Abhandlung

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The stone fortifications of the settlement at Spišský Štvrtok. A contribution to the discussion on the long-distance contacts of the Otomani-Füzesabony culture

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Zusammenfassung: In den letzten Jahrzehnten nahm die Siedlung von Spišský Štvrtok eine wichtige Rolle in der Debatte über jene Fernbeziehungen ein, die die Welt der mykenischen Kultur mit Mitteleuropa verbanden. Obwohl die Ergebnisse der Ausgrabungen auf dem Gelände noch immer nicht in ihrer Gesamtheit veröffentlicht sind, postulierte der Ausgräber J. Vladár eine Übereinstimmung der Steinmauern und Bastionen mit solchen mykenischer Architektur und fand für diese Thesen wissenschaftlichen Zuspruch. Im vorliegenden Artikel wird der Annahme jedoch widersprochen. Die Befestigungen von Spišský Štvrtok werden in einem vergleichenden Ansatz diskutiert und Siedlungsstrukturen gegenübergestellt, die aus der Otomani-Füzesabony-Kultur und der mykenischen Kultur bekannt sind. Der Autor zeigt im Vergleich mit weiteren Befunden bronzezeitlicher Verteidigungsarchitektur die Alleinstellung der vorliegenden Anlage. Die dabei sichtbar werdenden Unterschiede rechtfertigen die Notwendigkeit, nach alternativen chronologischen Ansätzen für die steinerne Befestigungsanlage von Spišský Štvrtok zu suchen.

Schlüsselworte: befestigte Siedlung; Frühbronzezeit; Otomani-Füzesabony Kultur; Spišský Štvrtok; Karpatenbecken; weiträumige Beziehungen

Résumé: L'habitat fortifié de Spišský Štvrtok a joué un rôle important au cours des dernières décennies dans le débat sur les relations à longue portée entre le monde de la civilisation mycénienne et l'Europe centrale. Quoique les résultats des fouilles de ce site n'aient pas été entièrement publiés, les opinions de leur auteur, J. Vladár, pro-

Mateusz Jaeger PhD: Institute of European Culture, Adam Mickiewicz University in Poznań, Kostrzewskiego 5–7, PL 62–200 Gniezno. Email: jaeger@amu.edu.pl posant que les murs et bastions en pierre encerclant le site démontrent des affinités avec l'architecture mycénienne, ont largement été acceptées. L'auteur du présent article conteste cette thèse. Les fortifications de Spišský Štvrtok font ici l'objet d'une approche comparative, les confrontant à d'autres structures d'habitat appartenant à la culture d'Otomani-Füzesabony et à la civilisation mycénienne. L'auteur démontre ainsi le caractère distinct de Spišský Štvrtok par rapport aux modèles courants de l'architecture de l'âge du Bronze. Cette disparité demande un autre modèle pour expliquer la chronologie des fortifications en pierre sur le site en question.

Mots-clefs: habitat fortifié; âge du Bronze Ancien; culture d'Otomani-Füzesabony; Spišský Štvrtok; Bassin des Carpates; contacts à longue distance

Abstract: In recent decades, the settlement at Spišský Štvrtok played an important role in the debate concerning the long-distance relationships linking the world of the Mycenaean civilisation with Central Europe. Although the findings of the excavations at the site have not been published in their entirety, the views of its excavator, J. Vladár, who suggested that the site's stone walls and bastions bore a similarity to Mycenaean architecture, have been widely accepted. In this article, the author challenges this thesis. The Spišský Štvrtok fortifications are discussed in a comparative approach, set against other settlement structures known from the Otomani-Füzesabony culture and the Mycenaean culture. The author demonstrates the apparent distinctiveness of Spišský Štvrtok when compared with the known models of Bronze Age defensive architecture. The disparity justifies the need to seek an alternative explanation for the chronology of the stone fortifications at the site in question.

Keywords: defended settlement; Early Bronze Age; Otomani-Füzesabony culture; Spišský Štvrtok; Carpathian Basin; long-range contacts

In memory of Paweł Hildebrant (1980-2013)

Introduction

Defended settlements, one of the most significant phenomena of the Bronze Age, are most often discussed in the context of relationships between the Aegean region, or more precisely the Mycenaean culture, and Central Europe¹. The sites in eastern Slovakia that are associated with the Otomani-Füzesabony culture (hereafter OFC for convenience) occupy a prominent place in this discussion. In this context, the settlement of Spišský Štvrtok is interpreted as a key piece of evidence. Despite certain critical views which were infrequently and somewhat timidly expressed in the literature on the subject², the stone fortifications of Spišský Štvrtok are still quoted as an instance of the penetration of certain ideas from the eastern Mediterranean. In recent years, Childe's notion of ex oriente lux has become attractive once again, under the garb of intellectually provocative concepts³. In this discussion, the settlement of Spišský Štvrtok plays a paramount role, which justifies the necessity to reanalyse that exceptional phenomenon.

Today the long-distance relationships that existed between southern and northern Europe are beyond doubt. They are well documented in the numerous works published in recent years. The individual categories of archaeological material demonstrate similarity of form⁴, or turn out to have been made from raw material which was exchanged between the two parts of the continent⁵.

The distinct shift in emphasis over recent decades in the studies addressing this issue must be stressed. Early interest in the connections between the Carpathian Basin region and the Mycenaean culture was associated with the prosperity displayed in the (Czech-) Slovakian Bronze Age archaeology, prompted by the discoveries of defended settlements at Košice-Barca⁶ and Spišský Štvrtok⁷. The regular development of the former and the stone defences of the latter became the cornerstones of a discussion stressing the cultural role of the "donor" - the Mycenaean culture and its impact on the local communities of the Bronze Age⁸.

In order to arrive at a correct assessment of the evidential value of the stone fortifications of Spišský Štvrtok, two analytical procedures will be followed. The first consists of a critical evaluation of the published sources relating to OFC defended settlements, with particular consideration given to Spišský Štvrtok. A detailed analysis of the quality of the archaeological data is needed to demonstrate the foundations on which the concept of the Aegean origin of the fortifications in question was devised. The second task is to confront the defences of the Spišský Štvrtok settlement with the other OFC sites known from Slovakia and the Aegean area. Apart from these elements, this article will also propose a chronology and interpretation of the stone fortifications at Spišský Štvrtok which represents an alternative to the widely accepted models.

Critical review of the sources

OFC settlement in Slovakia is concentrated in the northeastern part of the country. At present, we can identify three basic groupings of sites, located in the East Slovak Lowland, the area of Spiš and the Košice Valley (Fig. 1). The most prominent defended settlements of this part of the OFC ecumene are Košice-Barca, Spišský Štvrtok, Nižná Myšľa and Rozhanovce⁹.

Despite the relatively long list of sites in the area under discussion¹⁰, our knowledge of the OFC remains somewhat unsatisfactory. The principal reason is that the findings of excavations have not been published to a sufficient extent. Despite the scale and the duration of research11 at individual sites, none has been presented in a comprehensive monograph. On the other hand, the sites in this part of the OFC ecumene are known for a large number of spectacular finds, and these have attracted much of

¹ A basic review of the literature concerning the long-ranging connections between Central Europe and the Mediterranean may be found in works by A. Harding (1984), J. Bouzek (1985), W. David (2007, 411, with note 1) and P. Suchowska (2010).

² Mozsolics 1988, 43–44 note 113; Bader 1990, 182; Jockenhövel 1990; Harding 2006, 107.

³ Kristiansen/Larsson 2005; 2007.

⁴ Bone and antler objects: David 1997; 2001; 2007.

⁵ Amber: Harding/Hughes-Brock 1974; Hughes-Brock 1985; Czebreszuk 2007; 2009; 2011.

⁶ Kabát 1955a; 1955b.

⁷ Vladár 1973: 1975.

⁸ Vladár 1973; Vladár/Bartoněk 1977.

⁹ Gašaj/Olexa 1992, 9 fig. 1.

¹⁰ An extensive list of the OFC sites in north-eastern Slovakia is provided in the publication by T. Bader (1998, 68 note 92).

