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Fortification Concepts of the Bronze Age Hillforts in Istria

The hillfort settlement of Monkodonja, located in the vicinity of the town Rovinj, is representative of the Bronze Age Castellieri culture in Istria. Twelve years of excavations that lasted one month each year revealed a proto-urban settlement with extensive fortification system, and a tripartite division of its interior that could well reflect the hierarchical social structure of its inhabitants. Remarkably, a change in the fortification concept during the time of the settlement's existence could also be observed. With regard to bronze objects and ceramic finds the settlement is dated generally between the developed Early Bronze Age and the beginning of the Middle Bronze Age, or in Br A2 and Br B1 periods according to the chronology of Paul Reinecke. Moreover, about 40 radiocarbon dates from the Monkodonja settlement have also been analysed. The foundation of the settlement is dated to around 1800 cal BC. The second extensive building phase, including the rebuilding of the fortification system according to new defensive concepts, is dated approximately to 1600 cal BC, while the destruction of the settlement occurred around 1500 cal BC or in the middle of the 15th century BC at the latest.

Introduction

The hillfort of Monkodonja,¹ located in the vicinity of Rovinj, represents one of the best preserved and most important settlements of the Bronze Age Castellieri culture in Istria.² As such it has been the subject of systematic archaeological excavations, which continued for twelve years from 1997 to 2008, although each excavation season lasted only four weeks. It should be mentioned that the research was conducted as an international project, based on the collaboration between the Free University of Berlin (Freie Universität Berlin) and the Archaeological Museum of Istria in Pula (Arheološki muzej Istre) together with associated institutions of the Heritage Museum of Rovinj (Zavičajni muzej Grada Rovinja) and the Department of Archaeology at the Faculty of Arts, University of Ljubljana (Arheološki oddelek

Filozofske fakultete Univerze v Ljubljani). So far, the results are presented in the volume discussing architectural remains of the Monkodonja settlement,³ whereas the second volume presents the ceramic finds.⁴ The last volume, discussing metal, bone and stone finds is to be published in 2019.⁵

The principal aim of this paper is to present the fortification system of the Monkodonja settlement and to point out the changes in its concept, which occurred in the period of transition from the Early to the Middle Bronze Age. Remarkably, such changes in the construction of fortifications can be observed not only at Monkodonja, but also at several other Bronze Age hillforts as well and also known by the name of *castellieri* or *gradine* in the territory of Istria. This means that the change in the fortification concept should be understood as the result of a historical process, most probably as a consequence of perpetual armed conflict and introduction of new methods in conducting battle.

The hillfort of Monkodonja can best be described as a central settlement in the region to the

¹ The article was translated into English by Miha Kunstelj (Vrhnika). Figs.1-5a. 6-7. 11a were taken from the publication Monkodonja I, 2015; therefore, for their authors see that publication, p. 588. To them and to Ida Murgelj (Ljubljana), Vesna Svetličič (Ljubljana) and Damir Matošević (Rovinj) we would like to express our sincere thanks for drawings and photographs.

² Mihovilić 2013.

³ As in the present article we mostly refer to this publication, it will be further cited in the abridged form as Monkodonja I.

⁴ Monkodonja II.

⁵ Monkodonja III in press.



Fig. 1 Monkodonja hillfort with surroundings and coastline in the background (after Monkodonja I)

south of the Lim Channel/Limski Kanal.⁶ It was surrounded by several smaller settlements, which were situated on dominant hilltops and likewise frequently fortified.⁷ Due to their elevated position, some of the settlements also had good visibility, allowing a kind of visual communication between each other, as for example with smoke signals or the like. The location of the Monkodonja settlement enabled, in addition, control over the important Adriatic maritime route along the Istrian coast (Fig. 1).⁸

General Layout and Building Technique

The founding of the settlement was clearly an act of colonization. The area of the settlement was well planned in advance, as is evidenced by its oval outline, consisting of several clearly distinct and enclosed areas that are separated by broad stone walls, which thus form a complex defensive system (Fig. 2b). The construction of fortifications as well as buildings required extensive stonemasonry work, which was obviously conducted on the site and also included the targeted hewing of stone blocks (Fig. 2a). In this respect, the first settlers reshaped the stony ground of the future settlement according to their needs and wishes.⁹

The entire settlement was enclosed with defensive walls, representing the main fortification, which stretched around the oval-shaped plateau for more than 800 m (Figs. 2b, 3). The dry-stone walls were erected in the so-called *emplekton* technique, with two parallel walls and a filled core between them. The settlement had at least two, but most probably as many as three entrance gates. The northern entrance features a zigzag-shaped

⁶ Hänsel *et al.* 2007-2008, 87-91 Fig. 5; 2009, 154-158 Fig. 5; Monkodonja I, 52-59. 496-500 Figs. 15. 17. 20. 331.

⁷ Here we should mention the recent archaeological excavations at the nearby hilltop-settlement of Monbrodo, located directly on the coastline, where besides the fortification from the Late Iron Age period, also walls of the Bronze Age fortification have been discovered, which can be assigned to the same period as the fortifications in Monkodonja basing on associated ceramic finds (see Müller *et al.* 2016).

⁸ Monkodonja I, 49-50 Figs. 14. 22.

⁹ Monkodonja I, 61-67 Figs. 24. 29.

