

Joanna Jędrzyk and Marcin S. Przybyła

The Early Bronze Age Stone Fortifications of the Maszkowice Hillfort (Polish Carpathians). Product of an Adaptive Mind or *idée fixe*?

Among many prehistoric hillforts of the Western Carpathians the one located at Maszkowice village displays unique traits. The site was excavated in 1960s and 1970s, but it was not until 2015 that the new field project revealed remains of massive stone fortifications. The wall of the Zyndram's Hill is dated to the Early Bronze Age (18th century BC), being one of the earliest examples of defensive stone architecture in Europe outside Mediterranean. In our paper we shall discuss the development of the defensive system with its geographical and settlement context. Considering the results of fieldwork and other applied methods we can assume, that the enclosed settlement in Maszkowice functioned as an isolated point located in scarcely populated area. Therefore, we need to stress the landscape and geological circumstances which played a significant role in inner layout organization, social perception and the development of settlement and its fortifications. The stone wall was erected already at the beginning of the site's occupation. The defensive system existed then in its most elaborated form (with at least two gates leading into the village), while later during several dozen years the fortifications slowly but constantly deteriorated. Finally, in conclusion we shall consider the stone wall of Zyndram's Hill not as a product of local adaptation, but as a result of a prepared execution of a project.

Introduction

It is often so in archaeology that a single discovery is capable of raising quite a new set of questions. This is also the case of the Maszkowice hillfort. In 2015, while investigating the lowermost layers of the Bronze Age settlement, we came across relicts of massive stone fortifications. Although the preliminary results of these discoveries are already published,¹ each following month spent on excavations or studies on collected materials brings us new data, which significantly broaden our knowledge about this exceptional site. In our paper we will address one of the main questions concerning the stone fortifications of the Maszkowice hillfort: can they be considered as a product of native invention, adoption to the local geographical conditions, or rather should they be seen as an execution of a mature and finished “blueprint”? In order to collect our arguments, we discuss the environmental context of the site as well as the data concerning settlement history in the region. Further, we present an overview of how the Early Bronze Age settlement developed in terms of spatial or-

ganization and demography. The second part of the study will contain an up-to-date description of stone fortifications (after the excavations in 2016 and 2017), as well as remarks on their chronology.

Geographical context

The foundation of the Early Bronze Age enclosed settlement in Maszkowice relied upon optimal landscape, environmental and economic factors. The site is located in the central part of Polish Western Carpathians, in the microregion called the Łącko Basin (**Fig. 1a-b**). This 7.5 km² area was formed during the Quaternary as a result of the Dunajec River activity and fluvial erosion.² The southern border of the Łącko Basin was created due to the indentation of the river into the steep slopes of the Beskid Sądecki Mountains. In contrast, the northern part of the region is more accessible and consists of gently waved promontories extended on the foreground of the Beskid Wyspowy Mountains. Moreover nowadays, and most probably also in prehistory, alluvial deposits

¹ Przybyła 2016.

² Zuchiewicz 1999.

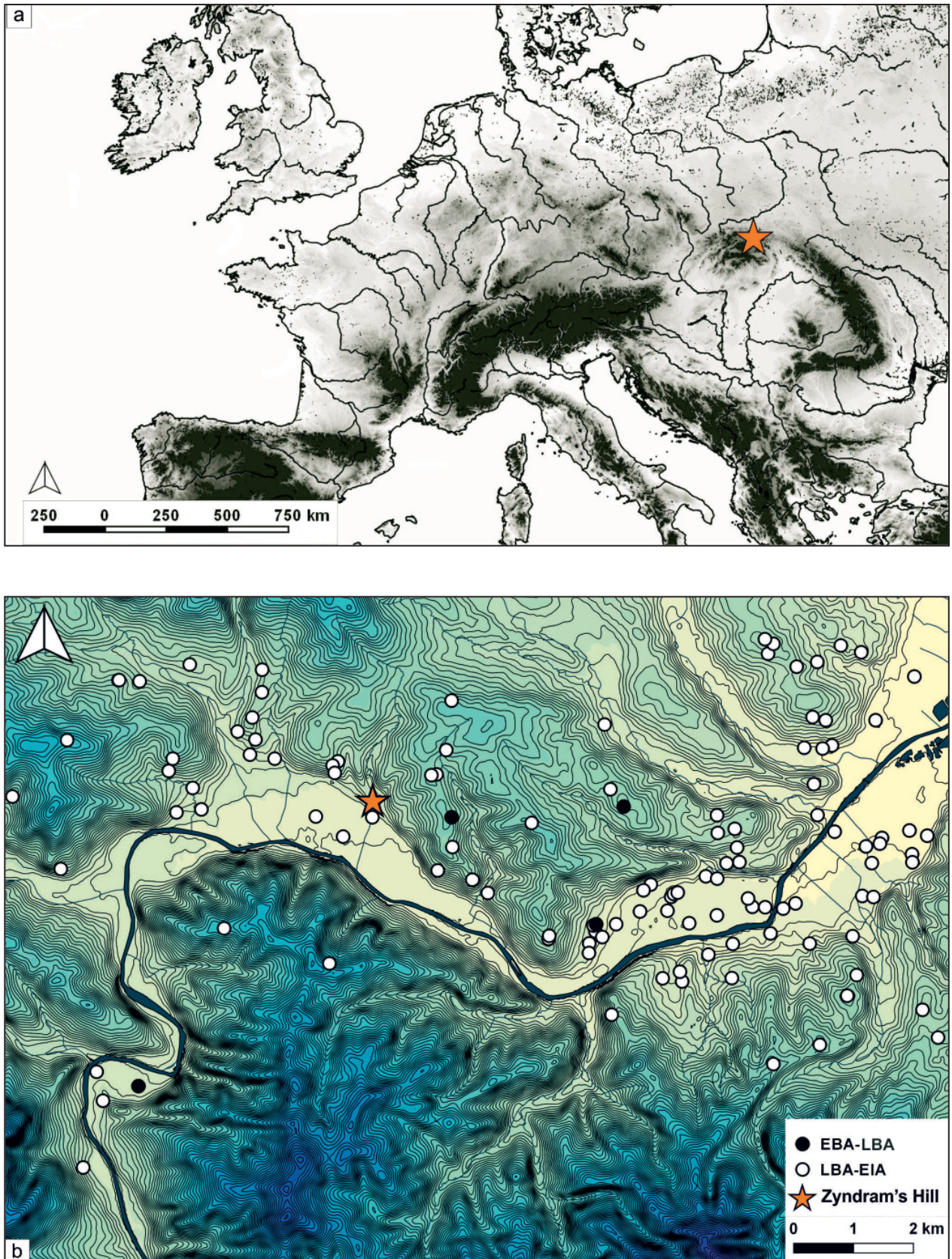


Fig. 1 Localisation of the hillfort on Zyndram's Hill in Maszkowice: **a** against the background of the Bronze and Early Iron Age settlement network within the upper Dunajec river valley; **b** location of sites (maps by J. Jędrzyk)