¹¹ Research at Nižná Myšľa has been ongoing since 1977, with few interruptions. The settlement at Spišský Štvrtok was investigated in 1968-1975, while the research in Rozhanovce ran from 1978 to 1983 (Gašaj 2002, 25; 35; 37).

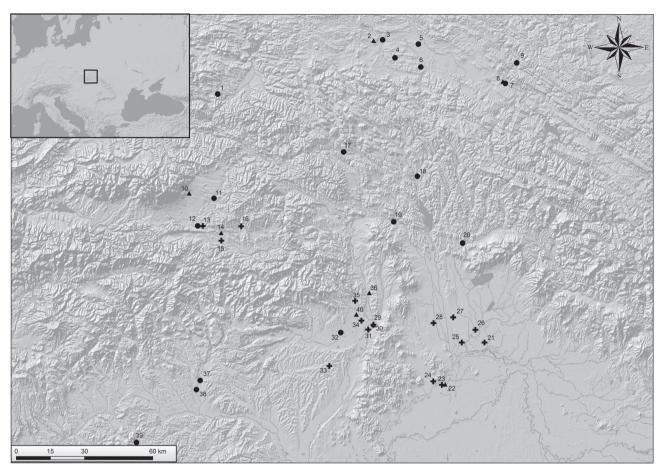


Fig. 1: Main sites of the Otomani-Füzesabony culture in Poland and Slovakia; circles - settlements; crosses - cemeteries; triangles - fortified settlements 1 - Maszkowice, 2 - Trzcinica, 3 - Jasło, 4 - Łajsce, 5 - Potok, 6 - Wietrzno-Bóbrka, 7 - Sanok, 8 - Trepcza, 9 - Hłomcza, 10 – Lomnica, 11 – Kežmarok, 12 – Gánovce, 13 – Švábovce, 14 – Spišský Štvrtok, 15 – Spišské Tomášovce, 16 – Levoča, 17 – Mokroluh, 18 – Stropkov, 19 – Hanušovce nad Topľou, 20 – Humenné, 21 – Čičarovce, 22 – Streda nad Bodrogom, 23 – Streda nad Bodrogom, 24 – Borša, 25 - Oborin, 26 - Drahňov, 27 - Bracovce, 28 - Trebišov, 29 - Nižná Myšľa, 30 - Nižná Myšľa, 31 - Čaňa, 32 - Veľká Ida, 33 - Seňa, 34 – Valaliky, 35 – Košice-Tepláreň, 36 – Rozhanovce, 37 – Tornal'a, 38 – Včelince, 39 – Stará Bašta, 40 – Košice-Barca (after Jaeger/Olexa 2014)

the scholarly attention. As a result a substantial number of publications concerning individual finds exists¹², but they contribute little to the discussion of the fundamental issues. The basic information concerning the chronology, the human-environment relationships, the building sequence, the dimensions and forms of dwellings, not to mention structural details, are mentioned only perfunctorily in many of the studies that are available¹³.

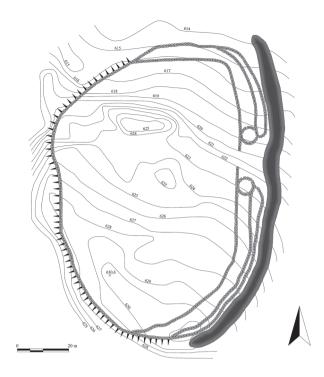
For the settlement of Spišský Štvrtok, the classic and most quoted publication is a 1975 text by J. Vladár. It is merely a kind of short guide written for the participants of an archaeological symposium in Bratislava. Nevertheless it provoked wide interest amongst Bronze Age researchers. That text, like other relatively numerous publications on Spišský Štvrtok, is characterised by an almost complete lack of documentation relating to the excavations (plans of individual structures and their distribution, location and scale of excavations etc.). As a result, the reader is unable to verify many of the theses advanced. A few photographs of individual elements of the settlement are made available14, but they fail to meet the requirements of a thorough documentation. Most of them are not accompanied by precise information about what they depict. In addition, the figures that are available are schematic reconstructions of the fortifications or show the general arrangement of the site15. This general layout

¹² E.g. Hájek 1954; Olexa 1987; 1992; Jakab/Olexa/Vladár 1999; Olexa/Pitorák 2004.

¹³ Jaeger 2011, 115-149; 2012.

¹⁴ Vladár 1973, 273 fig. 17; 279 fig. 24; 281 fig. 27; 285 fig. 31; Coles/ Harding 1979, 77 pl. 6.

¹⁵ Vladár 1975, 22-23 fig. 2-3.



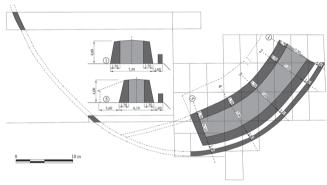


Fig. 2: Spišsky Štvrtok. Reconstructed course and schematic cross sections of fortifications (after Vladár 1975)

is still invoked unquestioningly in the literature on the subject¹⁶, although the settlement has not been excavated in its entirety. Hence it contains a substantial element of interpretation¹⁷. The overall picture was reconstructed on the basis of individual sections of the site, which were not presented, thus severely limiting the possibilities to undertake a critical assessment (Fig. 2).

Vladár observed that, in terms of urban planning, the settlement possessed a complex structure, manifested in the division into an acropolis and a part dedicated to crafts¹⁸. However, the layout of the site which has so far

been presented in publications does not permit the identification of the internal division proposed. On the basis of the information provided by the excavator of Spišský Štvrtok and collected from various texts, A. Jockenhövel attempted a schematic reconstruction of the locations of the various structural elements, i.e. the acropolis, cult-related features (pit with human sacrifice, stele, pithos burials) as well as places associated with the processing of various materials¹⁹. The plan did not produce (essentially because the evidence did not provide sufficient grounds for doing so) the location of the total of 47 structures, including 39 dwellings discovered at the site²⁰.

In 2002, D. Gašaj suggested a layout based on Vladar's original. The relevant figure shows 31 dwellings (and the sacrificial pit near the gate)²¹. Yet there is no information about the sources used to support the reconstruction of the settlement's layout or why the number of dwellings (31) is different from that reported by Vladár (39).

Fortifications of the OFC defended settlements

Like the overwhelming majority of the Bronze Age defended sites in the Carpathian Basin, OFC settlements were protected by a combination of two widespread elements: the rampart and the ditch. At the same time, the Slovakian settlements are clearly diversified in terms of the fortifications' specific features.

All of the four best-investigated sites (Košice-Barca, Spišský Štvrtok, Nižná Myšľa, Rozhanovce) had a specific location, which used natural features to enhance their defensive value. The settlement of Nižna Myšľa was situated on an elevation called Várhegy, which reaches 217 m asl²². The access to the promontory on which the Košice-Barca settlement stood was defended by the surrounding river. Rozhanovce and Spišský Štvrtok were located in a similarly strategic place – on hills overlooking the valleys of the nearby waterways²³.

Investigations at Nižna Myšľa revealed that the older settlement was surrounded by a ditch 30 m wide and 6 m deep²⁴, or 24 m wide and 6 m deep. However, more recent publications estimate the ditch to have been some 20–21 m

¹⁶ Recently: Vandkilde 2004, 32; Kristiansen/Larsson 2005, 162; Gogâltan 2008, 49 fig. 8,1.

¹⁷ See remarks in Harding 2006, 107.

¹⁸ Vladár 1972, 21; 1975, 9-10.

¹⁹ Jockenhövel 1990, 213 note 26; 216 fig. 4.

²⁰ Vladár 1975, 8; 1976, 218

²¹ Gašaj 2002, 36 fig. 6.

²² Ibid. 25.

²³ Ibid. 21; 35; 39.

