

A new look at an ancient city: An outline of the chronological and urban development of the Hittite capital Ḫattuša

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Abstract

The intense use of scientific dating over the last three decades makes it possible for the first time reasonably to connect the topographically diverse parts of the Hittite capital Ḫattuša. Not only was the decision to found a city at this site based on pre-Hittite parameters, but at the same time, it also becomes clear that the settlement is one of the very few in Anatolia which was continuously used from the end of the third millennium BC through the second millennium until the beginning of the Iron Age. Furthermore, the accumulation of radiocarbon dates in individual, archaeologically intensively studied areas of the site makes it now possible to understand the development as a dynamic and fluent process. Based on the results outlined here, permanent moves back and forth of the settled areas within a geographically defined space can be reconstructed. The Hittite city of Ḫattuša was always a construction site. Next to densely built-up districts there existed at all times large expanses of either ruins of buildings or of open spaces, which could have been used as pasture or arable land. The settlement's map, regularly reproduced as its overall plan, thus represents a status reconstructed or idealised by modern research. Most probably the settlement was at no time occupied to this extent, and accordingly never looked like this in its history.

Özet

Son otuz yılda bilimsel tarihleme tekniklerinin yoğun bir şekilde kullanılması, Hitit başkenti Ḫattuša'nın topografik açıdan bölünmüş olan kısımlarını ilk kez makul bir şekilde birbirine bağlamayı mümkün kılmaktadır. Burada bir kent kurma kararı yalnızca Hitit öncesi parametrelere dayanmakla kalmamış, aynı zamanda yerleşimin Anadolu'da MÖ üçüncü binyılın sonundan ikinci binyıla ve Demir Çağı'nın başına kadar kesintisiz olarak kullanılan çok az sayıdaki yerleşimden biri olduğu da anlaşılmıştır. Artık, arkeolojik olarak yoğun bir şekilde çalışılmış münferit alanlardaki radyokarbon tarihlerinin toplanması, gelişimi dinamik ve akıcı bir süreç olarak anlamayı mümkün kılmaktadır. Burada özetlenen sonuçlara dayanarak, coğrafi olarak tanımlanmış bir alan içinde yerleşik alanların sürekli olarak ileri geri hareket ederek yeniden yapılandırıldığı anlaşılır. Hitit kenti Ḫattuša her zaman bir inşaat alanı olmuştur. Yoğun yapılaşmanın olduğu bölgelerin yanında her zaman, mera ya da ekilebilir arazi olarak kullanılacak geniş alanlarda ya bina kalıntıları mevcuttu ya da boş alanlardı. Yerleşimin genel planı olarak düzenli bir şekilde tekrarlayarak yayınlanan haritası, böylece modern araştırmalar tarafından yeniden inşa edilen veya idealize edilen bir durumu temsil etmektedir. Büyük olasılıkla yerleşim hiçbir zaman bu ölçüde iskan edilmemiştir ve dolayısıyla tarihinde hiçbir zaman böyle görünmemiştir.



Figure 1. Aerial view of Boğazköy/Hattuša from the north (10/2021). In the foreground lies Büyükkaya and the gorge of the Budaközü, which borders the city to the east. On the upper-right side of the picture, the cutting of the Yazır Deresi is visible (Photo: Y. Dallal © Archive of Deutsches Archäologisches Institut, Istanbul).

The structural history of the settlement in Boğazköy has been updated continually with new results since its discovery. Due to the rich findings of the Hittite period and their historical significance, the city of this era has been the focus of research. This has led to an artificial disconnection of the Hittite period from the older phases and from their significance to the history of the Hittite city as it has come to be understood in recent years (Schachner 2020a; forthcoming a; for the historical background cf. Wilhelmi 2016; Gates 2017). In contrast, it becomes clear that the history of the settlement as a whole must be taken into account diachronically to understand each cultural period's characteristics and to differentiate between *longue durée* factors caused by geography and those due to anthropogenic decisions (Schachner 2022a).

In the context of this paper, a discussion of whether and how the terms 'city', 'town', etc. can be applied to the Bronze Age of Anatolia is not possible. In the absence of generally accepted definitions, I use the terms interchangeably to denote large settlements whose societal complexity is architecturally observable in the diversity of the archaeological structures, which can be labelled as 'urban' (among many others: May, Steinert 2014: 3–13).

The first attempt to reconstruct the structural development of the Hittite city was ventured by O. Puchstein (1912). Shortcomings of these early considerations notwithstanding, his reconstruction was already based on a linearly conceived urban development. With the renewal of research, the exploration of Boğazköy entered a more structured phase in 1931. K. Bittel concentrated his work on Büyükkale, recognising that a comprehensive stratigraphy might be excavated there (Bittel, Naumann 1952). In fact, the remains on Büyükkale differ from most other parts since, especially in the south of the plateau, the building layers stratigraphically follow each other similar to a tell-settlement. Except for the Chalcolithic period (?), the earliest Iron Age, the Hellenistic-Galatian and the Byzantine periods, practically all stages of the settlement are represented (Neve 1982; for recent work cf. Becker, Schachner 2023).

By extending research, the relative stratigraphy developed for Büyükkale was transferred to other parts of the city despite topographical divisions. In the absence of direct stratigraphic connections, K. Bittel's and P. Neve's parallelisation between the different areas relied on the allegedly well-dated cuneiform texts (but cf. Klingler

2006; 2022), pottery (but cf. Schoop 2006) and/or outstanding solitary finds (e.g. dated seals or seal impressions), without considering the heterogeneous topography and complex taphonomy of Boğazköy. But, especially the later has a strong impact on the assessment of the finds. Recent observations show that at best a fraction of finds, regardless of which category, can be considered ‘*in situ*’ (Schoop 2006: 216–19; Gruber 2017: 64–69; Schachner 2017a: 13–16; Strupler 2022: 24–33, 100–25). Rather, they prove to be highly mobile objects due to the taphonomic processes. As such, they only very rarely contribute to the dating or functional determination of a structural context. All in all, the model of a tell-settlement was (unconsciously?) used by K. Bittel as a basis for the entire site despite the topographical heterogeneity and the complex taphonomic processes.

The heterogeneous landscape caused not only a functional but also a chronological structuring, which has not been considered in the scientific discussion, especially by K. Bittel and P. Neve. The result was, at least according to today’s knowledge, only a seemingly well-dated, linear development model in likewise only apparently clearly defined time slices (for a graphic realisation of this model cf. Neve 1982: suppl. plans 2–8). Without further methodological reflections, later interpretations of the Bronze Age urban history were influenced by preconceived historical scenarios (Seeher 2006b; 2006c; 2006d; 2008), resulting in a linear model starting with a small nucleus from the turn of the third to the second millennium BC, and reaching its greatest extent in the 13th century BC, with a hiatus between the *kārum* period and the Old Hittite kingdom (Neve 1982: suppl. plans 2–8). Since the potentials of radiocarbon dating were deliberately not used by K. Bittel and P. Neve (Schachner, Becker 2022: §11), this linear model continued to be reproduced by the excavators until the early 1990s (Neve 1982: 5, tab. 1; 1999; 2001).

Based on supposedly securely dated texts, the archaeological findings and architectural structures were routinely associated with historical events without further discussion, which led to the circular reasoning we know today (Klinger 2006; Seeher 2006b; 2006c; 2006d; 2008). A striking example of this approach is the adoption of the textually documented and thus seemingly secured *hiatus* between the time of the Old Assyrian merchant colonies (*kārum*) and the founding of the Old Hittite kingdom (Bittel 1983). As a consequence, this constructed break in the settlement history resulted in the unjustified cultural characterisation of important structural features of the city as being genuinely Hittite, especially the characterisation of the settlement as a ‘mountain town’ by K. Bittel (1983: 36; cf. also Schachner 2020a), but also of certain types of pottery (for a critical discussion of Hittite pottery cf. Mielke 2017).

Only the systematic use of scientific dating methods since 1994 (Schoop, Seeher 2006; Seeher 2006b; 2006c; 2006d) – in combination with refined statistical evaluations of the pottery (Mielke 2006a, 2017; Schoop 2006; Strupler 2013; Gruber 2017) and particularly a critical evaluation of the significance of taphonomic processes (Schoop 2006: 216–19; Gruber 2017: 64–69; Schachner 2017a: 13–16; Strupler 2022: 24–33, 100–25) for excavated features, as well as the location of the finds (for a critical evaluation of the circumstances of finding cuneiform texts cf. Klinger 2022) – have made possible a new approach to reconstructing the settlement’s structural history presented here. Since, in parallel, similar chronological results were obtained at several Hittite sites (e.g. Kuşaklı: Mielke 2006a; Müller-Karpe 2017), this chronological framework proved viable at a supraregional scale.

Taking this new understanding of the site into account, it turns out that at Boğazköy the history of each topographically defined unit must first be considered individually (Schachner 2017b; Seeher 2018; for the topographical units cf. Fig. 2). In a second step it is possible to connect the development of the various parts of the settlement with each other, and only in a final step may a connection with punctual historical events be considered.

In this context, a critical evaluation of which phase in the lifespan of a building is dated is of crucial importance. Charcoal even from stratigraphically secure contexts usually originates from construction timber, so it dates the phase of construction or renewal. To avoid the problem of old wood or the reuse of timber from older buildings it is necessary, to the extent possible, to date more than a single sample from a given archaeological context.

In contrast, dating the period of use exactly is hardly ever possible using archaeological material due to the taphonomic conditions in Boğazköy, because finds are rarely *in situ* in Hattuša due to various secondary influences, a fact never taken into account by K. Bittel and P. Neve. Additionally, a critical evaluation of the stratigraphic situation of the finds and the pottery, as well as their statistical evaluation, may give clues to the duration of use (Schachner 2017a: 13–16, 306–07; Strupler 2022). The end of a building is usually the most difficult to reconstruct since intact floors with cultural material *in situ* are rarely encountered in most phases of the archaeological site of Boğazköy (Seeher 2001).

Since this paper aims to present a general outline of the settlement’s structural development based on the archaeological remains, it is not necessary to repeat the discussion of the already published radiocarbon datings (for the methodology Schoop, Seeher 2006; for the most recent dates cf. the yearly reports in *Archäologischer Anzeiger*: Schachner 2022c: §14–22; 2023a: §7, 21–22; for a

comprehensive list of radiocarbon dates of all periods of Boğazköy cf. Schachner 2023b). By their nature, radiocarbon datings are to be understood only as approximations because of the statistical errors inherent in the method. As a consequence, their statistical ranges do not allow matching with punctual historical events! Due to this fact comparative charts of the various archaeological layers in the discrete topographical units oversimplify the complex development, and thus are avoided in this context since they have proved to be misleading (cf. instead Fig. 16). However, supplemented by further observations especially of the taphonomic processes which heavily influenced the formation of the site, the data allow various parts of the settlement to be generally equated, and thereby to be integrated into an archaeologically founded picture (Fig. 16). This may finally permit comparison with the historical developments in a second analytical step, though that is not the aim of this paper.

Regardless of the improving understanding of the general historical and archaeological chronology of the Hittite period and especially the archaeological sequences at Hattuşa through the use of scientific dating methods, fundamental disagreements still exist with regard to the naming and correlation of philological and archaeological terminologies (Dinçol 2006: 19–33; Mielke et al. 2006: 1–3; Genz, Mielke 2011: 14–19). Since absolute dating is still only available in limited cases and in very few settlements, the traditional nomenclature will continue to be used for the following discussion as well. This is summarised in Table 1 without repeating explanatory comments (Genz, Mielke 2011: 14–19, fig. 2; Schachner 2011a: 13–19):

Geography matters

The area occupied by the Hittite capital extends more than 2km in length and over an elevation difference of almost 400m on a slope of the Zincirli Dağları, descending from south to north into the valley of the Budaközü River. The Bronze Age city lies on an elevated plateau bordered by deeply cut valleys to the west (Yazır Deresi) and east (Budaközü canyon) (Fig. 1). This is how the frequently described, easily defensible, and therefore strategically favourable location is created (Bittel, Naumann 1952: 15–20). But as shown elsewhere, the decision to erect here a city *ex nihilo* is much more complex in terms of the socio-cultural trajectories (Schachner 2020a).

In the eyes of visitors and researchers, the location of the Bronze Age ‘mountain city’ seems most unfavourable, but for a long time it has been seen as *the* feature *par excellence* of Hittite culture (Bittel, Naumann 1952: 24; Bittel 1983: 36). But, since it is understood due to new stratigraphic excavations in the Lower City that there was no *hiatus* between the early phases of the urban settlement and the Hittite period (Schachner 2015; 2020d) the supposedly typical Hittite location is obviously due to decisions made long before the emergence of the Hittite dynasty. As such, the development of a characteristic urbanism adapted to the mountainous landscape of parts of Asia Minor are a product of Anatolian trajectories, not of the Hittite dynasty’s decisions (Schachner forthcoming a). Against the background of the *longue durée* of the history of Central Anatolia, the choice of the site’s location can be explained as an amalgamation of the political, economic and sociocultural networks in the late third millennium BC, the preconditions of physical geography and culture-

<i>Absolute dating</i>	<i>Governance</i>	<i>Philological/historical terminology</i>	<i>Archaeological terminology</i>	<i>Neutral terminology</i>
ca 1350/00–1180	Hittite Empire	Empire period	developed Empire	Late Bronze Age II
ca 1530–1350/00	Hittite Empire	Middle Hittite	early Empire	Late Bronze Age I
ca 1650–1530	Hittite kingdom	Old Hittite	Old Hittite	Middle Bronze Age II
ca 1720/00–1650	unknown		intermediate	Middle Bronze Age I
ca 1720/00 –2100/2000	Anatolian principality	kārum period / old Assyrian period	kārum period	

Table 1. Comparison of different terminological labels for the cultural development of Central Anatolia during the second millennium BC. The absolute datings are based on the middle chronology (Dinçol 2006; Barjamovic et al. 2012, 29–30, 32–34).