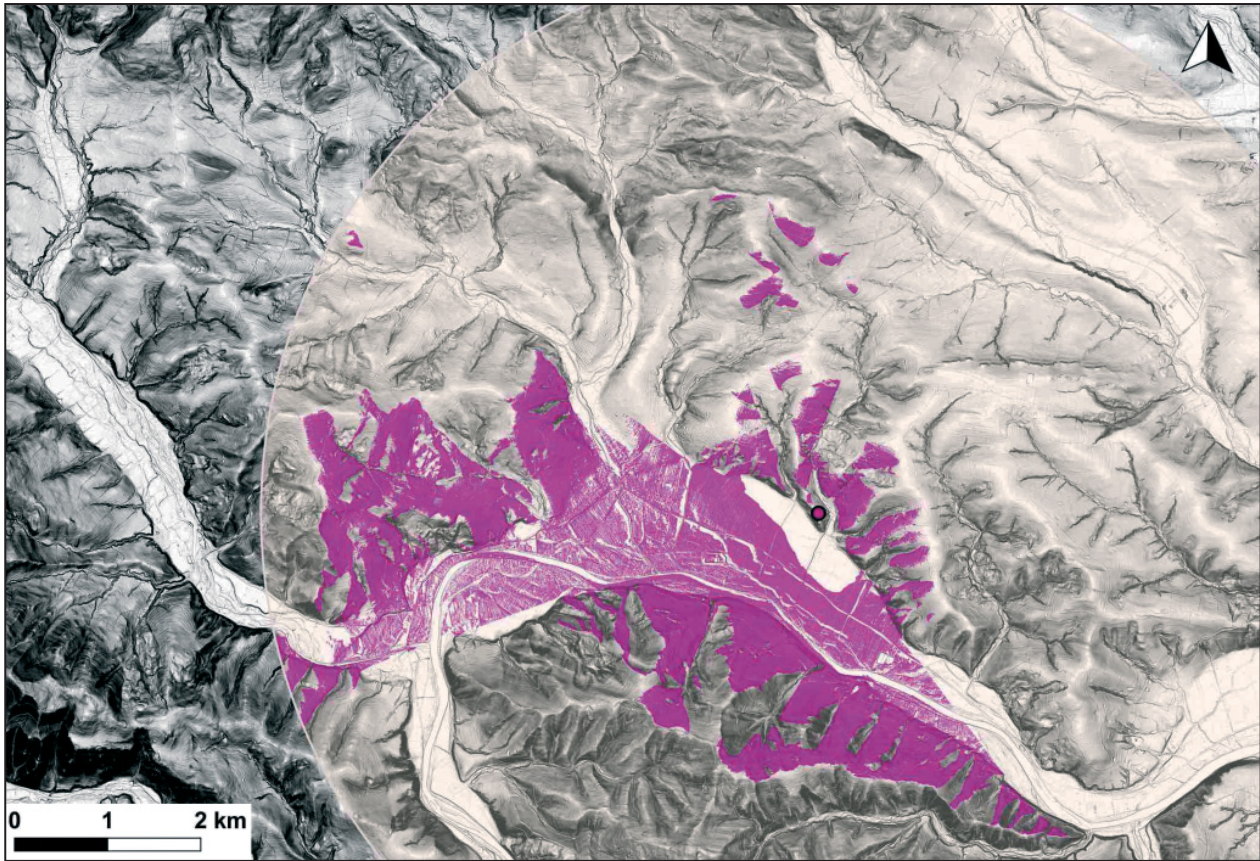


Fig. 2 Advanced viewshed analysis for the observation point located in the eastern part of the Maszkowice hillfort prepared in Quantum GIS, plug-in by Čučković 2016. Parameters: radius – 6 km, observation point – 1.6 m, receiver height – 0 m, atmospheric refraction – 0' (map by J. Jędrzyk)

on the wide river terrace created favourable conditions for agricultural development. A detailed description of the archaeological site localisation and its economic consequences have already been discussed elsewhere.³ Therefore, this paper will only concern the landscape and environmental circumstances of the erection of the stone fortifications.

The site is situated in the middle of the northern edge of the Łącko Basin and close to the widest part of the valley. The Bronze and Early Iron Age settlements were established at the tip of a small promontory called Zyndram's Hill, which rises about 410 m above sea level and 50 m directly above the Dunajec river terrace (Fig. 1b). The promontory is separated from the neighbouring areas by two streams flowing at the base of the hill and undercutting its steep slopes. Today this hilly region is densely covered by forest; however, the unique topography makes Zyndram's Hill a very good observation point. The viewshed analysis prepared in 6-km radius from the site shows the potential of visual control over the river valley's

widening and the adjacent area (Fig. 2). The entire observation field of a person standing upon the highest point of the site amounts to about 15 km². Undoubtedly in terms of landscape conditions the localisation is attractive due to two main factors: the ability to supervise the main area of economic exploitation and the possibility to control the best communication route via the river valley. It is noteworthy, however, that mostly the area located to the south and west was clearly visible, while the interior of the Beskid Wyspowy Mountains and the easternmost part of the Łącko Basin were obscured.

Further the attention should be directed to geological aspects, which probably were of crucial importance for the manner of erection, localisation and survival of the Early Bronze Age stone fortifications. The structure of Zyndram's Hill reflects a sequence of deposits common in the region: sandstone as bedrock covered by Late Pleistocene loess sediments.⁴ The essence of the matter is not only based on the proximity of building material

³ Przybyła *et al.* 2012.

⁴ Paul 1980.

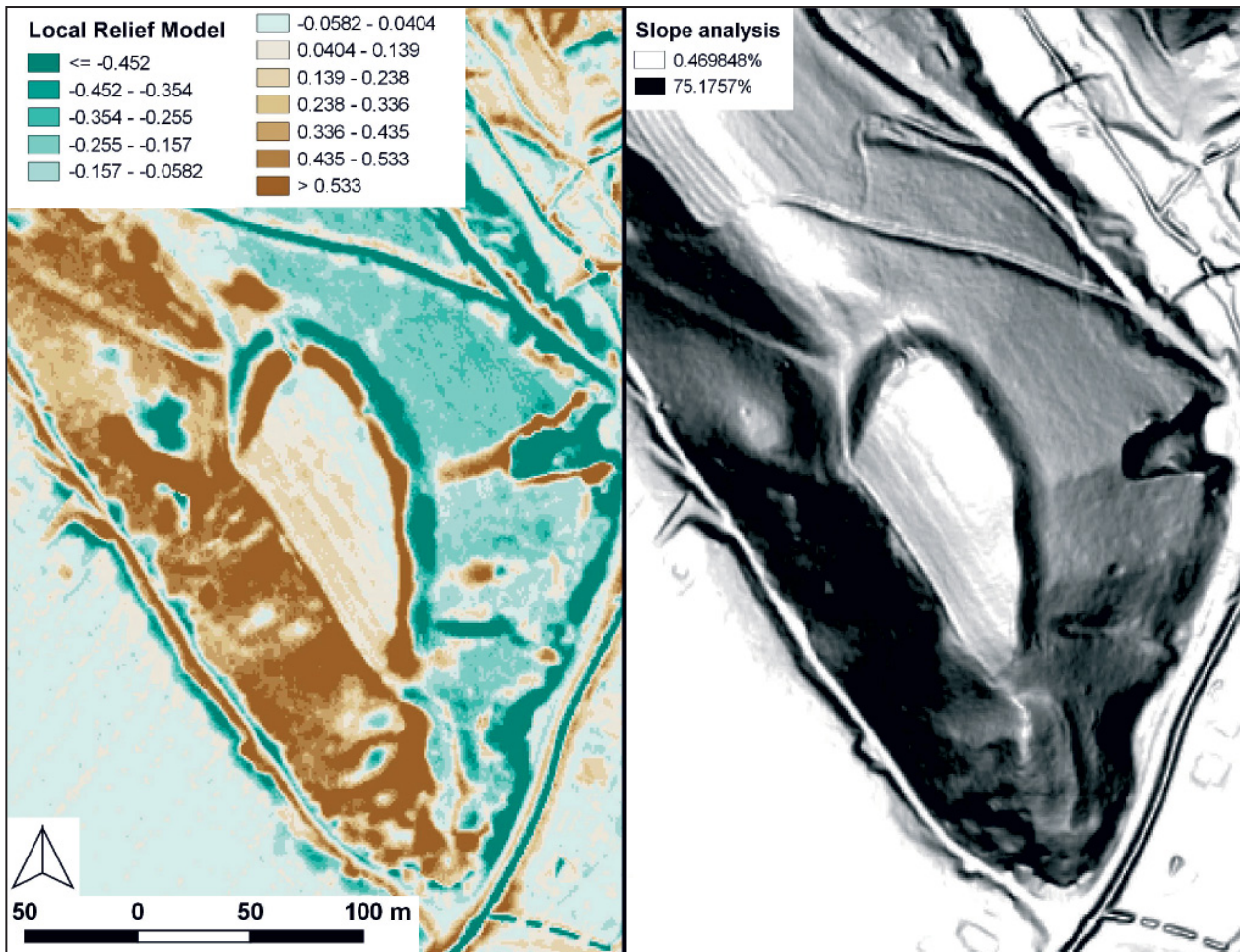


Fig. 3 Local relief model and slope analysis prepared in Quantum GIS which show detail of Zyndram's Hill's topography (steep western and southern slopes, eastern and northern terraces and plateau) (map by J. Jędrzyk)

(sandstone), but also on consequences directly connected with the natural shape of the promontory. Conducted fieldwork has already unearthed the Early Bronze Age stone fortifications in a c. 50-meter long section, based on non-destructive techniques; we can estimate their total length for at least 200 m and locate them in the easily accessible northern and eastern parts of the site. The digital elevation model analysis (Fig. 3) and the electrical resistivity test results obtained for the entire perimeter of the site initially indicated the idea, which was later confirmed by geological reconnaissance. All obtained data show that the wall was founded not upon the bedrock, which would ensure the ground stability, but on top of thick loess sediments. This kind of substrate is susceptible to water erosion and was simply not the optimal basis for the heavy stone construction, wherefore maintaining the fortifications in good condition was probably not easy.

In the light of conducted fieldwork it can also be stated that the defensive system was not raised in the western and southern edges of the site. Not surprisingly a series of drillings and basic deposit modelling proved that the top of the bedrock in the southern part of the promontory occurs almost directly below the ground level (Fig. 4). The farther north and east the sandstone is covered by ever thicker loess deposits. Therefore, it is imaginable that the bedrock on Zyndram's Hill falls from the south-west to the north-east, while the highest point is located somewhere in the western or southern slopes. The clarified hypothesis is supported by field observation of the sandstone layering in one of modern quarries at the foot of the promontory. Hence, it appears that from the west and south the enclosed Early Bronze Age settlement was protected by a natural barrier in the form of steep slopes and possibly also rock faces.