²⁴ Olexa 1978, 179; 1982, 332; 1983, 124.

wide²⁵. The ditch was reinstated twice. The later settlement was protected by a ditch 25-27 m wide and 5-6 m deep²⁶. A ditch of smaller dimensions was discovered at Rozhanovce, with a depth of up to 4 m and a width of 15–16 m²⁷. At Košice-Barca, only the ditch associated with the earlier settlement was impressive in size: 18 m wide and 2.5 m deep²⁸. In the later stage, this element of the fortifications was reduced to almost half its width (10 m), while retaining a depth of some 2 m²⁹. There is no information from the sites discussed that would unequivocally confirm the presence of other obstacles, e.g. palisades, within the ditches³⁰.

The ramparts provided additional protection for the settlements. On the settlements mentioned here, their size was substantial while their structure varied to a certain degree. Timber and earth/clay were the basic building materials. Wall facings, made of various materials (wood, stone, clay), were an additional element, reinforcing the main timber and earth structure.

At Nižna Myšľa, it is possible that in the first season of investigations remnants of a different structure were erroneously identified as dispersed elements of a bastion protecting the entrance to the settlement³¹. The settlement was guarded primarily by a ditch and a massive wall. It is likely that, as excavations progressed, the size of the rampart became more precisely defined. Initially, the width at its base was estimated to be 15 m³². At present, it appears that the wall was markedly narrower, though still very large, with a base width of approximately 8-10 m³³. The rampart was probably topped with a palisade, and the structure was additionally stabilised by wooden piles and a stone wall estimated to be 1 m wide³⁴. Stones, in the form of two parallel stone walls, also reinforced the sides of the entrance to the settlement, serving as a foundation for the log structure of the gate³⁵. A rampart of similar size, 8 m

at its base, surrounded the settlement of Rozhanovce on two sides. It was constructed of clay and loess and supported on both sides with poles driven into the soil and a fascine³⁶. Further elements of rampart structure were observed at Košice-Barca. In the earlier phase, two sides of the settlement were protected by a wall 7 m wide, built of timber and earth. On the outer side, the structure was reinforced by piles approximately 10 cm in diameter, sunk into the ground to the depth of around 1 m and spaced at 80 cm intervals. The face of the wall consisted of horizontally laid timbers around 4 cm in diameter, plastered with a layer of clay approximately 8 cm thick. Characteristically, the outer wall of the rampart leant slightly towards the interior of the settlement. The base of the rampart, composed of layers of material obtained from digging the ditch, i.e. clay and gravel, was some 4 m wide and reinforced at a distance of about 1.80 m from the inner margin by a wooden structure, similar to the one described above. The walls of the rampart were connected by means of a mesh-like structure³⁷.

The fortifications of the subsequent phase were different. The later settlement was not protected by a structurally complex rampart but by a simple earthwork with a palisade on the crest; its width reached c. 4.5 m^{38} .

The examples of defences cited represent typical solutions employed in OFC settlements, as well as in settlements in present-day Romania and Hungary³⁹. Despite certain differences in structure, the combination of rampart and ditch was a widespread type of fortification. The basic materials used in their construction included earth/clay, timber and, more rarely, stone. The latter was used primarily in structures similar to dry stone walling, to add stabilizing elements to the timber and earth fortifications. These defences are characteristically of a considerable size and espouse the lie of the land.

The structures discovered at Spišský Štvrtok⁴⁰ differ from the general model of timber and earth fortifications found on Middle Bronze Age settlements in the Carpathian Basin⁴¹.

²⁵ Gašaj 2002, 27-28 fig. 10; Olexa 2003, 40; 42, F 31; F 59.

²⁶ Gašaj 2002, 31.

²⁷ Ibid. 35.

²⁸ Kabát 1955b, 743-744.

²⁹ Točik 1994, 64.

³⁰ In Otomani-Cetățuia, the southern side of the site is protected by a ditch 20 m wide and 4.3 m deep (Ordentlich 1969, 461 fig. 2). At a depth of about 2 m, marks left by poles and fragments of daub were found - they were probably the remnants of an additional obstacle in the shape of a palisade plastered with clay (Ordentlich 1969, 460).

³¹ Olexa 1983, 124.

³² Olexa 1978, 179; 1982, 332; 1992, 191.

³³ Olexa 2003, 40.

³⁴ Ibid. 40: 42.

³⁵ During investigations of the entrance area of the Nižna Myšl'a settlement, a structure interpreted as tower, which probably crowned the gate structure, was identified. However, a comprehensive evalu-

ation of the information in the relevant text is impossible because no drawings, photographs or detailed data on the form and dimensions of the structure were provided. Gašaj 2002, 27-28 fig. 9.

³⁶ Gašaj 1983, 132; 2002, 35. A similar fascine reinforced the inner face of the rampart at Nitrianský Hrádok, a settlement of the Mad'arovce culture (Furmánek/Veliačik/Vladár 1999, 119 fig. 57).

³⁷ Točik 1994, 63. Again, the structure known from Nitrianský Hrádok provides a splendid analogy (Furmánek/Veliačik/Vladár 1999, 119 fig. 57).

³⁸ Točik 1994, 64.

³⁹ Ordentlich 1969; Bóna 1975, 148.

⁴⁰ Vladár 1975, 22 fig. 2.

⁴¹ Gogâltan 2008, 45.

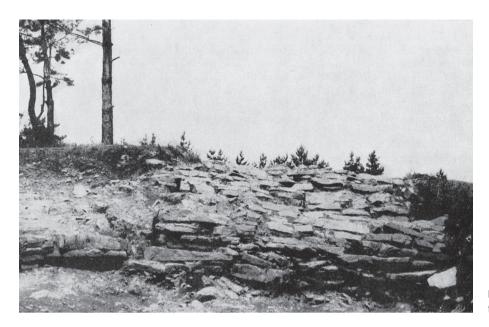


Fig. 3: Spišsky Štvrtok. Stone fortifications (after Vladár 1973)

The fortifications of the Spišský Štvrtok settlement

The main characteristic of the fortifications on this site is that they were built of stone. Unlike in the previous examples, the stone used at Spišský Štvrtok, broken into distinctive slabs, provided the material for the main structure⁴² (Fig. 3). Moreover, in contrast to the examples of the OFC defensive installations cited above, the 160 m-long fortifications of Spišský Štvrtok had a very complex form (Fig. 2).

Due to the specific configuration of the land, the western side was protected only by a palisade on a stone base⁴³. In the northern and southern sector the palisade joined a singularly constructed rampart. It consisted of two stone walls with an estimated width of 4.8 m at the base and 4 m at the crest. It is assumed that the rampart was further fitted with a palisade which increased its height to 6 m⁴⁴. In the eastern part of the settlement the rampart was additionally shielded by a stone wall, approximately 120 m long. Between the wall and the rampart proper there was a space, c. 80 cm wide, which became broader in the section adjoining the bastions guarding the entrance. The bastions were the most spectacular element of the fortifications. They were circular stone structures⁴⁵, approximately 5.9 m in diameter⁴⁶. Furthermore, the eastern part of the settlement, where the entrance is located, was protected by a ditch, $6 \,\mathrm{m}$ wide and $2 \,\mathrm{m}$ deep⁴⁷.

Discussion

The truly exceptional stone fortifications discovered at Spišský Štvrtok prompted J. Vladár to seek analogies in the architecture of the Aegean region, or to be more precise, in the architecture of the Mycenaean culture⁴⁸. The stone defences were taken to constitute evidence of contacts between the area of present-day Slovakia (and more broadly the Carpathian Basin and Central Europe) with the Mediterranean⁴⁹. This view was widely accepted by Bronze Age researchers. Throughout the many years of debate, it is only recently that scholars have returned to the sources concerning the defensive architecture of the Aegean⁵⁰. Yet an effective critique of the view that assumes a Mediterranean provenance for the Spišský Štvrtok for-

largely been built of timber. If only stone was used, it is doubtful whether such walls would have had the capacity to reach the estimated height of the rampart, i.e. 4-6 m.

⁴² Vladár 1973, 281–282 figs. 27–28; 1974, 227–228 figs. 9–10.

⁴³ Vladár 1970, 38.