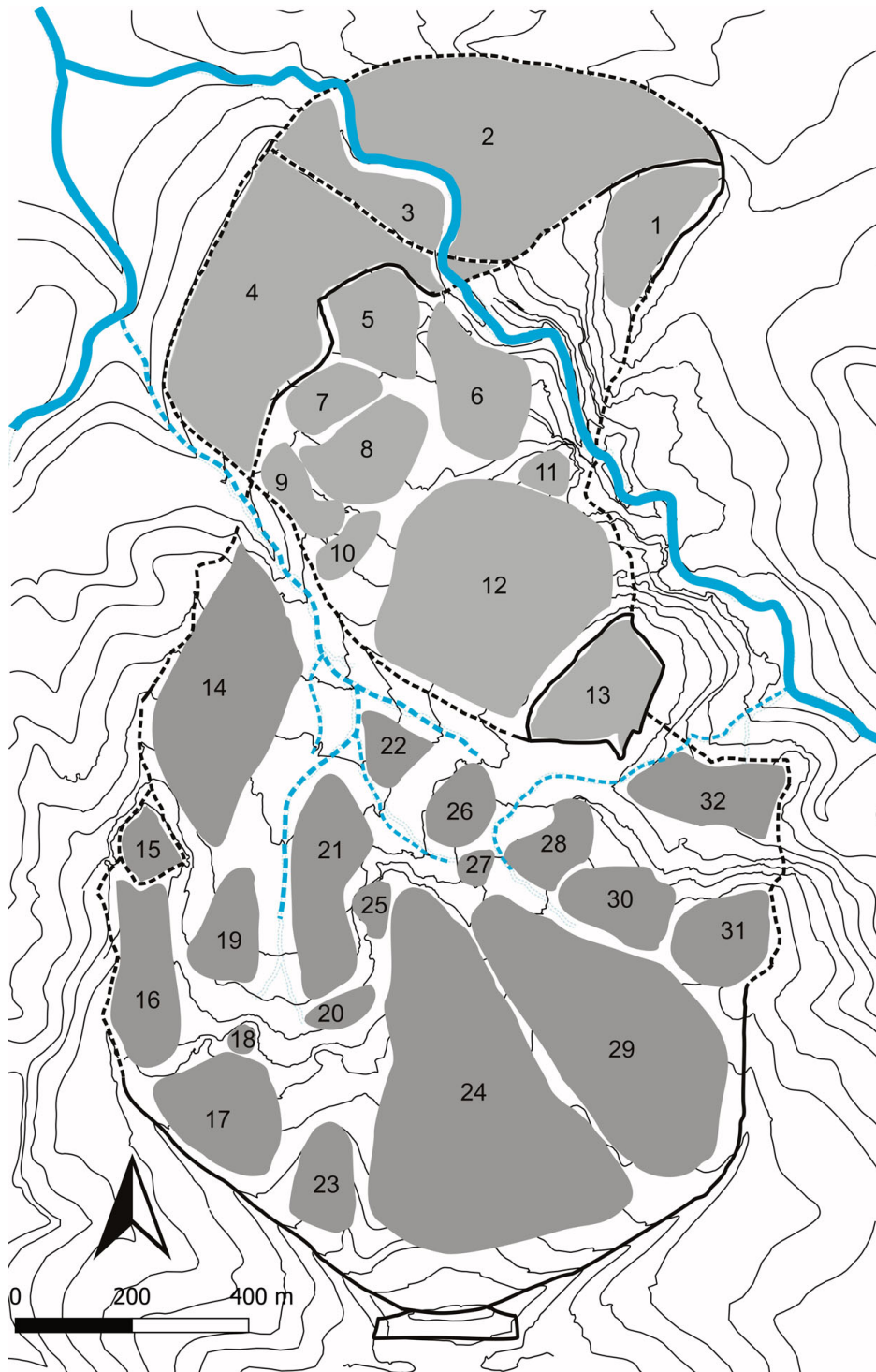


Figure 2. Schematic map of the geographical zoning of Boğazköy (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul). Topographical units: 1) Büyükkaya plateau; 2) Büyükkaya North Slope; 3) Northern part of the Western outer Lower City; 4) Western outer Lower City; 5) Lower City northern terraces; 6) Lower City Budaközü bank; 7) Central Lower City; 8) Great Temple and Südareal; 9) Southern Lower City; 10) Lower City Kesikkaya; 11) Ambarlıkaya; 12) Büyükkale Northwest Slope; 13) Büyükkale; 14) Upper City Western Slope; 15) Upper City Taanıkaya; 16) Upper City west; 17) Upper City southwest; 18) Upper City, Yenicekale; 19) Plain east of Taanıkaya; 20) Upper City Middle Plateau; 21) Upper City, valley west of Sarikale; 22) Upper City northern terrace; 23) Southern ponds; 24) Central plain of the Upper City; 25) Sarikale; 26) Nişantepe western plateau; 27) Nişantepe; 28) Upper City Südburg; 29) Upper City eastern plain; 30) Eastern ponds; 31) Upper City eastern terrace; 32) Upper City eastern plateau.

independent parameters of Central Anatolian settlement geography (Schachner 2020a; 2022a; cf. also Hütteroth 1982 for the geographical background). In contrast, its long and uninterrupted use, as well as its continuous status as the capital city of the Hittite Empire even in periods when individual kings resided somewhere else, are due to the ideological conditioning of the site (Doğan-Alparslan, Alparslan 2011).

In Boğazköy the topography of the settlement of the late third and second millennium BC is characterised by a heterogeneous mixture of numerous rocky cones, steep slopes and natural terraces (Figs 1–2, 12). While an assessment of the use of this space in pre-Hittite times is still hardly possible due to the limited areas investigated, a qualitative change in the increasingly active shaping of the topography over time can be observed parallel to the establishment and agency of Hittite power, which shaped the topography consciously to divide the settlement functionally and ideologically (Schachner 2011c; 2017b; 2022b; forthcoming a). The excavations of the last three decades and the processing of older findings convey a much more differentiated picture of an unexpectedly dynamic and fluent development. This will be outlined here with a sole focus on the Middle and Late Bronze Age, concentrating on the structural development of the topographically defined units of the settlement (Figs 2, 16) (for a similar approach to the question of the size, and of how many inhabitants the settlement might have had, cf. Seeher, forthcoming: fig. 1). In terms of the designation of the stratigraphic units, I use the original labels introduced by the excavators to avoid confusion. Since Boğazköy is the focus of this article I refer to contemporary sites and findings only where it is essential. Questions of the population size, as well as of the development of certain groups of the material culture (such as cuneiform tablets, pottery, seals/sealings, tools, etc.), are beyond the scope of this paper, and are or will be discussed elsewhere.

The development until the establishment of Hittite dominance

Although remains of a Chalcolithic settlement have been documented on Büyükkaya (16–15) (Schoop 2018: 11–19), there is no evidence of continuous use of the later Bronze Age urban area during the fourth and third millennia BC. Only in the late third millennium BC is the latest phase of the Early Bronze Age (EBA), a newly founded settlement, attested (Fig. 3). This foundation *ex nihilo* in a region where there had been no prior (urban) settlements must be seen in the context of the expansion of a supra-regional trade network in the late third millennium BC (Schachner 2020a). Though located in a much different environment compared to the contemporary city sites in Central Anatolia (e.g. Kültepe, Alişar Höyük,

Konya-Karahöyük), it may be described as urban in the sense mentioned above, because of its extent in the northern Lower City (5) (Bittel et al. 1957: 7; Neve 1958: 20; Strupler 2022), on Büyükkale (V) (Neve 1982: 13–16 suppl. plans 13–14), the Büyükkale Northwest Slope (9–8) (Schirmer 1969: 36; Schachner 1999: 114–16) and Büyükkaya (14) (Seeher 2018: 20–26), and also because of the structurally as well as functionally different architecture attested in these areas (Fig. 3). The approximate contemporaneity of the features is confirmed by radiocarbon dating from Büyükkale and Büyükkaya, as well as by ceramic finds (Orthmann 1963; 1969; 1984; Schoop 2018). At Boğazköy the few excavated traces of this period give the impression of a structurally ‘normal’ Anatolian city (Schachner 1999), which, however, was built in a previously unused landscape. Thus, an urbanised settlement system adapted to the mountainous landscape of Anatolia evolved in the region roughly northwards in a line from Ankara via Kırıkkale, Çorum, Amasya, Tokat and as far as Sivas, beginning in the late third millennium BC. This is a region where urban settlements have not been documented before (Schachner forthcoming a). Remarkably, this type of settlement in a mountainous environment in this part of Anatolia was not given up until the beginning of the Roman period (Schachner forthcoming a).

On Büyükkale (Bk V) and probably also on the lower Büyükkale Northwest Slope (9–7) (Orthmann 1963; 1969; Schirmer 1969), stratigraphic observations as well as a few radiocarbon datings from Büyükkale attest to a continuous occupation during the first three centuries of the second millennium BC until the end of the *kārum* period (Neve 1982; Becker, Schachner 2022). In contrast, the use of the northern Lower City and Büyükkaya ceases in the first decades of this millennium (Fig. 3). Thus, between the EBA foundation phase and the younger *kārum* period a temporary contraction of the settlement limited to Büyükkale and the Büyükkale Northwest Slope can be observed during the early Middle Bronze Age (MBA) (Figs 3–5).

While in the southern and central parts of the Lower City probably only one building layer of the later *kārum* period was identified, on its northern terrace a 19th-century BC layer was uncovered (Fig. 5), which, based on the pottery and radiocarbon dating (Schachner 2021: §4–5, figs 3–6, §15–16, fig. 19), is contemporary with the older *kārum* period (e.g. in Kültepe II). Possibly, the enlargement of the core settlement located on Büyükkale and the Büyükkale Northwest Slope in the *kārum* period had its origin here (Figs 5–6).

Thus, the occupation of the Lower City reached its greatest extent in at least two stages up to the later *kārum* period (second half of the 18th century BC) (Figs 5–6). In this phase (Fig. 6), the settlement included, in addition to

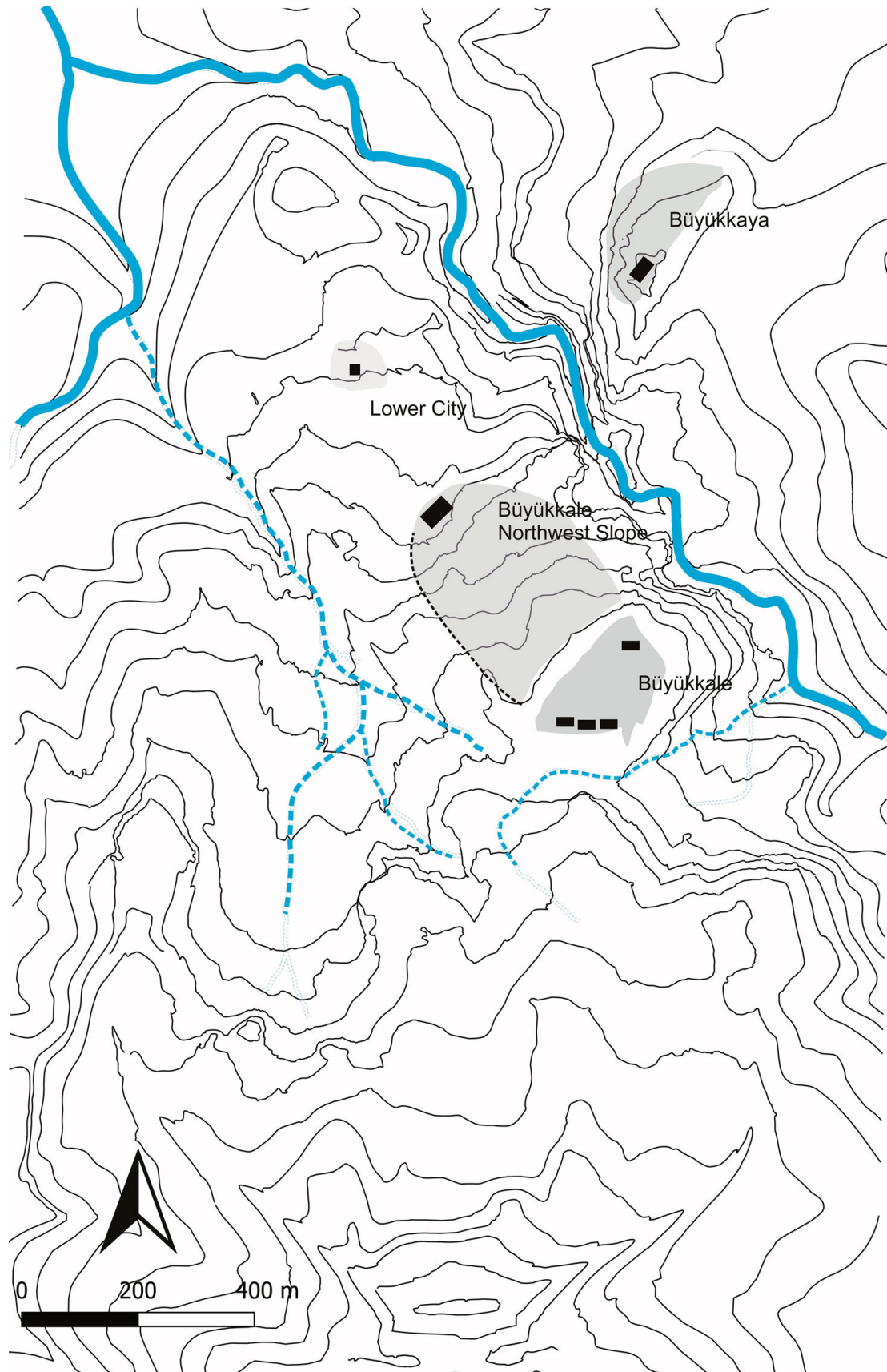


Figure 3: Schematic map of the outline of the late EBA settlement (ca 21st–20th century BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

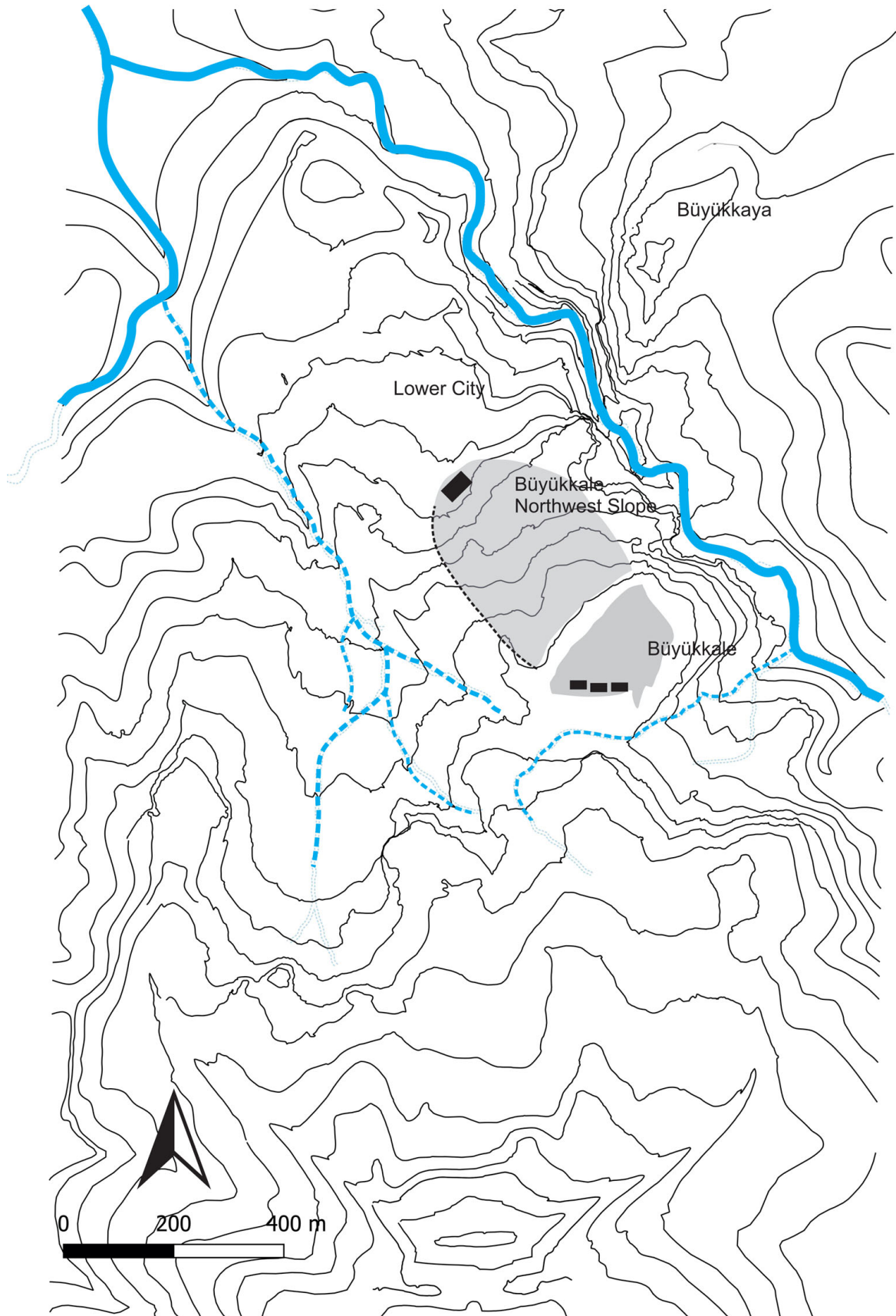


Figure 4. Schematic map of the outline of the early MBA settlement (ca 20th to early 19th century BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

