs. 4: 2, 15; 9: 6; 12: 1; 13: 12; 14: 4 & 5.

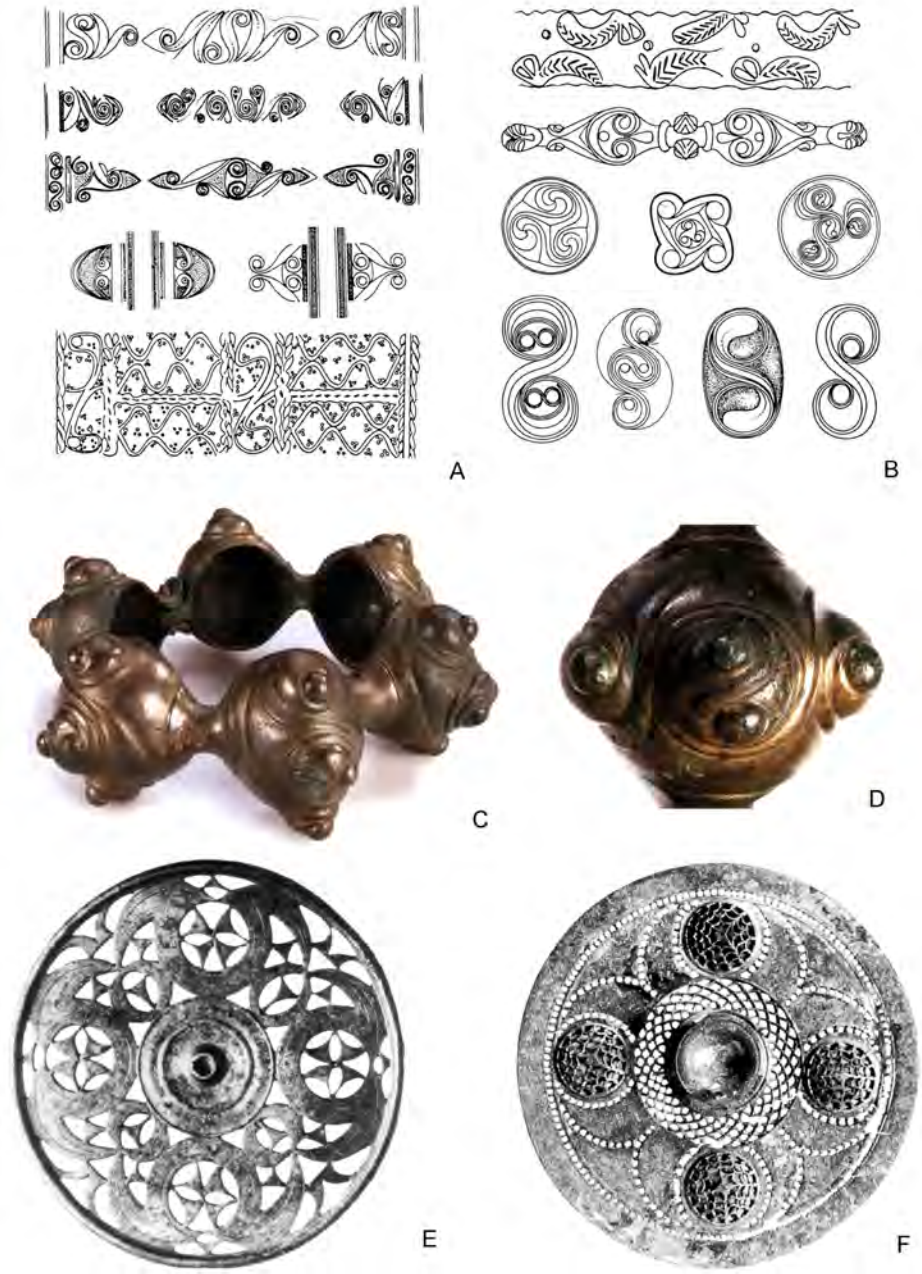


Fig. 32. La Tène ornaments: A – floral style; B – plastic style; C-D greave, plastic style, the Czech Republic; E – Somme-Bionne, ‚L'Homme Mort', Marne, a bronze disc from a chariot grave. Diameter 69 mm; F – Cuperly, ‚Le Grammonerie', Marne. Coll. Fourdrignier, a bronze disc from a chariot grave. Diameter 108 mm. A-D after N. Venclová et al. 2008a, Fig. 46. Tables 3, 4; E-F after R. Megaw and V. Megaw 2011, Figs. 5 & 6.

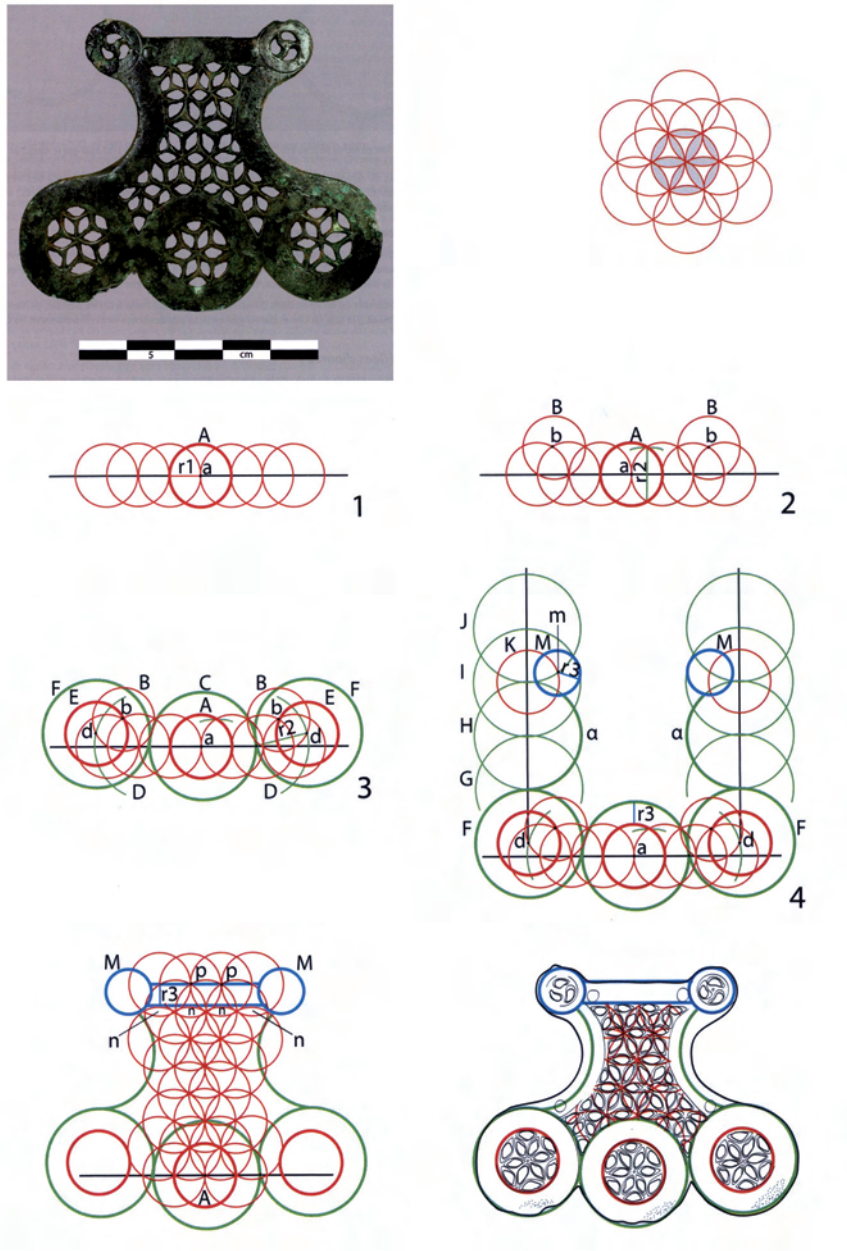


Fig. 33. Bronze phalera – layout of ornaments. Léglise-Gohimont, Belgium. After A. Cahen-Delhaye and V. Hurt 2013, Figs. 80 & 81.

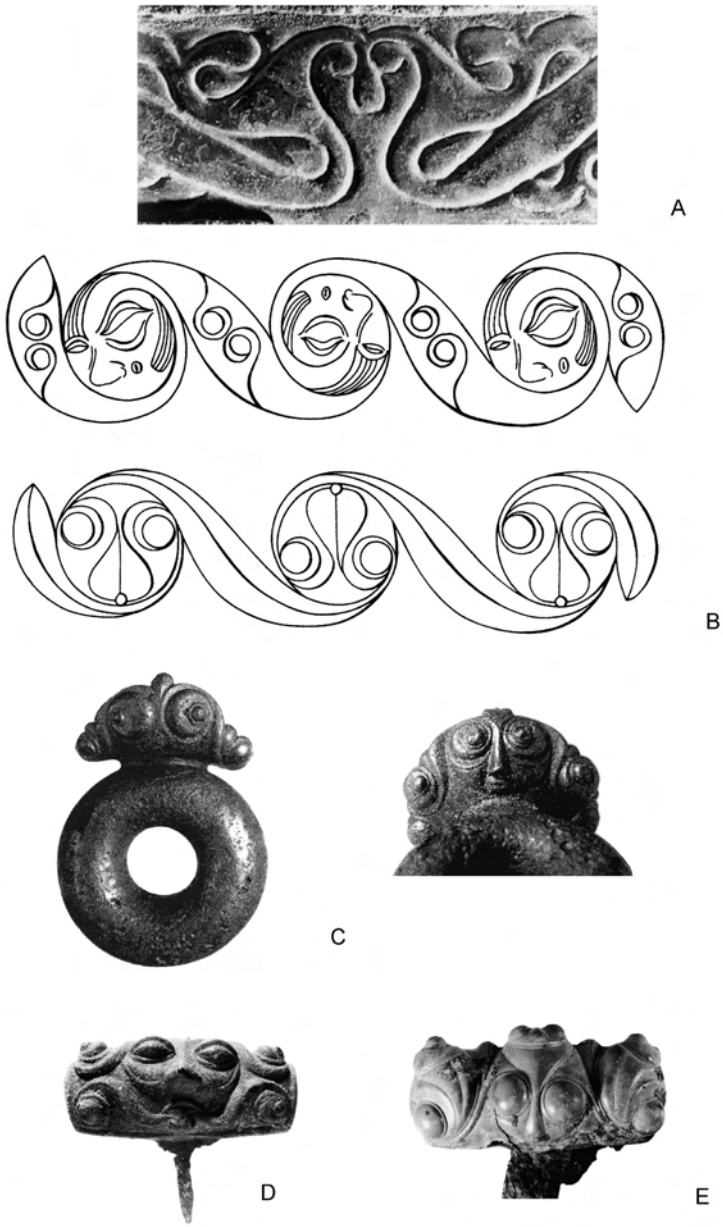


Fig. 34. A – Filottrano, Santa Paolina, grave 22, detail of a bronze sword scabbard; B – ornaments of horse gear from Northern France, 'Cheshire Cat style'; C – Mezek, Bulgaria; D – Paris, head of bronze lynch pin covered with iron; E – ‚La Fosse Cotheret' Roissy, Val-d'Oise, head of a bronze covered lynch pin from one of two chariot graves. A after R. Megaw and V. Megaw 2011, Fig. 12; B after B. Cunliffe 2003, Fig. 63; C after B. Cunliffe 2003, Fig. 101; D after R. Megaw and V. Megaw 2011, Fig. 16; E after R. Megaw and V. Megaw 2011, Fig. 17. Scale: A – length (of detail) c. 75 mm, D – Width 85 mm, E – Width 65 mm.

Fig. 35. A – Mistřín, Moravia, the Czech Republic; B – Bölcske, Hungary; C – Głowin, Wrocław district, Poland; D, F – Mokronos Górny, Wrocław district, Poland; E – Krzepice, Strzelin district, Poland; G – Kalinowa, Oława district, Poland; H - Żerniki Wielkie, Wrocław district, Poland. Scale: D and F, c. 1:2; C, E, G and H c. 1:3. A and B after J. Filip 1956, Fig. 32; C after W. Hoffmann 1940, Fig. 28: 5; D-H after M. Jahn 1931, Figs. 26-29, Table 4: 6 & 7.

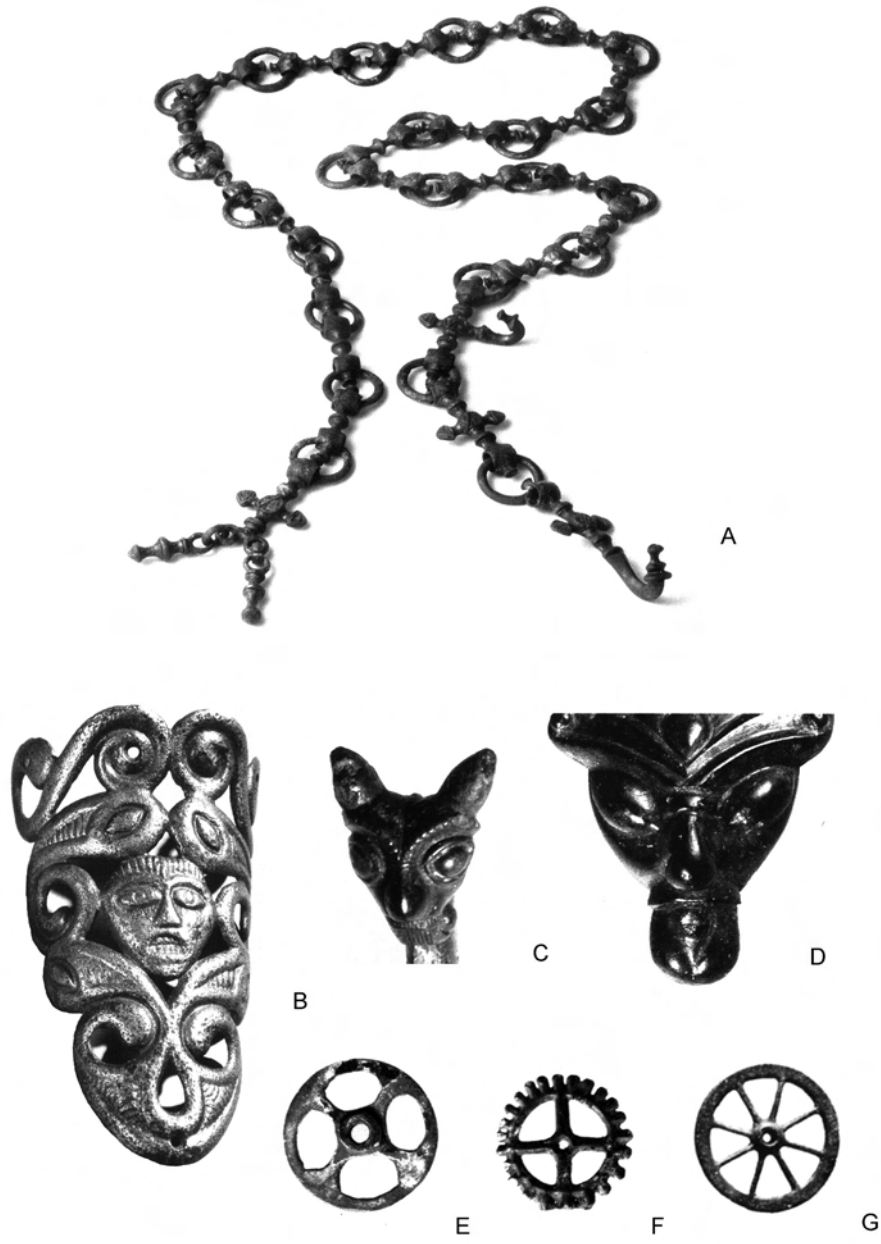


Fig. 36. A – Telce, the Czech Republic, bronze belt; B – Čížkovice, the Czech Republic; C – Chýnov, the Czech Republic, brooch – detail; D – Želkowice, the Czech Republic, brooch – detail; E, F, G – Stradonice, the Czech Republic, bronze wheels, A, E and F after N. Venclová et al. 2008a, Table 13: 1, 4; B and D after N. Venclová et al. 2008b, Table 15: 1, 5, 7; G after J. Filip 1995, Table XXXV.

Fig. 37. A – Hořovičky o. Rakovník, the Czech Republic. Phalera decorated with representations of human heads; B – Mešcké Žehrovice, the Czech Republic, sculpture of a human head (23.4 cm h) A is a face photograph; B is a profile photograph (haircut). A after R. Pleiner (ed.), 1978, Table 65; B after A. Venclová et al. 2008a, Table 10: 1-2.

Representations of people and animals in La Tène art are also characterised by a specific approach to the subject. There are sometimes presented only as selected elements (Fig. 34: A, B) – not the complete form (Jacobsthal 1944, 19) and the seen image depends on the way it is viewed (Megaw 1970b, 271-272, Fig. 4). Therefore, such representations are clearly hermetic. It seems that they were directed only at those who had the appropriate knowledge to understand them.

An important feature of La Tène art is also the specific choice of material. Pottery ceased to be an important carrier of meanings, and it was no longer richly decorated. An exception to this rule is only the temporally and spatially limited finds from northern Gaul (Cunliffe 2003, 162-164, Figs. 61 & 79). Metal objects were favoured and became richly decorated. Mostly they were elements of attire – bracelets, torcs, brooches, etc. They were mostly made of bronze, while in the case of prestigious object, of silver or gold. It is evident, however, that iron was rarely used for this purpose. Therefore, the choice of material was probably completely deliberate. Weapons too became an important carrier of meanings (Fig. 38).

Ancient descriptions of Celtic religion and ideology were used in the search for meanings expressed by the aforementioned paradigms. They are usually the laconic and biased remarks of Greek and Roman authors. Therefore, they are not always completely reliable. However, information tended to be repeated many times by various authors, in completely different contexts. Hence, it seems that for foreign observers this repeated information were the most characteristic and typical of the Celtic population. The mention of a belief in an immortal soul (Piggot 2000, 113-115; Bartnik 2008) is probably the most common one, usually in a context suggesting reincarnation. Significant examples are records of Diodorus and Caesar:

(...) the belief of Pythagoras prevails among them, that the souls of men are immortal and that after a prescribed number of years they commence upon a new life, the soul entering into another body.
Diodori, Bibliotheca Historic*a,* V.28.5

They wish to inculcate this as one of their leading tenets, that souls do not become extinct, but pass after death from one body to another, and they think that men by this tenet are in a great degree excited to valour, the fear of death being disregarded. They likewise discuss and impart to the youth many things respecting the stars and their motion, respecting the extent of the world and of our earth, respecting the nature of things, respecting the power and the majesty of the immortal gods.
Gaius Julius Caesar, Commentari de bello Gallico, VI.14

The adoption of the concept of the immortal soul had to have fundamentally influenced the perception of the world by Celtic people. It was probably one of the basic elements that underpinned the ideological structure of this population. As such, it had to have left its mark on the entire culture. Therefore, there is

the question as to how it affected visual expression. Due to the absence of such information concerning the Celtic population, the descriptions of the soul created in the Mediterranean were used. Firstly, they are a reflection of Greek philosophers. These sources indicate that the soul was most often perceived as a sphere in a circular movement in Classical Greece:

Democritus has expressed himself more ingeniously than the rest on the grounds for ascribing each of these two characters to soul; soul and mind are, he says, one and the same thing, and this thing must be one of the primary and indivisible bodies, and its power of originatingmovement must be due to its fineness of grain and the shape of its atoms; he says that of all the shapes ***the spherical*** *is the most mobile, and that this is the shape of the particles of fire and mind.*
Aristotle, On the Soul, 405a

The soul was perceived as a principle governing the world:

(…) soul; he says that it is immortal because it resembles, the immortals,' and that this immortality belongs to it in virtue of its ceaseless movement; for all the 'things divine', moon, sun, the planets, and the whole heavens, are in perpetual movement.
Aristotle, On the Soul, I.II

The activity of God is immortality, i.e. eternal life. Therefore the movement of that which is divine must be eternal. But such is the heaven, viz. a divine body, and for that reason to it is given the circular body whose nature it is to move always in a circle.
Aristotle, On the Heavens, II.3.286a

The shape of the heaven is of necessity spherical; for that is the shape most appropriate to its substance and also by nature primary.
Aristotle, On the Heavens, II.4.286b

Again, if by complete, as previously defined, we mean a thing outside which no part of itself can be found, and if addition is always possible to the straight line but never to the circular, clearly the line which embraces the circle is complete. If then the complete is prior to the incomplete, it follows on this ground also that the circle is primary among figures. And the sphere holds the same position among solids.
Aristotle, On the Heavens, II.4286b

Alcmaeon also seems to have held a similar view about soul; he says that it is immortal because it resembles 'the immortals', and that this immortality belongs to it in virtue of its ceaseless movement; for all the 'things divine', moon, sun, the planets, and the whole heavens, are in perpetual movement.
Aristotle, On the Soul, 405b

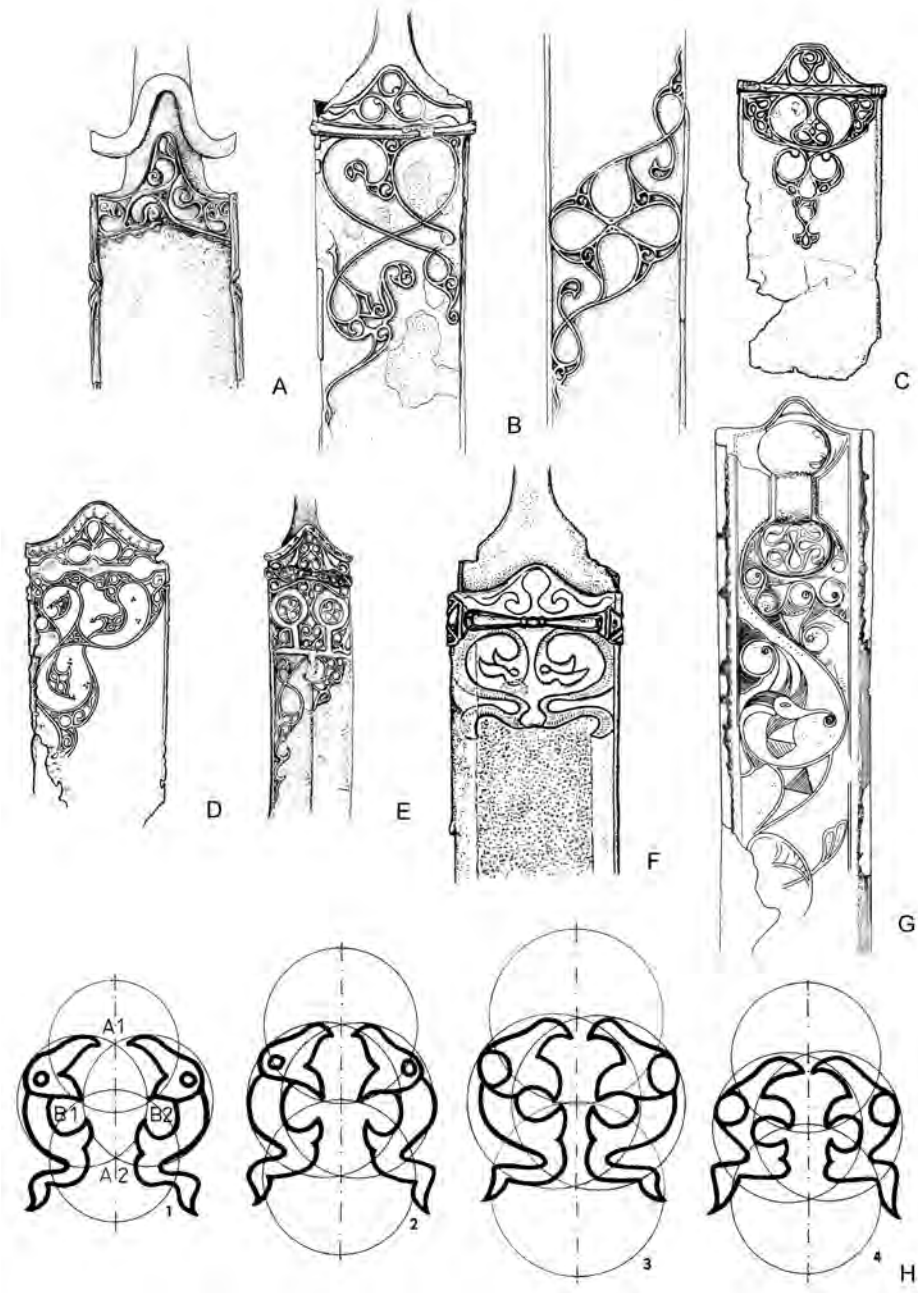


Fig. 38. La Tène decorated scabbards. A – Dobova, Slovenia; B – Szob, Hungary; C – Bölcske-Madocsahegy 2, Hungary; D – Bölcske-Madocsahegy 2, Hungary; E – Brežice, Slovenia; F – Bonyhádvarasad, Hungary; G – Ceron-sur-Coole (Marne), France; H – Dubník, Slovakia. Reconstruction of the method of designing decorations on sword scabbards. A-G after M. Szabó and É. F. Petres 1992, Tables 6, 7, 8, 65, 102: 1 & 114, Fig. 23; H after J. Bujna 1991, Fig. 3.

The soul determined the whole structure of reality, thus descriptions of soul of the world appear:

There is something which is eternally moved with an unceasing motion, and that circular motion. This is evident not merely in theory, but in fact. Therefore the 'ultimate heaven' must be eternal. Then there is also something which moves it. And since that which is moved while it moves is intermediate, there is something which moves without being moved; something eternal which is both substance and actuality. Now it moves in the following manner. The object of desire and the object of thought move without being moved. The primary objects of desire and thought are the same.
Aristotle, Methaphisics, XII.1072a

Wherefore he resolved to have a moving image of eternity, and when he set in order the heaven, he made this image eternal but moving according to number, while eternity itself rests in unity; and this image we call time.
Plato, Timaeus, 37d

But when seven days had elapsed for each group in the meadow, they were required to rise up on the eighth and journey on, and they came in four days to a spot whence they discerned, extended from above throughout the heaven and the earth, a straight light like a pillar, most nearly resembling the rainbow, but brighter and purer. To this they came after going forward a day's journey, and they saw there at the middle of the light the extremities of its fastenings stretched from heaven; for this light was the girdle of the heavens like the undergirders of triremes, holding together in like manner the entire revolving vault. And from the extremities was stretched the spindle of Necessity, through which all the orbits turned. Its staff and its hook were made of adamant, and the whorl of these and other kinds was commingled. And the nature of the whorl was this: Its shape was that of those in our world, but from his description we must conceive it to be as if in one great whorl, hollow and scooped out, there lay enclosed, right through, another like it but smaller, fitting into it as boxes that fit into one another and in like manner another, a third, and a fourth, and four others, for there were eight of the whorls in all, lying within one another, showing their rims as circles from above and forming the continuous back of a single whorl about the shaft, which was driven home through the middle of the eighth. Now the first and outmost whorl had the broadest circular rim, that of the sixth was second, and third was that of the fourth, and fourth was that of the eighth, fifth that of the seventh, sixth that of the fifth, seventh that of the third, eighth that of the second; and that of the greatest was spangled, that of the seventh brightest, that of the eighth took its colour from the seventh, which shone upon it. The colours of the second and fifth were like one another and more yellow than the two former. The third had the whitest colour, and the fourth was of a slightly ruddy hue; the sixth was second in whiteness. The staff turned as a whole in a circle with the same movement, but within the whole as it revolved the seven inner circles revolved gently in the opposite direction to the whole,

and of these seven the eighth moved most swiftly, and next and together with one another the seventh, sixth and fifth; and third in swiftness, as it appeared to them, moved the fourth with returns upon itself, and fourth the third and fifth the second.
Plato, Republica, 616c

Therefore, movements of celestial bodies reflected the structure of the soul of the world. A confirmation of this view of reality by the Celts is Caesar's information on astronomical observations made by Druids (Commentari de Bello Gallico, VI.14).
Very similar information was also provided by Pomponius Mela:

(...), the Druids. These men claim to know the size and shape of the earth and of the universe, the movements of the sky and of the stars, and what the gods intend.
Pomponius Mela, De Chorographia, 3.18-19

The fact that this knowledge was very advanced is testified, in turn, by the finds of calendars from Coligny and Villards d'Héria (Steinrücken 2013, 33-41).

The order of the world was also determined numerically:

After compounding the soul-substance out of the elements and dividing it in accordance with the harmonic numbers, in order that it may possess a connate sensibility for 'harmony' and that the whole may move in movements well attuned, the Demiurge bent the straight line into a circle; this single circle he divided into two circles united at two common points; one of these he subdivided into seven circles. All this implies that the movements of the soul are identified with the local movements of the heavens.
Aristotle, On the soul, I.3.406b

Harmonic numbers are understood as multiples of the numbers two and three (Siwek 1988, footnote 117) in two sequences known as the Pythagorean lambda:

1
2 3
4 9
8 27

It was intended to describe the numerical proportions of the whole universe (Ghyka 2006, 32-33). Probably such relations were also known amongst the Celts. It is indicated by findings concerning the means of manufacturing decorations. The openwork phalera from Cuperly (Marne) (Fig. 32: F) constituting a wagon fitting was decorated with a certain number of circles: the central part was created of 27, while the outer one was divided into 8 parts. These numbers correspond to the Pythagorean lambda (Bacault and Flouest 2003, 153, 165-167, Figs. 10 & 18).

It is also worth noting that the system of producing the decorations themselves by using a compass also had its prototypes in Greek and Etruscan art (Lenerz-de Wilde 1977, 63-82), and such techniques are known too from ancient written sources (Lenertz-de Wilde 1977, 16).

Moreover, the motif of a wheel with spokes frequently appears in La Tène art (Fig. 36: E-G), often in a context associated with the cult and ideology. Small wheels made of bronze or other materials are known (Čižmárová 2004, 50). A wheel with spokes is also an attribute of a deity known as Celtic Jupiter (Eliade 1994a, 97). It is worth noting that in Celtic languages one word means wheel, time and the annual cycle (Eliade 1994a, 97). The strong, positive valorisation of the compass is also very significant. In medieval Irish mythology this object was seen as a gift of the gods (Sandras 1968, 276-277). It seems that such a valuation resulted from the belief that the instrument was used to describe the structure of the world; it allowed one to understand and follow it.

Therefore, it seems that basic paradigms of the La Tène art, namely, the representations of spheres, circles and circular movement resulted from a manner of perceiving the world, the basic principle of which was specifically understood as the soul. As in the case of the Hallstatt period, artistic representations reflected a method of seeing and understanding the world by showing its internal structure. A characteristic feature of La Tène art is the repeatability of representations of three elements (decorative motifs) (Fig. 39: B). This feature occurred from the beginning to the end of the La Tène period, and is visible in the decoration of weapons, parts of dress and everyday objects. There have already been attempts (Maier 2004, 381-395; Pinsker 2008, 51-82) to explain them by looking for inspiration in Greek philosophy:

Beyond these there is no other magnitude, because the three dimensions are all that there are, and that which is divisible in three directions is divisible in all. For, as the Pythagoreans say, the world and all that is in it is determined by the number three, since beginning and middle and end give the number of an 'all', and the number they give is the triad. And so, having taken these three from nature as (so to speak) laws of it, we make further use of the number three in the worship of the Gods (...).
Therefore, since 'every' and 'all' and 'complete' do not differ from one another in respect of form, but only, if at all, in their matter and in that to which they are applied, body alone among magnitudes can be complete. For it alone is determined by the three dimensions,that is, is an 'all'.
Aristotle, On the Heavens, I.1.268A

Apart from perfection, the number three also describes the soul: In the beginning of this tale I divided each soul into three parts, two of which had the form of horses, the third that of a charioteer.
Plato, Phaedrus, 253cd

Fig. 39. A – Mirror, Desborough, Great Britain; B – Staňkowice, the Czech Republic.
A after S. Piggott 2000, Fig. 20, B after P. Drda, A. Rybova 1998, p. 99, Fig. 5.

It was also the basic principle of describing the structure of the construction of the entire universe.

But two things cannot be rightly put together without a third; there must be some bond of union between them.
Plato, Timaeus, 31bc.

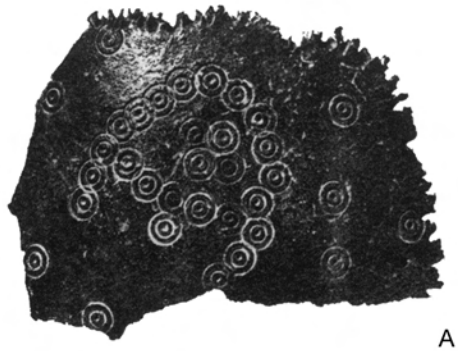
Hence, most likely the frequent presence of the three elements also resulted from the manner of perceiving the world. Perfection and the soul was perceived in this way. It also appears that there was no contradiction between the two meanings.

It appears that the approach to presenting the human figure in La Tène culture resulted from a new perception of the human being. The change was also related to the impact from the Mediterranean. As already mentioned, in Classical Greece one term for the body appeared (Snell 1953, 5-8). It ceased to be only a collection of individual components (modules) - it consisted of a whole. Its parts, however, began to be estimated:

First, then, the gods, imitating the spherical shape of the universe, enclosed the two divine courses in a spherical body, that, namely, which we now term the head, being the most divine part of us and the lord of all that is in us: to this the gods, when they put together the body, gave all the other members to be servants, considering that it partook of every sort of motion.
Plato, Timaeus, 44de

It is also worth mentioning a myth of Thracian origins concerning the head of Orpheus, despite it being cut off from the body, still could sing and prophesy (Grummond de 2011). It was commonly known in Greece and amongst the Etruscans too.

It seems that the human body was viewed in similar fashion too amongst the Celts. It resulted in a specific cult and the presence of headhunters (Haffner 1995, 19-20, Fig. 7), which was referred to on many occasions by ancient historians (Diodorus Siculus, Bibliotheca Historica, 5.29.4-5, 14.115.5; Strabo, Geography, IV.5). Archaeological evidence of such practices is the temples from south Gaul known as the so-called chapels of skulls (Lescure 1995, 75-84; Piggott 2000, 51-51, Figs. 24 & 25; Armit 2012, 69-163) (Fig. 40: C). In the area occupied by La Tène people, numerous finds of deposits of human heads and amulets made from human skulls are also known (Waldhauser 2001, 92-93; Armit 2012, 4-5) (Fig. 40: A, B). It seems that this specific valorisation of the head resulted in the abundant presence of human head motifs in La Tène art (Jacobsthal 1944, 12-13). In this context the manner of the construction of human and animal representations should also be noted, especially those in the aforementioned Disney style. The head and eyes are sets of interpenetrating circles and ellipses varying in size. It can be assumed that these circles represented the internal structure of the presented figures – they are representations of the soul's circular movement.



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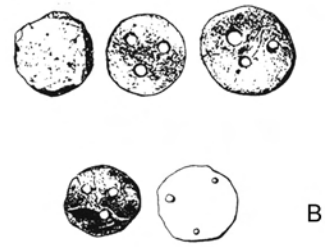

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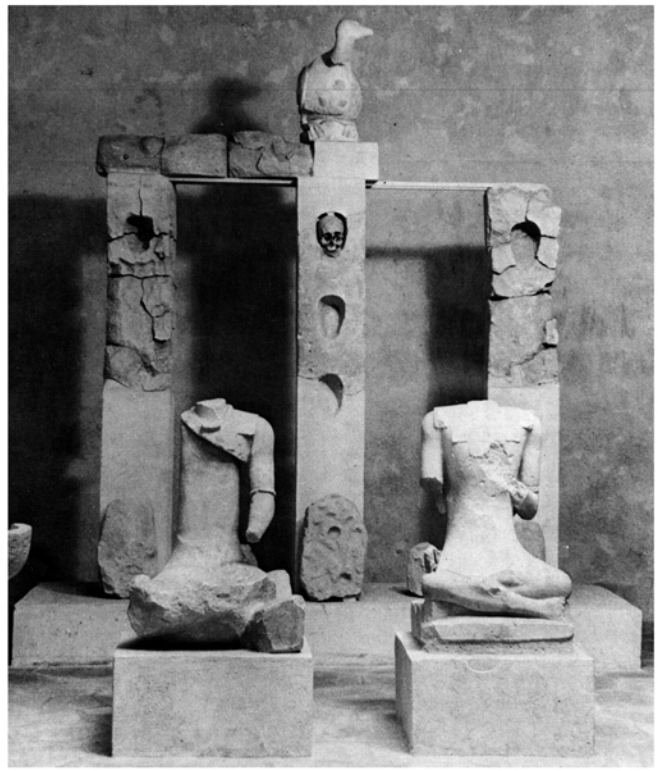

C

Fig. 40. A – Stradonice 1, the Czech Republic, fragment of a skull with engraved concentric circles; B – the Czech Republic, various sites, amulets? in the form of discs made of human skulls; C – Roquepertuse, Bouches-du-Rohne, France, the so-called chapel of skulls. A and B after J. Waldhauser 2001, p. 93; C after S. Piggott 2000, Fig. 24.

Other elements of anthropomorphic representations are most likely related with the change in the concept of the human being. In Classical Greece vocabulary describing the action of seeing emerged. Earlier, in Homer's language, only terms describing the way of looking existed (Snell 1953, 1-5). This change was also associated with a specific valuation of the eyes:

*And **of the organs they first contrived the eyes** to give light, and the principle according to which they were inserted was as follows: So much of fire as would not burn, but gave a gentle light, they formed into a substance akin to the light of every-day life; and the pure fire which is within us and related thereto they made to flow through the eyes in a stream smooth and dense, compressing the whole eye, and especially the centre part, so that it kept out everything of a coarser nature, and allowed to pass only this pure element.*
Plato, Timaeus, 45bc

It seems that for a similar reason the visual art of the La Tène culture was characterised by a strong emphasis on the eyes, which gave them their distinctive 'bulging' shape. It seems that this phenomenon also indicates a change in awareness of the human body. In Greece, the valuation of eyes was also linked to a specific conceptualisation of the process of seeing:

Socrates: And what are the objects in looking at which we see ourselves?
Alcibiades: Clearly, Socrates, in looking at mirrors and the like.
Socrates: Very true; and is there not something of the nature of a mirror in our own eyes?
Alcibiades: Certainly.
Socrates: Did you ever observe that the face of the person looking into the eye of another is reflected as in a mirror; and in the visual organ which is over against him, and which is called the pupil, there is a sort of image of the person looking?
Alcibiades: That is quite true.
Socrates: Then the eye, looking at another eye, and at that in the eye which is most perfect, and which is the instrument of vision, will there see itself?
Alcibiades: That is evident.
Plato, Alcibiades, I.132E-133A

A strong valorisation of mirrors in the La Tène culture suggests a similar understanding of the process of seeing and optical phenomena. Such artefacts, known from the British Isles, are dated to the turn of eras. Typically, they were usually decorated by numerous circles and spirals (Megaw and Megaw 2005, 40-46, Figs. 34-39; Harding 2007, 159-163, Figs. 7: 7 & 7: 8; Joy 2008) (Fig. 39: A). It seems that in this way the relationship between the reflection of the soul was emphasised.

Other patterns that are characteristic of the La Tène period are ornaments and floral motifs. Initially, in the early style and in the Waldalgesheim style, they were elements adopted from the Mediterranean animal style. They are primarily motifs of palmette, lotus leaf, etc. (Jacobsthal 1944, 83-95). Very quickly, however, they transformed and the so-called fish bladder motif began to dominate (Jacobsthal 1994, 83-95). These are also known as comma-leaves (Megaw and Megaw 1989, 70, 102-104), which is identified with the representation of the mistletoe leaf (Hatt 1980, 59-60; Aldhouse-Green 2004, 30-31) (Fig. 41: A). The aforementioned floral motifs from the Mediterranean were also fashioned into such a form. On the importance of mistletoe, there is no accurate data in the works of ancient writers. The fact that it was unique is confirmed only by Pliny the Elder:

Upon this occasion we must not omit to mention the admiration that is lavished upon this plant by the Gauls. The Druids − for that is the name they give to their magicians – held nothing more sacred than the mistletoe and the tree that bears it, supposing always that tree to be the robur. (…). It is the belief with them that the mistletoe, taken in drink, will ***impart fecundity*** *to all animals that are barren, and that it is an antidote for all poisons.*
Gaius Plinius Secundus, Naturalis historia, XVI.95

Additional information on the value of mistletoe is ethnographic data from the British Isles and continental Europe. Firstly, it is an evergreen plant. Therefore, it represents immortality (Kowalski P. 1998, 193), and thus one of the fundamental aspects of the soul. In addition, it was considered as a kind of soul of the oak tree, on which it grew (Frazer 1962, 513-514, 532-534). It may be possible that its numerous representations appeared for this reason. It is typical that its leaves were represented around human heads (Fig. 41: B, C); these are numerous and are known as the so-called crowns of leaves (Megaw 1970a, Figs. 48, 74, 78 & 118, Plate IIb). There are many such representations depicting headdresses made in this style (Frey and Herman 1997, 480, Figs. 18-20). Because the soul was supposed to be located in the head, the relationship seems clear. The confirmation of these assumptions may be patterns known from the aforementioned British mirrors. The circles almost smoothly transform into the fish bladder motifs, which are simply the representation of mistletoe leaves(Fig. 39: A). It might be also added that, besides triskelions (Navarro de, 1972, 245), they are a frequent pattern of decoration on swords' scabbards (Fig. 38: A-G). Such representations in the context of a tool for killing also suggest a connection with issues of eschatology.

Another feature of La Tène art is its hermetic nature. Figures are not presented in their entirety. Only selected elements – usually parts of the face or head were presented (Fig. 34. A, B). This is referred to as the Cheshire Cat style (Jacobsthal 1944, 19). It cannot be excluded that it is a visualisation of changes in the shape of later Irish heroes (Megaw and Megaw 2005, 11-12). Some products are known on which the image depends on the angle of the view. The appliqué

from Bad Durkheim (Rhineland-Pfaltz) when rotated by 90 degrees presents a completely different face (Megaw 1970b, 271-272, Fig. 4, 1970c, 511, Fig. 235). A plate constituting a part of a horse's harness from Semide, dep. Ardennes is in a similar vein. It presents waterfowl, and when rotated, a wolf's head (Ginoux 2012, 183-184, Figs. 4: A & B). A specific relationship between the foreground and the background has been noted many times. Their relationship and the change of angle may cause an illusionistic change of shape (Megaw and Megaw 2005, 21-22, 34, Fig. 26). For similar reasons various artistic representations enabled the recognition of different animals and faces of different people (Sandras 1968, 278, 280-282). The use of the optical illusion phenomenon was also observed in the case of La Tène coinage (Chimirri-Russell 2005; Andrałojć and Andrałojć 2014, 32-35). This kind of representation corresponds to verbal communication techniques used by the Celts:

As to the Gymnosophists and Druids we are told that they uttered their philosophy in riddles, bidding men to reverence the gods, to abstain from wrongdoing, and to practise courage.
Diogenes Laertios, I.6

The Gauls are terrifying in aspect and their voices are deep and altogether harsh; when they meet together ***they converse with few words and in riddles****, hinting darkly at things for the most part and using one word when they mean another, (…).*
Diodorus Siculus, Bibliotheca, V.31

The understanding of these representations, for example, riddles, can be also interpreted as a transfer of knowledge. To read these messages the recipient had to know their contents. Hence, they were not directed at everybody. This phenomenon also coincides with the esoteric nature of the doctrine of the Druids. Their teaching was secret (hence it emphasised memory and the oral transmission of knowledge) and, therefore, accessible only to the initiated (Eliade 1994a, 103). It may be also added that research on Eastern European folklore suggests that the most important issues related to the construction of the world were often presented in the form of riddles (Toporov 1971, 32-33; Vėlius 1989, 194-196, see also Rakowiecka-Asgari 2011). Specifically formulated riddles (*koans*) are also an important part of Buddhist teachings, especially in the Zen tradition (Scott and Doubleday 1995, 79-81, 170). These are obviously distant analogies, however, they show that such a technique of knowledge transfer can indeed play a very important role. It should be also remembered that the exchange of information in the form of a riddle functioned as well within ritual agons – it was a kind of competition. In this way the social hierarchy and interpersonal relationships were built. It seems that it might have been also important for the La Tène culture communities.

The new model of culture adopted at the beginning of the La Tène period is also linked to changes in behaviour. A typical element of the Celtic population at

that time was all kinds of migrations. This applied to both entire tribes and to individuals, for example, mercenaries (Cunliffe 2003, 12-13, 130-131). The process of education was associated with this change of place. Young people were sent to be reared by neighbours or relatives, and Druids undertook long journeys to gain knowledge (Karl 2010). Hence, most probably the La Tène population accepted new behavioural patterns in which mobility was set. It seems that the ideological inspiration came from Greece:

(…) every motion is a kind of change (…).
Aristotle, Mataphysics, XI.1068a

For the primary kind of change is locomotion and of locomotion circular locomotion (…). Such, then, is the first principle upon which depend the sensible universe and the world of nature. And its life is like the best which we temporarily enjoy. It must be in that state always (which for us is impossible), since its actuality is also pleasure. (And for this reason waking, sensation and thinking are most pleasant, and hopes and memories are pleasant because of them.)
Aristotle, Mataphysics, XII.1072b

And by reason of all these affections, the soul, when encased in a mortal body, now, as in the beginning, is at first without intelligence; but when the flood of growth and nutriment abates, and the courses of the soul, calming down, go their own way and become steadier as time goes on, then the several circles return to their natural form, and their revolutions are corrected, and they call the same and the other by their right names, and make the possessor of them to become a rational being.
Plato, Timaeus, 44b

Hence, the behavioural pattern resulted from an adopted parent paradigm on the soul as a fundamental principle ruling the whole universe. Its movement, i.e. the soul's rotation, and seeking the proper rhythm and place in the human body were prototypes of the behaviour of individuals and entire communities. This was expressed by, amongst others, numerous journeys. Social changes at the beginning of the La Tène period can be seen as the implementation of the movement paradigm. It is when the burial mounds of aristocrats ceased to be erected, instead from the La Tène B and C periods numerous graves of warriors have been recorded (Waldhauser 2001, 88-89). They probably became the dominant class, which was also suggested by Caesar (Commentari de Bello Gallico, VI.13). Hence, to some extent, the social structure became more egalitarian, and repeatable sets of artefacts have been found in graves that belonged to a privileged class (metal elements of attire and weapons) (Waldhauser 1987, 38-41, Fig. 5; Bujna 2005) (Fig. 42). Therefore, torcs, armlets and anklets indicated social status, especially during migration. They became a clear indicator of status in the absence of other permanent indicators. A similar phenomenon also occurred in the Roman Republic.

Gold and iron rings were protected by law as signs of social status (Gaius Plinius Secundus, Naturalis Historia, 33.8). It was important that these artefacts were circular in shape – and this was probably not a coincidence, as they constituted another representation of the soul, the wheel of time, etc. Torcs placed just below the head – the seat of the soul were evidently very important and there was probably an ideological relationship involved. The choice of material – bronze, and in the case of elite burials – gold was also deliberate. Objects made from these metals changed their shape during melting. This phenomenon could resemble a change of form, a characteristic of Irish gods (Megaw 1970c, 507-510). For males, apart from jewellery, an important element involved in building their identity and indicating social position was weaponry. Hence, helmets (Megaw 1970a, 88-90, Figs. 105-109 & 110), and especially sword scabbards were richly decorated (Navarro de 1972; Szabó & Petres 1992). In the case of the latter, it has been suggested that representations placed on them indicated the rank of a warrior and his belonging to a particular group of warriors (Harding 2007, 272), (Ginoux 2012, 187).

Movement and change also became patterns influencing social structure. Potlatch – i.e. the destruction, ostentatious consumption or the removal of goods from circulation (Mauss 2001, 165-255; Nowicka 2006, 294-295, 354-355) became an important element of the culture of Celtic communities. This phenomenon is typical of a population where social status is variable and individuals try to improve it (Mauss 2001, 192, footnote 79). The mechanism of distributing and consuming goods during feasts became the basis for the construction of social structure. It also forced warriors/leaders to undertake military expeditions, where the ruler gained these goods (Cunliffe 2003, 131-133, Fig. 45). There are also records about numerous valuable deposits:

And a peculiar and striking practice is found among the upper Celts, in connection with the sacred precincts of the gods; as for in the temples and precincts made consecrate in their land, a great amount of gold has been deposited as a dedication to the gods, and not a native of the country ever touches it because of religious scruple, although the Celts are an exceedingly covetous people.
Diodorus Siculus, Bibliotheka, V.27

This information is confirmed by numerous archaeological finds of hoards (Piggot 2000, 76-77; Čižmárová 2004, 49-51).

The question is how a new way of perceiving the world influenced the construction of social structure. Relations between them are confirmed by some reflections of Plato:

Socrates: Will he have enough of knowledge if he is acquainted only with the divine circle and sphere, and knows nothing of our human spheres and circles, but uses only divine circles and measures in the building of a house?
Protarchus: The knowledge which is only superhuman, Socrates, is ridiculous in man.
Plato, Philebus, 1892.62.

The beginning of the La Tène period is associated with the abandonment of Hallstatt strongholds in many areas. In the La Tène B and partly also in the C periods in the middle part of the Rhineland (the Hunsrück-Eifel culture) and in the Ardennes and Champagne the decline of settlement is evident. It is interpreted as depopulation caused by migrations (Fernández-Götz 2014, 121-125, 130-131). Therefore, the paradigm of movement and change was consistently implemented. In La Tène C, a slow stabilisation of the population occurred. It was then that large settlements developed in many areas, including fortified ones, called oppida (Collis 1984 – therein a detailed discussion of the issue). Metrological analysis carried out in Manching by F. Schubert showed that a repeating measurement unit was used, which was 310 mm (Schubert 1992, 1994; Schubert and Schubert 1993). These results were correlated with a measurement rod found on this site – its length was 309 mm (Fig. 43: B). A unit length of 304.2 mm was recorded while analysing the source lining in the oppidum in Bibracte (Almagro-Gorbea 1988, 38). Thus, it seems that at least part of the La Tène population used a very similar unit of length.

Analysing the construction in Manching, it was found that geometric figures with repeating side proportions were used in the buildings' planning (Fig. 44). They were rectangles with side proportions of 3:4, (4:6, 4:9) and 4:7, (7:8, 7:16) units, and squares with sides of 3:3 (doubled 3:6) units. These units were reduced and enlarged many times in order to obtain an appropriate building size. Always, however, their proportions remained unchanged. Therefore, it can be assumed that an analogous principle was applied as in the case of decoration made by a compass. Enlarged and reduced rectangles and squares correspond to the enlarged and reduced circles. Strings were probably also used to lay out circles and thereby to determine buildings' plans (Fig. 45: A, B). For a gate structure in Manching (Schubert 1994, Fig. 19) the same schemes as those for certain types of metal jewellery decorated by a compass were used exactly (Lenerz-de Wilde 1977, Tables 47: 1, 2, 4, 5; Cahen-Delhaye and Hurt 2013, 96-97, Figs. 81 & 82: 5) (Fig. 33; 45: A). In addition, the boat shape of the source lining in Bibracte was created by a combination of circles (Almagro-Gorbea 1988; Almagro-Gorbea and Gran Aymerich 1988, 1991, 153-162, Fig. 83; Schubert 1994, 40-41, Fig. 1) (Fig. 44: C). Hence, it seems that this technique of planning buildings results from the application of basic paradigms that were typical of La Tène art. In addition, the created space imitated the structure (soul) of a world built with circles. It should be also emphasised that the proportions of the length of the buildings walls – 3:4, 4:7 and 3:3 used in Manching have their equivalents in the proportions of building modules in the Hallstatt period. The main difference is they remained unchanged. It seems, however, that the reason for their use was similar. Rectangles with sides of 3:4 and 4:7 were used for the right angle. The proportion of 3:3 most probably resulted from the application of the duodecimal system. In a certain sense, therefore, this system was based on previous experience. It is worth adding that the measurement unit used in Manching probably came from the Mediterranean – it

was very similar to the so-called Ptolemaic foot (Schubert and Schubert 1993, 234-235). Perhaps during this period the impact of Mediterranean metrology was perceptible even more to the North. In a settlement from the pre-Roman period in Borremose in Denmark an oak stick 133 cm long was found (Fig. 43: A). It was divided by 7 notches into parts, 16.5 cm long, which is close to half the value of the Greek foot (33 cm). This object may have been used as a measuring stick (Brønd-sted 1963, 52-54; Martens 1994, 264-266, Fig. 18).

Fig. 41. A – Mistletoe; B – Platzfeld, Germany; C – Heidelberg, Germany. A, photo T. Gralak; B and C after B. Cunliffe 2003, Figs. 75 & 76.

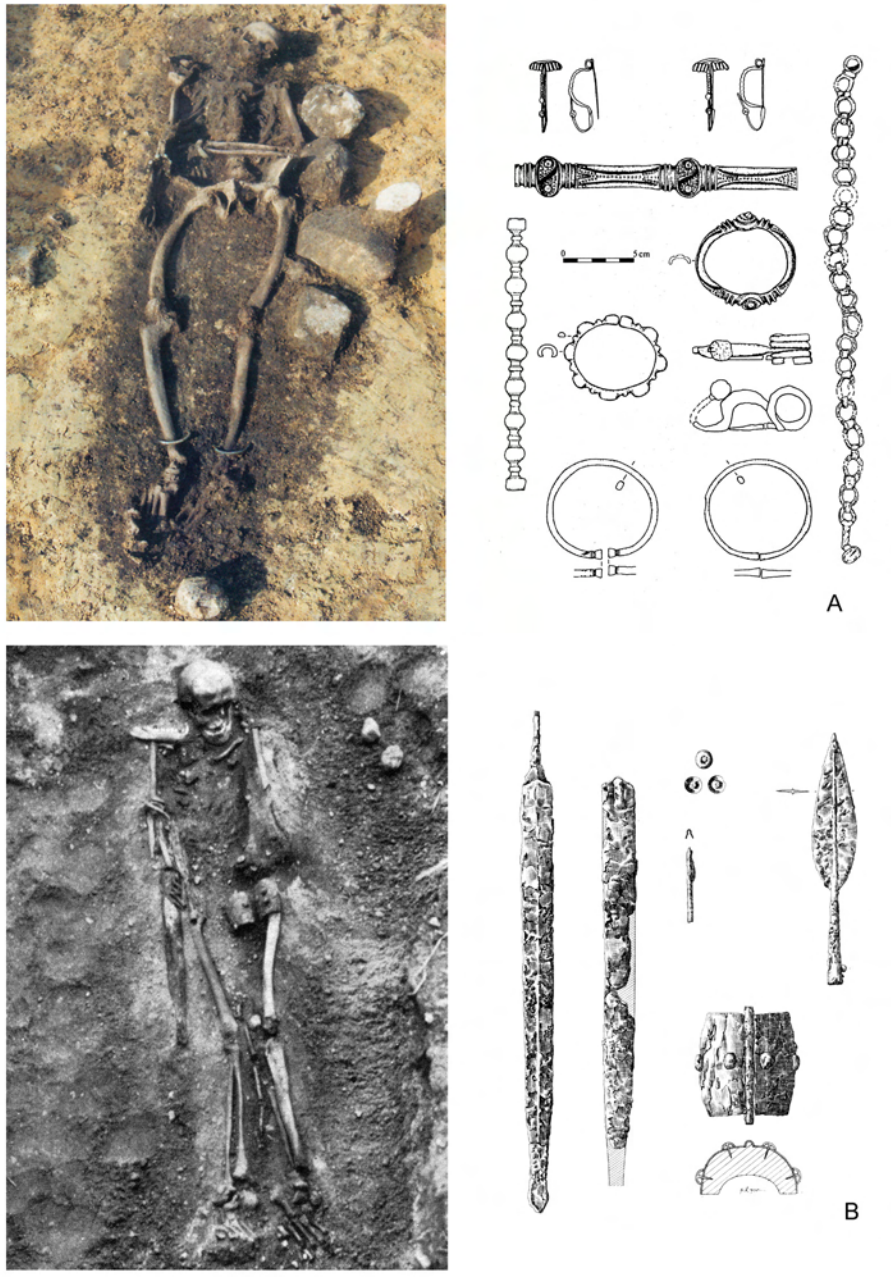

Fig. 42. Graves of the La Tène culture. A – Wojkowice, Wrocław district, Poland, a woman's grave; B – Sobocisko, Oława district, Poland, a man's grave. A after A. Kosicki 2009, Figs. 3, 5; B after W. Hoffmann 1940, Table 2: 1, Figs. 5 & 8. Scale: B c. 1:6, shield boss c. 1:4.