⁴⁴ Vladár 1973, 284; 286; 1975, 23 fig. 3.

⁴⁵ It is impossible to determine the height of the bastions' stone walls. Taking into account the limited width of the exposed base of the walls which may be seen in the published photographs, as well as the absence of mortar binding the stone, the structures must have

⁴⁶ The precise width of the bastion walls cannot be estimated on the basis of the published photographs (Vladár 1973, 284-285 fig. 3). 47 In one of the later publications, the author mentions that the ditch was not fully investigated (Vladár 1976, 216). The absence of a plan with locations of individual excavations makes it impossible to determine which sections of the ditch (and other elements of the fortifications) were excavated.

⁴⁸ Vladár 1972, 20.

⁴⁹ Vladár 1973; 1974; 1979; 1982.

⁵⁰ Alusik 2012.

tifications requires a precisely defined chronology and a substantial range of comparanda for analysis.

In the Carpathian Basin, fortifications are found only around settlements, and thus any comparison with the Mycenaean fortified palaces is pointless⁵¹. The function of the latter is beyond dispute – they were the seats of local rulers and of the aristocracy⁵² and served as local centres of control and redistribution of goods⁵³. Being citadels, they overlooked the city proper. They had no municipal or public significance - they did not serve to gather the population within its walls. On the contrary, access was granted only to particular elements within Mycenaean society, which were closely associated with the local power structure. On the other hand, the defended Bronze Age sites of the Carpathian Basin were settlements in the full sense of the word. They were inhabited by complete (in terms of social structure), large populations, who undertook all kinds of routine activities associated with the everyday life of households/families (e.g. production of metal, ceramics, consumption etc.) within the perimeter of the settlement⁵⁴.

Consequently, comparative analysis should take into account only a narrow group of early Mycenaean fortified settlements⁵⁵, interpreted as the seats of local rulers, or elites that emerged towards the end of the Middle Helladic (MH) period⁵⁶. In view of the uncertain chronological position of the Spišský Štvrtok stone fortifications, when looking for analogies on the Greek mainland one should consider a relatively long period in the development of the Mycenaean culture, from MH IIIA to LH IIB (c. 1775-1420 BC)57,

In general, in the period in question, a change in the nature of settlement on the Greek mainland is observable. A new form of relatively small settlements appears, located on higher ground and surrounded by fortifications⁵⁸. In most cases, the information that is available is minimal. At Argos-Aspis, fragments of stone walls were uncovered, but there is no certainty as to the chronology of individual parts of buildings, including fortifications⁵⁹.

Be that as it may, the form of the exposed walls and the structure of the settlement do not correspond to the features of the Spišský Štvrtok site⁶⁰. The information on the stone fortifications at Malthi and Peristeria is very limited too. The former is a simple stone structure, encircling the entire area of the settlement, but its chronology is largely undetermined. The buildings were arranged along the line of the fortifications and in the centre. The layout of the buildings in Malthi reflected the local power structure the central buildings being the seat of the community's leading family⁶¹. The Peristeria site is dated to the Late Helladic period (LH I/LH II). A stretch of wall, approximately 30 m long, was identified there. A characteristic feature of that section of the fortification is a chamber adjoining the inner line of defences, and an additional wall branching out at a right angle from the chamber⁶². Chambers were also documented in the fortifications of Kiapha-Thiti⁶³, a settlement that has yielded the most comprehensive information about fortifications dating to the turn of the MH III to the LH I/II period (Fig. 4). Altogether, its excavation exposed a 145 m-long section of stone wall of complex and characteristic form⁶⁴. The wall had two faces, with a mixed stone and earth core. The structure of the wall varied depending on the configuration and topography of the terrain. In some places the base of the wall was reinforced with very large stone slabs (orthostats), in other segments one of the faces was built as a separate structure with its own external and internal walls. As noted previously, chambers adjoining the fortifications were also present, located on the inner perimeter and at irregular intervals⁶⁵. A 70 m-long ramp extended along the external line of the wall up to the main gate⁶⁶. The gate itself was estimated to be c. $2.7-3.0 \,\mathrm{m}$ wide⁶⁷. The entrance to the ramp was guarded by one of the two towers discovered along the line of fortification⁶⁸. All in all, these structures do not resemble the bastions found at Spišský Štvrtok. The towers of Kiapha-Thiti formed an integral part of the wall. One of them was built in the manner of a sally port it was possible to cross it like a gate, with the traffic controlled at two points⁶⁹. Apart from the towers, the wall was also overlooked by a bastion.

⁵¹ Apart from considerable functional differences, one should also stress that most defended settlements in the Carpathian Basin are older than the fortified Mycenaean palaces (Jaeger 2011, 97-112; 149-153). See Kienlin 2012, 289-297.

⁵² Kelder 2010, 110; Czebreszuk 2011, 63.

⁵³ Killen 2008.

⁵⁴ Jaeger 2011.

^{55 &}quot;frühmykenische Burgen", Lauter 1996.

⁵⁶ Heitz 2008, 8.

⁵⁷ Czebreszuk 2011, 61.

⁵⁸ Maran 1995, 68-69; Wright 2006, 11.

⁵⁹ Philippa-Touchais 2010, 792–793.

⁶⁰ Ibid. 801 fig. 9–10.

⁶¹ Wright 2006, 9-10 Fig. 1.1b.

⁶² Küpper 1996, 27; Wright 2006, 10 fig. 1.1c.

⁶³ Küpper 1996, 28.

⁶⁴ Hagel 1992, 47-48 fig. 2.1.

⁶⁵ Küpper 1996, 27-28; Hope Simpson/Hagel 2006, 66.

⁶⁶ Hagel 1992, 50.

⁶⁷ Hope Simpson/Hagel 2006, 66.

⁶⁸ Küpper 1996, 27.

⁶⁹ Hagel 1992, 47-49; Hope Simpson/Hagel 2006, 66.

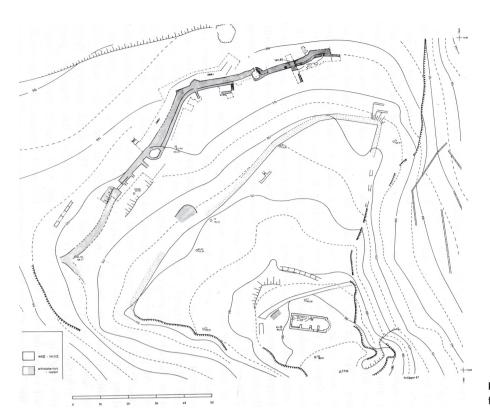


Fig. 4: Kiapha Thiti. Plan of excavated fortifications (after Hagel 1992)

In the current state of knowledge about early Mycenaean defended settlements, it is not possible to suggest that there was a particular architectural pattern, even across the Greek mainland. Rather, individual sites draw on the local traditions of the Middle Bronze Age as well as on models of Minoan defensive architecture⁷⁰. They are not an innovation which, unlike the citadels, could be ascribed exclusively to the Mycenaean culture.

The fundamental difference between the cultural and geographic areas discussed lies in the building materials. The Spišský Štvrtok structures were built with stone slabs of a specific type, relatively small size, and uniform shape. The early Mycenaean fortifications did not yield evidence for the use of building materials with such definite attributes. The principal materials employed in the OFC settlements included timber, earth and clay. In exceptional cases, stone was used to reinforce the main structure of the defences. The use of timber elements, which was widespread across the Carpathian Basin (e.g. palisades), has so far not been documented in any of the early Mycenaean settlements. Moreover, ditches were not added to the defended settlements in the south of the continent whereas this element is a dominant motif of defensive architecture in Central Europe. There it is deeply rooted in the Neolithic tradition, where a combination of earthworks and

ditch emerges as a logical consequence of rationalising the effort involved in building defences. When digging a ditch, the material to build a wall appeared automatically, as it were⁷¹.