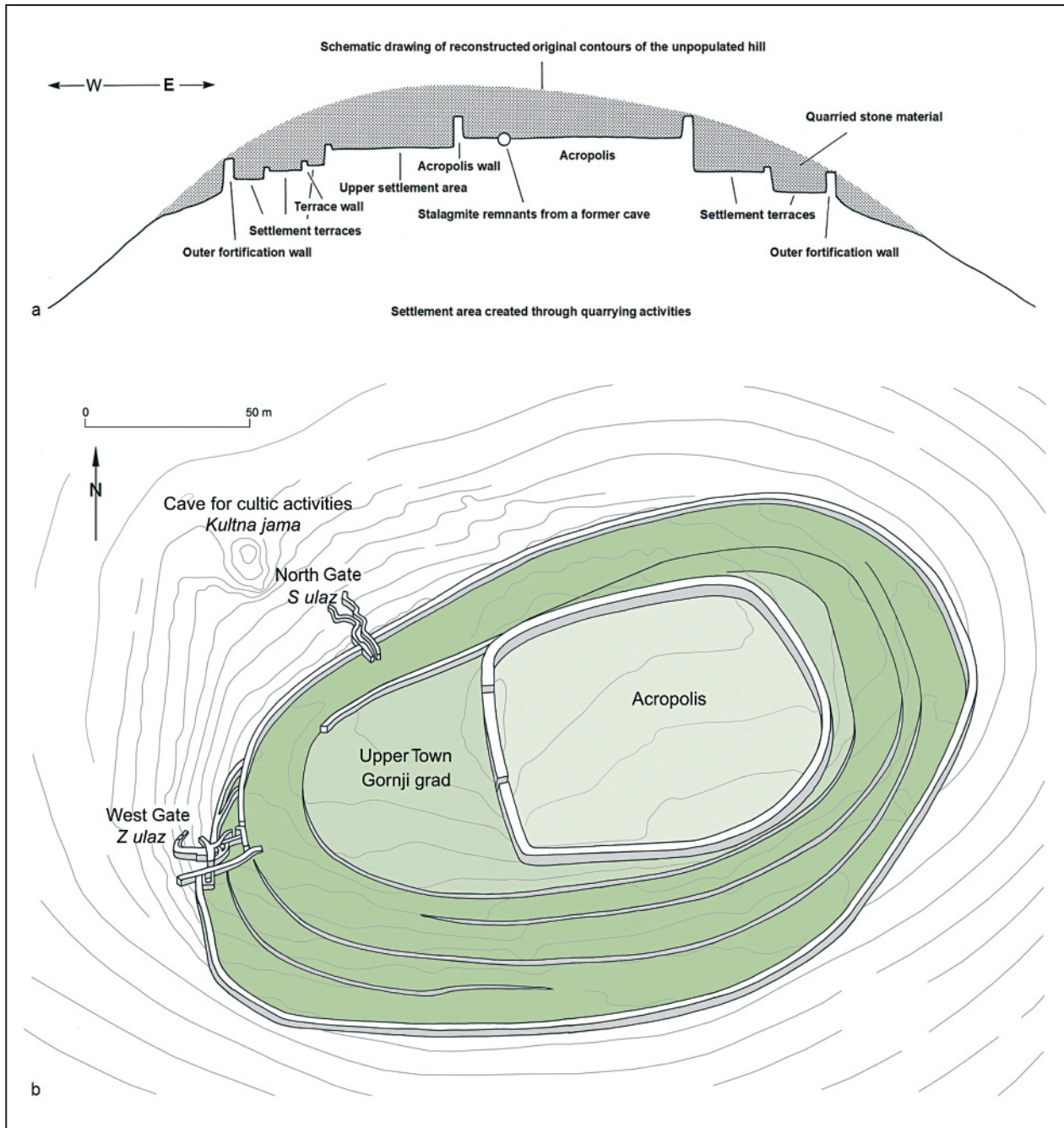


Fig. 2 Monkodonja. **a** Schematic drawing of reconstructed original contours of the hill in cross-section, which was changed with stonemasonry during the settlement's construction; **b** Schematic drawing of the settlement ground plan with tripartite division, consisting of the acropolis area, the Upper and the Lower Town (a-b: after Monkodonja I, altered)

gateway, leading out to a large cave, possibly connected with cult activities, and farther towards the hinterland. The most important entrance was located to the west, facing the seashore side and can be considered as the main gate. Throughout time the gates underwent repeated improvement work, which consequently resulted in a kind of a labyrinth-like entrance structure.¹⁰

The central part of the settlement was additionally fortified with massive walls delimiting the so-called acropolis area.¹¹ This central section is surrounded by more or less concentric terraces, forming the areas of the Upper and the Lower Town, which were further separated by a somewhat less monumental wall (Figs. 2b, 3).¹²

¹⁰ Monkodonja I, 111-193. 462-469 Appendix 2.

¹¹ Monkodonja I, 273-307. 469-472 Appendix 4.

¹² Monkodonja I, 342-372.



Fig. 3 Monkodonja. Aerial view of the excavated and restored areas of the settlement in 2007 (after Monkodonja I)

It is obvious that a building concept with a tripartite division had been used for the settlement construction from its very beginning. As a result, the settlement was erected on three different levels that were separated from one another by an enclosing wall. Such a tripartite division of the settlement represents a complex defensive system and most probably also reflects the social structure of its inhabitants, which was hierarchical in nature.

The long-term excavations enabled systematic exploration of the fortifications as well as of larger areas within the settlement, such as the western and northern gates together with the inner settle-

ment area along the fortification wall located between them, the north-western part of the acropolis area as well as two considerably large trenches on the western and three on the southern terraces of the Lower Town (Fig. 3). During the course of this research, remains of a large number of various structures were unearthed together with enormous amounts of pottery¹³ and bone finds. The bronze and stone finds were not as numerous, but are nonetheless very interesting, as they point to

¹³ Cf. Monkodonja II.

the various activities conducted there or even indicate specific events occurring in the settlement.¹⁴

Several building phases of the settlement could be established, yet two of them are particularly important for the understanding of the period in which the hillfort was occupied. The first building phase represents the founding of the settlement and the construction of the entire fortification system. The second major phase, which is also the last, encompasses the large-scale renovations both on the main fortification structures as well as in the acropolis area.

West Gate Area

The best insights into the various building activities can be gained at the main gate to the settlement, which was positioned on the west side of the main fortification. Its complex structure revealed several construction phases, which are the result of successive building stages that can partly be discerned also in a chronological sense and which resulted in a labyrinth-like entrance structure by the latest phase of the gate construction (**Fig. 4a-b**).¹⁵

In the first fortification phase the gate had a rather simple design without any special structures and with a width of not more than one meter. The entrance was placed exactly at the point at which the fortification wall changed its course in a right angle and continued some ten meters farther towards the west only to make another right angle turn and delineate the corner in which a tower was constructed (**Fig. 4a**, stage 1). Special attention should be drawn also to the fact that two graves had been located in the vicinity of the gate, which were subsequently integrated in the fortification system.

We discovered namely two meticulously constructed stone cists – the so-called graves A and B – which represent a prominent burial place, not least because of their relation to the main gate structures of Monkodonja.¹⁶ The small mound above the grave B presumably preceded the construction of the main defensive walls within the West Gate area, although most probably it can-

not be much earlier. It seems that the position of the grave B functioned as a kind of marker in the landscape for the location of the entrance area and conditioned the orientation of the fortification wall in its southern section, forming a corner directly around the grave cist, above which a bastion was built. On the other hand, the position of the grave also determined the location of the main gateway in the right angle of the fortification wall (**Fig. 4a-b**, in the right corner of the figures). Thus, it can be stated that the erection of the grave-cist B together with its first interment had obviously been connected with the founding of the settlement and the initial construction of the hillfort.

In a similar manner, the stone grave-cist A, placed in a rectangular, stone-built structure, also seems to be conceptually integrated into the gate architecture, rather than being erected in an already finished gateway. In the first construction phase the grave monument A had been a free-standing structure (**Fig. 4a**, stage 1), placed in front of the gate, whereas later it was covered and obscured by the fortification wall, which can be ascribed to the second construction phase of the main walls (**Fig. 4a**, stages 2–4). Actually, the grave-cist A provides the best *terminus post quem* for the large-scale renovations of the entire fortification system of the Monkodonja settlement.

The schematic drawing of different construction phases in the area of the main gate (**Fig. 4a**) clearly demonstrates how dramatically the fortification concept changed throughout time. The right-angle corners, characteristic of the initial construction phase (stage 1), were subsequently omitted and a slightly curved wall was built instead, connecting the former corner of the tower and the main fortification wall placed more to the back (stage 2). Such modifications resulted in an entrance with no obvious corners, which, as it seems, was easier to defend. Moreover, the same rebuilding also included the construction of additional gates in front of the already existing one and the construction of further walls delineating spaces or rooms between the former and newly erected fortification wall (stages 3–4). Outside of the newly-built curved wall two tower-like constructions were erected on both sides of the entrance (stages 3–4). The entire structure of the main gate gained the impression of a labyrinth-like entrance, which could ensure better protection and defence against potential attackers.

¹⁴ Monkodonja III in press.

¹⁵ Monkodonja I, 148-177. 464-469.

¹⁶ Hänsel *et al.* 2007-2008, 95-117 Figs. 9-23; 2009, 161-175 Figs. 9-23; Monkodonja I, 194-224 Appendix 2.