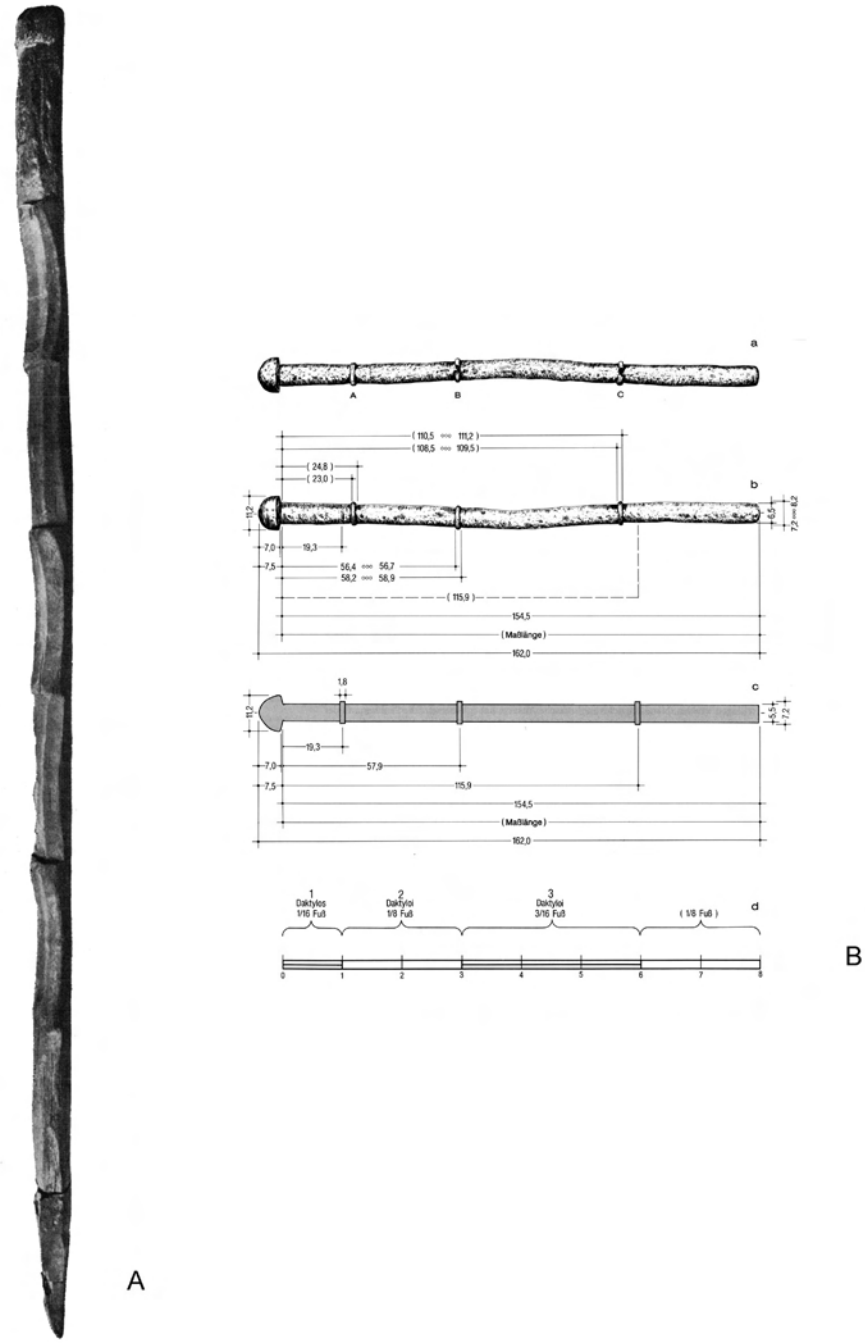

Fig. 43. A – Borremose, Denmark, measuring stick – 133 cm; B – Manching, Germany, ruler – 30.9 cm. A after J. Martens, Fig. 18; B abcd after F. Schubert 1992, Fig. 3. Scale: A c. 1:7, B c. 2:3.

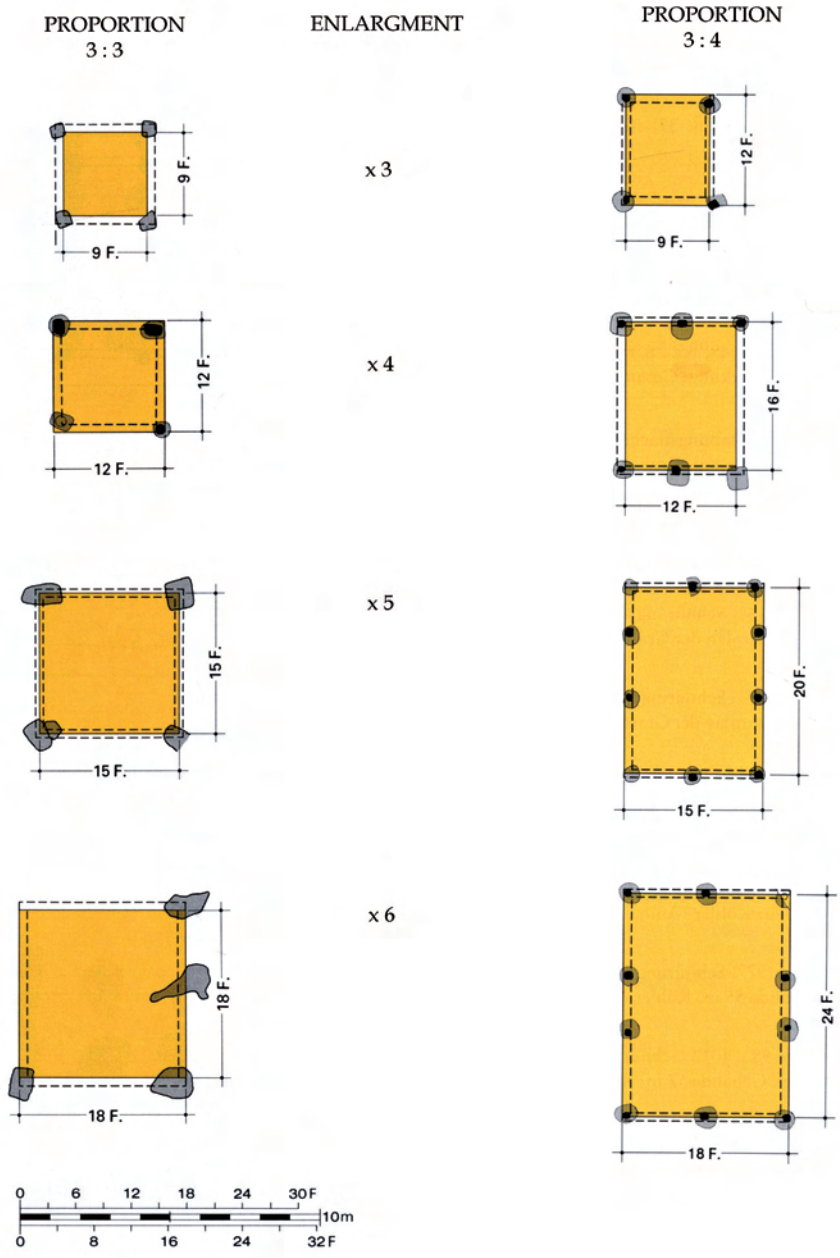

Fig. 44. Manching, Germany, Methods constructing buildings with the same proportions of the side walls. After A. Schubert 1994, Figs. 4 & 9. Scale: c. 1:200.

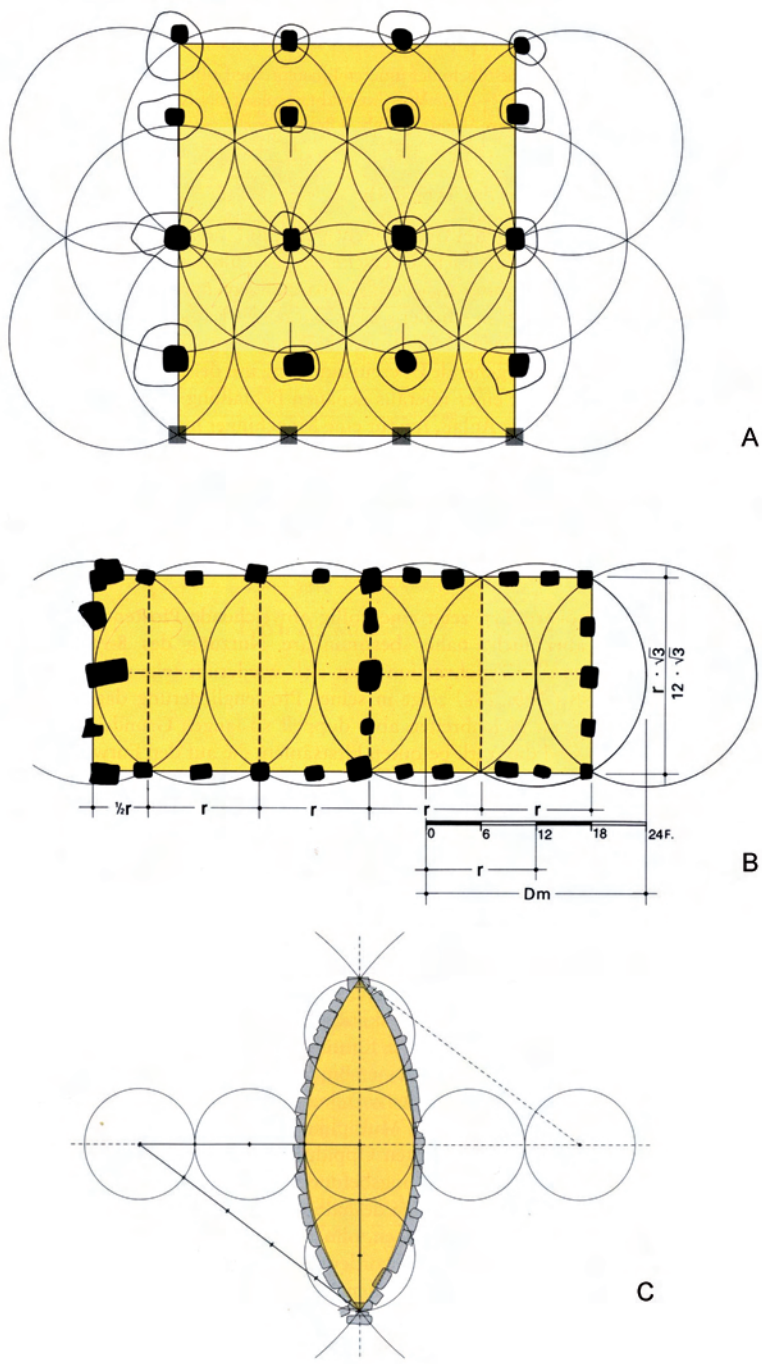

Fig. 45. Manching, Germany, method of planning: A – gate structure elements; B – post building; C – Mont Beuvray (Bibracte), France, method of planning of source lining using circles and Pythagorean triangles. A and B after F. Schubert 1994, Fig. 19: 17; C after F. Schubert 1994, Fig. 1. Scale: A-C c. 1:200.

2. Antigone and the Tyrannicides – the essence of ideological change

Do not disturb my circles.
Archimedes

In light of the above arguments, it can be stated that the origins of art and culture resulted from the transformation of paradigms. This is the main reason for the lack of a perceptible formal evolution between the Hallstatt and the La Tène periods. Hence, the essential question is the course of this process. Despite the inspiration from many Greek sources, the origins of the new ideology also require careful analysis.

The carrier of new values was a specific class of people dealing with religion and art:

Among all the Gallic peoples, generally speaking, there are three sets of men who are held in exceptional honour; the Bards, the Vates and the Druids. The Bards are singers and poets; the Vates, diviners and natural philosophers; while the Druids, in addition to natural philosophy, study also moral philosophy.
Strabo, Geography, IV.4.4

The Bards were accustomed to employ themselves in celebrating the brave achievements of their illustrious men, in epic verse, accompanied with sweet airs on the lyre. The Eubages investigated the system and sublime secrets of nature, and sought to explain them to their followers. Between these two came the Druids, men of loftier genius, bound in brotherhoods according to the precepts and example of Pythagoras; and their minds were elevated by investigations into secret and sublime matters, and from the contempt which they entertained for human affairs they pronounced the soul immortal.
Ammianus Marcelinus, Roman History, XV.9.8

The Druids are mentioned by 17 Greek and Roman authors in total (Gąssowski 1987, 115). Their remarks indicate that the Druids were of the greatest importance. There is also information about their educational activities:

In secret, and for a long time (twenty years), they teach many things to the noblest males among their people, and they do it in a cave or in a hidden mountain defile.
Pomponius Mela, De Chorographia, 3.19

These records are confirmed by numerous finds of small deposits in caves and other exceptional places (Waldhauser 2001, 100-101). Information that the Druids formed brotherhoods similar to the Pythagoreans and that they adopted part of their doctrine is often repeated. Ancient writers also described priestly communities amongst the Thraco-Dacian population. The beliefs of these groups inspired Orphism, in

which faith in an immortal soul was an essential part of the doctrine (Eliade 1994a, 121-123, 2002, 25-75). On the other hand, according to a legend, Zamolxsis, a Dacian religious legislator was earlier Pythagoras' slave (Herodotus, IV.94-96; Strabo, VII.3.5). This would explain doctrinal similarities between his and the Pythagoreans teachings. Hence, it is clear that in Greece and in the Balkans religious organisations existed which could have been a prototype for Druids, both in terms of structure and ideology. This is directly indicated by a record of Hippolytus:

The Druids among the Celts enquired with the greatest minuteness into the Pythagorean philosophy, Zamolxis, Pythagoras' slave, a Thracian by race, being for them the author of this discipline. He after Pythagoras' death travelled into their country and became as far as they were concerned the founder of this philosophy.
Hippolytus, Philosophumena, I.22

In this context once again elements corresponding to the La Tène style that appeared in the Basarab culture in the Carpathian Basin should be mentioned. It cannot be excluded that they appeared just because of ideological change in the Thraco-Dacian environment.

In contrast to the Hallstatt period bards were not as important as the carriers of the new ideology as they had been. Of course, they still played an important role, which is suggested by a sculpture from Paule representing a figure with a lyre (Haffner 1995, 17, Fig. 6) and the aforementioned information about the poetic meter used (Ammianus Marcellinus, Roman History, XV.9.8). It seems, however, that due to advanced intellectual processes related to a change in the perception of the world the major factor were druidic brotherhoods.

Craftsmen were also an important carrier of cultural change. According to information on the Middle Ages in Ireland, such people (*aes dána*) had a special status and could freely roam in areas occupied by different tribes (Gąssowski 1987, 37). Because of the mental transformation, most likely, these people were somehow forced to produce items in the new style. They had to appeal to customers and their perception of the world. Here an analogous mechanism could have acted, as in the case of the propagation of decoration typical of the Basarab culture – it was attractive to different ethnic and cultural groups because of the carried values.

In Greece the end of the Geometric period and the emergence of the orientalising style are correlated with deep changes in the perception of the world. The modular structure ceased to be a convincing way to describe reality. The world ceased to be static and orderly. In the geometric description of the world, everything and everyone had a definite place. To make this structure operate people had to fulfil their duties in relation to the gods and humans. Every human being was a module placed within a broader structure, as in geometric ornament. The harmony of the whole depended on order. Acceptance of this order and appropriate behaviour was supposed to be a guarantee of the success of individuals and the entire community. At the beginning of the Classical period, it was noted that it was not

a rule. Often, in fact it was contradicted by human experience. This phenomenon is perfectly described in Greek tragedies (Armstrong 2005, 95-96). They show that a man acting rightly – as he should act according to tradition and religion – cannot avoid disaster. A very meaningful example is 'Antigone' by Sophocles; Creon as a ruler cannot permit the proper burial of the traitor Polyneices. Despite the ban, however, Antigone buried him, as she was obliged to do as Polyneices' sister. Hence, both characters act in accordance with the code of ethics. Despite this, characters suffer defeat – Creon, or death – Antigone. Another consequence is the death or misfortune that befalls their relatives. A similar theme is also known from Semitic cultures. The biblical book of Job describes a man living according to religious rules – despite this he still suffered a series of misfortunes. There is also a Babylonian version of this story, while in Egypt a similar meaning can be found in 'The debate between a man and his own soul' (Olmstead 1974, 29).

As a response to such thoughts, beliefs that positively evaluate efforts to change the existing order appeared. A meaningful example of this is the sculpture by Antenor and its later replica by Kritios and Nesiotes, representing Harmodius and Aristogeiton – killers of Hipparchus, the son of the tyrant of Athens. The Tyrannicides are depicted in the nude – as heroes (Bernhardt 1991, 197-200). The new ideology, therefore, was antagonistic to the earlier one. The period from 700 to 450 BC is the time of royal and despotic rule in the Middle East, the Mediterranean and Central Europe. About 500 BC the wave of democratisation started in Athens and Greece, and later in Rome and finally reached the areas occupied by the Hallstatt culture (Kristiansen 1998, 313). This phenomenon may be more or less be accurately correlated with the propagation of the animal style and the slow disappearance of the *koine* of geometric ornaments (Bouzek 1997, 241-244). It seems that the looting of barrow burials (Wells 1980, 31-32; Spindler 1983, 195-200) should be seen as a manifestation of the destruction of the old order too. The symbolic meaning of this practice remains very close to the worship of the heroic Tyrannicides.

It cannot be excluded that the change also concerned metaphors describing the world. While in the Hallstatt period the world was compared to a loom, in the La Tène period it was described by the rotation of a compass. The world ceased to be modular, static and self-repeatable. It was considered that it was in motion and was subject to eternal changes. In relation to this uncertainty – if the world turned out not to be orderly and choices ceased to be obvious – divination developed. It may be seen as a tool to aid the making of the right decisions. It was in fact one of the cognitive techniques. Therefore, Ammianus Marcelinus (XV.9.8) called Celtic Euhages (diviners) researchers of nature. This phenomenon occurred with varying intensity throughout the Mediterranean. It is especially typical of the Etruscans (Niemirowski 1990, 252-257; Bouzek 2003, 54-56, 194-195). A sense of this phenomenon results from the adopted assumption, which Seneca clearly explains:

There are differences of interpretation, however, between our countrymen and the Tuscans, the latter of whom possess consummate skill in the explanation of the meaning

of lightning. We think that because clouds collide, therefore lightning is emitted; they hold that clouds collide in order that lightning may be emitted. They refer everything to the will of God: therefore they are strong in their conviction that lightning does not give an indication of the future because it has occurred, but occurs because it is meant to give this indication. Whether the indication is its purpose or its consequence makes no difference in the method of its occurrence. How, then, do they give indication unless they are sent by God? Just in the same way as birds give favourable or unfavourable omens, though they are not moved on their flight for the express purpose of meeting us. God moves them too, it is urged.
Seneca, Natural Questions, II.32.

A description of the divination technique of the Celts has survived:

They also observe a custom which is especially astonishing and incredible, in case they are taking thought with respect to matters of great concern; for in such cases they devote to death a human being and plunge a dagger into him in the region above the diaphragm, and when the stricken victim has fallen they read the future from the manner of his fall and from the twitching of his limbs, as well as from the gushing of the blood, having learned to place confidence in an ancient and long-continued practice of observing such matters.
Diodorus Siculus, Bibliotheca, V.31

Information on divination based on the progression of the agony as well as the blood and intestines of human sacrifices is given also by Strabo:

They used to strike a human being, whom they had devoted to death, in the back with a sabre, and then divine from his death-struggle. But they would not sacrifice without the Druids.
Strabo, Geography, IV.4.5

(…) from the blood that poured forth into the vessel some of the priestesses would draw a prophecy, while still others would split open the body and from an inspection of the entrails would utter a prophecy of victory for their own people (…).
Strabo, Geography, VII.2.3

This last piece of information related to the Cimbri, a Germanic tribe. Often, however, this practice was treated as an expression of Celtic influence (Derolez 1968, 287). It cannot be ruled out that they specifically adopted the art of divination from the entrails of sacrificial animals that occurred in the Mediterranean (Oświecimski 1989, 34-43). This phenomenon was present too in Mesopotamia in the early Babylonian period, from where it spread throughout the Middle East and reached Greece and Italy (Popko 1982, 138-141; Bouzek 2003, 54-56).
Another technique of divination is also known:

The Celts glorify the Druids as prophets and as knowing the future because they foretell to them some things by the ciphers and numbers of the Pythagoric art.
Hippolytus, Philosophumena, I.22

This information indicates that the search for order was in accordance with the numerological description of the world as proposed by the Pythagoreans (Tatarkiewicz 1970, 43-45). To some extent, the realisation of this vision is the calendar from Coligny; individual days marked on it were regarded as lucky or unlucky depending on variable astronomical relations (Cunliffe 2003, 229).

In conclusion, it must be emphasised that this profound ideological change concerned a very wide territory: from India and China through the Middle East to Greece and Italy. This time is called the Axial Age (Jaspers 1988, 76-97). It was when Buddha, the Hebrew prophets, the creators of the Upanishads, Confucius, and the Greek philosophers lived (Armstrong 2004, 77-98). The area occupied by the Celts was the north-western borderland of these transformations. Of course, these changes never proceeded in the same fashion and at the same time. It appears that they were related largely to human self-awareness. In Greece, it is reflected by the aforementioned changes in vocabulary. One word emerged to define the human body, and thus man has one soul. An individual dimension of humanity was also discovered – a word began to be used to describe the process of seeing. In earlier times, it was only possible to state that someone was looking, not seeing. However, not all the achievements of the Geometric and the Hallstatt periods were rejected. People became aware, however, that this description of the world did not explain everything and they started to search for new answers. Earlier intellectual achievements, however, remained a permanent part of culture.

3. The widespread nature of La Tène style

As for the Cimbri, some things that are told about them are incorrect and others are extremely improbable.
Strabo, Geography, VII.2.1

Another question related to the La Tène period is the process of how La Tène style became widespread. Generally speaking, this phenomenon should have consisted in the adoption of the achievements of Celtic civilisation by various barbarian peoples. It should be noted, however, that this process never encompassed all the elements of culture, and non-Celtic people only accepted some of the elements. It seems, however, that the ideology expressed by decoration as applied by the Celtic population was completely rejected. The widespread nature of La Tène style, therefore, was a complicated process due to cultural factors that varied in time. It proceeded differently in different areas.

A. The Baltic Sea

In the northern zone of Central Europe at the turn of the Hallstatt and the La Tène periods, cultural changes occurred that were completely differently to those in the Rhine and the Danube River areas. Cultures associated with the Urnfield circle were not replaced by the Hallstatt culture or the La Tène culture. These groups of people created their own system. The area where the changes were the fastest was the southern coast of the Baltic Sea. At the end of the Hallstatt period in areas of northern Germany in the lower Elbe River zone and Jutland, the Jastorf culture developed (Keiling 1983, 86-105). In northern Poland, to the west of the mouth of the Vistula River, Pomeranian culture developed at the same time (Łuka 1979, 147-168; Węgrzynowicz 1979, 169-178). To the east of the mouth of the Vistula River, the West Baltic Barrow culture emerged (Okulicz J. 1970a). All these cultures developed, at least partially, based on the Lusatian culture or earlier Bronze Age settlement (Keiling 1983, 102-105, Łuka 1979, 147-150; Okulicz, Ł. 1979a, 179). The Jastorf culture however, was based on Nordic culture (Jażdżewski 1981, 446-449), whose impact – through bronze production, is also evident in Pomeranian culture (Okulicz, Ł. 1979b, 19). Nordic cultural influence is least evident in the West Baltic Barrow culture, where an initial role was played by impulses from Eastern Europe cultures (Okulicz, J. 1973, 247-254; Okulicz, Ł. 1976, 223-225, 1979b, 21-22). Initially, however, all these groupings were characterised by large bronze products (weapons and jewellery), and it seems to be clearly a continuation of the Nordic cultural tradition. It is also important to note that the raw material most likely came from Eastern Europe – from deposits in the Ural Mountains (Okulicz, Ł. 1976, 162-164, 268-272). This shows that trade links were a continuation of relations from the Bronze Age (Okulicz, Ł. 1976, 88-91; Pydyn 2000, 227-229, Figs. 15: 3-4). Between these groupings some similarities in burial rites can also be observed. This mostly concerns common cremation, the use of urn graves (including face urns) as well as cloche and box graves (Kneisel 2012). Characteristically, this northern culture model occupied areas with similar physical qualities. Firstly, these were the areas of the North European Plain – a young postglacial landscape. These conditions required a specific type of economy, different from the one used by the Hallstatt and the La Tène people, who occupied the areas around foothills and mountains. The Jastorf culture and the Pomeranian culture expanded to the south and finally reached the areas occupied by people of the La Tène culture (Peschel 1978, 27-36, Fig. 1; Węgrzynowicz 1979, 169-172, Fig. 91). This direction of expansion and the flow of cultural impulses is a complete reversal of trends in comparison to the Urnfield period. The emergence of the West Baltic Barrow culture can be also understood in a similar manner. Thus, it is clear that the southern coast of the Baltic Sea became a local centre of cultures. It functioned independently from the lower Danube and the middle Danube areas where late Hallstatt and La Tène cultural patterns were widespread.

The impulses from the south, however, were accepted. Firstly, in the Pomeranian and the Jastorf cultures the dissemination of iron occurred. This phe-

nomenon should be clearly linked with a late Hallstatt influence. Imports from the south were also found, which indicates the direction of contacts (Łuka 1963, 1979, 164-165). The ideology from the Mediterranean also influenced the forms of burial. Under its influence face urns emerged and are known mainly from Pomeranian culture, but are also found in the Jastorf culture, in southern Scandinavia (Kneisel 2012) and in the West Baltic Barrow culture (Waluś 1995). In this period fibulae became more numerous (Woźniak 2010). This clearly indicates that changes had to have occurred in costume/dress. Initially, therefore, it seems that it should be called rather Hallstatt-isation, which arrived in the north with some delay. The La Tène impacts became clearer during the La Tène B period. In the younger pre-Roman period in the Jastorf culture fibulae were much more numerous, and they displaced pins (Seyer 1983a, Fig. 33). A similar phenomenon (a change in dress) is also perceptible in Pomeranian culture, although it cannot be stated that it was synchronous with the Jastorf culture (Wołągiewicz 1979, 34-39; Woźniak 2010, 42). In both groupings similar changes in pottery forms also occurred (Czopek 1992, 84-87, Fig. 2). This indicates that the two units still constituted a portion of one cultural system.

Nonetheless, the basic question is whether, in the process of the spread of La Tène style, ideological elements were adopted also, which could have become the paradigms for building the perception of the world. It seems that the answer can be found in the stylistic analysis of objects of the Jastorf and Pomeranian cultures. As in the La Tène culture, numerous representations of circles and spirals occurred. In the early phase they constituted the basic decorative elements of pins and brooches (Seyer 1983, Fig. 28b, 33-36 & 39; Łuka 1979, Figs. 79: 3, 86: 9 & 87, Table XLI: 1) (Fig. 46, 47: E-F). A similar situation was observed also in the case of the West Baltic Barrow culture (Kmieciński 1989, Figs. 54: 1, 5, 60 & 61) (Fig. 47: G-L). Nevertheless, these were not intersecting circles, which indicate that the design principle typical of La Tène art was not adopted. Hence, this decoration is most probably a continuation of the style typical of the Nordic circle, where circle and spiral motifs are very common. Assuming that the decoration is an emanation of the ideology, one must assume that it was not accepted. The aforementioned radical change in dress, manifested in the widespread use of fibulae also confined the imitation of La Tène attire.

The Jastorf and the Pomeranian cultures accepted only some forms of fibulae and, much less frequently, were only other parts of the costume copied (Łuka 1979, 164; Woźniak 1979, 136-148, 2010; Seyer 1983a, Fig. 34). However, they never accepted the sets of jewellery that were typical of the equipment of La Tène graves. This indicates that they accepted only individual items, completely out of context. The La Tène parts of dress, therefore, were not part of the dress code and carried completely different meanings.

In the Jastorf culture a very characteristic settlement model emerged. It was one categorised by isolated clusters (Keiling 1982, 90-98). It constituted an implementation of the modular perception of the world. In a sense, such a con-

struction of space is a copy of Hallstatt settlement in foothills' areas. In these areas settlement clusters were concentrated within the valleys and basins while mountain summits were isolated.

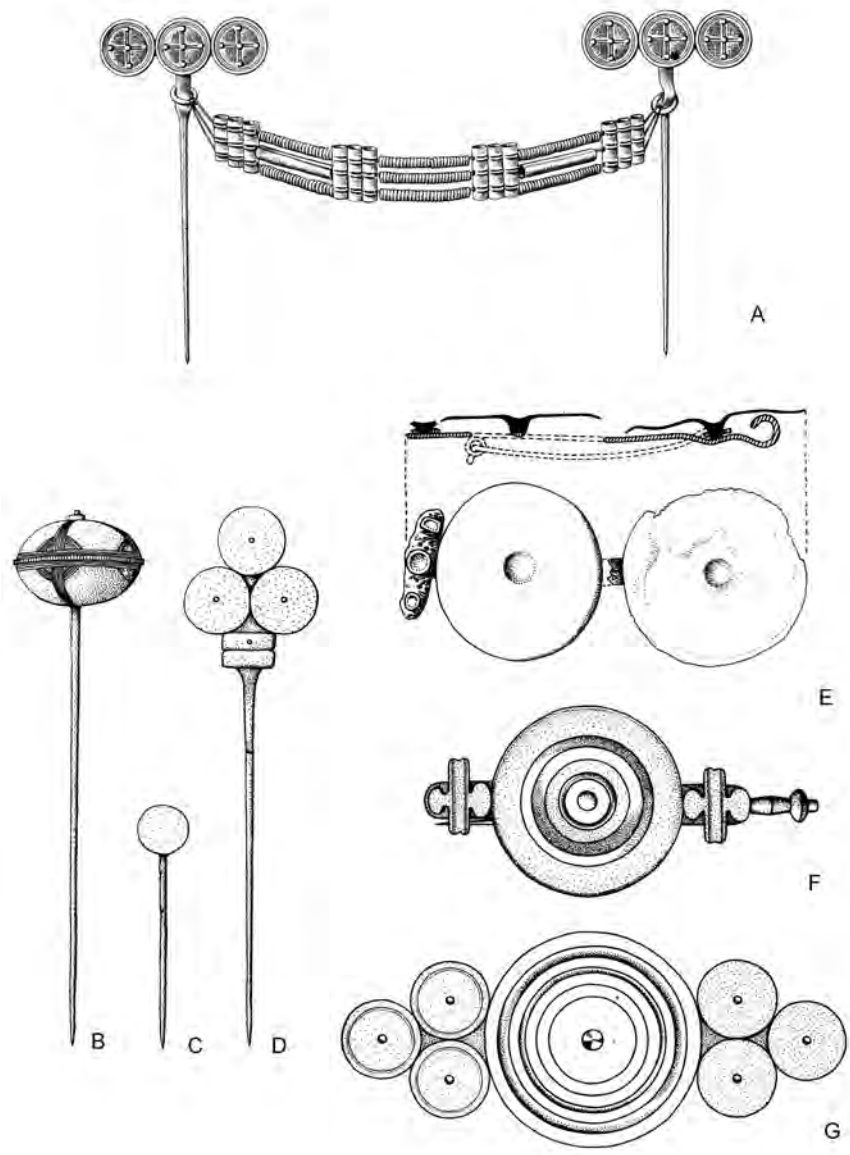

Fig. 46. The Jastorf culture, examples of wheel motif decoration. A – pins linked by chains - reconstruction; B, C & D – Schwissel, Kr. Segeberg, Germany, pins; E – Bornum, Kr. Zerbst, Germany, brooch; F & G – Schwissel, Kr. Segeberg, Germany, brooches. After Seyer 1983a. Scale: A c. 1:5, B, C, D, F and G c. 1:3.

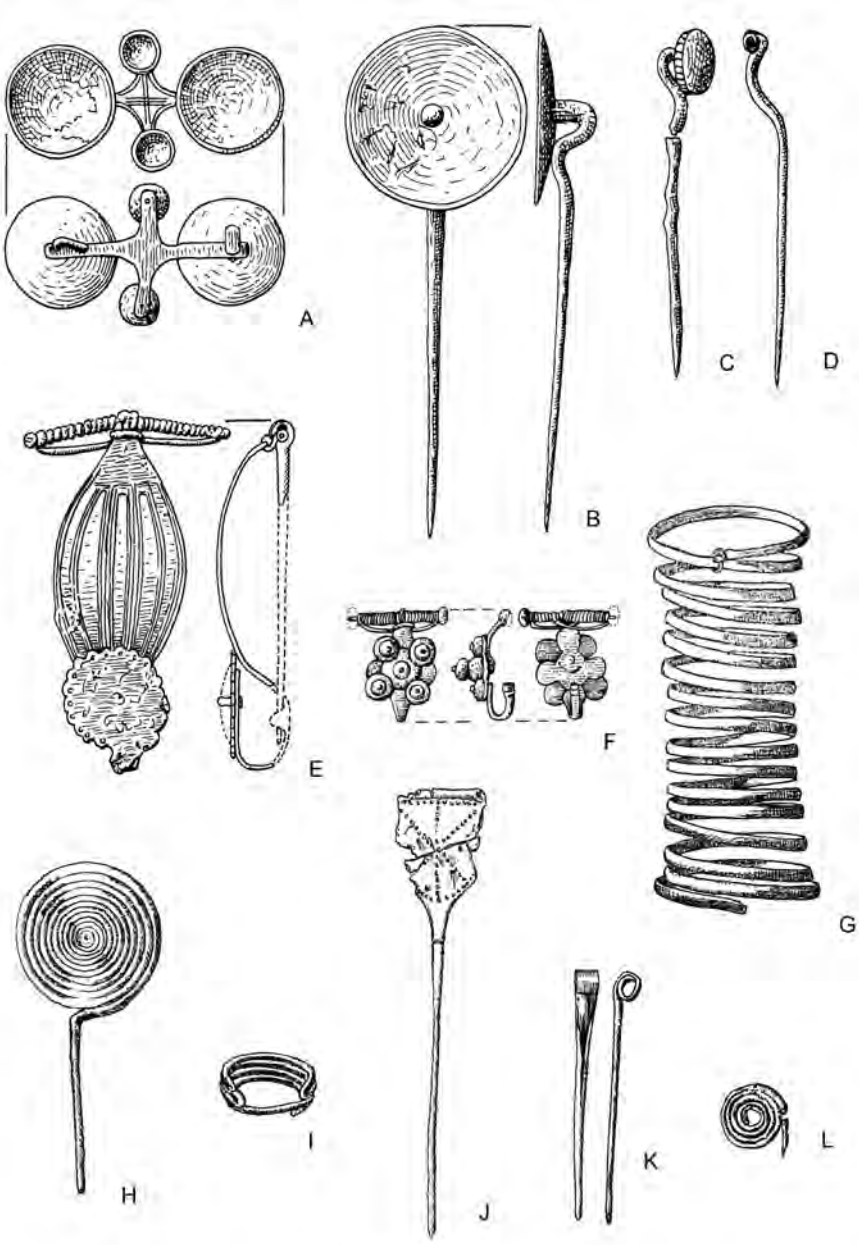

Fig. 47. The Pomeranian culture jewellery: A – Tłukomy, Piła district, Poland; B – Orle Wielkie, Międzychód district, Poland; C – Inowrocław-Szymborze, Poland; D – Brzozowiec, Gorzów Wielkopolski district, Poland; E – Pierzwin, Zielona Góra district Poland; F – Nosocice, Głogów district, Poland. West Baltic Barrow culture's jewellery: G – Sovietsk (Tilist) Russia; H – Jaroslavskoe, Russia; I – Pistki, Ełk district, Poland; J – former Fritzenscher Forst, Russsia; K – Muromskoe, Russia; L – Stega Wielka, Bartoszyce district, Poland. A-D after J. Kmieciński 1989, Table CL: 2-6; E and F after W. Hensel 1980, Fig. 266: 9, G-L after L. Okulicz 1986, Tables 122: 7-9, 11-13.

B. The Black Sea

The Scythian culture that developed in the Black Sea and the Caspian Sea steppes had many features congruous with the Hallstatt culture. These were communities dominated by the aristocracy. This is indicated by extremely richly furnished barrow burials (Chochorowski 1999, 336-337, Figs. 384-387 & 396-398). These people legitimised their position by the use of luxury items imported from Greece. Between the two cultures, therefore, a relationship existed, as in the case of the Hallstatt communities and Italy (Kristiansen 1998, 277-282). The part occupied by a sedentary population is also characterised by large fortified settlements (Chochorowski 1999, 337). In relation to the Hallstatt culture it is also a convergent model of settlement.

In the 4th century BC climate change in the Eurasian steppe zone led to an economic crisis and political disturbances. The drying up of pastures forced other groups of nomads to migrate. In the Pontic area this process escalated in the 270s and 260s BC. As a result, Scythian culture declined, and its place was taken by the Sarmathian culture (Chochorowski 1999, 333). After that date, it was also possible that there was an infow of new people from the north-west – the Bastarnae, who were the main drivers behind the Poienești-Lukaševka culture in Moldavia (Babeş 1993, 93-94, 97, 168-173). Their presence was recorded for the first time in written sources in 239-229 BC (Dąbrowska 1988a, 74-76). These disorders and the collapse of existing structures allowed them to occupy the western edge of former Scythian areas. As a result of the same processes in most areas previously occupied by the Pomeranian culture and the Milograd culture, the Przeworsk (Dąbrowska 1988a, 1988b, 84-104) and the Zarubintsy cultures emerged (Maksimov 1972, 1982). The latter grouping partially expanded to areas previously occupied by the Scythian culture (Maksimov 1972, 117-118). It is apparent that this was not only the replacement of some nomads by others, but this process caused a transformation over vast areas. As one might expect, there was a rapid transformation of material culture that resulted from the almost total collapse of the previous economic and political structures.

The Sarmatians, although they were also nomads, had a different social structure. During this period, the grand burials of aristocrats disappeared and the graves of warriors began to dominate (Chochorowski 1999, 352, 355). Therefore, similar structural changes occurred, as in the La Tène culture. In the areas occupied by the Scythians a sedentary lifestyle of large fortified settlements were abandoned. To these areas some settlement arrived that was related to the Zarubintsy culture, which had developed based on the Milograd culture. The Zarubintsy culture, along with the Poienești-Lukaševka culture in today's Moldavia (Babeş 1993) and the Przeworsk culture in Poland (Dąbrowska 1988a) formed a complex grouping that were heavily influenced by La Tène culture. In the case of the Bastarnae, who are identified with the Poienești-Lukaševka – ancient writers initially defined them as Celts, only later as Germanic people (Łowmiański 1963,

204-205). In the archaeological material it is manifested in the common use of the metal parts of the costume (brooches and buckles), in most cases imitating items used in La Tène culture. In the Poieneşti-Lukaševka culture and, especially in the Przeworsk culture, weaponry frequently occurred (swords, shields shield bosses and javelin heads) of such provenance (Babeş 1993, 114-118; Dąbrowska 1988a, 127-150). It was noted, however, that imported or copied weapons rarely were covered with La Tène curvilinear decoration. Taking into account that this was related to the military organisation of the Celts (Lejars 2012, 318-325), it should be assumed that it was not accepted. The warriors of these cultures, therefore, did not create one military structure with the Celts. In the case of other products of culture the acceptance of La Tène decoration was not noticeable either. The impact is certainly perceptible, but it does not substantially affect the whole habitus. In all these groupings pottery vessels showed some similarity in shape. They were also characterised by so-called faceted rims (Babeş 1963, Tables 9-30; Dąbrowska 1988a, 28-31, 36, Fig. 1, Table IV). These features actually do not have any association with La Tène culture. The situation changed as late as during the La Tène D period and the decoration was commonly accepted. During this period, however, a profound change in La Tène culture occurred and it partially returned to a modular perception of the world. It will be a topic discussed in the next chapter.

CHAPTER III

The Roman Period

1. Birth of Early Roman style in the Barbaricum

The Wheel of Fortune.

Changes of style around the turn of the eras are linked with dramatic political transformations that occurred in Central Europe at that time. Firstly, the La Tène culture associated with the Celtic population gradually faded. The Celtic areas were conquered from the south by the Romans. The most spectacular action was undertaken by Caesar when conquering Gaul (Cary and Sculard 1992, Vol. I, 501-517). Then Augustus moved the border of the Roman Empire to the line of the Rhine and the Danube Rivers (Cary and Sculard 1992, Vol. II, 44-48). The Celts were displaced by the Dacians from the east (Daicoviciu 1969, 64-65), and from the north by Germanic peoples (Cunliffe 2003, 284-287). The latter were also victims of Roman expansion. Around the turn of the eras in the areas between the Rhine and the Elbe Rivers, the province of Germania was founded. Its existence was abruptly interrupted by the Battle of the Teutoburg Forest in 9 AD (Cary and Sculard 1992, Vol. II, 41-44; Rochala 2005; Kehne 2008). The pressure of the Romans caused profound changes in the Germanic environment. This instigated population displacements and structural changes. During this period, the Jastorf culture disappeared and, in its place, a phenomenon referred to as the Grossromsted/Plaňany horizon appeared, based on which the Elbe circle was formed (Peschel 1978, 72-115; Droberjar 2006).

The origins of the Early Roman style in the Barbaricum dates back to the La Tène C and even La Tène D periods. Amongst the Celtic population profound transformations took place. In the La Tène C period the lifestyle changed to a more sedentary one. Significant examples of this are the fortified settlements – oppida. Their location resembles the situation of previous Hallstatt strongholds. They were located on elevations providing visual control over the largest area possible, but they were not always on the highest hills in a given region. A return to a modular system occurred. During the La Tène D period, settlements emerged in the *Viereckschanzen* type (Bittel et al. 1990; Reichenberger 1993; Wieland 1995, 85-99) (Fig. 48). They occurred in the area of southern Germany, the Czech Republic and France. They were farmsteads surrounded by square earthen ramparts. Essentially they copied the earlier settlement scheme of the *Herrenhof* type. Hen-

ce, at the end of the La Tène period the same forms of settlements that had existed during the Hallstatt period: the open ones, the farmsteads – *Viereckschanze* and fortified ones – the oppida.

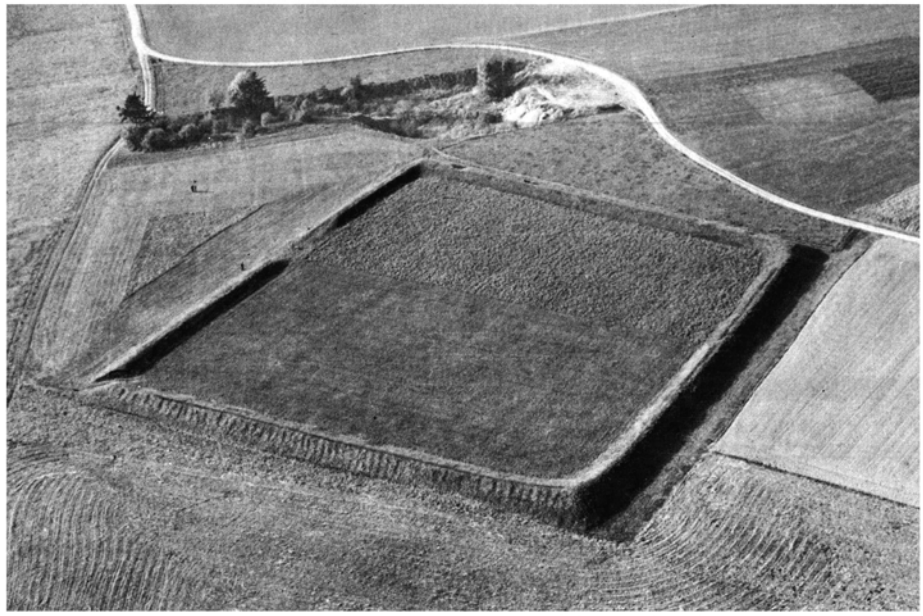

Fig. 48. Buchendorf, Bavaria, Germany. Settlement (farmstead) of the Viereckschanzen type. After S. Piggot 2000, Fig. 52.

From the mid La Tène period, graves were located within rectangular, grooved features (Gedl 1984, 1985; Stead et al. 2006, 5-7, 10-22, 25-26, Fig. 2, Figs. 5-9, 11-12 & 15). Modular thinking, therefore, also extended to the treatment of deceased individuals. The deep ideological transformation is also evidenced by the vanishing of archaeologically perceptible burial rites in many areas inhabited by the Celts. This phenomenon took place in the La Tène C2 period (Waldhauser 2001, 91-92).

During the La Tène C2 and the La Tène D periods, a return to geometric decoration occurred; it was a rectangular one, based on a system of modules. Firstly, it occurred on painted pottery. The origins of this decoration are not clearly explained, however, the north Gaul areas are commonly believed to be its cradle. In these regions, it was actually evident from the beginning of the La Tène period. It is frequently found, especially in Champagne (Dehn 1950, Figs. 2-5, Tables 4-8; Dessene 2003; Stead et al. 2006, 46, 197, Fig. 20, Figs. 49:17, 18, 51, 52 & 54:2) (Fig. 49). Generally, such pottery was widespread from the west to east along the Danube River (Filip 1956, 217). The earliest oppidum in Manching dates from the end of the La Tène C period, and they appeared in Central Europe in the La Tène D period. They are known from the largest production centres: Manching (Maier

1961, B.4: 4 & 8, 1963, Figs. B.5: 1-4, 7, 10: 2-6, 11: 1-8, 12: 1-3, 5, 8, 9, & 13: 9, 1970, Fig. 79: 115b), Stradonice (Břeň 1973, 146) and Gellérthegy-Tabán (Bonis 1969, Tables XVIII & XXI) (Fig. 50: A-F). Decorative elements included motifs referred to as metopes, stepped but also chequered patterns, diamonds and meanders. They were repeatedly used in multiple forms.

Similar decorative motifs are also found on objects made of other materials. A pattern similar to the ones known from pottery covers the surface of a bronze armlet from Mikulčice in Moravia (Čižmářová 2004, 236) (Fig. 50: G). Rectangular decoration also appears in the form of the metal elements of swords' scabbards, usually produced in Noricum workshops. They are openwork fittings made of bronze or silver, decorated in a technique referred to as *opus interrasile* (Werner 1977, 373-374). There are also brooches with feet decorated with openwork rectangular notches. This type of decoration is characteristic of Noricum ornamentation and is widely copied in areas of the northern Barbaricum (Werner 1977, 373-374; Bockius and Łuczkiewicz 2004, 43-73, Maps 14-26). This decoration type also occurs on metal belt fittings, firstly, in the middle Danube zone, and later in various areas of the Barbaricum (Gralak 2012a, 72-73, 112-113, Table XIX) (Fig. 51). It appears that this manufacturing technique as well as the motifs themselves correspond to objects decorated in this manner from the Hallstatt period (e.g. belt elements).

As already mentioned, in the La Tène A and B periods, elements of La Tène style were accepted to a small extent by the population living farther north (mainly Germanic). This situation slowly changed in the La Tène C and D periods, when a return to the modular scheme arose. This phenomenon accelerated just before the turn of the eras. The Marcomanni tribe played a huge role in this process. It is has been stated that their name means people living at the border (Strzelczyk 2006, 67), suggesting their location might have facilitated contacts with the La Tène population. It is believed that their primary areas were located on the Main River in western Germany, from where, before the turn of the eras, they migrated to the Czech Basin:

The Marcomanni stand first in strength and renown, and their very territory, from which the Boii were driven in a former age, was won by valour.
Tacitus, Germania, 42

Under the leadership of Maroboduus they created a state organisation, which included the territories of other Suebi tribes as well as the Lugii (Droberjar 2002, 171-172). Their enormous political importance resulted in the rapid propagation of new cultural patterns (Almgren 1913). The whole Elbe River circle (the Elbe River drainage basin as well as Moravia and Slovakia) and the Przeworsk culture that developed in central and southern Poland were under this influence. Parts of the cultural elements were still of late La Tène origins – associated with the revival of Hallstatt modular patterns. The state of Maroboduus also marked

the start of a period of intense relations between the barbarians and Rome. Its ruler was reared as a hostage in the Empire (Droberjar 2002, 170-171). He also brought many Roman merchants to the territory (Tacitus, Annales, II.62). During this period, the relations between the Barbaricum and Rome became another example of peripheral areas' dependence on central ones (Cunliffe 1988, 177-186, 199-200).

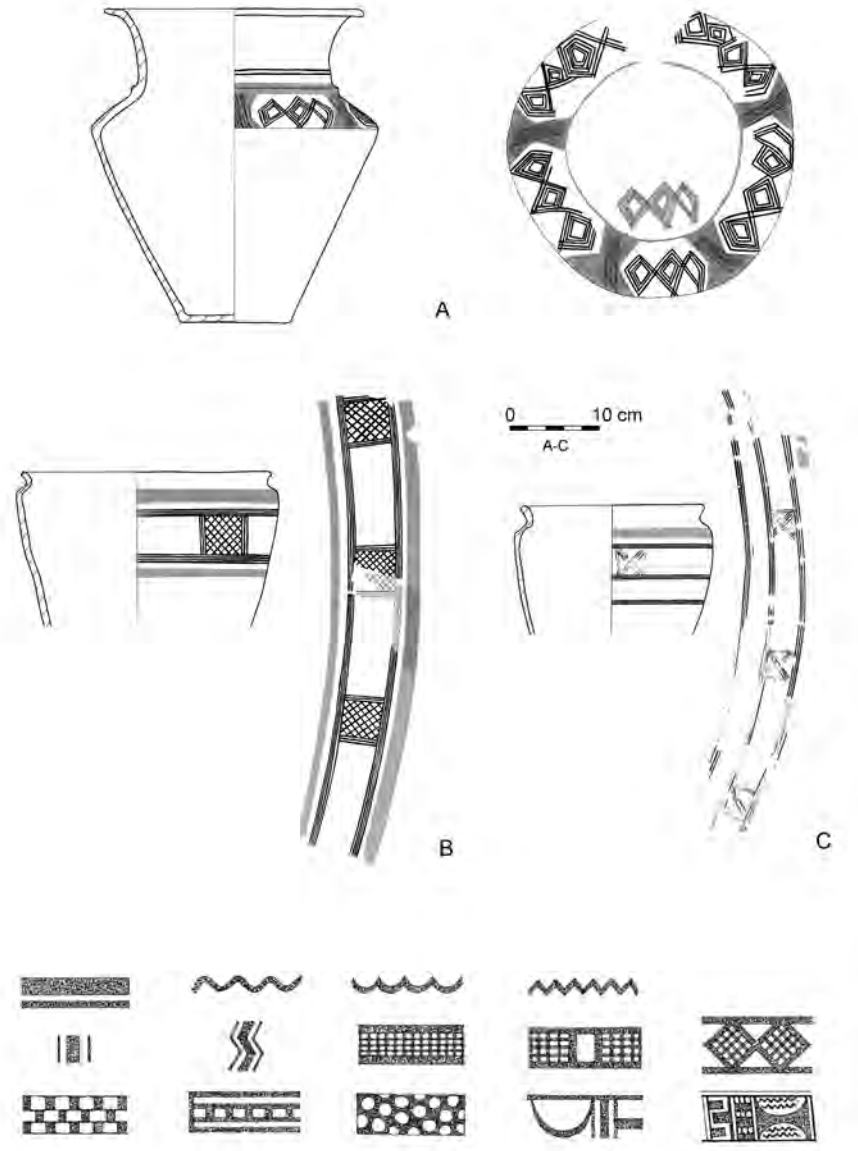

Fig. 49. A-C – Léglise-Gohimont, Belgium, painted pottery: D – decorations typical of painted pottery from the La Tène D period from the Czech Republic. A-C after A. Cahen-Delhaye and V. Hurt 2013, Figs. 25, 37 & 70; D after N. Venclová et al. 2008a, Fig. 51.

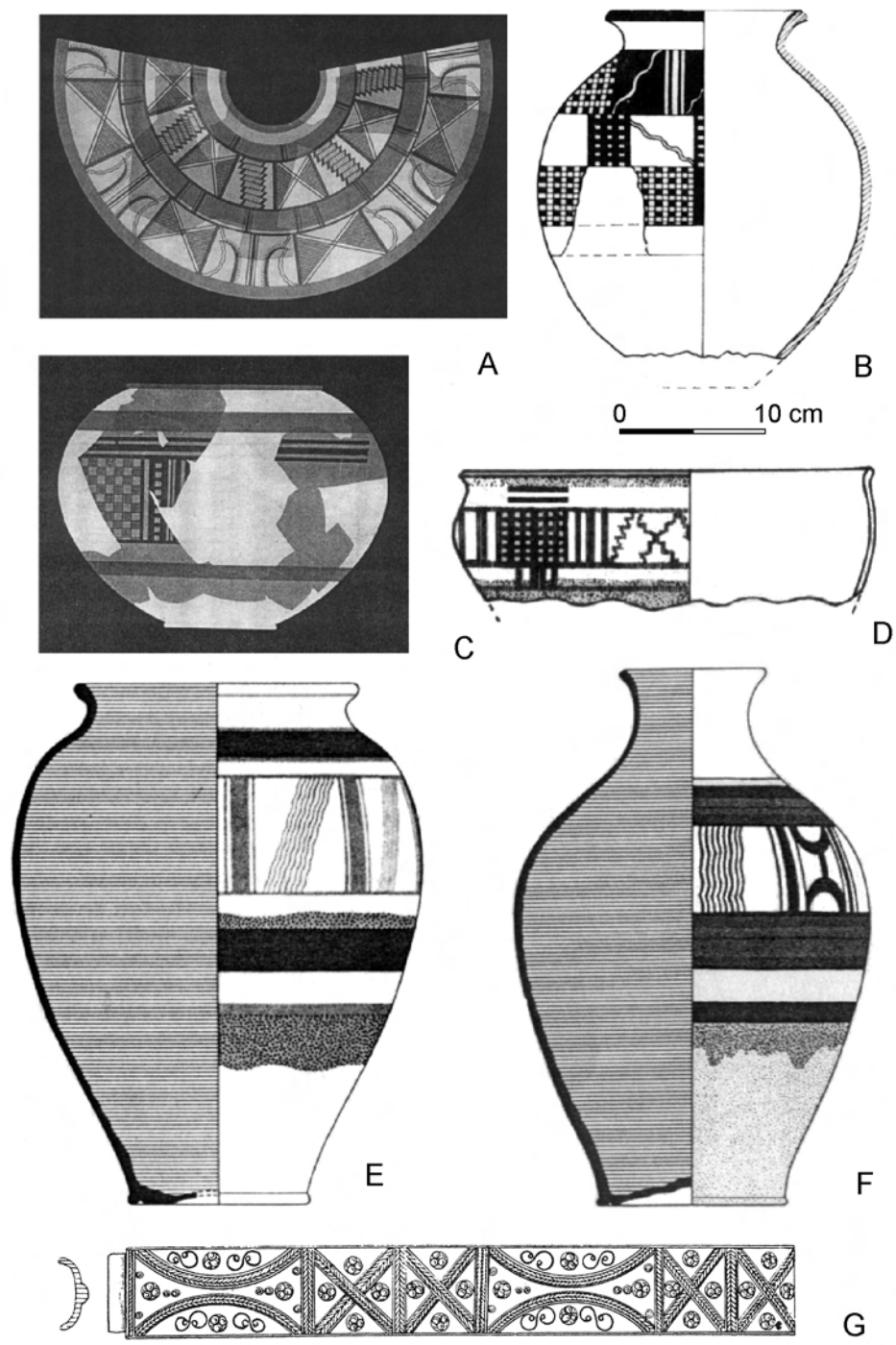

Fig. 50. Painted pottery. A and C – Gellérthegy-Tabán, Hungary; B and D – Liptovská Mara, Slovakia; E and F – Manching, Germany: G – Mikulčice, Moravia, the Czech Republic, decoration covering a bronze armlet. A, C and E after E. Bónis 1969; B and D after K. Pieta 1982; E and F after F. Maier 1961; G after J. Čižmárová 2004. Scale: E and F c. 1:5.

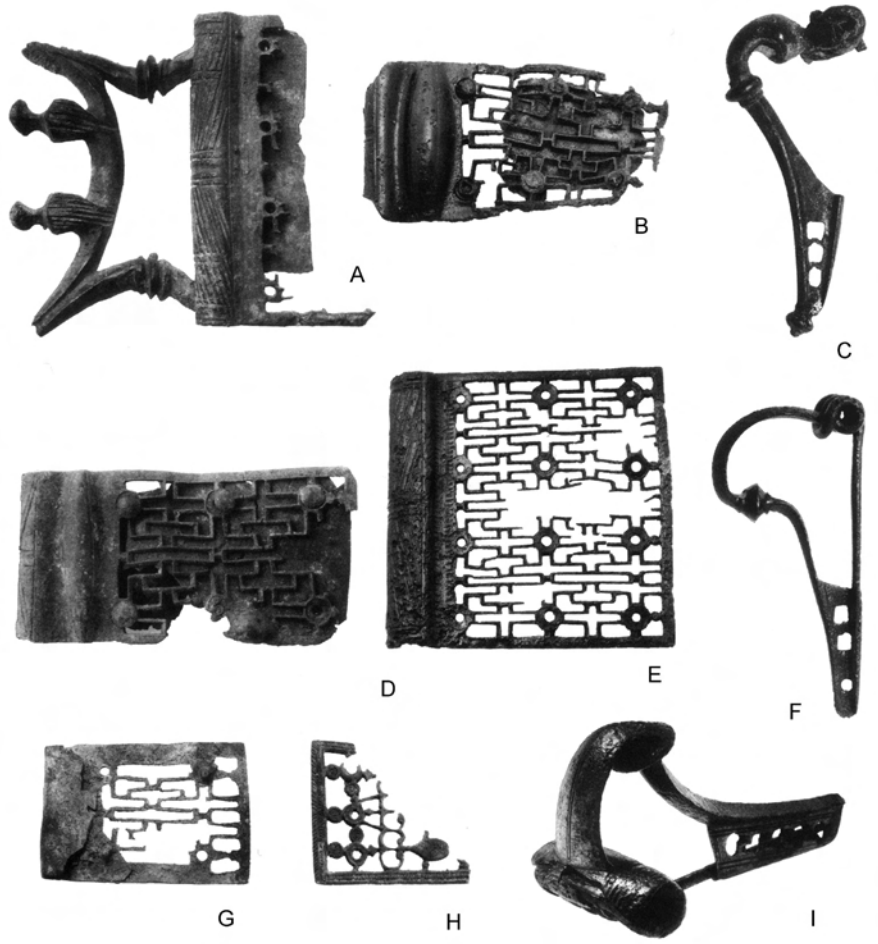

Fig. 51. Dobřichov-Pičhora, the Czech Republic. Openwork decoration of belt elements and brooch foot. Strongly profiled solids. Belt ends and brooches decorated with rings. A – grave 5; B – grave 6; C – grave VI; D – grave 78; E - grave 70; F – grave 1; G – grave III; H – grave IV; I – grave 50. After E. Droberjar 1999, Tables 101:4, 112:4, 6, 113: 1-2, 4, 7-8 & 15-16.

2. Metrology and style paradigms during the Roman period

We are a mere number and born to consume the fruits of the earth.
Horace, Epistle II. To Lollius

The stylistic analysis of the Przeworsk culture and the Elbe circle began with metrology research on the sites of Polwica 4 and 5 as well as Skrzypnik 8, Oława district in Poland (Gralak 2009a, 92-95, Figs. 13-17, 2014a). Remnants of settlements of the Przeworsk culture were recorded at all three sites. During the excavations, some remains of post buildings dated to the early Roman period were unearthed. The majority of them were the vestiges of the so-called six-post structures that were typical of the southern part of the Elbe circle, mainly from Moravia and Slovakia, and to a lesser extent from the Czech Republic (Droberjar 1997, Fig. 11).

The metrology analysis led to the conclusion that the preserved remains of buildings and the similar location of posts were characterised by repeatable dimensions. In order to determine the measurement unit buildings with the most regular pattern of postholes were compared (Fig. 52). In feature P4/753 the posts of the gable walls were spaced by 1.43 m. The length of the side walls were three times that size. When compared with the distance between internal posts in building P5/3588 and related, the result was half of this value, i.e. 0.715 m. The analysis of other buildings indicated that this figure represented a repeatable unit of measurement (Fig. 53). After overlaying the buildings' plans on a network with a grid size of 0.715 m, it was found that a repeatable rectangular module 3 x 4 units was applied in their layout. Hence, its surface was 6.1347 m².