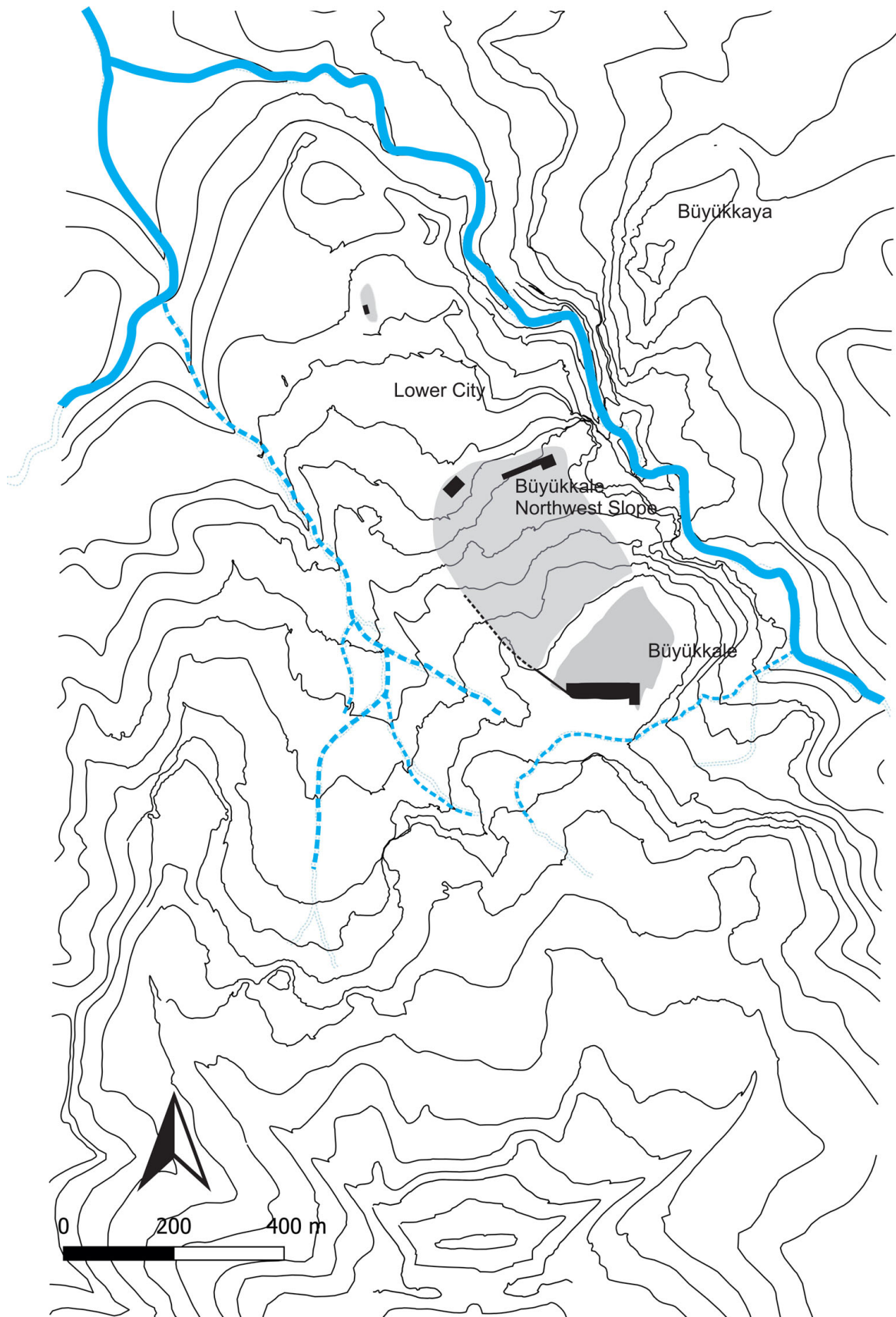


Figure 5. Schematic map of the outline of the early *k̄arum*-period settlement (ca 19th to early 18th century BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

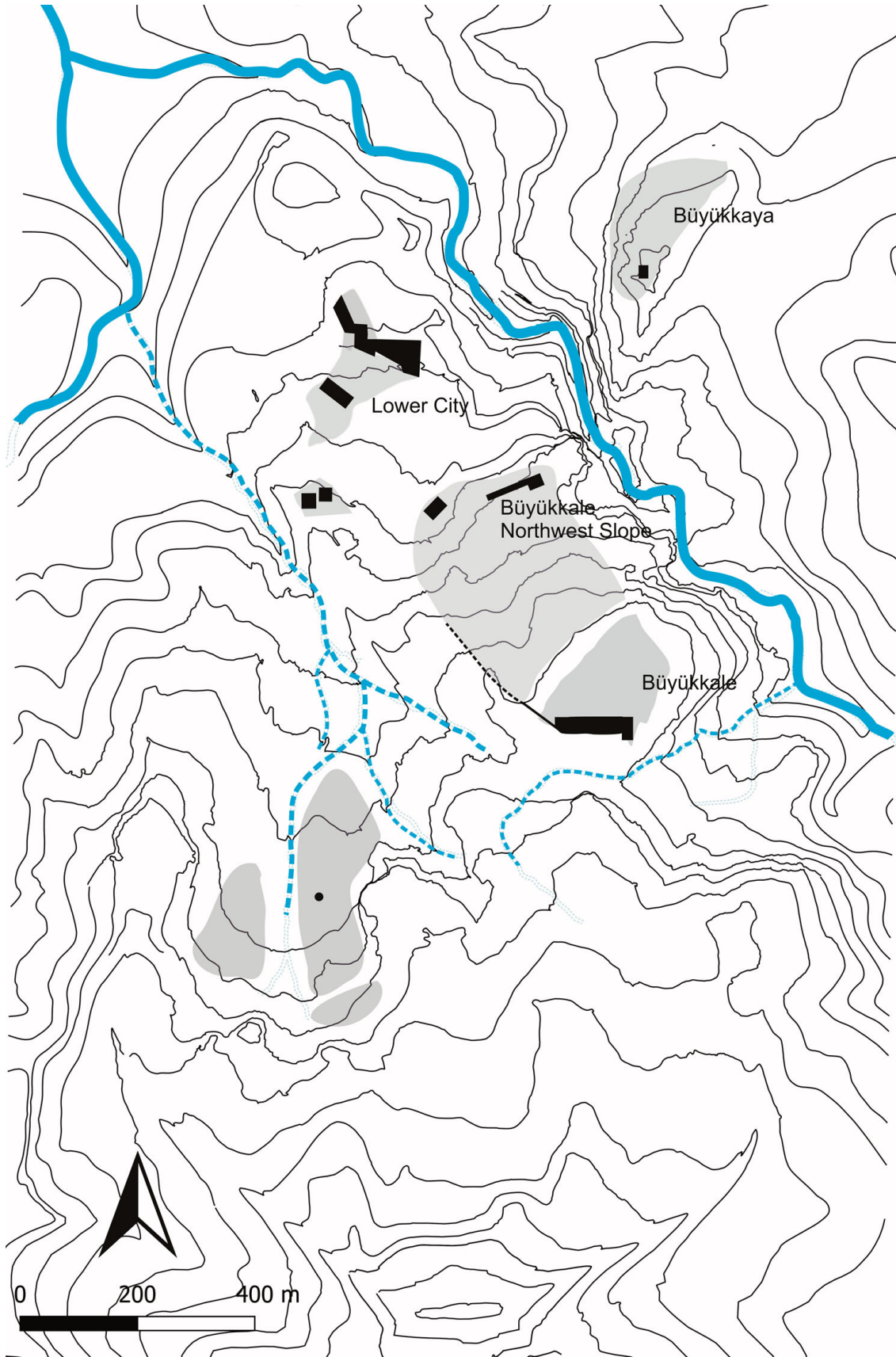


Figure 6. Schematic map of the outline of the developed k̄arum-period settlement (ca 18th century BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

the above-mentioned areas of the Büyükkale Northwest Slope (8b–a, 7) (Schirmer 1969) and the Büyükkale (IVd) (Neve 1982), all parts of the southern (Schachner 2014: 93–97), central (Neve 1978; Strupler 2022) and northern Lower City (4) (Schachner 2021: §6, fig. 3, §15–19, fig. 19), as well as again Büyükkaya (13) (Seeher 2018: 27–31).

The remains unearthed in the different parts of the city continue the traditional Anatolian architectural forms (Schachner 1999: 80–82), which were merely adapted to the mountainous landscape (Schachner forthcoming a). The distribution of the cuneiform texts corresponds to the picture obtained in Kültepe, so that its similar socio-cultural structure is conceivable (Schachner 1999: 80–82). Since so far no public buildings (temples or palaces) are attested in Boğazköy, it remains unclear whether corresponding buildings of Syro-Mesopotamian character were also used here in northern Anatolia as they were in Kültepe (Schachner 2006; 2017b), or whether indigenous forms (as possible precursors of the clearly autochthonous Hittite public buildings; Schachner 2022a) already existed in the *kārum* period.

According to the findings in various areas, the settlement was destroyed by fire. But, in the absence of scientific dating, the simultaneity of these fires cannot be conclusively determined, nor can the question of whether this destruction can be attributed to the assumed conquest by Anitta, be answered with any confidence (Schwemer 2019: §93).

This stepwise expansion (Figs 5–6) of the *kārum* at Hattuš may reflect an increasing intensification of trade relations within Anatolia (Lumsden 2008). However, until the early to mid-17th century BC, there was always an undeveloped gap of at least 200m in width between the Lower City and the western foot of the Büyükkale Northwest Slope (Figs 3–6) (Schachner 2015), because no remains older than the Old Hittite period have been found here.

Singular finds from the later *kārum* period in the valley west of Sarıkale may even indicate a sporadic, possibly agricultural use of this otherwise still undeveloped area in the Upper City (Fig. 6) (Schachner 2009a: 30, fig. 11). This interpretation seems probable, especially against the background of a corresponding use of this area in (early?) Old Hittite times (Fig. 10), as suggested by the finding of an underground silo in the southwestern part of the settlement (Seeher 2002).

For a long time, the archaeological reconstruction of the transition from the *kārum* period to the foundation of the Hittite kingship was based on the written record of the so-called ‘Anitta’ text, which was perceived as impartial, and as such was uncritically adapted to the archaeological remains by K. Bittel (1983; for the so-called ‘Anitta’ text

cf. Neu 1974; but also Wilhelmi 2016; Gates 2017). The text indeed indicates that there was a hiatus of up to 80 years, but only between different forms of governance, not necessarily between archaeological layers (for an evaluation of the textual evidence cf. Wilhelmi 2016: 225–26; Gates 2017)! Thus, the linkage of the textual narrative with the archaeological evidence in modern scholarship was not justified, nor is it tenable today regarding a hiatus of settlement activity in all parts of Boğazköy. The archaeological evidence points to a much more differentiated picture of the various parts of the city (Fig. 7).

On Büyükkaya, the excavations indeed point to an ending of the *kārum*-period settlement (layer 13), since the following layer (12) dates only to the developed Old Hittite period (Seeher 2018: 32–35, esp. 34). In the areas where the older excavations revealed the *kārum* period (Büyükkale Northwest Slope (8a) and Büyükkale (Va–b, IVd), the situation is less clear and cannot be verified at present with the available finds (Schirmer 1969; Neve 1982; Schachner 2023a).

In contrast, the development in the southern, central, and northern Lower City was completely different (Fig. 7) (Schachner 2015; 2020d; 2021a). In all areas examined by recent excavations, and with the reanalysis of older material, it is confirmed that this part of the city was continuously used after the end of the *kārum* period until the founding of the Old Hittite kingdom. In the southern part of the Lower City, a stratigraphic sequence of radiocarbon-dated building layers was investigated, which proved an uninterrupted succession of occupation (Strupler in Schachner 2013: 159–64). In the central part of the Lower City the situation was similar. Although no new features were excavated here, the reappraisal of the research of the 1970s (Strupler 2022), in combination with stratified radiocarbon datings, allows the reconstruction of an uninterrupted occupation, since the radiocarbon datings demonstrate use during the time of the supposed hiatus (Fig. 7) (Schachner 2015: 68, tab. 1; Strupler 2022).

In contrast to the small portions investigated in the south and centre of the Lower City, it was possible to explore the transition from the *kārum* to the Old Hittite period in a large area on its northern terrace. Here, a *kārum*-period administrative building was built over immediately after its destruction by fire by a completely different, much less elaborate, architecture. Numerous C¹⁴ dates obtained from stratigraphically secured contexts document an uninterrupted settlement activity, which was terminated with a complete remodelling of the area in early Old Hittite times (Schachner 2020d: §2–16, esp. fig. 2, 13a–b; 2021: §15–19).

Thus, at least in parts of the later Hittite capital, an uninterrupted continuity of settlement existed between the *kārum* principality and the Hittite kingdom (Figs 6–8, 16).

This continuity is also reflected, among other things, in the ceramic development, which hardly changed until the second half of the 16th century BC (Mielke 2006b: 172, fig. 152; 2017; Strupler 2022). Evidently, the changes in governance that can be historically traced through textual tradition had no immediate effect on everyday culture.

It is not clear to what extent this development can be equated with the only dimly known Hittite history before Ḫattušili I (Klengel 1999: 17–32; Wilhelmi 2016: 226–29; Gates 2017; see also Kloekhorst, Waal 2019). In my opinion, the founders of the Hittite dynasty – at the latest Ḫattušili I (ca 1650 BC) – had taken over a halfway functioning polity at Ḫattuš(a), a development which, however, does appear in the textual tradition very superficially (Wilhelmi 2016; Gates 2017), if at all. After the establishment of the new Hittite form of governance an intentional and fundamental transformation of this community becomes visible through a multiplicity of new and autochthonous Hittite public buildings during the Old Hittite period (Schachner 2006; 2015; 2017b; 2022b).

The development of the city in the Old Hittite period

According to the historical tradition, the establishment of the Hittite dynasty becomes tangible at the latest with Ḫattušili I (around 1650 BC, middle chronology) (Dinçol 2006; Wilhelmi 2016; Gates 2017; for a controversial view cf. Kloekhorst, Waal 2019). This change of governance is archaeologically clearly reflected in the architectural refurbishment of the various official parts of the settlement, but with some delay (Schachner 2015; 2020a; 2021: §15–19, fig. 19). The temporal difference does not mean that the historical dating of Ḫattušili I is wrong, but rather, it becomes clear that, archaeologically, changes become visible and datable with a certain time lag due to the inherent limits of the available methods.

The excavated structures and their datings indicate a fundamental change in the structural development of the settlement. In the founding phase of the kingdom, for the first time, the various topographical areas of the old-town (Büyükkale, Büyükkale Northwest Slope, the terraces of the Lower City and Büyükkaya) were integrated into one settlement by the erection of the postern wall (Fig. 8). This is associated with a fundamental structural reorganisation, which is reflected in the construction of numerous public buildings, which are identified by radiocarbon datings as relatively contemporaneous (Schachner 2015; 2017b; 2022b). In addition to technical buildings (granary, postern wall), these are mainly edifices of state representation (Great Temple, Complex 1 in the so-called *SüdaREAL* (Southern Area), a monumental building on the north terrace of the Lower City, the old phase of the *Haus am Hang*, Kesikkaya and Büyükkale (Bk IVa/III) (Schachner 2015). In all areas, exclusively genuine Hittite ground

plans are attested for the mentioned public buildings, showing practically no connections to the known examples of representative architecture of the *kārum* period (Schachner 2006; 2022b). Instead, they exhibit those ground plans used until the late Empire period. Therefore, the connection between this architectural transformation with the establishment of Hittite rule is evident (Schachner 2006; 2017b; 2022b). It is particularly striking that in the course of the refurbishment of the traditional Anatolian city into the Hittite royal capital, the empty space between the *kārum* and the Anatolian settlement, in particular, was used for the construction of buildings of new, explicitly Hittite forms (compare Figs 4–7 versus 8). The planners of the early Hittite city consciously broke up the older settlement structure and forms of representative, official architecture. Instead, they established a new design resembling an ideological and political agenda, which manifests itself in new building forms and a yet unseen, active use of the landscape (for a discussion cf. Schachner 2011c; 2015; 2017b; 2022b). As a consequence, an ideologically implemented urban complexity hitherto unique in Anatolia becomes visible as a core characteristic of the Hittite city. However, this was a fluid process that lasted at least until the late 16th century BC, so that for some time, at least in the old-town of Ḫattuša, traditional Anatolian settlement structures (e.g. the so-called residential quarter) and newly designed areas (e.g. the domain of the monumental buildings of the Great Temple, the *SüdaREAL*, and the *Haus am Hang*; see Schachner forthcoming b) existed simultaneously (Schachner 2022b). This stylistic duality was abandoned in favour of solely new structures at the latest with the founding of the Upper Town (Schachner 2022b; forthcoming a).