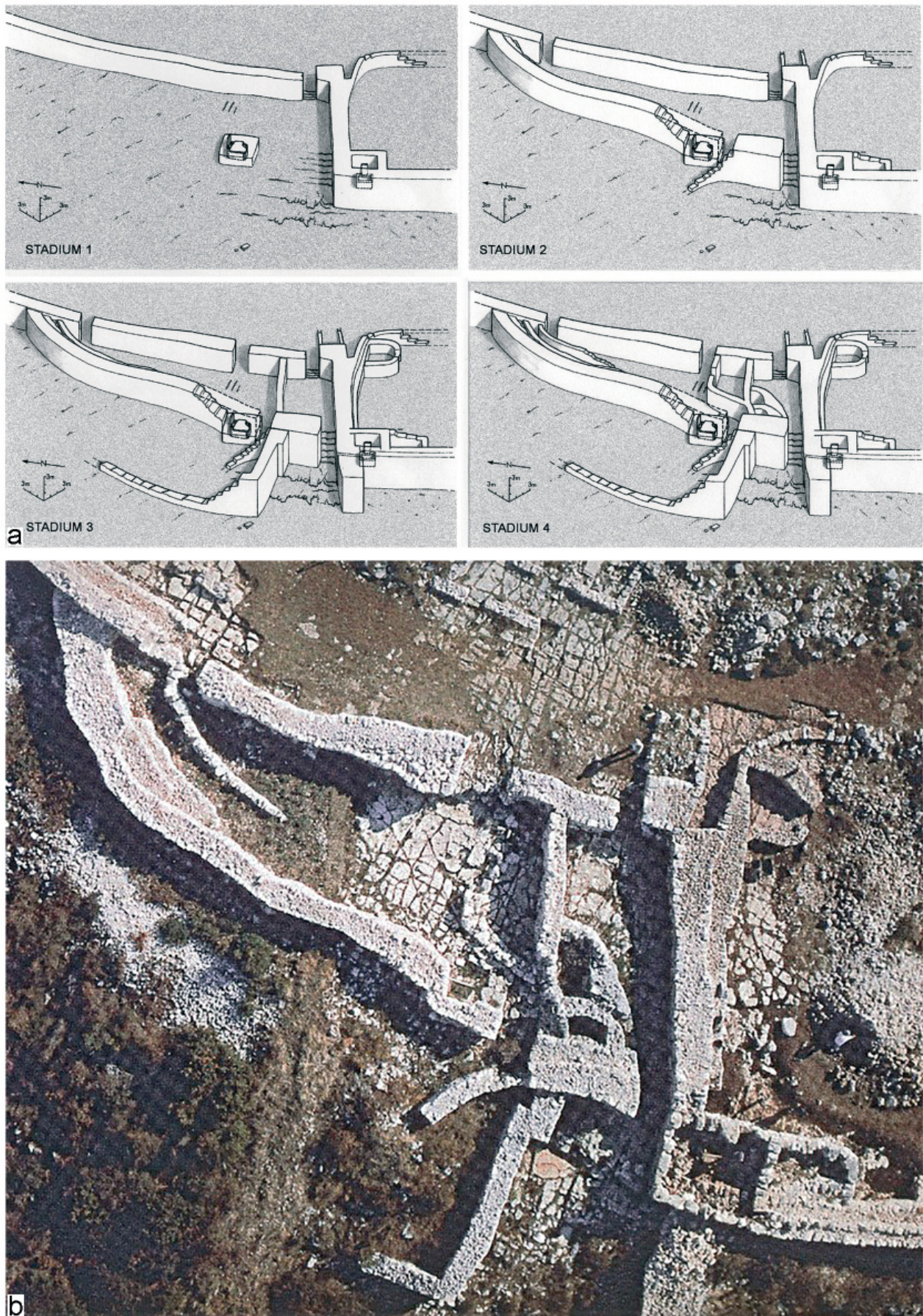


Fig. 4 Monkodonja. The West Gate in the main fortification wall: **a** Schematic drawing of the four main building phases of the principal gateway to the settlement; **b** Aerial photograph of the West Gate after the conclusion of archaeological excavations and restoration work on the walls (a-b: after Monkodonja I)

Acropolis fortification

Comparable constructions and rebuilding of the walls with right-angle corners into the curved walls without angles have been ascertained also at the western side of the acropolis fortification of Monkodonja, which was the main and the most representative front of the acropolis fortification wall (Fig. 5a-b). Through constant constructional additions, the initial, relatively narrow fortification wall was considerably reinforced and widened during several building phases, of which particularly the first and the last one should be pointed out.¹⁷

In the first building phase the western wall was divided into three sections, what gave the front a symmetrical outline. The middle section of the wall, about 30 m long, protruded for a few meters towards the west and was flanked on both sides by a recessed entrance. These two gates were positioned in the right-angle of the wall exactly in the same manner as the western gateway in the main fortification and were also equally narrow, their width amounting to just about one meter. To the side of both entrances the wall continued for about 15 m or more to form corners both with the northern and southern section of the fortification wall (Fig. 5b. 6a, red phase). Both gates thus formed the right-angle corners in the acropolis west fortification wall, identically as in the case of the West Gate in the main fortification. This enabled us to propose that such constructional elements were typical for the building concept in the foundation phase of the settlement.

The last rebuilding thoroughly changed the character of the acropolis fortification. All of the corners and angles of the western wall were omitted and the front of the wall now had a continuous, slightly curved line, stretching from the northern corner of the fortification towards the southern one (Fig. 5b. 6b, blue phase). In this construction phase, only the gate in the southern section of the acropolis western front wall were preserved, thus staying in function throughout the entire period of the settlement occupation. In contrast, the gate in the northern section of the west front wall were completely eliminated. The entrance was walled up and in its place a newly constructed, solid fortification wall was built, which featured exactly in this area additional reinforcements with perpen-

dicular walls forming cassette- or box-like structures between the outer and the inner front of the wall, filled with stones (Fig. 5b, blue phase). Similar reinforcements and remodelling of the front could be observed also south from the entrance gates in the southern section, while in the middle section of the west front wall the renewal was conducted on the inner side of the existing wall. This manner of construction made fortification structures solid and stable, while the imposing wall-width of up to 5 m also indicates their enviable height, which in our estimation could have reached up to 4–5 m. From the top of the defensive wall there was now an unhindered view of the entire western side of the acropolis fortification and consequently its defence was much easier.

After the renovation of the western acropolis wall and the remodelling of its front, the position of the only remaining gate in the southern section became much more obscured from the view than before. As a whole, the acropolis fortification now emerged as an insurmountable obstacle and practically unconquerable. As such, it must have offered greater safety to its inhabitants, even though it did not prevent its final violent destruction.

The constructional similarities observed in the continuous line of the wall fronts, both at the main fortification and at the fortification of the acropolis area, as well as the improved protection of the gateways provide clear evidence for a new conceptual undertaking, which was carefully planned and obviously also urgently needed in order to guarantee greater security and better defence to the inhabitants.

North Gate Area

On the northern side of the main fortification there was yet another gate,¹⁸ which displays a somewhat different entrance passage in comparison with the West Gate of the main fortification or the gates of the acropolis area (Fig. 7a-b). On their inner side it was flanked with rectangular structures, forming bastion-like or so-called pincer gate (*Zangentor*), which narrowed the passage to the settlement. The approach to the gate from outside was channelled through a zigzag corridor, built of huge stone blocks. The corridor passed the area with artificially hewn stone terraces and led

¹⁷ Monkodonja I, 273-307 Appendix 4.