The Spišský Štvrtok fortifications are unparalleled not only in the Aegean region but also in the territory of the OFC ecumene and other tell cultures. First and foremost, the use and form of the stone material is unique. In contrast to the sporadic instances of stone use in defensive structures of the Carpathian Basin⁷², the stone at Spišský Štvrtok had been processed, shaped into characteristic slabs and employed to erect the main elements of the defences. This is at variance with other cases, where stone was used in its natural, unprocessed form, to erect additional stabilizing structures, which at any rate were most often made of wood (as seen in the piles reinforcing the rampart at Košice-Barca). At Spišský Štvrtok, the lie of the land led to a diversification of the fortifications. The western part of the settlement, best protected by natural defences, was fortified with a palisade on a stone base. The eastern, most easily accessible part of the site featured the entrance, protected by a ditch and bastions. Compared to those of Nižna Myšl'a, Košice-Barca and Rozhanovce, the Spišský Štvrtok ditch was insubstantial. On the other

⁷¹ See Keeley/Fontana/Quick 2007, 58.

⁷² Vladár 1973, 280–28; Bader 1990, 182; Gašaj 2002, 27.

hand the bastions are the one element of the fortification which departed most from the pattern of Bronze Age defences widely found across the Carpathian Basin and Central Europe. Two such bastions guarded the gate, built in a dry-walling technique like the other stone elements of Spišský Štvrtok.

Hence it seems that the fortifications of Spišský Štvrtok are in all respects an exception when compared to other OFC defended sites. Attention is drawn to the use of specific building materials and to the presence of an elaborate system of defences to protect the entrance. I am of the opinion that both features are vital arguments in favour of an alternative interpretation of the "Slovakian Mycenae"73 phenomenon.

Petrographic analysis of the stone from the Spišský Štvrtok fortifications has demonstrated that the site's natural rock was not used to build the defences. The material came from an area some 2-3 km distant⁷⁴. This is significant, since it allows us to exclude the easy availability of local building material as the principal reason for constructing the stone fortifications. It was the result of a decision taken in advance and followed a premeditated plan, which was totally alien to the tradition of defensive architecture in both the OFC and the related tell cultures of the Carpathian Basin.

Alternative interpretation of the Spišský Štvrtok stone fortifications

In 1988, A. Mozsolics expressed the view that the stone fortifications at Spišský Štvrtok belonged to a later settlement of the Púchov culture, drawing on oral information obtained from an unspecified source⁷⁵. There are reasons that justify this line of argument. In the La Tène period, the area of Spiš was one of the regions of northern Slovakia where settlement of the Púchov culture was identified⁷⁶. The publications concerning the settlement of Spišský Štvrtok mention the presence of artefacts of that culture at the site, within the perimeter of the fortifications⁷⁷.

Defensive architecture is one of the characteristic features of the Púchov culture. Within this group of defended settlements, two categories have been distinguished, and these are pertinent to the discussion: the small hillforts

(Kleinburgen) and central hillforts (zentrale Burgwallanla $gen)^{78}$. The basic difference between these types of settlement lies in the dimensions and the kinds of defensive structures. The sites of the first category were relatively small (ranging from 20×20 m to 80×70 m). Their defences were primarily timber and earth structures, only occasionally reinforced with stone walls⁷⁹. The second category of sites covered a substantial area, reaching several hectares⁸⁰. The fortified elements of these settlements were very often made of stone. Similarly to the settlement of Spišský Štvrtok the material consisted of characteristic, worked slabs (sandstone and limestone)81 (Fig. 5). At the site of Liptovská Mara, the installations surrounding the entire area of the settlement were also structurally diversified. The northern side of the settlement, where the entrance/gate was located, was protected by a double stone rampart, just as at Spišský Štvrtok⁸². The presence of the double walls as well as the complex structures to protect the entrance may be taken as a significant evidence for the Celtic nature of the Púchov culture, which is associated with the tribe of the Cotini⁸³. Only a few gates have been excavated. The Liptovská Mara gate was located in a singularly constructed gap in the fortifications⁸⁴. One of the walls of the fortification ran in an arc towards the interior of the settlement, while the other ran straight. This created a space flanked by the rampart on practically every side, making it easy to control the entrance85. The gate of the settlement at Podtureň-Velínok was protected by two additional elements. The first, in the form of a protruding, sickle-shaped stretch of the rampart which surrounded the area in front of the entrance, screened the gate from the north and east. The southern side was defended by a structure interpreted as a tower86. This quadrangular structure, built of timber and stone, adjoined the line of fortification along one of its sides. Moreover, some of the settlements of the Púchov culture were additionally protected by ditches⁸⁷.

The Spišský Štvrtok settlement seems to correspond formally to the settlements of the Púchov culture in terms of the structure of the ramparts, but the defences of the

⁷³ Furmánek 2004.

⁷⁴ Vladár 1973, 284.

⁷⁵ Mozsolics 1988, 43-44 note 113.

⁷⁶ Pieta 1982, 16 fig. 2.

⁷⁷ Novotny/Kovalčík 1967, 25; 27; 45; Vladár 1970, 41; 1976, 220.

⁷⁸ Pieta 1982, 134.

⁷⁹ Ibid.

⁸⁰ E.g. Liptovská Mara 1,5 ha, Veľký vrch Divinka 12 ha; Pieta 1982,

⁸¹ Pieta 1982, 139; 1996, 76 fig. 20; 87 fig. 24.

⁸² Pieta 1982, 137 fig. 18.

⁸³ Pieta 1996, 73; Kovár 2008.

⁸⁴ Baffle gate; Keeley/Fontana/Quick 2007, 62.

⁸⁵ Pieta 1982, 137 fig. 18.

⁸⁶ Ibid. 141-142 fig. 19.

⁸⁷ Ibid. 142-143.





Fig. 5: Stone fortifications in Spišsky Štvrtok (top) and Liptovská Mara (bottom) (after Vladár 1973 and Pieta 1982)

gates do not represent equivalent architectural solutions. Nevertheless their functional similarities seem to be more significant: they are unequivocally military in nature⁸⁸. The solutions employed in the settlements of the Púchov culture were to impede access to the most sensitive part of the fortifications – the gate – ensuring its best possible defence. Taking into account some of their features, the bastions discovered at Spišský Štvrtok should be approached in the same way: they were placed on either side of the entrance to the settlement, in order to secure the

gate. The bastions themselves were integral to the line of fortification, which ensured safe access to the bastions and additional protection for the defenders. The military efficacy of the bastions was further increased by the fact that they stood at a short distance from one another, approximately 12 m apart⁸⁹. This configuration meant that projectiles thrown from the top (arrows, spears, stones etc.) could be effectively used against the attackers, their

range covering the entire area of the immediate approaches to the gate90.

In the light of current knowledge, a similar level of fortification complexity in terms of form and function does not exist in OFC defensive architecture, while being a kind of norm in the settlements of the Púchov culture in the La Tène period.

These arguments cannot be considered conclusive, chiefly due to the shortage of objective data relating to the settlement of Spišský Štvrtok and, paradoxically, due to the lack of arguments supporting the stratigraphic position of the stone structures in the Bronze Age. Since there are virtually no publications documenting Vladár's excavations, his hypothetical chronology of the stone fortifications cannot be verified. Vladár remarked on the complexity of the stratigraphy within the layers assigned to the OFC, in which he isolated two settlement horizons91 and a settlement phase probably associated with the Piliny culture⁹². Furthermore, he noted the presence of various types of buildings and postholes in the most recent stratified levels. However, he did not provide any information on stratigraphic relationships or on the origin of the finds associated with the Púchov culture. Hence, the published data does not allow the provenance of individual, characteristic elements within the settlement to be determined. Apart from the stone fortifications, it would be equally important to verify the stratigraphic position of the stonepaved road that led to the gate and the stone stele⁹³. Both elements are known from the Púchov culture settlement of Liptovská Mara94, which might point to a chronological position outside the OFC chronology.

If the thesis that the stone fortifications at Spišský Štvrtok are of later date is adopted, then it becomes necessary to suggest an alternative scenario for the site.