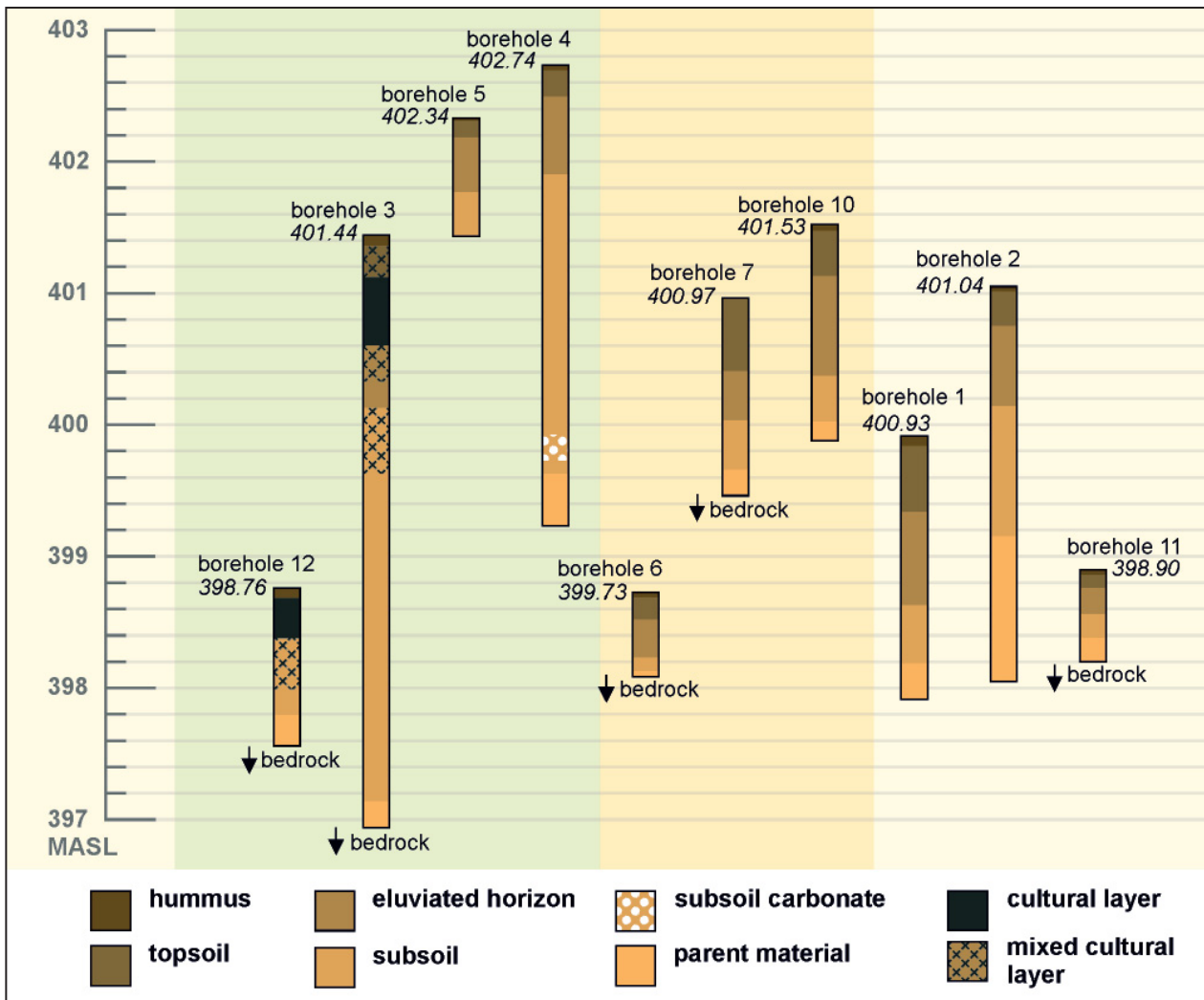


Fig. 4 Basic deposit modelling of boreholes obtained in a geological reconnaissance of the western edge of the Maszkowice hillfort (cp. Fig. 5) (illustration by J. Jędrzyk)

Development of the Early Bronze Age settlement

According to palynological investigations in the area, there is a long gap in the settlement history of the Łącko Basin between the Early Neolithic and the Bronze Age.⁵ This is also clearly visible in results of surveys conducted in the region since the end of 20th century BC. This research shows that the population which settled on Zyndram's Hill in the Early Bronze Age colonized an uninhabited area, which was covered by dense forest. Furthermore, except for single findings dated generally to the third and second millennia BC, there is no trace of other human activity in the region (Fig. 1b). Among them is the site no. 9 in Jazowsko, located on a promontory close to the eastern border of the Łącko Basin (3 km from

Zyndram's Hill). It was the only possible place for stable settlement presence; surveys conducted there in 2003 delivered a few pieces of pottery and flint inventory dated to the Early Bronze Age. Unfortunately, drillings and geomagnetic survey taken recently in Jazowsko do not confirm the existence of a settlement or a cemetery in the area. In consequence of previous studies, it seems that the Early Bronze Age archaeological site in Maszkowice remains the sole, permanently inhabited point of this period in the Łącko Basin.

The situation significantly changed at the beginning of first millennium BC with the emergence of a rather dense settlement network in the upper Dunajec river valley. Through surveys and excavations, in the area of c. 168 km² all around the Łącko Basin archaeologists have recognized so far 108 settlement points and at least five permanently inhabited sites that are dated to the Late Bronze and Early Iron Age (Fig. 1b). Zyndram's Hill was

⁵ Korzeń 2017.

reoccupied after a long hiatus, and its social context also had changed: once an isolated point, in this period it became one of numerous populated places in the region. Finally, here it should also be stressed that the contemporary appearance of this discussed archaeological site was formed to large extent already at the beginning of its occupation in the Early Bronze Age. This affected not only the form of later prehistoric settlement, but also the modern perception of the place and the choice of methods for its investigation.⁶

The excavations carried out on Zyndram's Hill since 2010 brought forth a plenitude of crucial information about the relative and absolute chronology of its occupation (**Fig. 5**). Thanks to precise excavation techniques such as 10-cm thick exploration levels or the three-dimensional locating of artefact positions, it was possible to investigate the complicated stratigraphy of the site. Analysis and interpretation of cultural layers, in some places as thick as two meters, are supported by ongoing laboratory studies on archaeological materials, soil micromorphology data, as well as botanical and faunal remains. At this point three main prehistoric occupational phases can be distinguished at Zyndram's Hill: the Early Bronze Age, the Late Bronze and Early Iron Age and the La Tène period. Traces of human activity in the Early Neolithic, Late Roman period, and late medieval and modern times were also recorded; however, these later artefacts are most likely connected with a temporary habitation.

It is difficult to trace any significant differences between subsequent building phases of Early Bronze Age settlement regarding pottery style. All decorated pieces belong to the classic and post-classic phases of the Otomani-Füzesabony culture, which means that the settlement was inhabited between the 18th and 16th centuries BC. This chronology is supported by a sequence of AMS datings, which point to a c. two-hundred-years long timespan between 1776 and 1509 BC (1 σ). In the course of field observations and studies on collected sources, the Early Bronze Age occupational period can be divided into three building phases. During the first of them – Maszkowice I – stone fortifications were erected (**Fig. 6**). According to radiocarbon datings of annual plants remains and charcoal obtained from destroyed occupational levels, phase I lasted approximately

between 1750 and 1700 BC (1 σ). Interestingly, no features connected with daily activities were recorded in the excavated area, except for displaced cultural layers and fortifications (see below). Second building phase, designated Maszkowice II, is represented by the relics of three houses inhabited between 1700 and 1650 BC (1 σ). The buildings were situated in a row on the thick clay embankment – a kind of a building terrace that was erected along the north and east edges of the site to stabilize and to level the ground. The free-standing stone wall of the Maszkowice I phase became a retaining construction, which supported new living space. These stone and earthen works of first and second building phases caused the formation of so-called eastern terrace and plateau, which nowadays are one of integral elements of the Zyndram's Hill landscape. At last, on top of Early Bronze Age cultural layers excavations revealed floor levels belonging to three houses of the Maszkowice III phase. Buildings of the third phase were erected between 1650–1550 BC (1 σ) as slightly larger structures that copied the layout of earlier dwellings. Finally, two T-shaped storage pits (features 59 and 87) utilized in the second and third phase were also explored; they yielded considerable information about the chronology and subsistence strategies of the Zyndram's Hill population.

The majority of Early Bronze Age dwellings were explored, yet they were overlooked during the excavations of Maria Cabalska, conducted between 1959 and 1975 (**Fig. 5**).⁷ Only the eastern parts of some structures were investigated during new excavations, and the documentation of the old fieldwork is very limited and imprecise in that respect. Nevertheless, it is possible to estimate the area of a single house as having been 35 to 50 m². According to studies concerning living space requirements in sedentary societies, it can be assumed that one person needed an average of 6.97 m² of area.⁸ Therefore, one house on Zyndram's Hill might have been inhabited by a family unit of 5 to 7 persons. Observations based on the density of Early Bronze Age pottery in Cabalska's trenches, supported by an analogy with the inner layout of enclosed settlements of the Otomani-Füzesabony culture in Nižna Myšľa,⁹ Rozhanovce¹⁰ and

⁶ Przybyła/Jędrzyk 2017.

⁷ Przybyła 2016, 291–294.

⁸ Porčić 2012.

⁹ Gašaj 2002 Fig. 4.

¹⁰ Gašaj 2002 Fig. 5.