¹⁸ Monkodonja I, 178-193.

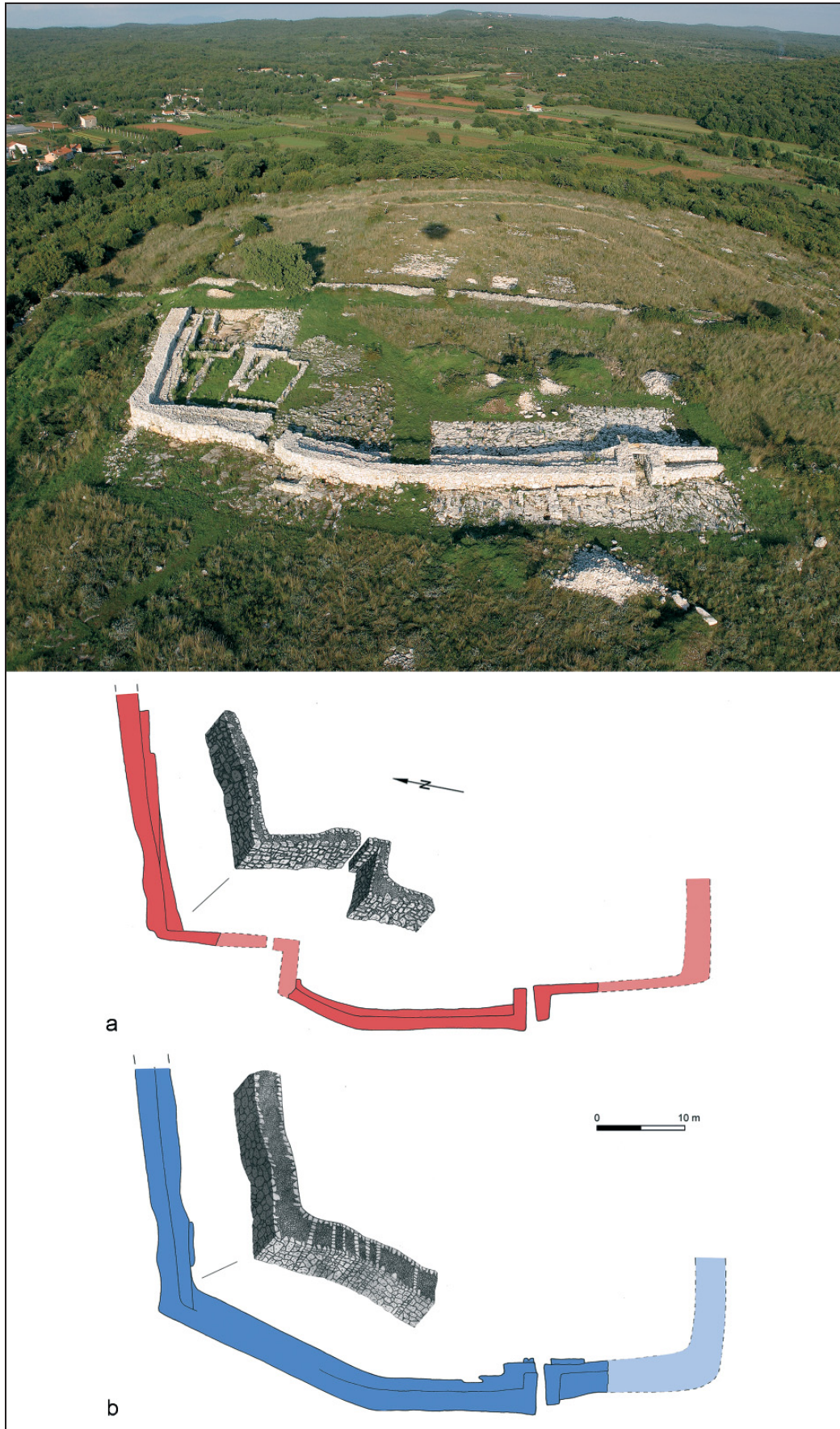


Fig. 5 Monkodonja. **a** Aerial view of the acropolis area after the conclusion of archaeological excavations and restoration work on the fortification; **b** Schematic drawing with the fortification line on the western side of the acropolis area (red colour - first stage; blue colour - second stage) with drawings of its reconstruction (a: after Monkodonja I; b: drawing by I. Murgelj and M. Schnelle)



Fig. 6 Monkodonja. **a** Ground plan of the excavated northwest area of the acropolis with the first building phases of the fortification (red colour); **b** Ground plan of the younger building phase with the last rebuilding of fortification (blue colour) (a-b: after Monkodonja I, altered)