The fortifications of the old-town

For the reconstruction of the structural development of the Hittite city, its fortifications are of special importance, as already recognised by O. Puchstein (1912). Nevertheless, the numerous walls of the old-town do not reveal a convincing system, at least at first sight. However, if these are interpreted with the present state of knowledge not as simultaneous (as by Neve 2004), but as the result of a chronological sequence, a plausible reconstruction is possible (Figs 8–10). Even if dating the city walls from findings associated with them is impossible in most cases, a chronological classification based on architectural differences is feasible (Fig. 9; cf. also Naumann 1971: 236–335; Neve 2004).

The course of the postern wall enclosing the old-town is easily recognisable without further research. Already in 1907, a long section was investigated in the south of the Lower City (Puchstein 1912). This is characterised by thick outer walls enclosing small rectangular boxes, which

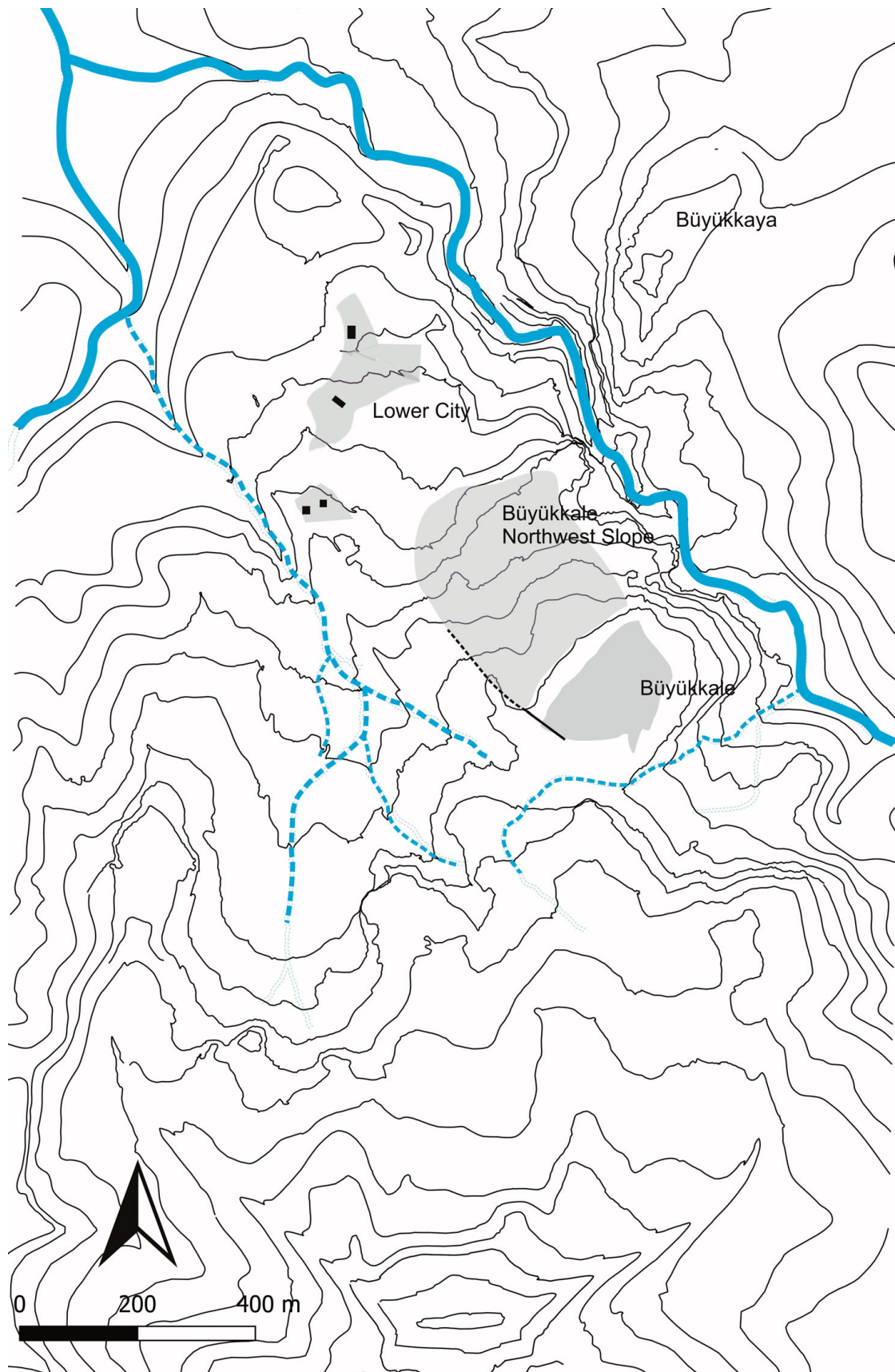


Figure 7. Schematic map of the outline of the settlement of the intermediate period between the *k̄arum* and the foundation of the Hittite kingdom (ca 1725/20–1650 BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

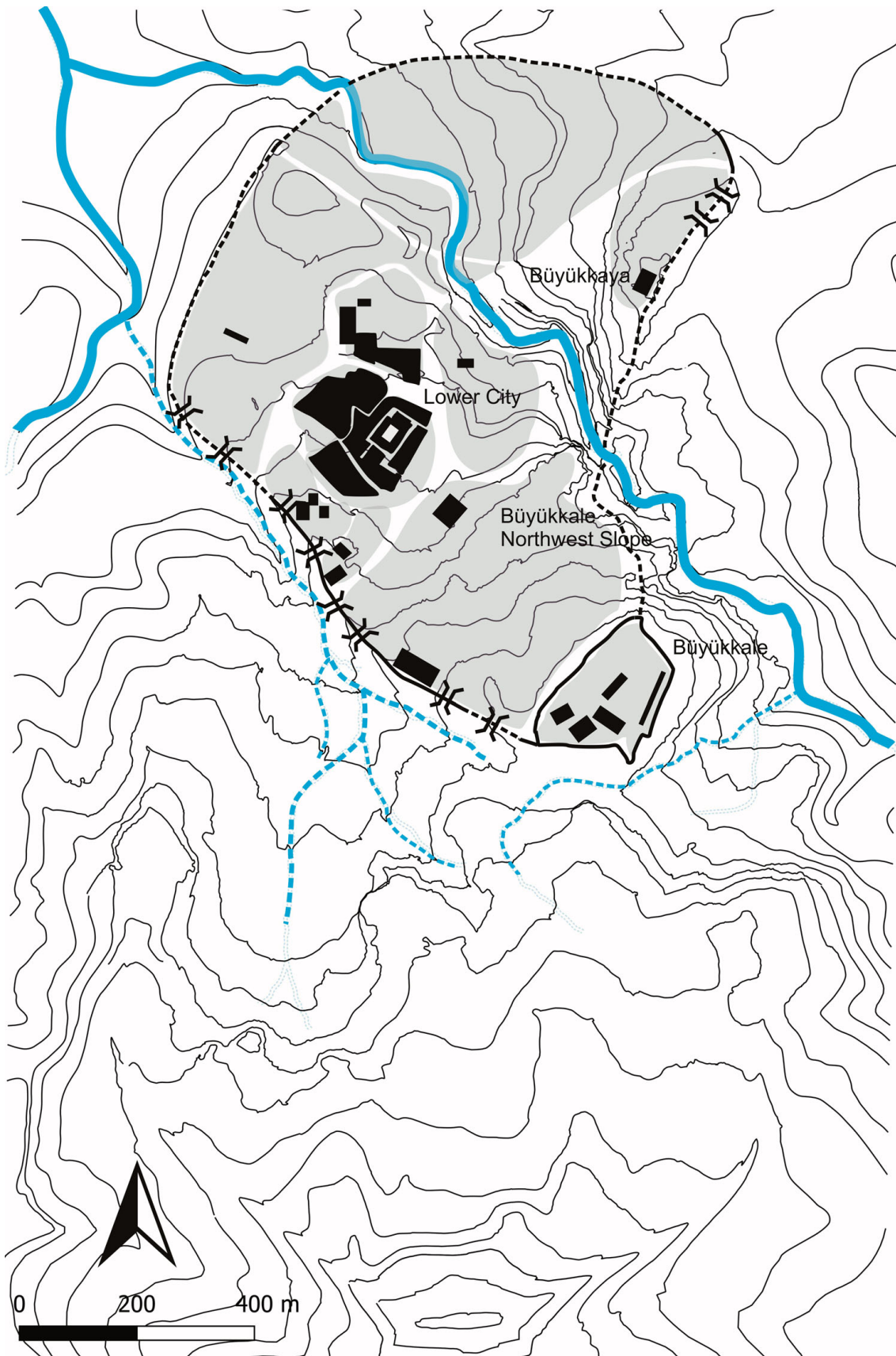


Figure 8. Schematic map of the outline of the initial old-Hittite settlement (after ca 1650 BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

lie parallel to the course of the wall. The towers are formed by additional boxes on the outside (Fig. 9a). The dating to the Old Hittite period already postulated by R. Naumann was confirmed by the stratigraphic connection with a granary on the Büyükkale Northwest Slope, and by the radiocarbon datings obtained there (Seeher 2006d: 74–75). Another building excavated southeast of Kesikkaya can also be stratigraphically connected to the postern wall. Therefore, the construction date of this building can be considered as further evidence (Schachner 2015: 72, tab. 2). Both dates show that this part of the monumental postern wall already existed in the late 17th, or at the latest in the very early 16th century BC.

Another section of the postern wall with a gate was excavated northwest of Kesikkaya (Schachner 2010: 171–77). Here the towers are made up of two parallel long-rectangular spaces, whereas the casemates are long-rectangular between Kesikkaya and the gate (Schachner 2018: 43–44, fig. 54). These structural differences indicate that the fortification was erected in sections, maybe by different groups of workmen or at a certain temporal depth. But, the different parts generally should be considered contemporary due to the consistent alignment and equal overall width of all parts, and since, west of the gate, posterns again occur.

The exact ground plan of the western and northern sections of the postern wall is unknown except for the last part at Büyükkaya. Here, the wall has square casemates, but the towers correspond to those of the southern section with small boxes attached outside. It is noteworthy that further on the eastern side of Büyükkaya, despite these changes in the ground plan, this part is again equipped with posterns, so it is highly probable that the Büyükkaya fortifications date to the Old Hittite period (Seeher 2018: 37–45; contra Neve 2004).

Long, rectangular, narrow casemates are also found in the northern Lower City in the central part of the fortification, which connects the westernmost section of the postern wall in a direct line with Büyükkaya (Fig. 9b) (Schachner 2009a: 41–45, figs 27–28; Krüger 2022: §87–88, fig. 46). Here the towers have oblong chambers perpendicular to the course of the wall, as in the section west of Kesikkaya. The excavated part of the eastern section of this wall, on the other hand, was built with square boxes. The wall thus corresponds structurally to both the southern postern wall and the northern and eastern walls of Büyükkaya.

A third fortification in the Lower City is the so-called *Abschnittsmauer* (section wall), which begins in the southwest of the city at the postern wall and runs northwards on the edge of a natural terrace. At a rock on the northwestern edge of the northern terrace of the Lower City it turns east and, in contrast to older reconstructions,

continues to follow the terrace edge until Mihraplıkaya. East of Mihraplıkaya their alignment turns northeast, crosses the valley of the Budaközü, and leads to the northern tip of Büyükkaya (Schachner 2009a: 41–43, figs 27–28). In its southern and western parts, the wall is characterised by roughly square casemates indicating, at first sight, a rather late development. However, on the northern side of Büyükkaya, two gates were uncovered, both of which have only one flanking tower and thus correspond to the northern gate in the so-called *Abschnittsmauer* (Seeher 2018: 8, fig. 2). Since the *Abschnittsmauer* also has a postern leading down to the Budaközü west of Mihraplıkaya, it can be suggested that the time difference between the postern wall and the *Abschnittsmauer* was not very great when the northern section of the latter was built. Consequently, the construction of the western and northern fortifications of the Lower City probably all took place still in Old Hittite times (Seeher 2018: 51–52, fig. 18).

Taking both the described structural similarities and differences as a basis, an architectural-typological development of the walls of the old-town occurs, starting with fortifications with wide walls and small, long-rectangular-to-square casemates with small square boxes on the outside of the wall as towers (Fig. 9a). The first

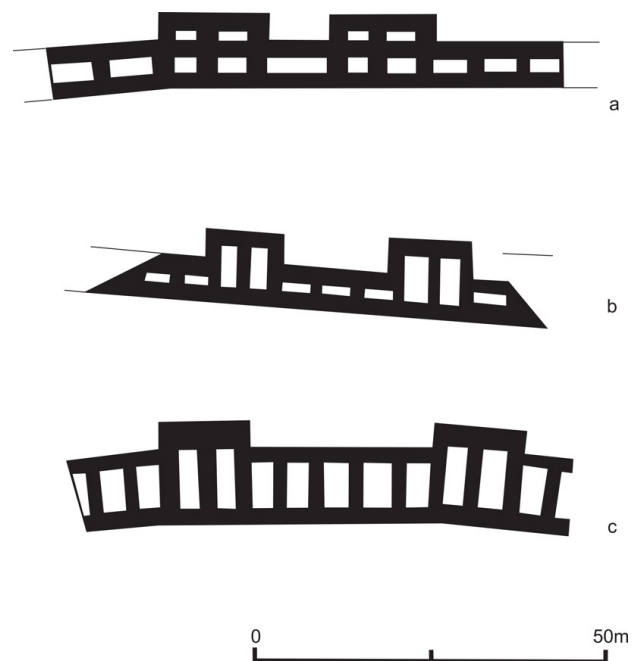


Figure 9. Typological development of the Hittite city walls, ca 1650–1530 BC: a) southern portion of the postern wall; b) northern traverse; c) southern section of the Upper City (Drawing: A. Schachner, based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

change was that the towers were formed by two long-rectangular chambers oriented parallel to each other, and at right angles to the course of the wall (Fig. 9b). A second step is characterised by square casemates and towers made up of two parallel rectangular rooms (Fig. 9c). The *Abschnittsmauer* shows older features in the plans of the gates and the use of a postern in its northern section (west of Mihraplıkaya), but it already points to the standardised walls of the Empire period, as excavated in the southern bow of the Upper City or Kuşaklı, both dating to a time after the mid-16th century BC (Boğazköy, Upper City: Neve 2004; Zsolt 2011; Kuşaklı: Müller-Karpe 2017: 33–44).

Since long rectangular boxes, as well as posterns, are no longer attested in the new-town of Hattuša (e.g. the southern part of the Upper City's fortifications) or cities certainly founded after the second half of the 16th century BC (especially Kuşaklı), there is a *terminus ante quem* for the described early wall types. The change to square casemates with long-rectangular tower rooms perpendicular to the course of the wall, in combination with a reduction of the walls' width (Fig. 9c), was completed at the very latest during the second half of the 16th century BC, as the datings of the foundation of Kuşaklı suggest (Müller-Karpe 2017: 33–44).

This development is supported by evidence from the areas enclosed by the walls; however, no large-scale excavations have been carried out north or west of the *Abschnittsmauer*. Nevertheless, only Old Hittite pottery was found in surveys on the Büyükkaya North Slope (Czichon 2003). South of the transverse wall and west of the *Abschnittsmauer* a sondage on the former threshing floor (locally called *harman yeri* or *çukur harman*) again produced no obvious features younger than the Old Hittite to early Empire period (Bittel et al. 1957). Therefore, the areas west and north of the so-called *Abschnittsmauer* and south of the Büyükkaya north wall, respectively, were probably already abandoned within the Old Hittite period; that is, at the latest in the middle of the 16th century BC (Figs 10–11).