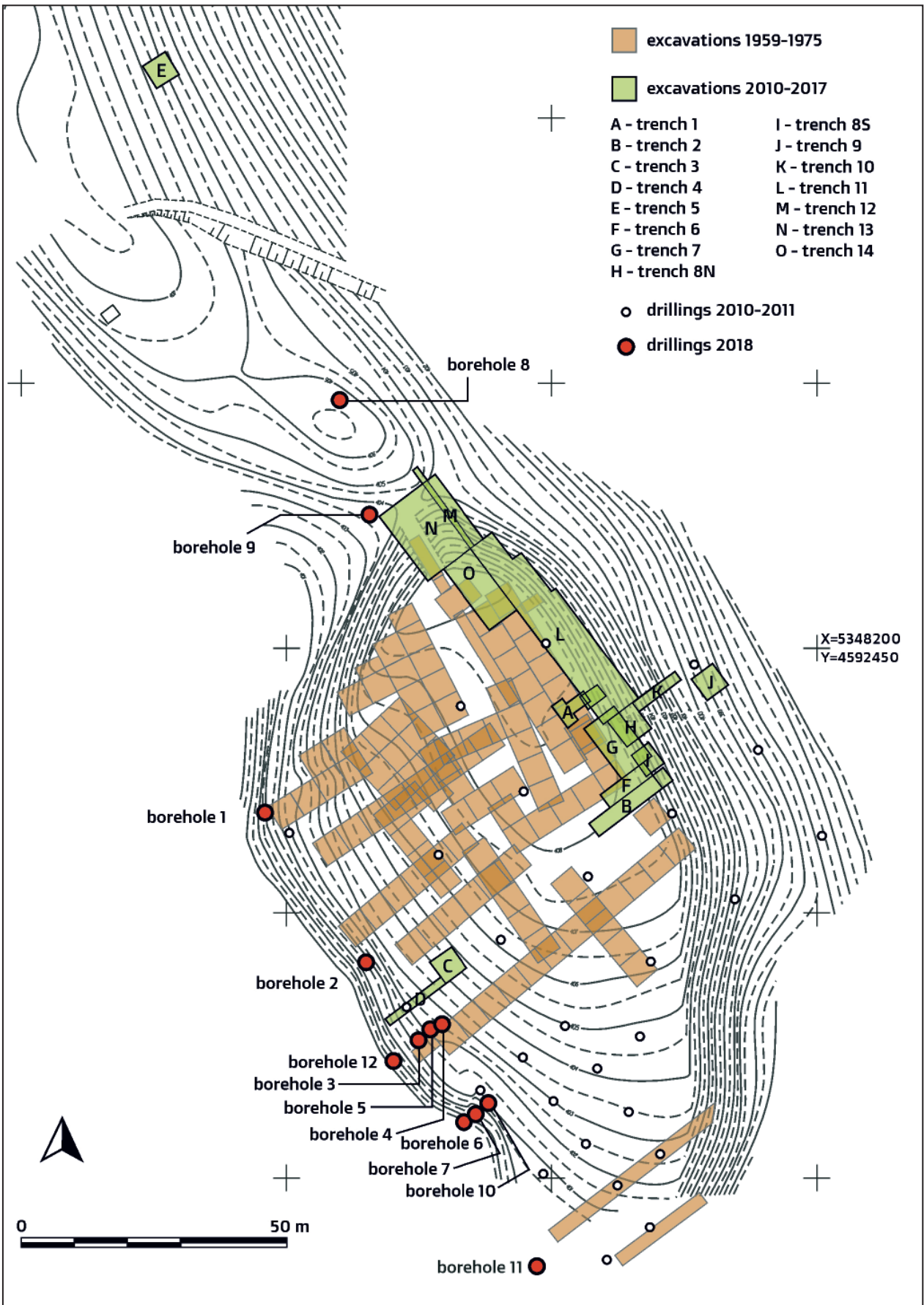


Fig. 5 Site plan with localisation of trenches and boreholes (illustration by J. Jędrzyk)

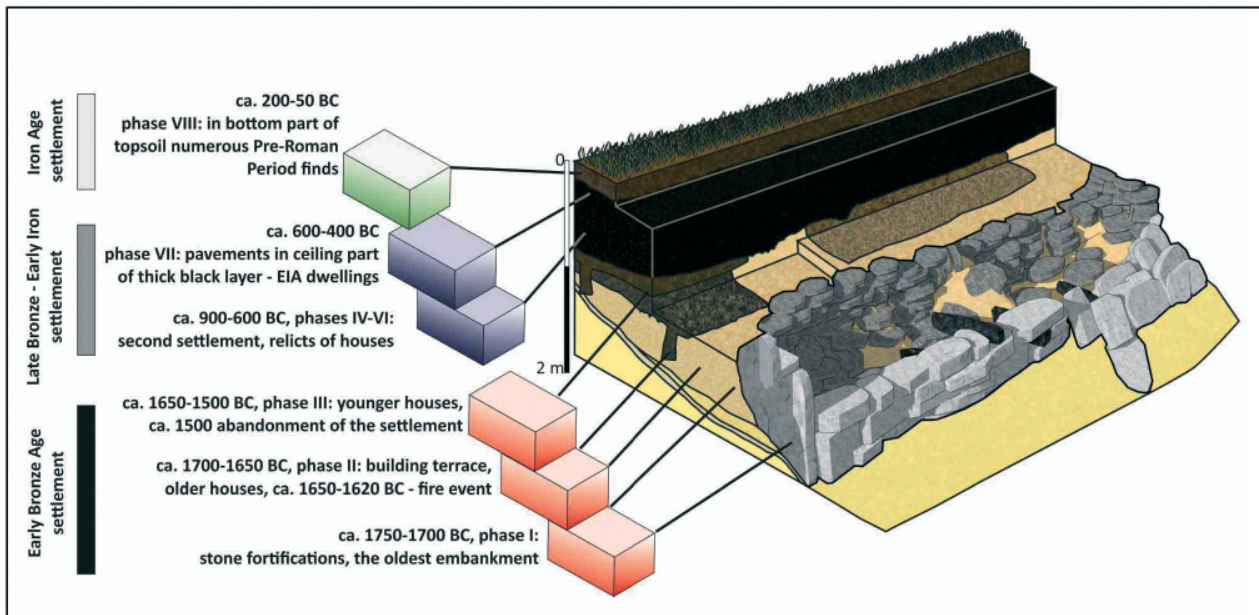


Fig. 6 Simplified chronological diagram of the hillfort on Zyndram's Hill (illustration by M. S. Przybyła)

Spišský Štvrtok (Slovakia),¹¹ led to the conclusion that the buildings on Zyndram's Hill were situated mostly along the eastern and northern edges of the plateau. In such a situation the minimal inhabited area was c. 1200 m² and possibly (taking into account the communication space between houses and details of spatial organization) 16–17 dwellings existed in each (second and third) building phase. Based on this simple estimation the population size in one of the Early Bronze Age phases could be evaluated at about 80 to 120 persons.

Obviously, it should also be taken into consideration that the calculations might be false, basically because the entire enclosed area could have been used for residential purposes. This kind of inner layout is known from other archaeological sites located on the northern periphery of the Otomani-Füzesabony culture, for example, the Košice-Barca settlement in Slovakia.¹² Moreover the test trench no. 5 excavated in the area in 2011 (Fig. 5) yielded several dozen pieces of pottery dated to the period and identified during the analysis. Therefore, the space outside of the fortifications on Zyndram's Hill could have been inhabited as well. Finally, assuming the entire area of about 5000 m² inside the fortifications was utilized, the population could have numbered more than 150 people in one of the building phases. Actually, the main problem in this study concerns the thus

far unknown number, shape and construction of houses of the Maszkowice I phase; hence, the estimations about the population size of the stone-wall builders are impossible in that matter.

The stone wall

What we are dealing with in Maszkowice is a single line of a dry wall, approximately 200 m long, built of local sandstone in a cyclopean system (large boulders in the façade, smaller stones in the inner part of construction) and surrounding the main part of the Early Bronze Age settlement from north and east (Fig. 7). Currently it is rather impossible to establish precisely from where the building material was obtained. As was shown above, layers of sandstone are easily accessible just below the western and southern edge of plateau (at a depth of c. 0.5–2 m), as well as at the foot of the eastern slope of Zyndram's Hill. In both areas we can trace numerous smaller or larger depressions; however, at least some of them are connected with stone exploitation during medieval and modern times, which according to oral tradition was carried out until the early second half of the 20th century. Taking into account that to a certain extent the slopes of Zyndram's Hill have been transformed through natural processes (for example, one can notice traces of landslides on the western slope), it is impossible nowadays to distinguish between quarries of different ages.

¹¹ Gašaj 2002 Fig. 6; Oravkinová *et al.* 2017 Pl. 7.

¹² Šteiner 2009 Pl. 14.



Fig. 7 Zyndram's Hill in Maszkowice, view from the west. Graphic reconstruction: the range of the stone wall is marked according to the results of geophysical survey (illustration by M. S. Przybyła)

Nevertheless, it is highly probable that some of them were in use both in the Bronze Age and in modern times. It seems that the amount of stone needed to build the wall had to be immense (more than 1000 tons – see below). Therefore, it is possible that sandstone exploitation was carried out in an opportunistic way: meaning that the building material was probably taken from shallow layers of bedrock located in different places close to the currently built segment of fortifications.