1 unit of length = 0.715 m
1 unit² of surface = 0.511225 m²

Rectangular module
3 units x 4 units of length = 2.145 m x 2.86 m
12 units² of surface = 6.1347 m²

Most likely, the proportions of the module's sides result from the possibility of obtaining a right angle:

$$c^2 = a^2 + b^2$$
$$c^2 = 3^2 + 4^2$$
$$c^2 = 9 + 16$$
$$c = \sqrt{25}$$
$$c = 5$$

The reconstructed unit corresponds to the length of the arshin used in the early Post-Medieval period in Russia (Rybakov 1949, 68-69). It seems that this is not the result of convergence. The measurement unit of the same name (*arşin*),

with similar but variable values was used primarily in the Ottoman Empire. The name derives from the Persian *erş* – elbow (Kürkman 2003, 116). Hence, probably, as in the case of the Hallstatt period, during the Roman I period an anthropomorphic measure, i.e. resulting from the dimensions of a human body was used. This length is similar to half a fathom, which corresponds to the length of the arm, measured from the middle of the body (Rybakov 1949, 70, Fig. 1). As was already mentioned, similar units are known throughout the world, and the differences between the values result from physical differences between human beings and specific ways of measuring (Ball 2004, 34-37).

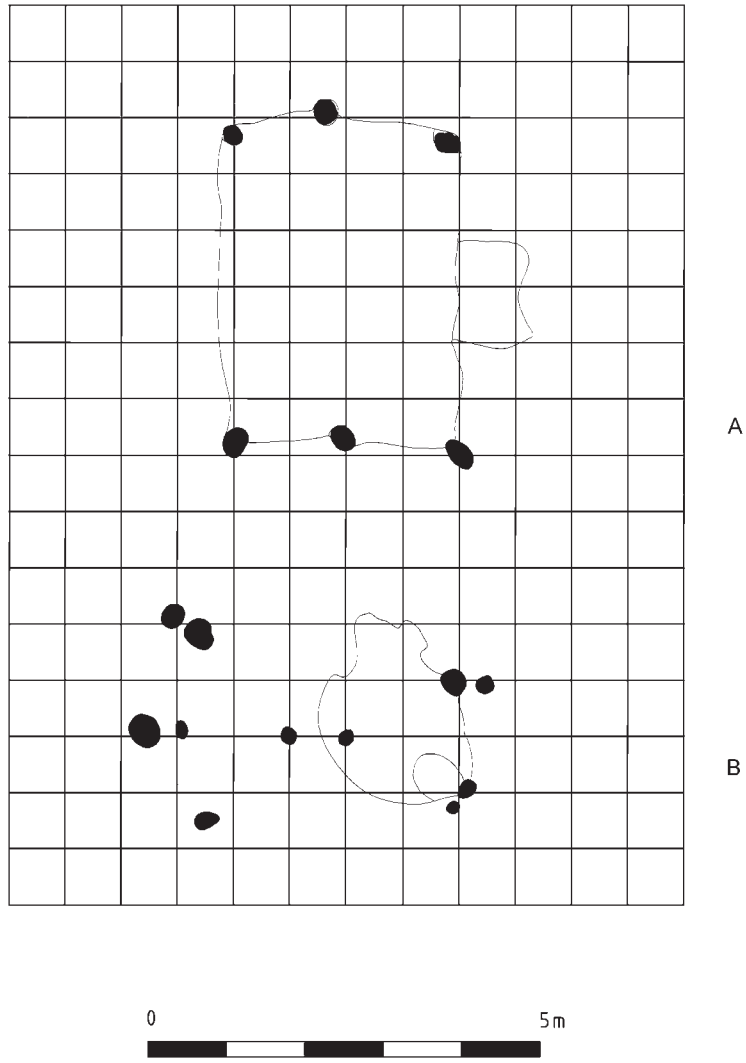

Fig. 52. Polwica 4, 5/Skrzypnik 8, Oława district, Poland. Plans of buildings. A - P4/753; B - P5/3588 and related against the network of a grid size of 0.715 m. After T. Gralak 2009a, 2014a.

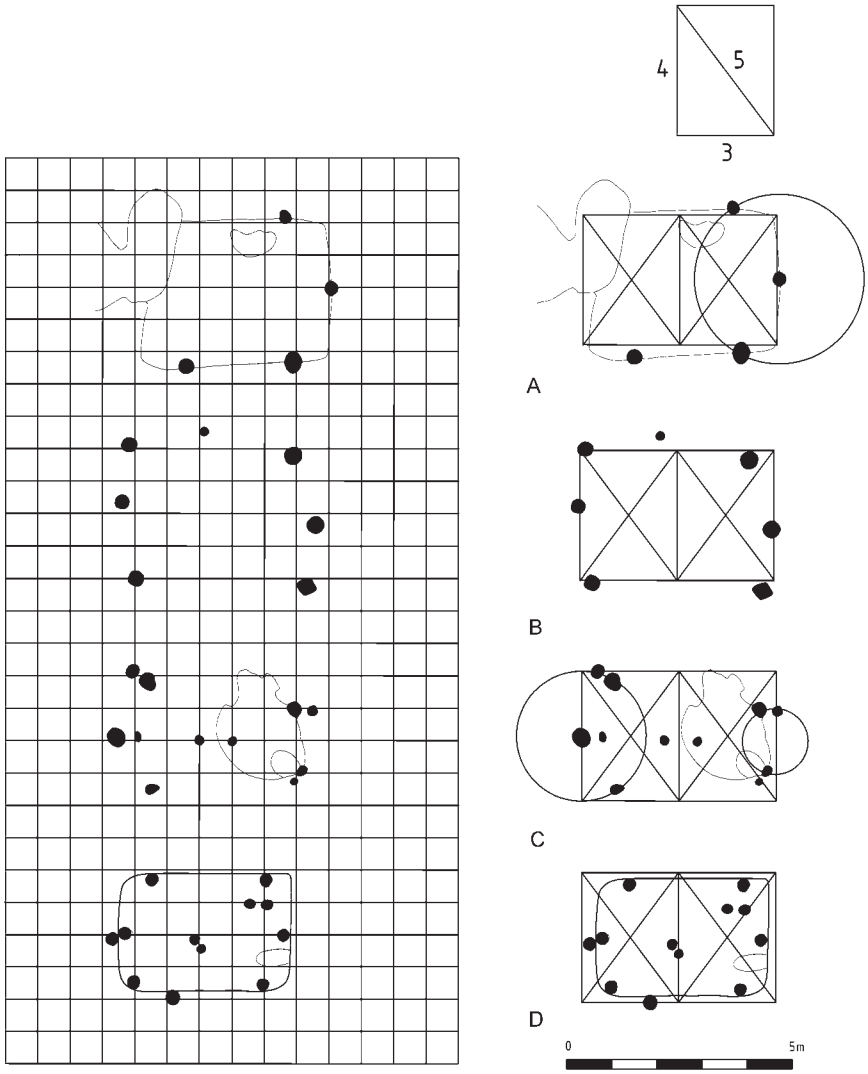

Fig. 53. Polwica 4, 5/Skrzypnik 8, Oława district, Poland. Plans of buildings. A – P5/2028; B – P4/1246; C – P5/3588 and related ones; D – P5/2 against the network of a grid size of 0.715 m and identified construction modules. After T. Gralak 2009a, 2014a.

The use of the identified measurement unit and construction modules was determined in all the remains of buildings from the early Roman period. It was concluded that this is a positive verification of the hypothesis of their existence.

Buildings P5/2028, P4/1246, P5/2 (Fig. 53) were erected on a rectangular plan. In each of them the support structure consisted of six posts with a very

distinctive layout. Four of them were located near the corners but still along the longer walls, while the other two were at the mid-point of the shorter walls. This technique is very typical of Moravia and Slovakia and corresponds to the B1 type according to the classification of Droberjar (1997, 22, Fig. 11; 2002, 99). A specific version of this construction technique was building P5/3588 and related (Fig. 53). Double posts were used; there were only two pairs of them in one of the shorter walls. Moreover, another two postholes were located in the centre of the building. Structures supported by six posts with a pair of internal posts positioned along the long axis are known from a settlement in Moravia from Blučiny, Brno Venkov district. In Slovakia from Vyškova Žleby, Vyškov district, buildings in which double posts were used in construction were recorded (Droberjar 1997, Table I: 1, Fig. 7).

In Polwica/Skrzypnik all the described arrangements were built on a rectangular plan, consisting of two rectangular modules adjoined by their longer sides. It was the most common form of construction. All of the buildings are characterised by a repeatable size:

4 units x 6 units of length = 2.86 m x 4.29 m
24 units^2 of surface = 12.2694 m^2

It was also recorded that to determine the position of posts on the line of the longer walls of building P5/2028, a circle was drawn with a radius of approximately 2.5 units. Its centre was located where a post was situated in the mid-point of the shorter wall. In building P5/3588 and related features the location of posts was determined by drawing circles with centres in the mid-point of the short wall. The radius of the first circle was 2 units, and the next was 1 unit.

Building P4/753 had a slightly different construction (Fig. 54). Three regularly spaced postholes were located in the shorter walls. Postholes were placed in pairs in the corners, and the next one between them in the middle of the wall. In the middle of one of the longer walls, a small annex was placed, probably constituting the remains of porch at the entrance. This element is particularly representative of the construction style in the southern zone of the Elbe circle, mainly in Moravia (Droberjar 1997, 22-23; 2002, 100). These types of buildings in the southern part of the Elbe circle are classified as the C4 type (Droberjar 1997, 22, Fig. 11; 2002, 99-100). Despite slight construction differences, this building was also erected on a rectangular plan consisting of two rectangular modules adjoined by their longer sides.

The largest building discovered on this site – P5/1365 and related slightly differed from the rest (Fig. 54). It had a six-post structure with an entrance annex, which allows it to be classified as the B2 type after Droberjar (1997, 22, Fig. 11; 2002, 99-100). It was built to a plan consisting of 4 modules – two rectangular and two squares with a side of 3 x 3 units. Hence, the whole building formed a rectangle with sides of 6 x 7 units.

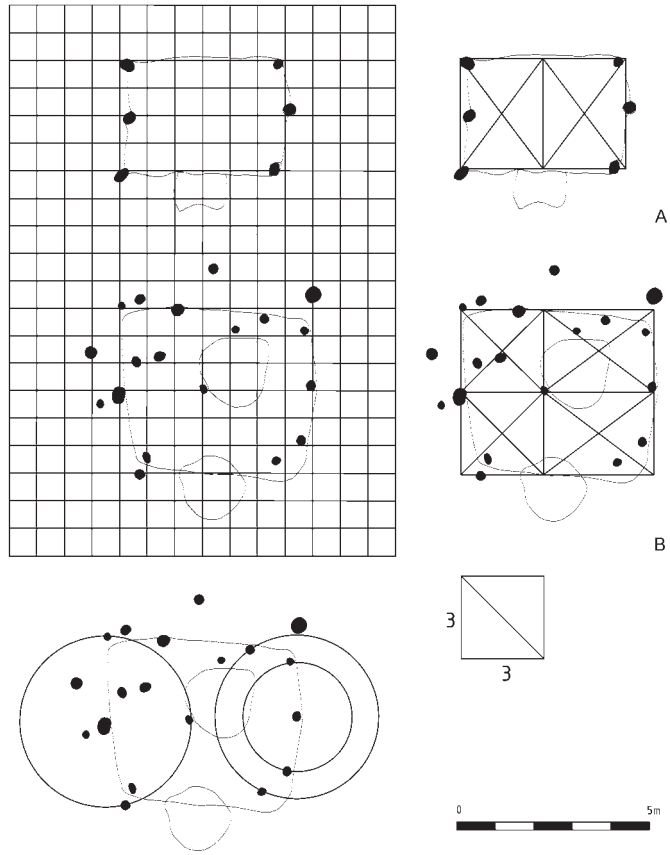

Fig. 54. Polwica 4, 5/Skrzypnik 8, Oława district, Poland. Plans of buildings. A – P4/753 and B – P5/1365 and related against the network of a grid size of 0.715 m and identified construction modules. After T. Gralak 2009a, 2014a.

Square module 3 x 3
3 units x 3 units of length = 2.145 m x 2.145 m
9 units² of surface = 6.601025 m²

6 units x 7 units of length = 4.29 m x 5.005 m
42 units² of surface = 21.47145 m²

It was also found that circles with radii of 2 and 3 units were drawn to determine the position of some of the posts. Their centres were located in the mid-point of shorter walls erected in places where the posts stood.

To summarise, it can be stated that in P5/1365 and related features, P5/2028 and P5/3588 and related features the location of the posts was determined by the drawing of circles. For this purpose, measuring strings were probably used. They were possibly12 units long. This is indicated by the common use of the module in which the right angle was determined using a triangle with the proportions 3 x 4 x 5 (12 in total). When using such a string it was also possible to design a regular square with side 3 × 3 units. Therefore, it cannot be excluded that the duodecimal system was applied for geometric measurements. In feature P5/2028, a division of the measurement unit in half was also recorded, which gives a portion about 0.3575 m long. It is possible that this was a permanent element of the measuring system.

It should be noted that analogies in the southern Elbe circle concern not only design solutions, but also the interior layout of buildings. A common additional element were postholes placed in the centre of a building (Droberjar 1997, Tables 26: 1, 27: 1, 66: 1, 80: 1, 86: 1 & 131: 1), which was recorded in buildings P5/2 and features, P5/34 and related features and P5/1365 and related features in Polwica. An entrance niche placed at the southern wall was viewed as a distinguishing feature of 'Quadi' construction (Droberjar 1997, 22-23). In Polwica it was noted in buildings P4/753, P5/1365 and related features. An element typical of Moravia was the location of a storage pit inside a building, often opposite to the entrance (Droberjar 1997, 25). In buildings P5/1365 and related features and P5/2028 and related features in Polwica such pits were much larger and located at the northern wall. Comparable pits are known from Slovakia from hut 11 in Ondrochov-Lipová (Kolník 1962, 359, Fig. 108). In contrast storage pits were located next to the south-eastern corner in buildings P5/2 and P5/3588. In the fill of building P5/1365 the remains of a human foetus were found (Chrzanowska and Krupska 1999, 27). This discovery has very close parallels in finds of the remains of young individuals within dwellings in the Czech Republic and Moravia (Reszczyńska 2008, 234, Table 1). In addition, in the fill of feature P5/1365 an almost complete dog's skeleton was found (Chrzanowska and Krupska 1999, 27), which also has counterparts in finds from Moravia (Droberjar 1997, 25-26). An analogous arrangement of the interior resulted from a similar manner of perceiving space. It forced similar building use and behaviour inside of them. This is also indicated by similar rituals. It seems, therefore, that in the case of construction, both groups of people perceived and categorised the world in a similar manner.

The comparison of the metrology of structures from Polwica/Skrzypnik and those of the southern area of the Elbe circle commenced with the search for the unit of measurement used. Very close and virtually the only formal analogies suggested that similarities may also occur in this field. The comparison of the metrology is also a verification of the accuracy of findings concerning the buildings from Polwica/Skrzypnik. The measurement analysis started with the search for repeatable distances. As in Polwica/Skrzypnik, the value marked by the inner posts of a building was selected, which was the structure from Blučina in this case (Fig. 55). The

distance between them was recorded at 0.715 m. The plans of the other buildings were overlain on a network with a grid of this particular size. Their dimensions and posthole arrangement indicated that this value was the basis of their metrology. It should be noted, however, that the previously mentioned limitations in geometric analysis prevents the recording of any small differences, (those of a few centimetres long). However, it can be assumed that in settlements in Polwica/Skrzypnik as well as in Moravia and Slovakia, in the early Roman period, an analogous or very similar unit of length was being used. The next step was to analyse the arrangement of individual structures in terms of the application of construction modules.

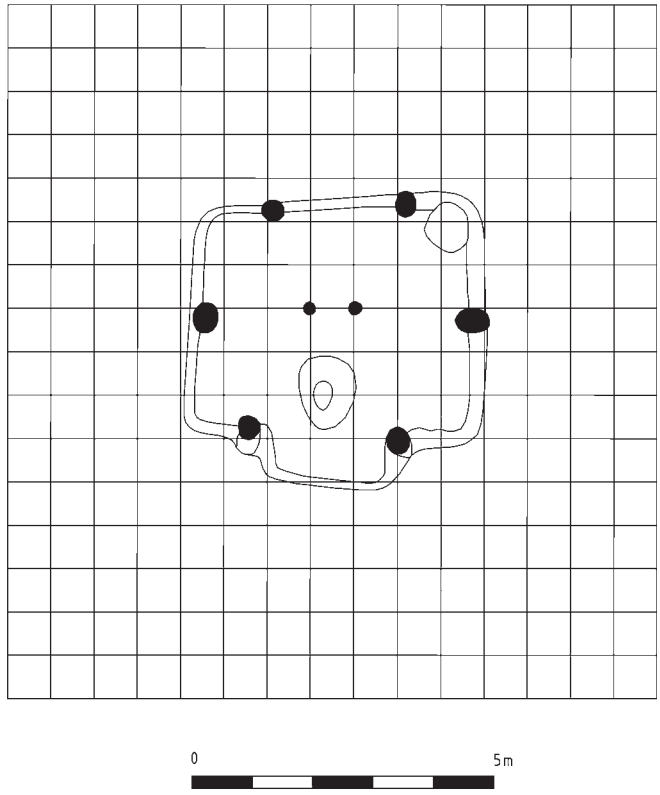

Fig. 55. Blučina I, okr. Brno-venkov, the Czech Republic against the network of a grid size of 0.715 m. After T. Gralak 2014a after E. Droberjar 1997.

Building II from Rajhrod, Brno-Venkov district, was classified as a B1 type after Droberjar (1997, Figs. 11 & 13: 6). It had a similar shape and dimensions as buildings P5/2028, P4/1246 and P5/2 from Polwica/Skrzypnik. Structure XI from Křepice, the Břeclav district, had an additional annex, allowing it to be classified as a B2 type after Droberjar (1997, Figs. 11 & 14: 5). However, it had the same metrology. All of these arrangements were erected on a plan consisting of two rectangular modules of 3 x 4 m (Fig. 56).

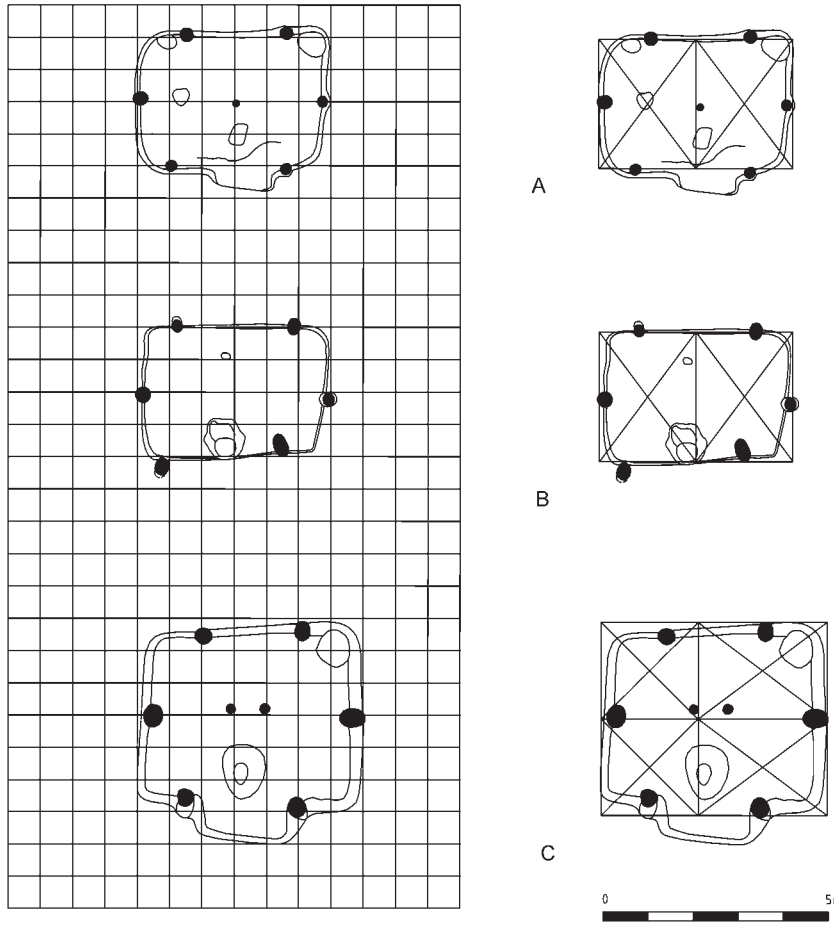

Fig. 56. Plans of buildings. A – Křepice XI, okr. Břeclav, the Czech Republic; B – Rajhrod II okr. Brno-venkov, the Czech Republic; C - Blučina I, okr. Brno-venkov, the Czech Republic against the network of a grid size of 0.715 m and identified construction modules. After T. Gralak 2014a after E. Droberjar 1997.

Building I from Blučina, a B2 type after Droberjar (1997, Figs. 11 & 14:1) was built on a plan consisting of two rectangular modules of 3 x 4 units and two square ones of 3 x 3 units (Fig. 56). Their layout is analogous to the building P5/1365 from Polwica. The presence of an entrance annexe further links their planning similarities.

Buildings XIV in Křepice and VII in Blučina, both the B2 type after Droberjar (1997, Figs. 11, 14: 2 & 6), were erected on a rectangular plan with dimensions of 5 x 6 units (Fig. 57). Most likely, two square modules 3 x 3 units were used in their planning, and two halves of rectangular modules – with dimensions of 2 x 3 units.

5 units x 6 units = 3.575 m × 4.29 m
30 units² = 15.33675 m²

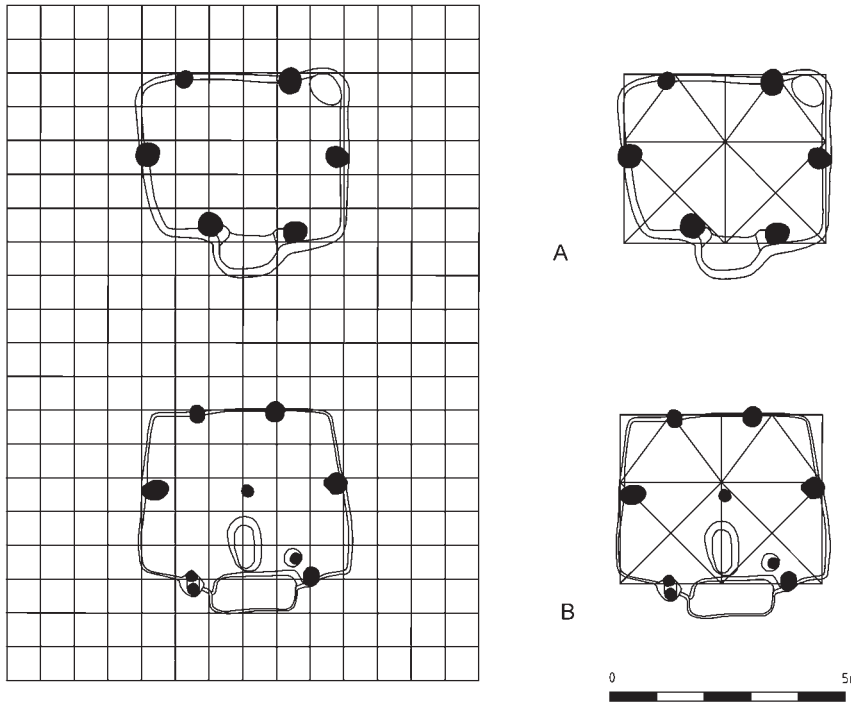

Fig. 57. Plans of buildings. A – Křepice XIV, okr. Břeclav; B – Blučina VII against the network of a grid size of 0.715 m and identified construction modules. After T. Gralak 2014a after E. Droberjar 1997.

Such a modular system has no equivalent in Polwica/Skrzypnik. Building XIV from Křepice is notable for the location of postholes along its shorter walls. Their location, almost exactly in the middle of the length of 5 units, suggests a dichotomous division. Therefore, the measurement unit would be a half of the total value, i.e. 0.3575 m. The same situation could also have occurred in building VII from Blučina, but, in this case, the posthole arrangement did not indicate this clearly. These findings confirm suspicions regarding the use of such divisions in designing the building P5/2028 from Polwica/Skrzypnik.

In buildings P5/1365 and related features, Blučina I and VII, Křepice XI and XIV and Rajhrod II, it was found that one or two edges of the fill defining the occupation level ran diagonally. This indicated that their outlines were trapezoidal rather than rectangular. It was not determined whether this was due to the measuring techniques, the structures' use or the walls' construction. It should be noted, however, that this phenomenon is repeatable.

In summary, it can be stated that there are exact analogies for buildings from Polwica/Skrzypnik in the Moravian-Slovak area. This concerns not only the form and structure, but also the dimensions and layout details. The differences occur, however, in the post structures – in the southern area of the Elbe circle such buildings were always accompanied by a deeper occupation layer. It should be

noted that in the area in question the studied buildings were much more diverse, different systems and module divisions were used. Thus, this is most probably the area from where the measurement unit and manner of planning techniques arrived into Silesia.

Apart from construction, the close relationship of the site in Polwica/Skrzypnik with those of Moravia and Slovakia is also indicated by the discovery of a potter's kiln, which has analogies only in those areas (Gralak 2009b, 92). The strong influence of the Elbe circle, and especially that of its southern part in Silesia has already been discussed in publications (Pazda 1983, 189-190; Błażejewski 1998, 38). The cultural characteristics of southern Moravia and Slovakia in the Przeworsk culture are perceptible almost in its entire western part. This applies to burial rites, pottery production and the metallic elements of dress (Gralak 2012, 70-87). Hence, very close interactions must have occurred. In this context the convergence observed in construction is no exception, but are part of a wider cultural trend.

The idea of a specific, six-post arrangement seems to have originated in the Hallstatt period in Bavaria. Initially, however, these structures looked different. They are not exact parallels for structures from the early Roman period and it is difficult to state clearly that there are genetic relations between them. They were buildings with posts in the corners, and two additional ones were placed close to them, along only one of the longer walls of the building. Usually, they somewhat protruded beyond the suspected edge of the building. This element is interpreted as the remains of a roof over the entrance or steps. Small buildings are assumed to be the remains of granaries. The earliest such structure was recorded in a settlement in Eiching, Freising district (Schefzik 2006, 112, Fig. 55: 15). Another one comes from Oberhofen, Kelheim district, but due to unclear stratigraphy, a younger chronology cannot be excluded (Kas 2000, 26-27, Fig. 8). In the mid and late La Tène periods, such structures are typical of the whole of southern Germany. Occasionally, they are also found in the early Roman period (Schefzik 2001, 129, 201, Figs. 68 A 4, 9, B 10, 11 & 69 B: C4).

In the late La Tène period structures with posts in the arrangement of the B type after Droberjar were recorded in the Czech Republic, in the settlement in Soběsuky, building I. An arrangement of this type, but only in one of the walls, was recorded in house No. 9 in Libochovice (Motyková-Šneidrová 1960, 178, Figs. 17 & 18).

Fully formed structures of this kind appeared at the turn of phases A3/B1 at the earliest in the Czech Republic, along with the Grossromsted/Plaňany finds horizon (Droberjar 2008, 100-102). In phases B1-C1, they occurred frequently in Bohemia, Moravia and Slovakia (Droberjar 1997, 22, Fig. 12). In the context of earlier analogies, they probably arrived there along with the population from present-day central and southern Germany. Firstly, it was thought to be the Marcomanni tribe, but other groups took part in this migration (Peschel 1978, 121, 132-134). Most likely, during this period this construction skill reached Silesia. The beginning of the early Roman phase of settlement in Polwica/Skrzypnik can be dated to the late phase of A3. During this period, the rebirth of stable settle-

ment is evident in Silesia (Pazda 1980, 39-40, 46). The admixture of population from the Elbe circle has been discussed in publications (Pazda 1980, 52, 1983, 189). Elements typical of the Grossromsted/Plaňany horizon are also known from Silesia. The assemblage from grave 1 from Brzyków, Trzebnica district is described in this light (Pazda 1980, 42).

It should be emphasised that neither in Polwica/Skrzypnik nor in the southern Elbe area was planning characteristic of the La Tène period recorded. This applies to the specific way repeatable elements were used. In the oppidum in Manching, apart from compiling construction modules, it was found that they were extended and reduced while maintaining the sides' proportions (Schubert 1994, 141-143, Figs. 5-10). The same method was also found in the curvilinear decorative motifs used in this period (Megaw and Megaw 2005, 60, Fig. 66). Thus, it seems that both the modular system and the most commonly applied proportions in the construction of the early Roman period stem from traditions in the Hallstatt period.

In the layout of settlements of the Przeworsk culture from the Roman period, the modular paradigm was used too. Dwellings appear to have been arranged in an oval around an empty space or a central building, with a deliberately separated special economic zone (Kobyliński 1988, 58-71, Figs. 33-35; 2005, 294-296, Figs. 1, 2 & 8). This layout is most perceptible in the settlement from the early Roman period in Strobin, Wieluń district (Fig. 58). Structures that were partially sunken formed an irregular circle with a diameter of approximately 50 m. There was a central structure, which, however, does not differ structurally from the other buildings. The economic zone, which consisted of a set of several dozen hearths, is situated approximately 70 m to the NW (Abramek 1982, 153-157, Fig. 2, 1994, 50, Fig. 3). In the settlement in Polwica, it was noted that houses P5/2028, P5/1365 and P5/2588, were clearly built along the edge of the circle. Furthermore, similar distances were found between them. The centrally located building P5/1365 was also significantly larger. It seems that it was only partially completed the oval arrangement.

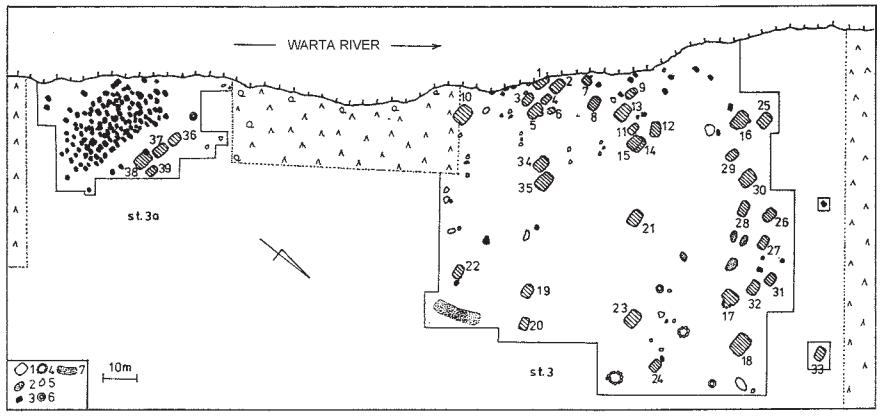

Fig. 58. Strobin, Wieluń district, Poland. Settlement, circular in plan. After B. Abramek 1994, 50, Fig. 3.

This type of settlement arrangement is very similar to ones known as court sites, which were also recorded during the Roman period in Norway. In Polwica only part of the settlements achieved the complete plan of the design. Sometimes they were only 3 houses arranged along the curve (Grimm 2010, 30-44, Figs. 2-6). Such a settlement model is a version of that previously used in Hallstatt chieftains' farmsteads and late La Tène *Viereckschanzen*.

The implementation of the modular system is also indicated by some grave types. This concerns the aforementioned burials placed inside rectangular grooved features (Fig. 59). Such types were recorded in the southern parts of the Elbe circle in the Czech Republic (Motyková-Šneidrová 1977, 240-246, Figs. 1 & 2), but above all in the southern zone of the Przeworsk culture (Kaczanowski et al. 1984, 101, Fig. 16; Gedl 1985, 159-165, 170, Fig. 56). A similar feature, discovered in Domasław, Wrocław district, underwent metrological analysis (Gralak et al. 2015). After overlaying its outline on a network with a grid size of 0.715 m, it was found that the dimensions of this structure were 6.5 x 9.5 units (Fig. 60). Therefore, most probably a half of this unit was used as a measurement for planning this building. Therefore, the feature's dimensions would be 13 x 19 units, each one measuring 0.3575 m. The possibility of using units divided in half was already known from buildings P5/2028 from Polwica and XIV Křepice. It is not a unique phenomenon. In contrast, the specific proportions used for the construction of the grooved feature in Domasław, most likely resulted from the need to create a right angle:

$$c^2 = a^2 + b^2$$
$$c^2 = 13^2 + 19^2$$
$$c^2 = 169 + 361$$
$$c = \sqrt{530}$$
$$c = 23.021$$

Hence, the complete arrangements were probably designed using string, with which two right-angled triangles with the *catheti* of 13 and 19 and the hypotenuse of 23 units was determined. A slight inaccuracy in the latter value probably did not significantly affect the correct proportions of the structure – in the metric system its value is about 7.5 mm. One may wonder to what extent this value could have been recorded using ancient measuring instruments – a string and a stick.

In general, the determination of the proportions similar to the Pythagorean triangle and the same unit as in the case of dwellings confirms the repetition of the measurement unit and a consistent system of space organisation. The next step for the verification of the metrological research is a comparison of the obtained plans with contemporary decoration, known mainly from pottery vessels. As in the previous chapters, it was assumed that the same style features were expressed through various cultural products (Uspieński 1977, 181-212; Hodder 1990, 45-51). It was also assumed that the recorded similarities might relate to repeatable rules concerning all of society. The determination of style features, therefore, is also one of the ways of studying the entire culture.

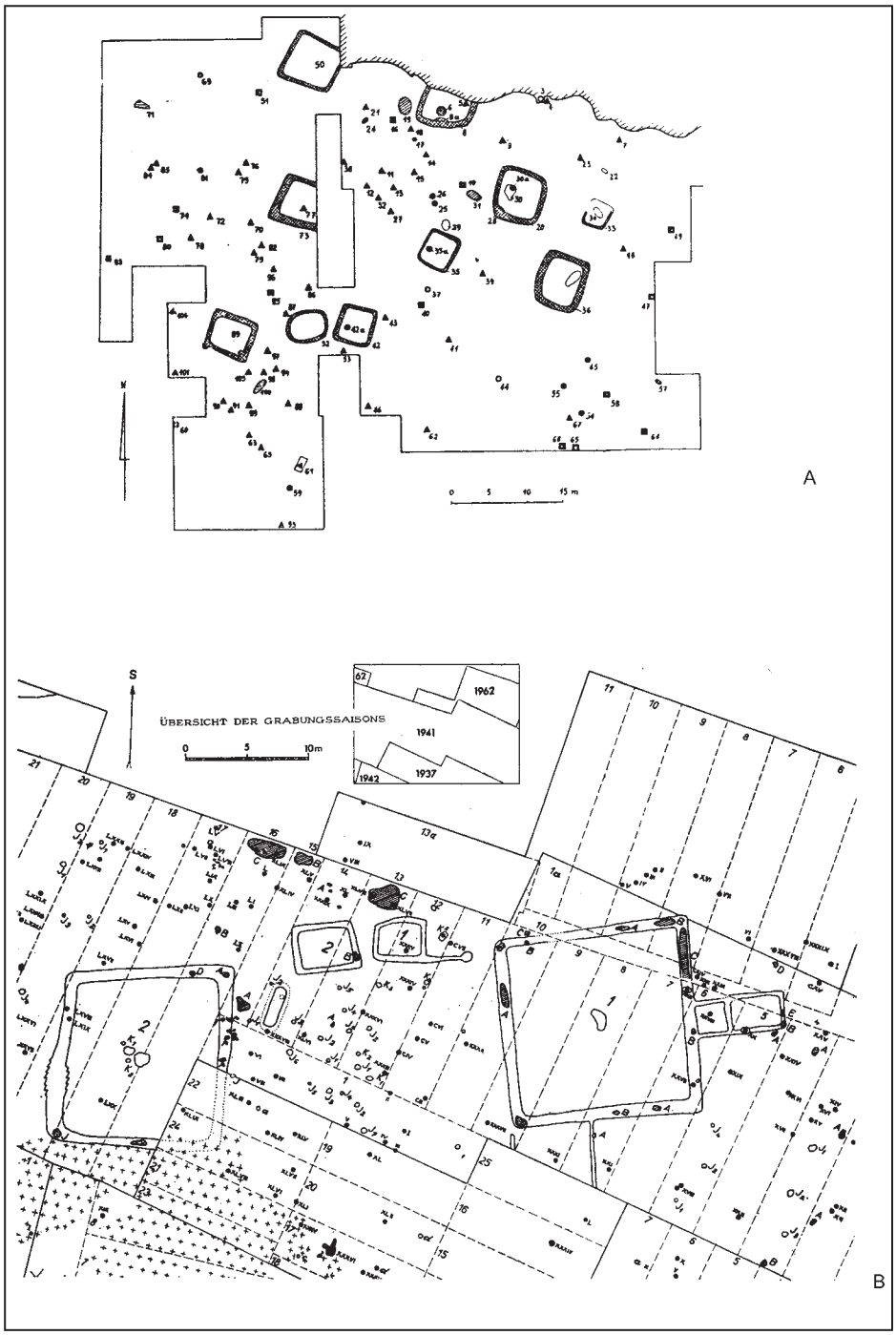

Fig. 59. Plans of burial grounds with so-called groove features: A - Kryspinów, Kraków district, Poland; B - Třebusice, okr. Kladno, the Czech Republic. A after K. Godłowski and R. Madyda 1976; B after K. Motyková-Šneidrová 1977.

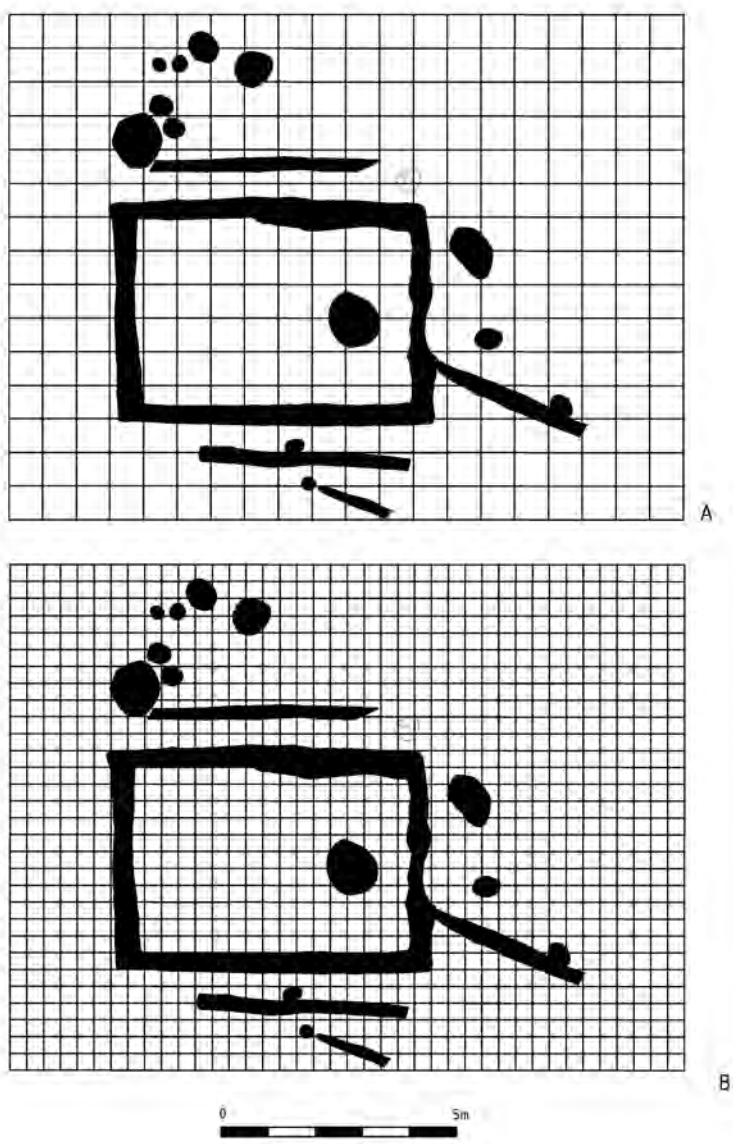

Fig. 60. Domasław, Wrocław district, Poland, groove feature. A – against the network of a grid size of 0. 715 m; B – against the network of a grid size of 0.3577 m. Drawing by T. Gralak after T. Gralak et al. 2015, Fig. 5.

The modular system (a composition consisting of repeatable segments) is the basic principle that organised pottery decoration. On vessels of the Przeworsk culture in the pre-Roman period, rectangular (metope-shaped and envelope-shaped) decorative motifs appeared, based on a module system (Dąbrowska 1973, Fig. 111:12, Table LI), analogous to the ones found in the La Tène culture during the La Tène C and the La Tène D periods (Kostrzewski, J. 1919, 203, Fig. 229: a). It seems that such decoration was adopted primarily from late La Tène painted pottery (Gralak 2012a, 40-42) (Fig. 50: A-F). Around the turn of the eras under the influence of decoration of the then emerging Elbe circle, a change in decorative style occurred (Fig. 61). The decoration of the Przeworsk culture's vessels were still modular, but variously presented meander and swastika motifs started to dominate (Kostrzewski, B. 1947, 280-281; Liana 1970, 438-440, Tables I & II; Gralak 2012a, 76-78, Pl. XXIV: c-f) (Fig. 62). Some of these patterns were formed from individual, repeated elements, such as small prints, made by rouletting or in a similar manner. Hence, individual patterns were created by multiplying repeatable motifs. Therefore, modular thinking concerned not only composition, but also the manner of decoration. The prevalence of such ornaments also appears to confirm the thesis about the use of the modular system in buildings planning.

In agricultural societies, the approach to space organisation determines the existence of the entire population. It regulates access to the basic means of production – land used for agricultural purposes. Therefore, social structure depends on it. Tacitus' remarks in Germania suggest that agricultural areas also had a modular structure in the early Roman period and individual plots were characterised by being a similar size:

Land proportioned to the number of inhabitants is occupied by the whole community in turn, and afterwards divided among them according to rank. A wide expanse of plains makes the partition easy. They till fresh fields every year, and they have still more land than enough; with the richness and extent of their soil (...).
Tacitus, Germania, 26

Such a perception of space is evidenced by the finds of accurately determined plots – the so-called Celtic fields that in the occurred in the northern areas of the Barbaricum (Fig. 63). They had appeared already in the Hallstatt period and it seems that they were mainly used in the pre-Roman period to the Roman period (Audouze & Büchsenschütz 1992, 158-162, Fig. 95: 1; Hedeager 1990, 133-137). Compiling Tacitus' remarks and finds from northern Europe, it appears that such divisions of rural areas were a common practice at that time. Given the many manifestations of modular thinking in the Przeworsk culture, it can be assumed that the population who created this thinking also divided agricultural land in the same way.

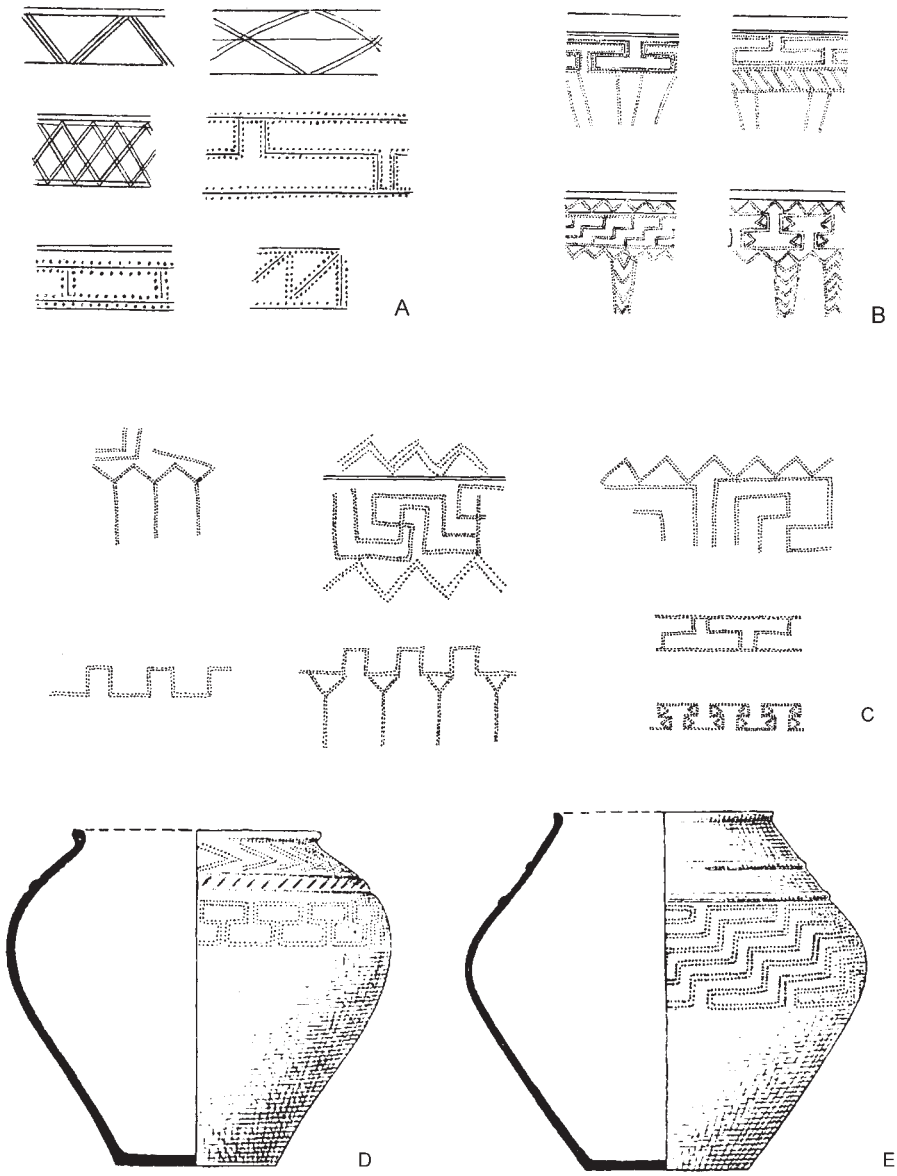

Fig. 61. Selected decorative motifs of the Elbe River circle's pottery vessels. A – from the pre-Roman period from the Czech Republic; B – from the early Roman period from the Czech Republic, C – from the early Roman period from Moravia, examples of decorated pottery vessels: D – Kostolná pri Dunaji, okr. Galanta, Slovakia, grave A; E – Kostolná pri Dunaji, grave B. A and B after K. Motyková-Šneidrová 1963 B. 1: 1, 3-8, 34, 34, 36 & 37; C after E. Droberjar 1997, Figs. 25: 631-633 & 651-652a; D, E after T. Kolnik 1980. Scale: D and E c. 1:9.

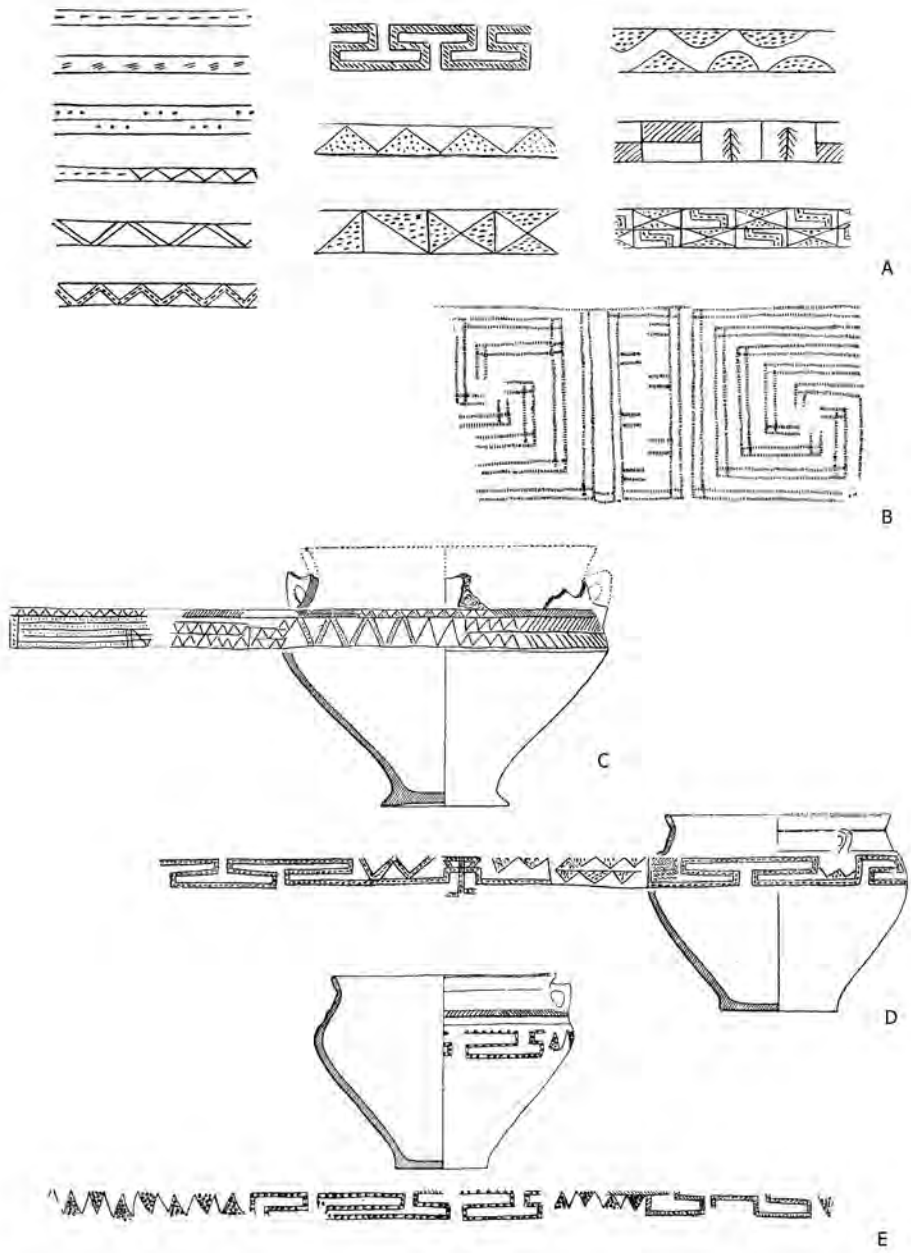

Fig. 62. Selected decorative motifs of the Przeworsk culture's pottery vessels: A – from the pre-Roman period from Greater Poland; B – from the early Roman period, Wymysłowo, Oborniki district, Poland, grave 303; C, D and E – from the early Roman period, Młodzikowo, Środa district, Poland, graves 172, 171 and 178. A after J. Kostrzewski 1955, Figs. 538-535; B after S. Jasnosz 1952, Fig. 303; C-E after A. Dymaczewski 1958, Figs. 300: 4, 299: 3 & 310: 1. Scale: C and D 1:5; E 1:8.

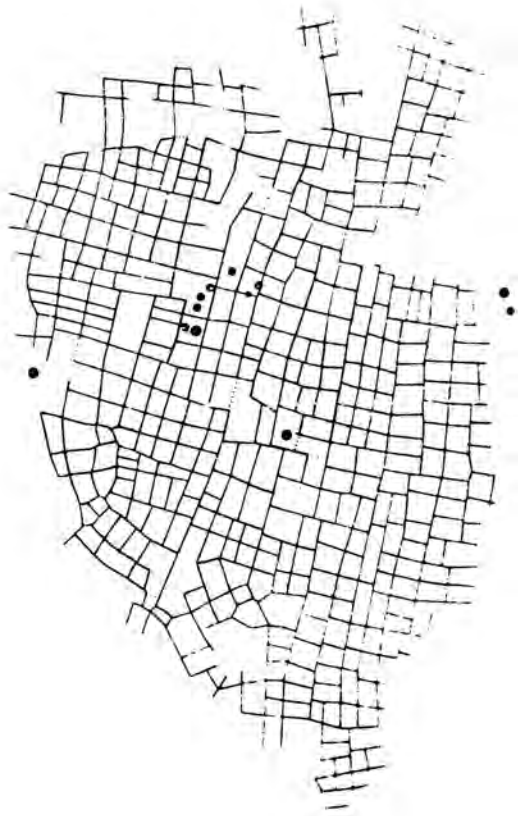

Fig. 63. Vaasen, Netherlands, 'Celtic field' 600 BC – 150 AD. After F. Audouze and O. Büchsenschütz 1992, Fig. 95: 1.

Research on the settlement network of the Przeworsk culture revealed the existence of distinct settlement clusters, separated by uninhabited areas (Godłowski 1985, 64). This manner of land exploitation was so distinctive that it was noticed and described by the Romans (Gaius Julius Caesar, Commentari de Bello Galico, IV.3, VI.23; Tacitus, Germania, 40). The unsettled areas, densely forested or situated in the mountains were characteristic of virtually the entire European Barbaricum (Kolendo 1998, 73-84). It seems that this kind of settlement is also an expression of the modular perception of the world. As already mentioned, this phenomenon occurred during the Hallstatt period and in the Jastorf culture. In the Roman period we are most likely dealing with its continuation.

The modular system was also the principle according to which everyday objects were constructed. This applies to artefacts that were interregional in nature, which have been found both in the Przeworsk culture as well as in the Elbe

circle. Rings were a frequent decorative motif used in the construction of artefacts in the form of solids (Fig. 51: A, C, F; 64; 65: E-H, J-M). They were used for decorating brooches (Almgren 1923, A2, A1-A19, A67-69, etc.) or javelin heads' sockets (Kaczanowski 29-39, Table XVI: 1 & 3). Vessels from the south Elbe area and the Przeworsk culture of I/2 type after T. Liana were also decorated with multiple circumferential bands (Liana 1970, 438, Tables I: 2, 4, 5 & 6; Gralak 2012a, 76-77, Pl. XXII & XXIII). Such decoration is a realisation of the same paradigm, only the rings are made of clay, not metal. It was also noted that metal strap ends of the I type (Madyda 1977, 380-383, Table VI: 5-15), were decorated with alternately situated rings and globules. A similar situation was also recorded on metal and bone pins (Beckmann 1966; Droberjar 2002, 107-109). The latter are surprisingly similar (especially specimens of groups II and IV after Beckmann) to such objects from the Geometric period in Greece. In addition, brooches were decorated with frequently repeated elements – combs. This applies especially to types A 94-A 98 (Almgren 1923).

It appears that during the Roman period, as during the Hallstatt period, one of the main factors influencing the modular perception of the world was the method of communication. Tacitus described it clearly:

*In their **ancient songs, their only way of remembering or recording** the past, they celebrate an earth-born god, Tuisco, and his son Mannus, as the origin of their race, as their founders.*
Germania, 2

They say that Hercules, too, once visited them; and when going into battle, they sing of him first of all heroes. They have also those songs of theirs, by the recital of which ('baritus', they call it), they rouse their courage, while from the note they augur the result of the approaching conflict.
Germania, 3

The modular perception of the world also influenced the approach to learning. One of divination techniques was cleromancy:

The use of the lots is simple. A little bough is lopped off a fruit-bearing tree, and cut into small pieces; these are distinguished by certain marks, and thrown carelessly and at random over a white garment. In public questions the priest of the particular state, in private the father of the family, invokes the gods, and, with his eyes towards heaven, takes up each piece three times, and finds in them a meaning according to the mark previously impressed on them.
Tacitus, Germania, 10

Hence, for divination a set of repeatable elements – a broken bough was used. The information was delivered by the arrangement the pieces formed.

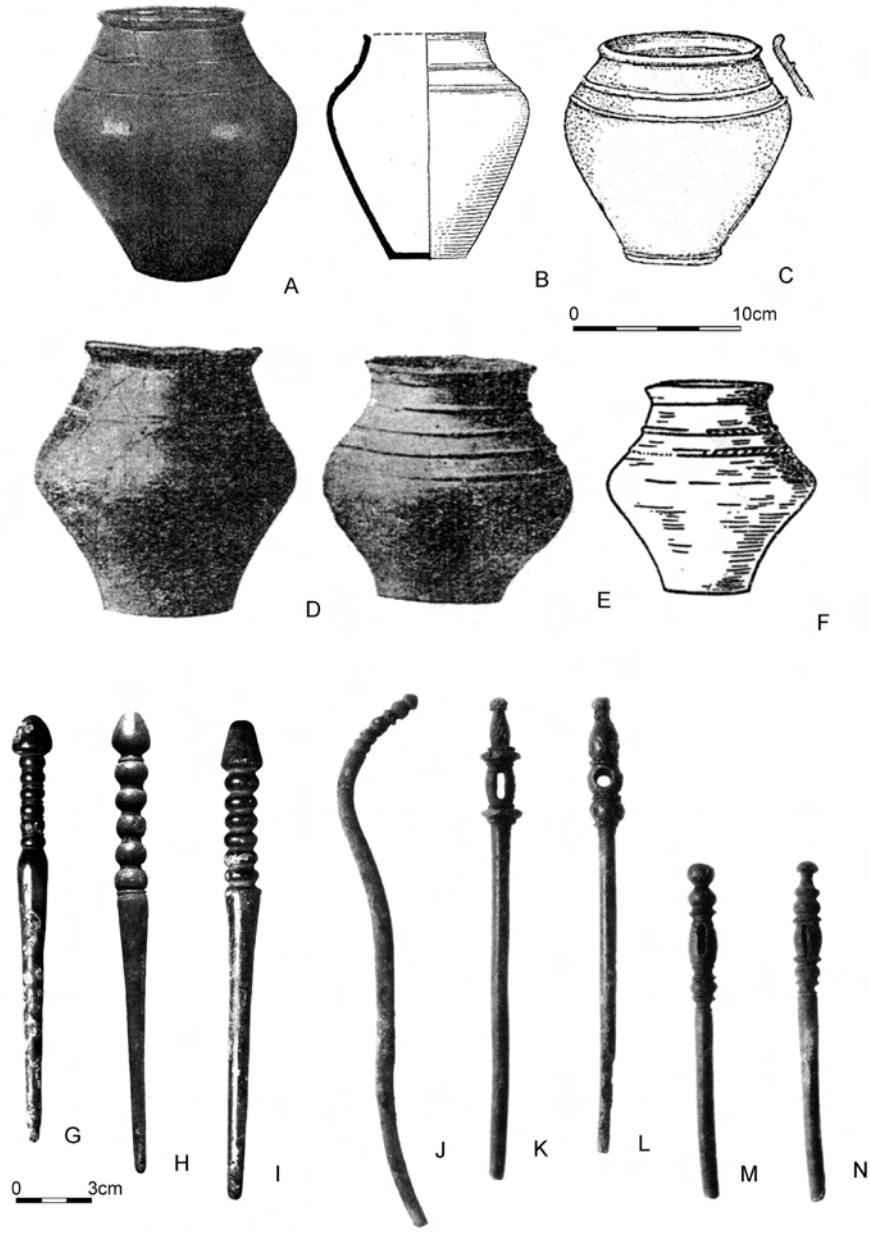

Fig. 64. A – Dobřichov-Pičhora, the Czech Republic, grave 26 (depth 26.6 cm); B – Kostolná pri Dunaji, okr. Galanta, Slovakia, grave 9; C – Dobřichov-Pičhora, the Czech Republic, grave 6; D – Wrocław-Kozanów, Wrocław district, Poland, grave 7a; E – Wrocław-Kozanów, grave 1; F – Jaksonów, Wrocław district, Poland, grave 1; G-I - Podmokly, the Czech Republic; J-N – the Czech Republic, graves 5, 134, 94, 127 and 66. A and C after K. Motyková-Šneidrova 1963; B after T. Kolnik 1980; D-F after S. Pazda 1983; G-I after V. Salač 2008, Figs. 71: 6-8; J-N after E. Droberjar 1999, Table 115 1-5. Scale: C c. 1:7.