There is a possibility that the stratigraphic assessment was erroneous, which might have resulted in a failure to record the pre-existing fortifications of timber and earth. Such a possibility is implied by Vladár's vague information on the nature of the earlier OFC settlement horizon. Vladár associated the stone fortifications with the later OFC horizon (classical phase of the OFC). At the same time, given that the older artefacts were found only in the area circumscribed by the fortifications, he suggested that fortifications might have existed in the first settlement horizon too⁹⁵. This conclusion is difficult to assess, as no hypothesis concerning the form of the earlier OFC fortifications was advanced. It is possible that the site of Spišský Štvrtok possessed typical OFC timber and earth fortifications in both horizons, and that these were later destroyed when stone fortifications were built in the La Tène period96.

The latest research admits vet another scenario. In recent years, a number of publications have documented open forms of OFC settlements, whose assemblages are as rich as those of the defended settlements. Here, the sites of Füzesabony-Öregdomb and Ároktő-Dongóhalom in Hungary and Včelince in Slovakia⁹⁷ are worth noting. The last example is particularly significant: the settlement, although it has no fortifications, has yielded a wealth of archaeological material, including evidence for local metallurgy and hoards of bronze artefacts98.

Conclusion

For several decades, the settlement of Spišský Štvrtok was considered a key piece of evidence for the intensive relationships entertained by the Aegean world and the highly developed Mycenaean culture with Central Europe. But the arguments presented here make it clear that the quality of the sources that are available provides insufficient proof for such an interpretation. The stone fortifications of an OFC settlement have been compared to Mycenaean citadels, which are completely different in form and function. Resolving this long-standing debate is hampered by the fact that there are no adequate comparative studies of settlements in either of these cultural and geographic areas. Given the chronological and functional data of the Spišský Štvrtok site, any attempt at drawing parallels should involve early Mycenaean structures, more specifically the group of defended settlements known as "frühmykenische Burgen"99. Yet, the sources relating to that category of settlement are fairly modest. Nevertheless the information that is available indicates that in the early

⁹⁰ Keeley/Fontana/Quick 2007, 70-77 fig. 8.

⁹¹ Vladár 1975, 16-18; 1976, 218-219

⁹² Vladár 1976, 220.

⁹³ Vladár 1975, 14.

⁹⁴ Pieta 1996, 87 fig. 24; 89 fig. 25.

⁹⁵ Vladár 1976, 219.

⁹⁶ A similar destruction of at least a part of the Bronze Age fortifications and stratified levels by a later, medieval settlement, took place in the OFC settlements of Trzcinica and Trepcza in the mountainous region of the Low Beskids in Poland (Gancarski 2002, 109; Gancarski/ Ginalski 2001). The defended settlements of the OFC were situated in topographically strategic locations, which were frequently used in subsequent periods.

⁹⁷ Furmánek/Marková 1992; 2001; Szathmári 1992; Fischl 2006.

⁹⁸ Furmánek/Illášová/Marková 1999.

⁹⁹ Lauter 1996.

stages of its development, the Mycenaean culture did not possess fixed architectural patterns, the distant echoes of which may be found at Spišský Štvrtok. Further, the specific form of stone structure found on Slovak settlements represents a substantial departure from the tradition of OFC defended settlements and more broadly, the tradition of the Carpathian Basin. In this region, settlements were fortified by a combination of rampart and ditch, with timber, earth and clay being the main materials. Stone was used exclusively in its natural, unworked form to reinforce the structure proper, which was made of timber and earth. The building material used at Spišský Štvrtok, i.e. the characteristic slabs of stone, as well as the functional similarities of the complex defensive installation at the gate (bastions) lends legitimacy to the hypothesis that the stone fortifications belong to a later phase, i.e. the La Tène period. Such a view is further supported by information given in the reports on the first seasons of excavation at the settlement, which mentions artefacts of the Púchov culture discovered within the perimeter of the fortifications.

This article does not set out to question the existence of relationships between the "northern" and "southern" European communities of the Bronze Age. Evidence attesting to the links between the eastern Mediterranean and Central Europe has indeed come forward in recent years. The foremost examples include amber from the Baltic Sea¹⁰⁰ and spiral ornamentation¹⁰¹ of objects associated with horse riding and the use of battle chariots¹⁰². The latter in particular indicate that it was not only the products of material culture that circulated between distant parts of Europe, but also that specific concepts, technologies and know-how were disseminated¹⁰³.

With respect to the long-distance contacts that existed between the Bronze Age communities of Europe, the stone fortifications of Spišský Štvrtok no longer play a major role. Accepting a more recent date, should encourage a new reflection on the significance of local settlement traditions in the development of a dense network of OFC defended sites across its entire ecumene.

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References

- Alusik 2007: T. Alusik, Defensive Architecture of Prehistoric Crete. British Arch. Reports (Oxford 2007).
- 2012: -, Aegean Elements and Influence in Central European Bronze Age Defensive Architecture: Fact or Fiction? Local or Imported?. In: M. Jaeger/J. Czebreszuk/K. P. Fischl (eds), Enclosed Space - Open Society. Contact and Exchange in the Context of Bronze Age Fortified Settlements in Central Europe. Studien zur Arch. in Ostmitteleuropa 9 (Poznań, Bonn 2012) 11-26.
- Bader 1990: T. Bader, Bemerkungen über die ägäischen Einflüsse auf die alt- und mittelbronzezeitliche Entwicklung im Donau-Karpatenraum. In: T. Bader (ed.), Orientalisch-ägäische Einflüsse in der europäischen Bronzezeit. Ergebnisse eines Kolloquiums (Bonn 1990) 181-205.
- 1998: –, T. Bader, Bemerkungen zur Bronzezeit im Karpatenbecken. Otomani/Füzesabony-Komplex. Überblick und Fragestellung. Jahresschr. Mitteldt. Vorgesch. 80, 1998, 43-108.
- Bóna 1975: I. Bóna, Die Mittlere Bronzezeit Ungarns und ihre Südöstlichen Beziehungen (Budapest 1975).
- Bouzek 1985: J. Bouzek, The Aegean, Anatolia, and Europe: Cultural interrelations in the second millennium B. C. (Praha 1985).
- Coles/Harding 1979: J. M. Coles/A. Harding, The Bronze Age in Europe. An Introduction to the Prehistory of Europe c. 2000-700 BC (London 1979).
- Czebreszuk 2007: J. Czebreszuk, Amber between the Baltic and the Aegean in the 3rd and 2nd Millennia BC (An Outline of Major Issues). In: I. Galanaki/H. Tomas/Y. Galanakis/R. Laffineur (eds), Between the Aegean and Baltic Seas. Prehistory across Borders. Proceedings of the International Conference, Bronze and Early Iron Age Interconnections and Contemporary Developments between the Aegean and the Regions of the Balkan Peninsula, Central and Northern Europe University of Zagreb, 11.-14. April 2005. Aegaeum 27 (Liège 2007) 363-370.
- 2009: –, The Northern Section of the First Amber Trail. An Outline of Significance for Civilization Development. In: A. Palavestra/C. W. Beck/J. M. Todd (eds), Amber in Archaeology. Proceedings of the Fifth International Conference on Amber in Archaeology (Belgrade 2009) 100-109; 284-285.
- 2011: -, Bursztyn w kulturze mykeńskiej. Zarys problematyki badawczej (Poznań 2011).
- David 1997: W. David, Altbronzezeitliche Beinobjekte des Karpatenbeckens mit Spiralwirbel- oder Wellenbandornament und ihre Parallelen auf der Peloponnes und in Anatolien in frühmykenischer Zeit. In: The Thracian World at the Crossroads of Civilisations I (București 1997) 247-305.
- 2001: -, Zu den Beziehungen zwischen Donau-Karpatenraum, osteuropäischen Steppengebiet und ägäisch-anatolischem Raum zur Zeit der mykenischen Schachtgräber unter Berücksichtigung neuerer Funde aus Südbayern. In: Anodos. Stud. Ancient World 1 (Trnava 2001) 51-80.

¹⁰⁰ Czebreszuk 2011.