Given the ground plan of the northern fortification of the Lower City, aligned transversely on the southern bank of the Budaközü (Krüger 2022: §87–88, fig. 46), the areas north of the Budaközü may have been abandoned even somewhat earlier than those southwest of the river (Figs 10–11), although we have no hints for a detailed chronological definition of this development. Maybe the twice destruction of the outermost northern city wall, at the point where it crosses the Budaközü River, played a role in this context (Schachner 2013: 154–55, fig. 16), since the Hittite builders may have become aware that there was nothing to oppose the force of nature.

Summa summarum, based on the development of the wall systems already for the first 100 to 150 years of Hittite rule, a very dynamic city development emerges (Figs 8, 10–11). The initially extensive buildup was corrected in two steps until the late 16th century BC in favour of a clear reduction and consolidation of the settled area.

Parallel to this development, the oldest Hittite traces in the new-town (Upper City) probably indicate a continuity of the early agrarian use of the area indicated by the above-mentioned *kārum*-period finds (compare Figs 6, 10). For, on its southwestern terrace, J. Seeher has uncovered a granary, which is stratigraphically older than the water reservoirs attested on the same plateau (Seeher 2002: 59–70). Since further contemporary structures are missing, one may conclude that the storage pit served for the reception of part of the harvest, which was stored next to the fields to be sown in the coming year (Schachner 2022a: 172 n. 58). Apparently, a step-by-step occupation of the space south of the postern wall is visible (Figs 10–11, 13). When this began and how it progressed still cannot be traced exactly, but at the latest with the erection of the so-called 'square buildings' in the valley west of Sarkale, as well as several temples in the central part of the Upper City in the second half of the 16th century BC, the continuous settlement of this large newly developed urban area began (Seeher 2016: 147–53).

In this context, the question arises as to whether this newly settled part of the city was already fortified from the beginning. Until 2022, it was assumed, based on the sections of the fortifications uncovered in the southern bow of the Upper City, that the fortifications were built in one pour (Neve 2004; Zsolt 2011). But, a recently excavated section on the western side, between the upper West Gate and Taanıkaya, structurally corresponds to the northern fortification in the Lower City and is thus clearly different from the southern sections (Gruber 2023: §87–90, fig. 54). Moreover, recent radiocarbon datings from a nearby monumental building (a temple) excavated on the western slope of the Upper City indicate use of this part of the settlement as early as the 16th century BC (Gruber 2023: §82–84, fig. 52).

Since the fortifications of the eastern plateau – which connects the Büyükkale with a rocky escarpment to its southeast and was uncovered by P. Neve (Neve, Seeher 2018) – have the same structural characteristics as the section recently uncovered on the western side of the Upper City, it is very likely that it is also older than the southern bow. Apparently, the city wall of the new-town was erected stepwise like the postern wall and thus very likely with a certain temporal depth. Although the chronological relation between the fortification and the buildings within the area is not yet clear, there seems to have been a

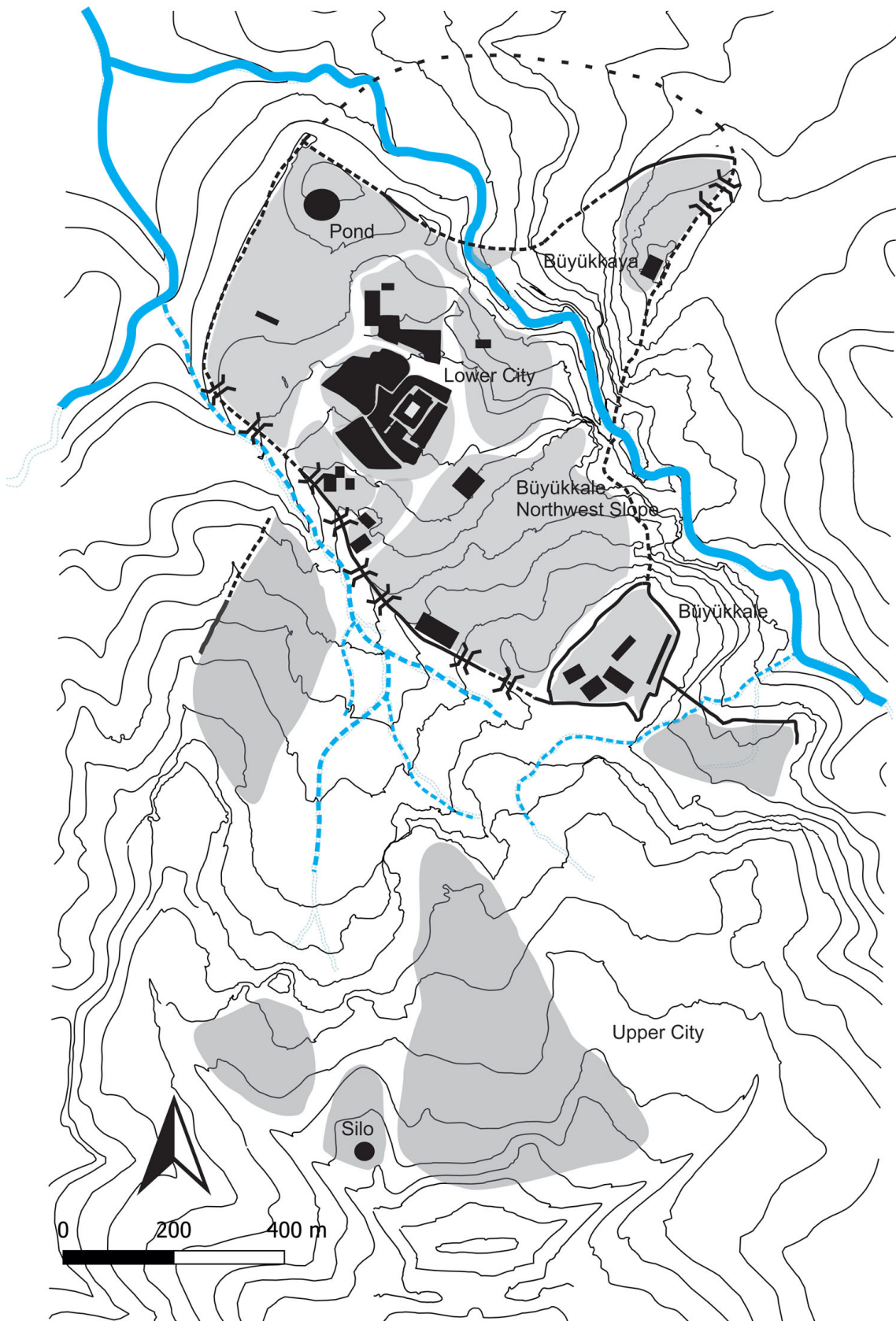


Figure 10. Schematic map of the outline of the old-Hittite settlement during a first reduction of the settled area in the northern part of the city and contemporary agricultural use of the southern part (later the Upper City), probably during the first half of the 16th century BC. (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

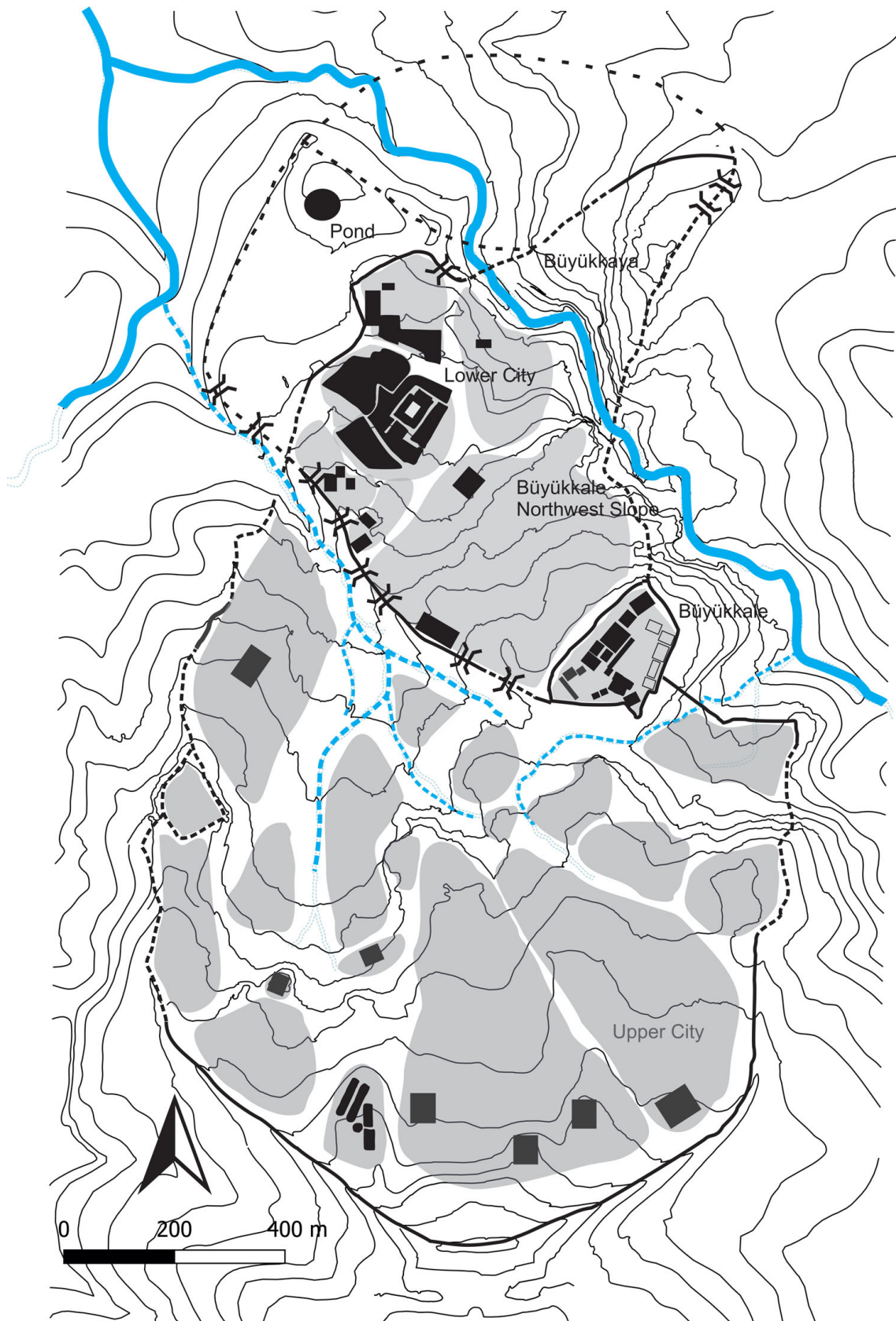


Figure 11. Schematic map of the outline of the old-Hittite settlement during the second reduction in the western part of the Lower Town with a potential early use in the Upper City (second half of the 16th century BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

smooth transition from an area still used for agriculture in the early 16th century BC to a representative urban district since the second half of the same century (Figs 10–11, 13). Structurally, this transformation of agriculturally used land, pastures or gardens into urban spaces resembles the relocations of various Anatolian cities in Seljuk and Ottoman times (e.g. Konya, Kayseri, Malatya and Van; cf. Hütteroth 1982).

The structural development and the possible dating of the city wall in the western Upper City to the Old Hittite period are of crucial importance for the Lower City as well because the *Abschnittsmauer* described above lies directly in line with the northern end of the western outer wall of the Upper City. This might suggest that both were built in close chronological succession, even if the crossing of the Büyükkale Deresi can probably never be clarified due to erosion. At the present stage of research, there is hence much to suggest that the Lower City reached only as far as the so-called *Abschnittsmauer* as early as the second half of the 16th century BC, while in parallel the buildup of the Upper City had already begun (Figs 11, 13). Accordingly, the *Abschnittsmauer* must no longer be interpreted as a separation wall between parts of the Lower City but as the outer city fortification from the later 16th century BC onwards.

Büyükkaya

Thanks to the excavations of J. Seeher, the position of Büyükkaya in the structure and evolution of the city and its history can be discussed. This topographically separate part of the city was already integrated into the settlement again in ‘... Old Hittite times ...’ (Figs 10–11). This is supported not only by the course of the described older fortifications, but especially by the development of the upper plateau with a monumental building (12), and of the middle and lower plateau (11–10) with smaller structures (Seeher 2018).

It is remarkable that the settlement breaks off at the latest in the second half of the 16th century BC – approximately parallel to the described abandonment of the western and northern areas of the Lower City – and was resumed only in the Empire period, approximately later in the middle of the 14th century BC, with the underground granaries (9) (Fig. 14) (Seeher 2018).

Büyükkale

An area where the structural transformation of older features becomes very clear is Büyükkale. Here, houses with a central room typical for the Early and Middle Bronze Ages are replaced in Old Hittite times (period Bk IVc–a) by structures organised on terraces and around large courtyards (Neve 1982; Schachner 2012a). If one

were to follow P. Neve’s chronological divisions (1982), this foundation phase of the Hittite palace would have existed for up to 300 years until the imperial expansion began in the period Büyükkale III (Bk III).

Contrary to the assumption that Büyükkale has been completely explored, new excavations and radiocarbon datings provide the first indications of a development that needs to be fundamentally reconsidered. Because findings on the northwestern plateau suggest that Building E (Bk III) was built as early as the 16th century BC (Sample Bo21-6029-6032: Becker, Schachner 2022: §67–71, figs 41–42). Radiocarbon datings obtained from animal bones assigned to Period IVb by the early excavators point in the same direction (Becker, Schachner 2023: fig. 41). Moreover, the monumental construction of the fortification at the western foot of Büyükkale supports this interpretation, since this type of construction is only attested in the Old Hittite period (Haller, Schachner 2019a: §39–41; 2016: 94–100 tab. 19). Since both are part of the elaborate overall palace complex of the Bk III period, their probably early construction indicates that the transformation of Büyükkale into a comprehensive palace complex (Bk III) likely began as early as the (late?) 16th century BC. It is possible that the start of the construction of this palace, the temporal depth of which becomes apparent concerning its individual buildings (Schachner 2012a), is to be seen in connection with the approximately simultaneous development of the Upper City (Fig. 11).

The development of the city in the Hittite Empire period

The new-town (Upper City)

The structural differences between the sections of the fortifications of the Upper City prove that it was erected in stages and thus over a certain length of time (Fig. 12). But, at the latest since the second half of the 16th century BC, the foundation of new buildings in the valley west of Sarikale (Seeher 2006a: 176–78; 2016) and probably also in the central temple area is tangible (Figs 11, 13). This solely representative expansion of the city is chronologically roughly parallel to the founding of numerous Hittite cities in Central Anatolia, and is part of a deliberate transformation of the urban system by the Hittite dynasty in the core region of the Empire (Schachner 2009; 2017b; 2022b; forthcoming a). In this approach of the Hittite state, the implementation of a new, imperial form of governance even beyond the capital Ḫattuša in the entire core area of the Empire becomes visible.

The close connection of this establishment with the Hittite state is attested to by the fact that in the new-town *de facto* exclusively public buildings or residences of the highest officials were identified (Schachner 2011a).



Figure 12. Aerial view of the Upper City of Hattuša from the south (10/2021) (Photo: Y. Dallal © Archive of Deutsches Archäologisches Institut, Istanbul).

Although the new-town is strongly dissected by topography (Fig. 12), a right-angled street layout implemented in its different areas creates structural connections and an urban symmetry which is rarely found in Western Asia in this period. It was a pre-planned process that produced topographically separated districts shaped solely according to representative criteria. As such, the settlement resembles a structure unknown in Anatolia until this period (Schachner 2022b; forthcoming a). Although the settlement system in Central Anatolia returns in most aspects to traditional forms in the early Iron Age, in some places traits of this purely representative kind of urbanism are still visible in the first half of the first millennium BC (e.g. at Göllüdağ) (Schachner forthcoming a).