The main problem we had to face when starting to reveal remains of the fortifications in 2015 was how to distinguish the original structure from rubble. Initially we explored courses of stones horizontally, so the result was set of drawings which allowed a virtual reconstruction of how the wall was preserved. From 2016 onwards we investigated c. 50 m-long segment of fortifications using a new methodology. Namely, layer after layer we removed stones that lay on the slope or for other reasons were supposed to be dislocated. All of the stones received an identification number and are documented *in situ* using photogrammetry. After being removed from a trench they come

under closer scrutiny, because sometimes material amongst the rubble bears traces of working. The final result of this procedure is shown in the picture of the part of wall that was excavated completely in 2017 (Fig. 8).

The stone construction consists of three main elements. The first element is a line of outer facing. It is built of large, evenly matched boulders, some of them dressed to a regular form. Due to strong erosion it is difficult to estimate the original size and shape of majority of the stones. Better preserved blocks usually measure c. $1 \times 0.5 \times 0.25$ m and weigh 250–350 kg, although some of them are even larger. This gives us an impression of how massive the construction originally was. The interior of wall, about 1–1.3 m wide, was constructed of randomly selected stones, probably originally supplemented with clay. Finally, one row of regularly set sandstone blocks constitutes the inner face. The stones revealed within the fill as well as the inner face are significantly smaller than those constituting the façade and weigh no more than c. 50 kg. In total the wall is usually 2 m wide.



Fig. 8 Segment of the wall completely revealed in July 2017: 1 line of the outer face; 2 inner part of the wall; 3 stone pathway; 4 short cross-wall; 5 test trench from 1961; 6 clay embankment from the second building phase (illustration by M. S. Przybyła)

There should also have been a few entry ways through the fortifications. During the excavations in 2015–2017 we succeeded in revealing two entrances: a small postern gate within the eastern segment of the wall, approximately in the middle part of it, and relics of a large gate complex located about 50 m farther north. The postern gate discovered in 2015 is located in an offset part of fortification line (where part of the outer face of wall south of the gate is receded about one meter) and survived until today in a very good state (**Fig. 9**). Its corridor, about 3 m long and 1.4 m wide, was flanked by six vertically set stone slabs. The majority of them are partly eroded and fragmented; however, the best preserved slab still measures 1.9 m, allowing us to assume that originally the passage was about 2 m high. Taking into account the number of fragmented slabs discovered directly upon the use level of the postern gate, it can be assumed that its corridor was covered – at least partially – by a kind of transom.

Contrary to the postern gate, remains of the northern gate discovered in 2017 are poorly preserved. In some parts only one layer of stones had remained *in situ*, whereas due to modern sandstone exploitation (see below) other relicts of the

Bronze Age construction did not survive at all. Nevertheless, due to our careful methodology described above, we are able to propose a reliable reconstruction of the original layout of the lowermost parts of the northern gate (**Fig. 10**). Taking into account factors such as the terrain relief, the size of the stones and the character of the accompanying sediments, we could distinguish stone blocks which still remained in their original position amongst the surrounding rubble. Thus, it seems that the northern gate consisted of two massive, transversal and slightly curved walls, with a c. 2 m-wide passage between them, which had to end probably somewhere north of the excavated area. As a whole this large defensive complex (encompassing an area of more than 120 m²) might resemble what in the history of ancient and medieval architecture is called a ‘chamber gate’.

A pathway made of stone slabs may be considered as an architectural element that is unambiguously connected with the northern gate complex. It originally led from the gate entrance (this part did not survive) directly along the inner face of wall. In the best preserved parts it is about 1.5 m wide and consists of one layer of evenly matched, flat stones placed upon a thin layer of clay or di-

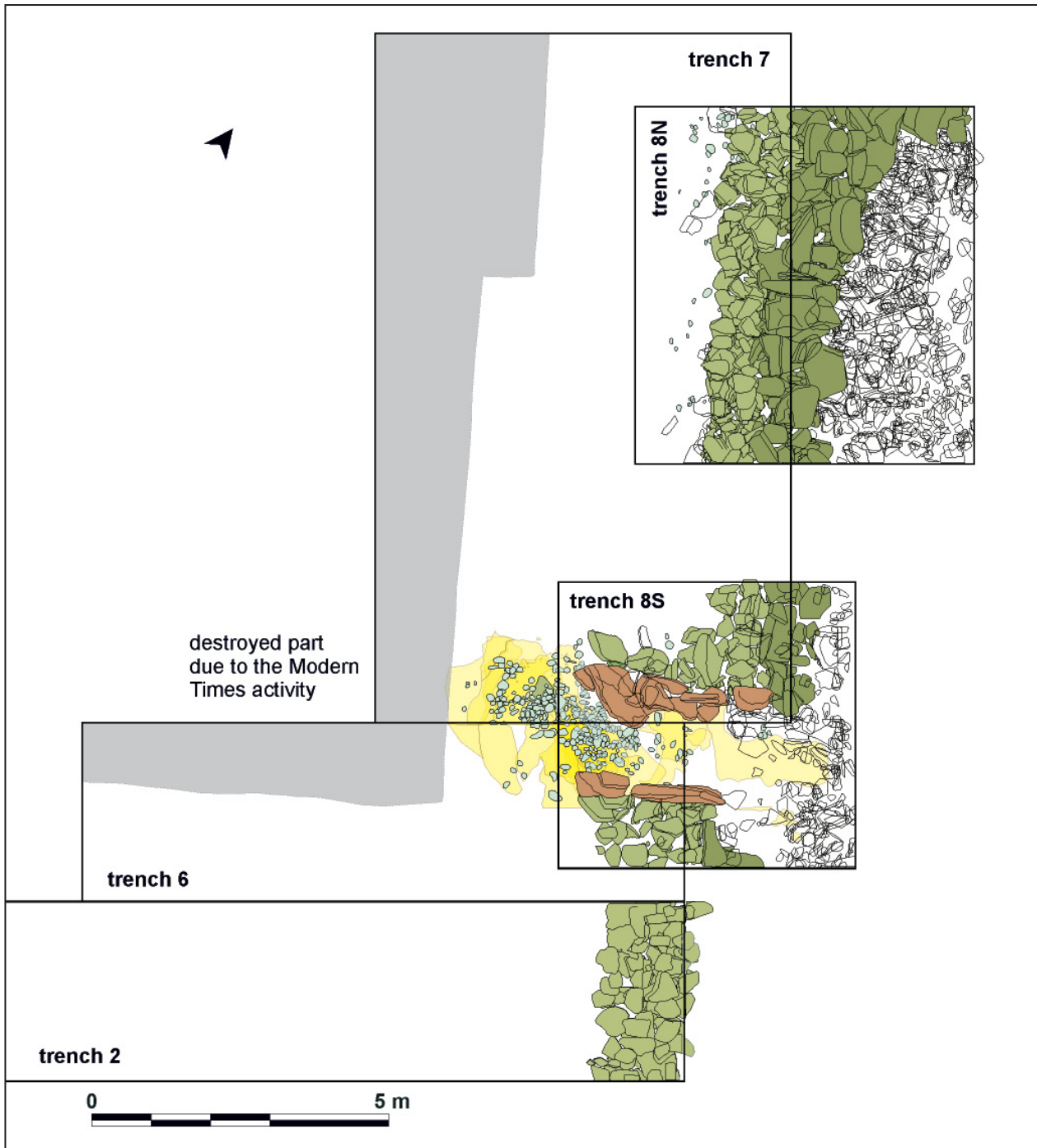


Fig. 9 Stone fortifications in the southern part of the excavated area (trenches 2, 8; cp. Fig. 5). The postern gate is located within an off-set of the wall (blue – pebbles connected with construction or gate occupational level; yellow – postern gate's occupational level; brown – postern gate's slabs; light green – inner part of the wall; dark green – outer face) (illustration by J. Jędrzyk)

rectly upon the original ground surface. Its southern extremity is limited by a short cross-wall. Within this structure fragments of a large stone block survived which bears traces of working. The stone in question has two narrow dowel holes on both flat sides and a partially preserved socket (**Fig. 11**). It is noteworthy that another socketed stone was also found in that area. One may quote as possible analogies similar worked stones in

Mediterranean architecture. They are assumed to be elements of entrances or more generally parts of combined stone-wooden-clay constructions.¹³

The state of preservation of the stone wall in Maszkowice is varied. In the southernmost trenches, approximately in the middle of the eastern terrace, about four courses of stones of outer face have

¹³ E.g. Küpper 1996, 69–94.