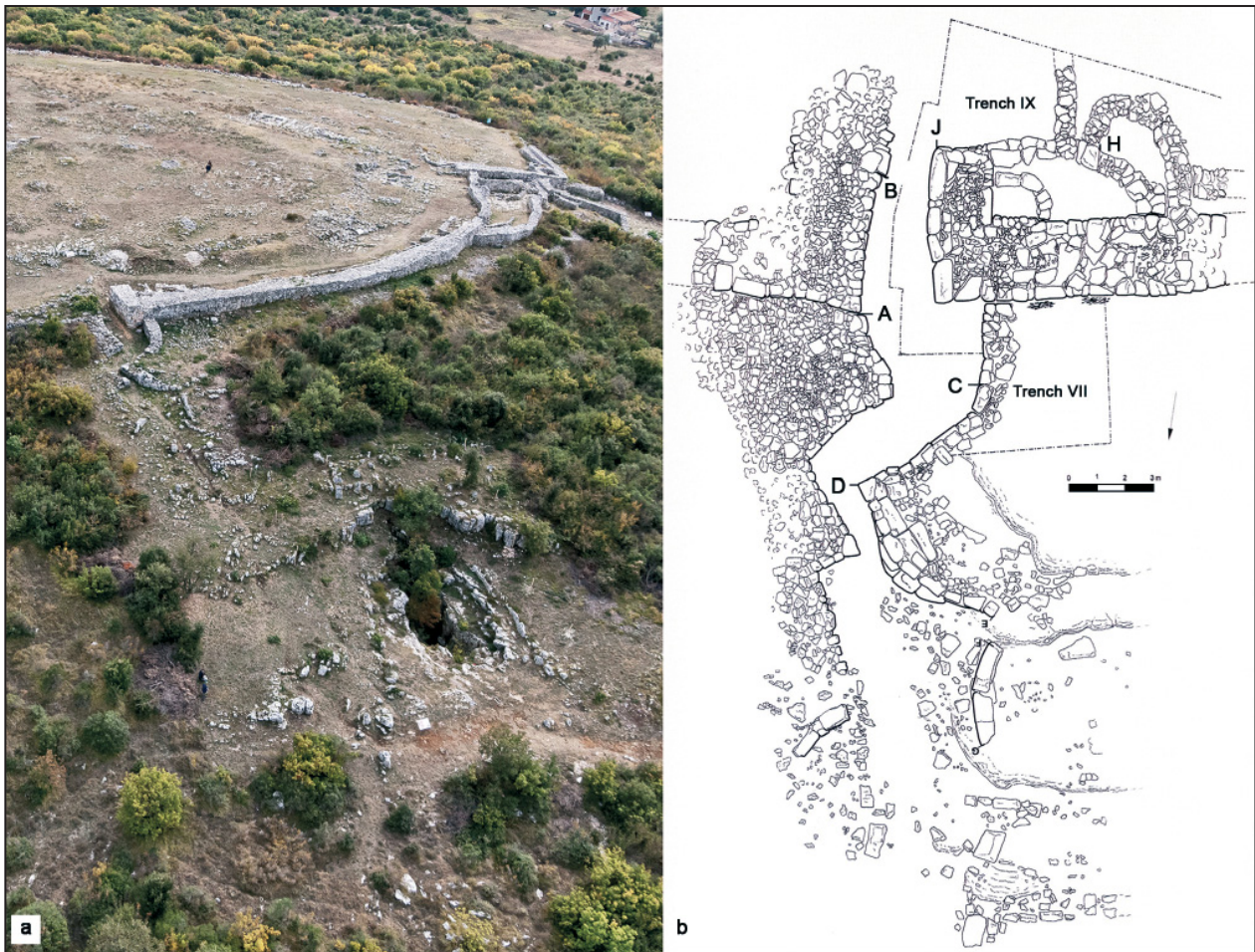


Fig. 7 Monkodonja. North Gate of the main fortification wall: **a** Aerial view; **b** Drawing (a-b: after Monkodonja I)

to the precipitous hole of a vertical cave – an area, which in all probability functioned as a specific cult place. A rather particular construction of this northern entrance, the position of which was obviously dependent upon the location of the cave in the slope of Monkodonja hill, could possibly be interpreted as a hidden and fairly safe pathway, used for particular ritual practices.

Additional defensive features for the protection of the Monkodonja settlement have been discovered on the slopes of the hill, especially between the northern and western gates of the main fortification and to the south of the latter. Here we documented several groupings of stone obstacles in pillar-like shapes, which were up to one meter high.¹⁹ Such obstacles are typical of a specific type of defensive structures, which can be paralleled with the so-called “*chevaux de frise*” or “Spanish rider” of the early modern period. Such defensive structures are known also from other hillfort settlements in

Istria such as at Vrčin and Gradac-Turan near Koromačno, and also elsewhere, such as in Apulia at Coppa Navigata²⁰ and some sites in Greece. Their function is generally associated with protection against mounted attackers.

Change of the Defensive Concept: Monkodonja in Context of the Castellieri Culture

Due to our extensive research at the settlement of Monkodonja it is now possible to discern nearly the same kind of defensive constructions as well as conceptual changes and renewals of fortification systems, especially of gates, in several other Castellieri settlements in Istria and in the Karst Region.²¹ Here we wish to present only some of the fortification examples that have been either discovered in the past or can still be seen, and

¹⁹ Mihovilić *et al.* 2013, 69-71 Figs. 12-14; Monkodonja I, 238-243 Figs. 181-188.

²⁰ See Recchia/Cazzella in this volume.

²¹ Monkodonja I, 168-174. 464-466 Figs. 117-121. 323.

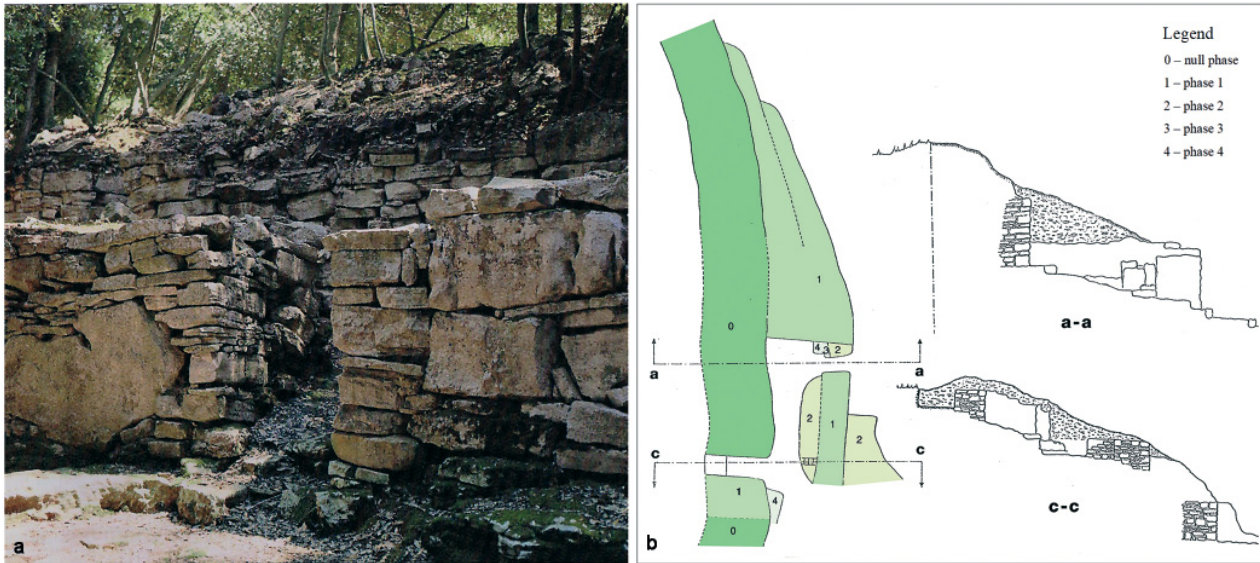


Fig. 8 Gradina on the Veliki Brijun/Brioni Island. **a** View of the gate from outside of the settlement; **b** Ground plan and cross-sections of the excavated area of the gate, leading to the settlement (the numbers indicate various building phases; according to Vitasović 2000) (a: photo by K. Mihovilić; b: drawing by I. Murgelj)

which offer further considerations or support for our observations and research at Monkodonja.

The relatively comprehensible case of the gates at the settlement of Gradina on the Veliki Brijun/Brioni Island²² demonstrates features, built throughout several construction or rebuilding phases, which are almost identical to the examples discovered at the West Gate of the main fortification at Monkodonja (Fig. 8a-b). Overall, the first building phase of the gateway at Gradina still shows rather simple gates, which by the last construction phase were doubled and integrated within a curved course of the fortification wall. Likewise, the settlement of Karaštak,²³ located to the east of Rovinj and characterised by its fortification walls made of large stone blocks and slabs or orthostats, also features gates with several construction phases (Fig. 9a-c), comparable to the examples at Monkodonja and on the Veliki Brijun/Brioni Island. Further fortified settlements with similar complete examples of gateway structures, which had been rebuilt several times and display identical fortification concepts as in the case of Monkodonja, are known from the hillfort of Vrčin,²⁴ where archaeological excavations took

place already in the early 20th century, and from Monvi near Rovinj,²⁵ where the first excavations were conducted only in the last year.²⁶

In general, it can be stated that the four examples of excavated gates at the settlements of Monkodonja, Veliki Brijun/Brioni Island, Karaštak and Vrčin differ in details, but nevertheless demonstrate clear similarities in their constructional concepts. In the first building phase, during the settlement foundation, the fortification walls had been still relatively narrow (about 1.5 to 2 m), while the gateways were rather simple constructions, obscured by the angles or corners of the projecting fortification walls in order to safeguard the settlement entrances. Throughout the period of the settlement occupation the fortification walls and the gates were repaired and renewed several times, so that in the last phase the width of the fortification walls in the case of the Monkodonja settlement reached about 5 m and more, whereas its height is estimated to have been 5 m or possibly even more. In the final rebuilding of the fortifications the defensive concept was changed, the walls now had a continuous line without angles and corners, and the gates were much better forti-

²² Vitasović 2000; Monkodonja I, 169-170. 464-466 Figs. 118. 323,9-10.