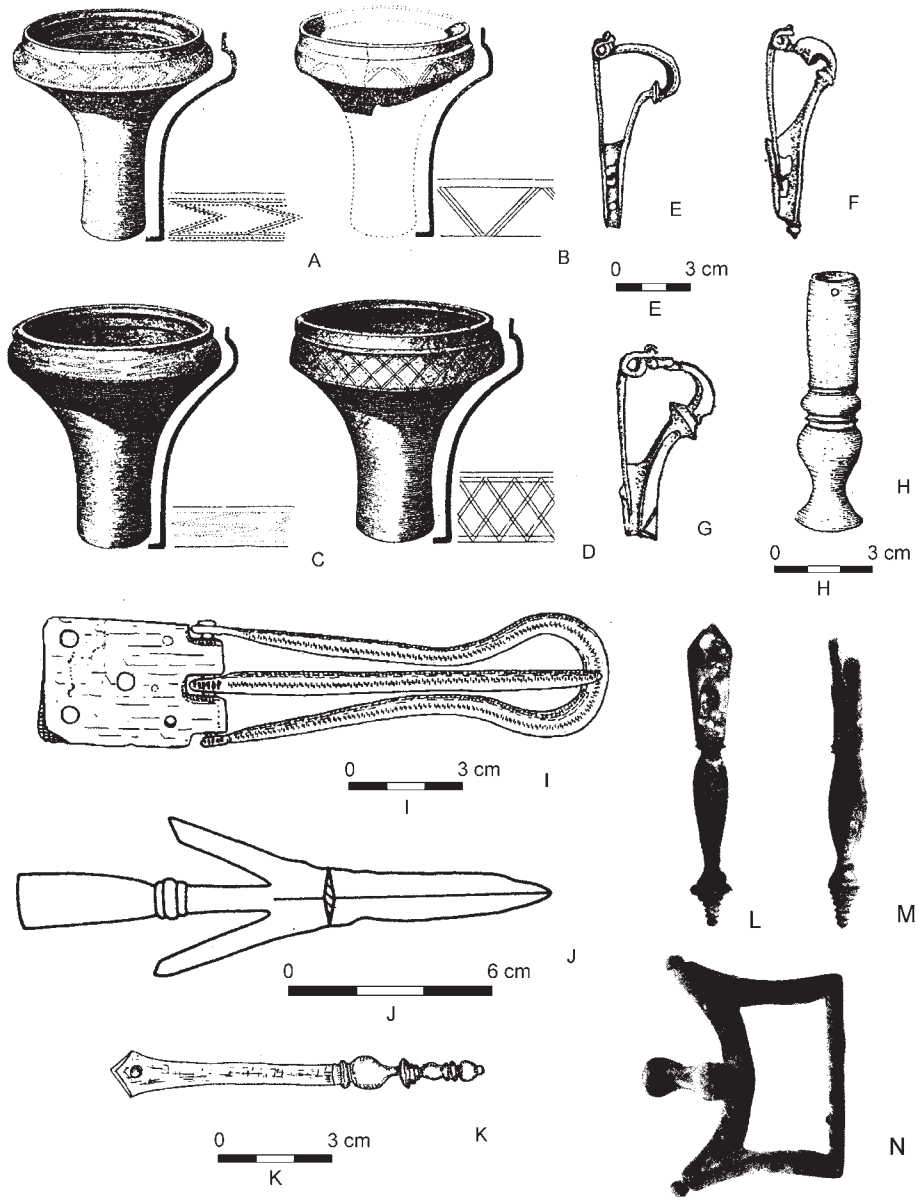

Fig. 65. Strongly profiled solids. A-D – Starý Vestec, the Czech Republic; E – Wólka Domaniowska, Radom district, Poland, grave 57; F – Třebusice, the Czech Republic, grave XVI/42; G – Třebusice, the Czech Republic, grave CXIII/42; H – Hrdly, the Czech Republic; I – Kraków-Nowa Huta, Poland; J – Nowe Miasto nad Pilicą, Grójec district, Poland, grave 15b; K – Odry, Chojnice district, Poland; Dobřichov-Pičhora, the Czech Republic. L – graves 148; M – grave III; N – grave VI. A-D after E. Droberjar 2002; E after M. Olędzki 1994; F-G after K. Motyková-Šneidrová 1963; H after J. Andrzejowski 1991; I and K after R. Madyda 1977, Table VI: 5; J after P. Kaczanowski 1995; L-N after E. Droberjar 1999, Tables 113: 5, 6, 10.

In the Roman period dice (Fig. 66) marked with a different numbers of dots became popular (Droberjar 2002, 84). Their prototypes had appeared during the late La Tène period (Krüger 1982, 144-154, Tables 29:9-17, 30:1-4, 32:11-21 & 33-37; Čižmárová 2004, 59-56). Their widespread use was noticed by Tacitus:

Strangely enough they make games of hazard a serious occupation even when sober, and so venturesome are they about gaining or losing, that, when every other resource has failed, on the last and final throw they stake the freedom of their own persons. The loser goes into voluntary slavery; though the younger and stronger, he suffers himself to be bound and sold.
Germania, 25

It seems that in such a game the gods expressed their will, which was manifested by specific numbers or the dice's alignment. Again, it was a combination of repeatable and numerically defined systems.

The rule of style that the whole is composed of repeatable elements probably directly influenced interpersonal relations. It is typical that both in Polwica/Skrzypnik and in the southern areas of the Elbe circle, primarily structures with dimensions which suggest that they were inhabited by one elementary family were recorded (Droberjar 1997, 22). Besides, usually they were monogamous relationships – as clearly indicated by Tacitus (Germania 18-19). In the territories occupied by the Przeworsk culture small partially sunken posts houses are typical (Kobyliński 1988, 29-43, Figs. 10-22, 2005, 299, Fig. 8). The so-called large houses are relatively rare (Godłowski 1981a, 105; Kobyliński 1988, 46-47). It can, therefore, be assumed that the whole is perceptible at the level of settlement, which consists of various repeatable parts. This is also confirmed by the aforementioned layout of settlements resembling *Herrenhof*. The perception of human individuals as modules forming a community is evident in burial rites. This principle is expressed through the construction of graves in the form of rectangular groove features. Hence, the same element was used of which decorative patterns of pottery and plans of houses were composed. Such types of graves had occurred in the late La Tène period (as already mentioned) at a time when the modular paradigm returned.

In summary, the modular schemes are characteristic elements of the world of the Barbarians in the Roman period. This corresponded to the beliefs of the inhabitants of the Roman Empire. In the late Roman period Plotinus presented a perception of the world, which had begun to fade in his time:

Almost everyone declares that the ***symmetry of parts towards each other and towards a whole****, with, besides, a certain charm of colour, constitutes* ***the beauty*** *recognised by the eye, that in visible things, as indeed in all else, universally,* ***the beautiful thing is essentially symmetrical, patterned****.*
Plotinus, Ennead I.6, On Beauty 1

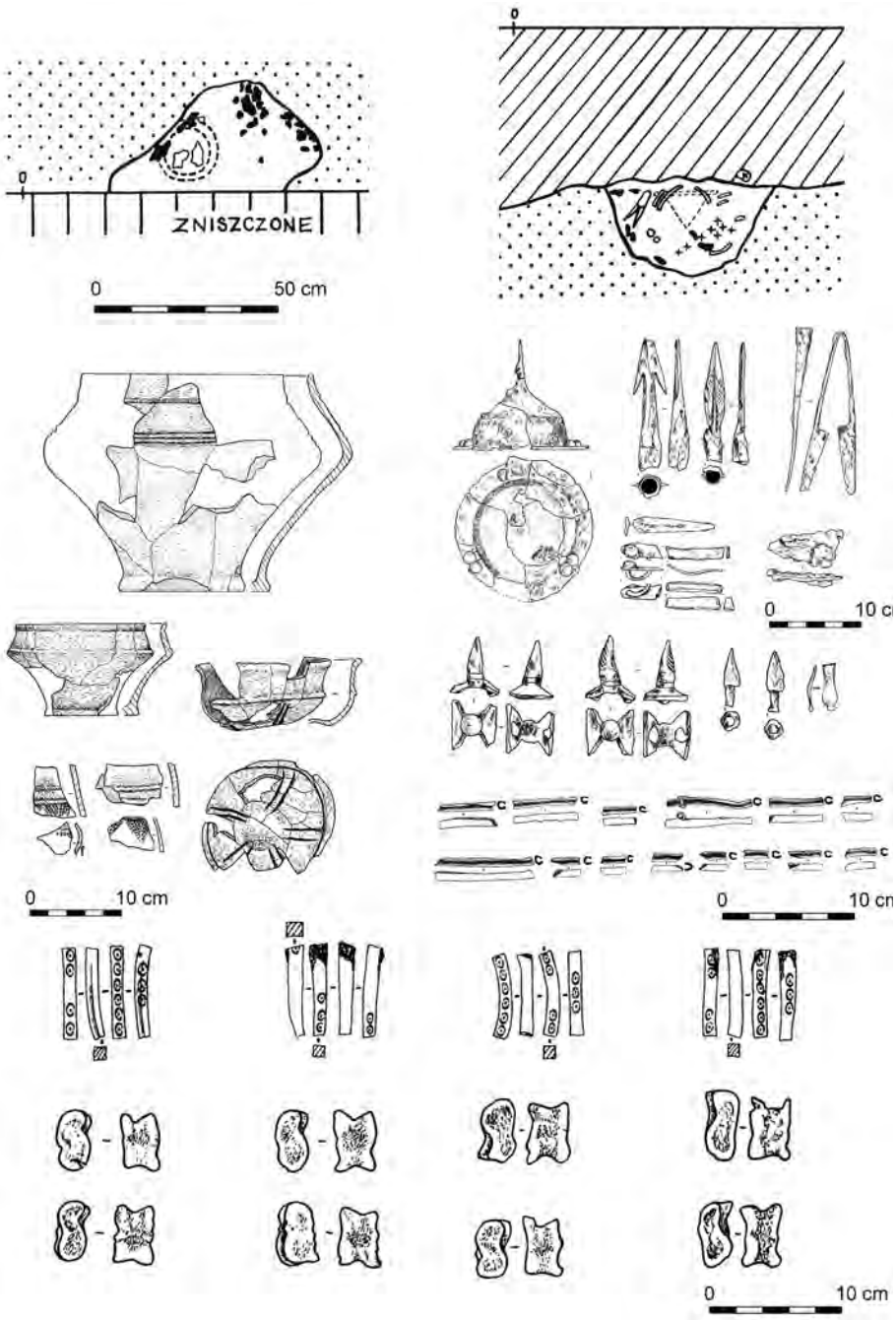

Fig. 66. Lizawice, Oława district, Poland. Urned cremation grave of a warrior of the Przeworsk culture. Grave goods - pottery, weapons and dice. After Z. Hendel and S. Moździoch 1981, Figs. 19-22.

Analysing the style of the early Roman period, the next paradigms defining it should be mentioned. Another repeatable feature was so-called strong profiling (Liana 1976, 155). This rule, however, concerned only the mode of forming solids. In this way a deep bend, curvilinear in profile was more or less defined (Fig. 51: A, C, F, I; 65). This feature is perceptible on the rims of pottery vessels – especially vase-shaped ones. It also defines the form of many small metal objects. The bows of brooches, heads of pins, buckles, strap ends and drinking horns were formed by strong profiling. It also applied to weapons. Using this technique the blades of staff-weapons, shields bosses and the ends of shield grips were shaped. Usually this element shaped the whole object, but sporadically multiple profiling also occurred. The paradigm of space organisation by means of rectangular modules does not clash with strong profiling constructed by curved edges. Both features create a harmonious whole. Such a phenomenon was observed in pottery vessels. Decoration covering their surfaces usually consists of rectangular or triangular modules. Their rims are, however, strongly profiled. The same phenomenon was observed on brooches with bows shaped in this technique. Patterns on the catch-plates of brooches, made in the openwork technique, are analogous to pottery decoration.

It cannot be excluded that both paradigms were combined in the case of architecture. The layout of a building, as already indicated, was based on repeatable rectangular modules, whereas there is no clear data to reconstruct the shape of the structure above the ground. It seems unlikely that the sidewalls were subjected to profiling. It cannot be ruled out, however, that roof edges, and perhaps doorways were shaped in this way.

Another paradigm that organised early Roman style should be discussed. In the grove of the Semnones and the Lugii, Tacitus clearly emphasises the lack of any representations of deities worshiped there. He expressed the same opinion in relation to all Germanic peoples (Tacitus, Germania, 9, 43). It seems that this was another paradigm influencing the art of ancient societies. The then prevailing decorative style was almost completely aniconic. Both in the Przeworsk culture as well as in the Elbe circle, but also in other areas of the Barbaricum, representations of humans and animals were very rare. Furthermore, their schematism and simplicity of manufacturing are striking (Bugaj 1999, 8, 140-142) (Fig. 67).

To recap, the early Roman style was ruled by a few simple, but consistently observed principles. Surfaces were divided into frequently multiplied rectangular modules. The edges of solids were strongly profiled. Figural representations occurred only sporadically. In general, it is a combination of elements from the Hallstatt (rectangular) and the La Tène (curvilinear) traditions. Such principles are perceptible to a varying degree in products of the material culture of virtually all archaeological cultures of the early Roman Barbaricum.

One may wonder whether the modular idea was reflected in the political structure as well. Written sources concerning the barbarian peoples living in Central Europe in the Roman period indicate the existence of unique status places.

They were referred to as sacred groves. It seems that the determination of their function may be of importance for understanding the manner of space perception and power structure. Assuming that the Przeworsk culture in general may be identified with the Lugii (Kolendo 1981, 70-71, 2005, 113; Strzelczyk 1992, 20-79), the primary source to identify its organisational structure is Germania by Tacitus.

The name of Ligii, spread as it is among many states, is the most widely extended. It will be enough to mention the most powerful, which are the Harii, the Helvecones, the Manimi, the Helisii and the Nahanarvali. Among these last is shown a grove of immemorial sanctity. A priest in female attire has the charge of it. But the deities are described in Roman language as Castor and Pollux. Such, indeed, are the attributes of the divinity, the name being Alcis. They have no images, or, indeed, any vestige of foreign superstition, but it is as brothers and as youths that the deities are worshipped.
Germania, 43

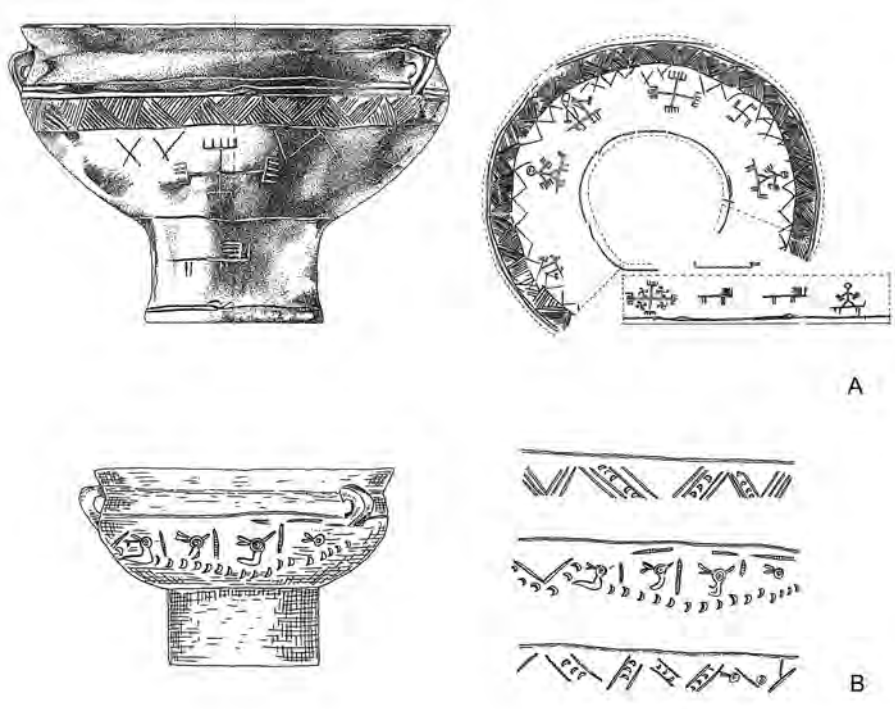

Fig. 67. Urns of the Przeworsk culture: A – Biała. Zgierz district, Poland; B – Wola Łobudzka, Zduńska Wola district, Poland. After E. Bugaj 1999, Tables 22-23 & 28.

Another such a place was located in the area occupied by the Suebi, which generally corresponds to the so-called Elbe circle identified by archaeological methods (Godłowski and Okulicz 1981, 38):

The Semnones give themselves out to be the most ancient and renowned branch of the Suevi. Their antiquity is strongly attested by their religion. At a stated period, all the tribes of the same race assemble by their representatives in a grove consecrated by the auguries of their forefathers, and by immemorial associations of terror. Here, having publicly slaughtered a human victim, they celebrate the horrible beginning of their barbarous rite. Reverence also in other ways is paid to the grove. No one enters it except bound with a chain, as an inferior acknowledging the might of the local divinity. If he chance to fall, it is not lawful for him to be lifted up, or to rise to his feet; he must crawl out along the ground. All this superstition implies the belief that from this spot the nation took its origin, that here dwells the supreme and all-ruling deity, to whom all else is subject and obedient. The fortunate lot of the Semnones strengthens this belief; a hundred cantons are in their occupation, and the vastness of their community makes them regard themselves as the head of the Suevic race.
Tacitus, Germania, 39-40

Tacitus also noted the organisational details and customs which evidence the role of sacred groves:

The Germans, however, do not consider it consistent with the grandeur of celestial beings to confine the gods within walls, or to liken them to the form of any human countenance. They consecrate woods and groves, and they apply the names of deities to the abstraction which they see only in spiritual worship.
Tacitus, Germania, 9

But to reprimand, to imprison, even to flog, is permitted to the priests alone, and that not as a punishment, or at the general's bidding, but, as it were, by the mandate of the god whom they believe to inspire the warrior. They also carry with them into battle certain figures and images taken from their sacred groves.
Tacitus, Germania, 7-8

Kept at the public expense, in these same woods and groves, are white horses, pure from the taint of earthly labour; these are yoked to a sacred car, and accompanied by the priest and the king, or chief of the tribe, who note their neighings and snortings. No species of augury is more trusted, not only by the people and by the nobility, but also by the priests, who regard themselves as the ministers of the gods, and the horses as acquainted with their will.
Tacitus, Germania, 10-11

They assemble, except in the case of a sudden emergency, on certain fixed days, either at new or at full moon (…).
When the multitude think proper, they sit down armed. Silence is proclaimed by the priests, who have on these occasions the right of keeping order. Then the king or the chief, according to age, birth, distinction in war, or eloquence, is heard, more because he has influence to persuade than because he has power to command. If his sentiments displease them, they reject them with murmurs; if they are satisfied, they brandish their spears. The most complimentary form of assent is to express approbation with their weapons. In their councils an accusation may be preferred or a capital crime prosecuted. (…). In these same councils they also elect the chief magistrates, who administer law in the cantons and the towns.
Tacitus, Germania, 12-13

Based on this information, a few repeatable characteristics which determined the function of sacred groves can be pointed out. They were central places of worship, but also major political centres. Most likely, assemblies were held in them (Słupecki 2000, 44; Modzelewski 2004, 370). The decision-making process could also include the participation of the tribal deities, who could have expressed their will through divination. The role of priests – the religious one on the one hand, on the other hand, the policing and political one is important. The relationship of these two functions seemed to be particularly important. It indicates that beliefs should be seen as a way of understanding the world, which directly influenced everyday life.

Written sources allowed for an attempt at a more accurate determination of the organisational structure of the Lugii. The name Lugii itself most likely derived from the word *liuga* that means wedding vow in the Gothic language (Strzelczyk 1992, 34). The community, which they formed, Tacitus described in turn as *Lugiorum Nomen* (Germania, 43), which is often understood as the Lugii Federation (Kolendo 1981, 70-71, 2005, 110-111). In the exact translation from the Latin, *nomen* means rather not the name, but a political and religious union (Kolendo 2005, 110-111). It should be emphasised that the federation consisted of many tribes, which, besides Tacitus, was also confirmed by Ptolemy (Geografia, II.11). Tacitus' information suggests that similar federations also occurred amongst the Suebi (Kolendo 2005, 106, 111). The central point was most likely the so-called Lugii Grove, described by Tacitus and marked as *Limios Alsos* on Ptolemy's map (Łowmiański 1963, 231-232). The semantic field of the term *alsos* might be identified based on Indo-European languages. In the Gothic language, *alhs* was used to describe a temple, and in Lithuanian alkas means a sacred grove (Słupecki 2000, 41, 2006, 192; Kowalik 2004, 31). It can be assumed that the grove sacralised the community, to which it also gave the name. The ethnic identity of its creators included membership in the broader structure of the Lugii – they are described in ancient works as belonging to a federation of various tribes.

The location of *Limios Alsos* remains unknown. Various locations have been referenced, including Mount Ślęża (Łowmiański 1963, 231-232; Kolendo 2005, 115 – therein further references). Despite Ptolemy providing geographical coordinates, due to the poor accuracy of the map, the information does not allow for the identification of the place. Because of its function a central location can be presumed, although, it was mainly a symbolic rather than a geographical centre. Hence, the actual location may be completely different. It should be also emphasised that the area occupied by the Przeworsk culture was very homogeneous in cultural terms. Despite the observed local differences, it is difficult to point to areas where characteristics typical of this grouping were concentrated (Godłowski and Okulicz 1981, 49). Therefore, a central area cannot be determined based on archaeological finds. It can be presumed that it expresses the similar status of tribes belonging to the Federation.

In the context of the sacred grove the common occurrence of male graves with weaponry elements in the Przeworsk culture should be noted (Godłowski 1992; Kontny 2002). They frequently occurred in the Elbe circle too (Godłowski 1994, 171-172). Their presence evidences the existence of a large class of people who were able to participate in assemblies. According to Tacitus, they expressed the acclamation of a message by shaking weapons, the possession of which indicated one as a full member of the community (Germania, 13-14). It can be also presumed that these people lived in the aforementioned basic family houses. Most likely, they were the dominant economy and political class.

There is no exact infrormation on the organization of the past families. In pre-state societies they were the most important political factor (Fukuyama 2012, 74-81). Usually, they have a segmental structure, of which the classic example is the Nuer people from Sudan (Evans-Pritchard 1940, 139-143). The segmented structure has traditional state organizations in Africa also (Southall 1956). A similar situation may also have existed in Central Europe during the Roman period.

The segmental structure is supposed to have described Germanic and Slavic peoples in ancient and medieval written sources. The tribe and its institutions formed individual territorial groups, each with an identical organisational form which reflected the whole (Modzelewski 2004, 347-356). This scheme probably corresponds to the structure of the *Lugiorum Nomen*. As already mentioned, this federation was formed by at least several tribal groups, and there is no basis to determine significant differences in status amongst them. It can be assumed that the foundation of such a structure was the principle that the whole is built of repeating elements.

In conclusion, it seems that the structure of the Przeworsk culture as well some of the Elbe circle was organised by several simple and following rules:
central point – an egalitarian society – culturally homogeneous space.
social space can be described in a similar way
equal tribal groups – elementary family houses – individual graves of warriors.
physical space corresponds to it
modular division of fields? – modular plans of houses – modular decoration.

The basis of this structure was a combination of two paradigms: the modular scheme and egalitarianism. These are clearly and consistently realised in the decorative style dominated by repeatable rectangular elements. It seems that the Elbe circle's population also had a similar structure. An attempt to change it, as undertaken by Maroboduus, through the introduction of a strong royal power amongst the Marcomanni was one of reasons for his downfall:

But the title of king rendered Maroboduus hated among his countrymen (...).
Tacitus, Annales, II.45

3. Variations on a theme, or metrology and paradigms of style in the Wielbark culture

(…) the Goths went forth from the bosom of the island of Scandza with Berig, their king, sailing in only three ships toward the hither shore of Ocean, namely to Gothiscandza.
Jordanes, Getica, XVII (94)

In relation to other areas of the Barbaricum, especially in relation to the Przeworsk culture, the Wielbark culture was significantly different. This grouping formed around the turn of the eras on the southern coast of the Baltic Sea, in what is now northern Poland (Wołągiewicz 1981a). Apart from other features (see the next section), it is characterised by elaborate sepulchral architecture (Fig. 68). This construction is primarily of stone as well as stone and earthen mounds, circles of standing stones (steles), and metallings of various types. These two latter forms were not exactly burial structures, but they served other ritual functions (Wołągiewicz 1977a, 57-67, 82).

Metrological analysis was conducted for selected structures from cemeteries in Odry, Chojnice district (Kmieciński 1968), Węsiory, Kartuzy district (Kmieciński et al. 1966), Grzybnica, Koszalin district (Hahuła and Wołągiewicz 2001) and Leśno, Chojnice district (Walenta 2009).

The measurements started with circle V in Grzybnica (Fig. 69). It was chosen because of its good state of preservation and the apparent regularity of the arrangement of all 12 boulders. The diameter of the whole complex is 8.8552 m. Assuming that the plan of the circle was made by means of string, its length (radius) is about 4.4326 m. It seems that the measuring work began by determining the points designated by the intersection of the diameter lines (running along the NS and the SW axes) and the edge of the circle. Boulders were placed in these places; they were also centres of circles with a radius equal to half the radius of the whole circle – 2.2163 m. In the places of intersection with the edge of the circle, the next steles were placed. The location of boulders could also have been made by drawing circles with a radius of 4.4326 m.

Circles with a radius of 4.4326 m (2 x 2.2163 m) were also found in the circumferential arrangements of boulders determining the boundaries of mounds No. 9 in Grzybnica and 8 in Odry (Fig. 70, 74). In the case of mounds 22 in Odry, 15 in Węsiory and 12 in Grzybnica, it was found that the diameter of the circle is five times 2.2163 m (Fig. 71, 74). To design a circle by means of string the radius had to be 2.5 of this length. Similarly, in the case of circle 14 from Leśno, the diameter is three times 2.2163 m and the radius 1.5 of this value (Fig. 72, 74). This indicates that it was divided in half and was 1.10815 m. The application of this dimension as a repeatable unit is also indicated by the dimensions of mounds 3 and 4 in Odry (Fig. 72, 74). The first one has a radius of nine times this value, while the second one is seven times this unit. In the so-called chieftain's tomb II from Leśno (Fig. 73), a radius equalling 15 of such a value was recorded. At mound No. 16 in Węsiory, the presence of two concentric circles and an extra small mound, No. 12 were recorded (Fig. 73). The diameter of the first of the concentric circles is 13 times 1.10815 m. To draw the circle, the radius had to be 6.5 times this value. Hence, most likely, this distance was divided in half, and the measurement applied was 0.554075 m. The diameter of the internal circle was smaller by 3 units and was 10 units. The diameter of mound 12 is 4 units.

Fig. 68. Leśno, Chojnice district, Poland. 'Chieftain's' mound II, surrounded by a circle of boulders. Photo T. Gralak.

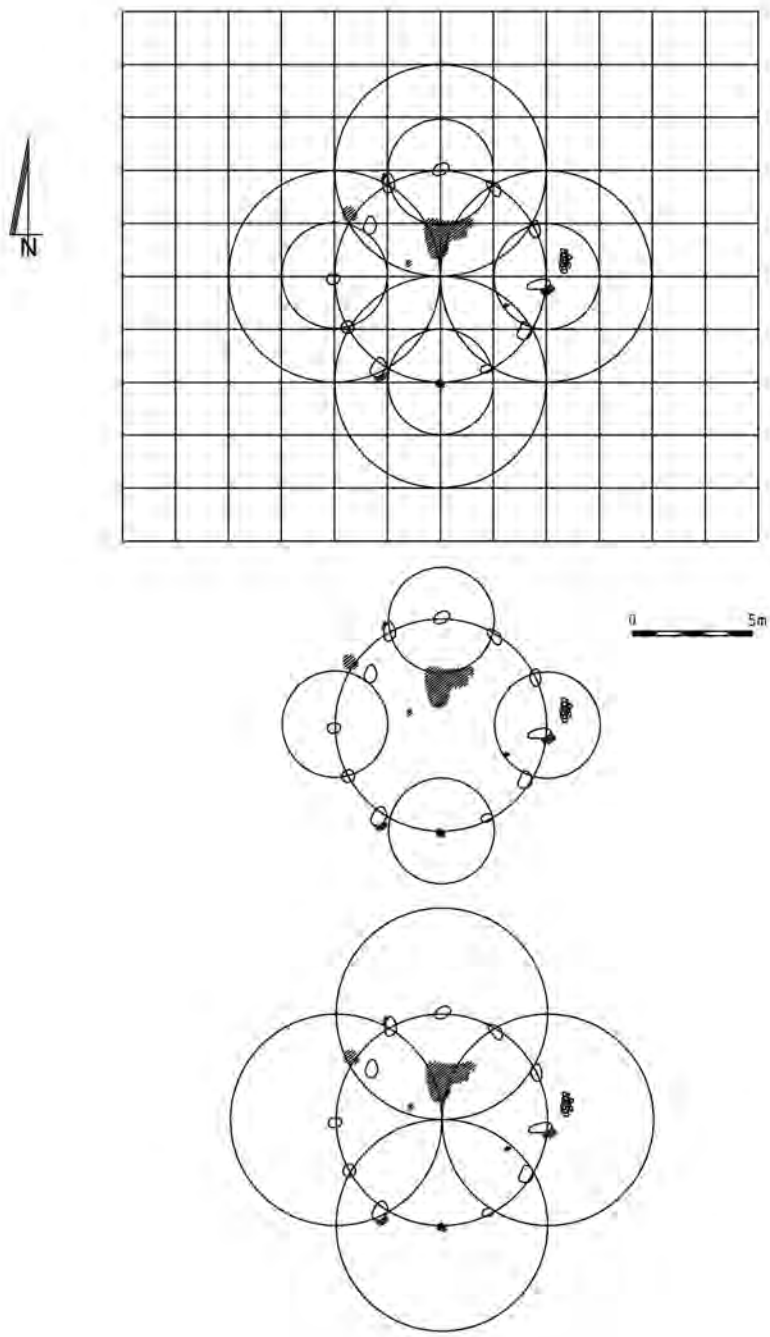

Fig. 69. Grzybnica, Koszalin district, Poland, circle V against the network of a grid size of 2.2163 m and reconstruction of the boulders' arrangement. Drawing by T. Gralak after K. Hahuła and R. Wołągiewicz 2001.

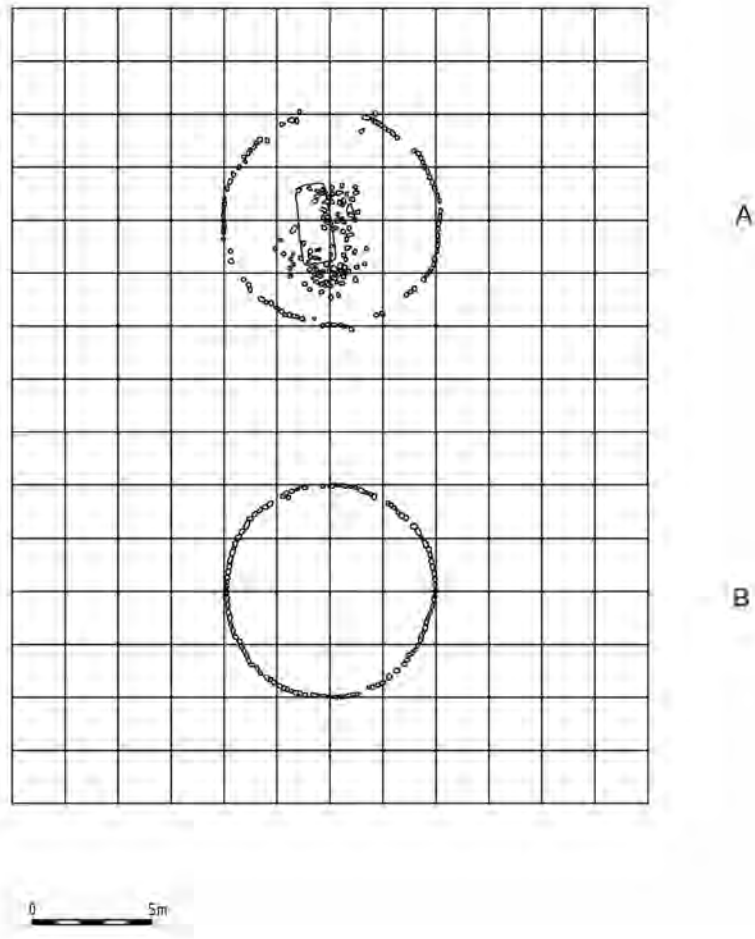

Fig. 70. Circles surrounding mounds: A – mound No. 9, Grzybnica, Koszalin district, Poland; B – mound No. 8, Odry, Chojnice district, Poland against the network of a grid size of 2.2163 m. Drawing by T. Gralak after K. Hahuła and R. Wołągiewicz 2001, J. Kmieciński et al. 1966.

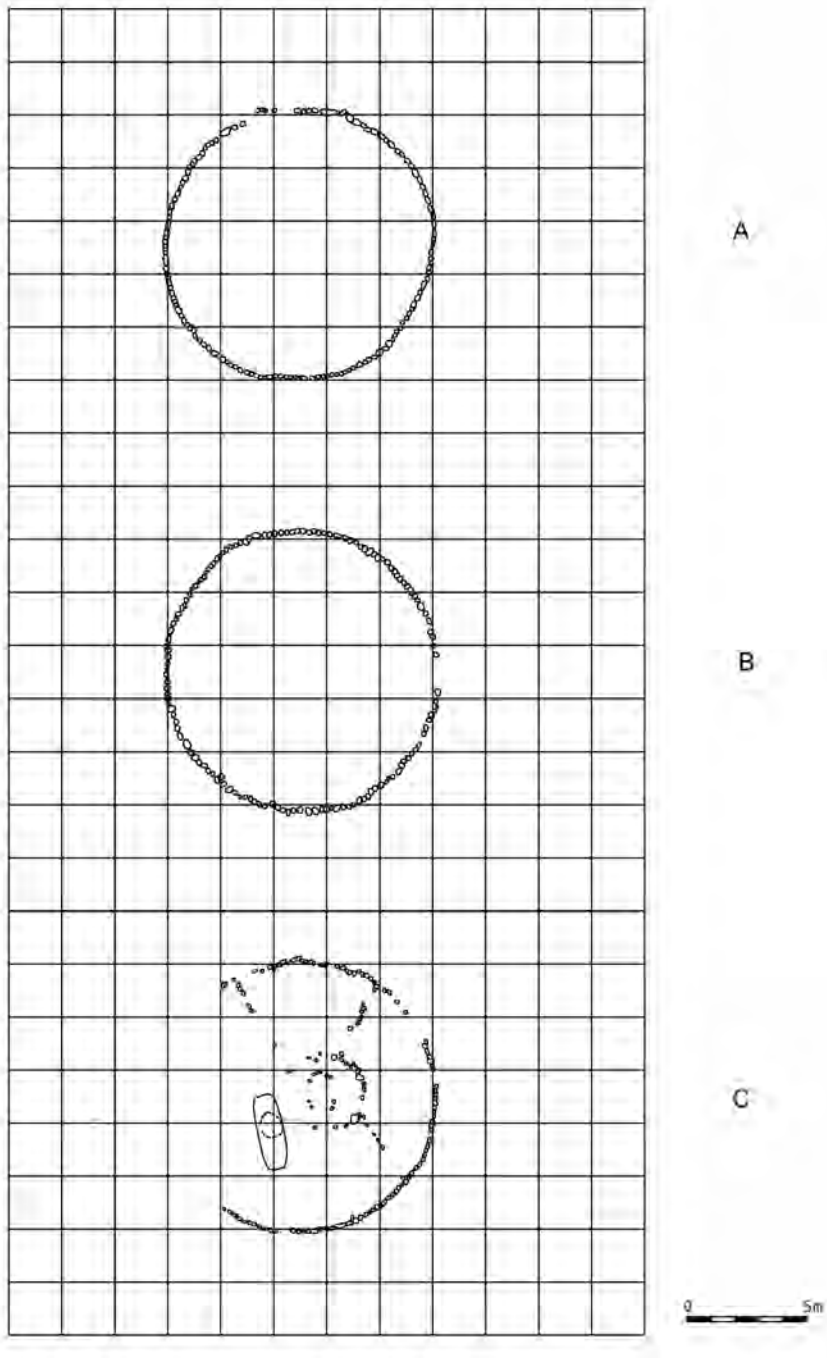

Fig. 71. Circles surrounding mounds: A – mound No. 22, Odry, Chojnice district, Poland; B – mound No.15, Węsiory, Kartuzy, district, Poland; C – mound 12, Grzybnica, Koszalin district, Poland, against the network of a grid size of 2.2163 m. Drawing by T. Gralak after J. Kmieciński 1968, J. Kmieciński et al. 1966, K. Hahuła and R. Wołągiewicz 2001.

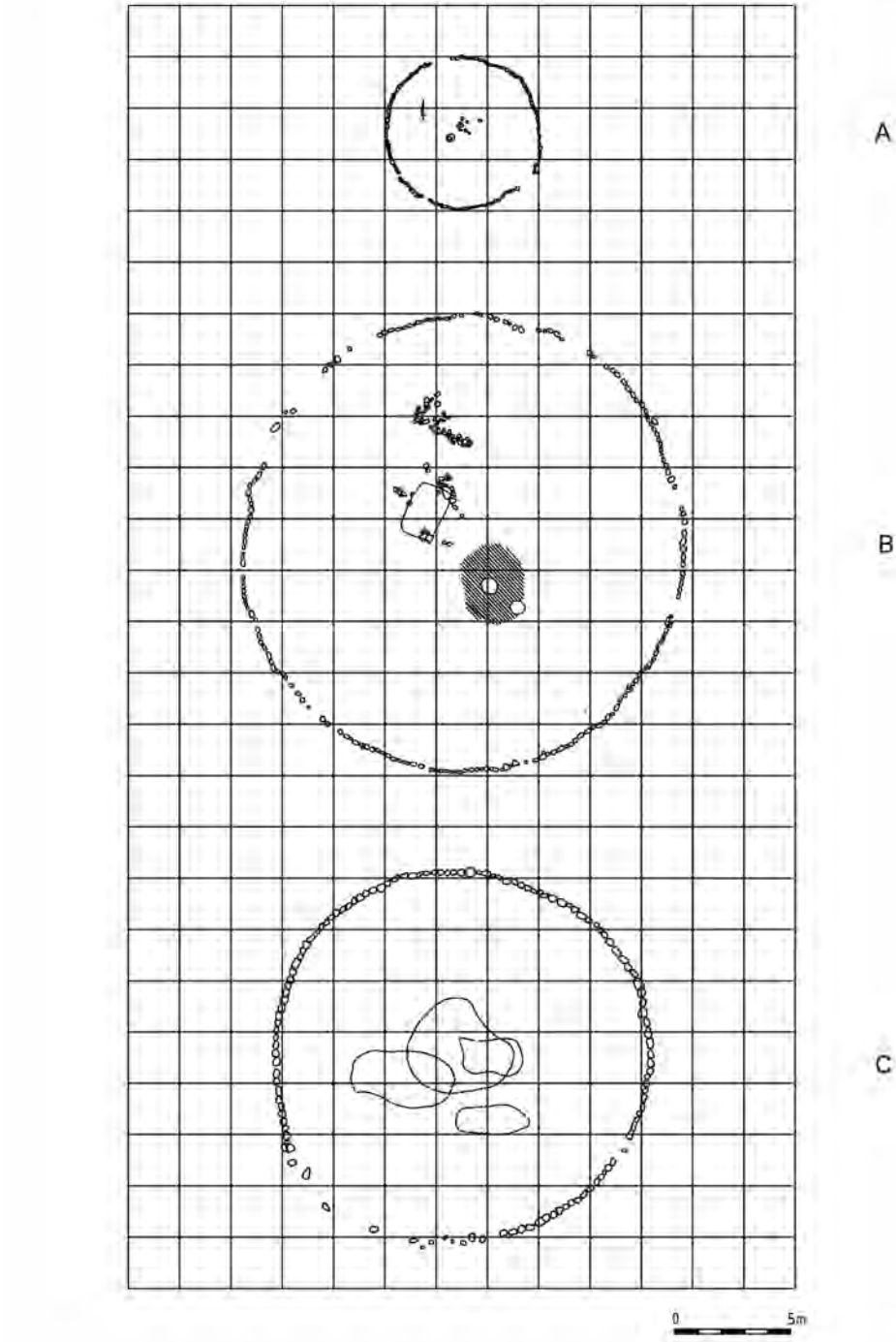

Fig. 72. Circles surrounding mounds: A – mound No. 14, Leśno, Chojnice district, Poland; B – mound No 3, Odry, Chojnice district, Poland; C – mound No. 4 – Odry, Chojnice district, Poland, against the network of a grid size of 2.2163 m. Drawing by T. Gralak after J. Kmieciński et al. 1966, J. Kmieciński 1968.

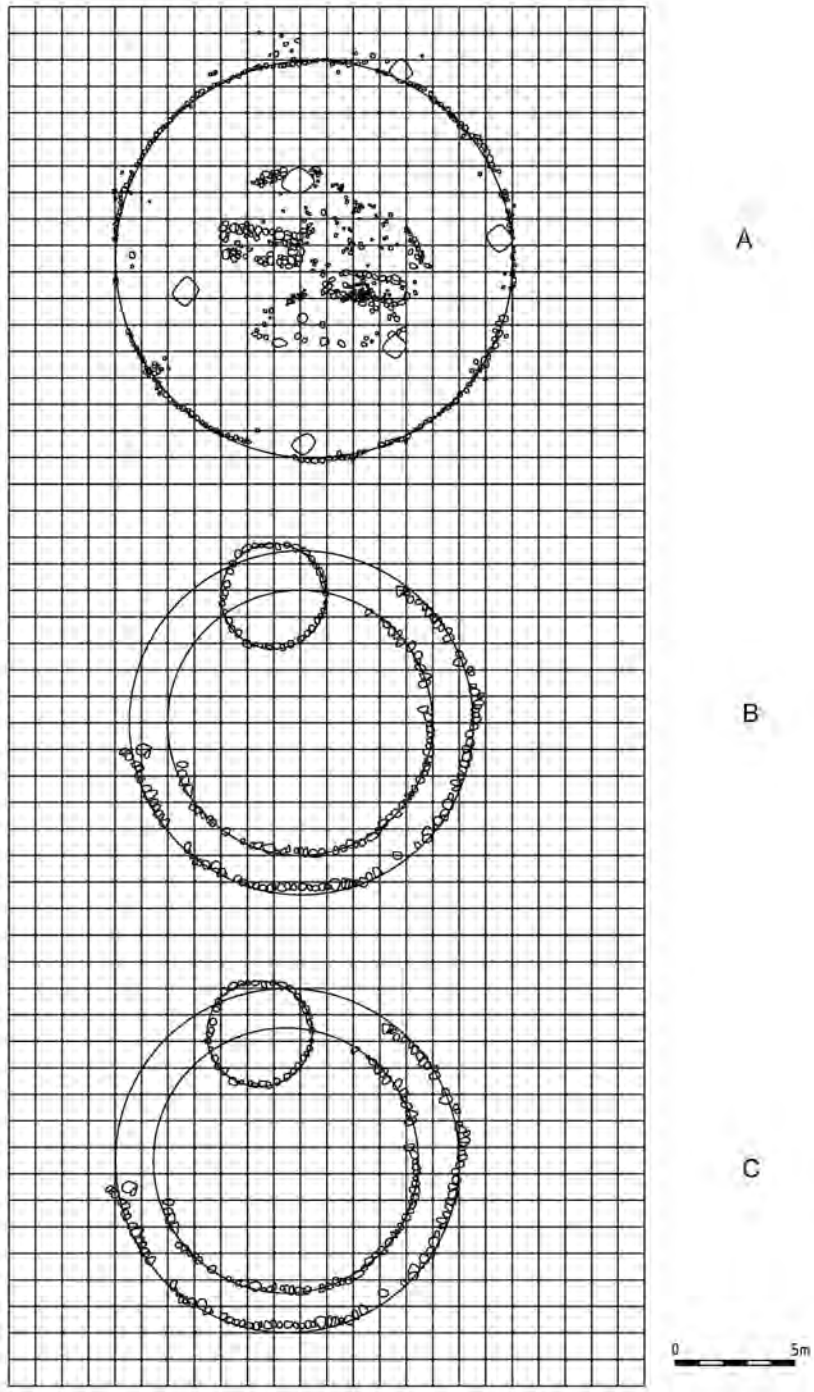

Fig. 73. Circles surrounding mounds: A – The so-called 'chieftain's' mound II in Leśno, Chojnice district, Poland; B-C – mounds 16 and 12 – Odry, Chojnice district, Poland against the network of a grid size of 1.10815 m. Drawing by T. Gralak after K. Walenta 2009, J. Kmieciński et al. 1966, J. Kmieciński 1968.

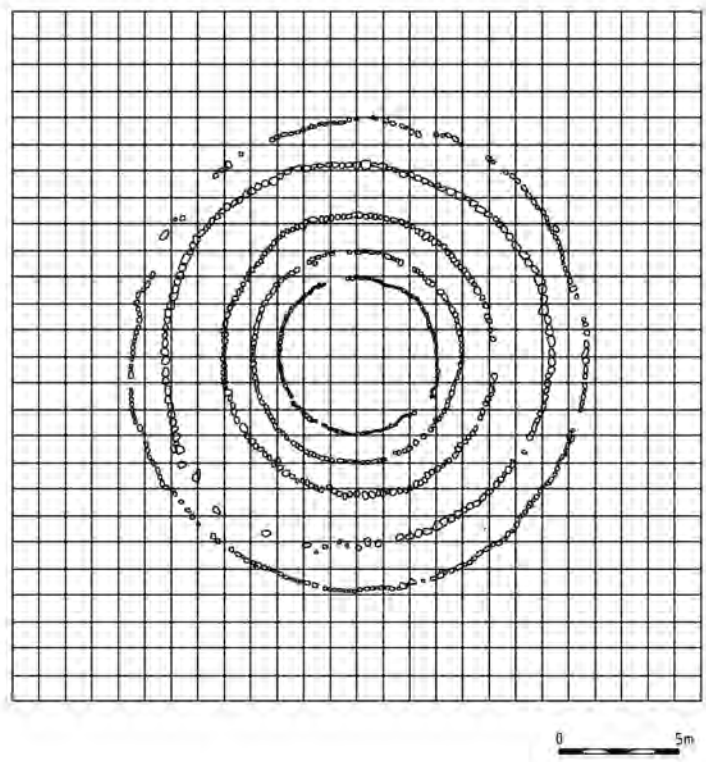

Fig. 74. Circles surrounding mounds (starting from the centre). No. 14 - Leśno, Chojnice district, Poland; 8 – Odry, Chojnice district, Poland; 15 – Węsiory, Kartuzy district, Poland; 4 – Odry; 3 – Odry against the network of a grid size of 1.10815 m. Drawing by T. Gralak after K. Walenta 2009; J. Kmieciński et al. 1966; J. Kmieciński 1968.

Apart from a few exceptions, (circle V from Grzybnica) metrological analysis of boulder circles is difficult because of their very diverse state of preservation. It is not clear to what extent their present appearance reflects the intentions of the builders, and to what extent it is the result of later damage. Moreover, most of vertical boulders (steles) used in their construction are currently lying on the ground. Their location was changed and it is difficult to determine to what extent it has been altered. Therefore, the metrological analysis of their arrangement is subject to greater risk of error than analysis of the diameters of circles.

Circle I from the cemetery in Grzybnica (Fig. 75) has a diameter of 64 portions of 0.554075 m. Analysing the spacing of boulders along the circle line, it was found that their position is characterised by regularity, although not all were

placed at the same distance from each other. Individual steles were placed at the intersection of the diameter line with the edge of the circle. The section determined in this way was arranged precisely along the NS axis. In the case of the stele placed on the S side, it was found that another 4 boulders on both its sides were spaced by 6 portions of 0.554075 m. Most likely, it was a place where the measuring work began, placing the centre of the circle there with a diameter of 12 portions of 0. 554075 m. At its intersection with the edge of the circle, a boulder was placed and, at the same time, it was the centre of another circle. Three of them on both sides of the stele were designed with this diameter. The location of the last of these boulders constituted centres of circles with a diameter of 10 portions of 0.554075.

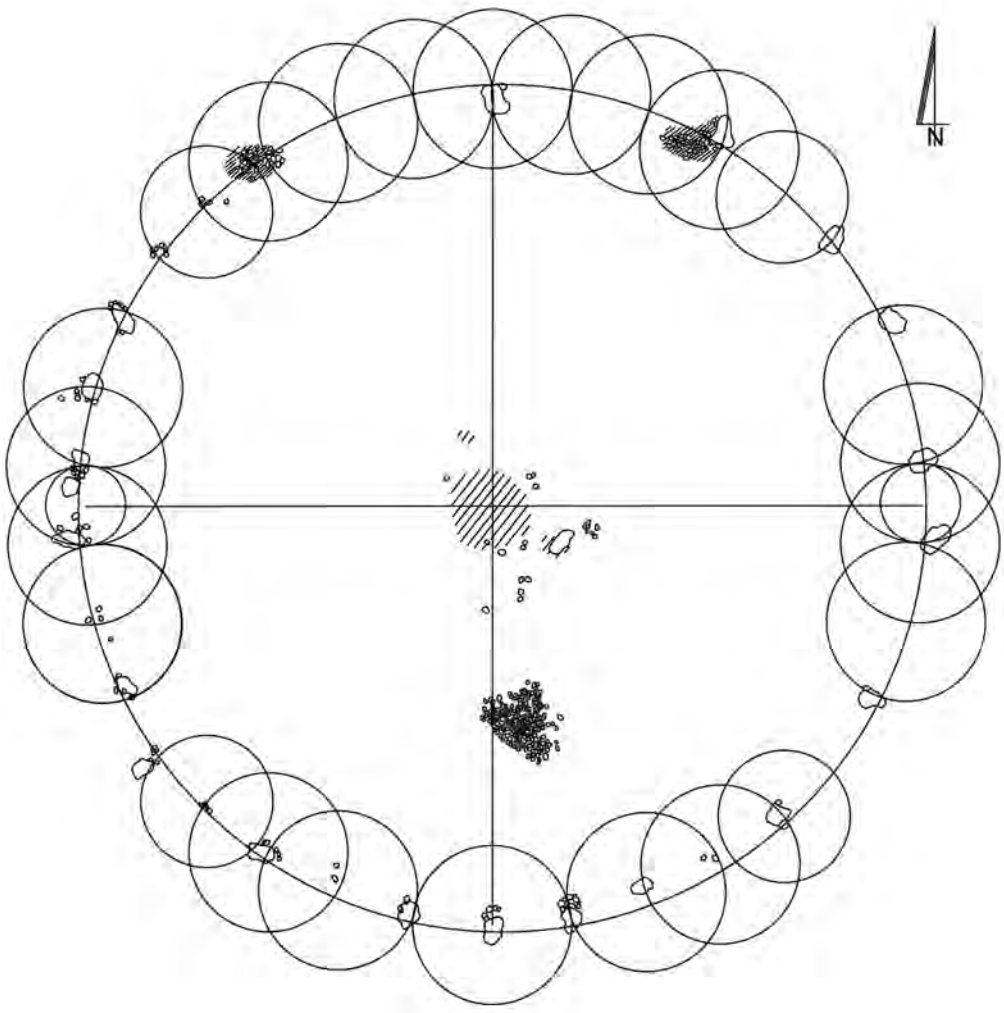

Fig. 75. Circle I – Grzybnica, Koszalin district, Poland and marked reconstruction of surveying. Drawing by T. Gralak after K. Hahuła and R. Wołągiewicz 2001.

In the north side of the circle, despite the different arrangement of boulders, analogous measurement activities were probably undertaken as those in the south side. The stele placed at the intersection of the diameter line with the edge of the circle constituted the centre of a circle with the diameter of 12 portions of 0.554075 m. In both its sides, two such circles were designed. Their centres were determined at the intersection of the edge of the circle. Stone-lined hearths were placed in the last one that was defined by this technique. They were also the points from which the last circles with the diameter of 12 portions of 0.554075 m were drawn. At the places of their intersection with the edge of the circle boulders were placed (only one survived in the NW side). They were also the centres of circles with the diameter of 10 portions of 0.554075 m. The location of the last boulders was also designed based on these measurements.

In order to determine the position of boulders on the east and the west sides, the same measurement activities were undertaken. The diameter running along the SE axis intersecting the edges of the circle did not determine the location of the boulders. Instead, the centres of the circles were the means by which their position was determined. They had a diameter of 6 portions of 0.554075 m. Boulders were placed at the places of their intersection with the edge of the circle. These boulders were also centres of other circles with a diameter of 12 portions of 0.554075 m. At the places of their intersection with the edge of the circle, the location of boulders and the centres of the next such circles were located. The location of the last boulders on the east and the west sides were designed in this manner. It is not clear whether the lack of boulders in the east part results from a deliberate choice by the builders, or from subsequent damage. The latter assumption seems more likely, given the poorer state of preservation of the circle on this side.

To recap, it appears that the beginning of the measuring work linked to the location of boulders consisted in determining four points on the edge of the circle. It should be stressed that the boulders' arrangement was clearly linked with the cardinal directions. The NS axis was marked most likely by using astronomical measurements. It also seems that the lack of boulders on the north side is not a coincidence – on this side the circle was probably partially open. Interestingly, this entrance was marked by hearths.

Circle I from the cemetery in Węsiory (Fig. 76) has a diameter of 28 portions of 0.554075 m; hence, its radius has a length of 14 portions of 0.554075 m. The distribution of boulders on the edge of the circle was only partially regular. It seems that to locate them first the points at the intersection of the lines of the diameters with the edge of the circle were determined (running along the NS and the SW axes). It should be stressed, however, that the cardinal lines were moved a few degrees in the W direction. In the N and S parts, at the points of intersection of the lines of the diameters with the edge of the circle, steles were placed. In the W and E parts these points constituted the centres of circles with a diameter of 6.5 portion of 0.554075 m. In turn, at the points of their intersection with the edge of the circle, boulders were placed. They were also the centres of circles with a diame-

ter of 13 portions of 0.554075 m. In the places of their intersection with the edge of the circle, other boulders were placed. In the E part, these points constituted the centres of next circles with such a diameter. In the NW part on the edge of the circle a boulder was placed, the location of which does not result from measurements. It seems that its location was influenced by other factors. Outside the edge of the circle in the SW and SE sides another two boulders were located. The location of the first of them coincides with the intersection of circles with a diameter of 13 portions determining the location of the boulders. In the second one there was no such relationship.

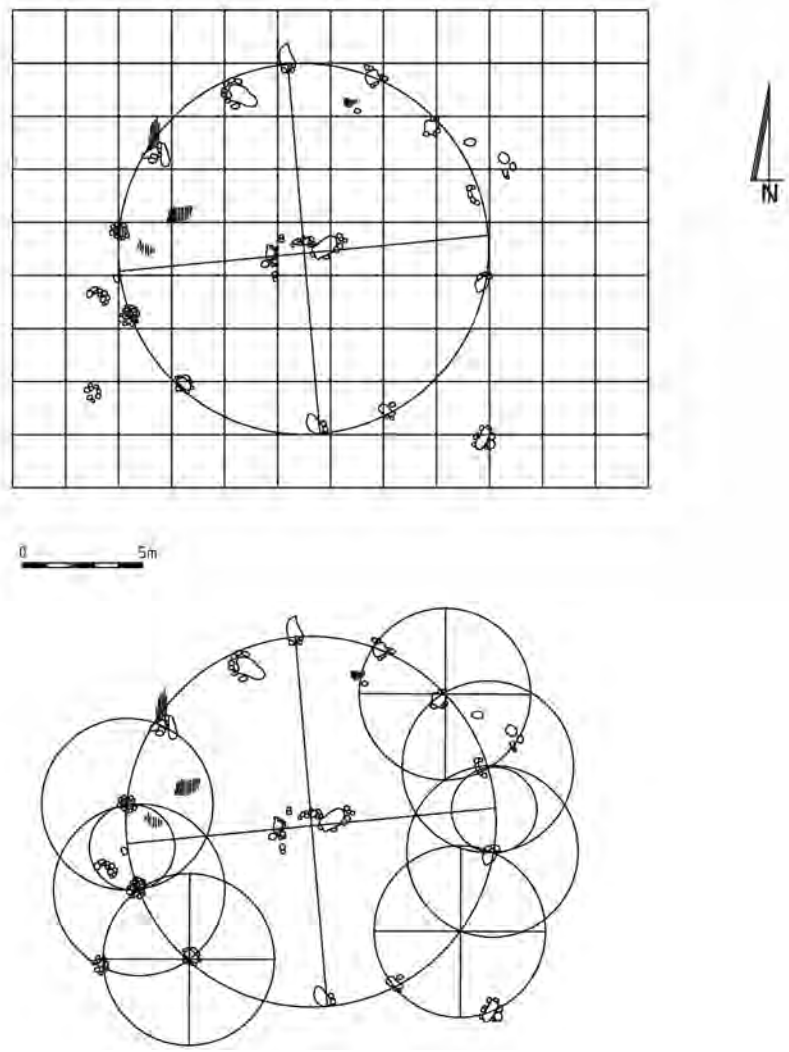

Fig. 76. Circle I – Węsiory, Kartuzy district, Poland against the network of a grid size of 2.2163 m and marked reconstruction of surveying. Drawing by T. Gralak after J. Kmieciński et al. 1966.