In the absence of scientific dating, the chronological sequence of the monumental buildings in the central Upper City can only be relatively reconstructed based on stratigraphy and typology (Neve 1999; Müller-Karpe 2003; Dürr 2014; Schachner 2020c). The temples on the elevated terraces in the south of the central temple quarter were most probably built first (layer Obst. 4 after P. Neve). The typologically oldest temples 2, 3 and possibly 4 dominate the central part and function as visual points of symbolic reference for the orientation of the younger buildings (Dürr 2014), while the plain to the north followed step by step (layer Obst. 3 after Neve 2001, 99, fig. 51). The position of the buildings in the plain allows the conclusion that they were probably built successively and in groups along the

regular road system (Dürr 2014), without being able to clarify the exact chronological sequence of these groupings. A single radiocarbon dating (Schachner 2023a, sample MAMS 27039: 3329 BP ± 26 calBC 1662–1536 / 1683–1531) from Temple 8 (Neve 1999: 75–83) which typologically is still related to the older type (Müller-Karpe 2003) may support the suggestion of a rather early beginning of the build-up of the plain still in the 16th century BC.

The remarkable symmetry of the central temple area finds a counterpart in the construction of the valley west of Sarıkale, indicating gradual contemporaneity. Radiocarbon datings show that use here began with modular buildings in the last third of the 16th century BC (Seeher 2016: 147–53). The first phase of use is followed by a dense and well-dated sequence of typologically and functionally similar buildings that extends to about the turn of the 14th and 13th centuries BC (Schoop, Seeher 2006: 63–65). Although the valley west of Sarıkale is relatively unfavourably situated, even devastating natural events did not necessarily lead to the abandonment of settlement activity as long as it was functionally and socioculturally necessary to maintain (Schachner 2008: 125; 2009a: 25). Instead, the roughly simultaneous abandonment of the structures in the valley west of Sarıkale and on the Middle Plateau at the turn of the 14th to the 13th century BC indicate not only the functional connections but also that they were probably abandoned for the same reason (Schachner 2017a; 2020c).

Despite the problems regarding the absolute dating of individual buildings, research since the early 2000s demonstrates that the Upper City's building layer 3 existed for about 250 years (Figs 12, 14) (Neve 1999; Schachner 2011a: 82–94; for a discussion of the late Empire period cf. Schachner 2020c). The dynamics of the urban development (Dürr 2014) and a certain historical depth of the architectural development (cf. Klinger 2006 on the datings of the cuneiform tablets; Dinçol, Dinçol 2008 on the seals/sealings) can only be guessed from the published plans, but this phase must be considered as one functional and cultural period (Obst. 3).

A severe sociocultural rupture becomes clear not only since the later level 2 is stratigraphically clearly distinct from the older one, but especially since the temples of layer 3 were replaced by pottery and metal workshops (Figs 14–15) (Neve 1999). In my opinion, this deep-rooted change visible in the whole of the Upper City reflects a profound turn, which in its cultural and social significance goes far beyond the 'normal' structural development of a given urban district. The city continued to exist. But, both temples and hilltop structures (Yenicekale, Sarıkale) – which were probably the loci of ancestral remembrance vital for the legitimacy of the ruling Hittite kings, and which both until then had undoubtedly played an eminently important role for Hittite society (van den Hout 1994; 2002; Schachner 2016: 103–14) – were no longer needed in Hattuša. Against the comprehensive socio-cultural significance of monumental and especially religious buildings for the fabric of a given society (in general: Trigger 1990; for the ideological significance of Hattuša for Hittite society cf. Doğan-Alparslan, Alparslan 2011), this refurbishment can only be interpreted as a sign of a fundamental change in social structure, the central state hierarchies, and above all religious behaviour and practices. Since such an archaeological development can only be observed once during the turbulent history of Hattuša and the other known Hittite centres, in my opinion, it can only be a deeply incisive cultural-historical event that caused this change (Schachner 2020c). Archaeologically it is impossible to delimit these changes chronologically because the excavations were interpreted under certain theoretical premises and methodological shortcomings (Seeher 2006b; 2006c; 2008). Ultimately, only the historical tradition may offer starting points for possible identification of such a drastic event, in which such a caesura of Hittite cultural history manifests itself archaeologically in changes of the entire social and religious structure of the capital (Schachner 2020c). A review of the written sources points to only one such revolutionary event, which could explain the drastic changes in the urban landscape (first suggested by D. Mielke (2006: 14–15, fig. 6). In the first quarter of the 13th century BC,

Muwattalli II (ca 1290–1272 BC) transferred the capital, as he emphasised 'with statues of the gods of Hatti and the manes' to Tarhuntašša in the south (?) of the Anatolian plateau (Doğan-Alparslan, Alparslan 2011: 91–93). This represents a unique turning point in the social and functional history of the Hittite capital, which affected not only the sanctuaries but also, in particular, ancestral worship. This narrative could be an explanation for the dramatic transformation of the Upper City because only such an event justifies the abandonment of the temples and the buildings probably used for the cult of the dead ancestors (Schachner 2011a: 94–98; 2016; 2020c; for a more cautious view cf. Klinger 2015).

Muršili III (ca 1272–1266 BC) moved the capital back to Hattuša probably in the late 70s or 60s of the 13th century BC (Klengel 1999: 226), most likely because the location played an irreplaceable role in forming the identity of the Hittite Empire as a cultural and religious centre far beyond its function as a ruler's domicile (Doğan-Alparslan, Alparslan 2011). In addition, Hattuša was probably also the site of (most) graves (Seeher 2015) and institutions for the ancestor worship of the deceased kings, so that it played a decisive role in the legitimation of the kings (Schachner 2016: 103–14). Although Hattušili III resided in Hattuša, the relocation of the city becomes archaeologically tangible only by the time of Tuthalija IV. (ca 1236–1215 BC). He redesigned the rock sanctuary of Yazılıkaya (Chamber A), and in particular established Chamber B as a new crystallisation point of ancestor worship (Bittel et al. 1975; Alexander 1986; Seeher 2011). These efforts to reestablish the ancestors' cult, which are documented in the following generation by the buildings on Nişantepe and the Südburg (Chamber 2), were because the family line of Tuthalija IV and Šuppiluliuma II (ca 1214/13–1190 BC) had a legitimation problem, due to the forceful seizure of the throne by Hattušili III (ca 1266–1236 BC).

In the city, however, only construction activities of Šuppiluliuma II in the triangle between Nişantepe, Südburg and Büyükkale are documented so far (Fig. 15) (Seeher, Neve 2018; for an alternative but a not convincing suggestion: Oreshko 2016; also Klinger 2015). These activities allow conclusions to be drawn about the socio-cultural development of the city's last decades of existence. While the constructions of Nişantepe and Chambers 1 and especially 2 most probably served the ancestors' cult (van den Hout 1994; 2002; Schachner 2016: 103–14), Temple 31 on the northern edge of the Südburg plateau religiously supplements the ensemble (Neve, Seeher 2018: 65–67). Thus, the architectural cluster of the very late 13th century BC picks up those functions that were located in the central Upper City (layer 3) and on Yenicekale (Schachner 2016: 107–14) before the radical structural change (Figs 14–15) (Schachner 2020c).

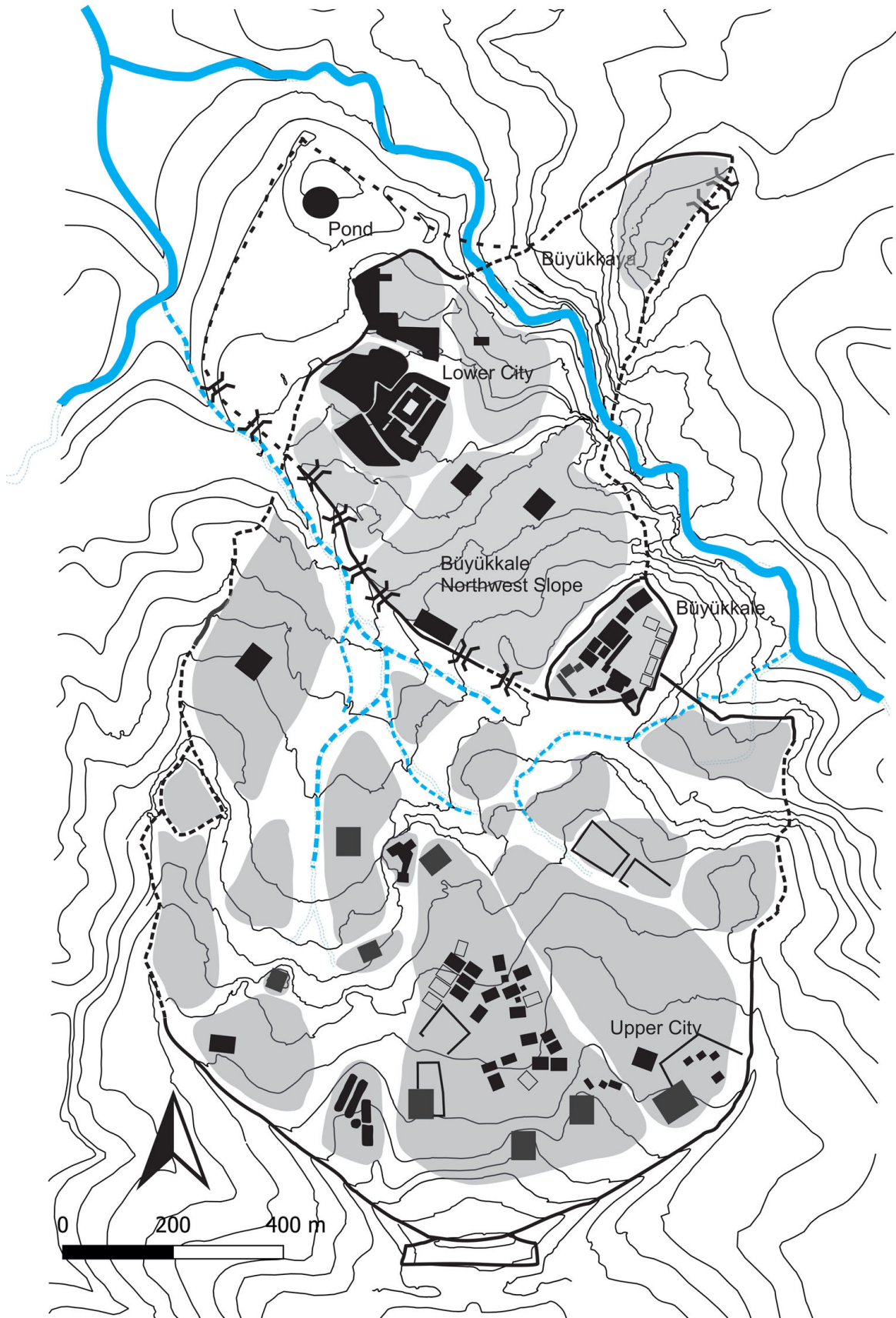


Figure 13. Schematic map of the outline of the settlement of the early to mid-Hittite Empire period (late 16th to early 14th century BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).



Figure 14. Schematic map of the outline of the middle Hittite Empire period (early/mid-14th to early 13th century BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

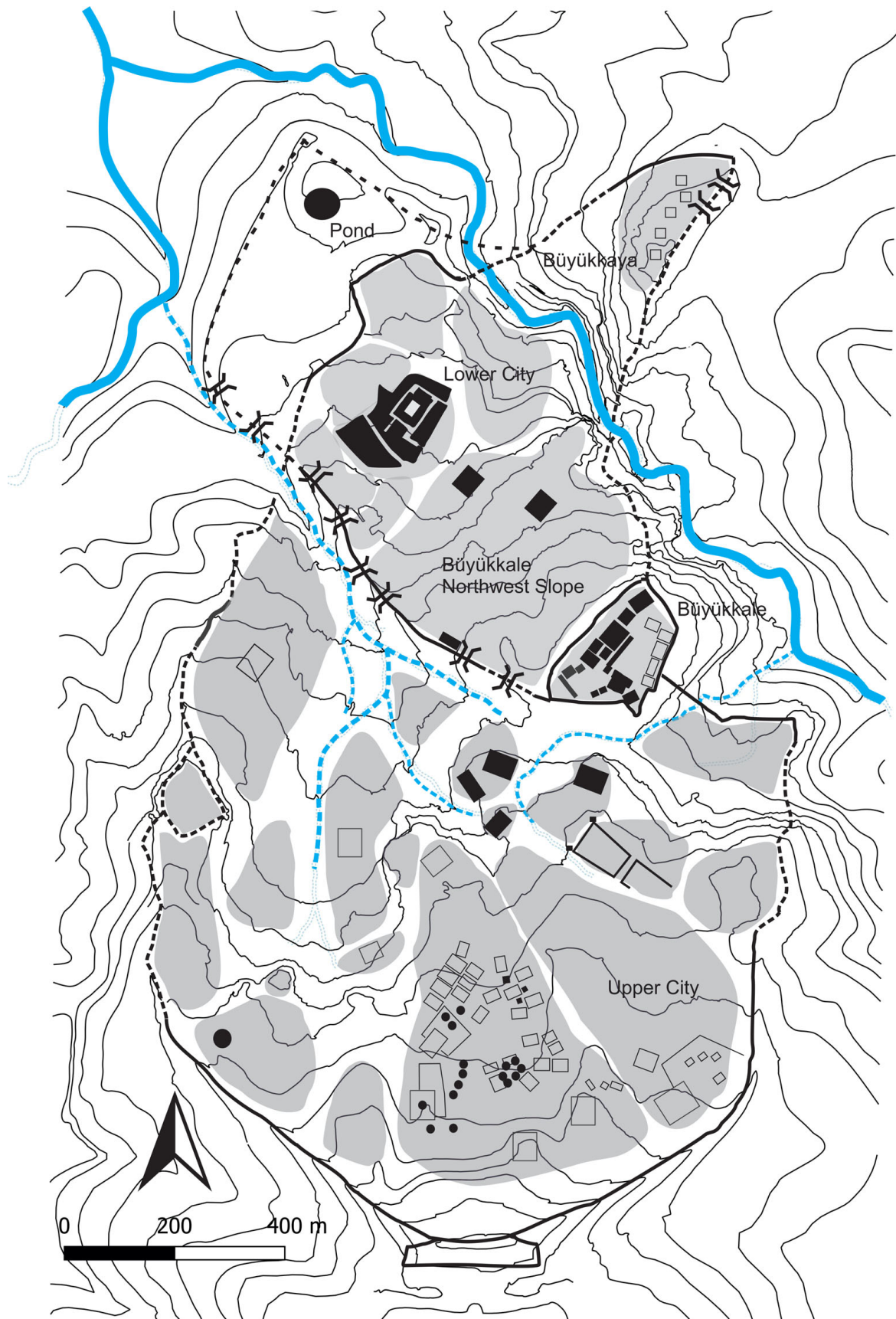


Figure 15. Schematic map of the outline of the settlement of the late Hittite Empire period (mid- to late 13th/early 12th century BC) (Map: A. Schachner; basemap: D. Krüger, K. Czarnitzki based on the documentation of the Boğazköy Expedition © Archive of Deutsches Archäologisches Institut, Istanbul).

In my opinion, the necessity of these constructions in the latest part of the 13th century BC can only be explained by the fact that, after returning from Tarhuntašša, in the central Upper City the Hittite elite was confronted with a completely changed functional urban landscape since the religious and political topography of the Upper City had turned into an industrial area. The functions of the older Oberstadt layer 3 obviously had to be recreated in the new area (Schachner 2020c). As such, the building programme can be understood as the rulers' attempt to re-establish the existing social and religious order, and to secure it for the future. In contrast, it is remarkable that, while monumental buildings were erected at Nişantepe and the Südburg in this late period, the above-mentioned findings in the valley west of Sarikale show that large wastelands existed parallel to industrially used areas near the Lions' Gate and in the central plain of the Upper City (Fig. 15).