²³ Bačić 1970; Mihovilić *et al.* 2001, 58-59; Monkodonja I, 169-170 Fig. 117.

²⁴ Monkodonja I, 170-172. 464-466 Figs. 119-120. 323,7-8; Mihovilić 2015, 14-31 Figs. 1-2. 4. 8.

²⁵ Kaspar/Kaspar 2014, 147-149.

²⁶ For the information about the excavations, led by S. Müller and M. Čuka, we wish to thank our colleague A. Hellmuth Kramberger, who also informed us that the ceramic discovered during the excavations contains the same types that can be found at Monkodonja as well; cf. Monkodonja II.

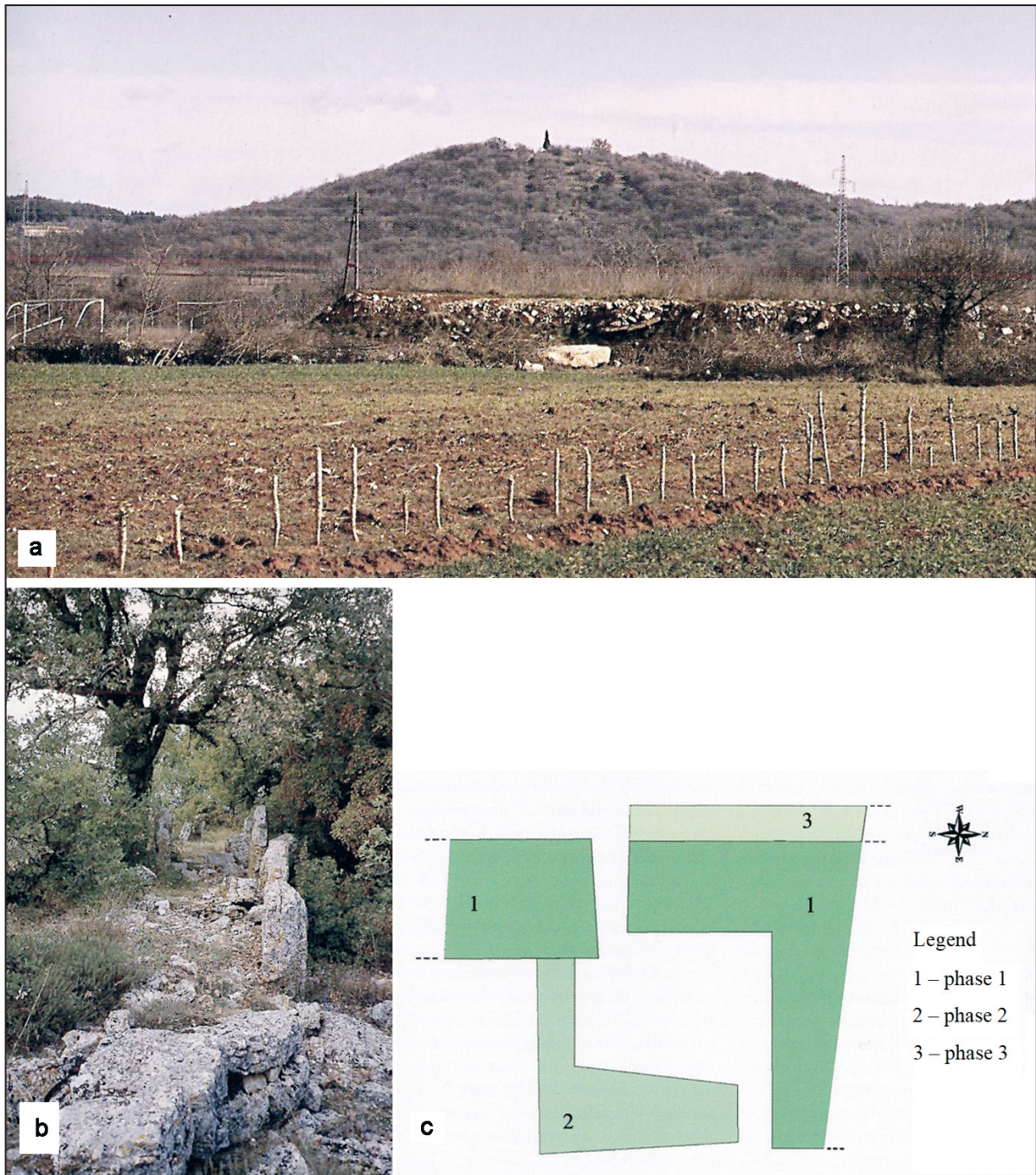


Fig. 9 Karaštak hillfort near Rovinj, eastern gate in the main fortification wall. **a** View of the hill Karaštak with the hillfort; **b** View of the fortification wall remains, built with orthostats; **c** Ground plan of the gateway to the settlement (the numbers indicate different construction stages) (a-b: photographs by D. Matošević; c: drawing by I. Murgelj)

fied. Such a defensive strategy thus became a new feature of the entire Castellieri culture. Unfortunately, we still lack reliable information regarding the construction of the so-called “*chevaux de frise*” or “Spanish rider”, that is, whether we could connect them with the first or the second building phase of the fortification at Monkodonja.

The question arises as to when the discussed concept of defence strategy had been changed? The chronological framework of the fortification rebuildings at Monkodonja could be established on

the basis of approx. 40 radiocarbon dates, which were analysed in the Kiel laboratory and wiggle-matched by Bernhard Weninger in Cologne.²⁷ At present we have rather reliable data regarding the foundation and first fortification constructions at the Monkodonja hillfort. The building works started around 1800 cal BC or even a bit earlier, the settlement underwent large-scale renovations

²⁷ Hänsel *et al.* 2005; 2007; Monkodonja I, 424-425. 504-509 Figs. 318-320.

about 1600 cal BC or during the 16th century BC at the very latest and was destroyed around 1500 cal BC or no later than in the middle of the 15th century BC. In the relative chronological sense this lifespan of the Monkodonja settlement corresponds to the Early Bronze Age A2 period and to the Middle Bronze Age B–C1 period (according to the chronological scheme of Paul Reinecke).

It is reasonable to suppose that the validity of the results from our research go beyond the example of the Monkodonja hillfort, as they also affect the entire chronology of the Early and the beginning of the Middle Bronze Age in the Istrian Peninsula and beyond, that is, in the region along the Adriatic coast and its hinterland. This means that the conceptual changes in the construction of fortifications and in defensive strategy occurred both at the Monkodonja settlement as well as at several other hillforts in Istria around 1600 BC or during the transition period between Early Bronze Age A2 and Middle Bronze Age B1.

Causes for the Change in the Fortification Concept and Defensive Strategy

On the whole, it seems that the new fortification concept was introduced, because the defensive measures were not efficient enough anymore and the inhabitants felt their security was in danger. What was the cause for such conceptual changes? It is difficult to offer a proper answer to this question only on the basis of our excavations and subsequent research, but we nevertheless assume that the reasons were not simple, but instead manifold.