Circle II in Węsiory (Fig. 77) has a diameter of 52 portions of 0.554075 m. It seems that many of the boulders, which were placed at the edge of the circle, were removed. Therefore, only in some places was it possible to identify the presence of repeatable distances. It was found that some of boulders were spaced by 7 or 14 portions of 0.554075 m. Therefore, most likely their locations were determined by drawing circles with a diameter of 14 portions of 0.554075 m at the edge of the larger circle.

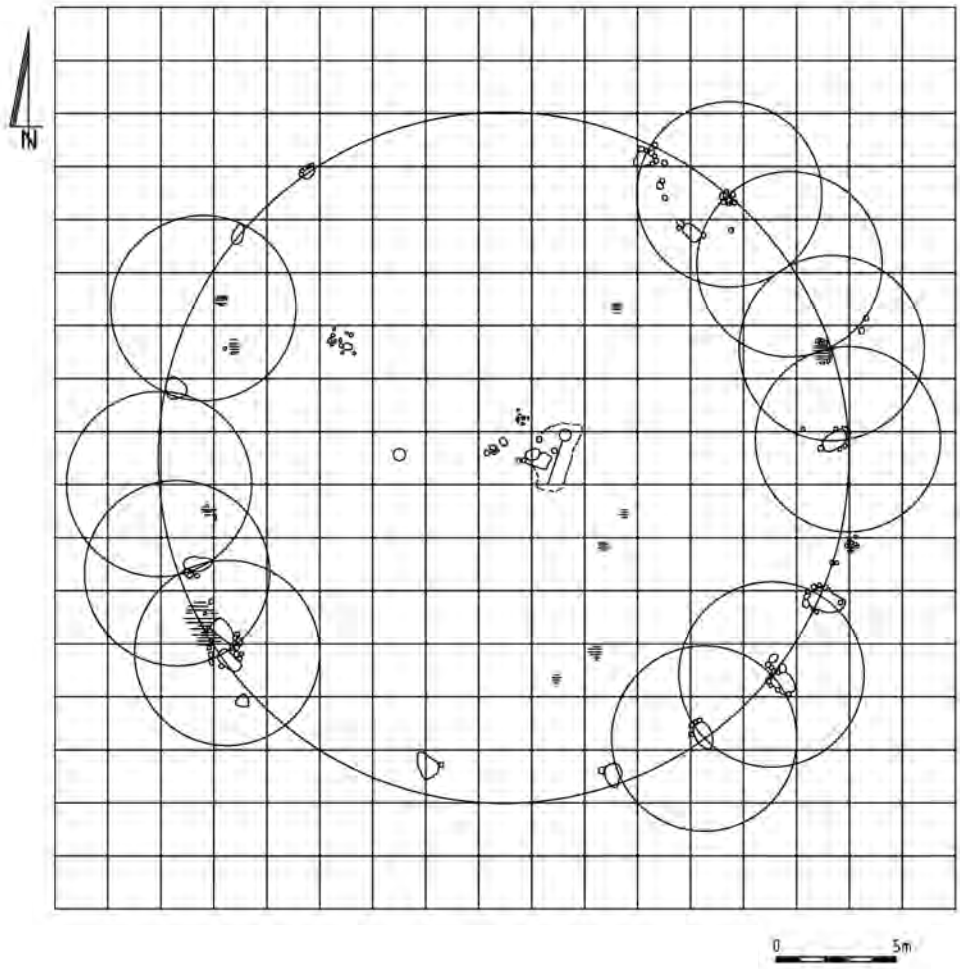

Fig. 77. Circle II – Węsiory, Kartuzy district, Poland against the network of a grid size of 2.2163 m and marked reconstruction of surveying. Drawing by T. Gralak after J. Kmieciński et al. 1966.

Circle II in the cemetery in Odry (Fig. 78) has a diameter of 47 portions of 0.554075 m. The location of boulders at the edge of the circle was characterised by a perceptible regularity, but there were noted differences in the distances between them. In the N and S parts the distance was a 7.5 portion of 0.554075 m. In the W and E parts instead it was 7 portions of 0.554075 m. To determine their positions a variety of geometric measurements were applied. It appears that the points defi-

ned by the intersection lines of diameters were determined first (running along the NS and SW axes), with the edge of the circle were the first to be determined. These places were starting points for further measurement work. In the N and S parts they constituted the centres of circles with a diameter of 7.5 portions of 0.554075 m. At the intersection with the edge of the circle the first two boulders were placed. They were also centres of other circles with a diameter of 15 portions of 0.554075 m. In total, in the north and south parts 6 such circles were designed. The boulders were placed at their intersection with the edge of the circle. This was also the point constituting the centre of the next circle. In the W and E parts the starting point was the designation of the circle with a diameter of 7 portions of 0.554075 m. At the intersection with the edge of the circle two boulders were placed. These places were also the centres of the two other circles with a diameter of 14 portions of 0.554075 m. It should be noted that the last circles with a diameter of 15 portions intersected the edge of the circle in the same place as circles with a diameter of 14 portions. Hence, it was a compact and intentional composition. The odd number of units recorded in the case of the diameters of the reconstructed circles and the complete circle suggests that the measurement 0.554075 m was also divided in half and was 0.2770375 m. Only in this case the radius could be expressed as an integer.

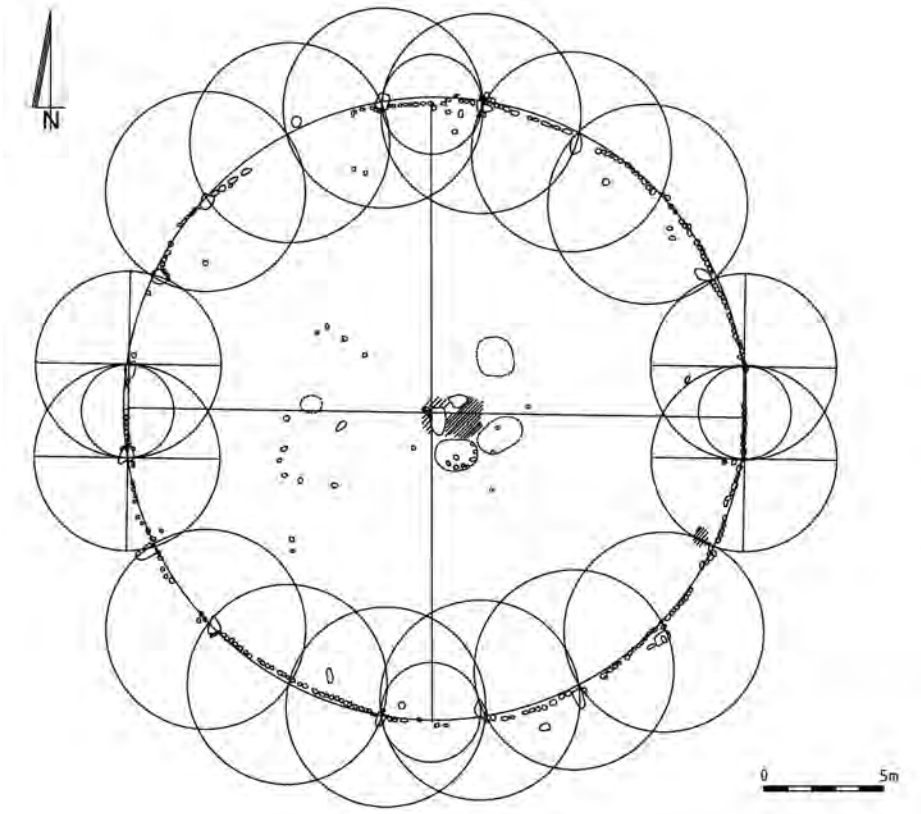

Fig. 78. Circle II – Odry, Chojnice district, Poland and marked reconstruction of surveying. Drawing by T. Gralak after J. Kmieciński 1968.

Circle II in Grzybnica (Fig. 79) was built based on a diameter of 64 portions of 0.554075 m. The structure was severely damaged. The repeatable distance between the boulders could be perceived only in some parts of the feature. It was 7.5 portions of 0.554075 m. Hence, most probably, the locations of individual boulders were determined by drawing circles with a diameter of 13 portions of 0.554075 m, i.e. with the radius of 13 units of 0.2770375 m.

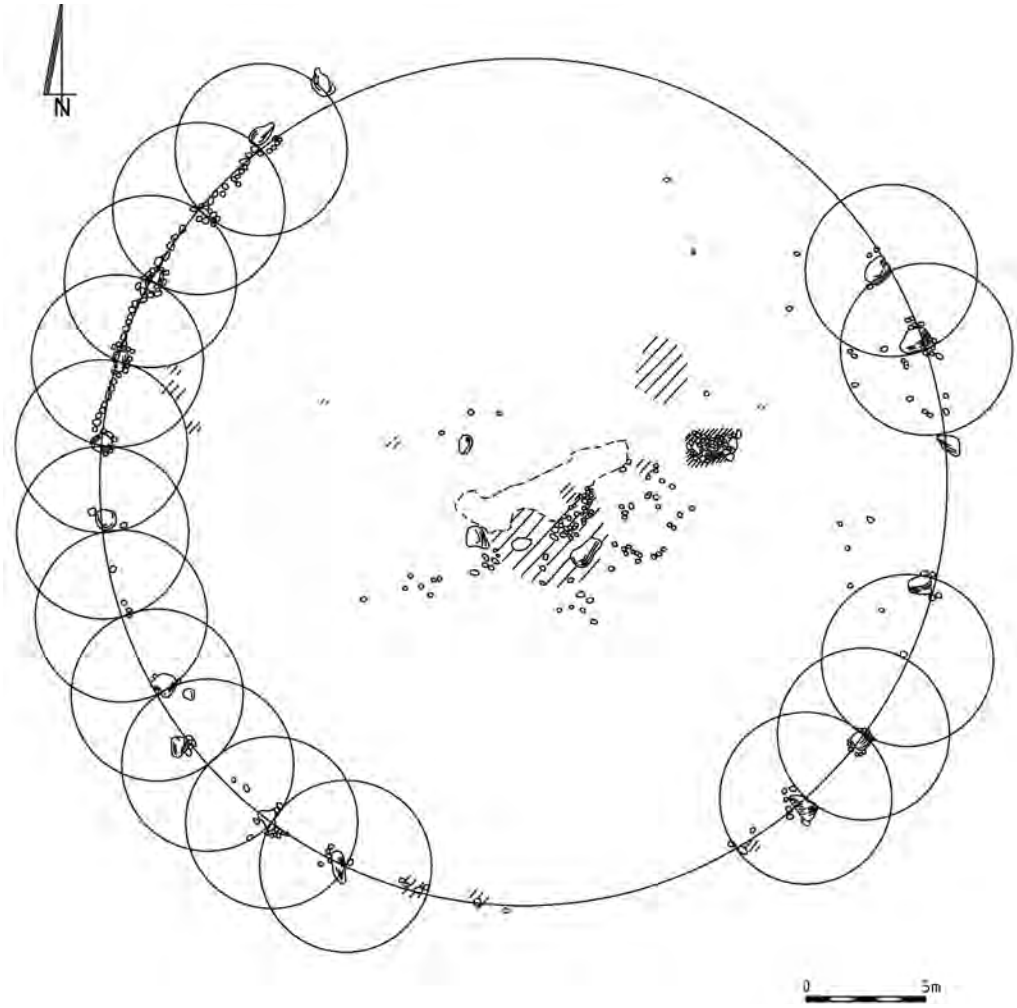

Fig. 79. Circle II – Grzybnica, Koszalin district, Poland and marked reconstruction of surveying. Drawing by T. Gralak after K. Hahuła and R. Wołągiewicz 2001.

The metrological analysis showed that the location of most of the boulders at the edges of the circles resulted from geometrical measurements. The location of some boulders, however, was due to other reasons, perhaps astronomical ones. This is suggested by a clear relationship between the boulders' arrangement and the cardinal directions. It was also noted that the boulders were not always placed

along the whole circumference – in some places empty spaces were intentionally left – perhaps entrances.

To review, the basic unit of length was 0.2770375 m, usually, however, the double value of 0.554075 m was used. For the determination of the course of the boulder circles around mounds, as well as circles of boulders this value multiplied by four and eight was used, i.e. 1.10815 m and 2.2163 m respectively. Of course, the use of these values does not have to have been intentional, and may simply result from the random selection of even numbers defining length. The observed repeatability, however, suggests that this phenomenon is not the result of a coincidence. It can be assumed that these values correspond to a foot 0.2770375 m, an ell 0.554075 m, a fathom 1.10815 m, and possibly the construction measurement unit – rod (2.2163 m).

The cemeteries of the Odry-Węsiory-Grzybnica type, dated to phase B2a are all on a 'greenfield' site (Wołągiewicz 1977a, 33-34). Therefore, the evolutionary development of such sites cannot be discussed. They are, however, a consistent implementation of an explicit idea. These cemeteries are characterised by a repeatable location. They are always located on a slight elevation towering over a body of water – river, lake or wetland area. The first features constructed were probably circles of spaced boulders. This thesis is supported by the location of flat graves. They are often located in the immediate vicinity of the circles, but never within them. This indicates that they were dug beyond the course of the boulders. It was also noted that under the mounds and within the circles of boulders traces of ploughing survived (Kmieciński 1968, 23-25; Wołągiewicz 1977b). This has many analogies in mounds from the Bronze Age from Scandinavia (Rowley-Conwy 1987; Kristiansen 1989). It cannot be ruled out that it was for ritual reasons (Pätzold 1960), to sacralise the area. In many cultures ploughing represented a coitus of uranic and chthonic deities, and as a consequence led to rebirth (Eliade 1993, 250-255).

Adopting the concept of S. Czarnowski (1956a, 221-236) and M. Eliade (1996, 15-55) on the repeatable structure of the organisation of sacred spaces, all the elements are clearly perceptible in the above cemeteries. Hence, individual features have clearly marked boundaries. The circles of boulders define themselves. The mounds are marked by a groove or a ring of stones. Sometimes there is a clearly defined empty space – perhaps a deliberately prepared entrance. The cemeteries themselves probably also had defined boundaries, although due to the limited area of research it was not possible to record them. This phenomenon, however, was recorded in cemeteries of the Wielbark culture without stone structures. In Kowalewko, Oborniki district, the entire surface of the necropolis was excavated. The arrangement of grave pits clearly indicated the existence of a boundary. It was probably a fence, or possibly an earthwork, which did not leave archaeologically perceptible traces (Skorupka 2001, 241).

The mounds and circles of spaced boulders had a clearly marked central point within the separated sacred space. In a mound, it was a burial, in the circles

of boulders, it was a place marked by a stele. Sacred power was concentrated at such a point, and therefore the approach was marked by successive boundaries. They were marked by the rings of boulders arranged in concentric circles, as in the case of mound 16 in Węsiory.

The horizontal arrangements of individual features were oriented in relation to the cardinal directions or other permanent elements of the space. This was expressed, for example, by the alignment of grave pits that were always oriented along the NS line. In mound 12 from Grzybnica an arrangement of stones in the form of a cross inside a circle was used. Its arms indicated the directions chosen by the builders. Archaeoastronomical research in Odry suggests that the location of the boulder circles themselves depended on directions determined by celestial bodies (Wołągiewicz 1977a, 61-64, Figs. 30 & 31; Kubiak 1980, 322-328, Figs. 1 & 2; Zajdler 1980, 329-335; Kubiak 1981, 210-216; Dworak and Kubiak 1981, 174-176). The above metrological analysis also indicates that cardinal directions were important during the construction of the circles.

The organised elements also characterise the vertical structure of these cemeteries. The grave pits of some mounds were dug below ground level, and above them, an earthwork was situated. This shows that these features reflect a three step vertical system of the spheres of the heaven, the earth and the underworld. According to the concept of M. Eliade (1996, 15-55) the *axis mundi* would run through the central point of the sacred zone which connects these levels. To emphasise its course over the burials stone steles were placed on tops of mounds or in the centres of circles. For the same reasons, secondary mounds were built directly on earlier ones.

To review, the cemeteries of the Odry-Węsiory-Grzybnica type, from the location selection, through construction, to the manner of use were consistently realised projects. The space was organised in accordance with repeated assumptions. It concerned virtually all forms of features, but of course, not in every case were they perceptible in the same way.

The concept of building a mound typical of the cemeteries of the Odry--Węsiory-Grzybnica type dates back to the Bronze Age. Such arrangements appeared in the Central European Tumulus culture (Gediga 1978, 145-146; Stuchlík 1993, 275-277, Figs. 170 & 171). It occurred later in the Lusatian culture (Buśko 1993) and in the Nordic culture in Scandinavia (Brøndsted 1962, 28-45). In this latter area, mounds were constructed practically constantly until the Roman period (Kmieciński 1962, 100-101). Moreover, it was from there that the idea of their construction reached the south coast of the Baltic Sea (Wołągiewicz 1977a, 78-80). The Wielbark culture's mounds, therefore, were the implementation of a very archaic way of organising and perceiving space. In the Lusatian culture's mounds the presence of analogous structural elements were found (Buśko 1993).

Circles of boulders appeared in the Late Bronze Age and during the Hallstatt period in Scandinavia at the earliest (Wołągiewicz 1977a, 56). In the pre-Roman period they occurred on the south side of the Baltic on the Jastorf culture's sites in Mecklenburg and Brandenburg, and occasionally in the Przeworsk culture

(Kmieciński 1962, 92-100; Wołągiewicz 1977a, 43-44, Fig. 32). In the Wielbark culture it has been stated that the concept of their construction came directly from Scandinavia (Wołągiewicz 1977a, 52, 54-56, 1981a, 176). It seems that the tradition of constructing circles was already associated with the Jastorf and the Pomeranian cultures.

As already mentioned, the decoration of metal items (pins, brooches, and buckles) was composed exactly using the circle (see above) in both of these groupings. Its application in the construction of cemeteries is another manifestation of its strong positive valorisation. It should be also emphasised that the circle motif was also very popular in the Nordic culture in the Bronze Age in Scandinavia. Hence, the circles of boulders, like the construction of mounds constitute a manifestation of a very archaic tradition.

In the pre-Roman period, in Scandinavian cemeteries, metalled surfaces existed, which were circular and triangular in plan (Wołągiewicz 1977a, 80-82, Fig. 38). They could have been used as graves, but in most cases, they were not related to them. In the case of triangular metalled surfaces, it appears that their origins are linked to a particular valorisation of this shape during the Hallstatt period.

The presence of such elaborate funerary architecture is probably linked to its important social function. The Goths are usually identified as the main (but not the only) instigators of the Wielbark culture (Wołągiewicz 1981b, 92-102; Kolendo 2006, 17-33). According to Tacitus, they were subjected to strong royal power, which clearly distinguished them from their southern neighbours:

Beyond the Ligii are the Gothones, who are ruled by kings, a little more strictly than the other German tribes, but not as yet inconsistently with freedom. Immediately adjoining them, further from the coast, are the Rugii and Lemovii, the badge of all these tribes being the round shield, the short sword, and servile submission to their kings.
Germania, 44

This information clearly indicates the different social organisation of the population of the southern coast of the Baltic Sea. It seems, therefore, that the role of integrator of the Wielbark culture's communities was played by royal or aristocratic families of individual groups of the 'Goths'. Therefore, the centres of power were not associated with particular places but with the individuals who maintained power. Such a structure does not require the presence of a sacred grove – the written sources do not mention any. Moreover, male graves in the Wielbark culture were never equipped with weapons (Wołągiewicz 1981a, 138, 151-152). This suggests the lack of a class of people who could participate in assemblies. As already mentioned their attribute was spears (*framae*), and by shaking them, they expressed their opinion.

The extensive funerary architecture indicates, instead, the importance of ancestors' worship. It played a key role in a society with a stable hierarchical struc-

ture. The position of the ancestors was the essential element in building the status of an individual. For this reason, flat graves' equipment did not differ substantially from the equipment of burial mounds. The burial form was important and was probably reserved for the elite. In addition, in the cemeteries of the Odry-Węsiory-Grzybnica type, apart from graves, there were also structures for collective use – public rituals, court, etc. (Wołągiewicz 1977, 57-67, 82, 1984, 65-66, Fig. 1). Circles of boulders would have primarily served this public function. Hence, the most important events for the community occurred literally in the 'shadow of the ancestors' of powerful individuals. The visible mounds legitimised their high position within the community. This was emphasised by the mutual relationship of burials, rituals and architectural forms.

In the Wielbark culture it was found that the characteristics which are considered its determinants are visibly concentrated in one of the areas they occupied. The stone funerary architecture and inhumation graves occurred mainly in Kashubia and Krajna (Wołągiewicz 1981a, 151-153, 1981b, 85-86, Fig. 3; Kokowski 2007, 45, 47, 51-52). In other areas occupied by this culture they were found less frequently or were completely absent. Thus, it is clear that the space was culturally diversified. It was probably also reflected in the valorisation of both it and the groups of people who lived there. Based on the record of Jordanes it is known that different tribes had differing statuses, conditioned by an origin myth. According to this myth, the Ostrogoths, the Visigoths and the Gepids sailed to the south coast of the Baltic Sea in three boats. Because the Gepids arrived last its members were considered lazy and indolent (Getica 95). Interestingly, similar information about three groups settling in Gotland is also known from a medieval saga (Banaszkiewicz 1986, 91-94). It seems, therefore, that this was a very common myth that conditioned the position of particular tribal groups. It is also worth noting that individual Gothic aristocratic families also had traditionally defined ranks and positions during the Migration period (Wolfram 2003, 46).

Despite the hierarchical social organisation in the Wielbark culture manifestations of the modular paradigm are also perceptible. The high repeatability of forms of cemetery organisation was noted. This suggests that communities using specific cemeteries were characterised by the same structure. Its existence is confirmed in the analysis of the vocabulary of the Bible by Wulfila. The results describe rather the social organisation of the Goth tribes around the Black Sea in the 3rd-4th century AD, however, it seems that it has earlier origins. According to H. Wolfram, the occupied area was divided into *kunja* (districts) and ruled by *reiks* (kings). Each Goth belonged to a *kunja* as an *inkunja*, whether he was a clan member or a slave owned by it. A *kunja* had its own priests, temples and perhaps its own cult (Wolfram 2003, 119-120, 124). The existence of a similar organisation around the Baltic Sea could explain the common presence of burial mounds. Inside of them individuals referred to as *reiks* and members of their families would have been buried. It seems, therefore, that in the Wielbark culture clear traces of a segmental structure are also perceptible.

The modular paradigm is also seen in the decoration of pottery vessels (Fig. 80). As in the case of the Przeworsk culture, a circumferential decorative band was formed of repeatable rectangular motifs: a meander or a swastika inscribed in a meander (Wołągiewicz 1993, 19-21, Tables 39-43). Decorations characteristic of this culture, however, are triangular motifs in the modular systems. Firstly, these are the so-called chequered triangles, the repeatability, however, is also perceptible in the motifs of triangles formed by alternate rough and polished surfaces (Wołągiewicz 1993, 21, Table 46).

The principle that the whole is composed of repeatable parts is also perceptible in the jewellery of the Wielbark culture (Fig. 81). The decorative techniques – filigree and granulation, show a preference for the use of multiple elements. Furthermore, as in the Przeworsk culture and the Elbe circle, the presence of brooches, strap ends or pins constructed in accordance with the modular paradigm was recorded. Some of them are artefacts of an interregional nature that occurred throughout the European Barbaricum.

In the Wielbark culture as well as during the Hallstatt period and other cultures of the Roman period, one of main factors affecting the modular perception of the world was the communication method. Jordanes, presenting the history of the Goths, cites the *prisca carmina* (Getica 28). Most likely, these were songs composed with the help of a poetic meter. The names of the Goth tribes: *Goti, Guti, Gepidae* and *Gutones* (Wolfram 2003, 29-33) indicate, in turn, an alliteration of the name Gapt – a progenitor of the Amals dynasty (Jordanes, Getica, 42, 79-81). The alliteration of the latter term was, in turn, the basis for creating the names of members of this dynasty and the competing Balthi dynasty. It seems that names Athanaric, Ariaric, Aoric, Alaviv, Alaric, etc. (Wolfram 2003, 45-51, 48) could have been given in accordance with this principle. The dynastic names within the other Germanic tribes were also formed in a similar manner (Piekarczyk 1979, 81). This phenomenon can be considered as one of the features typical of oral cultures, they were a type of 'variations on a theme'.

In conclusion, the Wielbark culture was organised by the following rules:
central point = central clan
social hierarchy – hierarchy of tribal groups – hierarchy of space
Physical space was defined by:
segmental structure of settlement – modular decoration – jewellery construction of repeatable elements
Social space describes instead:
burial mounds of the elite – flat graves of other members of the community

The basis of structure created by the Wielbark culture's population was a combination of two paradigms: the modular one and the hierarchical one. A principle that the whole consists of repeatable parts, but they are not equivalent is perceptible.

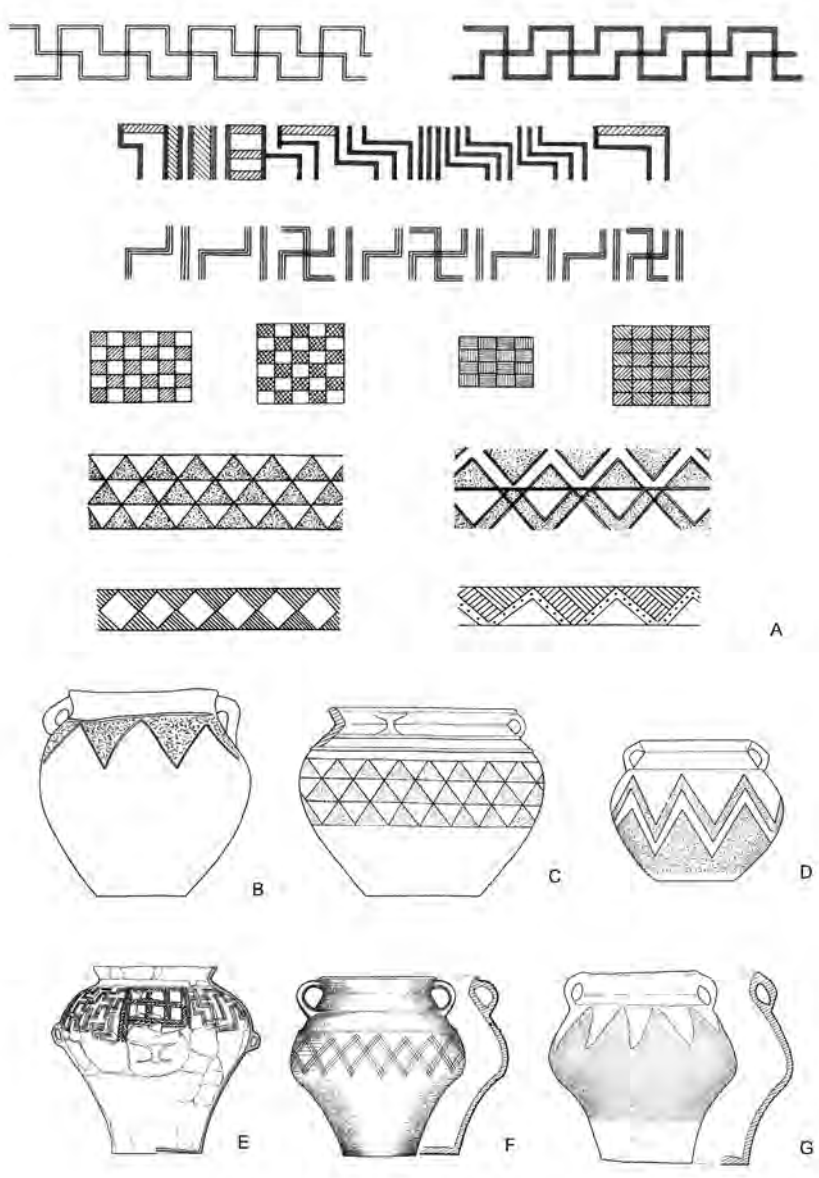

Fig. 80. A – selected decorative motifs of the Wielbark culture's pottery vessels from the early Roman period, examples of decorated pottery vessels: B – Tynwald, Iława district, Poland; C – Zwierzewo 57, Ostróda district, Poland; D – Gostkowo-Folsąg, Toruń district, Poland; E – Rogowo 39, Toruń district, Poland; F – Zagórzyce 2, Łobez district, Poland; G – Żukczyn 2. Gdańsk district, Poland. After R. Wołągiewicz 1993, Tables 39, 44, 46 & 48; Tables 8: 2; 9: 2; 11: 1 & 15: 1-3.

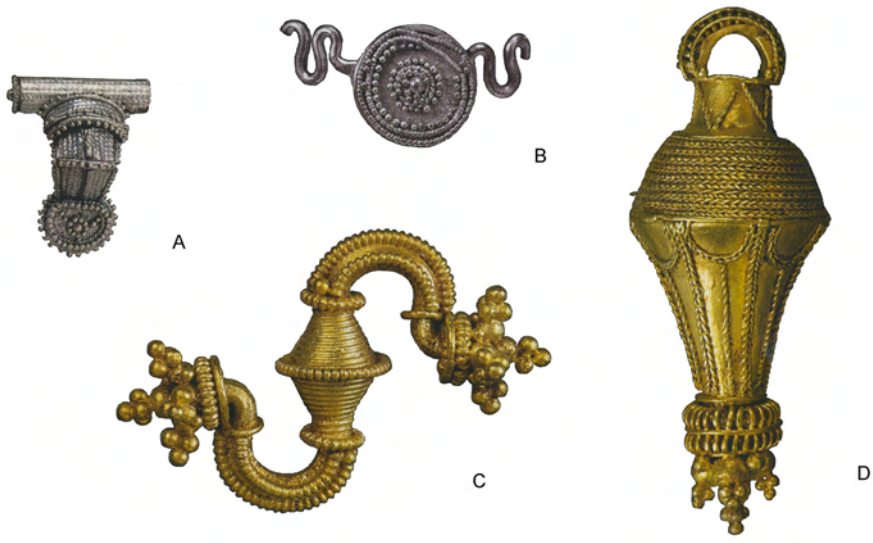

Fig. 81. Metal jewellery of the Wielbark culture from the early Roman period. A – Weklice 7, Elbląg district, Poland, grave 252; B – Kowalewko 12, Oborniki district, Poland, grave 156; C – Kowalewko 12, grave 377; D – Kowalewko 12, grave 211. After T. Skorupka 2004, Nos. 151, 63, 114 & 157. Scale: A 3.9 cm, B 5.5 cm, C 3.6 cm, D 3.8 cm.

4. The Wielbark culture and the Przeworsk culture - in search of the structural causes of dissimilarity*

(…) they thought that the barbarian and the slave were by nature one.
Aristotle, Politics, 1252b

In the early Roman period the archaeological cultures of the Central European Barbaricum were characterised by significant unification. This resulted from the earlier integrating cultural influence of La Tène culture, and then from the Roman impact. In addition, the Germanic origins of the majority of the population were a connecting element. Against this background, the Wielbark culture's appearance in the south coast of the Baltic Sea around the turn of the eras (phase B1a after Wołągiewicz, 1970) was characterised by a large dissimilarity. Particularly striking are the differences in relation to the neighbouring grouping – the Przeworsk cul-

* This section is a revised and expanded version of the article: T. Gralak 2012b Przyczyny i formy zróżnicowania kultur przeworskiej i wielbarskiej, [in:] B. Gediga, A. Grossman, W. Piotrowski (eds.), Rytm przemian kulturowych w pradziejach i średniowieczu, 389-410. Biskupin-Wrocław.

ture. This issue is particularly intriguing because of the genesis of the Wielbark culture; it was formed in the area occupied in the pre-Roman period by the Oksywie culture, which was characterised by many features convergent with the Przeworsk culture (Wołągiewicz 1981a, 138-139; Godłowski and Okulicz 1981, 31-33). The similarities between them are so large that both of them are considered groups of one unit – the Pit grave culture (Kostrzewski, J. 1939-1948, 300) or the Veneti culture (Kostrzewski, J. et al. 1965, 242). To some extent the process of the Wielbark culture's formation consisted in abandoning some of the Przeworsk culture's features. Therefore, the question arises concerning the causes of this phenomenon. The basic reason was the arrival of a new population (tribes of the Goths) from Scandinavia (Kokowski 2007, 47-49 – therein further references). Nonetheless, a lot of the specific features of this culture were formed in Pomerania as a result of multidirectional interactions, hence, it cannot be perceived as a model transferred from the outside (Kmieciński 1962). Moreover, the colonisation is perceptible only within a limited area in phase B2a, i.e. approximately 70-80 years after the beginning of this culture's formation (Wołągiewicz 1981a, 152-153, 1981b, 85, 101). It has been stated that the population of this grouping was multi-ethnic, and the areas occupied by the Goths from Scandinavia constituted only a part of its territory (Wołągiewicz 1981b; Kolendo 2006). Therefore, it seems that the migration itself does not explain the reason for the new unit's formation. Assuming that this process consisted in abandoning the Przeworsk's cultural model, burial rites of both groupings in the early Roman period were compared. Due to the large diversity of rites practiced by both populations, features considered the most characteristic were chosen. It does not mean that they were noticeable in all the burials and even cemeteries and settlement regions. Therefore, it has been greatly generalised.

It is assumed that each ritual is a realisation of a certain myth (Stomma 2008, 166-167). This also applies to burial rites, which in this context determines the cultural pattern. Hence, the forms of graves resulted from a vision of the 'perfect' world, which did not have to match exactly the contemporary social reality. It expresses, instead, the ideology of societies, and – which should be stressed – constitutes only one of its aspects. Comparing the characteristics of burial rites, it was assumed that they were a comprehensible code for both groupings and probably also throughout the Barbaricum. This is indicated by the Przeworsk culture's burials with clear elements of the burial rites of the Wielbark culture (Pazda 1983, 191; Kokowski 1999, 48). On the other hand, amongst the Wielbark culture, it can be assumed that the memory and understanding of earlier rites similar to the Przeworsk culture's ones were used by the population of the Oksywie culture.

The comparison was carried out using a simplified method of structural description after C. Levi-Strauss (Levi-Strauss 2000, 2010; Stomma 2008, 175-189). The binary opposites that occurred in the burial rites of both cultures have been noted. These were identified by the principle of the zero-one system (0:1) as following:

Phenomenon – lack of phenomenon

In some cases, phenomena were distinguished which were considered opposite ones, i.e. 1:1. This resulted from imposing two opposite occurrences in the 0:1 system. The procedure was applied only in cases when two contradictory phenomena occurred in equivalent contexts.

Phenomenon – opposite phenomenon

It is worth noting that the system of binary oppositions (0 or 1) is the basis for recording in all computer languages (Glenn Brookshear 2003, 20, 48-50). Hence, this is not just a theoretical concept. Its use clearly confirms that effective communication is possible in this way.

In the analysed archaeological cultures opposites are recognizable by the presence or absence of a given phenomenon, but their interpretation is possible only in the case of information about their meaning. The main sources are ancient written records or later data concerning pre-Christian religion. Under this assumption, some of the opposites may be identified, but without an understanding of their meaning. An additional difficulty is the lack of symmetry in written records – they concern the Goth tribes most frequently. On the one hand, this is due to the greater interest of the Romans in areas that had sources of amber (Kolendo 2006, 17); on the other hand, it results from a preserved literary heritage associated with these people from the late Roman period and the Migration period (Strzelczyk 1984, 39-51, 404-424). Information on the population of the Przeworsk culture – identified (by some scholars) as the Lugii and the Vandals* (Kolendo 1981, 70-71, 2005, 113; Strzelczyk 1992, 20-79; Olędzki 1997) is less frequent. It should be also noted that determining such opposites, regardless of if and how they are interpreted, indicates the existence of a structure, and therefore a cross-cultural communication network.

Binary opposites in the burial rites of the Przeworsk and the Wielbark cultures:

Small number of mound features – common presence of mound features

Mound features within the Przeworsk culture are rare. Compared to the total number of burials, the so-called chieftains' graves – probably originally covered with mounds – are not numerous (Godłowski 1981a, 112-114). They are usually located outside flat cemeteries. Their equipment differs from the other graves of the Przeworsk culture, while similar finds are known from other parts of the

* In Polish archaeological literature for many years takes place an intensive discussion on the issue of ethnicity in the Roman period and the Migration period. Recent discussion has been described by A. Ciesielska (2012, 241-274).

Barbaricum. This phenomenon is therefore a manifestation of the interregional culture of tribal elites (Eggers 1951, 48-50; Wielowiejski 1970, 256-263 1981, 414-417). The Siedlemin type mounds, instead, appear in phase B2/C1-C1a and it was a custom of foreign origins (Błażejewski 2007, 30-33). Assuming that this form of grave reflects the higher social position of the dead, their small number in the Przeworsk culture indicates the more egalitarian social structure of the community. It seems that this phenomenon can be regarded as confirmation of the thesis that the dominant group in this society were free warriors.

In contrast, the Wielbark culture's mounds always occurred within flat cemeteries (Fig. 68). Their presence was recorded in most of the necropolis. The dead buried in them usually had rich grave goods, but were typical of items found in all burials. It seems, therefore, that firstly, the form of a grave expressed the high status of the elite. It also indicates the strong hierarchy in society. This interpretation is also confirmed by a previously quoted observation of Tacitus about the peoples living in present-day Pomerania: the Goths, the Rugii, etc. stating that they were ruled by kings more severely than the rest of the Germanic peoples (Germania, 44).

Among the barbarian tribes the royal function was also of a sacred nature, integrating the community with deities. This is indicated by beliefs identifying Wotan as the progenitor of the Anglo-Saxon rulers as well as the Langobard dynasty (Modzelewski 2004, 64-65, 415; Słupecki 2006, 101). As already mentioned, the Ostrogoth Amals dynasty derived from a progenitor named Gapt (Jordanes, Getica, 42, 79-81), which probably is a version of the well-known name of Gautr in the Middle Age, which is one of the names of Odin (Dumézil, 2006 62; Słupecki 2006, 77).

One of the denominations of a king used amongst the Germanic peoples was *thiudans* (Modzelewski 2004, 404-405). It was used, amongst others, by the Goths of the Black Sea in the late Roman period and is known from the Bible by Wulfila. Etymologically it derives from *thiuda* – people, tribe, with an individualising suffix *n*, meaning also the relation of representation. This name indicates the opinion that a king was the personal keystone of tribal community (Modzelewski 2004, 404-405). Another term – *reiks* relates to rulers of various settlement districts known as *kuni* (Wolfram 2003, 116-120). As already mentioned, these individuals and members of their families most likely were buried in mounds.

Occasional stone structures in cemeteries – common stone structures in cemeteries

In the Przeworsk culture stone structures which are not graves and graves marking structures in cemeteries are found very rarely. They are represented by circular and triangular metalled surfaces and circles of standing stones. They occur mainly in north Mazovia and in the Bzura River basin (Kempisty 1965, 80-95; Okulicz, J. 1970b, 434-453).

Within the Wielbark culture such structures are very numerous (Fig. 69-79), but in a limited area, in the cemeteries of the Odry-Węsiory-Grzybnica type (Wołągiewicz 1977a, 33-34, Fig. 32). It should be noted that there are large arrangements with a diameter of several tens of metres, in particular circles of standing stones. Their presence indicates the strong positive valorisation of cemeteries. It probably was connected with the cult of the ancestors and, directly related to it, the ancestral and dynastic tradition. Hence, such structures clearly served a strongly hierarchic social structure.

Weapons in graves – lack of weapons in graves

The presence of weapons in graves of the Przeworsk culture indicates its strong and positive valorisation of them (Fig. 66; 72). It is worth noting that decorated javelins are the most numerous in this grouping in the whole of the Barbaricum (Kaczanowski 1988). Often staff-weapons heads were discovered in male graves as grave goods (Godłowski 1992; Kontny 2002; Graph 11). This phenomenon is explained in Germania by Tacitus (Germania, 13-14). According to this author, the spear to the Germanic people was an attribute of a full member of the community. It can, therefore, be presumed that male warriors played an important role in the Przeworsk culture. A weapon was a primary indicator of an individual's status. Its presence in male graves also indicates that they were carriers of social information. Thus, probably they were part of a strongly patriarchal society.

The lack of weapons in the graves of the Wielbark culture is also explained in Germania by Tacitus (Germania, 44-45). These remarks do not directly concern the Goth tribes and Pomerania, but the Suiones who lived in today's Sweden (Kolendo 2005, 105, 110). Amongst these people, weapons belonged to the ruler and were kept under the guard of a slave. This phenomenon indicates that myths existed that conditioned the customs of rationing access to weapons in the Baltic Sea zone. According to Tacitus, this phenomenon was humiliating and against personal freedom. Therefore, the lack of weapons in the graves of the Wielbark culture is most likely one of the forms of the realisation of this myth. Perhaps this should be interpreted as a sign of submission. On the other hand, the weapons at the disposal of the ruler indicate the existence of different structures of the organisation of armed forces than in the Przeworsk culture. As might be suspected it was a very hierarchical structure (Kontny 2006, 207-208).

Iron in graves – non-ferrous and precious metals in graves

This list is a composition of two opposites. The first concerns iron, which was frequently found in graves of the Przeworsk culture (Niewęgłowski 1981, 24, 66-67). In the graves of the Wielbark culture, in turn, iron objects were found only occasionally (Wołągiewicz 1974, 130; Kokowski 2007, 45), which suggests that this material was taboo (Godłowski and Okulicz 1981, 42). On the other hand, in the

graves of the Przeworsk culture (mainly male) non-ferrous metals (bronze) and especially precious metals were relatively rare (Niewęgłowski 1981, 24, 66-77), while in the graves of the Wielbark they occurred in large numbers (Wołągiewicz 1974, 130).

These opposites were composed due to the comparable context of the occurrence of both phenomena. Moreover, it seems that in both cultures, these phenomena were mutually exclusive. Both are also difficult to interpret. They probably derived from myths valorising the use of various metal raw materials. In the Przeworsk culture, over time, the approach changed. The basic domination of iron is noticeable primarily in the pre-Roman period. In the early Roman period, instead, this phenomenon occurred mainly in warriors' graves and was no longer so strictly observed. Non-ferrous metals (bronze) appeared in female graves (Niewęgłowski 1981, 24, 66-77; Czarnecka 1990, 63-66).

Based on grave finds, it can be assumed that iron was clearly associated with men and the military sphere in this culture, while non-ferrous and precious metals were associated with women. In this context, the absence of iron in the graves of the Wielbark culture is particularly symptomatic. It should be also noted that in graves of the Przeworsk culture goods found in some burials indicate that the dead were blacksmiths (Kokowski 1981, 192-193, Fig. 1). Hence, there was a definite valorisation of this material and the people involved in its production. In Ancient Greece copper was associated with Aphrodite, tin and therefore to some extent also bronze with Zeus (Bouzek 2001, 350), while iron was linked with Ares (Burkert 1985, 153, 167-170). In the tradition of the Finnic peoples (the Nenets) living in the Arctic zone, even in the 20th century, objects made of copper or bronze were conventionally deposited as minor offerings in sacred groves (Ovsyannikov and Terebikhin 1994, 67). This phenomenon clearly indicates the strong tradition of the valorisation of various metals, but also of selective association with the sacred sphere.

Simple iron jewellery – opulent jewellery of non-ferrous and precious metals

In graves of the Przeworsk culture, opulent jewellery and the presence of simple iron jewellery probably resulted from the use of weapons as a primary indicator of social status. Other indicators, it seems, were not needed. In female graves bronze artefacts were more frequent (Czarnecka 2004, 102-103, 1990, 63-66), however, they were not elaborate. This phenomenon once again indicates that the male was a carrier of social information and confirms the strong patriarchal structure. In female graves of the Wielbark culture, jewellery made of non-ferrous and precious metals were frequently found (Fig. 81). Amongst the precious metals silver clearly dominated, which, according to Tacitus, was valued more than gold by the Germanic people (Germania, 5). In phase B2c due to the richness of forms and filigree and granulation decoration, this phenomenon was named the so-called Wielbark Baroque (Wołągiewicz 1974, 135-136; 1981a, 167). It is worth noting that this is

a phenomenon characteristic only of this culture. Therefore, most probably the female was a carrier of social information. Moreover, the composition of various ornaments and parts of the dress might have constituted a more comprehensive social code, which is often found in traditional preliterate societies (Jolles 2008, 118-123; Glaze 2008). It can be also presumed that a woman's clothing also indicated the man's status (father or husband) who could not manifest it by the possession of weapons. This occurrence may have resulted in the higher social status of women. In this context, the remark by Tacitus about the Sitones living above the Suiones – i.e., in the north part of the Baltic Sea zone is apt. Their ruler was a woman, hence, in the Roman's opinion, the Sitones men's status was worse than slaves (Germania, 46). Both this record and the Wielbark Baroque trend suggest that myths existed legitimising the high position of women in society in the Baltic Sea zone.

Large diversity in male and female grave goods – little diversity in male and female grave goods

In the Przeworsk culture significant differences in male and female grave goods were recorded. In male graves weapons were primarily found and, in addition to these were shears, fire strikers, razors, parts of belts and usually one fibula. In female graves, in contrast, caskets, keys and spindle whorls as well as a larger number of fibulae were discovered (Godłowski 1981a, 116; Czarnecka 1990, 42-45, Tables 6 & 7). It was noted that some parts of clothing occurred in graves of only one sex, e.g. fibulae (Liana 1970, 434-435) or belt buckles (Madyda 1977, 377, 391-392).

The male graves of the Wielbark culture are difficult to determine (Wołągiewicz 1981a, 138-139). It is considered that male graves should be as treated burials equipped with a smaller number of grave goods. However, there are no items which can be considered as an indicator of sex. The grave good assemblage is generally limited to small parts of dress, i.e. actual jewellery, parts of belts and fibulae, and some types are characteristic only of male graves. In this context it should be stressed once again that women's graves were equipped with richer grave goods. Therefore, probably this occurrence is associated with myths defining and valorising the position of a given sex in the community. This opposition once again points to different gender relations in the communities of the Przeworsk culture and the Wielbark culture.

Destruction of grave goods – lack of destruction of grave goods

Grave goods found in the Przeworsk culture often show signs of intentional destruction. This primarily concerned weapons (Fig. 82: D-G), but deliberately broken vessels were found (Godłowski 1981a, 107; Czarnecka 1990, 85). This custom had already appeared in the pre-Roman period and probably was adopted from

the La Tène culture – in particular, in this respect the Ponětovice type cemeteries from Moravia are noteworthy (Dąbrowska and Woźniak 2005, 93). In the Wielbark culture this rite did not occur at all. Usually the destruction of grave goods is associated with animistic ideas, i.e. it would lead to their symbolic death, and thus they would come into the possession of the deceased (Niewęgłowski 1981, 126; Szafrański 1987, 342). However, it may also have been an important element of the manifestation of social position by relatives of the dead. Therefore, it seems that the burial rites of the Przeworsk culture had some characteristics of the potlatch. This ritual, on the one hand, expresses aspirations and ranking and, on the other hand, by destroying material goods, prevents the formation of large and hereditary social differences. As a result, a given community remains in a stable state. This phenomenon seems to be particularly important in the context of the alleged egalitarianism of the Przeworsk culture's population. An unstable hierarchy is one of reasons for the existence of potlatch (Mauss 2001, 192, footnote 79). The lack of it in the Wielbark culture indicates well established and accepted social divisions.

To review, for both cultures and this is particularly true in the case of the Wielbark culture, the analysed characteristics are the basis for distinguishing these groupings (Wołągiewicz 1981a, 139; Kokowski 2007, 45-46). This indicates that opposites were very important for the creators of both cultures. There were also probably phenomena that are archaeologically imperceptible. According to Tacitus, peoples around the south Baltic Sea coast used short swords and round shields (Germania, 45). Miniature representations of the latter found within the Przeworsk culture are always elongated – rectangular or polygonal (Andrzejowski 2000 Fig. 2). In addition, finds of swords indicate that long and two-edged blades were used more frequently (Kontny 2006). Both units also accepted imports in different ways. Firstly, *terra sigillata* type pottery often occurred in the Przeworsk culture, while in the Wielbark culture, such assemblages were very rare (Tyszler 1999, 73-76, List II, Maps 1 & 3), but metal and glass vessels did feature (Wołągiewicz 1981, 139). It should be noted, however, that the differences in grave goods did not result from economic divisions and do not indicate them as such. There is no data available to state clearly what the value of weapons and jewellery was then. It seems, however, that in both cases they were valuable items. Most probably, these phenomena were not determined economically; ideology may have been the most important reason. Therefore, it is clearly perceptible that the opposites in both groupings were related to basic issues for each community. Structural differences in grave goods indicate which goods were withdrawn from circulation and thus which ones remained. Hence, it should be assumed that the populations of both cultural units had different customs regarding inheritance. Most likely, this occurrence was crucial for the development of the social structure.

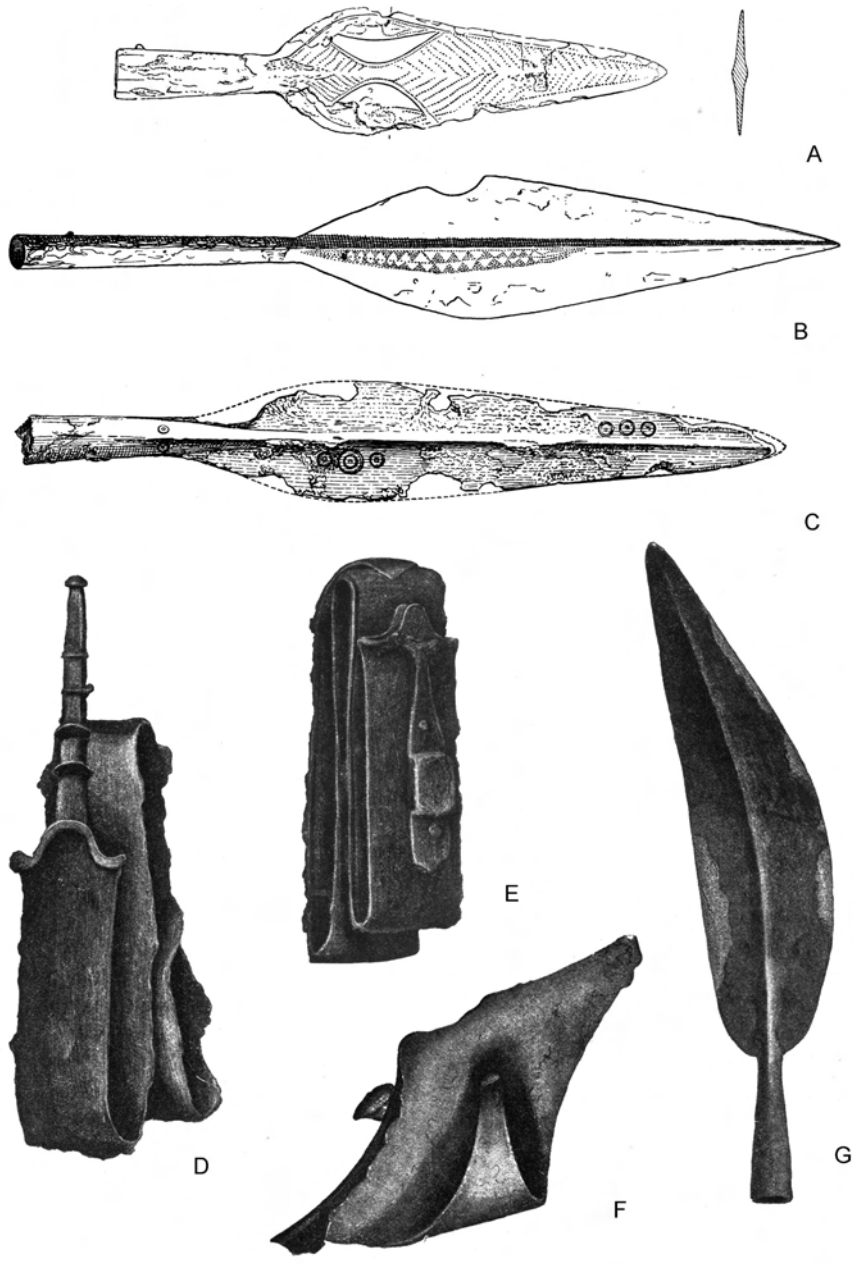

Fig. 82. Decorated heads of staff-weapons of the Przeworsk culture: A – Silesia, unknown location, Poland; B – Stare Serby, Głogów district, Poland, grave 2; C – Stare Serby, grave 3. Examples of damaged weapons from the Przeworsk culture graves: D-G – Bartodzieje, Góra district, Poland. A-C after M. Jahn 1919, Figs.10-12; D-G after H. Seger 1902, Figs. 15, 16, 20 & 23. Scale: Scale: A, C, F c. 1:3; B, D, E and G c. 1:4.

The distinction and comparison of the opposites also helped to define the basic characteristics of the two communities:

The Przeworsk culture
1. Egalitarian society, dominated by free warriors
2. Males as a carrier of social information
3. Authority: kingdom/wartime democracy?

The Wielbark culture
1. Strongly hierarchical society, dominated by layer of elite
2. Females as carriers of social information
3. Authority: sacred kingdom

Comparing the obtained data, it should be assumed that the basic cause of differentiation in burial rites, and partly also in the material culture of both units, was the different ideology and the resulting differences in social structure. Furthermore, both groupings represented opposite models of culture and it was probably the cause of conflicts. The very process of the Wielbark culture's formation could also have caused a hostile reaction in the Przeworsk culture. Related military conflicts are indicated by Jordanes' record, describing fights between the Goths arriving to Pomerania and the Vandals and the Rugii (Getica, 26). It seems that the Wielbark culture's expansion to the north-eastern parts that were occupied by the Przeworsk culture should be interpreted in a similar manner (Godłowski 1985, 147). The deep hostility between the Goths and the Vandals are also indicated by written sources from the Migration period (Strzelczyk 1992, 137).

Another question is the impact of the socio-political structure on the history of individual peoples. Centralist organisations, and therefore, elitist and the hierarchical ones, because of the simplified process of decision-making and effective execution of commands are better managed than the egalitarian ones. The latter often lose in confrontations (Wallerstein 2007, 34). In the case of the cultures in question this phenomenon probably occurred during the Marcomannic Wars (166-180 AD), (Wolfram 2003, 60). Shortly before them or during their course, the Lugii Federation probably collapsed, and is not mentioned in written sources from that time on (Strzelczyk 1992, 31-32). This is indicated by the information contained in Scriptores Historiae Augustae (Vita Marci, 14) that concerns more distant barbarians who started the avalanche of peoples pressing the Danube *limes*. They are commonly identified with the Goths who formed the Wielbark culture (Godłowski 1982, 1985, 147-148). It might be suspected that they were the main cause of the Lugii Federation's collapse. As a result of this process, the north and east parts of the Przeworsk culture's territory were occupied by the Wielbark culture (Godłowski 1985, 68-70, Map 5). The population originally living in those areas partly adopted the cultural model of the conquerors, and partly emigrated to the south. In phase B2/C1 chronologically corresponding to the Marcomannic Wars in the middle Danube zone, finds typical of the Przeworsk culture appeared associated with this particular population

(Godłowki 1985, 81-84, Map 6). It is identified with a group of Vandals known from ancient sources and referred to as the Hasdingi, who appeared there in 171/172 AD (Godłowski 1985, 146-147; Strzelczyk 1992, 58). The latter group was named after the reigning royal family (Banaszkiewicz 1986, 117-119), and its use to describe the entire community shows its very high position. Hence, a statement can be risked that the experience led to profound changes in social organisation. There was a collapse of the egalitarian community integrated by a central place, and it was replaced by a much more hierarchical structure, bonded by the authority of aristocratic families. As might be suspected, the latter form of organisation was far more efficient during migration. It is also confirmed by the expansion of the Goth tribes in the late Roman period. As a result, the Chernyakhov culture was formed which occupied vast areas on the borders of present-day Romania, Moldova and Ukraine (Szczukin 1981; Godłowski 1985, 147-150; Kokowski 1995, 61-65).

5. Ritual space and structure *

That's where the dog lies buried.
German and Polish proverb

Apart from the manner of organising physical space, prehistoric communities also developed concepts of space concerning the construction of the entire universe. Usually, these ideas were described in the myths of each community. These are also perceptible in some rituals, which are possible to determine by archaeological methods. It was also one of the ways of perceiving the world that organised the lives of individuals and communities. Therefore, this phenomenon is referred to as a ritual space. Sacrifices deposited in wells and other features from the settlement of the Przeworsk culture in Polwica 4/5 and Skrzypnik 8, Oława district is an illustration of such ideas. These finds are dated to the late Roman period and the beginning of the Migration period. They are deliberate deposits of animal remains. The most common were bones of dogs, but also other domestic animals (all osteological examinations by W. Chrzanowska and A. Krupska 1998a, 1998b; 1999a, 1999b, 1999c, 1999d, 2000a, 2000b). Four repeatable types of their deposition were determined:
I – burials of complete animals,
II – burials of animals subjected to fragmentation
III – remains of consumed animals
IV – burials of selected parts of the body
The upper fills of wells were the main areas of these deposits in every occurrence.

* This section is a revised and expanded English version of the article: T. Gralak 2012c 'Użył jak pies w studni', czyli o pochówkach zwierzęcych z osady w Polwicy-Skrzypniku, pow. Oława z późnego okresu wpływów rzymskich i początku okresu wędrówek ludów, Przegląd Archeologiczny, vol. 60, pp. 107-132

Type I. Burials of complete animals. They were only recorded in wells and each time they were the complete skeletons of dogs. The first such discovery came from the upper part of well P5/677 (Fig. 83), where the remains of four dogs were unearthed, but the position of only two of them was determined. Both were placed on their left side. One was aligned east-west with the head facing east, and the other one was laid north-south with the head facing south. The latter was a dog skeleton deposited in the upper part of well P5/1964 (Fig. 84).