Datable remains of the last phase of the Hittite Empire have so far only been unearthed in the mentioned areas of the new-town (Upper City). Although it is possible to demonstrate the shifting of the settlement's focus during the 13th century BC, the exact dating and the kind of end are still an enigma. The lack of traces of a hostile destruction – as well as the overall picture gained from decades

of excavations, which is much too complex to be discussed in this context – points to a possible bundle of reasons for the decline of the capital city (and the core lands of the empire) probably lasting over a century at least (Seeher 2001; Schachner 2011a, 2020c; de Martino 2018). The complex interplay of climate changes; population movements; societal fragmentations, and shifts in the identities, internal social, economic and political unrest – as well as migrations affecting especially the southern parts of the empire on which the core was economically dependent (Schachner 2019b) – can only be illuminated in detail by further excavations in the still unexplored parts of the eastern Upper City (for a recent overview of the development after the collapse of the Hittite Empire up to the Roman period: Schachner 2021b).

The old-town (Lower City) and Büyükkaya

The development of the Lower City in the Hittite Empire period has to be presented in an unexpected light based on recent excavations and the reappraisal of previous work. In the central Lower City, numerous reconstructions of the buildings of P. Neve's levels 3 and 2 testify to a dynamic development of this densely built quarter (Neve 1978), which seem to have changed little, functionally, during the

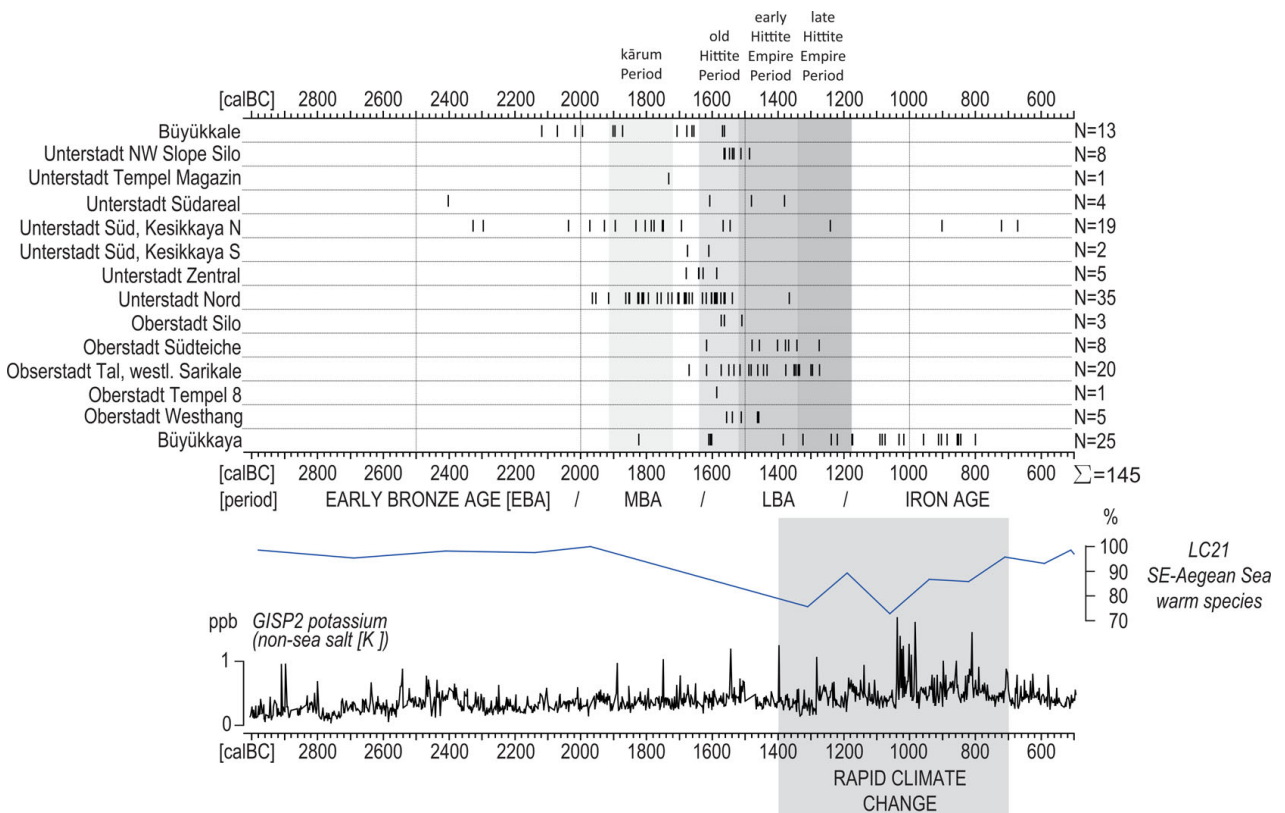


Figure 16. Barcode graph of calBC Radiocarbon dates from Boğazköy (n= 145; calibration and graphics: L. Clare, calibration with CalPal 9, Weninger 2022). For the chronological division and archaeological terminology see Schachner 2012: 131, tab. 1.

early Hittite Empire. This structural picture is confirmed by recent works on the northern terrace (Schachner 2021a: fig. 10).

But from a chronological point of view it was most astonishing that in all parts of the Lower City, touched upon in the last decade, our results indicate the settlement activities had, to a large extent, already come to an end in the 15th century BC (Figs 13–14) (Strupler 2013; 2022; Schachner 2019a: §26). Only the Great Temple, its store-rooms and probably the monumental building adjoining it to the south continued to be used, according to sealed clay bullae from the depots of the temple (Schachner 2020b; forthcoming b; Boehmer, Güterbock 1987). Large open areas or at best scattered buildings (level 1 according to P. Neve) seem to have existed here in a period long assumed by modern scholarship to have been the heyday of the Empire.

The reasons for the abandonment of large parts of the Lower City can only be explained roughly by the archaeological evidence. The available radiocarbon dates are mainly from timber and therefore reflect phases of construction or reconstruction (Fig. 16). However, especially on the northern terrace of the Lower City the deformations of the buildings' foundations and unusually large amounts of stone debris above the Hittite building remains may indicate destruction by an earthquake (Schachner 2019a: §26 figs 19, 26; Sümer et al. 2019), although it remains unclear whether earthquake damage at the Great Temple and other monumental buildings (at least Yenicekale; Temples 2, 3 and 4; the Lions' Gate) are contemporary.

Whether the so-called *Haus am Hang* and the Büyükkale Northwest Slope were used in this period cannot be clarified with certainty, yet. But paleographic dating of the text finds may point to the existence of the *Haus am Hang* (Torri 2022: 42–45). Structural evidence from recent excavations as well as numerous terraces and rock cuttings provide general confirmation of the use of the middle section of the slope in Hittite times (Schachner 2023a). Two stela bases found in 1907, during the construction of the first excavation house on a terrace above the *Haus am Hang*, are dated *communis opinio* to the 13th century BC due to their Hieroglyphic-Luwian inscriptions (Bittel 1937: 12–13; for the readings cf. Hawkins 2005: 272, nos 408–09). Thus, they may indicate a (partial?) use of the slope below Büyükkale in the last century of the Hittite Empire (Figs 13–15).

The construction of the underground granaries on the Büyükkale plateaus (9) marks a fundamental change in this area's function in the late 14th century BC (Fig. 14) (Seeher 2018: 84). Regarding the overall development of the city, this shows that the area, which had been unused

in the imperial concept of urban planning, was now assigned a very special function, probably due to its topographical location (Schachner 2022a: 180–82). Their construction speaks to a politically intended decision of state authorities. It is remarkable that the storage pits were probably abandoned around the middle of the 13th century BC at the latest; that is, well before the end of the Hittite Empire (Fig. 15) (Seeher 2018: 84). Despite unevenly distributed findings, the development of the Lower City clearly shows how the focus of settlement shifted due to political decisions, but presumably also due to natural forces.

Conclusion

The research of the last three decades illustrates beyond doubt the methodological importance of radiocarbon dating for the study of an extensive and topographically complex site such as Boğazköy/Ḫattuša (Fig. 16). This is especially since the relations between the topographically separate settlement areas become tangible only through this approach (Schoop, Seeher 2006). Moreover, the quantitative accumulation of absolute datings makes the dynamics of the development of individual parts of the city investigated since 1994 visible with an accuracy of up to 50 years in some cases, as with the development of the terraces of the Lower Town during the *kārum* period and the Old Hittite period (Figs 5–8, 10–11).

Regardless of the density of dating in individual areas, it is now clear that since its foundation at the turn of the third to the second millennium BC, the city developed without interruption (Fig. 16) but not linearly from a small nucleus to its largest extent. Rather, a dynamic process of ongoing adaptation to changing internal and possibly external circumstances can be seen. Based on the outlined results, a permanent back-and-forth of the settled areas within a geographically defined space is to be reconstructed. Consequently, next to densely built-up districts there existed at all times large areas in which ruins of buildings stood, or which were open spaces; for example, in the southern, central and northern Lower City from the mid-15th century BC onwards; in the valley west of Sarikale in the 13th century BC; in the central Upper City in the 13th to early 12th centuries BC. These areas could have been used as pasture or arable land (Garcia et al. 2019, for a general assessment). A similar situation of a settlement shifting within topographically defined boundaries is documented for the Iron Ages and the Roman period too (Schachner 2021b).

The map of the Hittite city of Ḫattuša, regularly reproduced as its overall plan (e.g. Schachner 2017a: 2, fig. 1; Seeher 2018: 2, fig. 3), represents a status reconstructed or idealised by modern research. In contrast, the city of

Ḫattuša has always been a construction site and the town was most probably never occupied to this extent, and accordingly never looked like this in its history. Moreover, it becomes clear that – apart from the use of the central and northern Lower City during the Old Hittite period and the early Empire period, which seem to at least partly continue in an older Anatolian fashion, at least from the mid- to late 16th century BC onwards – the town must not be imagined as a densely built-up settlement at any time, but characterised by a comparatively loose structure, which is recently also attested on the Büyükkale Northwest Slope and the West Slope of the Upper City. In this respect, Ortaköy/Şapinuwa most probably shows a similar unconstrained settlement structure with respect to the diverse topography during the Middle Hittite period, when it was used as a temporal site of residence by some Hittite kings (Süel, Süel 2013: 179, fig. 1).

This situation is not limited to Boğazköy, but a similar development can be observed in Kuşaklı, where at least the central temple of the weather god (building C) was destroyed by fire in the second half of the 14th century BC and was never rebuilt (Müller-Karpe 2017). It remained a ruin within the settlement that continued to exist around it. Remarkably the weather god of Sarissa did not lose his ideological importance after the destruction. Probably, the local Hittite socio-economic system no longer had the strength for reconstruction, or – in my opinion less probable – there was no need to.

In general, architecture reflects not only structural processes but societal developments as well (Rapoport 1969; 1982; 1993). In this respect, the changes outlined allow conclusions to be drawn about the reciprocal relationship between political, economic, cultural and religious actions versus the structural evolution of Ḫattuša.

The erection and maintenance of large-scale settlements and monumental buildings may be interpreted as representing a hierarchical society and its self-image beyond individual persons (Trigger 1990: 119–22; Knapp 2007: 49). At the same time, such buildings as *pars pro toto* stand for the institution they house, as well as for the legitimisation of their sponsors, since they acted in the understanding of their time as representatives of the gods (Beckman 2010).

Through monumental buildings, the social relationships and behavioural patterns of the individuals associated with them, as well as of the society, are determined because the built structures spatially define the social behaviour associated with them (Trigger 1990: 126–27; Ganzert 2004: 328). As such, architecture does not simply create a new infrastructure, but the actions and relationships taking place within are fixed for the period of use of an edifice so that long-term canonisation of social modes

of action is achieved. This allows their sponsors to define their societal ideas far beyond their lifetime as a binding legacy, and thus to exercise social control well beyond their generation (Knapp 2007: 48). In addition, such buildings functioned as crystallisation points for social events that create a common identity, so that these buildings are of crucial significance for the cohesion and self-assurance of any given society (Assmann 2007: 14–151; Knapp 2007: 47). In this respect, it is not surprising that monumental buildings in global comparison were very often erected in phases of foundation, upheaval or renewal of societal systems (Trigger 1990: 127; Knapp 2007: 52–55). The corresponding architecture thus reflects the state's attempt to consolidate power relations, strengthen common identity and consolidate them in the long term. Regarding the overall development of Ḫattuša, phases of retreat or reduction are similarly influential to those of expansion in shaping the settlement.

Against this theoretical background, it is not surprising that the beginning of the urban development (Fig. 3), the founding of the Hittite city (Fig. 8) and the expansion of the Upper City (Figs 11, 13–14) are all characterised by extensive settlement planning and the construction of representative, indigenous state buildings resembling the new order. The time after the relocation back from Tarhuntašša (e.g. the second half of the 13th century BC) may be added, since it produced similar monumental structures at Nişantaşı and the Südburg, and as such marks an attempt at societal renewal in a period of deep-rooted reorganisation (Fig. 15).

Remarkably, the politically indicated planning at the beginning of the urban settlement in the late Early Bronze Age (Fig. 3), as well as at the beginning of the Old Hittite period (Fig. 8), proved too ambitious and had to be scaled down shortly thereafter (Figs 4, 10–11), possibly due to regional economic limitations (Schachner 2022a). This may be seen as an adaptation to practical requirements, whereas in the 13th century BC, after the return of the capital functions to Ḫattuša, the economic and political power may no longer have been sufficient to restore the previous size of the settlement. Remarkably the expansion of the *kārum* period settlement in two steps, possibly parallel to an intensification of inner-Anatolian trade, is visible in the archaeological findings (Figs 5–6). After a clear reduction of the settlement area during the transition from the *kārum* period to the foundation of the Hittite kingdom, its foundation is characterised (again) by spatially ambitious planning (Figs 7–8). This reflects the political will and, through the new typological indigenous buildings (Schachner 2022b), the claim to power of the Hittite rulers. But already during the Old Hittite period, it becomes clear that this approach was too ambitious. The

fortifications were taken back in two steps to a strategically more favourable position (Figs 10–11). But at the time, the expansion of the Upper City may have already begun (Fig. 11). Accordingly, this very dynamic structural development of the city from the mid-17th to the late 16th century BC reveals the eventful history of the Hittite kingdom, although it is impossible to connect buildings with particular historical events.

Only in a few cases may one hypothesise the reasons for this development, which are probably manifold. The multiple destructions of the outermost fortification, presumably by at least two different floodings from the Budaközü, may suggest that natural disasters played a role (Ünal 1977: 451–55). However, the example of the settlement in the valley west of Sarıkale shows that in the Hittite Empire period, similar natural events did not necessarily lead to the adjustment of the settlement strategy.

The gradual expansion of the Upper City and the transfer of central state functions from the old-town to the new-town indicates agency in establishing newly defined political symbolism (Figs 13–14). The partial abandonment of the Lower City – except for the Great Temple and the southern area (*Süddareal*) – until the late 15th century BC may have been triggered, probably among other factors, by an earthquake (Fig. 14) (Sümer et al. 2019). But, at the present state of research, societal reasons cannot be excluded, since as a matter of fact the dense neighbourhood of the central Lower City was not moved to the Upper City. This points to changes not fully understood so far. In general, it remains unclear whether Hittite society lacked the power, the will or the necessity to remake the destroyed areas, or whether societal, political or strategic considerations played a role in this decision.

Looking at the development of the central Upper City between the late 16th and early 13th century BC (the period Obst. 3), a period of stability becomes recognisable in contrast to the Lower City in the Old Hittite period (Figs 13–14). Renovations of the temple buildings or parts of the settlement are not provable. This could be an indication of how the overall more stable political conditions in the older phase of the Hittite Empire period positively affected the city's development.