Possibly, we could see in these changes the introduction of new defensive concepts following the fortification systems in the Aegean or the Eastern Mediterranean area, which are known for example at Kolonna on the island of Aegina or in Troy. At the multiphase settlement on Aegina, the origins of which can be placed as early as the beginning of the third millennium BC, additional constructions of a mighty fortification wall had been erected in the phase VII–VIII (around 2000 BC). In this phase they completed the outer perimeter fortification wall together with complicatedly structured gateways, which were protected with curvilinear walls and towers or bastions.²⁸

Although the comparison with Troy might seem at first as too distant and daring, the conceptual similarities in the fortification system between the latter and the Monkodonja hillfort are striking. At the settlement of Troy fundamental changes can be observed in the construction of the fortification walls between the phases of Troy II and Troy VI (Fig. 10). The course of the fortification walls in the time of Troy II changed in orientation through a series of corners with either right or obtuse angles in a manner similar to that established for the defensive wall in the Monkodonja settlement in its first building phase. A completely different principle is offered by the fortification of phase Troy VI, with which the area of the protected city was enlarged. The fortification walls now encircled the city in a gentle curve, which again resembles the circuit of defensive walls at the Monkodonja settlement in its second building phase. The only obvious difference are two or three additional defensive towers at Troy, two of which are located however in the immediate vicinity of the entrances or gates. The conception of the latter allows us to draw further comparisons between the settlements of Troy and Monkodonja. Both in the period of Troy II and Troy VI we can observe several gates leading to the settlement, all of which differed from one another in their construction. This fact probably points to a carefully considered and sophisticated defensive strategy. The same also holds true for the Monkodonja settlement, where the western, principal gateway differs in construction from that of the northern gates in the main fortification wall, both in the initial and the last phase of the settlement (Figs. 4, 7). Furthermore, one of the entrances to the acropolis was deleted and walled up, while the other was additionally fortified and consequently better protected (Figs. 5–6). It should be emphasised that Troy VI is fairly contemporaneous with Monkodonja and that the rebuilding of its fortification can be placed in the period of the 17th century BC;²⁹ therefore, the renovation had not begun much earlier than in Monkodonja. At Troy conceptual solutions and changes in the construction of its fortification wall can thus be observed, which do not seem to be completely unlike those in Monkodonja and some other hillforts in Istria.

²⁸ Walter/Felten 1981; Monkodonja I, 174–177 Figs. 122–123; see Gauß in this volume.

²⁹ Korfmann/Mannspurger 1998 Abb. 41. 45. 48 Appendix 1; Korfmann 2001, 347–349 Figs. 368. 403; Klinkott/Becks 2001, 407–414 Fig. 461.

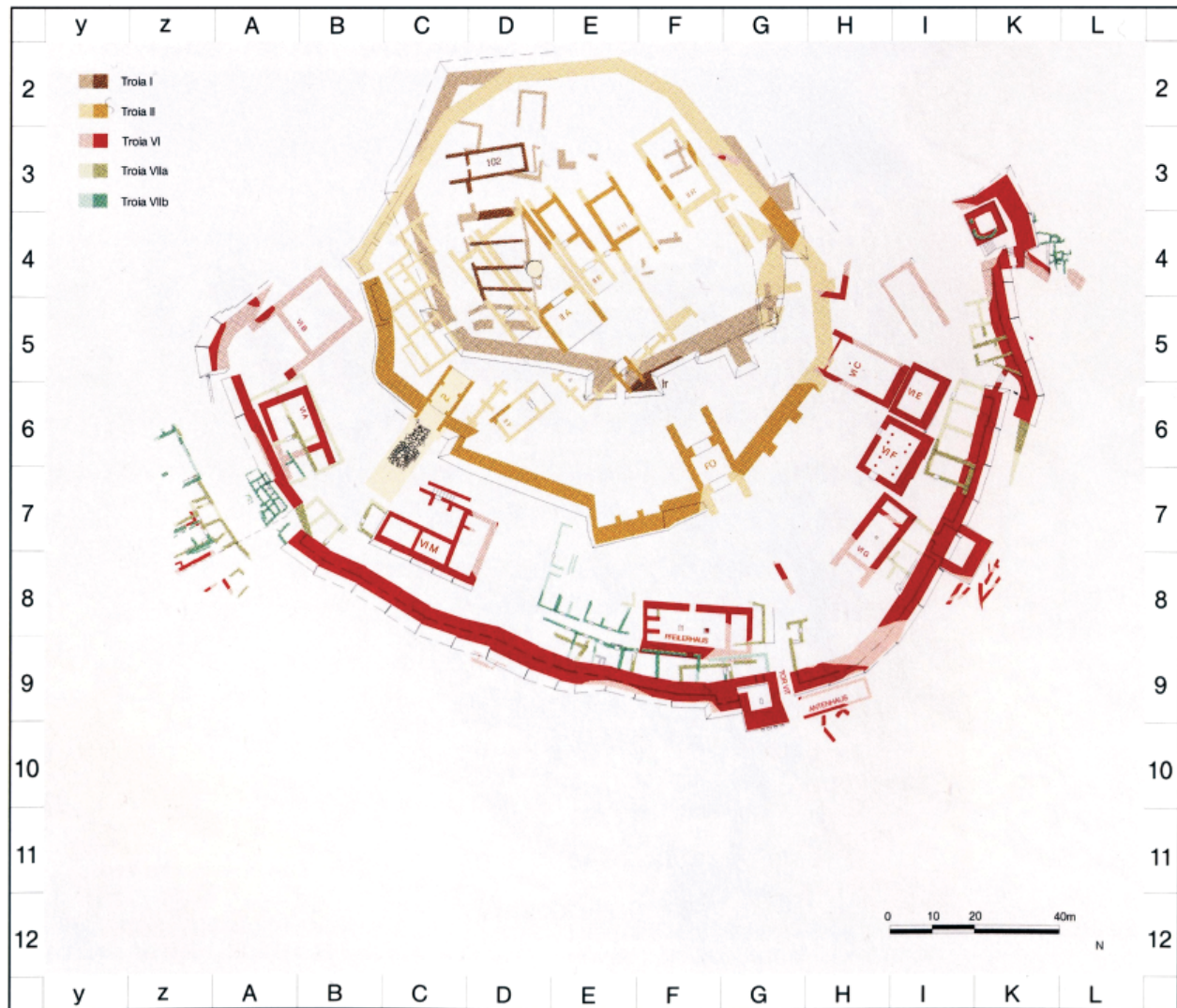


Fig. 10 Troy. Schematic plan with different phases of city fortification; important for our discussion here are especially the phases Troy II (ochre) and Troy VI (red) (according to Korfmann/Mannsperger 1998)

At the same time one further astonishing construction detail should be pointed out: a similar use of cassette- or box-like structures for the construction of the fortification walls was employed both on the northern section of the western side of the acropolis fortification at Monkodonja (Fig. 5b. 6b, blue phase)³⁰ as well as for the oldest fortification at the Hittite capital of Hattusa. The only structural difference lies in the fact that at Hattusa these “interior rooms” of the so-called casemate walls had been packed full of earth, while at Monkodonja they were filled with middle- and small-sized stones. Such a construction of cassette-like walls is dated at Hattusa in the 16th or more likely as early as in the late 17th century BC.³¹ Curiously

enough, this dating completely accords with our dating of the last rebuilding of the acropolis fortification at Monkodonja. Either these similarities in constructional technique are indeed purely coincidental, or they point to the transmission of knowledge through paths yet to be resolved.