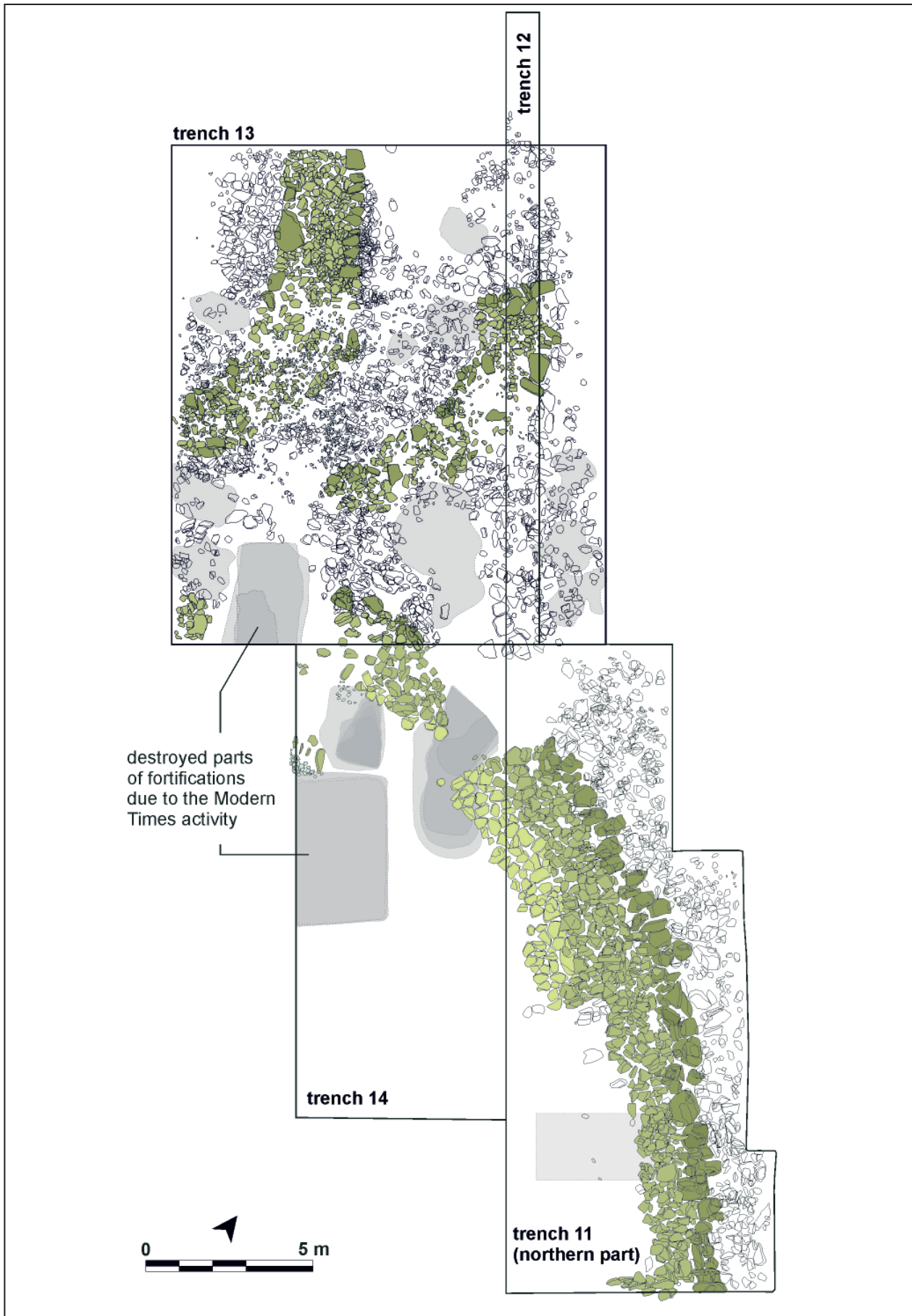


Fig. 10 Remains of the northern gate complex and neighbouring parts of the wall (trenches 11–14; cp. Fig. 5) (yellow-green – path-way; light green – inner part of the wall; dark green – outer face) (illustration by J. Jędrzyk)

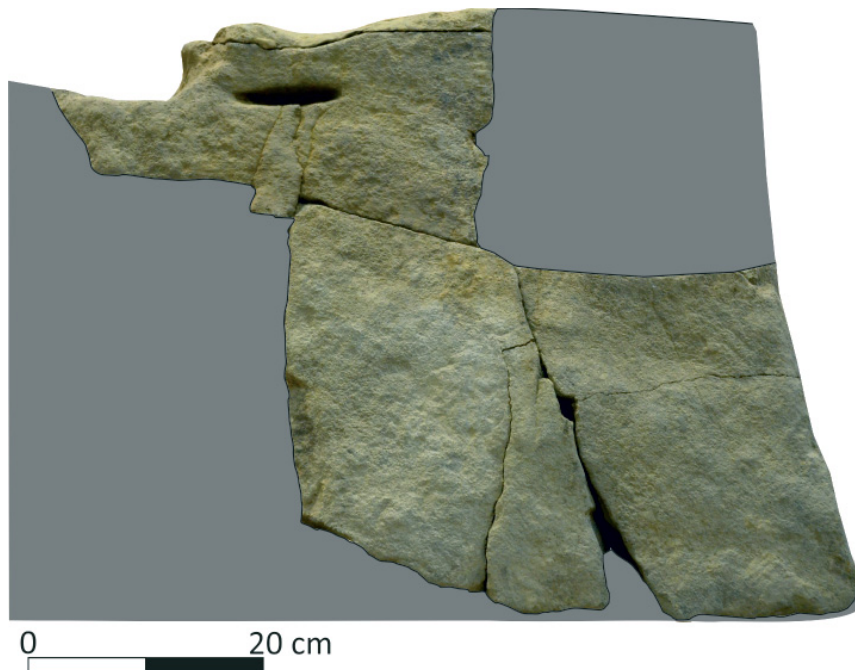


Fig. 11 Fragments of worked stone discovered within the short cross-wall, located in the southern part of the pathway. Probably an element of combined stone-wood construction (illustration by M. S. Przybyła)

survived untouched, whilst the inner part of the wall is preserved up to 1.5 m in height (**Fig. 12**). At the same time in the north-eastern segment of construction its height amounts at present to no more than c. 0.5 m. Moreover, the whole area of the northern gate has suffered significantly from the modern-day exploitation of worked stone as building material. During the excavations in 2017 we revealed a few irregular trenches, filled with dark earth, fine-grained stone rubble and pottery of the early modern period. This material turned out to cut the wall precisely to the level of the lowermost courses of stones and did not leave any traces of the original construction. This observation is in agreement with oral tradition and historical records that refer to ruins of a castle in Maszkowice, which was believed to be of medieval origin and was completely dismantled in the late 18th century AD for building purposes.¹⁴

Despite the fact that state of preservation of the wall is varied, we may attempt to estimate its original height. The method usually applied in this respect consists in assessing the size of rubble lying below the surviving relicts of stone construction.¹⁵ However, one should keep in mind that the magnitude reckoned in this way is always slightly

underestimated, since a certain share of stones might have slid far away downhill (outside of the excavated area) or have been removed during later phases of settlement occupation.

The northern section of a trench from 2015, which “descends” down to the base of the eastern terrace, documents some levels of rubble, probably connected with different stages of the long process of the wall’s deterioration (**Fig. 13**). Amounts of larger stone blocks (significantly heavier than 50 kg), which must have originated from the outer face, allow us to estimate that it had originally measured at least 2.8 m. Because during the second phase of the Early Bronze Age site’s occupation the stone construction started to function as a retaining wall (see below), its inner part is expected to match the maximal height of the adjacent clay embankment, that is c. 2 m. Summing up, it is highly probable that the fortifications of the settlement were as high as 3 m, yet we cannot exclude that they reached one or two meters more. However, the thickness of the wall (only 2 m) is an important limitation here. Taking into account the mean size of the stones as well as the probable height of the construction, we are able to estimate its weight as well.¹⁶ The average stone block (c. 100 × 50 × 25 cm) forming the façade may weigh c. 250–350 kg, whilst one layer

¹⁴ Orłowicz 1919; Duda 2012.

¹⁵ E.g. Karoušková-Soper 1983, 176–178; Shennan 1995, 74.

¹⁶ Aqua-Calc 2018.



Fig. 12 Particularly well preserved segment of the inner part of the wall (trench 8N); excavations in 2015 (photo by M. S. Przybyła)

of smaller stones from interior of the wall can weigh two times more. This implies a total weight of 5–6 tons per one meter of the wall and more than 1000 tons for the whole construction.

Rise and fall of the fortifications

There is no doubt that the fortifications were erected during the oldest phase of the settlement, at the very beginning of the site's occupation. A stone construction usually cannot be dated by itself, unless a formal analogy is used. Therefore, it is necessary to find places where it is possible to establish its stratigraphic relation to a sequence of precisely dated occupational layers. Currently we are able to identify two such situations.

The postern gate provides the first of them. It has two subsequent occupational layers, up to 10 cm thick, deposited between the slabs forming the corridor and on an inner approach to the gate. Both layers yielded a certain amount of artefacts, which may have a value as chronological indicators (**Fig. 14**). All decorated pieces of pottery belong

to the classical phase of the Otomani-Füzesabony culture. Especially interesting among them is the small fragment of a bowl, which originally carried spiral decoration (**Fig. 14,18**). It is a type of pottery that frequently occurred in the Tisza river region in the 18th–17th centuries BC.¹⁷ Pottery of the same relative chronology (classical phase of the Otomani-Füzesabony culture) was found within a floor layer, which partially covers the occupational level of the postern gate.¹⁸ This stratigraphically younger dwelling belongs to the second building phase of the Early Bronze Age settlement. In this stage postern gate was apparently no longer in use. After the new house virtually closed its inner entrance, the passage between the sandstone slabs was densely filled with clay mixed with debris of burnt constructions and rubbish.