From settlements of the Przeworsk culture, dating to the late Roman period, or the beginning of the Migration period, similar deposits of animal skeletons are also known. In Jankowo, Łęczyca district, in well 964 a complete dog skeleton was found (Jurkiewicz and Machajewski 2006, 145). In well No. 500 from the Migration period from Konarzewo, Poznań district, a roe deer skeleton was deposited (Kaczor 2003, 296). In well No. 3724 from Inowrocław 95, dated generally to the Roman period, two complete dog skeletons were found as well as the skulls of two horses and two cattle (Andrałojć 1986 73, VI: 23). A dog skeleton, red deer antlers and aurochs horns were also recorded in a settlement in Nuekölln, Kr. Berlin, dated to phase B1 (Andrałojć 1986, IV: 52). A dog skeleton was found in well No. 6800 from a settlement in Dallgow-Döberitz, Kr. Hawelland, dated to the Roman period (Schöneburg 1995, 96; Leube 2009, 164).

Type II. Burials of animals subjected to disarticulation. This treatment is clearly indicated by the disarticulation of the remains. It should be noted, however, that some parts of the skeletons are articulated, which suggests that dismemberment took place. Most frequently, dogs were subjected to disarticulation, but other domestic animals deposited in wells and within buildings were treated in a similar manner. One such find was recorded in the middle part of well P5/2809's fill, where the remains of three dogs, including two males, were found. In addition, the bones of pigs and cattle were also deposited (Fig. 85).

A deposit of this type was also found in sunken building P5/2813 (). This feature was a slightly elongated oval with dimensions 590 x 510 cm in plan. At its base were the burnt and disarticulated remains of four dogs as well as bones of cattle, horse and pig and a cluster of charcoal. Their location at the fill's base suggests that the occupation level of the building was situated just above them. Apart from this, only five pottery fragments were found in the fill. This suggests that the feature was not a dwelling. Its large size and the sacrifices found within it most likely mean that this feature served as a cult building. To-date, no analogous edifices have been found in the Przeworsk culture. Some similarity was found in feature 21 from a settlement in Antoniew, site 1, Sochaczew district, referred to as the so-called 'sacred place' (Skowron 2006, 84-90, Table XI). Apart from a large assemblage of artefacts, identified as the remains of sacrifices, a dog burial was also found. From the settlement in Inowrocław 95, Inowrocław district in Kuyavia, features interpreted as shrines within which, or in their immediate vicinity, burials of complete dogs or deposits of the post-consumption bones of goats, sheep, calves and pigs were found (Bednarczyk 1988a, 208, 211, Fig. 9, 1988b, 167-168, Fig. 6).

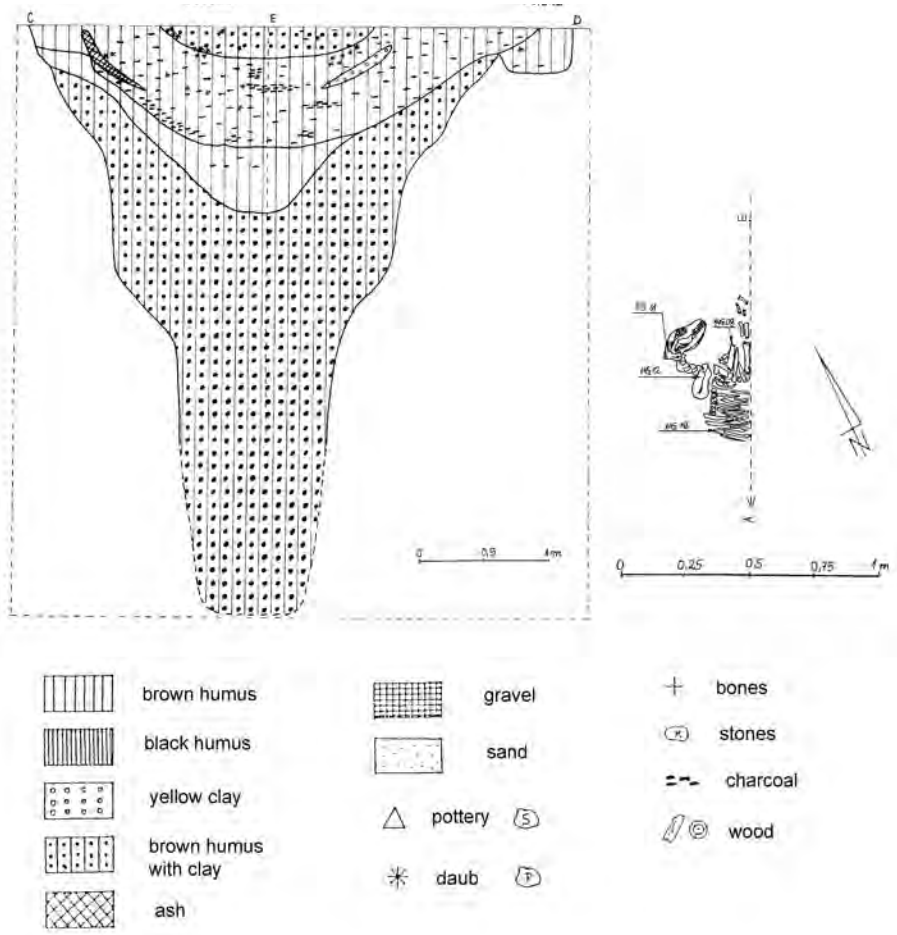

Fig. 83. Polwica 4, 5/Skrzypnik 8, Oława district, Poland. Well P5/677 with a dog skeleton. Drawing by the team of the City Museum of Wrocław - Branch of the Museum of Archaeology. After T. Gralak 2012c.

In posthole P5/2613 a part of dwelling P5/2593 and related features the remains of a dog were found. They were mainly cervical vertebrae, thoracic and lumbar vertebrae, and a few other bones. This shows that before deposition in the pit the animal's body was subjected to disarticulation. Most likely, it occurred before the driving of the post, i.e. before the building was erected. Therefore, it was probably a foundation sacrifice. This assumption is confirmed by the deposits of vessels discovered in similar contexts from settlements of the Przeworsk culture. In Polwica-Skrzypnik such a find came from posthole P5/3199, a part of dwelling P5/2120 and related features. In Mysłowice-Imielin, Bieruń-Lędziny district, a vessel was deposited next to posthole XVII, near the edge of building 150 (Tomczak 1993, 73, Fig. 23). Vessels were also recorded in the postholes of houses 1, 2 and 3 from a settlement of the Dobrodzień group in Kościeliska, Olesno district, (Hufnagel 1940, 87, 90, Figs.

1, 2 & 3, Tables 13:2, 3 & 4). Dating to the Roman period, similar discoveries are also known from postholes of so-called long houses and other buildings from Denmark, northern Germany and the Netherlands (Beilke-Voigt 2007, 99-104, Figs. 18 & 24; Webley 2008, 138-140, Figs. 7.3 & 7.4).

The disarticulation of animals is a ritual known from other sites of the Przeworsk culture. This phenomenon was recorded on site 12 in Inowrocław. The burials of three goats where found there. The trunks, limbs and skulls were deposited separately (Makiewicz 1993a, 72-73). Partial burials of dogs that were probably subjected to disarticulation are known in Central Europe from the Neolithic. During the Roman period, they were frequent occurrences in Scandinavia and north Germany, on sites of the Tibirke type, which were places of ritual practices (Andrałojć 1986, 88, 1993, 107). Probably a similar situation was recorded for finds dated to the turn of eras, from well No. 85 in Wilkowice, Wrocław district. The bone arrangement was not recorded, but the remains of an almost complete dog skeleton and numerous bones of pig, horse and cattle were identified (Nowaczyk and Nowaczyk 2003, 255, 288; Krupska and Chrzanowska 2003, 359). Similar finds were recovered from a settlement of the Przeworsk culture in Dzierżnica 35, Środa Wielkopolska district. In wells 2555 and 2248 a large number of pottery and numerous undefined animal bones were recorded. In the first of them a type A 42 fibula and a glass bead were found, while in the second one an antler pin and a hook-shaped wooden artefact were recovered (Sobucki 2003, 290-291, Figs. 5 & 6). Animal bones and pottery were also recorded in wells from the late Roman period in Sośnica, Wrocław district and Olszany, Wołów district (Pescheck 1936, 260-264, Figs. 7 & 8).

Fig. 84. Polwica 4, 5/Skrzypnik 8, Oława district, Poland. Dog skeleton deposited in upper part of well P5/1964. Photo by the team of the City Museum of Wrocław - Branch of the Museum of Archaeology. After T. Gralak 2012c.

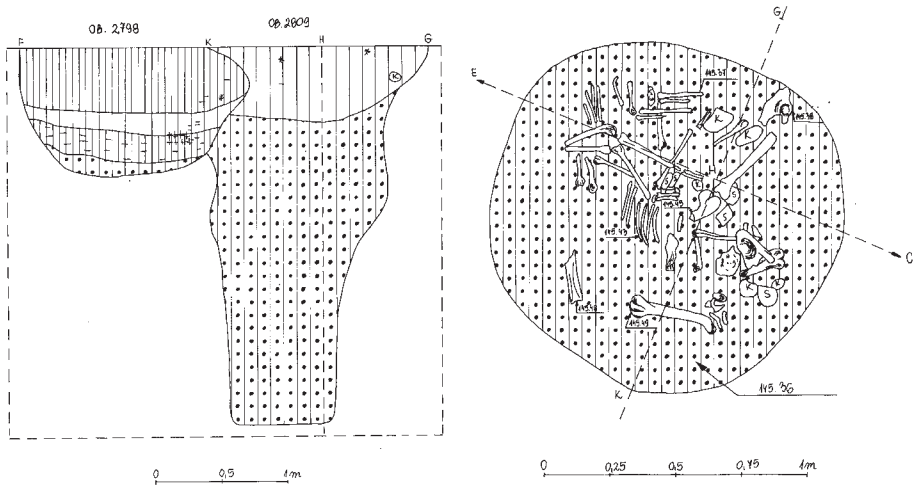

Fig. 85. Polwica 4, 5/Skrzypnik 8, Oława district, Poland. Well P5/2809 with the remains of dogs and other animals subjected to disarticulation. Drawing by the team of the City Museum of Wrocław - Branch of the Museum of Archaeology. After T. Gralak 2012c.

Type III. Remains of consumed animals. These deposits have considerable fragmentation of the bones. In addition, the anatomical systems were not evident during archaeological excavations. Occasionally, the bones bore clear traces of gnawing. It was probably the gnawing of dogs or other animals, but indicates their post-consumption nature. Most frequently deposited in this manner were dogs, but also cattle and sheep/goat. They were deposited in wells and buildings. It should be noted, however, that such an interpretation is not unambiguous. It cannot be excluded that the disintegration of the skeleton and the large extent of the fragmentation of the bone remains occurred as a result of other, unidentified, depositional and post-depositional processes.

In well P4/968 26 bones of one dog were found. Numerous remains of these animals were discovered in wells P5/1288 (29 bones) and S8/2452 (87 bones). It was not determined, however, if they belonged to one individual. In well P5/3374 numerous bones of cattle, including two bearing traces of gnawing were found; there were also some remains of pig and sheep/goat skulls . In the fill of well P5/526 49 bones were recovered, probably from one bovine. Five of metacarpals and five of metatarsals bear marks of gnawing.

In a small sunken house S8/1489 the bones of two dogs – 68 belonging to one individual and the skull of another one were recorded. There were a few remains of cattle, of which two bones had traces of gnawing. The bones of one individual came from P5/1202, a similar feature to S8/1489. In addition, in the fill of the above-ground, oval-shaped building P5/1462, 119 bones were deposited and have been identified as dog bones.

In such deposits most of the activities were conditioned by ritual. They are probably the remains of a ritual feast, during which animals were eaten that had also been sacrificed. As such, they constituted a part of the sacred sphere, and their remains required special treatment. Such rituals were a common element of many cultures. Deposits of the remaining bones are also known (Moszyński 1967, 258; Makiewicz 1993a, 75; Marciniak 1996, 141; Gralak 2011, 214-221). The consumption of sacrificial animals in the Mediterranean world had a clear mythological justification. The Greek hero – Prometheus – tricking Zeus – gave people the right to do it, leaving for the gods only the fat, skin and bones of the animal (Graves 1974, 144-145).

Fig. 86. Polwica 4, 5/Skrzypnik 8, Oława district, Poland. Sunken feature P5/2813, the remains of dogs subjected to disarticulation. Photo by the team of the City Museum of Wrocław - Branch of the Museum of Archaeology. After T. Gralak 2012c.

Numerous deposits of the bones of consumed animals are also known from the Przeworsk culture from the Kuyavian sites dated to the pre-Roman period: Krusza Zamkowa 3, Inowrocław district, Strzelce 2, Janikowo 11, Inowrocław district, and the early Roman period, Inowrocław 95. However, only the bones of pig, goat, sheep and cattle were identified (Cofta-Broniewska 1979, 185-188-189, Fig. 22, 1986, 44; Bednarczyk 1988a, 208, 211, Fig. 9, 1988b, 167-168, Fig. 6; Makiewicz 1993a, 75, Fig. 6: 3). Foundation sacrifices from the Roman period are known, and these consisted of the post-consumption remains. In Siedlemin, Jarocin district, goat bones were deposited under a lime kiln. Another deposit of sheep/goat remains was recorded in Różyce-Stara Wieś at the corner of a house (Makiewicz 1993a, 75, Fig. 7). In a settlement in Mierzanowice, Opatów district, generally dated to the Roman period, in pit 28, which was a deep bottle-shape in section, a compact bone mass

was found. The remains of eight dogs, bird remains and two skulls, one of which was identified as a horse skull were amongst some of those identified (Miśkiewicz 1962, 410). This find corresponds to assemblages of the Carpi culture in Moldova (Makiewicz 1987, 254-255). In the settlement of Poiana-Dulceşti six pits were found, in which there were the burials of dogs, in one case there was a double grave. All features were cylindrical in shape and had considerable depth. In some pits, at the base, layers of scorching were found. They are regarded as offerings, which were accompanied by a ritual feast, the rest of which was deposited together with the sacrificial animals in specially prepared pits (Bichir 1973, 246-252). The number of known parallels suggests that such customs were widely known amongst the population of the Przeworsk culture. It is also indicated by information on the religion of the barbarian peoples. It has been pointed out that the Celts treated pig meat as a ritual food that was consumed during ritual feasts (Rosen-Przeworska 1971, 191). Based on the vocabulary of the Bible by Wulfila, it is also known that ritual feasts were associated with sacrificial animal consumption in the late Roman period amongst the Goths of the Black Sea. An animal sacrifice was called *hunsl*, and its consumption *dulþs* (Wolfram 2003, 135).

Fig. 87. Well P5/3374, skull of sheep/goats and post-consumption remains of cattle. Photo the team of the City Museum of Wrocław – Branch of the Museum of Archaeology. After T. Gralak 2012c.

Another issue is the consumption of dog meat, which is suggested by the aforementioned finds from Polwica-Skrzypnik. In contemporary European culture this animal is considered inedible. It should be noted, however, that consumption of this animal's meat is in no way harmful and depends only on the cultural system.

It is not excluded for economic reasons (Stomma 2008, 157). The post-consumption remains of dogs were recorded in various prehistoric cultures in Poland (Lubicz-Niezabitowski 1929, 2, 1933-1936, 149; Krysiak 1951-1952, 251). Celtic traditions indicate that dog meat consumption occurred only during rituals (Czarnowski 1956b, 101). This is confirmed by the post-consumption skeletal remains of dogs found in the cult centres of Gournay and Ribemont in Gaul (Green 1992, 111). In the Púchov culture, in a settlement in Liptovská Mara, a separate place for the deposition of dog remains was found which was clearly associated with their consumption (Chrószcz et. al. 2013). It seems that similar practices took place in Polwica-Skrzypnik – bones indicating the consumption of dogs are only found as intentional deposits.

Type IV. Burials of selected parts of the body. Within settlement features and wells only horse skulls were deposited. In pit P5/1268, pear-shaped in section, probably of a storage nature, a foal skull was found, as evidenced by its primary teeth. In feature S8/1479 of an unspecified function, parts of a horse skull and a lumbar vertebra were found. Also at the bottom of well P4/473 a horse skull placed with its mandible upwards was discovered (Fig. 88). It should be noted, however, that due to the specific construction, dating this feature to the Roman period is not entirely certain.

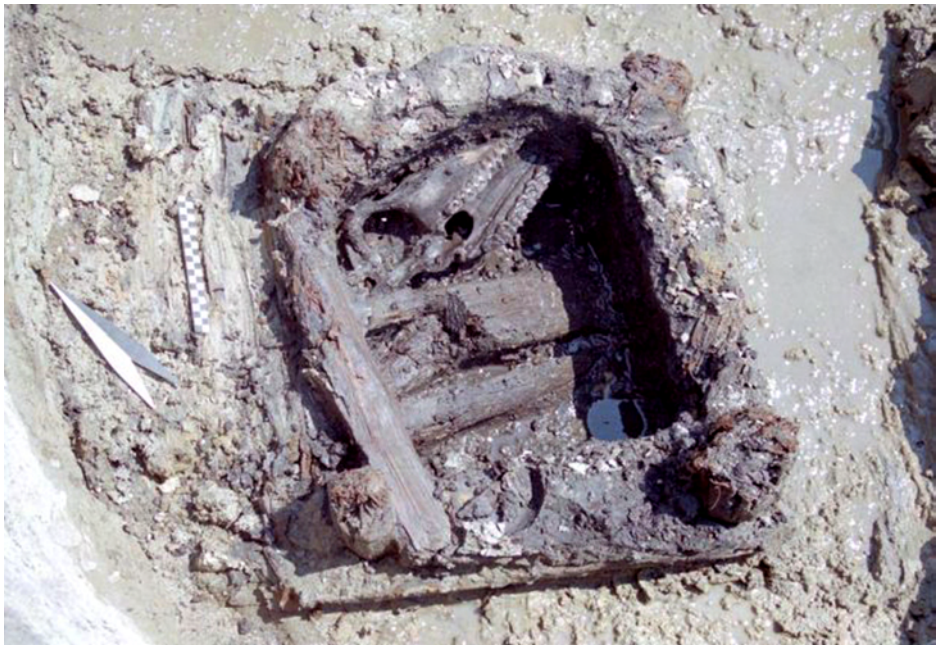

Fig. 88. Polwica 4, 5/Skrzypnik 8, Oława district, Poland. Well P4/473, a horse skull deposited on the bottom. Photo by the team of the City Museum of Wrocław - Branch of the Museum of Archaeology. After T. Gralak 2012c.

Finds from Polwica-Skrzypnik have analogies in the deposits of three horse skulls from settlements in Krusza Zamkowa 3 and Konary 28, Inowrocław district. They were discovered in dwellings and storage pits dated from the 2nd to the 4th century AD (Cofta-Broniewska 1979, 189-190). A horse skull was also found at the bottom of a well dated to phase B2 from a settlement in Płoski, Góra district (Wróbel 1992, 52, Fig. 3), and similar finds from the late Roman period also came from Magnice, Wrocław district (Baron et al. 2011, 55) and Wrocław-Widawa (Baron 2014, 301). As already mentioned in well No. 3724 from Inowrocław 95, two dog skeletons and two skulls of horses and two of cattle were found (Andrałojć 1986, 73, VI: 23). A horse skull was also found amongst the bones of consumed animals deposited in a pit in a settlement in Mierzanowice (Miśkiewicz 1962, 410). Moreover in a potter's kiln from Zofipole-Igołomia a horse skull was found, and in the next one a dog's skull (Żaki 1947, 25). The presence of such deposits indicates the existence of a repeatable ritual associated with the head or skull of this animal. These features confirm the strong valorisation of this animal by the Przeworsk culture. During the Roman period, however, decapitation was also carried out on animals. In a settlement in Frienstedt near Erfurt, more than 40 wells or well-like shafts were discovered. In the latter were skulls and numerous cattle bones (Schmidt, Ch., 2012, 89, Plate II. 1).

In conclusion, a set of 27 wells from Polwica/Skrzypnik is to-date a unique phenomenon in the Przeworsk culture. Only on settlement in Domasław, Wrocław district (Żygadło et al. 2012, 497, Fig. 17), the same number was found.* In other settlements they were less numerous:15 in Janków (Jurkiewicz and Machajewski 2006, 144-145), 14 in Wrocław-Widawa (Baron 2014, 287-302) and 12 in Stanisławice, Bochnia district (Rodak 2006, 680, Figs. 4-12; Rodak and Rodak 2011, 371-374, Figs. 3-6). Complexes of wells, however, usually did not exceed 10, for example, 8 in Biskupice, Pruszków district (Michałowski 2003, 23), 6 in Magnice (Baron et al. 2011, 55), from 2 to 6 in Łęczyca, Łęczyca district (Poklewski 1963, 315), 5 in Opole-Groszowice, Opole district (Domański 1971, 234), 5 in Kolonia Orenice, Łęczyca district (Siciński and Stasiak 2004, 101, Figs. 8 & 9) and 4 in Sadków (Marciniak and Stanisławski 2012, 266-268, Figs. 10-13). Therefore, a question should be asked for the impetus behind building a few dozen of such features on one site. Probably there were several factors. Firstly, a large amount of water was consumed during technological processes associated with metallurgy. This phenomenon was already noted on other production sites (Woyda 1977, 482). Water was also used for consumption, both by people and for the large number of domestic animals, especially cattle. In many European languages the word for a well is etymologically linked to the cold (Brückner 1993, 523) and thus indicates the preservative and health characteristics of well water. Watercourses are subject to periodic pollution, especially during the spring thaw or prolonged rain. Thus, a watercourse, even if it was present in an area, could not constitute the primary source of potable water.

* Part of them, however, probably come from the early Roman period.

A pond located in the centre of settlement in Polwica/Skrzypnik could not be used for this purpose, because of either metallurgical production or organic waste resulting from daily consumption. Ethnographic research also suggests that wooden linings rotted and became overgrown by algae over a long period, which worsened water quality (Tylkowa 1978, 58). This resulted in the periodic need to build a new well.

In Polwica/Skrzypnik it was noted that some wells were located directly next to each other. Such an occurrence was observed in the case of feature P5/139, within which two wells occurred as well as features P5/675 and P5/723 (Fig. 89), which constituted a complex of three wells. Most likely, these systems resulted from replacing old, worn features with new ones. Wells without any wooden lining were recorded, hence, probably after their usefulness ended the linings were dismantled. It seems that well preserved laths were used in the construction of the next well. This is suggested by the large variation of dates obtained during dendrochronological analysis of individual linings (Krąpiec 1998, 1999, 2000). Wells were intentionally refilled and this action was accompanied by animal sacrifices. It is worth noting that large quantities of pottery fragments were also found in the fills of many wells. During these practices, other structural elements were probably burnt, as suggested by lenses or layers of ash, scorch and charcoal, recorded in the upper parts of the fills of features P5/1035, P5/1050, P5/1086, P5/1588, P5/1964, P5/1975 and P5/2531. Refilling was necessary because of the large amounts of wells in close proximity. If unused wells were left unfilled, they would lower the water table locally, which would result in the need for digging new wells deeper.

A single backfilling was evident in well B from Izdebno Kościelne (Nowakowski 1981, 55, Fig. 9). In Lizawice, Oława district, in the fill of a well, layers of scorching and lumps of scorched clay were recorded, and the upper parts of the laths bore traces of fire. This indicates that the wooden lining was damaged by fire (Pazda 1969, 326, Fig. 2). On site 2 in Kolonia Wola Branicka, Zgierz district, a single backfilling of a well was noted. In addition, in its vicinity and partly in its fill, layers of scorching were recorded (Moszczyński 1994, 98-99, Figs. 1 & 2). It is possible, therefore, that backfilling was accompanied by a ritual fire. On the aforementioned site in Janków, wells are grouped close to each other, which also indicate (Jurkiewicz and Machajewski 2006, 144-145) that they had to be successively backfilled. In addition, six wells from a settlement in Magnice were intentionally refilled. In one of them, a layer of scorching was also recorded (Baron et al. 2011, 55, Figs. 41-44). Layers of scorching and scorched clay were also recorded in late Roman wells 1132 and 1158 from Wrocław-Widawa (Baron 2014, 295, Figs. 62: bc & 63: b). Traces of fire were also found in similarly dated features 1440 and 2439 from Sadków, Wrocław district (Marciniak and Stanisławski 2012, 268). As was already mentioned, deposits of complete animals and selected body parts have many parallels in finds from wells dated to the Roman period or the beginning of the Migration period. In addition, from the latter period in Konarzewo, Poznań district, in well No. 1535, burnt human remains probably of many individuals were found. Numerous post-consumption animal remains, a large number of broken pottery fragments and

glass beads were also recorded (Makiewicz et al. 2008; Makiewicz 2008, 289). Burnt bones, pottery and iron artefacts were also found at the bottom of a well located within a cemetery of the Przeworsk culture in Konin, Konin district, from the 2nd--3rd centuries AD (B. Kostrzewski 1947, 257, Fig. 114). In a well from Tofting Kr. Dithmarschen, dated to the 2nd century AD, a child's skeleton was discovered (Leube 2009, 164). In a well from Dallgow-Döberitz a human humerus, burnt animal bones and pottery vessels were found. In other wells from this site jewellery and parts of clothing were discovered (Schöneburg 1995, 96; Leube 2009, 164). Finds of burnt human bones, scorching and broken pottery were recovered from a small pond located within a cemetery of the Wielbark culture in Odry (Grabarczyk 1996).

Similar finds also occurred in earlier periods. From deep, so-called shaft pits in Bad Frankenhausen, Kr. Artern, associated with the Tumulus culture, came post-consumption animal remains, human bones, broken pottery and bronze jewellery (Behm-Blancke 1976, 81-82). From the Bronze Age they are also known wells with deposits of everyday objects from Wilsford Shaft and Swanwick in Britain (Harding 2000, 213-315, Fig. 9.2.1). During the Hallstatt period, in the Lusatian culture, so-called well-like pits several metres deep are interpreted as places for offering sacrifices. They were recorded in a fortified settlement in Lossow near Frankfurt (Oder). It is estimated that the number of these features may range from 250 to 300. In their fills were fragments of human and animal skeletons, including cattle, horse, dog, goat and sheep. In addition, numerous fragments of pottery and a few everyday items were found. Typically, in their fills there were also layers of scorching (Bukowski 1999, 49-51, Figs. 11 & 12; Beilke-Voigt 2012 – therein further references). Analogous features were found in the fortified settlement in Gzin, Bydgoszcz district, dated to the Hallstatt D period and the La Tène A period. Twenty-four such pits were found at that location. Within them were complete or fragmented human and dog skeletons as well as bones of cattle, sheep/goat, horse and pig. In the fills too were pottery and everyday objects. Traces of scorching as well as human cremation burials were recorded (Chudziakowa 1992). Both the disarticulation of the human skeletons and traces on bones suggest cannibalistic practices (Chudziakowa 1992; Bukowski 1999, 51). This shows that there all elements of ritual recorded in Polwic-Skrzypnik took place, i.e. animal sacrifices, fragmentation, ritual consumption, and fire. Similar features are also known from the Celtic world in La Tène culture and the Gallo-Roman culture. In their fills were human and animal bones as well as pottery (Piggot 2000, 72-76, Figs. 57 & 58; Cunliffe 2003, 245, Figs. 113 & 115). In Bretignolles and Le Bernard dog bones were identified within them (Andrałojć 1986, 75). In the case of these features their cult purpose has been pointed out, analogous to Greek *bothros* and Latin *mundus* – ritual shafts considered to have a connection with deities (Piggot 2000, 72). In the case of wells from Holzhausen, Ldk. München, Fellbach-Schmiden Rems-Murr Kreis and Tomerdingen, Ostalbkreis, discovered within so-called *Viereckschanzen*, despite finds described as sacrifices in their fills, it has been pointed out that they primarily served economic functions. In relation to them a ritual function would have been secondary (Wieland 1999,

44-53). Wells filled with deposits, including animal sacrifices (dogs, horses, etc.) are also known from the Roman Empire. They were recorded mainly in Gaul and the Rhine River area (Martin-Kilcher 2007).

Numerous and various parallels suggest that myths and ideas which determined the sacrifices most likely were known to inhabitants of the settlement in Polwica-Skrzypnik. The utilitarian nature of the wells on this site is beyond doubt, but this does not exclude the possibility that activities associated with them might have been ritualised. One of these rituals was probably backfilling wells after the termination of their use. In this context, it is worth noting that a well is the symbolic centre of the world in many cultures. The *axis mundi* connecting the underworld with earth and heaven runs through wells (Kopaliński 1990, 406). It should be stressed that by linking spheres of the universe a well has a mediatory character (Kowalski, P. 1998, 535). Wells are also a very common motif appearing in mythological tales, where they occur as part of a road leading to another realm – the underworld (Toporov 2003, 62).

Polish proverbs relating to wells are well known: 'to enjoy like a dog in a well' (bad luck); 'do not irritate a dog in a well' (Kopaliński 1990, 406). Dogs are often the attributes of underworld deities. Hecate, presented as a bitch, was often accompanied by Cerberus guarding the gates of Hades. Similarly, in Germanic mythology – the dog Garm guarded the underworld and was a companion of the goddess Hel (Kopaliński 1985, 64-65). It seems, therefore, that the meaning of sacrifices offered after the termination of the use of a well is obvious. Dogs as the companions of underworld deities close an axis linking various levels of universe.

In the case of other animals it seems that their ritual function may have been similar. Finds of horse skulls may result from the apotropaic properties of this animal (Kopaliński 1990, 161). It should be noted, however, that some deposits contained the remains of consumed animals. Hence, it should be taken into account that these were remains of ritual feasts, during which sacrificial animals were consumed.

Finds from wells' fills, although they do not concern all features, are characterised by the repeatability of forms and some similar elements of stratigraphy. This corresponds to the criteria for the identification of sacred places characterised by both their uniqueness and repeatability (Colpe 1970; Makiewicz and Prinke 1981, 63-64). In the case of Polwica-Skrzypnik this definition, however, concerns only the manifestations of magical thinking. This type of find has analogies in the form of deposits offered after the termination of the use of pottery kilns. Production features also possess mediatory properties. This results from the transformation process which occurs within them (Kowalski P. 1998, 434-439). It was noted that the remains of domestic animals in the form of a complete body or fragments coming from the front part of the body were most frequently deposited (Rodzińska-Nowak 2006, 65). A meaningful example is the find of a dog skeleton deposited on the grate of a potter's kiln in Radłowice, Oława district (Pazda 1966, 80-86, Figs. 8 & 9). In Domasław a dog skeleton was found in a lime kiln (Żygadło et al. 2012, 490). The symbolism of this rite seems to be similar to finds from wells.

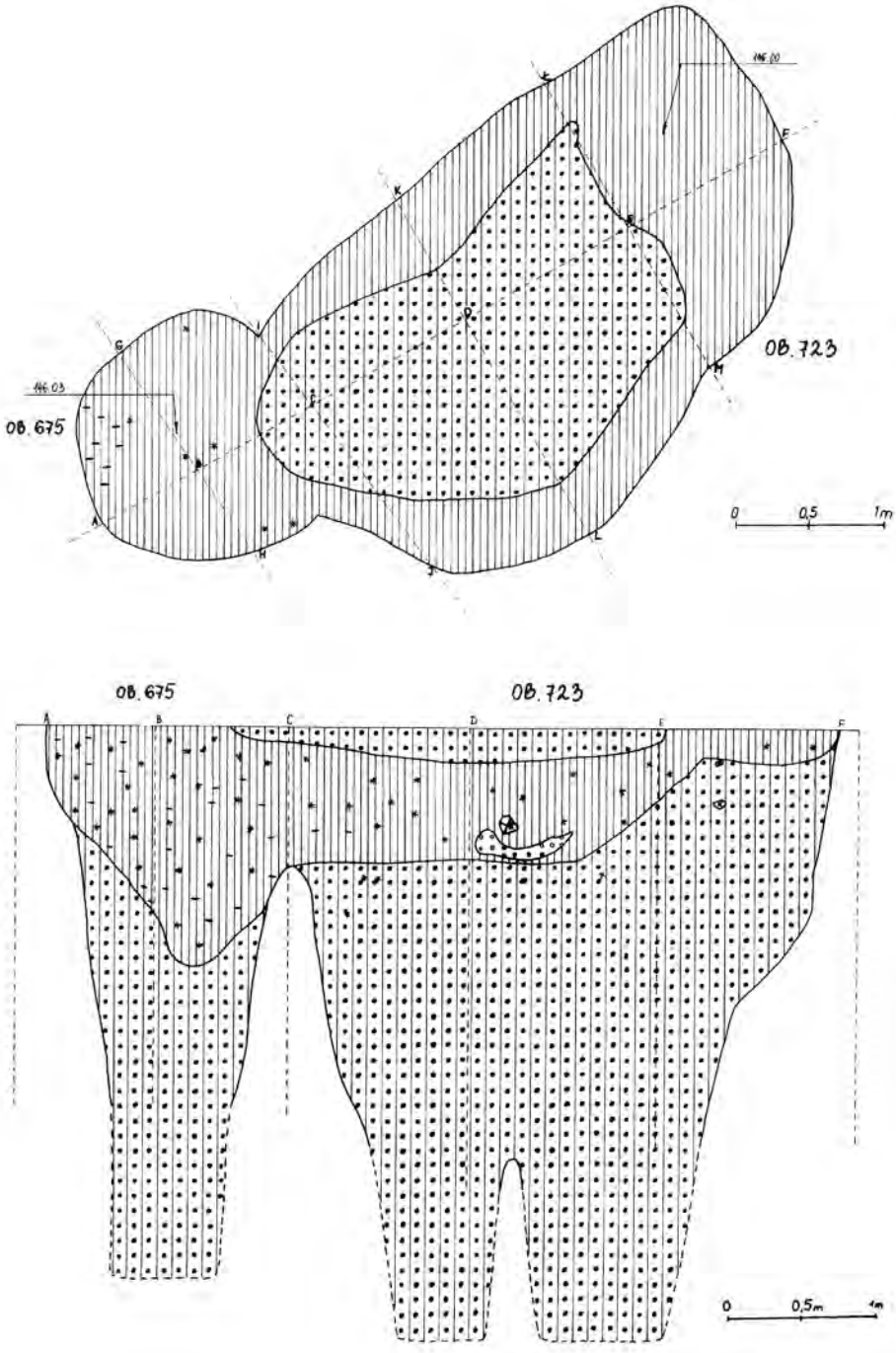

Fig. 89. Polwica 4, 5/Skrzypnik 8, Oława district, Poland. Wells P5/675 and P5/723. Drawing by the team of the City Museum of Wrocław – Branch of the Museum of Archaeology. After T. Gralak 2012c.

It should be also noted that some dogs' remains found within dwelling structures were deposited even after the termination of the building's use. Such finds, dated to the Roman period were recorded in Moravia and Slovakia. Skeletons of these animals recorded inside of houses are interpreted in this way (Šedo 2004, 477-478). The context of some finds leaves no doubt in this matter. In Beckov, in Slovakia a dog skeleton was situated over a posthole of a dwelling structure – it could have only been deposited there when the post was removed, i.e. after the termination of its use (Kolník et al. 2007, 21). In hut I in Blučina, in Moravia, the skeleton was deposited about 20 cm above the bottom occupation level (Droberjar 1997, 25). Most of the buildings in Moravia from the Roman period were burnt at the end of their usefulness so it was probably an intentional action (Droberjar 1997, 36). Traces of an equivalent phenomenon were also noted in the remains of buildings of the Luboszyce culture from a settlement in Tornow-Borchelt (Domański 1979, 115). Furthermore, according to Caesar's record, the Helvetii and other Celtic tribes, when leaving their territory burnt their houses (Commentari de Bello Gallico, I.5). Therefore, it can be assumed that the termination of a house's use, like that of wells, was associated with rituals consisting of burning, and animal sacrifice – a dog. It seems that such deposits are to some extent described by some proverbs: 'that's where the dog lies buried' (the essence of a matter), 'he wouldn't lure out even a dog from the oven' (clumsy) or 'spell at the dog'. It seems that they are a verbal record of actual ritual activities.

To recap, in wells, production features and houses, animal sacrifices were offered after the termination of their use. Therefore, they constitute a manifestation of a ritual concerning many aspects of culture. They are also probably only part of the ritual structure that organised the process of building and creating. Nonetheless, finds described as foundation sacrifices, which were deposited before the commencement of construction are known (Beilke-Voigt 2007, 48-52). Apart from the aforementioned finds of vessels, very often they were dogs' remains. This is indicated by finds of the skeletons of these animals found under houses' thresholds or under hearths (Makiewicz 1993b, 111, 114). As already mentioned, in Siedlemin, the foundation sacrifice consisting of bones of a consumed goat was also discovered under a lime kiln (Makiewicz 1993a, 75, Fig. 7). It is noteworthy too that dog burials located in the immediate vicinity of houses were deposited during their use (Makiewicz 1993b, 115).

Hence, in general, these deposits can be divided into three categories:
1. Opening/creative sacrifices (foundation ones)
2. Sacrifices offered during use
3. Closing sacrifices

The triple structure of construction sacrifices was already recorded in Slavic folk construction (Bajburin 1990, 67). It seems, however, that it had a much wider range. In the finds from the Roman period from individual features only

one category of sacrifice was observed. This, of course, does not exclude the other two, but they would have left no traces that are perceptible by archaeological methods. A very meaningful example is rituals associated with the construction of a traditional Mongolian yurt. Prior to its construction, the space where it was to be placed was sacralised by the offering of milk and arranging the stones of a hearth. Within the completed building, there was also a separate space where sacrifices were offered, and behaviour in the building was subject to strict ritual rules. During the disassembly, desacralisation was carried out by scattering hearth stones and another milk sacrifice (Wasilewski 1975, 101-113).

In conclusion, for wells, production features and dwelling structures, a three-stage division of ritual activities was observed. Despite differences, the general pattern of behaviour was repeatable. This structure resembles the rites of passage identified by van Gennep (2006, 36). The main difference is the lack of a liminal phase. In the reconstructed scheme, sacrifices or rituals taking place during the use of a feature corresponded to it. It cannot, therefore, be a rite of passage phase consisting of exclusion. This difference is due to the diverse purposes of both these activities. Rites of passage concern the changing of status of someone, and less frequently of something. The described three-stage structure, instead, concerns the process of creation, use and destruction. It seems that it is a realisation of creation myths and a concept of time known in the Indo-European tradition.

Assuming that rituals and ceremonies are a realisation of a myth (Stomma 2008, 166-167), foundation sacrifices should be understood in the same way. In medieval Germanic mythology the creation of the world consisted in the sacrifice of an anthropomorphic being – Ymir. A similar concept of the creation of the world is also known in other mythologies, e.g. Babylonian and Vedic ones (Eliade 1994a, 76, 105-106). The ritual of a foundation sacrifice is a repetition of cosmogony. In Germanic religion the concept of the end of the world – Ragnarök was known, after which it was to be reborn in a new form. Similar ideas were known in Iranian and Indian religions (Eliade 1994a, 113-115). It seems that closing sacrifices should be understood in this manner. They represent a realisation of the myth about the end of the world. It should be emphasised that the above described three-stage structure of offering deposits is an expression of a time sequence. Hence, it is one of the few examples of the conceptualisation of this phenomenon.

The method of backfilling wells also shows the view of the construction of the vertical structure of the whole universe. It was three-stage – the *axis mundi* linked the underworld, the earth and the sphere of the heavens. In addition, the identified rituals clearly demonstrate the concept of space perception.

6. Revival of the Hallstatt culture during the Roman period

There's nothing new under the sun.

In terms of the perception of the world, cultures of the Central European Barbaricum during the Roman period are close to those of the Hallstatt period. This phenomenon concerns many aspects of culture.

In the Roman period the most common form of settlement was a type of circular village, where buildings were arranged around an empty square (e.g. Strobin). Such an arrangement had appeared earlier in the Hallstatt period as settlements of the *Herrenhof* type. It was found that the layout of buildings in the Hallstatt and the Roman period used a modular system. Hence, the same construction and organization patterns were used. A convergence was also observed in decoration, known mainly from pottery vessels. The decoration in both periods was executed according to the same paradigm. The whole was composed of repeatable elements (modules). The difference consisted in the predominance of triangular motifs during the Hallstatt period and rectangular ones in the Roman period. Assuming that the decoration constituted an organisation of space at the micro level, the communities in both periods perceived the world very similarly. The method of constructing everyday items was also held in common- by the multiplication of repetitive elements, usually rings but not only them. In the Roman period the difference consisted, however, of the use of strong profiling in building solids. It is also worth noting that information suggests the use of a poetic meter in both periods – hence, the modular paradigm was a common communication medium.

It was also found that the structure of some rites that are noticeable by archaeological methods also corresponds to the Hallstatt period. The ritual of backfilling wells recorded in the late Roman period has exact prototypes in the so-called sacrificial shafts known from strongholds from the Hallstatt period in Lossow and Gzin. The same rituals also appeared at the end of the La Tène period – in wells known from the *Viereckschanzen*. This indicates that the communities of these periods similarly perceived the vertical and temporal structure of the world.

During the Hallstatt and the Roman periods, the presence of so-called construction sacrifices was also identified. In both the remains of young human individuals deposited within dwelling structures were recorded. As in the case of wells, they can be regarded as a manifestation of the same manner of perception of the ritual space.

It is also worth noting the custom of carrying around a representation of a deity on a wagon, which was mentioned by Tacitus (Germania, 41) and Sozomen (Historia ecclesiastica, VI.37). Most likely, it also had origins dating back to the Hallstatt period. For this was a time of the extremely strong, positive valorisation of wagons (see Pare 1992). Many records concerning such a representation of deities exist (Baron 2008).

Figural representations of deer were very rare in the Roman period. They occurred as engravings on the Przeworsk culture's vessels from Poland in Babimost, Biała and Gać (Bugaj 1999, 162, Tables 21-25). There were also representations of waterfowl, for example, on a vessel from Wola Łobudzka in Poland (Bugaj 1999, 164, Table 28). They have numerous prototypes in the Hallstatt period, especially in the Lusatian culture (Gediga 1970, 108-18, Figs. 33 & 37, 1976, 131-137). In the village of Sobocisko even a pottery image of a bird was found (Pescheck 1939, 355-356, Fig. 185: 4), and several specimens are also known from the Czech Republic and Slovakia (Motyková-Šneidrová 1959, Table XII: 4-6; Kolník 1984, 72). They have their counterparts, and probably prototypes in the numerous figural art of the end of the Bronze Age and the Hallstatt period, and in the Lusatian culture (Gediga 1970, 40-60, Figs. 4-12, 1976, 124-125). They were probably the visualisation of widespread myths. In an evident way they defined the perception of the world in both periods.

Some drinking horns are known from the Roman period (Gediga 1976, 269, Fig. 30: b). These vessels have prototypes in pottery of the Urnfield complex and the Hallstatt period (Gediga 1976, 101, Fig. 11: h). So-called table pottery in the Hallstatt period was characterised by a smooth black shine with graphite (Hensel 1988, 279; Kopiasz 2008, 216-217; Gediga 2009, 125-126, Fig. 6). Table pottery from the Roman period had the same attributes (Liana 1970, 433). It cannot be excluded that there were similar cultural consumption patterns in both periods.

Around the turn of the eras so-called chieftains' graves appeared within the European Barbaricum. The earliest are known from the area of the present-day Czech Republic that was occupied by the Marcomanni tribe and associated with the so-called state of Maroboduus (Lichardus 1984, 81-83). This type of grave has direct prototypes in richly furnished burials from the late La Tène period in Gaul, and especially those in present-day north-eastern France (Cunliffe 2003, 280-282, Table 18, Fig. 130; Fernández-Götz 2014, 183-201). In terms of the form (mound and chamber), grave goods (wine drinking sets and imports from the Mediterranean zone) and rites (inhumation), they greatly resembled burials of the Hallstatt aristocracy (Fernández-Götz 2014, 183-187). It seems that this is not just random phenomenon of convergence. The late La Tène genesis indicates the continuation of the tradition. It should be also emphasised that the Hallstatt culture in relation to the Mediterranean and cultures of the European Barbaricum in relation to Rome had the same kind of a relationship, i.e. periphery – centre. Hence, burials of Hallstatt aristocracy and the chieftains' graves emerged as result of the same social mechanisms. In both periods the elite proved its position by the administration of imported luxury goods.

Around the turn of the eras a return to the urn grave type occurred. It is traceable both in the Elbe circle and in the Przeworsk culture (Niewęgłowski 1981, 57-66; Błażejewski 1998, 41-42). This represented a continuation of burial rites typical of the Jastorf culture, but one may wonder if it was not also linked with earlier Hallstatt or even Urnfield complex traditions.

Thus, during the Roman period a specific revival of the Hallstatt culture took place. It was manifested in the spheres of the perception and organisation of space (including art and construction), burial rites and probably mythology as well. Therefore, these parallels are of a structural nature. The causes of this phenomenon are unclear. The return to previous patterns is possibly due to the complete collapse of La Tène culture. In a sense, it was an opposite in relation to Hallstatt culture. Its disappearance, therefore, indicated the attractiveness of old patterns. It is notable that the return to the modular perception of the world was already present in the late stage of La Tène culture. The most important factors, however, were probably Hallstatt traditions, which were, in fact, never abandoned by the Jastorf culture. This cultural unit greatly contributed to the formation of the cultural shape of the European Barbaricum. An important element too was Roman influence – a modular perception of the world dominated in the Mediterranean from the Geometric period in Greece. This was the basis of the classical concept of beauty (Tatarkiewicz 2009, 34, 60-70, 96).

CHAPTER IV

The Migration Period

Hic transit gloria mundi.

1. Ideological changes in late antiquity *

(…) there is in our souls a block of wax, (...)
Plato, Theaetetus, 191DE

In the 3rd century AD, in the Roman Empire, a deep economic crisis occurred (Cary and Scullard 1992, Vol. II, 333-366). Its result was an ideological crisis, which manifested itself in the persecution, and then the official acceptance of Christianity by Constantine the Great in 313 (Cary and Scullard 1992, Vol. II, 416-423). In the 3rd century a philosopher named Plotinus questioned the classic idea of beauty based on symmetry, proportion and harmony. He claimed that it stemmed not only from the arrangement of elements, but also from their quality. Moreover, beauty was supposed to be influenced by the spiritual values of works of art (Tatarkiewicz 1970, 372-373). The realisation of Plotinus' programme was early Christian and Byzantine art, however, some of its characteristics appeared as early as in the 1st century AD (Tatarkiewicz 1970, 378). Hence, it might be stated that the art paradigm changed – it was supposed to serve the presentation of inner beauty and the ideas from which it stems.

It seems that the transformations of culture within the European Barbaricum were correlated with and largely caused by processes in the Roman Empire. As already mentioned, the relations between these zones are another example of peripheral areas' dependence on central ones (Cunliffe 1988, 177-186, 199-200). In such systems, peripheral regions are dependent economically, politically and ideologically on central ones. These areas are affected to a larger degree by a crisis in the central zone (Braudel 1992, 27-30; Wallerstein 2007, 27, 33-34, 129-130). Such a process probably occurred in the 3rd and 4th centuries AD. Political changes taking place at that time are viewed in this light (see Dobesch 1999). It can be

* This section contains some theses ao presented in the article: Gralak T. 2014b. The reception of late antiquity ideology by barbarian communities in Central Europe, [in:] M. Rakocija (ed.), Niš and Byzantium XII, Twelfth Symposium Niš, 3-4 June 2013, The collection of scientific works XII, 219-230.

also presumed that new ideas from the Empire reached territories inhabited by the barbarians. Apart from changes in the material culture, a significant example of this is the gradual acceptance of Christianity by the Goths and other Germanic tribes (Zuchold 1983, 279-285, Figs. 63 & 64; Strzelczyk 1984, 102-109, 1992, 138). It should be noted, however, that the population in peripheral areas accepted ideas and products from the central regions selectively, often with delay, and gave them their own features (Rowlands 1990; Kadrow 2001, 37-38, Fig. 3). In the case of the acceptance of Christianity, the barbarians adopted it in the version of the Arianism heresy (Zuchold 1983, 280-281; Strzelczyk 1984, 102-109). The Barbaricum culture, however, was not simply a copy of the Roman one. The second important factor of change was the impact of the steppe peoples, primarily the Huns.

It should be emphasised that the areas of the European Barbaricum also most likely struggled with an economic crisis. A significant cooling of the climate occurred (Tobolski 2005, 287; Bouzek 2005, 516). It was probably a very negative factor that affected agriculture. It seems, therefore, that the acceptance of new cultural patterns was easier due to a significant deterioration in the capacity of older economic systems, and thus social ones. In the Przeworsk culture in Poland, from the beginning of the 3rd century AD, the amount of archaeological finds significantly decreases (Godłowski 1985, 129), corresponding to the progressive decline in population (Kurnatowski 1992, 79-83, Figs. 1.3 & 1.4). This process accelerated when the large-scale migrations started, which of course were associated with the abandonment of previously exploited territories and the vanishing of the cultures that had once lived there (Godłowski 1979, 27-55; Parczewski 2002, 43-45, Figs. 1-3). In this period entirely new communities formed, as evidenced by previously unknown tribal names such as the Saxons, the Franks, the Alemanni, the Thuringii, the Buiavarii, etc. (Krüger 1983, 16-19). The transformation of tribal organisations was also likely linked with a new identity, which was a link for different groups of people. The change of name seems to indicate this clearly. An example of this occurrence is described by Jordanes (Getica, 36, 96), in the process of the colonisation of lands abandoned by the Gepids by people of a different ethnic background, collectively referred to as the Vidivarii.

In the 3rd-4th century AD numerous and easily accessible philosophy schools were founded in the Empire. Teaching consisted of reading texts by earlier authorities. Amongst the thinking a fusion of Platonism and Aristotelianism dominated, which was finally accepted in the 3rd century thanks to Porphyry, and then post-Plotinus Neoplatonism (Hadot 2000, 193-196). These events resulted in a kind of return to the philosophy of the Greek Classical period, which underwent, however, significant reinterpretation.

In the work entitled Ennead, Plotinus presented the system of philosophy known as Neoplatonism (Tatarkiewicz 1970, 153-159). He also dealt with the question of beauty. As already mentioned, he postulated the rejection of the paradigm that stated that the whole was constructed of repeatable parts. He proposed a new one, stating the need for unity and shaping. The internal structure ceased to be important:

We hold that all the loveliness of this world ***comes by communion in Ideal-Form.*** *All shapelessness whose kind admits of pattern and form, as long as it remains outside of Reason and Idea, is ugly by that very isolation from the Divine-Thought. And this is the Absolute Ugly: an ugly thing is something that has not been entirely mastered by pattern, that is by Reason, the Matter not yielding at all points and in all respects to Ideal-Form. (…). This, then, is how the material thing becomes beautiful-* ***by communicating in the thought that flows from the Divine.***
Plotinus, Ennead, I.6, On Beauty 2

So with the perceptive faculty: discerning in certain objects the ***Ideal-Form which has bound and controlled shapeless matter****, opposed in nature to Idea, seeing further stamped upon the common shapes some shape excellent above the common,* ***it gathers into unity*** *what still remains fragmentary, catches it up and carries it within, no longer a thing of parts, and presents it to the Ideal-Principle as something concordant and congenial, (…).*
Plotinus, Ennead, I.6, On Beauty 3

A new way of perceiving the world was accepted by the barbarians. An example may be the most popular metal parts of dress, i.e. fibulae. These items were decorated by adding successive elements during the Roman period. This applies both to the individual parts, for example, the so-called Zakrzów (Sacrau) fibulae (A 164 and A 184) with multiple springs. Decorative techniques that required the addition of successive components – granulation and filigree were also used (Fig. 90: A). In contrast, during the Migration period, fibulae began to be cast as a whole (Seyer 1983b, 187-191, Figs. 40 & 41) (Fig. 90: B). Individual construction components such as spring ends or discs covering them lost their structural function and became only decorative elements. The filigree and granulation decoration was abandoned or significantly reduced.

To understand Plotinus' programme, the question of what was his 'Ideal-Form' should be asked. The answer is given in further fragments of Plotinus' work:

(…) and what is the secret of the beauty there is in all that derives from the soul?
Plotinus, Ennead, I.6, On Beauty 1

Then again, ***all the virtues are a beauty of the soul, a beauty authentic beyond any of these others;*** *but how does symmetry enter here? The soul, it is true, is not a simple unity, but still its virtue cannot have the symmetry of size or of number: what standard of measurement could preside over the compromise or the coalescence of the soul's faculties or purposes?*
Plotinus, Ennead I. 6, On Beauty 1

The beauty in things of a lower order-actions and pursuits for instance – comes by operation of the ***shaping Soul*** *which is also the author of the beauty found in the world of sense.*
Plotinus, Ennead, I.6, On Beauty 6

And ***the soul includes a faculty peculiarly addressed to Beauty****- one incomparably sure in the appreciation of its own, never in doubt whenever any lovely thing presents itself for judgement. Or perhaps* ***the soul itself acts immediately, affirming the Beautiful where it finds something accordant with the Ideal-Form within itself,*** *using this Idea as a canon of accuracy in its decision.*
Plotinus, Ennead, I.6, On Beauty 3

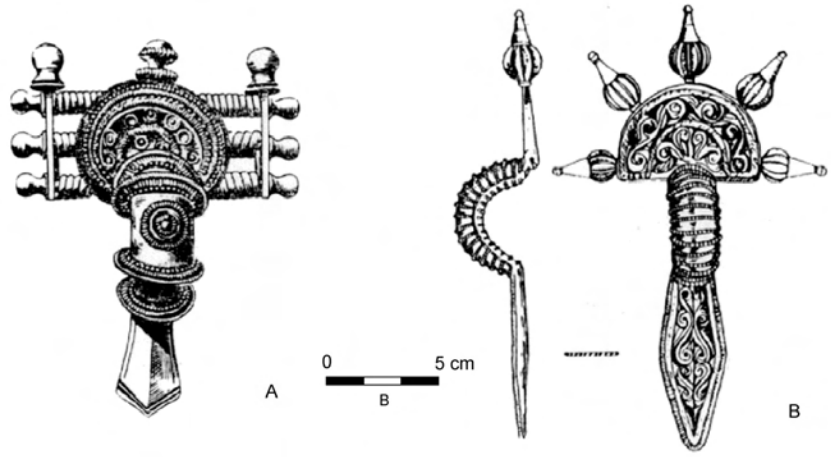

Fig. 90. A – Wrocław-Zakrzów, Poland, grave II, c. 1:4; B – Świelino, Koszalin district, Poland. A after T. Kolnik 1964; B after K. Godłowski 1981b.

Hence, it seems that the element that gives beauty matter is the soul. Its presence becomes one of the essential elements which determine the internal structure of the world as well as of individual objects and human bodies. It becomes the basic paradigm of description and the understanding of reality. The belief that there is something more than just matter is manifested by a specific affirmation of the soul. Therefore, its presence will be highlighted in many human products. The only question is how the soul is represented. Already amongst the earliest records about the soul in the works of Greek philosophers of the Classical period is information that the soul moves in a circular way:

We must identify the circle referred to with mind; for it is mind whose movement is thinking, and it is the circle whose movement is revolution, so that if thinking is a movement of revolution, the circle which has this characteristic movement must be mind.
Aristotle, On the soul, I.3.407a

(…) the reason for which God caused the soul to move in a circle can only have been that movement was better for it than rest, and movement of this kind better than any other.
Aristotle, On the soul, I.3.407b

Similar information was also given by Plotinus:

But whence that circular movement? In imitation of the Intellectual-Principle.
Plotinus, Ennead, II.2, The heavenly circuit 1

*The Soul exists in **revolution** around God to whom it clings in love, holding itself to the utmost of its power near to Him as the Being on which all depends; and since it cannot coincide with God it **circles** about Him.*
Plotinus, Ennead II.2, The heavenly circuit 2

Such a representation of the soul was the reason for the use of decorative motifs in the form of circles, but primarily spirals. They became very popular during the Migration period. They were placed on everyday objects such as fibulae, buckles, etc. (Fig. 92). Its meaning and the motif itself genetically derives from late Roman art (Haseloff 1981, Vol. I, 60-70, Figs. 31-47). It seems that such representations were a return to concepts concerning the structure of the universe that had appeared in Classical Greece. As was already discussed in Chapter II, they were very attractive and deeply influenced the art of the La Tène period.

Another way to describe the relationship between the soul and the body is interweaving:

*Next for the suggestion that the Soul is **interwoven** through the body: such a relation would not give woof and warp community of sensation: the interwoven element might very well suffer no change: the permeating soul might remain entirely untouched by what affects the body- as light goes always free of all it floods- and all the more so, since, precisely, we are asked to consider it as diffused throughout the entire frame. Under such an interweaving, then, the Soul would not be subjected to the body's affections and experiences: it would be present rather as Ideal-Form in Matter.*
Plotinus, Ennead, I.1, The animate and the man 4

It seems that these descriptions of the characteristics of the soul are the cause for the so-called knot motif that was very popular during the Migration period. It occurs on fibulae, buckles and even on pottery (Fig. 92: A-D). Such an interpretation is also confirmed by medieval reliefs from churches in Como and Orta in north Italy (Fig. 92: E). In one, there is a face of a deity from whose mouth lines spread forming a knot pattern (Kutzli 1974, 82-84, Figs. 66 & 67). This representation can be considered the visualisation of Tertullian's thesis that the soul is born of the breath of God:

Definimus animam Dei flatu natam, (...), ex una redundantem.
Tertullian, De anima, 22.2. CCL 2.814.