¹⁰¹ German "karpatenländisch-ostmediterrane Wellenbandornamentik" David 2001.

¹⁰² David 2001; 2007.

¹⁰³ Kristiansen/Larsson 2005.

- 2007: -, Gold and Bone Artefacts as Evidence of Mutual Contact between the Aegean, the Carpathian Basin and Southern Germany in the Second Millennium BC. In: I. Galanaki/ H. Tomas/Y. Galanakis/R. Laffineur (eds), Between the Aegean and Baltic Seas. Prehistory across Borders. Proceedings of the International Conference, Bronze and Early Iron Age Interconnections and Contemporary Developments between the Aegean and the Regions of the Balkan Peninsula, Central and Northern Europe, University of Zagreb. 11.-14. April 2005. Aegaeum 27 (Liège 2007) 411-420.
- Fischl 2006: K. P. Fischl, Ároktő-Dongóhalom bronzkori tell telep. Bronzezeitliche Tell-Siedlung in Ároktő-Dongóhalom (Miskolc
- Furmánek 2004: V. Furmánek, Zlatý vek v Karpatoch. Keramika a kov doby bronzovej na Slovensku (2300-800 pred n. l.) (Nitra 2004).
- Furmánek/Marková 1992: V. Furmánek/K. Marková, Siedlung des Tell-Typs in Včelince. In: Grundlagen und Ergebnisse moderner Archäologie 100 Jahre nach Schliemanns Tod (Berlin 1992) 293-303.
- 2001: V. Furmánek/K. Marková, Beitrag zu der Ausgrabung der Siedlung in Včelince zur Problematik der Bronzezeit im Theissgebiet. In: C. Kacsó (ed.), Der Nordkarpatische Raum in der Bronzezeit. Bibl. Marmatia 1 (Baia Mare 2001) 105-118.
- Furmánek/Illášová/Marková 1999: V. Furmánek/L. Illášová/K. Marková, Metallgießerei in Včelince. Východoslovenský pravek, Special Issue: Archaeometallurgy in Central Europe, 1999,
- Furmánek/Veliačik/Vladár 1999: V. Furmánek/L. Veliačik/J. Vladár, Die Bronzezeit im slowakischen Raum. Prähist. Arch. Südosteur. 15 (Rahden/Westf. 1999).
- Gancarski 2002: J. Gancarski, Kultura Otomani-Füzesabony po północnej stronie Karpat. In: J. Gancarski (ed.), Między Mykenami a Bałtykiem. Kultura Otomani-Füzesabony (Krosno, Warszawa 2002) 103-124.
- Gancarski/Ginalski 2001: J. Gancarski/J. Ginalski, Osada obronna z wczesnej epoki brązu w Trepczy koło Sanoka. In: J. Gancarski (ed.), Neolit i początki epoki brązu w Karpatach polskich (Krosno 2001) 305-318.
- Gašaj 1983: D. Gašaj, Výsledky záchranného výskumu opevnenej osady otomanskej kultury v Rozhanovcach. Arch. Rozhledy 35, 1983, 130-137.
- 2002: -, Osady warowne i życie gospodarcze. Fortified settlements and their economic life. In: J. Gancarski (ed.), Między Mykenami a Bałtykiem. Kultura Otomani-Füzesabony (Krosno, Warszawa 2002) 21-49.
- Gašaj/Olexa 1992: D. Gašaj/L. Olexa, Nižná Myšľa ein bronzezeitliches Handelszentrum in der Ostslowakei. Eine Ausstellung vom 1. 12.-8. 1. im Eingangsbereich der Universitätsbibliothek (Wuppertal 1992).
- Gogâltan 2008: F. Gogâltan, Fortified Bronze Age Tell Settlements in the Carpathian Basin. A general overwiev. In: J. Czebreszuk/ S. Kadrow/J. Müller (eds), Defensive Structures from Central Europe to the Aegean in the 3rd and 2nd millennia BC. Stud. zur Arch. in Ostmitteleuropa 5 (Poznań/Bonn 2008) 39-56.
- Hagel 1992: D. Hagel, The Fortifications of the Late Bronze Age on Kiapha Thiti, Attike. In: S. Van de Maele/J. M. Fossey (eds), Fortificationes Antiquae (Amsterdam 1992) 45-51.
- Hájek 1954: L. Hájek, Zláty poklad v Barci u Košic. Arch. Rozhledy 6, 1954, 584-587.

- Harding 1984: A. Harding, The Mycenaeans and Europe (London 1984).
- Harding 2006: A. Harding, Enclosing and excluding in Bronze Age Europe. In: A. Harding/S. Sievers/N. Venclová (eds), Enclosing the Past: inside and outside in prehistory (Sheffield 2006)
- Harding/Hughes-Brock 1974: A. Harding/H. Hughes-Brock, Amber in the Mycenaean World. Ann. Brit. School Athens 69, 1974, 145-172
- Heitz 2008: C. Heitz, Burying the Palaces? Ideologies in the Shaft Grave Period http://archiv.ub.uniheidelberg.de/ propylaeumdok/volltexte/2008/89/pdf/Heitz.pdf
- Hope Simpson/Hagel 2006: R. Hope Simpson/D. Hagel, Mycenaean Fortifications, Highways, Dams and Canals. Stud. Mediterranean Arch. 133 (Sävedalen 2006).
- Hughes-Brock 1985: H. Hughes-Brock, Amber and the Mycenaeans. Journal Baltic Stud. 16/3, 1985, 257-267.
- Jaeger 2011: M. Jaeger, Central European Societies of Fortified Settlements in the First Half of the 2nd Millennium BC. A Comparative Study of Trial Areas (Unpubl. Diss. Univ. Poznań 2011).
- 2012: -, The Relationship Between Man and Environment in the Current Stage of Research of Fortified Settlements in the Carpathian Basin in the First Half of the 2nd Millennium BC. In: I. Hildebrandt-Radke/W. Dörfler/J. Czebreszuk/J. Müller (eds), Anthropogenic Pressure in the Neolithic and Bronze Age in the Central-European Lowlands. Stud. Arch. Ostmitteleur. 7 (Poznań, Bonn 2012) 149-159.
- -/Olexa 2014: /L. Olexa, The metallurgists from Nižná Myšľa. A contribution to the discussion on the metallurgy in defensive settlements of the Otomani-Füzesabony culture. Arch. Korrbl. 44/2, 2014, 163-176.
- Jakab/Olexa/Vladár 1999: J. Jakab/L. Olexa/J. Vladár, Ein Kultobjekt der Otomani-Kultur in Nižná Myšl'a. Slovenská Arch. 47/1, 1999, 91-127.
- Jockenhövel 1990: A. Jockenhövel, Bronzezeitlicher Burgenbau in Mitteleuropa. Untersuchungen zur Struktur frühmetallzeitlicher Gesellschaften. In: T. Bader (ed.), Orientalischägäische Einflüsse in der europäischen Bronzezeit (Mainz 1990) 209-228.
- Kabát 1955a: J. Kabát, Otomanská osada v Barci u Košic. Arch. Rozhledy 7, 1955, 594-600.
- 1955b: -, Opevnéní otomanské osady v Barci. Arch. Rozhledy 7, 1955, 742-746.
- Keeley/Fontana/Quick 2007: L. H. Keeley/M. Fontana/R. Quick, Baffles and Bastions: The Universal Features of Fortifications. Journal Arch. Res. 15, 2007, 55-95.
- Kelder 2010: J. Kelder, The Kingdom of Mycenae. A Great Kingdom in the Late Bronze Age Aegean (Maryland 2010).
- Kienlin 2012: T. Kienlin, Patterns of Change, or: Perceptions Deceived? Comments on the Interpretation of Late Neolithic and Bronze Age Tell Settlement in the Carpathian Basin. In: T. Kienlin/A. Zimmermann (eds), Beyond Elites. Alternatives to Hierarchical Systems in Modelling Social Formations. Univforsch. Prähist. Arch. 215 (Bonn 2012) 251-310.
- Killen 2008: J. T. Killen, Mycenaean Economy. In: Y. Duhoux/ A. Morpurgo Davies (eds), A Companion to Linear B: Mycenaean Greek Texts and their World. Bibl. Cahiers de l'Institut de linguistique de Louvain 120 (Louvain 2008) 159-200.