Another cause for the change in the defensive strategy of the Istrian hillforts should possibly be sought in the new techniques of warfare.³² As is well known, in the European territory a new type of offensive weapons asserted itself at the transition to the Middle Bronze Age period (B1), such

³⁰ Monkodonja I, 296-299 Figs. 231. 234-235 Appendix 4.

³¹ For information about the construction mode of the fortification walls in Hattusha and regarding the pub-

lications we thank the colleague Andreas Schachner (DAI, Istanbul Department); cf. Seeher 2006a; 2006b, 37; Schachner 2015, 72-73.

³² The changes in the style of warfare and defence in the Late Bronze Age have been discussed recently in a special study; cf. Heeb *et al.* 2014 Fig. 29.

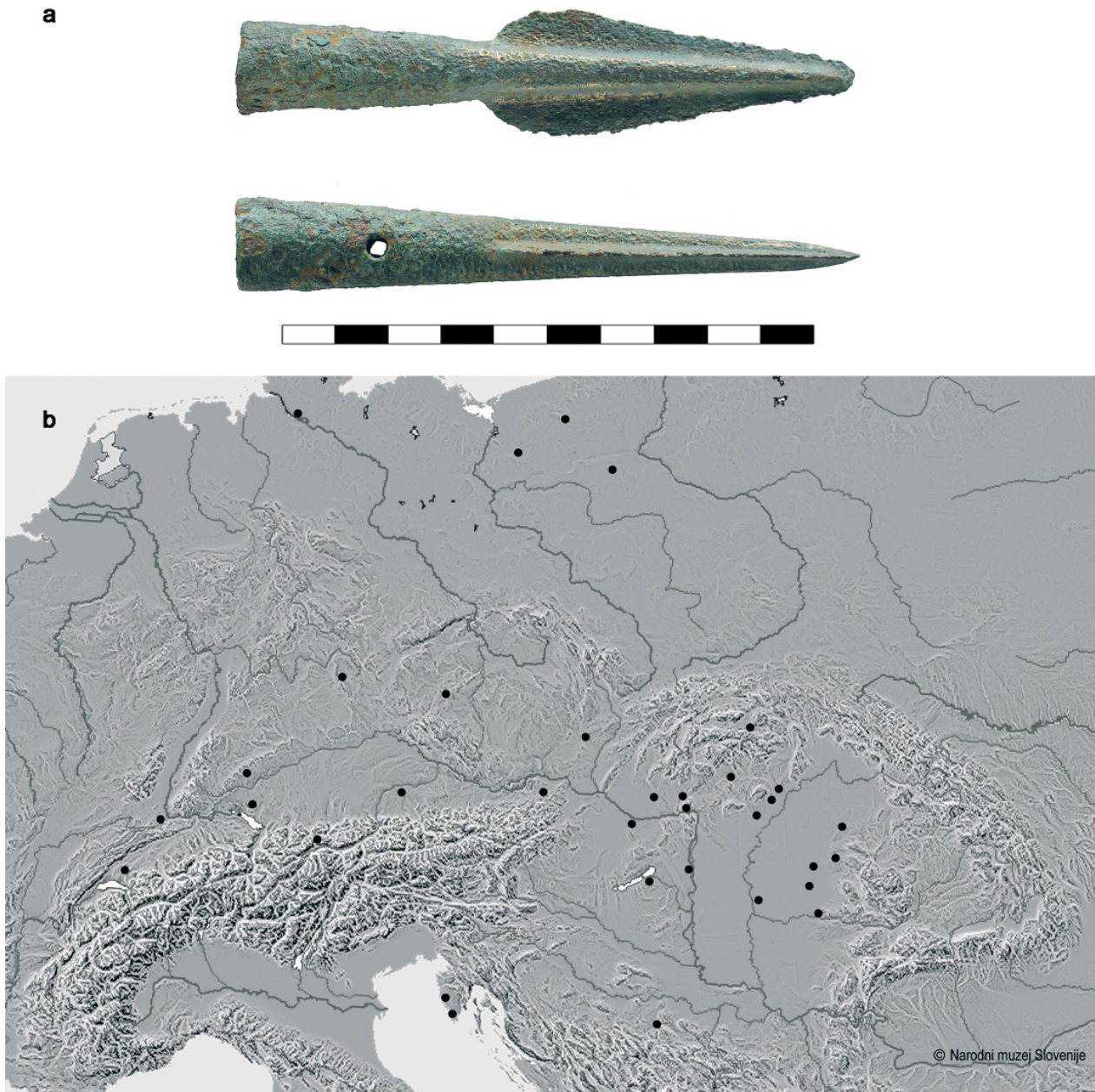


Fig. 11 Monkodonja. **a** Bronze spearhead, which was discovered under the stone rubble of the acropolis fortification; **b** Distribution map of this type of bronze spearhead, which was also discovered in Monkodonja (a: after Monkodonja I; b: map by V. Svetličič)

as bronze spears and swords,³³ as well as protective armour (helmets,³⁴ shields³⁵) and perhaps also cavalry.³⁶ These innovations resulted in a new style of warfare, which most probably provoked more

recurrent conquering expeditions and looting. The response came in the new strategies of settlement defence and consequently in the renovation of fortifications. As already mentioned, at the settlement of Monkodonja we found no remains that would help us to explain the conceptual change in the fortification walls around 1600 BC. Nonetheless, several pieces of weaponry (spear, axes, dagger, stone slingshots)³⁷ have been discovered in find circumstances or contexts, which clearly indicate that the cause for the end of the settle-

³³ In the last years a lot has been written about this topic, therefore we mention here only the overviews, such as Harding 2007 and Hänsel 2009 as well as the volumes of “Archaeologia Homerica” dedicated to warfare; cf. Buchholz/Wiesner 1977; Buchholz *et al.* 1980; 2010. Cf. Hansen in this volume.

³⁴ Hänsel 2003; Buchholz *et al.* 2010.

³⁵ Borchhardt 1977, 6-12 Fig. 8, I-II.

³⁶ Hüttel 1981; 1982, 58-60; Cotterel 2004; Metzner-Nebelsick 2013, 336-337 Fig. 1.

³⁷ Monkodonja I, 144-146. 303-305 Figs. 93-94. 240-242.

ment around 1500 BC had been a military defeat and that the fortification system evidently was not able to withstand the assault of the aggressors. On the basis of typological characteristics of both the spearpoint and axes from Monkodonja, which belong to the Middle European weapon types, we should search the place of origin for the assailants of Monkodonja in the territory between the Carpathian Basin and the Rhineland (**Fig. 11a-b**).³⁸

Conclusions

To summarise, we can conclude that the fortification system at Monkodonja reflects the changes, which were related to two, if not even three important historical developments: the first phase represents the founding colonization act, which is directly connected with the formative phase of the Castellieri culture; the second phase comprises a new fortification concept which led to a thorough rebuilding of the fortification as a response to the challenges of the new modes of warfare; and finally, with the demise of the settlement starts a turbulent period of “agitation” and migrations as well as the formation of new military elites,³⁹ culminating a century or two later with the transition of the Middle to the Late Bronze Age.

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³⁸ Monkodonja III in press.

³⁹ As are attested for example in the numerous warrior graves containing swords in the necropolis of Olmo di Nogara in the Veneto region; see Salzani 2005.

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