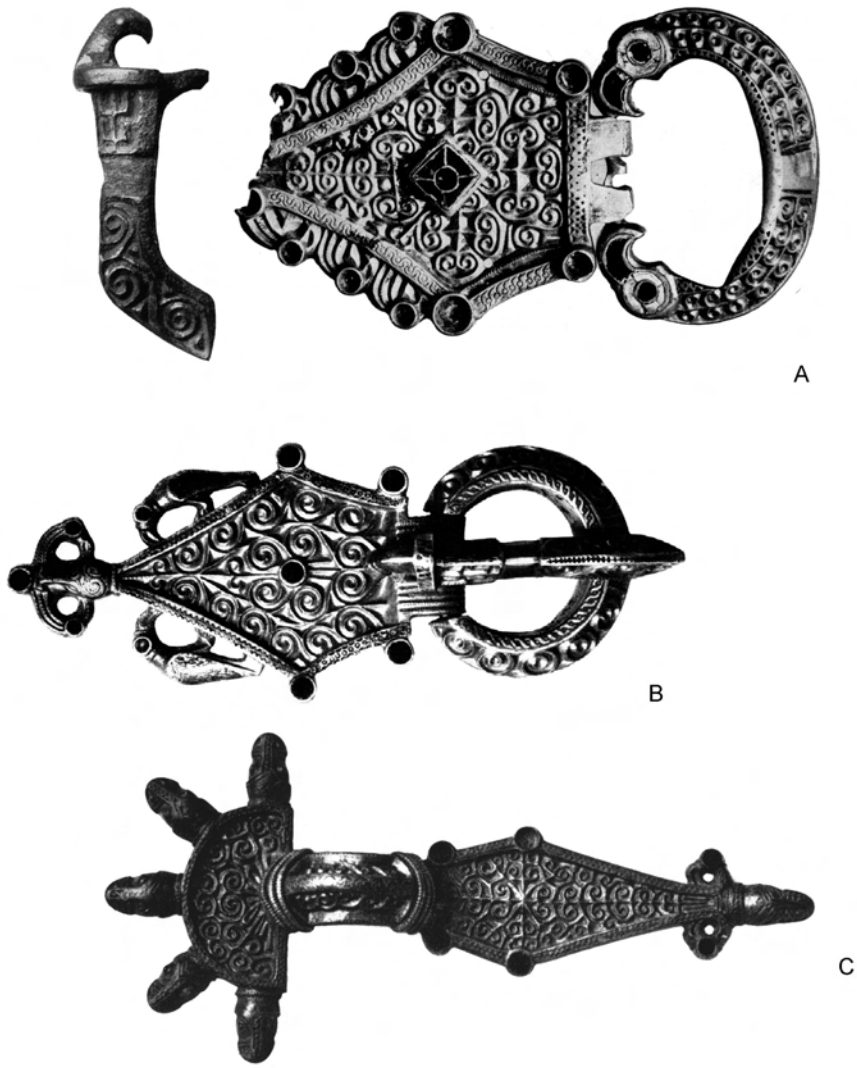

Fig. 91. Artefacts decorated with circular and spiral motifs. A – Gáva, Hungary; B – unknown site, Hungary; C – Bácsodas-Karavukovo, Serbia. After J. Annibaldi and G. Werner 1963, Tables 46: 1, 47: 3 and 47: 4. Scale: A and B c. 3:4, C c. 2:3.

It should be noted that an earlier the knot pattern occurred in the Roman Empire (Fig. 93). It was a popular motif (guilloche knot) used for arranging mosaics (Swift 2009, 44, 51, Figs. 2: 5, 7, 8 & 10). Such decoration also appears in the context of religious buildings, for example, the Basilica in Solina in Dalmatia (Buzov 2014, 50-53, Figs. 1-24).

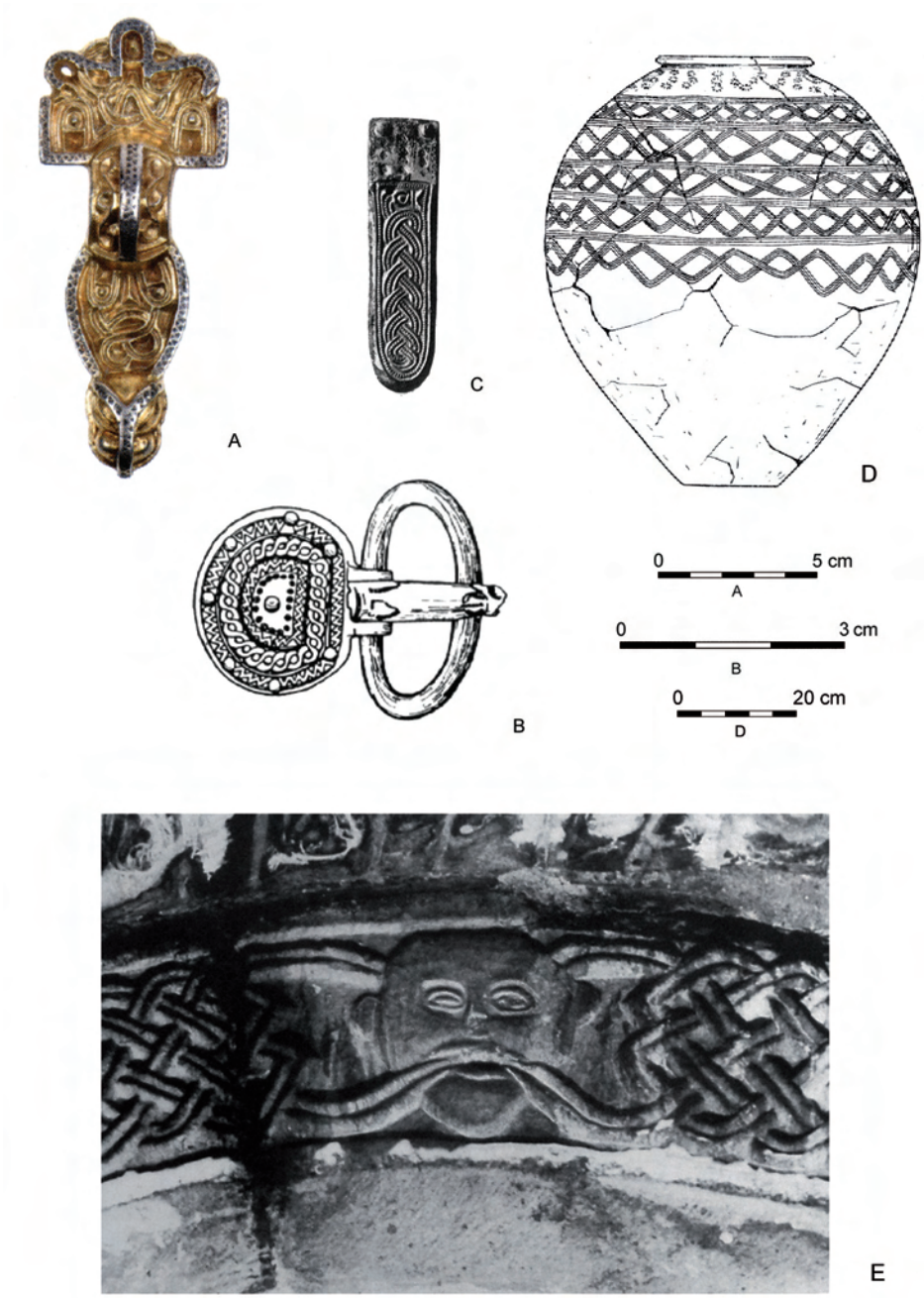

Fig. 92. Artefacts decorated with knot pattern: A – Lužice, the Czech Republic; B – Zamość, Poland; C – Andernach, Germany; D – Turawa, Opole district, Poland; E – Como, Museo Civico, architectural detail from the S. Maria Antiqua church. A after Z. Klanica and S. Klanicová 2011; B after R. Madyda-Legutko 1978; C after R. Seyer 1983b; D after K. Godłowski 1977, Table 39: 1; E after R. Kutzli 1974, Fig. 66. Scale: C c. 1:3

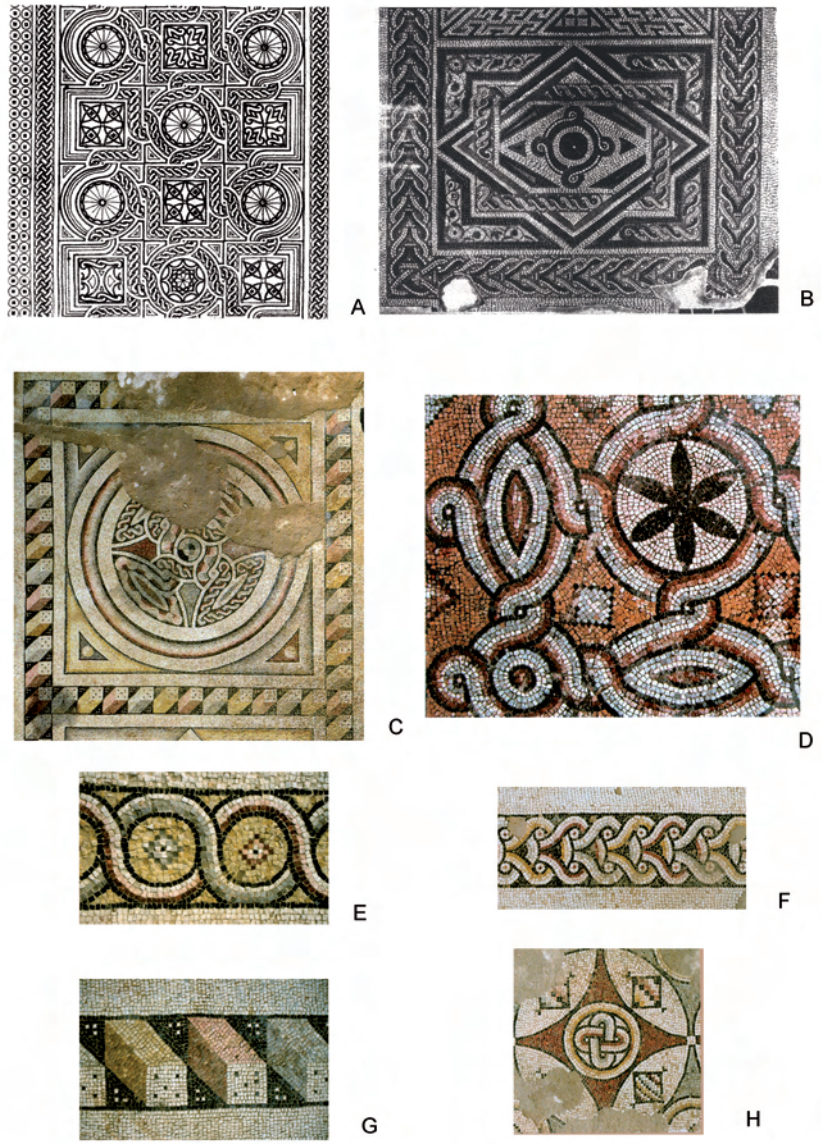

Fig. 93. Roman mosaics decorated with knot patterns. A – Solin, Marusinac, St. Anastasius basilica, 5th century; B – Solin, Basilica urbana, beginning of the 5th century; C – Tell Amarna, Syria, basilica, 1st half of the 5th century; D – Athens, Greece, 1st quarter of the 5th century, building on Euripides street; E – Tell Amarna, Syria, basilica, 1st half of the 5th century, mosaic detail - two-strand guilloche; F – Tell Amarna, Syria, basilica, 1st half of the 5th century, mosaic detail - composite guilloche; G – Tell Amarna, Syria, basilica, 1st half of the 5th century, mosaic detail -illusionistic representation; H - Tell Amarna, Syria, basilica, 1st half of the 5th century, mosaic detail - Solomon's knot. A and B after M. Buzov, 2014, Figs. 1 and 2; C, F-H after T. Waliszewski 2005; D after P. Assimakopoulou-Atzaka 2005.

During the Migration period, various objects made of gold occurred in much greater numbers than in earlier periods in the Barbaricum. This raw material in the form of coins was obtained as a result of political contacts with the Roman Empire – loot, tribute, mercenaries' salaries, etc. The main provider and intermediary in the solidi inflow were the Ostrogoths (Iluk 1998, 53-56; Ciołek 2003, 176). The use of gold is typical especially in the period of the Huns' dominance (phase D2), which is associated with tributes from the Byzantine Empire (Tyszkiewicz 2004, 136-138). It seems, however, that this was not the only reason. This material carried certain spiritual values:

So, we may justly say, a Soul becomes ugly – by something foisted upon it, by sinking itself into the alien, by a fall, a descent into body, into Matter. The dishonour of the Soul is in its ceasing to be clean and apart. ***Gold is degraded when it is mixed with earthy particles; if these be worked out, the gold is left and is beautiful, isolated from all that is foreign, gold with gold alone****.*
Plotinus, Ennead, I.6, On Beauty 5

According to this quote, the use of this metal was a representation of one of the desirable features of the soul – purity.

At the end of the late Roman period beads made of precious stones began to emerge (Tempelmann-Mączyńska 1985, 89). During the Migration period, this trend increased and they were frequently used as decorative elements on everyday objects (Quast 1996). This is especially evident in the so-called polychrome style (Shchukin 2005, 340-359). It appears that this trend can also be linked with changes in ideology. This is indicated by a fragment from the work of Plotinus:

The beauty of colour is also the outcome of a unification: it derives from shape, ***from the conquest of the darkness inherent in Matter by the pouring-in of light,*** *the unembodied, which is a Rational-Principle and an Ideal-Form.*
Plotinus, Ennead, I.6, On Beauty 3

It seems, therefore, that the light penetrating translucent stones proved victory over matter, and it clearly indicates the existence of other immaterial forms of being. In addition, precious stones reflect light, which can also be interpreted in the same way. There was almost certainly a specific shaping of objects by constructing a solid from many planes which meant light was reflected (Fig. 94). Some forms of pottery vessels (Diaconu 1965, Table XXV: 1, 4; Mitrea and Preda 1966, Figs. 95, 214: 4 & 6) and glass vessels E-223-237 type (Eggers 1951, Pl. 15 & 16) as well as their pottery imitations were manufactured in this way (Rodzińska-Nowak 2005, 268, Figs. 1: 4-12). So too were cuboctahedron beads (Tempelmann-Mączyńska 1985, 89, 129-130), faceted shield bosses (Szydłowski 1974, Tables XCIII, CLXVII/f & CLXV/s; Tejral 1986, 210, Figs. 6: 20, 21, 7: 17, 8: 23, 9: 22, 10: 26, 12: 12, 15: 1 & 2, Map 1, 1988, 230, Fig. 5: 1 & 2), polyhedral earrings (Windl 1997, 69, Fig. 2; Istvánovits and Kulcsár 1999,

69, 76, 88, Fig. 9: 1-5), sword amulets (Werner 1956, 30, Table 50: 6; Huck 2007, 326), and even spindle whorls (Bloșiu 1975, Fig. 13: 6). Such a perception of light and matter is also indicated by information given by early Christian writers:

For the light is from the Good, and an image of the Goodness, wherefore also the Good is celebrated under the name of Light; as in a portrait the original is manifested. For, as the goodness of the Deity, beyond all, permeates from the highest and most honoured substances even to the lowest, and yet is above all, neither the foremost outstripping its superiority, nor the things below eluding its grasp, but it both enlightens all that are capable, and forms and enlivens, and grasps, and perfects, and is measure of things existing, and age, and number, and order, and grasp, and cause, and end; so, too, the brilliant likeness of the Divine Goodness, this our great sun, wholly bright and ever luminous, as a most distant echo of the Good, both enlightens whatever is capable of participating in it, and possesses the light in the highest degree of purity, unfolding to the visible universe, above and beneath, the splendours of its own rays, and if anything does not participate in them, this is not owing to the inertness or deficiency of its distribution of light, but is owing to the inaptitude for light--reception of the things which do not unfold themselves for the participation of light.
Dionysius the Areopagite, The Divine Names, IV. V.

It may be that the barbarian peoples accepted geometric illusionist representations for similar reasons. They are usually found on the bows of fibulae. The patterns are imitations of motifs known from Roman mosaics (Swift 2009, 11-12, Figs. 1: 1-5). An optical illusion may indicate the existence of something more than just matter in these objects.
Another metaphor describing the qualities of the soul is an imprint of seal or stamp:

(…) there is in our souls a block of wax, in one case larger, in another smaller, in one case the wax is purer, in another more impure and harder, in some cases softer, and in some of proper quality. (…). Let us, then, say that this is the gift of Memory, the mother of the Muses, and that whenever we wish to remember anything we see or hear or think of in our own minds, we hold this wax under the perceptions and thoughts and imprint them upon it, just as we make impressions from seal rings; and whatever is imprinted we remember and know as long as its image lasts (...).
Plato, Theaetetus, 191DE

If, then, we have to give a general formula applicable to all kinds of soul, we must describe it as the first grade of actuality of a natural organised body. That is why we can wholly dismiss as unnecessary the question whether the soul and the body are one: it is as meaningless as to ask whether ***the wax and the shape given to it by the stamp are one****, or generally the matter of a thing and that of which it is the matter.*
Aristotle, On the soul, II.1.412a.

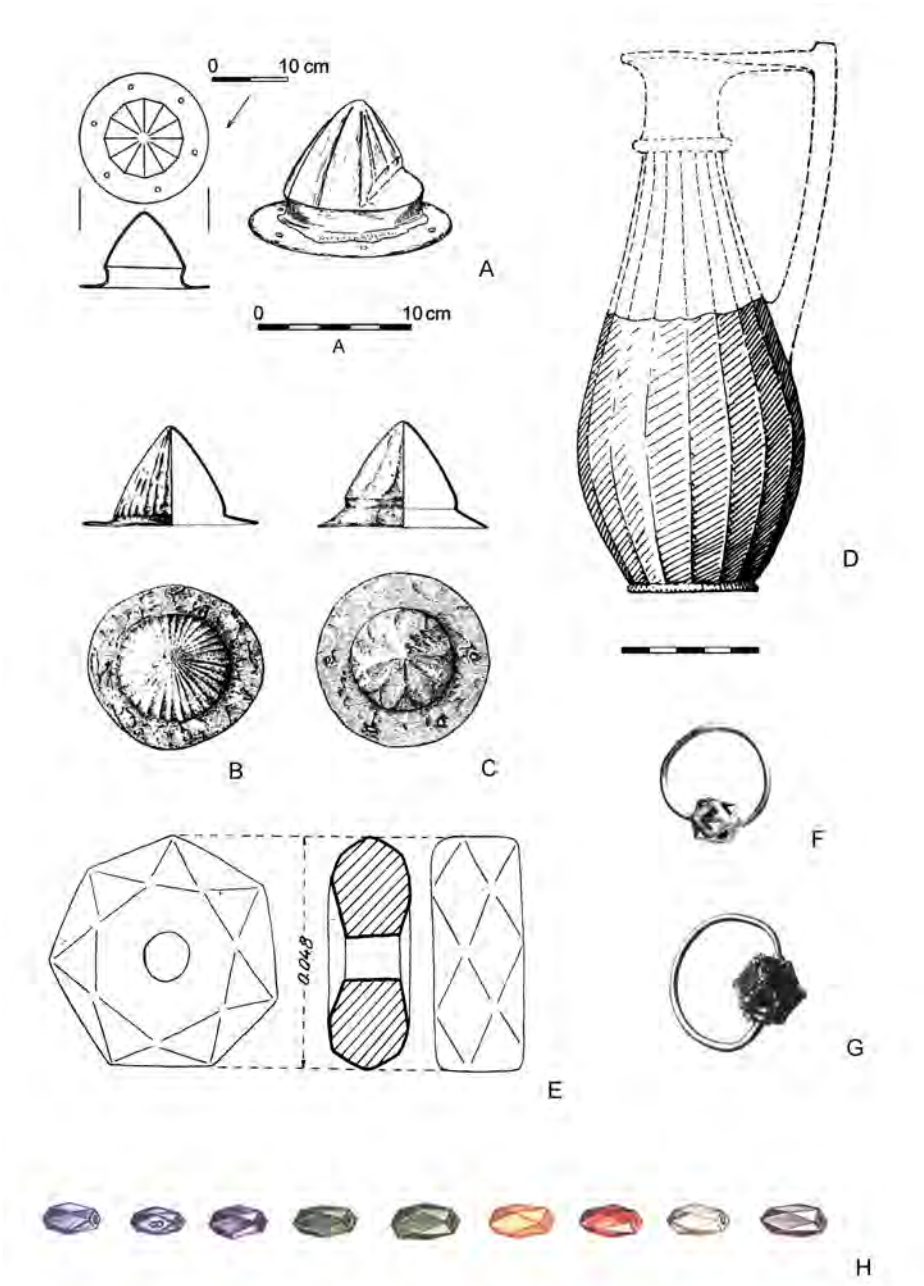

Fig. 94. Artefacts with forms shaped by planes. Shield bosses: A – Dobrodzień-Rędzina, Poland; B-C – Mušov, the Czech Republic; D – Tîrgşor, Romania; E - Leţcani (jud. Iaşi) Romania; F – Domolospuszta, Hungary; G – Bácsodas-Karavukovo, Serbia; H – Glass cubooctahedron beads. A after J. Szydłowski 1974; B and C after J. Tejral 1988; D after G. Diaconu 1965; E after C. Bloşiu 1975; F and G after G. Annibaldi and J. Werner 1963, Tables 45: 6 & 46: 2; H after M. Tempelmann-Mączyńska 1985. Scale: B-C c. 1:13, F c. 1:2, G c. 2:3, H c. 1:3.

Stamp imprints appeared on pottery as early as in the late Roman period in phase C2 (Wołągiewicz 1993, 22, Map 32). In the Przeworsk culture they occurred mainly on storage vessels (Godłowski 1977, 162; Bohr 2010, 178-179, Figs. 3-5). Unquestionably, they became more numerous in the later phases of the Migration period. In a cemetery from the Merovingian period in Schretzheim in Germany about 80 types of stamps were identified (Koch 1986, 146-147). The large variation of stamped patterns is typical (Fig. 95, 96: A, B). This suggests that the technique itself was important, and not the representation.

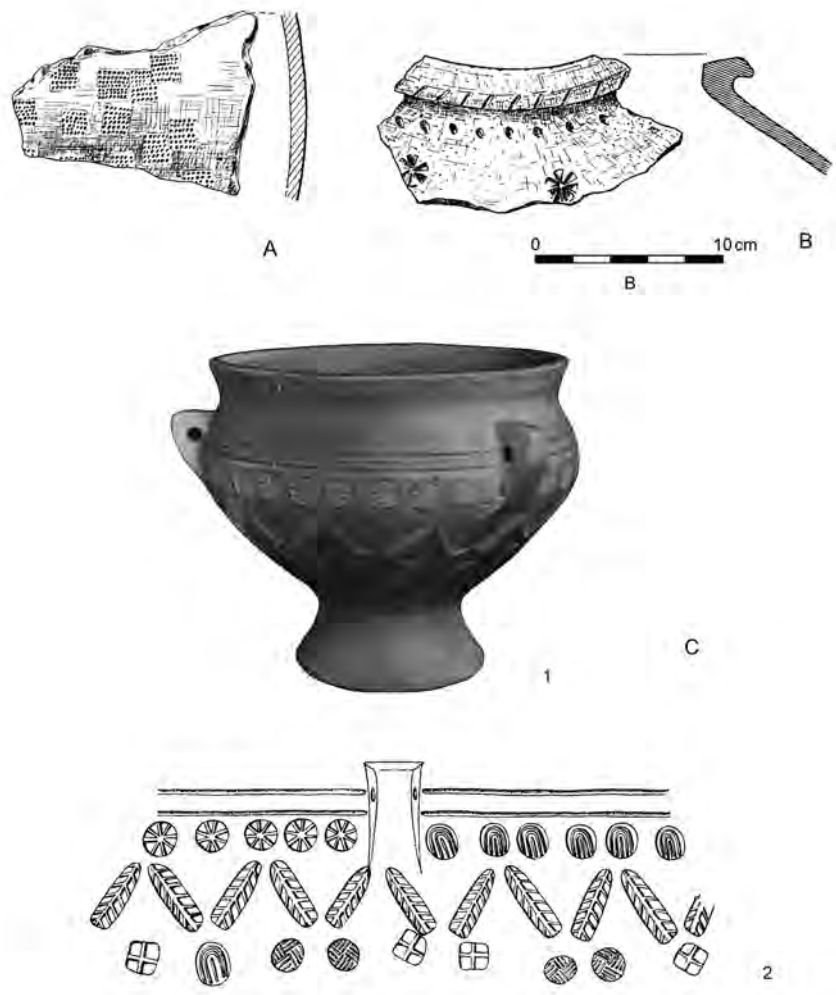

Fig. 95. Vessels with stamp decoration. A – Piwonice, Kalisz district, Poland; B – Opole-Zakrzów, Poland; C – Chorula, Krapkowice district, Poland. A after T. Baranowski and W. A. Moszczyński 2009; B after K. Godłowski 1977; C after F. Pfüzenreiter 1939, Table 10: 3, Fig. 8. Scale: C1 c. 1:3, C2 c. 1:2.

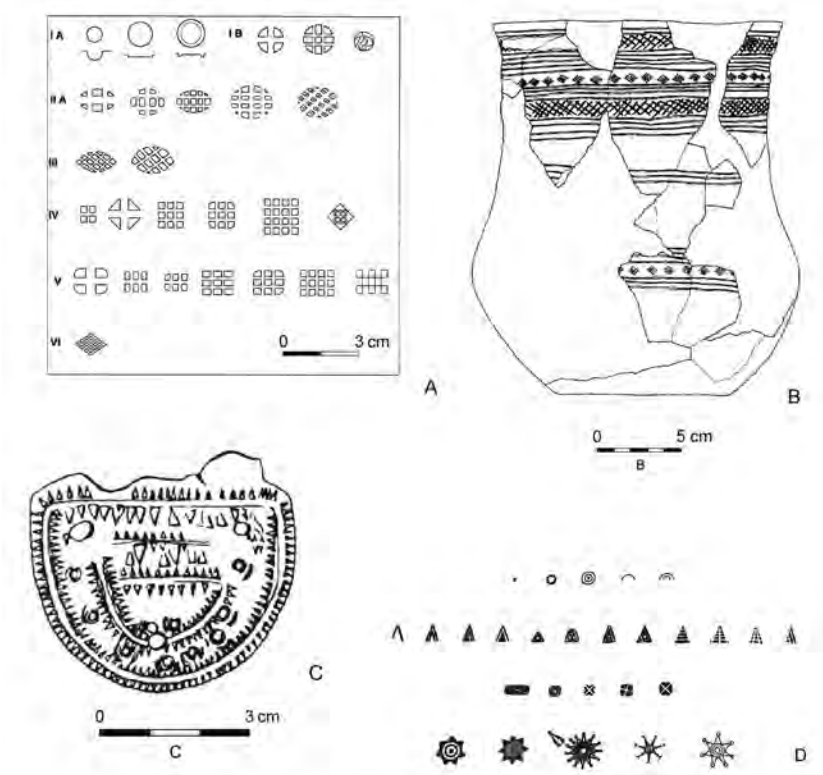

Fig. 96. Decorations made by a stamp or punch from the Migration period. A – Tumiany, Olsztyn district, Poland, presentation of stamp imprints on pottery; B – Tumiany, example of a decorated vessel; C – presentation of punch imprints on metal artefacts; D – Piwonice, Kalisz district, Poland, example of decorated belt element. A and B after T. Baranowski and W. A. Moszczyński 2009; C after B. Salin 1936; D after R. Madyda-Legutko 1978.

Also at the end of the Roman period, but especially in phases D1 and D2, the decoration of metal objects using stamps developed (Fig. 96: C, D). This technique, however, occurred throughout the Barbaricum. In addition, the imprints made by stamps represented very different motifs (Salin 1935, Figs. 358-361). This indicates that on metal objects the technique itself was important. Hence, most probably the purpose of such decoration was to present the relationship between the soul and the body.

It is worth noting that the producers of metal jewellery had to have known not only jewellery manufacturing techniques, but also had (at least to some degree) to be specialists on religion (Capelle 2012, 25-26; Pesch 2012, 41). In a sense this is confirmed by early medieval written sources, which evidence a strong and positive valorisation of goldsmiths (Behr 2012, 52-53). Of course, they worked primarily for the elite who were collective creators of the new style. It expressed their perception of the world, which was then dictated to the other members of community.

2. The Huns, animal style, shamanism and graves

Flagellum Domini or Ex oriente lux.

The appearance of the Huns in 375 AD marked the start of the Migration period in Europe. Their activity became a root cause of many political and cultural phenomena. They crossed the Don River then considered the border between Europe and Asia, chasing a doe during a hunt (Jordanes 123-125). This story allegedly comes from old songs presenting the traditions of the Huns (Tyszkiewcz 2004, 55). This story is an example of a myth representing the divine grant of land. The doe is a guide, but also shows the role to be played by the Huns – hunters, whose war tactics resemble hunting (Eliade 2002, 131-132). The actual cause of migration was most likely different, as because of climate change the Huns were looking for suitable areas for grazing their herds. Such an occurrence occurred periodically in Central Asia and caused large migrations (Moszyński 1925, 19-23; Tyszkiewicz 2004, 29). On the other hand, it has been pointed out that such processes cannot always be linked with climate change, but with a complex set of economic, political and ideological factors (Fletcher 1986, 32-33). During their journey, the Huns attacked tribes living along the way. In this way, they caused a so-called avalanche of people, the mechanism of which was briefly presented by St Ambrosius: '*the Huns attack the Alans, the Alans the Goths, the Goths the Taifals and the Sarmatians'* (Ambrosius, Expositio, X.10). Jordanes also described peoples conquered by the Huns before their action against the Alans. They were the '*Alpidzuros, Alcildzuros, Itimaros, Tuncarsos et Bioscos*' (Getica, 126). As a result of these events:

(…) a terrible rumour arose that the tribes of the north were planning new and unprecedented attacks upon us: and that over the whole region which extends from the country of the Marcomanni and Quadi to Pontus, a barbarian host composed of different distant nations, which had suddenly been driven by force from their own country, was now, with all their families, wandering about in different directions on the banks of the river Danube.
Ammianus Marcelinnus Roman History, XXXI.4.2

This phenomenon is reflected in the archaeological material and is referred to as the so-called post-Chernyakhov horizon, dated to phase D1 of the Migration period (Tejral 1986, 1987, 1988; Gralak 2010b). The situation changed around the turn of the 4th and the 5th centuries, as from that time on, the Huns operated mainly in the Danube area (Tyszkiewicz 2004, 104-105). Under the leadership of Attila,they built a state organisation that dominated vast areas of Central and Eastern Europe (Godłowski 1985, 155; Tyszkiewicz 2004, 131-132). Their hegemony ended with the death of the ruler and the Battle of Nedao in 454/455 AD (Tyszkiewicz 2004, 164-165). The consequence of these events was the very strong orientalisation of European Barbaricum culture.

In the late Roman period occasional representations of animals and humans began to appear (Werner 1966, 12-28). In the Migration period they became numerous (Salin 1935; Haseloff 1981) (Fig. 97: A-C, G). This represents a fundamental change in relation to the style typical of the Roman period, when such representations were very rare. Therefore, the profound change in the perception of the world and the valuation of living beings is evident. Some elements of the new decorative style were adopted from the Roman Empire (Haseloff 1973; Roth 1979, 44-58). It should be noted, however, that this happened because the barbarians were ready for it in mental terms. In Roman art representations of people and animals were in fact present almost from its beginning (Estreicher 1986, 147-166). Hence, the emergence of animal style is associated with the impact of the Huns and other steppe peoples as well as their ideology – Central Asian shamanism (Gąssowski 1994, 179-180; Hedeager 2011, 195) (Ryc. 98: K-P). A specific valorisation and admiration of animals was an important element in this perception of the world (Eliade 1994b, 99, 103, 106; Hoppál 2009, 14-15; Hedeager 2011, 196). In the Barbaricum, the new style quickly gained a new quality. Firstly, a very strong stylisation appeared – animals and human figures are difficult to recognise. There are also representations suggesting the transformation of one animal into another. In addition, there are numerous representations of human-animal hybrids and fantastic creatures (Haseloff 1974, 9, 13, 1981, vol. I, 111-130, Figs. 68-74; Fern 2012, 174-177). This phenomenon is interpreted as a visualisation of elements of shamanic sessions, i.e. the belief in the possibility of leaving the body by the soul and its incarnation in the bodies of animals (Hedeager 2011, 61-80). Some confirmation of such ideas is records concerning Scandinavian religion in the early Middle Ages:

Odin could transform his shape: his body would lie as if dead, or asleep; but then he would be in shape of a fish, or worm, or bird, or beast, and be off in a twinkling to distant lands upon his own or other people's business. With words alone he could quench fire, still the ocean in tempest, and turn the wind to any quarter he pleased.
Ynglinga Saga, chapter 7

Interestingly, representations of the transformation of one animal into another also occurred in the first centuries AD within the south Siberian Kulayka culture (Fig. 98: M). It is interpreted as a visualisation of shamanic ideology, which is confirmed by later ethnographic sources (Polosmak and Shumakov 1991, 54-58, Figs. 29-31).

The fascination with animistic representations is also confirmed by a change in the forms of personal names that was perceptible during the Migration period. They are often the names of animals (Hedeager 2011, 80-81). In the name Beowulf it is apparent that animal metaphors were used to describe the world. Beowulf literally means Bee-Wolf – i.e. a bear eating honey from hives (Stiller 2010, 139).

Fig. 97. A-D – Zagórzyn, Kalisz district, Poland; E – reconstruction of method of skull deformation; F – deformed skull; G - Konarzew, Łęczyca district, Poland. A-D after E. Petersen 1933, Table 1; E and F after E Droberjar 2002, p. 47; G after M. Mączyńska 1999, Fig. 14: 1. Scale: A-D length 10.4 cm.

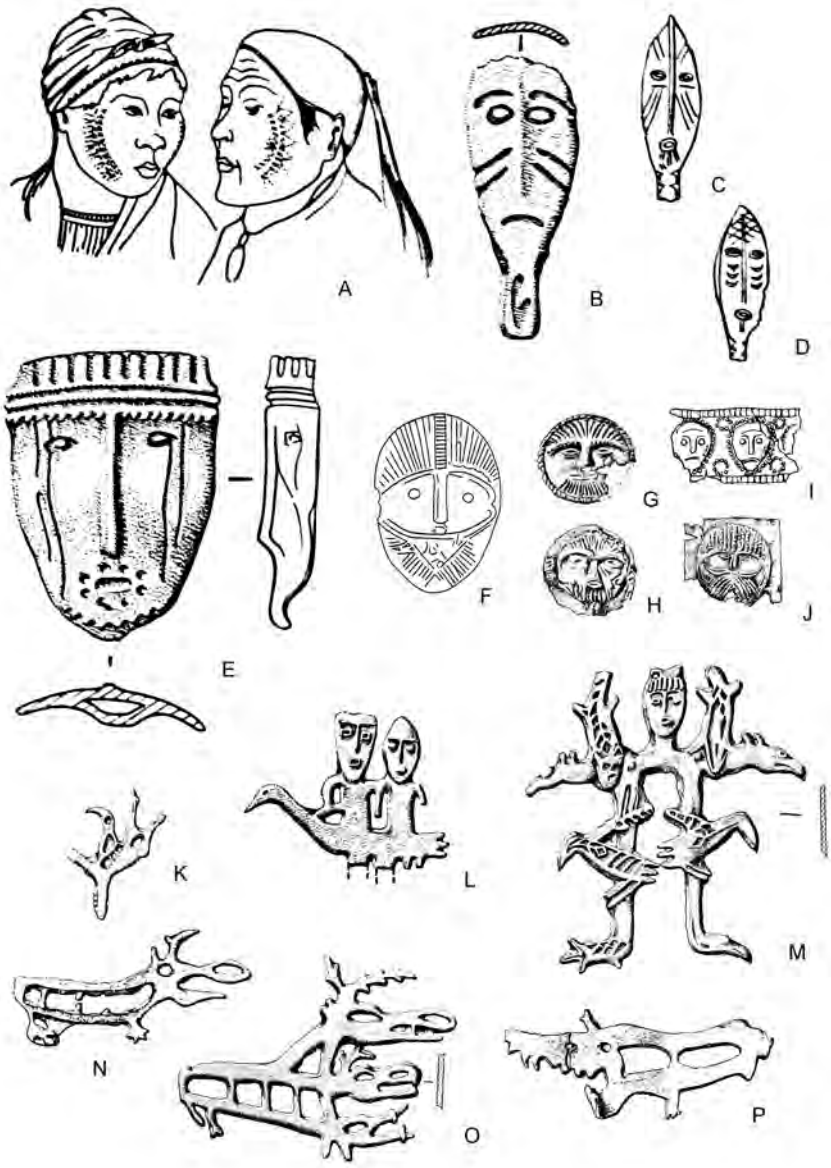

Fig. 98. A – Traditional facial tattoos of indigenous peoples of Siberia. Bronze representations of masks of the Kulay culture; B-D – the collection of the Novosibirsk museum, Russia; E – from the collection of the Tomsk museum, Russia, metal fittings in the form of masks: F – Szentes-Nagyhegy, Hungary; G and H – Engels/Pokrovsk, SW Russia; I – Kumbulta, Ossetia (Ciscaucasia, Russia); J – Dunaúvaros, Hungary, (Roman military camp - Intercisa). Bronze representations of animals and humans – the Kulayka culture (central Siberia), K and N – Kulayskoye - cult place; L – Vasyugan; M - Parabelskoye – cult place; O – Krivoshenskoye - cult place; P – Novoobinsky hoard. A, E and K, P after N. W. Polosmak and E. W. Shumakova 1991, Figs. 8, 12, 15, 16, 19, 27 & 31; F-J after Carnap-Bornheim von and B. Anke 2007, p. 264.

During the Migration period, a mask representing the human face also appeared as a decorative element (Haseloff 1981, Vol. I, 81-87, 131-141, Figs. 52 & 53) (Fig. 98: F-J; 99: A). This motif is probably an element adopted from the material culture of the Huns and other steppe peoples because it appeared there earlier (Werner 1956, 73, Pl. 40: 12; 60: 2, 3 & 11; Bóna 1991, 28-29, Fig. 9; Carnap-Bornheim von and Anke 2007, 263-267). The earliest – in the first centuries AD – metal representations of masks are characteristic of the Kulayka culture (Polosmak and Shumakov 1991, 12-28, Figs. 1-14) (Fig. 98: B-F). Usually, they are different in terms of form, but some of them are very similar to specimens known amongst nomads (Konikov 1987, 149-153, Fig. 1: 18). Interestingly, L. Hedeager even indicates that European representations of masks depict an Asian anthropological type (Hedeager 2011, 201-202). In turn plaster masks covering faces of the dead are known from burials of the Tashtik culture from the 1st-5th century, which originated in the Minusinsk Depression as a result of migrations caused by the Huns (Kiselev 1949, 248; Zavitukhina 1998, 421-428). It cannot be also excluded that the mask or their representations were part associated with shamanic ideology. Finds from the south Siberian Kulayka culture are interpreted in this light (Polosmak and Shumakov 1991, 12-28). Using masks in the course of a session, it was possible to enter the world of the spirits (Hoppál 2009, 211), and enabled incarnations into mythical beings (Eliade 1996, 167, 172-174). It should also be noted that masks were not used by all Asia and Siberia peoples; they were a characteristic attribute of the Buryats and the Evenks shamans (Hoppál 2009, 211) (Fig. 101: A, B).

In this context the representation of a mask between two animals or monsters known from Scandinavia and Britain (Haseloff 1981, Vol. I, 131-141, Figs. 75-83 & 85-86) may be a visualisation of wandering in the afterlife (Fig. 99: B, A). It seems this interpretation can be applied to representations of masks between spirals (images of rotational movement) known from the Ostrogoth buckles from Italy, the mid Danube areas and region of the Dnieper River mouth (Annibaldi and Werner 1963, 366, 373, Tables 37, 39, 40, 42 & 44: 1, Fig. 11) (Fig. 100). It cannot be ruled out that combat experience which was typical of a community of warriors from the Migration period was one of reasons for the fascination with ecstatic techniques. Specific combat rage can be considered as one such technique (including a belief in the transformation into a wild animal) as experienced by early medieval Scandinavian berserkers (Słupecki 1987, 50-59). This phenomenon was described for the first time by Paul the Deacon in the 7th century in the context of wars fought by the Langobards (Historia Langobardorum I, 11). It is very likely, however, it had an earlier genesis (Eliade 1994, 381-382).

Typical of the Migration period are also objects decorated with ornitomorphic motifs (Čausidis 2005, Tables A28: 4, 7-8, A36: 5, 37: 1-2, B10: 1, 5, 9-12 B14: 5, B28: 7, 8, G42: 6 & 7). They were often representations of birds of prey – eagles or falcons (Fig. 97: G; 99: C; 100: C). It was stated that they have eastern – Asian origins. It cannot be excluded that they represent a shaman's animal helpers. The tradition of falconry is another characteristic of the steppe peoples (Werner

1956, 69-81; Hedeager 2011, 195). The fashion for using precious stones may have links with shamanism. In the tradition of many Siberian and Central Asian peoples so-called shamanic stones were used. It was used to induce rain and snowstorms (Wasilewski 1985, 122-124). Presumably, the idea overlapped a previous action when stones expressed the victory of light over darkness (see above). Therefore, it seems that the so-called polychrome style (Roth 1979, 78-83; Shchukin 2005, 340-359) was adapted because of the acceptance of both patterns.

A specific category of artefacts are also associated with the nomadic peoples, and most often with the Huns – mirrors (Fig. 102: B-E). In Central Europe they are found most frequently in graves (Werner 1956, 19-24, Fig. 1, Tables 44, 45 & 74; Bóna 1991, 86, Figs. 33, 97 & 157). Such items were also an important and commonly occurring element in Asian shamanic rituals (Wasilewski 1985, 132; Eliade 1994b, 161; Hoppál 2009, 202) (Fig. 101: C-D).

During the Migration period, the burials of horses began to appear. They were present in vast areas of the Rhine River, the Elbe River and in the upper and mid Danube River zone. They often occurred in sepulchral sites, and burials of warriors with horses have been found (Müller-Wille 1970/71; Oexle 1984; Droberjar 2002, 249-250; Steuer 2003) (Fig. 102: A). In the Anglo-Saxon population the presence of an extensive mythological complex associated with this animal has been recorded. It concerned horse burials and horse sacrifices, but it was also linked with oral literature, art and social structure (Fern 2012). Therefore, the strong valorisation of the horse during this period should be emphasised. Earlier horse burials and burials of warriors and horses are known from the Hunno-Sarmatian period (2nd century BC -5th century AD) from the Altai region (Khudyakov 1998, 99, Fig. 1; Soyonov 2003, 37, Figs. 13: 1, 14: 2, 22, 31: 3, 6, 34: 1, 4, 36: 2, 5, 6, & 37: 1; Tishkin and Matrenin 2007, 46-47). Sacrifices and rituals associated with horses constituted a distinctive element of shamanic rituals of many peoples in Central Asia (Eliade 1994b, 460-464). This primarily concerns the Altai peoples (Wasilewski 1985, 70-72) and Mongolian-Turkish peoples – especially the Buryats (Hoppál 2009, 28-33, 114-116). Odin's eight-legged horse – Sleipnir, known from Norse mythology, is also associated with the complex set of shamanic beliefs. The representations of such animals have often been recorded amongst the Siberian peoples, for example, the Buryats (Eliade 1996, 377, 463). It seems, therefore, that during the Migration period in Europe, horses began to play the role of a Psychopomp (guide of souls) – which also has equivalents in Siberian shamanism (amongst the Buryats and the Tuvan people), (Wasilewski 1985, 135-136; Hoppál 2005, 251). In the context of these analogies, it is also worth noting that the Buryats consider themselves descendants of the Asiatic Huns (Hoppál 2005, 131).

The influence of the steppe peoples, but also new ideas from the Roman Empire caused a change in the perception of man and the human body. This trend is perceptible in the occurrence of the new ways of treating corpses. At the end of the Roman period, in the Przeworsk culture, radical changes in burial rites appeared. In phase C2 many cremation cemeteries were abandoned, which most often

were not accompanied by the establishment of new ones. Hence, it seems that, at least partially, burial rites were adopted, which are not perceptible by archaeological methods (Godłowski 1981, 116-117, 1985, 91-93). In the late Roman period changes in the rituals of the Wielbark culture also occurred. The groups which propelled these changes migrated from today's Ukraine and Moldova to create a new model known as the Chernyakhov culture (Magomedov 2001, Shchukin 2005, 90-207). Because of contacts with nomadic peoples new elements of burial rites appeared in this area. In inhumation graves the disarticulation of bodies and the re-opening of burial pits is evident (Kokowski 1995, 60; Magomedov 2001, 29; Oblomskij 2003, 46) (Fig. 103: A-C), probably done in order to remove the bones. Such burials appeared in Central Europe including Silesia in Poland at the beginning of the Migration period. They are represented by so-called Żerniki Wielkie type graves (Zotz 1935; Gralak 2008) (Fig. 103: B, C). In the advanced stages of the Migration period such rites were widespread in vast areas of the Barbaricum (Droberjar 2002, 137, 366).

In general, the transformation of burial rites at the beginning of the Migration period can be linked with profound ideological changes. Population displacement was a dynamic part of this process. Some elements of the ritual (including the disarticulation of corpses and the removal of bones) probably came from the tradition of nomadic peoples living around the Black Sea and the Caspian Sea (Kokowski 1992, 123). In this environment numerous finds have been recorded which may indicate their presence, although they are usually interpreted as evidence of grave looting. In the early Roman period disarticulated skeletons were found in so-called late Scythian graves along the lower Dnieper River zone (Gey 1987, 57, Fig. 4: 2). In the late Roman period they occurred in Sarmatian assemblages around the Sea of Azov (Shepko 1987, 164-168, Figs. 5: 2 & 4). During the Roman period and the Migration period, they were also numerous in a cemetery associated with the Alans in Brut in Ciscaucasia (Gabuev and Malashev 2009, Figs. 7, 20, 33, 56, 82, 86, 89, 101 & 124). During this period, they also commonly occurred in the region of the Aral Sea (Levina 1996, 60-67, Figs. 51, 52: 2, 58: 1, 59: 3, 60: 1, 2, 4 & 61). It is significant, however, that the practice was widely adapted by Germanic tribes in the advanced stages of the Migration period (Droberjar 2002, 137, 366). The repeatability of this rite suggests that it was a realisation of a commonly understood myth. The symbolic disarticulation and re-assembling of the body was an integral part of shamanic initiation, which aimed to revive and to provide a new identity (Eliade 1994, 47-56, 74, 166-168; Hoppál 2009, 17-18). It cannot be excluded that such beliefs influenced the treatment of corpses and eschatological ideas. A certain confirmation of such a perception of the human body is the anthropomorphic representations of forms subjected to disarticulation (Hedeager 2011, 74). The change in the valuation of human bones should be also noted. For pastoral and hunting peoples as well as in the shamanic tradition, it was where the soul was located (Eliade 1994b, 73-74, 165-172). Moving skulls in graves, probably consisted in placing their facial parts

down (Gralak 2008, 369), and is also associated with typical shamanic necromancy practices (Fig. 103: A-B). Amongst the Siberian Yukaghirs, divination was practiced using the skulls of ancestor shamans (Eliade 1994b, 248). Information on the application of such techniques by mythical figures is also provided by Edda (Eliade 1994b, 378):

Odin took the head, smeared it with herbs so that it should not rot, and sang incantations over it. Thereby he gave it the power that it spoke to him, and discovered to him many secrets.
Ynglinga Saga, chapter 4

In the paganism of early medieval Scandinavians other necromancy and ecstatic techniques were recorded (Słupecki 1998, 96-100). It should be emphasised that shamanism was also a specific cognitive technique. It is also worth mentioning the information provided by Jordanes that the Huns practiced divination based on the entrails of animals and their bones (Getica, 196). They probably also used animal shoulder blades for this purpose. Such finds are known from Sarmatian graves in Central Asia (Meanchen-Helfen 1973, 269-270). It seems that this custom was also adopted in Europe. This is suggested by find of shoulder blade in inhumation grave 275 from Chernyakhovsk (Magomedov 2001, Figs. 17.1 & 2). It is probable that such a bone was also found in an urn grave from the beginning of the Migration period (phase C3/D1) in Omolouc-Nemilany in Moravia (Kalábek 2006, 444, Fig. 9: 1).* Divination using animal shoulder blades is still practiced in Buryats' shamanism (Meanchen-Helfen 1973, 269).

Apart from changes in burial rites, transformations in the perception of human beings are evidenced by customs associated with body deformity. In the case of the barbarian peoples it primarily concerns the deformation of the skulls of infants. This custom arrived to Europe from the steppes of Asia, together with the nomadic tribes, the Sarmatians and above all the Huns (Fig. 98: E, F). The fact that it was accepted by the Germanic population (Werner 1956, 17, 93; Hackenbeck 2009, 64-80) indicates that these communities were psychologically ready to adopt it. Amongst the Huns cases of self-mutilation of the face were also known:

Their hardihood is evident in their wild appearance, and they are beings who are cruel to their children on the very day they are born. For they cut the cheeks of the males with a sword, so that before they receive the nourishment of milk they must learn to endure wounds.
Jordanes, Getica, XXIV (127)

* The shoulder blade was identified only based on a drawing – the author of the paper did not provide such information in the text.

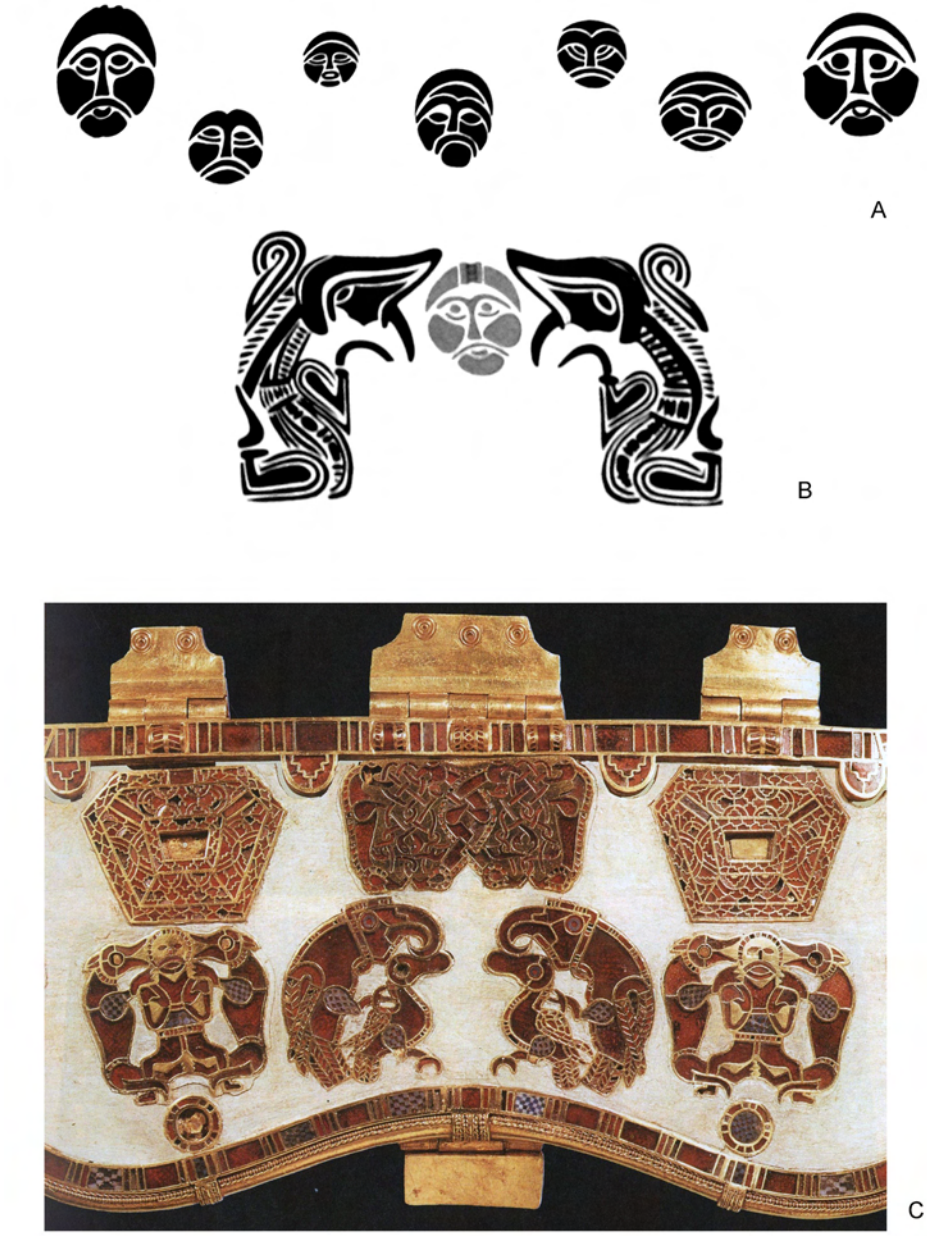

Fig. 99. A – Human masks on the style I fibulae from Scandinavia; B – Galsted, Nordschleswig, Denmark, brooch fragment - mask motif between the beasts; C – Sutton Hoo, bag fittings. A and B after Haseloff 1981, Figs. 53 and 75: 1; C after M. Hollingsworth 1992, Fig. 29.

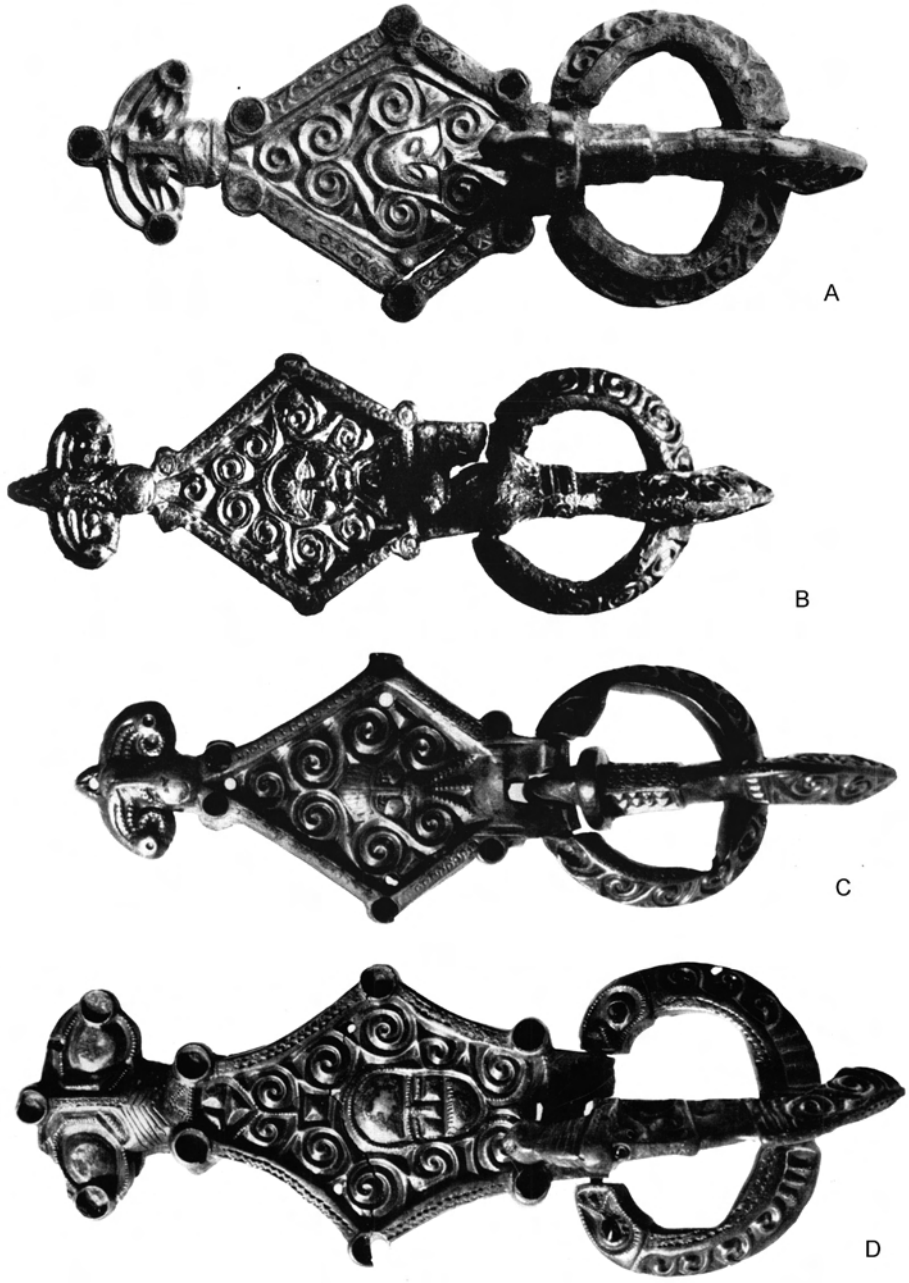

Fig. 100. Representations of masks on belt buckles fittings. A – Gáva, Hungary; B – Aquilea, Italy; C – Acquasanta, Italy, Buckle II; D – Acquasanta, Italy, Buckle I. After G. Annibaldi and J. Werner 1963, Tables 37, 39, 42: 1 and 44: 1; Scale: 3:4.

Fig. 101. A and B – Masks of Buryat shamans; C – the Evenk shaman's costume fitted with metal mirrors; D – The Oroch people's shamancostume fitted with metal mirrors placed onthe back. A-B after M. Hoppál 2009, p. 211, C, p. 199, D, p.154.