- Kristiansen 1998: K. Kristiansen, Europe Before History (Cambridge 1998).
- Kristiansen/Larsson 2005: K. Kristiansen/T. B. Larsson, The Rise of Bronze Age Society: Travels, Transmissions and Transformations (Cambridge 2005).
- 2007: -, The Bronze Age as historical epoch: relations between Europe, the Mediterranean and the Near East during the Bronze Age. In: I. Galanaki/H. Tomas/Y. Galanakis/R. Laffineur (eds), Between the Aegean and Baltic Seas. Prehistory across Borders. Proceedings of the International Conference, Bronze and Early Iron Age Interconnections and Contemporary Developments between the Aegean and the Regions of the Balkan Peninsula, Central and Northern Europe, University of Zagreb. 11.–14. April 2005. Aegaeum 27 (Liège 2007) 25–34.
- Küpper 1996: M. Küpper, Mykenische Architektur: Material, Bearbeitungstechnik, Konstruktion und Erscheinungsbild (Espelkamp 1996).
- Lauter 1996: H. Lauter, Kiapha Thiti. Ergebnisse der Ausgrabungen II, 1: Die bronzezeitliche Architektur (Marburg 1996).
- Maran 1995: J. Maran, Structural Changes in the Pattern of Settlement during the Shaft Grave Period on the Greek Mainland. In: R. Laffineur/W. D. Niemeier (eds), Politeia: Society and State in the Aegean Bronze Age. Aegaeum 12 (Liège-Austin 1995) 67–72.
- Mozsolics 1988: A. Mozsolics, Der Bronzefund aus der oberen Remete-Höhle. Acta Arch. Acad. Scien. Hungar. 40, 1988, 27–64.
- Novotny/Kovalčík 1967: B. Novotny/R. M. Kovalčík, Sídlisko zo staršej doby bronzovej pri Spišskom Štvrtku, okr. Spišska Nova Ves. Musaica 18/7, 1967, 25–46.
- Olexa 1978: L. Olexa, Zistovací výskum v Nižnej Myšli. Arch. Výskumy a Nálezy na Slovensku v Roku 1977, 1978, 178–180.
- 1982: –, Siedlungen aus der Bronzezeit in Nižna Myšl'a in der Ostslowakei. In: B. Chropovský/J. Herrmann (eds), Beiträge zum bronzezeitlichen Burgenbau in Mitteleuropa (Berlin, Nitra 1982) 331–334.
- 1983: -, Sídliská a pohrebiská z doby bronzovej v Nižnej Myšli.
 Arch. Rozhledy 35, 1983, 122–129.
- 1987: -, Gräber von Metallgiessern in Nižna Myšl'a. Arch. Rozhledy 39/3, 1987, 255–257.
- 1992: -, Náleziská z doby bronzovej v Nižnej Myšl'i. Slovenska Arch. 50/2, 189–204.
- 2003: –, Nižná Myšľa. Osada a pohrebisko z doby bronzovej (Košice 2003).
- Olexa/Pitorák 2004: L. Olexa/M. Pitorák, Parohové bočnice zubadiel z Nižnej Myšle. In: J. Bátora/V. Furmánek/L. Veliačik (eds), Einflüsse und Kontakte alteuropäischer Kulturen. Festschrift für Jozef Vladár zum 70. Geburtstag (Nitra 2004) 309–318.
- Ordentlich 1969: I. Ordentlich, Probleme der Befestigungsanlagen in den Siedlungen der Otomanikultur in deren rumänischem Verbreitungsgebiet. Dacia 13, 1969, 457–474.
- Philippa-Touchais 2010: A. Philippa-Touchais, Settlement planning and social organisation in Middle Helladic Greece. In:
 A. Philippa-Touchais/G. Touchais/S. Voutsaki/J. Wright (eds), Mesohelladika: la Grèce continentale au Bronze Moyen (Athènes 2010), 781–801.

- Pieta 1982: K. Pieta, Die Púchov-Kultur (Nitra 1982).
- 1996: –, Liptovská Mara. Ein frühgeschichtliches Zentrum der Nordslowakei (Bratislava 1996).
- Suchowska 2010: P. Suchowska, Kontakty społeczności Europy Środkowej i strefy egejskiej w drugim tysiącleciu przed Chr. Próba analizy archeologiczno-chronometrycznej (Unpubl. Diss. Univ. Poznań 2010).
- Szathmári 1992: I. Szathmári, Füzesabony-Öregdomb. In:
 W. Meier-Arendt (ed.), Bronzezeit in Ungarn. Forschungen in
 Tell-Siedlungen an Donau und Theiss (Frankfurt am Main 1992)
 134–140
- Točik 1994: A. Točik, Poznámky k problematike opevneného sídliska otomanskej kultúry v Barci pri Košiciach. Štud. Zvesti Arch. Ústavu SAV 30, 1994, 59–65.
- Vandkilde 2004: H. Vandkilde, Spišský Štvrtok. In: P. Bogucki/ P. J. Crabtree (eds), Ancient Europe 8000 B. C. – A. D. 1000: Encyclopedia of the Barbarian World (New York 2004).
- Vladár 1970: J. Vladár, Zisťovací výskum opevneného výšinného sídliska otomanskej kultúry v Spišskom Štvrtku. Východoslovenský Pravek 1, 1970, 37–47.
- 1972: –, Predbežná správa o systematickom výskume opevneného sídliska otomanskej kultúry v Spišskom Štvrtku. Arch. Rozhledy 24, 1972, 18–25, 101–104.
- 1973: -, Osteuropäische und mediterrane Einflüsse im Gebiet der Slowakei während der Bronzezeit. Slovenská Arch. 21/2, 1973, 253-357.
- 1974: -, Mediterrane Einflüsse auf die Kulturentwicklung des nördlichen Karpatenbeckens in der älteren Bronzezeit. Atti del Simposio internazionale sulla antica eta del bronzo in Europa, Trento 1974. Preist. Alpina 10, 1974, 219–236.
- 1975: -, Spišský Štvrtok, opevnená osada otomanskej kultúry. In:
 III. Medzinárodni kongres slovanskej archeologi, Bratislava
 7.-14. Sept. 1975 (Nitra 1975) 3-20.
- 1976: –, Komplexny vyskum opevneneho sidliska otomanskej kultury v Spišskom Stvrtku. Arch. Výskumy a Nálezy na Slovensku v Roku 1975, 1976, 215–223.
- 1979: –, Das Karpatenbecken, das Kaukasusgebiet und das östliche Mittelmeerraum in der mykenischen Schachtgräberzeit. In: Rapports, co-rapports, communication tchécoslovaques pour le IVe Congrès de l'Association internationale d'études du Sud-Est européen (Prague 1979) 15–50.
- 1982: -, Probleme der Bedeutung fremder Kulturimpulse in der Entwicklung der älterbronzezeitlichen Zivilisation im Gebiet der Slowakei. In: A. Aspes (ed.), Il passaggio dal Neolitico all'Età del Bronzo nell'Europa centrale e nella regione Alpina. X Simposio Internazionale sulla fine del Neolitico e gli inizi dell'Età del Bronzo in Europa (Verona 1982) 199–205.
- Vladár/Bartoněk 1977: J. Vladár/A. Bartoněk, Zu den Beziehungen des ägäischen, balkanischen und karpatischen Raumes in der mittleren Bronzezeit und die kulturelle Ausstrahlung der ägäischen Schriften in die Nachbarländer. Slovenska Arch. 25, 1977, 371–432.
- Wright 2006: J. C. Wright, The Formation of the Mycenaean Palace. In: S. Deger-Jalkotzky/I. S. Lemos (eds), Ancient Greece: From the Mycenaean Palaces to the Age of Homer (Edinburgh 2006) 7–52.