The stratigraphic relation between the postern gate and one of the houses of the Maszkowice II phase is interesting twofold. It gives us a hint that

¹⁷ Motive I of the *Buckelstil* after Thomas 2008, 277–279.

¹⁸ Przybyła 2016 Figs. 8–9.

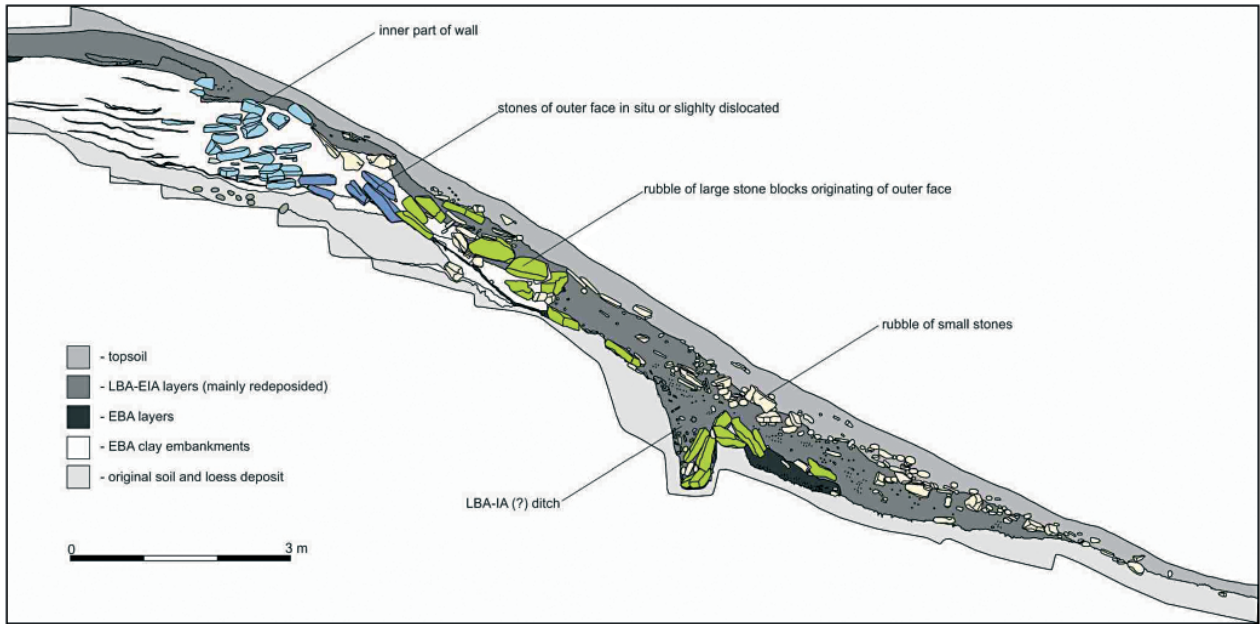


Fig. 13 Northern section of trenches 8N and 10 from 2014–2015 (illustration by M. S. Przybyła)

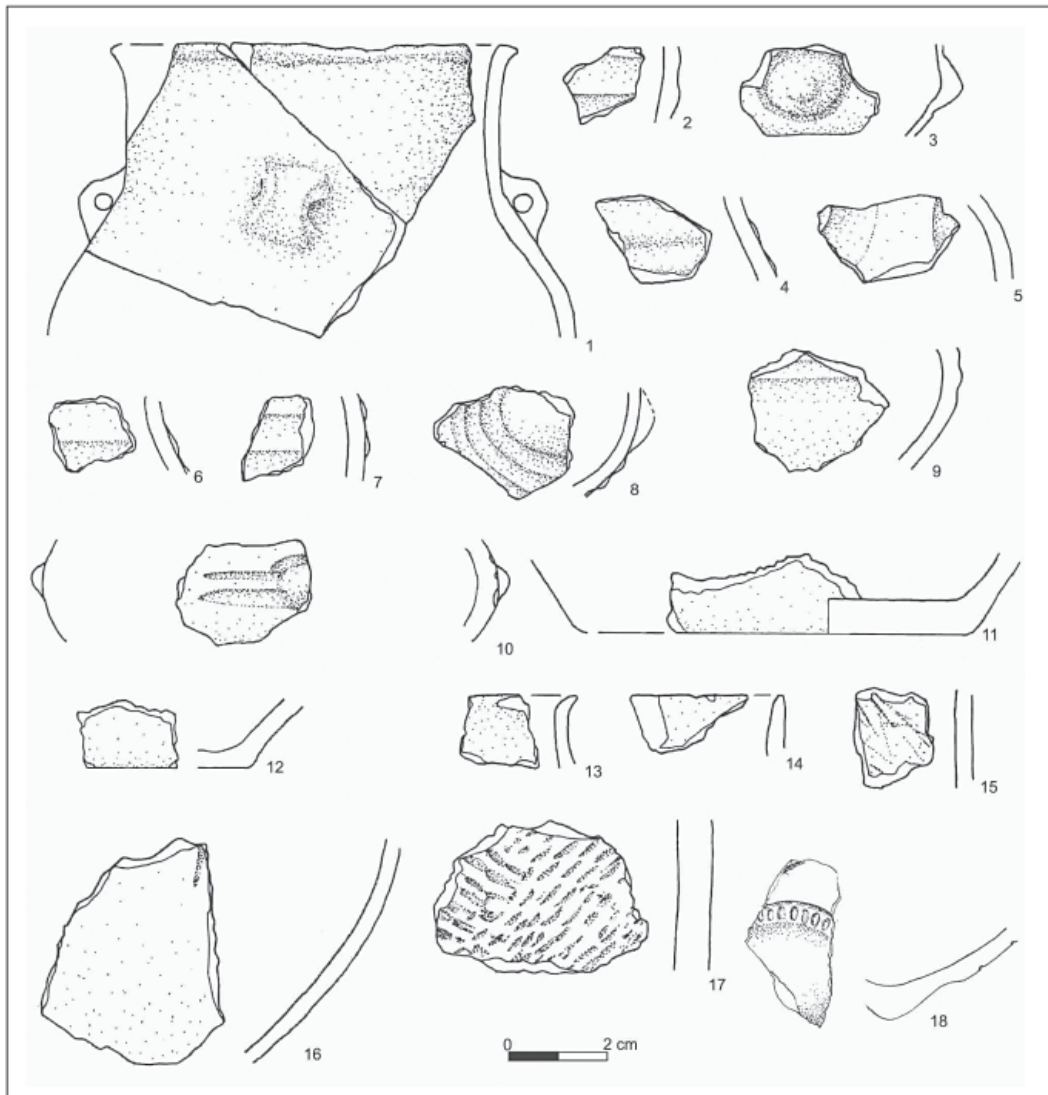


Fig. 14 Selection of pottery fragments from the postern gate occupational layer (drawings by E. Ryzewska)



Fig. 15 Stratigraphic relations observed during the excavations in 2017 (trench 11). The stone pathway from the oldest phase of fortifications is covered by the clay embankment, which in turn is the base for one of the houses of the second phase of the Early Bronze Age settlement (illustration by M. S. Przybyła)

the wall was made and existed in the earliest phase of the Early Bronze Age settlement, and that to some extent the project was abandoned already in the second building phase (the former postern gate was used as a trash deposit). It also shows us that the time, during which stone fortifications were used according to the original “blueprint”, must have been rather short. As already mentioned, the pottery found in the gate corridor layers and stratigraphically younger house represents the same phase of relative chronology. Moreover, two radiocarbon dates obtained from occupational levels of the postern gate (1776–1692 BC, 1 σ ; 1751–1644 BC, 1 σ) partly overlap dates from the neighbouring house (1716–1695 BC, 1 σ ; 1690–1520 BC, 1 σ). Thus, it seems that the stone fortifications were erected in the late 18th century BC, but already in the early 17th century BC were radically altered to meet new needs.

The second situation in which the stratigraphic relation between the wall and the inner part of settlement is clearly visible tells us the same story. Starting already in the excavations of 2015 we were aware that the stone construction and the thick clay embankment, constituting the basis for the Early Bronze Age houses, are functionally related. Since the embankment leans against the relics of the stone wall, either both structures were contemporary or the embankment was slightly later. We have preferred rather the first possibility, as the simpler one – the wall was designed as a retaining construction and erected simultaneously with the adjacent building terrace.¹⁹ It was not until the excavations in 2017 that our opinion was changed (**Fig. 15**). Namely, the above mentioned pathway made of stone slabs, which functionally belongs to the northern gate complex, was discovered under a 1.5-m thick layer of clay embankment.

¹⁹ Przybyła 2016, 294 Fig. 11.