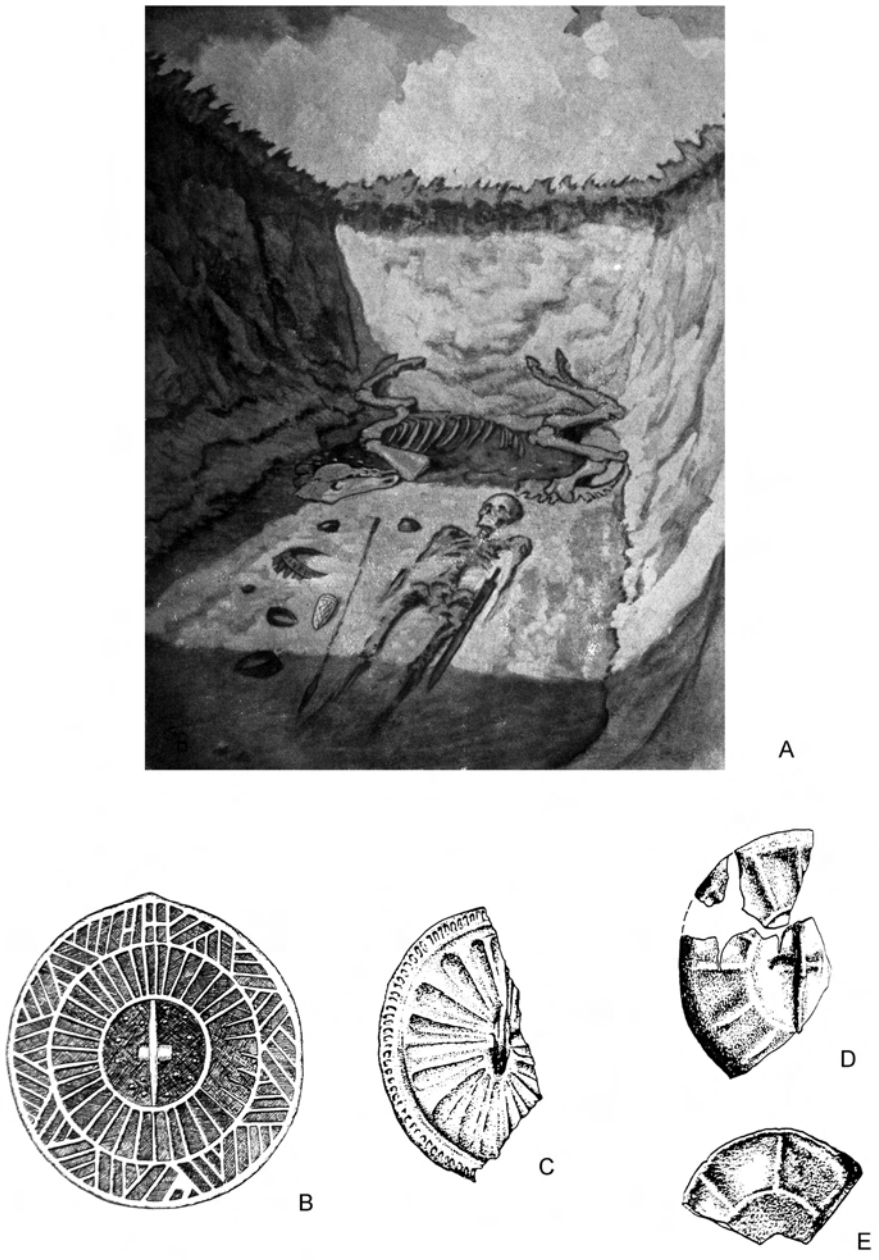

Fig. 102. A – Ługi, Góra district, Poland. Burial of a warrior with a horse from the beginning of the Migration period. Painting by G. Beuthner. Mirrors from the Migration period; B – Kislovodsk-Lermontovskaya Skala, Russia; C – Balatonhidvég, Hungary; D – Szabadbattyán-Mariatelep, Hungary, grave 16; E – Szabadbattyán-Mariatelep, Hungary grave 2. A after E. Petersen 1932, Table XII; B-D after B. Anke 1998, vol. 2, Tables 20: 3; 12: 9 & 12.

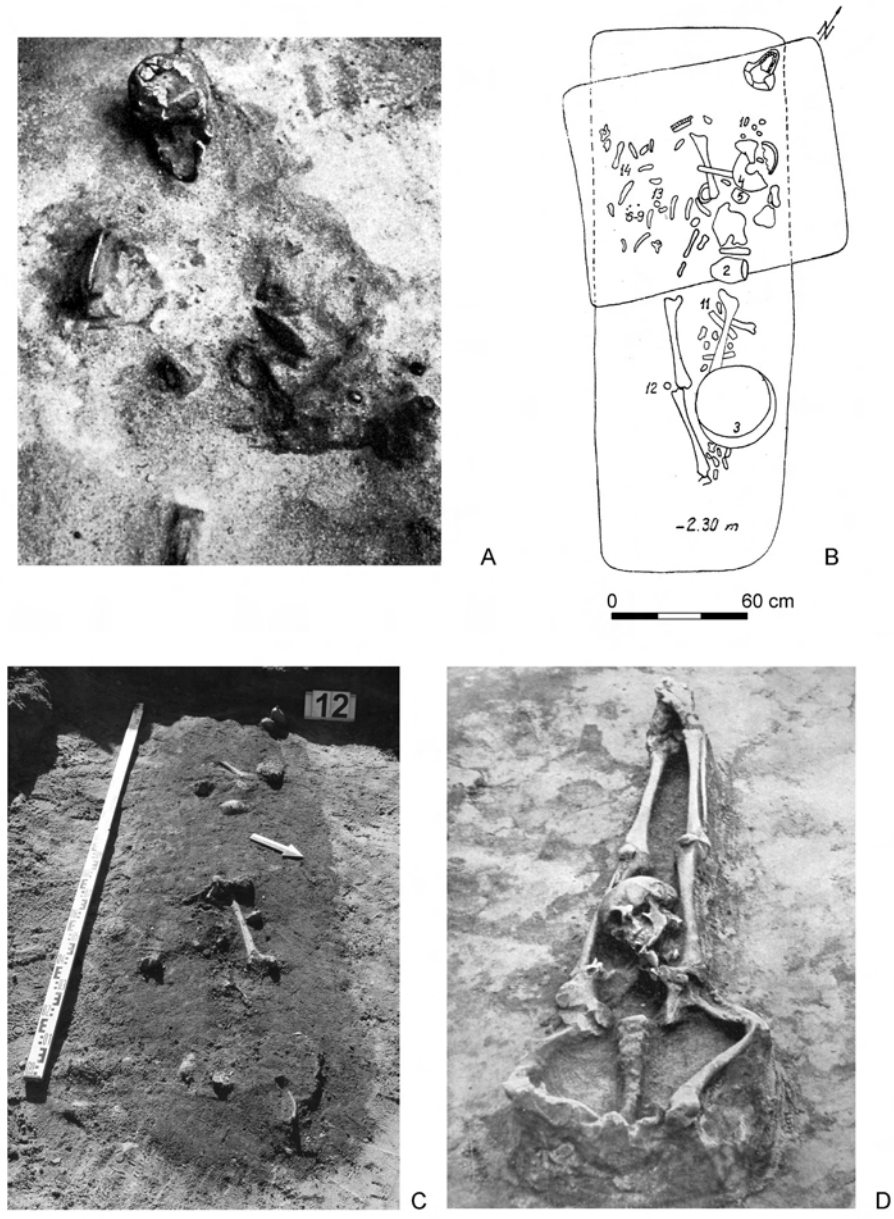

Fig. 103. A – Żerniki Wielkie, Wrocław district, Poland, grave 30; B – Tîrgşor, Romania, grave 4; C – Tyniec nad Ślęzą, Wrocław district, Poland, grave 12; D – Żerniki Wielkie, grób 51. A and D after L. Zotz 1935, Tables VI & IX; C after T. Gralak and W. Waniek 2017, Fig. 2: 3; B after G. Diaconu 1965, Fig. 8: 1.

Face mutilation, mainly tattooing was also recorded amongst the indigenous peoples of Siberia (Fig. 98: A) – interestingly, on some of the aforementioned masks of the Kulayka culture scars were clearly marked (Polosmak and Shumakov 1991, 12-28, Fig. 8) (Fig. 98: B-E). Most probably, it evidences the same ritual as that of the Huns, who arrived to Europe with them. However, these are not only barbarian customs. These phenomena have analogies and possibly prototypes in the Mediterranean circle. Christianity completely changed the perception of the human body. As early as at the turn of the eras techniques of spiritual exercises arose involving asceticism and mortification (Kaczmarek 1993, 59-71). An ostentatious example of the acceptance of deforming and destroying of the body is the cult of martyrs (Longosz 1979, 52-57). It represents a realisation of the founding myth in the Christian religion, i.e. the death of Christ:

If any man will come after me, let him deny himself, and take up his cross, and follow me. For whosoever will save his life shall lose it: and whosoever will lose his life for my sake shall find it.
Mt. 16.24-25.

Sense of these actions presents also Tertullian:

(…) to destroy death by death, to dissipate killing by killing, to dispel tortures by tortures, to disperse punishments by punishments, to bestow life by withdrawing it, to aid the flesh by injuring it, ***to preserve the soul by snatching it away***.
Scorpiace, 5.

A similar attitude was also reflected in the Neoplatonic description of the world presented by Plotinus:

The bodily Kind, in that it partakes of Matter is an evil thing.
Plotinus, Enneada, I.8, On the Nature and Source of Evil 4

Again since the one face, constant in symmetry, appears sometimes fair and sometimes not, can we doubt that beauty is something more than symmetry, that symmetry itself owes its beauty to a ***remoter principle****?*
Plotinus, Ennead, I.6, On Beauty 1

Thus, the mutilation of the body indicates that the essence of humanity becomes the soul. In this regard shamanism corresponds to Christianity. It seems, therefore, that the Barbaricum community found the ideologies in which human body was merely a 'container' for the other 'real' being. In this context, it is worth noting the anthropomorphic representations in art of the Migration period. From a realistic perspective these representations seem to be deformed. This corresponds to real ways of shaping of the human body during this period.

Belief in the existence of such things as spiritual beauty and beautiful deeds caused change in the behavioural pattern. The Migration period is a time when outstanding individuals appeared in barbarian communities. These are the chiefs leading their tribes to different places of the world, for example, Athanaric – leading the Goths through the Balkans and Italia (Wolfram 2003, 169-174, 179-189), and Gaiseric – the Vandals from Europe to North Africa (Strzelczyk 1992, 97-98, 121-136). Such figures were, obviously, a lot more numerous (Wilczyński 2001). This results largely from the extremely unstable political situation and the remarkable individuals were able to demonstrate their military and organisational talents. On the other hand, communities accepted and probably also waited for the appearance of people with extraordinary charisma. It seems that it was one of the ways of showing 'spiritual beauty'. This does not mean, obviously, that previously did not appear the outstanding individuals. The Migration period, however, was the time when they had far greater possibilities of action.

A new behavioural pattern was also brought in by the Huns. Amongst them an outstanding individual appeared - Attila. The sign that he was predestined for great wartime deeds was the finding of the sword (Priscus, Fragmenta 8, Jordanes, Getica, 183). It was a sort of supernatural omen. Similar finds – a fulgurite, an arrowhead may evidence the activities of Central Asian and Siberian shamans (Wasilewski 1985; 51-52). Interestingly, the sword is also an attribute of the Buryat, Manchu and Sibe shamans. Rituals performed with them are supposed to indicate resistance to blows of their users (Hoppál 2009, 224-245). Hence, once again the relationship of ecstatic techniques with the military sphere is perceptible.

Attila's behaviour also differed from his entourage. According to Priscus (Fragment 8), he ate from wooden vessels, dressed modestly, used undecorated weapons and a very simple horse harness. It distinguished him clearly from members of his court, who dressed very lavishly and ate from golden vessels. This situation shows very clearly that exceptional status was confirmed rather by an individual's deeds than material objects.

3. Changes in the perception of space

(…) nor, if asked, can any one of them tell you where he was born, as he was conceived in one place, born in another at a great distance, and brought up in another still more remote.

Ammianus Marcellinus, Roman History, XXXI.2.10

In the late Roman period, in areas occupied by the Przeworsk culture, a change in the techniques of designing dwellings took place. In partially sunken buildings the posthole arrangement does not allow for the identification of repeatable measurement units and construction modules. Such a situation was recorded in the settlement in Polwica-Skrzypnik (Fig. 104: A-E). A specific example is building P5/2593. Postholes along the edge of the building were distributed irregularly. It

seems that the rows of postholes placed along the edges of the building were also slightly shifted in relation to the axis of the structure. A very similar structure was also found in Zarzyca, Strzelin district, dating from the turn of the late Roman period and the Migration period (Prus 1979, 110-111, Fig. 1).

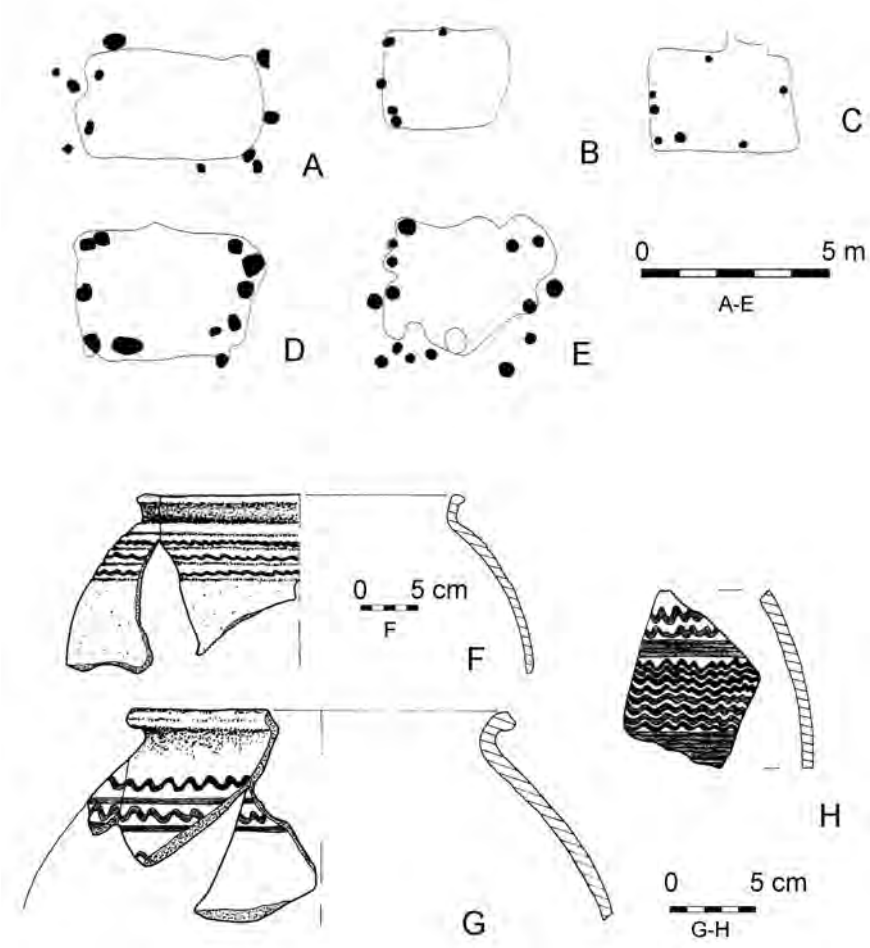

Fig. 104. Polwica 4, 5/Skrzypnik 8, Oława district, Poland, plans of building: A – P4/341; B – P5/1970; C – P5/3663; D – P5/3120; E – P5/2593. Pottery from the late Roman period and the beginning of the Migration period: F– feature P5/3428; G – feature P5/3428; H – are P5/50-60. After T. Gralak 2014c, F-H drawings by K. Ślipko-Jastrzębska.

Generally, this phenomenon can be described as leaving regularity. Partially sunk dwellings in many areas remained a very popular form of building. They appeared in the Roman Empire along with the inflow of the Germanic population (Hamerow 2004, 31-35, Figs. 2.12 & 2.13). A deep transformation in the style of pottery also took place. Rectangular decoration occurred less and less

frequently. In this case the omitting of the modular paradigm is also perceptible. Wheel-thrown vessels and a new form of decoration that was primarily a variety of wavy lines and the aforementioned stamp imprints appeared (Fig. 92: D; 95; 96: A, B; 104: F-H). It seems that both these phenomena evidence changes of space perception and organisation.

At the beginning of the Migration period a larger number of so-called longhouses started to appear (Michałowski 2011, 211). The remains of such structures from a settlement in Konarzewo, Poznań district dated to the beginning of the Migration period are unique in Polish territory (Kaczor 2003; Schuster 2012, 427-460). They were two-aisled buildings with a roof supported by forked posts. The course of the sidewalls was marked by rows of postholes. Plans of 14 such structures underwent metrological analyses. The repeatable distance was determined by superimposing pairs of postholes from inside building 17 (larger) and 18 (smaller) (Fig. 105). As a result, the average centres of both pairs of postholes were established. They were selected due to the same distance between them, which was also visible with the naked eye. It was established that it was 2.928 m; half of this portion – 1.464 m was used to design the measurement network. After overlaying it on plans of the next buildings, it was found that the course of external walls showed that the portion in question should be additionally divided in half. In this way, the measurement unit repeated in all analysed buildings from this site was determined. It is about 0.732 m. Because the width of houses was an often odd number – 7 (house 2) or 9 (houses 7, 17 & 18), it was assumed that this unit could be divided one more time in half (about 0.366 m). The width probably was determined using circles – hence, it seems that the radius (most often an integer) was determined by means of a string. It is also indicated by the location of postholes within some of the houses. The determined measurement unit – 0.732 m is very similar to the one used in the early Roman period – 0.715 m. As already mentioned the geometric analysis applied has limited accuracy, thus the differences between them may be even smaller. Therefore, the measurement unit in question should be also regarded as a typical anthropomorphic measurement.

House 1 (Fig. 106) had a rectangular plan with dimensions of 8 x 24 units. The roof was supported by four forked inner posts. Their arrangement marked the internal organisation. It was divided into two parts, 7 and 14 units long, between which was situated a vestibule, 3 units wide. Forked posts were located on the edges of the vestibule and in the middle of both the separated parts.

House 2 (Fig. 106) had dimensions of 7 x 14 units. One of the shorter walls ended in an apse. The roof was supported by two forked inner posts and one outer one. The longer post walls of the building were not arranged symmetrically in relation to the axis of the building, but clearly shifted.

House 3 (Fig. 106) had dimensions of 8 x 22 units. One of the shorter walls ended in an apse. The roof was supported by five forked inner posts and two outer ones. Their arrangement marked the internal organisation of the space. The vestibule was 3 units wide and divided the building into two parts, 9 and 10 units long.

House 4 (Fig. 106) had dimensions of 8 x 16 units. One of the shorter walls ended in an apse. The roof was supported by two forked inner posts and one outer one. A probable vestibule, 3 units wide was located in the central part. Its location was marked by a forked inner post and an arrangement of postholes in the longer wall of the building. The vestibule divided the building into two equal parts, 6.5 units long.

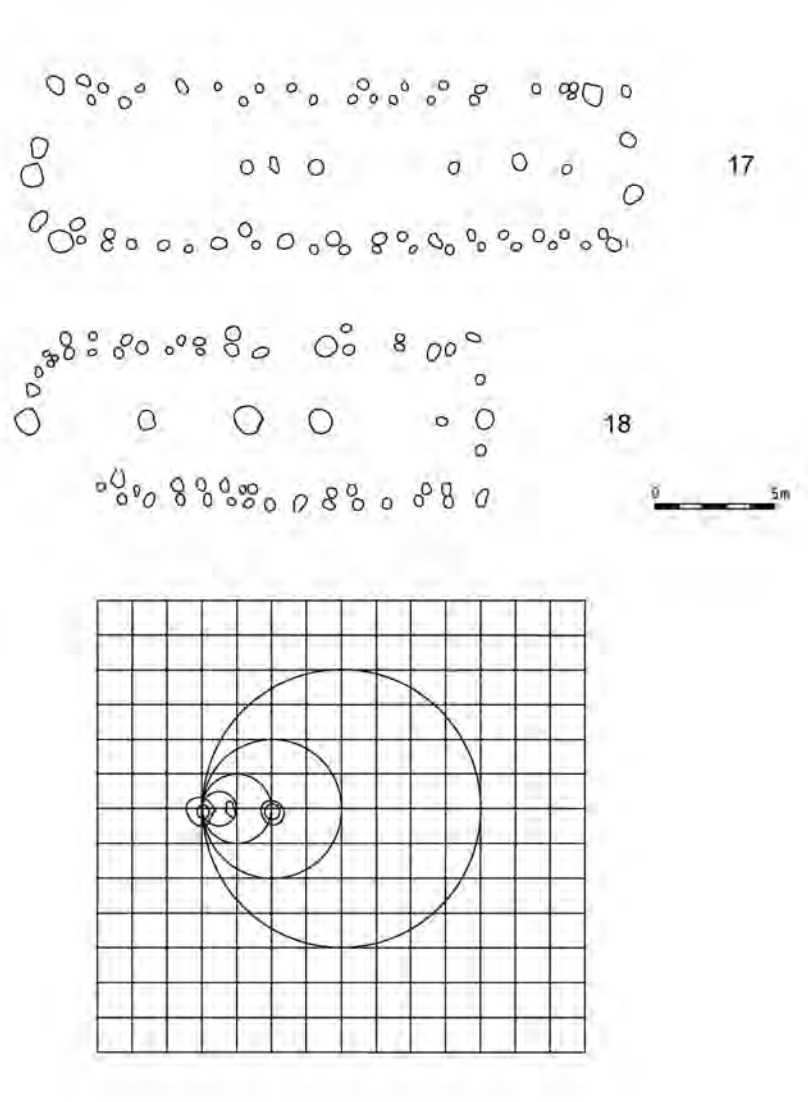

Fig. 105. Konarzewo, Poznań district, Poland. Plans of buildings 17 and 18 and repeatable distance between the inner posts of both buildings against the network of a grid size of 0.1464 m. Drawing by T. Gralak after J. Schuster 2012.

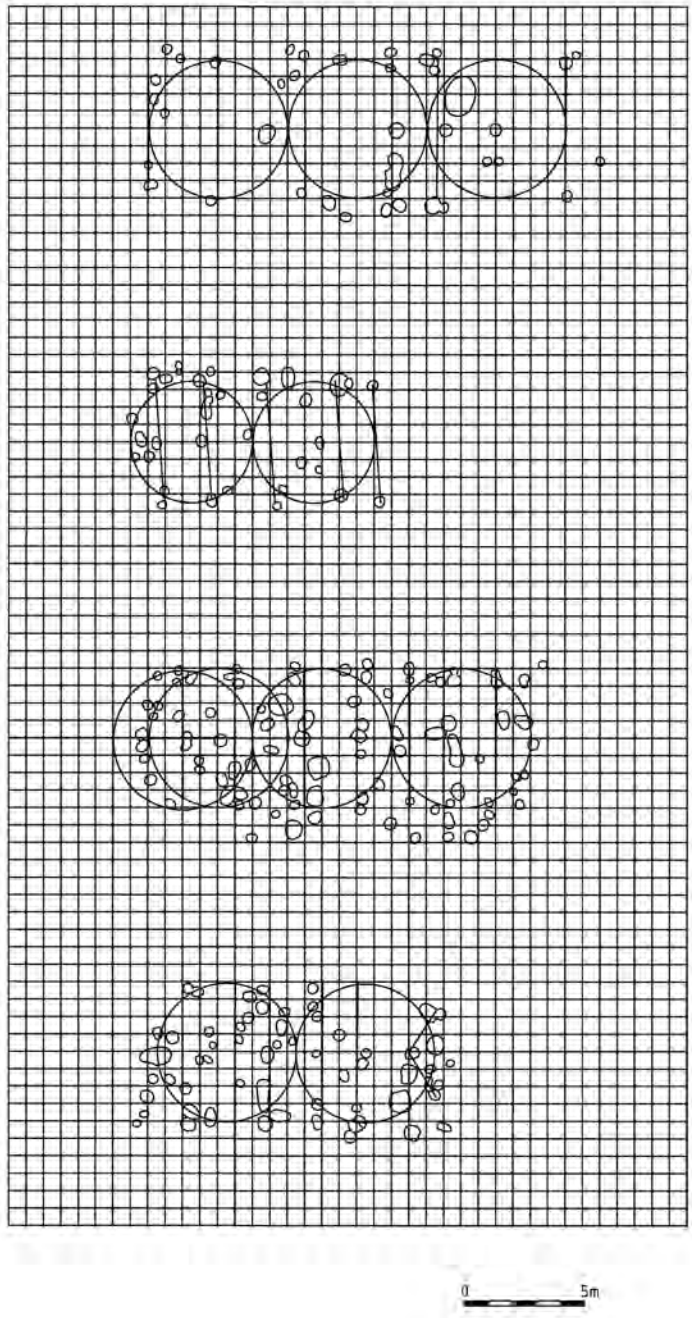

Fig. 106. Konarzewo, Poznań district, Poland. Plans of buildings 1, 2, 3 and 4 against the network of a grid size of 0.732 m. Drawing by T. Gralak after J. Schuster 2012.

House 7 (Fig. 107) was rectangular in plan with dimensions of 9 x 22 units. One of the shorter walls had rounded corners. The roof was supported by two forked inner posts and two outer ones. A vestibule, 4 units wide was located in the central part. Its location was marked by forked inner posts. The vestibule divided the building into two parts, 8.5 and 9.5 units long.

House 8 (Fig. 107) was rectangular in plan with dimensions of 8 x 24 units. The roof was supported by three forked inner posts and two outer ones. A vestibule, 4 units wide was located in the central part. Its location was marked by one of the forked inner posts and the arrangement of postholes in the longer wall of the building. The vestibule divided the building into two equal parts, 10 units long.

House 9 (Fig. 107) was rectangular in plan with dimensions of 6 x 16 units. The roof was supported by two forked outer posts and three inner ones. On one side, parallel to the longer edge of the building, a row of postholes ran. This row was situated at a distance of 3 units from the wall. It was probably the remains of a roofed outbuilding.

House 10 (Fig. 107) had dimensions of 8 x 16 units. One of the shorter walls ended in an apse. The roof was supported by two forked inner posts and one outer post. In the north part of the building, it is noticeable that the longer walls were not arranged symmetrically in relation to the axis of the building, but had been clearly shifted.

House 12 (Fig. 108) had dimensions of 6 x 11 units. The roof was supported by two forked outer posts and one inner one. Postholes located in the corners were not arranged symmetrically in relation to each other, but shifted in relation to the axis of the building. The whole edifice was lozenge-shaped in plan because of the posts' arrangement.

House 13 (Fig. 108) had dimensions of 7 x 15 units. All the corners of the building were probably slightly rounded. The roof was supported by two forked outer posts and one inner one.

House 14 (Fig. 108) had dimensions of 8 x 19 units. The roof was supported by two forked outer posts and one inner one. One of the shorter walls ended in an apse.

House 15 (Fig. 108) had dimensions of 8 x 17 units. One of the shorter walls ended with an apse. The roof was supported by three inner forked posts and two outer ones. In the central part, postholes marking the longer walls of the building were recorded. These were not arranged symmetrically in relation to the axis of the building and clearly had been shifted.

House 17 (Fig. 109) in plan had dimensions of 9 x 26 units. One of the shorter walls ended in an apse. The course of the sidewalls was marked by double rows of postholes. The roof was supported by four forked inner posts and two outer ones. Their arrangement as well as the postholes in the longer walls of the building determined the internal organisation of the structure. The vestibule, 4 units wide divided the building into two parts, 9 and 13 units long.

House 18 (Fig. 109) had dimensions of 9 x 34 units. The western, shorter wall ended in a slightly semicircular shape. The course of the sidewalls was mar-

ked by double rows of postholes. The roof was supported by six forked inner posts and one outer one. Their arrangement as well as the postholes in the longer walls of the building determined the internal organisation of the structure. The vestibule, 4 units wide divided the building into two parts, 12 and 18 units long.

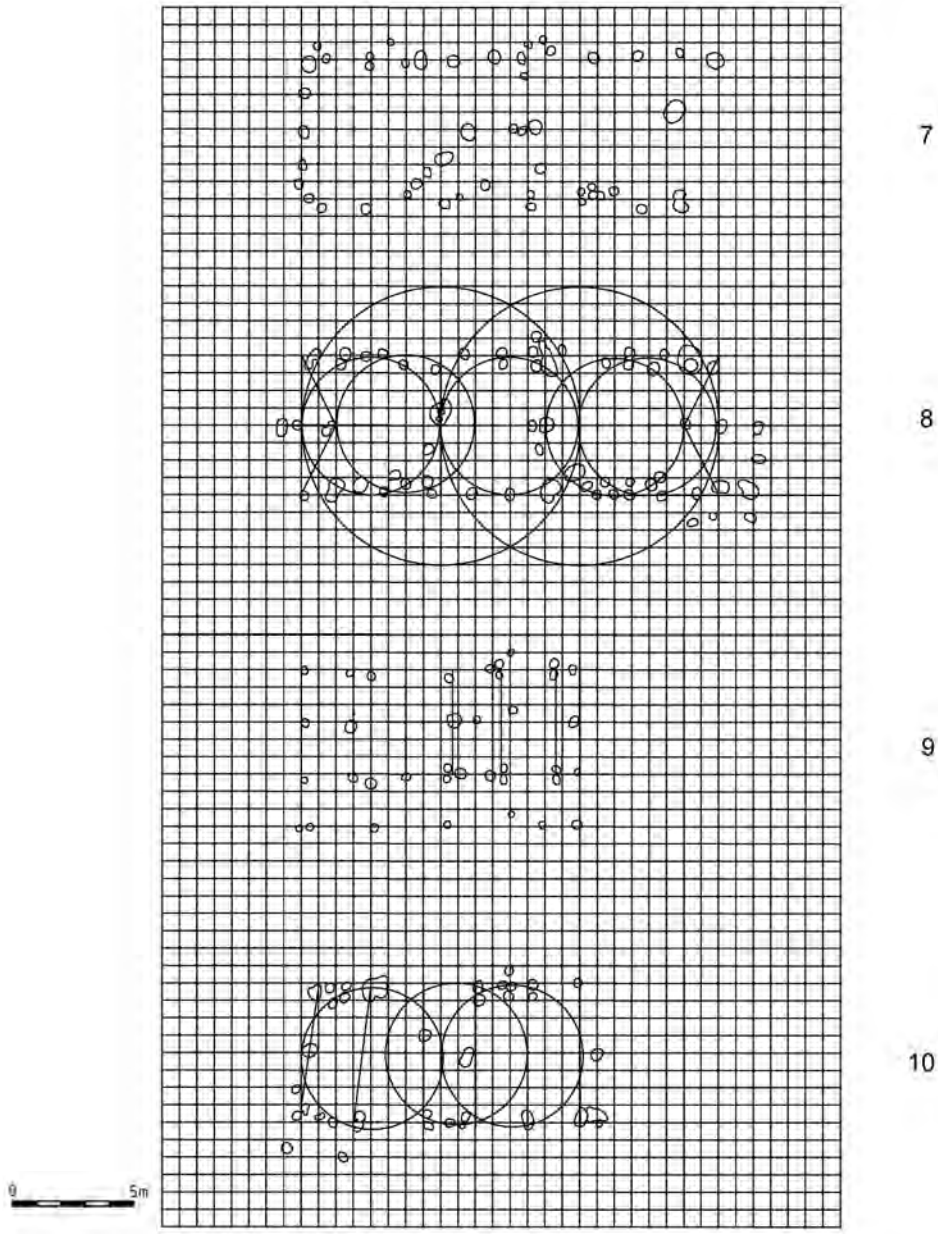

Fig. 107. Konarzewo, Poznań district, Poland. Plans of buildings 7, 8, 9 and 10 against the network of grid size of 0.732 m. Drawing by T. Gralak after J. Schuster 2012.

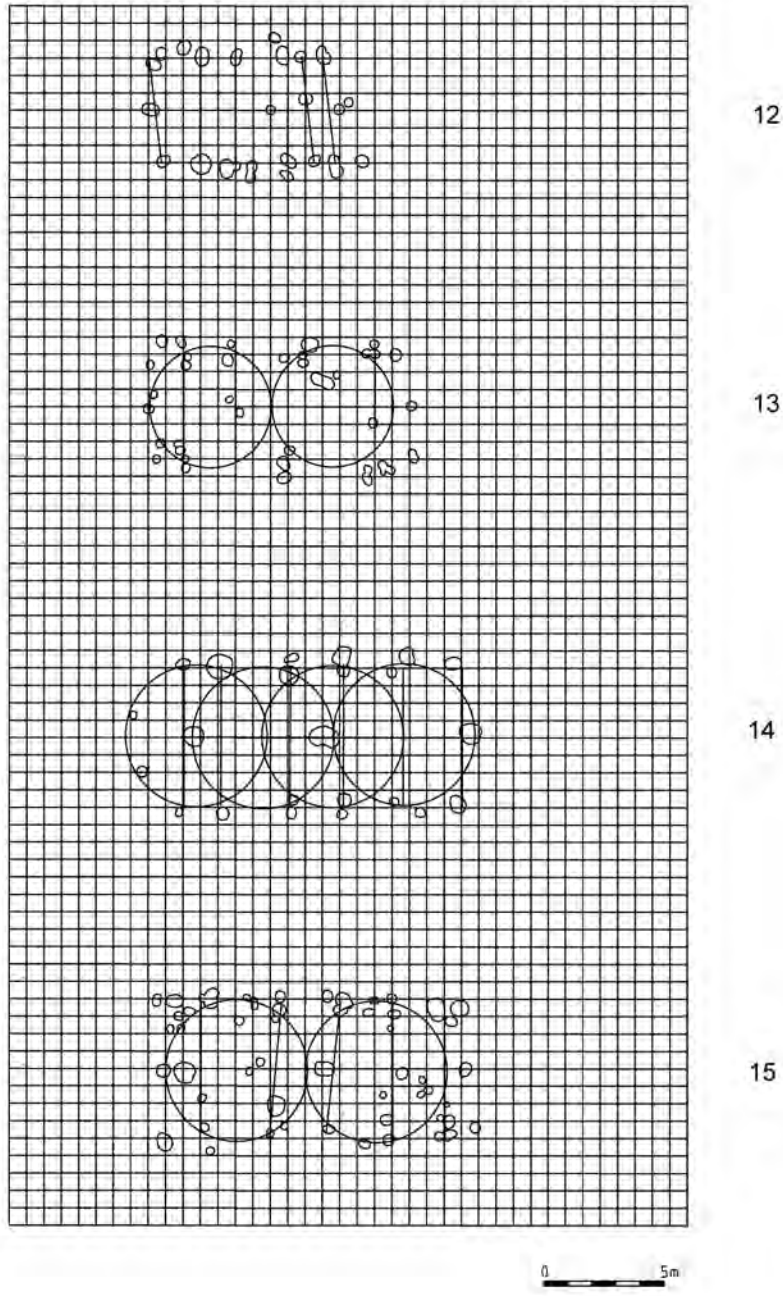

Fig. 108. Konarzewo, Poznań district, Poland. Plans of buildings 12, 13, 14 and 15 against the network of size of 0.732 cm. Drawing by T. Gralak after J. Schuster 2012.

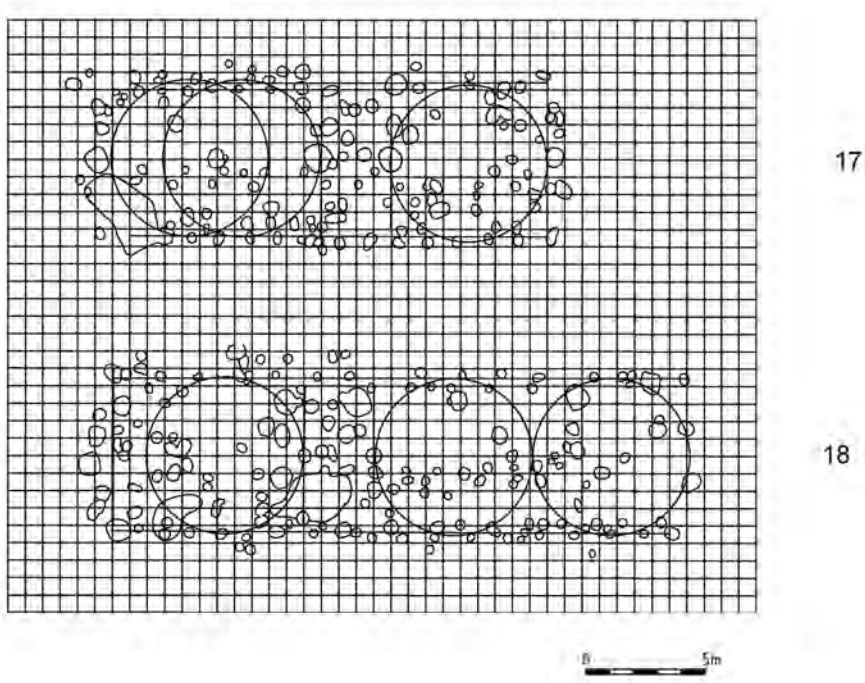

Fig. 109. Konarzewo, Poznań district, Poland. Plans of buildings 17 and 18 against the network of a grid size of 0.732 cm. Drawing by T. Gralak after J. Schuster 2012.

The repeatable feature of these structures is the vestibule, which was recorded in most buildings. Its width was usually 3 or 4 units (buildings 7, 8, 17 & 18). It divided buildings into two parts, mostly varying in size. It cannot be ruled out that this division should be linked with residential and economic parts. In structures 2, 10, 12 and 15 rows of posts marking the course of the longer walls of buildings have clearly been shifted in relation to the longer axes of the structures. Most likely, it was deliberate. This has correlations in other longhouses in the Barbaricum (Schuster 2012, 434, Fig. 20). As already mentioned, the same phenomenon is also observable in the sunken buildings from Polwica and Zarzyca.

According to H. Hamerow, the collection of tribal laws Lex Baiuvariorum (c. 730/40 AD) distinguishes between fines (LB X, 7-12) for the destruction of individual elements of a building. The highest fine – 12 solidi was for the destruction of posts supporting the roof. Damage to the corner posts of the 'inner house' cost 6 solidi. Compensation for the destruction of the outer posts was only 3 solidi (Hamerow 2004, 38-39). All these elements are indicated in buildings from Konarzewo. The posts supporting the roof must be the forked posts. Inner and outer posts were traceable in houses 17 and 18, where the course of the sidewalls was marked by double rows of postholes.

A characteristic feature of structures from Konarzewo is their surprising diversity of construction. Amongst 12 analysed buildings, each one was characterised by a unique set of elements. Even buildings with the same external dimensions – 1 and 8 (8 x 24 units), 4 and 10 (8 x 16 units) were erected using another arrangement of posts. It cannot be ruled out that it was an intentional action:

On what principle does the architect, when he finds the house standing before him correspondent with his ***inner ideal of a house****, pronounce it beautiful? Is it not that the house before him, the stones apart, is the* ***inner idea*** *stamped upon the mass of exterior matter, the indivisible exhibited in diversity?*
Plotinus, Ennead, I.6, On Beauty 3

This 'inner ideal of a house' was manifested differently every time, hence, there are no two identical houses. The house had to be unique, because every construction is shaping process. Therefore, a building became a creative activity. Apart from this, the large diversity of design indicates very good carpentry and architectural proficiency. Designers and contractors (presumably, these were the same people) created assorted variants of longhouses and it seems that this was expected of them (i.e. the differences). Beside knowledge of mathematics and carpentry, they also had to have a specialised toolkit. In the late Roman period and the early Migration period deposits of tools occurred in the Barbaricum (Gralak 2012c, 117). They were usually agriculture tools, but sometimes carpentry ones have been found. Generally, however, they evidence the strong positive valorisation of this category of objects. Activities carried out using them were also treated in a similar light. Hence, it seems that actions which can be described as creative were valued. The positive valorisation of tools is also confirmed by finds of their miniatures. They had appeared earlier in the Roman period (Godłowski 1981, 99, Fig. 16). The most famous find, however, is a gold necklace from the Migration period with pendants depicting a dozen different tools found in Szilágysomlyó in Romania (Capelle 1994).

With the late Roman period can be associated a find of the remains of a longhouse in Leśno, site 24, Chojnice district (Walenta 1998, Fig. 4, 2009, 85-86). This building somewhat precedes the change in directions of the Migration period. It was a two-aisled structure with a roof supported by forked posts. The course of the sidewalls was marked by rows of postholes. Both shorter walls ended in slight semicircles. In terms of culture, this find is most likely associated with a population continuing the cultural traditions of the Wielbark culture. In any case, this house was located a few kilometres from the early Roman cemetery of the Odry-Węsiory-Grzybnica type (Walenta 2009). Therefore, undertaking metrological analysis, it was decided to find out whether the measurement unit applied earlier in sepulchral architecture was still used at this time.

The plan of the building from Leśno was, therefore, overlain on a network with a grid size 1.10815 m and 2.2163 m (Fig. 110). It was found that the sidewalls

were spaced by a distance corresponding to six such portions. The length of the building was 17.5 such portions. Hence, most likely, during construction a measure corresponding to half of this portion – i.e. 0.554075 m was used. Thus, the house's width reached 12 and its length 35 such units.

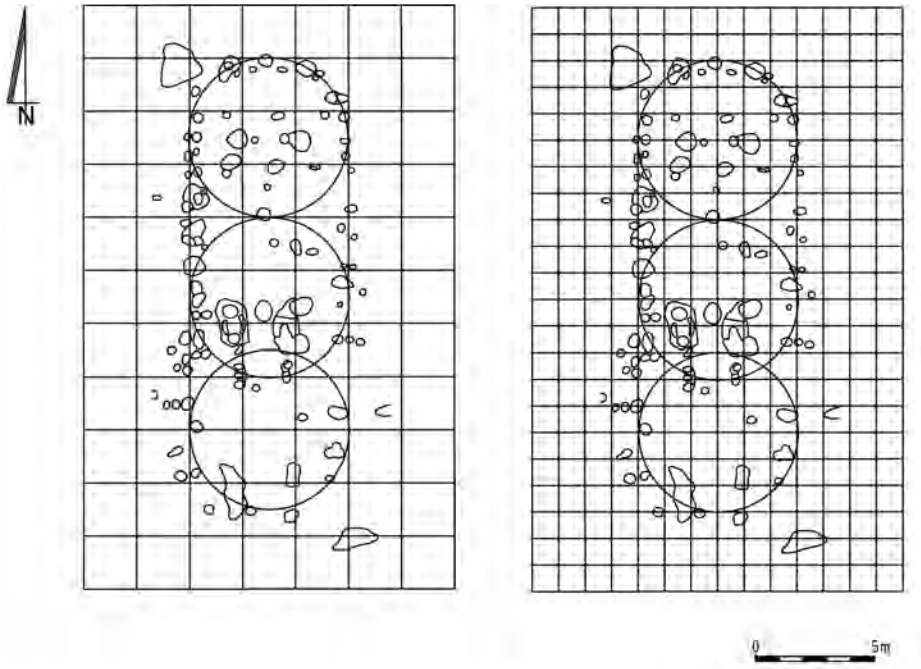

Fig. 110. Leśno, Chojnice district, Poland. Plan of a post construction building against the network of a grid size of 2.2163 m and 1.10815 m. Drawing T. Gralak after K. Walenta 1998.

A gold ring found within the house in Leśno (Walenta 1998, 63, Figs. 1 & 3) was most likely a foundation sacrifice. It has numerous later parallels in deposits of gold objects in buildings from Gudme and other sites from Scandinavia dating to the Migration period (Vang Petersen 1994; Sundqvist 2011; Jørgensen 2011; Larsson 2010, 180, 2011). Hence, it is clear that in relation to the Roman period a change in the category of deposited items occurred. They were no longer vessels and animal sacrifices. Gold began to be deposited. It cannot be excluded that this was due to the aforementioned change in the valuation of this raw material. At the end of the Roman period and during the Migration period, in vast areas of the Barbaricum, numerous hoards were deposited (Bursche 1984, 65-69, 75-78). They contained silver Roman coins from the 1st-3rd centuries, gold coins from the Migration period as well as jewellery and everyday items made of precious metals. As already mentioned these goods (gold) to a large extent appeared because of fighting against the Roman Empire. Such hoards are known from the Ukraine to vast areas along the Danube River (Tejral 1986, 194, 213, 1987, 36, 38, 1988, 237). They have also been found in central Poland (Mączyńska 1999, 28-31).

Deposits of gold solidi, instead, occurred in large numbers in the Baltic Sea zone (Iluk 1998, 52, Maps 1 & 2, Tables 1 & 2; Ciołek 2003, Map 1).

The sudden inflow of a large amount of gold (capital) had to lead to abrupt changes in the economy of the barbarian tribes. According to Tacitus, during the Roman period this metal, due to its too high a value did not constitute the basic means of exchange:

They likewise prefer silver to gold, not from any special liking, but because a large number of silver pieces is more convenient for use among dealers in cheap and common articles.
Germania, 4

The emergence of gold, therefore, had to have resulted in changes in the value of silver, which probably affected trade and led to changes in the social structure. It seems obvious that access to inflowing goods was not the same for everyone, which resulted in a rapid differentiation in status. This phenomenon was intensified by extremely profound political changes – great wars and migrations of entire tribes. In this situation, social hierarchy became extremely unstable. Ambitious individuals had to manifest their status expressly. This could be achieved, amongst others, by potlatch – ostentatious removal of goods from circulation (Mauss 2001, 165-255; Nowicka 2006, 294-295, 354-355). A sudden inflow of a large quantity of goods was also a threat to the unity of the community. This phenomenon was reflected in the literature. The epic poem describing dramatic political changes in the Migration period – the Song of the Nibelungs – is also associated with the history of a hoard. One of the characters – Hagen, to prevent the escalation of conflict within the elites of the Burgundians tribe, decided to sink the hoard in the Rhine (Batts 1971).

Assuming that depositing valuables was a ritual that was watched by the entire community (or at least a part of it), the place of their location remained in the collective memory. As such, it constituted one of elements of space construction of the occupied ecumene. Hence, despite the fact that they were buried, these items remained 'visible' by their presence in the consciousness of contemporary society. It is also worth noting that in Polish folk beliefs buried treasures 'burn' at night; the visual effect of which is a light resembling the flames of bonfires (Baranowski 1981, 183). This shows that they manifested their presence at the time (night), which is structurally closer to the afterworld (Stomma 1986, 169). In this sense, the deposits are a manifestation of a completely utilitarian activity – they were supposed to build physical and ritual space.

To recap, longhouses are characteristic of the Migration period. This phenomenon is reflected in early medieval literature. A large part of the plot of the Anglo-Saxon epic poem Beowulf takes place in such a building (Stiller 2010). According to the Song of the Nibelungs in such a house, after a dramatically interrupted feast, the elite of the Burgundians tribe die (Batts 1971). Such structures,

therefore, constituted the main area of activity of the elite, who were warriors. In the longhouses daily life was lived out, feasts were held, rituals practiced, but it was also a place of rest. A similar phenomenon, i.e. the presence of longhouses can be also observed in the Chernyakhov culture (Magomedov 2001, 21-22, Figs. 7-9; Shchukin 2005, 182-185, Figs. 65-68). In Scandinavia where longhouses existed during the Roman period, they were longer and larger (Hvass 1982, 193; Hedeager 1990, 133-137; Webley 2008, 51-53).

Longhouses from the Bronze Age were a characteristic element of culture in north Germany and south Scandinavia (Haarnagel 1965; Hvass 1982; Weinmann 1994). Usually, they were divided into residential and economic parts, the latter occupied by cattle (Webley 2008, 48-50). This specific division could have functioned only in a specific economic structure, where an important element was the sedentary breeding of these animals. Such a strategy could be successful only in a situation of easy and constant access to feed resources (grassland). In the case of south Scandinavia and north Germany a moist, cool (Hedeager 1992, 206-209), but not a frosty climate provided the best conditions for such activities. Farther to the south the climate became warmer, hence grass dried out faster making sedentary breeding more difficult. In Central and Eastern Europe climatic conditions made such an economy very inefficient. Firstly, the cold and long winters significantly shortened the growing season. Much less rainfall and hot summers resulted in dried grass that quickly lost its nutritional value. In such a situation the safer strategy was forest grazing. This was a typical feature of Central and Eastern Europe from the Early Iron Age to the early Middle Ages (Calkin 1962; Okulicz-Kozaryn 1989, 587-588). Therefore, it seems that the climate and the type of economy associated with it is the primary reason for the small number of longhouses in Central Europe in the early Roman period. Hence, it also appears that their presence indicates a different function. It is often pointed out that they had a social rather than a dwelling function (see Kobyliński 1988, 52).

It should be also noted that for the construction, maintenance and exploitation of longhouse much more energy and resources are necessary than in the case of a small building. This suggests that a social structure of a different division of labour was established. Longhouses also created a community that had to operate in them. Hence, probably their widespread presence indicates the hierarchisation of society.

Nonetheless, previously applied forms of space organisation were used. In Jutland during the Migration period, settlements continuing the tradition of chieftains' farmsteads existed (Hamerow 2004, 80-85, Figs. 3.22 & 3.24). In addition, the Huns in the Danube zone adopted this form of space organisation. One of the wives of Attila resided in such a feature:

The next day I entered the enclosure of Attila's palace, bearing gifts to his wife, whose name was Kreka. (...). Within the enclosure were numerous buildings, some of carved boards beautifully fitted together, others of straight, fastened on round wooden blocks

which rose to a moderate height from the ground. Attila's wife lived here, and, having been admitted by the barbarians at the door, I found her reclining on a soft couch. The floor of the room was covered with woollen mats for walking on. A number of servants stood round her, and maids sitting on the floor in front of her embroidered with colours linen cloths intended to be placed over the Scythian dress for ornament. (…). I saw a number of people advancing, and a great commotion and noise, Attila's egress being expected. And he came forth from the house with a dignified gait, looking round on this side and on that. He was accompanied by Onegesius, and stood in front of the house; and many persons who had lawsuits with one another came up and received his judgment. Then he returned into the house, and received ambassadors of barbarous peoples.
Priscus, Fragmenta Historicorum Graecorum, 8

In the late Roman period, in the late phase C2 and at the beginning of the Migration period, settlement expanded into upland and mountain areas. In most cases, these were previously completely uninhabited areas. In Lower Silesia it encompassed the areas of the Sudeten Foreland (Pazda 1980, 188, 210-211, Map 8). A similar phenomenon was observed too in Opava Silesia (Loskotova 2011). Upland settlement also appeared in the Western Carpathians. In phases C3 and D1, in Slovakia and the Carpathian Foothills in Poland, the so-called North Carpathian group lived (Pieta 1999, 182, Fig. 9).

During this period, upland and defensive settlements appeared. In the Chernyakhov culture in Ukraine three defensive settlements surrounded by ramparts are known from the late Roman period: Aleksandrovka, Bašmačka and Gorodok (Magomedov 2001, 20-21, Figs. 217 & 218; Popa 2001, 19, 21, 22, 34, 42-43, Figs. 7-14 & 25-26). In the North Carpathian group newly established settlements were founded in places of strongholds from the Bronze Age and the Hallstatt period (Pieta 1999, 182, Fig. 9). The same phenomenon is perceptible in phase D2 in south-western Slovakia, in Moravia (Tejral 1999, 241, Fig. 30) and in north Austria (Pollack, 1999). In Silesia it was noted that settlements were located on slopes of hills that clearly tower over the area: Ślęża (Domański 2002, 95-97, Maps 6 & 7) in central Silesia and Czerwoniak in Kłodzko Basin (Bohr and Łęcki 2001, 255-266; Gralak et al. 2002, 519-524). In central Poland a similar settlement dated to phase D1-D2 was discovered on Góra Birów (Muzolf 1994, 281-284). It was located in an area characterised by natural defensive qualities and it can be regarded as a kind of *refugium* (Mączyńska 1999, 31). Upland and defensive settlements situated on the hills were widespread in south-western Germany and were occupied by tribes of the Alemanni. The earliest ones dated to the 3th century, but the majority are dated to the 4th and 5th centuries (Schmidt, B. 1983a, 349-352, Figs. 73-74; Steuer 1990, 146-167; Eger 2014). A classic example is Runde Berg bei Urach. This settlement was surrounded by ramparts and was probably the seat of a ruler and an important political centre (Quast 2008). Settlement traces are also observable on hills and elevations in areas of central Germany occupied by the Thuringii (Schmidt,

B. 1983b, 528-529). They also appeared in the upper Danube River and the Rhine River basins largely exceeding the earlier Roman limes, as well as in the Alps (Bierbrauer 1985; Gilles 1985; Ciglenečki 1987; Matt 1987). During the Migration period, small forts (Eketorp-type) located on hills appeared on the Swedish island of Oland (Grimm 2010, 58-60, Fig. 36). Fortified settlements on hills were also recorded in southern Norway (Solberg 1998, 246, Fig. 10).

Changes also occurred in the organisation and exploitation of agricultural land. According to L. Hedeager, in Scandinavia in the 1st and the 2nd centuries AD, systems of so-called Celtic fields were systematically abandoned and replaced by more intensive (wider) use of land, including grassland. This caused the centralisation of settlement that was manifested in construction of larger houses and the concentration of power over the exploited territory. The process intensified in the 2nd-4th centuries AD, and consequently, led to the hierarchisation of society (Hedeager 1990, 133-137, 1992, 212-216; Webley 2008, 51-53). This phenomenon was reflected, in turn, in progressive political changes. In the late Roman period in Jutland it consisted in a series of small areas under settlement. The distribution of archaeological finds, however, suggests that in the 5th/6th centuries AD the territory became united, which is also confirmed by later written sources (Høilund Nielsen 1997, 130). Thus, individual parts were replaced by a single entity. Therefore, it was another manifestation of the realisation of the already described paradigm. New ways for the economic exploitation of territory also confirms the aforementioned colonisation of the upland and mountain areas.

A completely new political and territorial organisation was introduced by the Huns. Their empire, known in Turkish-Mongolian languages as El (Tyszkiewicz 2004, 31-32, 139), was created from the beginning of the emergence of these people in Europe, reaching its apogee in the days of Attila's rule in the mid-5th century (Tyszkiewicz 2004, 131-133). Subordinated peoples were forced to take part in military actions carried out by the Huns, but they were allowed to maintain their own political structure. They also participated in looting. This is a characteristic feature of the nomads' organisation of power (Tyszkiewicz 2004, 76, 87). Such structures were formed due to the constant shortage of plant food, which was supplemented by the exploitation and looting of neighbours. That is why they consisted of two main components: the nomadic one and the sedentary (agricultural) one (Moszyński 1953, 31-32; Szynkiewicz 2007, 20-21). Tributes paid to the Huns had a ritualised nature and resembled the exchange of gifts (Tyszkiewicz 2004, 117; Hedeager 2010, 196-198). Therefore, such an organisation was not based on relationships and dependencies between people. Due to this, it was not linked to a territory in which individual peoples lived. It enabled migration and long (actually constant) wars. Regardless where the Huns and their ruler were such an organisation could function efficiently. Physical borders and distances between individual regions of the El, due to the common use of horse transport were no longer so important. This form of organisation was imposed on the European barbarian peoples. It was, however, accepted and understood. It appears that it was facilitated

by the aforementioned process of power consolidation in aristocratic families in Germanic tribes. Their members became partners of the Huns. Moreover, uniting large areas of Central Europe corresponded to the already described paradigm of linking individual components into a whole.

In summary, it seems that during the Migration period the view of space divided into parts completely disappeared. It becomes uniform – it did not form a structure consisting of modules any longer. On the other hand, it appears that a view prevailed that it could be freely changed and shaped. Interestingly, similar views seem to have applied to other components of culture, including the human body.

4. Epilogue

Roma capta est – Civitas Dei.

The Migration period occurred at the time when centre-periphery relations between the Roman Empire and the Central European Barbaricum collapsed. The Roman Empire significantly decreased in size and power, and the latter actually went into decline. In areas earlier inhabited by the Germanic and the Sarmatian peoples, the Slavs began to dominate. In the Roman period they remained on the margins of the European Barbaricum and they did not take part in the centre-periphery relations. Therefore, at the time of the collapse of these relations, the Slavic culture did not experience a crisis. Hence, this was the direct reason for the success of their cultural system. The Germanic, Sarmatian and later Slavic peoples appeared in large numbers in the former Roman provinces. The world in the form before 375 AD simply fell apart. Therefore, it is obvious that people needed to answer the question as to how to find new living conditions for themselves. Hence, the Migration period was a time of searching for a new order. A new ideology – Christianity, gradually reached new areas. Eventually, in the Migration period and in the early Middle Ages, Europe, although it was not homogeneous, became a community.

CONCLUSIONS

Terre des homes.
Antoine de Saint -Exupéry

This book obviously does not describe all aspects of the culture of the analysed communities. Many essential elements have been completely omitted. The description of everything, however, is impossible – the world was and is too vast and complicated. Therefore, it is only a description of a fragment of reality. Furthermore, this fragment has been selected totally subjectively. In this sense, this book says more about the manner of understanding the world by its author, than about the past. This is not an exception – every publication, no matter what is the subject is witness to the times in which it was created. In this way every author like a filmmaker from the movie 'Amator' directed by Krzysztof Kieślowski, turns the camera to himself in the last scene. The perception of the world is inherently subjective. It results from knowledge and experience of individuals and entire communities.

This phenomenon became clearly perceptible for an aviator from the 1920s. From his perspective, Spain was a completely different country than for everybody else:

But what a strange lesson in geography I was given! Guillaumet, did not teach Spain to me, he made the country my friend. He did not talk about provinces, or peoples, or livestock. Instead of telling me about Guadix, he spoke of three orange-trees on the edge of the town: 'Beware of those trees. Better mark them on the map'. And those three orange-trees seemed to me thenceforth higher than the Sierra Nevada.

He did not talk about Lorca, but about a humble farm near Lorca, a living farm with its farmer and the farmer's wife. And this tiny, this remote couple, living a thousand miles from where we sat, took on a universal importance. Settled on the slope of a mountain, they watched like lighthouse-keepers beneath the stars, ever on the lookout to succor men.

The details that we drew up from oblivion, from their inconceivable remoteness, no geographer had been concerned to explore. Because it washed the banks of great cities, the Ebro River was of interest to mapmakers. But what had they to do with that brook running secretly through the water-weeds to the west of Motril, that brook nourishing a mere score or two of flowers?

'Careful of that brook: it breaks up the whole field. Mark it on your map. Ah, I was to remember that serpent in the grass near Motril! It looked like nothing at all, and its faint murmur sang to no more than a few frogs; but it slept with one eye open. Stretching its length along the grasses in the paradise of that emergency landing-field, it lay in wait for me a thousand miles from where I sat. Given the chance, it would transform me into a flaming candelabra. And those thirty valorous sheep ready to charge me on the slope of a hill! Now that I knew about them I could brace myself to meet them.'

'You think the meadow empty, and suddenly bang there are thirty sheep in your wheels.' An astounded smile was all I could summon in the face of so cruel a threat. Little by little, under the lamp, the Spain of my map became a sort of fairyland. The crosses marked to indicate safety zones and traps were so many buoys and beacons. I charted the farmer, the thirty sheep, the brook. And, exactly where she stood, I set a buoy to mark the shepherdess forgotten by the geographers.
Antoine de Saint-Exupéry, Wind, Sand and Stars, 3

The most important element of space is people. They give it meaning and value, whoever they are, like the unnamed Bedouin described by Antoine de Saint--Exupéry:

You are Humanity and your face comes into my mind simply as man incarnate. (You, our beloved fellowman, did not know who we might be, and yet you recognised us without fail.) And I, in my turn, shall recognise you in the faces of all mankind.
Antoine de Saint-Exupéry, Wind, Sand and Stars, 78

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