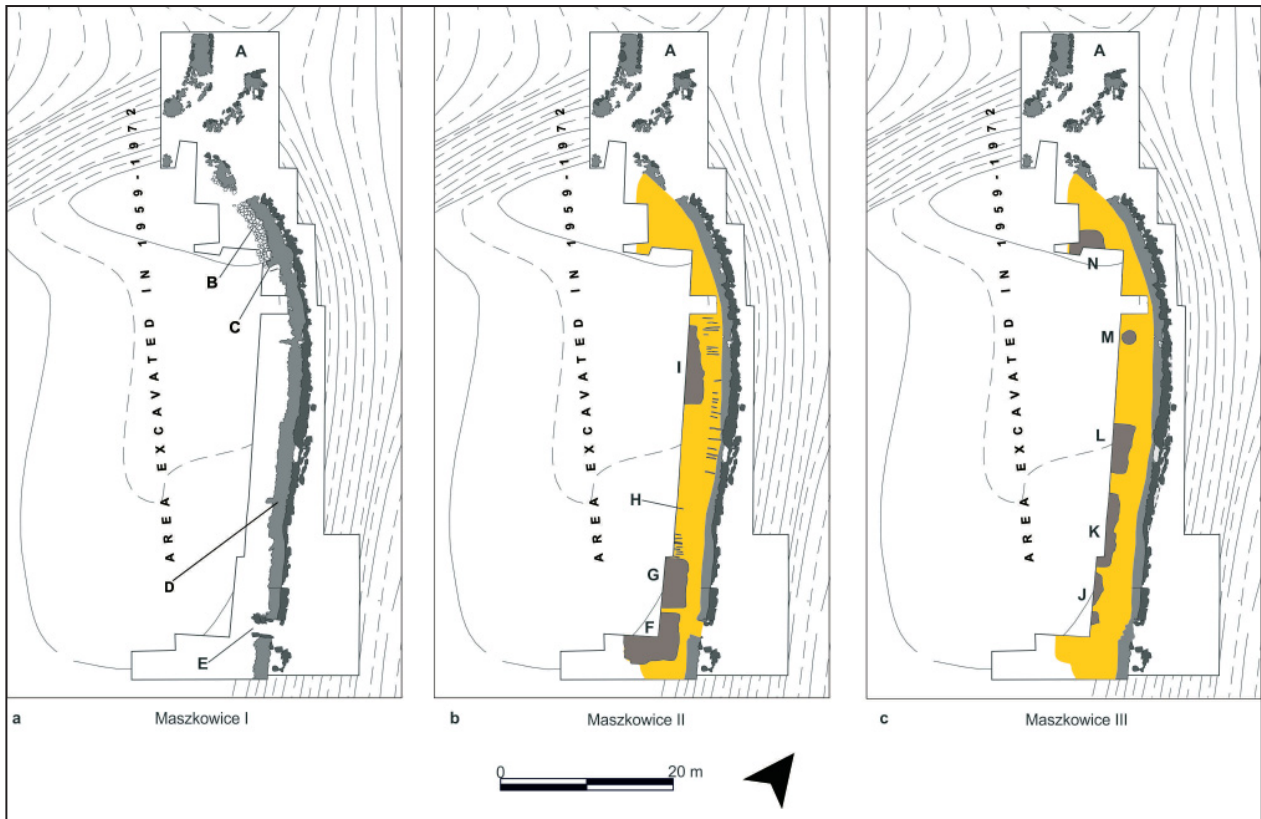


Fig. 16 Generalized plan of the settlement in phases Maszkowice I-III (a-c): **A** northern gate; **B** pathway; **C** short cross-wall; **D** partly excavated segment of wall (state in spring 2018); **E** eastern (postern) gate; **F** house I; **G** house II; **H** clay embankment; **I** house V; **J** upper part of the fill of large storage pit; **K** house III; **L** house IV; **M** storage pit; **N** house VII (illustration by M. S. Przybyła)

Directly upon the latter, relics of the house floor were revealed, which in view of the material obtained (pottery of the classical phase of Otomani-Füzesabony culture) and the results of radiocarbon dating can be attributed to the third building phase. Again, the described situation can prove that in the oldest stage of the site's occupation the fortification existed as a free-standing wall and not as a retaining construction. It was not until the second building phase that the clay terrace was erected, covering some elements of the original design, among others, the pathway leading to the northern gate.

We already know quite a lot about the north-eastern part of the Early Bronze Age settlement. All of the collected data show that the stone fortifications were designed and built at the very beginning of settlement activity and right away in their most mature and elaborated form. In this earliest stage, dated more or less to the late 18th century BC, the settlement was fortified by a free-standing wall (**Fig. 16a**). Both (unearthed) gates were in use then – the smaller, finely built eastern entrance (postern gate) and the monumental northern gate complex, with a carefully made stone pathway leading to the

entrance. In view of the lack of traces of dwellings in the investigated edge area of the site, one may suppose that the oldest households were located closer to the former summit of the hill.

In the second phase, probably in the early 17th century BC, the original project was reconsidered. The free-standing wall was converted then into a retaining construction, which was expected to hold a massive clay terrace (**Fig. 16b**). On the surface of the latter a row of densely arranged houses were erected. Some elements of the original “blueprint” were abandoned. The stone path in the northern gate area was covered by the embankment, whilst the slabs that flanked the eastern entrance were (at least partially intentionally) broken and the passage became filled with rubbish.

Finally, in the Maszkowice III phase, dated roughly to the late 17th and 16th century BC, the stone fortifications started to crumble. A radiocarbon date, obtained from a very thin layer located directly beneath one of dislocated boulders of the façade, points to the second half of 17th century BC (1693–1621 BC, 1 σ) as the time when the stone wall collapsed. There are some traces of re-

pairs from this period too (Fig. 16c). One of them is a short segment of an irregular stone rampart located in the place of the former postern gate. This structure was made of secondary used stone blocks and compared to the original wall gives a strong impression of amateur work.

Conclusions

Studies on the settlement history in the region lead us to the assumption, that the settlement on Zyndram's Hill was established by a group of foreigners, unfamiliar with the local geographical conditions. We do not have any evidence that the community in question was populous. On the contrary, the arguments that we have collected, based on studies on the spatial organization of the hillfort in Maszkowice as well as on the recognition of the settlement situation in the region, suggest that here we are dealing with a small and isolated (on a meso-regional scale) population. Nevertheless, we are faced with the fact that this very population made huge efforts to surround their village with massive fortifications built of stone.

It seems that the question raised in the introductory part of this paper, namely whether the stone wall on Zyndram's Hill can be considered as a product of local adaptation, should be answered negatively. Two sets of observations support this view. Firstly, the construction in question was not completely appropriate for the local geographical conditions. One can assume that the natural environment, which is favourable for the development of early stone architecture, provided two encouraging features: easy access to building material and the presence of stable ground under a heavy stone construction. The first condition may be considered as fulfilled in our case. Sandstone is as simple in procuring and working as limestone (preferred as a building material in the Bronze Age architecture of the Adriatic region and the Mediterranean), and sources of this rock are easily accessible to the site.

A much larger problem for the builders of the wall in Maszkowice was posed by ground stability. Whereas, for example, so called *castellieri* in north-eastern Italy and Istria were usually erected directly upon the bedrock,²⁰ in our case the wall

was built in an area in which loess sediments are several meters thick. Concentrations of pebbles, which lay directly under the stone construction and probably were expected to strengthen its base, may suggest that the Early Bronze Age architects were aware of potential danger. On the other hand, there is evidence that the wall started to crumble within a few generations' time after it was erected.

The second argument refers to way in which architecture evolves. Assuming that we are dealing here with a local adaptation, we should expect a gradual development of a fortification system, starting from an open village of the first settlers, later surrounded by a temporary enclosure, and finally fortified in more complex way. Indeed, the archaeology of strongholds often reveals this very scenario. However, this is not the case of the Maszkowice hillfort. Here stone fortifications emerged out of nowhere and right away in a most complicated and sophisticated form. There is only one trend that is clearly visible in a diachronic perspective: namely a gradual deterioration of the wall. It was built with flourish, and yet few generations later finished as a ruin, a history that simply does not match the adaptation model.

What then was the stone wall on Zyndram's Hill? Was it built solely for fulfilling defensive needs? If so, why was it not made of earth and wood in a way preferred in this part of Europe until the Middle Ages? We think that the stone construction in Maszkowice may be considered as an *idée fixe* – the design which was embodied to some extent against reality by a group of people, who did it accordingly to their knowledge and precise concept of how their *ideal* village should look like. It may be seen also as a costly signal of how potent, important and well connected the people hidden behind it were. To whom was the stone construction addressed? Lack of fortifications on edges of the steep western and southern slopes of the hill suggests that while inhabitants of the Maszkowice hillfort were interested in the visual control of the Dunajec river valley (the main communication route in this part of Carpathians), they did not want to be seen from a far distance. The fortifications were not supposed to be visible to the random traveller. They were designed rather in order to impress the selected guests who knew how to access the stronghold.

²⁰ Karoušková-Soper 1983, 79-83; Mihovilić 2014, 39; Hänsel *et al.* 2015, 61-67. 75-80.

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