Political decisions are evident for the development during this period of other parts of the Upper City. In the valley west of Sarıkale, despite repeated destructions due to natural disasters (especially floods and landslides), people held on to the settlement (Schachner 2008: 125). They only abandoned it as a result of a comprehensive change of significance that affected the whole empire (compare Figs 14–15). A similar example of political agency is the renewed use of Büyükkaya, after a break of about 200 years (compare Figs 10 with 11, 13 and 14–15), by erecting the large underground grain silos.

It was only in the early 13th century that most probably the transfer of the central, religious, and political functions of the capital to Tarhuntašša resulted in the transformation of large parts of the new-town and the temporary loss of its official, representative character (Fig. 14 vs 15). This structural development again is a clear indication of political decision-making and the kings' agency.

The reconstruction of the buildings and monuments in the triangle between Nişantepe, Südburg and Büyükkale after the capital was moved back (probably during the 70–60s of the 13th century BC) (Fig. 15), representing precisely the governmental and religious functions that had been in the Upper City until the shift to Tarhuntašša, testifies to the political actions of the last Hittite kings influencing the settlement's development. At the same time, however, their economic abilities seem to have been limited regarding large unused areas, for example in the valley west of Sarıkale and in the Lower City (Fig. 15).

Only a few Hittite cities in Central Anatolia have been structurally and chronologically researched to the extent that comparable statements on their overall urban development are possible; one that shows exemplary parallels is Kuşaklı/Sarissa (Müller-Karpe 2017). Like in Boğazköy, a clear difference can be seen between areas with public edifices and those with residential buildings. While the public buildings were used for a long time without changes, the residential area on the western slope shows a dynamic development (Mielke 2006b: plan 2–3, 6; Müller-Karpe 2017). Parallel to the settlement development in Boğazköy it can be observed that the temple of the weather god (Building C) exists only as a ruin after a massive fire of unknown cause during or shortly after the reign of Šuppiluliuma I, while the settlement otherwise continued (Müller-Karpe 2017).

The diachronic research of the last three decades has significantly changed our understanding of the settlement of Boğazköy. It becomes clear not only the decisive influence geography and political decisions had, but also that the taphonomy had on the development of the settlement and its remains. Only the intensive use of scientific dating allows a direct comparison between the individual settlement areas (Fig. 16) and the reconstruction of a hitherto unrecognised development of the settlement. It did not develop linearly, but its centre of gravity shifted again and again within a geographically defined space, similar to Anatolian cities of younger epochs (Hütteroth 1982).

The development of a mountainous location takes place well before the establishment of the Hittite dynasty, under autochthonous Anatolian conditions. But, the Hittites took up this new form of settlement and actively shaped it according to political criteria, so that already in the course of the Old Hittite period, but especially with the foundation of the Upper City, a completely independent

Hittite urbanism became tangible in Hattusa and beyond, clearly reflecting the political and ideological needs of the Empire. For the first time, active political agency thus becomes visible in the shaping of landscape and built space in Anatolia, ultimately leading to the establishment of a Hittite urban system in Central Anatolia (Schachner 2017c). The fact that this system was closely connected to Hittite rule is made clear by the fact that it disappears with the collapse of the empire, and no comparably original system can be found in any of the following periods.

Note on the maps

The schematic city plans included with this article serve only as general illustrations of the arguments in the text (Figs 3–8, 10–11, 13–15). Due to the size of the site and the complexity of the landscape cartographically only a gradual and schematic approximation is possible at a printable scale (for a similar approach Seeher 2023).

For a complete list of the published radiocarbon dates from Boğazköy, cf. <https://doi.org/10.34780/sky0-r774>

Bibliography

- Alexander, R. 1986: *The Sculpture and Sculptors of Yazılıkaya*. Newark, University of Delaware Press
- Assmann, J. 2007: *Das kulturelle Gedächtnis. Schrift, Erinnerung und politische Identität in frühen Hochkulturen*. Munich, C.H. Beck
- Barjamovic, G., Hertel, T., Larsen, M.T. 2012: *Ups and Downs at Kanesh. Chronology, History and Society in the Old Assyrian Period*, PIHANS 120, Leiden, Nederlands Instituut voor het Nabije Oosten
- Becker, J., Schachner, A. 2022: ‘Büyükkale: Arbeiten am Oberen Burghof’ in A. Schachner (ed.), ‘Die Ausgrabungen in Boğazköy-Hattuša 2021’ *Archäologischer Anzeiger* 2022.1: §24–75. <https://doi.org/10.34780/97fd-jawc>
- Becker, J., Schachner, A. 2023: ‘Büyükkale: Arbeiten am Oberen Burghof’ in A. Schachner (ed.), ‘Die Ausgrabungen in Boğazköy-Hattuša 2022’ *Archäologischer Anzeiger* 2023.1: §24–52. <https://doi.org/10.34780/e12d-4ac2>
- Beckman, G. 2010: ‘Temple building among the Hittites’ in M.J. Boda, J. Novotny (eds), *From the Foundations to the Crenellations. Essays on Temple Building in the Ancient Near East and Hebrew Bible*, AOAT 366. Münster, Ugarit-Verlag: 71–90
- Bittel, K. 1937: *Boğazköy. Die Kleinfunde der Grabungen 1906–1912*. Leipzig, J.C. Hinrichs
- 1957: ‘Versuchsgrabung in der nördlichsten Unterstadt’ in K. Bittel (ed.), *Boğazköy III. Funde aus den Grabungen 1952–1955*, Abhandlungen der Deutschen Orient-Gesellschaft 2. Berlin, Gebr. Mann: 23–29
- 1983: *Hattuscha. Hauptstadt der Hethiter. Geschichte und Kultur einer altorientalischen Großmacht*. Köln, DuMont
- Bittel, K., Beran, T., Fischer, F., Bossert, E.-M. 1957: ‘Vorläufiger Bericht über die Ausgrabungen in Boğazköy 1956’ *Mitteilungen der Deutschen Orient-Gesellschaft* 89: 1–80
- Bittel, K., Boessneck, J., Damm, B., Güterbock, H.G., Hauptmann, H., Naumann, R., Schirmer, W. 1975: *Das hethitische Felsheiligtum Yazılıkaya*, Boğazköy-Hattuša 9. Berlin, Gebr. Mann
- Bittel, K., Naumann, R. 1952: *Boğazköy-Hattuša. Ergebnisse der Ausgrabungen des Deutschen Archäologischen Instituts und der Deutschen Orient-Gesellschaft in den Jahren 1931–1939. I. Architektur, Topographie, Landeskunde und Siedlungsgeschichte*, WVDÖG 63. Stuttgart, Kohlhammer
- Boehmer, R.M., Güterbock, H.G. 1987: *Die Glyptik von Boğazköy II. Teil. Glyptik aus dem Stadtgebiet von Boğazköy, Grabungskampagnen 1931–1939, 1952–1978*, Boğazköy-Hattuša 14. Berlin, Gebr. Mann
- Czichon, R. 2003: *Studien zur Regionalgeschichte von Hattuša/Boğazköy vom Chalkolithikum bis zur Byzantinischen Zeit*. Würzburg, Habilitation Julius-Maximilians-Universität
- Dinçol, B. 2006: ‘Über die Probleme der absoluten Datierung der Herrschaftsperioden der hethitischen Könige nach den philologischen und glyptischen Belegen’ in D.P. Mielke, U.-D. Schoop, J. Seeher (eds), *Structure and Dating in Hittite Archaeology*, Byzas 4. Istanbul, Ege Yayınları: 19–32
- Dinçol A., Dinçol, B. 2008: *Die Prinzen- und Beamtensiegel aus der Oberstadt von Boğazköy-Hattuša vom 16. Jahrhundert bis zum Ende der Grossreichszeit*, Boğazköy-Hattuša 22. Mainz, P. von Zabern
- Doğan-Alparslan, M., Alparslan, M. 2011: ‘Wohnsitze und Hauptstädte der hethitischen Könige’ *Istanbul Mitteilungen* 61: 85–103
- Dürr, M. 2014: ‘Hattusa Virtual Environment’. *Eine interaktive virtuelle Rekonstruktion des zentralen Tempelviertels als Produkt und Medium archäologischer Forschung*, PhD thesis, Universität Freiburg. <http://www.freidok.uni-freiburg.de/volltexte/9528/index.html>
- Ganzert, J. 2004: ‘Zum Verhältnis von Ritual und Macht in der Architektur’ in E.-L. Schwandtner, K. Rheidt (eds), *Macht der Architektur – Architektur der Macht*, DiskAB 8. Mainz, P. von Zabern: 325–28
- Garcia, D., Orgeolet, R., Pomadere, M., Zurbach, J. 2019: *Country in the City: Agricultural Functions of Protohistoric Urban Settlements (Aegean and Western Mediterranean)*. Oxford, Archaeopress

- Gates, M.-H. 2017: 'Gods, temples and cult at the service of the early Hittite state' in Y. Heffron, A. Stone, M. Worthington (eds), *At the Dawn of History. Ancient Near Eastern Studies in Honour of J.N. Postgate*. Winona Lake, Eisenbrauns: 189–210
- Genz, H., Mielke, D.P. 2011: 'Research on the Hittites. A short overview' in H. Genz, D.P. Mielke (eds), *Insights into Hittite History and Archaeology* (Colloquia Antiqua 2). Leuven, Peeters: 1–31
- Gruber, M. 2017: 'Hethitische Keramik vom Mittleren Plateau' in A. Schachner (ed.), *Ausgrabungen und Forschungen in der westlichen Oberstadt von Hattuša II, Ausgrabungen auf dem Mittleren Plateau zwischen Sarikale und Yenice Kale (2006–2009)*, Boğazköy-Hattuša 25. Berlin, De Gruyter: 63–216
- 2023: 'Arbeiten in der westlichen Oberstadt' in A. Schachner (ed.), 'Ausgrabungen in Boğazköy-Hattuša 2022' *Archäologischer Anzeiger* 2023.1: § 53–96. <https://doi.org/10.34780/e12d-4ac2>
- Haller, T., Schachner, A. 2019: 'Arbeiten an der nordwestlichen Büyükkale' in A. Schachner (ed.), 'Die Ausgrabungen in Boğazköy-Hattuša 2018' *Archäologischer Anzeiger* 2019.1: §35–43. <https://doi.org/10.34780/1g76-6b86>
- Hawkins, J.D. 2005: 'Comments on the readings' in S. Herbordt (ed.), *Die Prinzen- und Beamtsiegel der hethitischen Großreichszeit auf Tonbullen aus dem Nişantepe-Archiv in Hattuša*, Boğazköy-Hattuša 19. Mainz, P. von Zabern: 248–314
- van den Hout, T. 1994: 'Death as a privilege. The Hittite royal funerary ritual' in J.M. Bremer, T. van den Hout, R. Peters (eds), *Hidden Futures, Death and Immortality in Ancient Egypt, Anatolia, the Classical, Biblical and Arabic-Islamic World*. Amsterdam, Amsterdam University Press: 37–76
- 2002: 'Tombs and memorials. The (divine) stone-house and hegur reconsidered' in K.A. Yener, H.A. Hoffner, Jr (eds), *Recent Developments in Hittite Archaeology and History, Papers in Memory of Hans G. Güterbock*. Winona Lake, Eisenbrauns: 73–91
- Hütteroth, W.-D. 1982: *Türkei*. Darmstadt, Wissenschaftliche Buchgesellschaft
- Klengel, H. 1999: *Geschichte des hethitischen Reiches*. Leiden, Brill
- Klinger, J. 2006: 'Der Beitrag der Textfunde zur Archäologiegeschichte der hethitischen Hauptstadt' in D.P. Mielke, U.-D. Schoop, J. Seeher (eds), *Strukturierung und Datierung in der hethitischen Archäologie*, Byzas 4. Istanbul, Ege Yayınları: 5–17
- 2015: 'Šuppiluliuma II. und die Spätphase der hethitischen Archive' in A. Müller-Karpe, E. Rieken, W. Sommerfeld (eds), *Saeculum – Gedenkschrift für Heinrich Otten anlässlich seines 100. Geburtstags*, StBoT 58. Wiesbaden, Harrassowitz: 87–112
- 2022: 'The Hittite writing traditions of cuneiform documents' in S. de Martino (ed.), *Handbook Hittite Empire. Power Structures, Empires through the Ages in Global Perspective 1*. Berlin, De Gruyter: 93–155. <https://doi.org/10.1515/9783110661781-004>
- Kloekhorst, A., Waal, W. 2019: 'A Hittite scribal tradition predating the tablet collections of Hattuša?' *Zeitschrift für Assyriologie* 109.2: 189–203
- Knapp, B. 2009: 'Monumental architecture, identity and memory' in A. Kyriatsoulis (ed.), *Bronze Age Architectural Traditions in the Eastern Mediterranean: Diffusion and Diversity*. Weilheim, Verein zur Förderung der Aufarbeitung der Hellenischen Geschichte: 47–59
- Krüger, D. 2022: 'Strukturen und Befunde der römischen Kaiserzeit' in A. Schachner (ed.), 'Die Ausgrabungen in Boğazköy-Hattuša 2021' *Archäologischer Anzeiger* 2022.1: §82–106. <https://doi.org/10.34780/97fd-jawc>
- Lumsden, S. 2008: 'Material culture and the middle ground in the old Assyrian colony period' in C. Michel (ed.), *Old Assyrian Studies in Memory of Paul Garelli*. Leiden, Nederlands Instituut voor het Nabije Oosten: 21–43
- de Martino, S. 2018: 'The fall of the Hittite kingdom' *Mesopotamia* 53: 23–48
- May, N., Steinert, U. 2014: 'Introduction: urban topography as a reflection of society?' in N. May, U. Steinert (eds), *The Fabric of Cities. Aspects of Urbanism, Urban Topography and Society in Mesopotamia, Greece and Rome*. Leiden, Brill: 1–41
- Mielke, D.P. 2006a: 'Inandiktepe und Sarissa. Ein Beitrag zur Datierung althethitischer Fundkomplexe' in D.P. Mielke, U.-D. Schoop, J. Seeher (eds), *Structure and Dating in Hittite Archaeology*, Byzas 4. Istanbul: Ege Yayınları: 251–77
- 2006b: *Die Keramik vom Westhang*, Kuşaklı-Sarissa 2. Rahden/Westf, Marie Leidorf Verlag
- 2017: 'From "Anatolian" to "Hittite". The development of pottery in Central Anatolia in the 2nd Millennium BC' in A. Schachner (ed.), *Innovation versus Beharrung. Was macht den Unterschied des hethitischen Reichs im Anatolien des 2. Jahrtausends v. Chr.?*, Byzas 23, Istanbul, Ege Yayınları: 121–44

- Müller-Karpe, A. 2003: 'Remarks on Central Anatolian chronology of the Middle Hittite Period' in M. Bietak (ed.), *The Synchronization of Civilizations in the Eastern Mediterranean in the Second Millennium B.C.* Vienna, Verlag der Österreichischen Akademie der Wissenschaften: 383–94
- 2017: *Sarissa: die Wiederentdeckung einer hethitischen Königsstadt*. Darmstadt, Wissenschaftliche Buchgesellschaft
- Naumann, R. 1971: *Architektur Kleinasiens von ihren Anfängen bis zum Ende der hethitischen Zeit*. Tübingen, Wasmuth
- Neu, E. 1974: *Der Anitta-Text*, StBoT 18. Wiesbaden, Harrassowitz
- Neve, P. 1958: 'Untersuchungen in der Altstadt. Die Grabungen im Wohnviertel J-K/20' in K. Bittel (ed.), 'Vorläufiger Bericht über die Ausgrabungen in Boğazköy in den Jahren 1957' *Mitteilungen der Deutschen Orient-Gesellschaft* 91: 3–21
- 1978: 'Zur Entwicklung des hethitischen Wohnungsbaus in Boğazköy/Ḫattuša unter besonderer Berücksichtigung der in der Altstadt/Unterstadt erzielten Grabungsergebnisse' in Deutsches Archäologisches Institut Architekturreferat (ed.), *Wohnungsbau im Altertum*, DiskAb 8. Berlin, Architekturreferat des DAI: 47–61
- 1982: *Büyükkale. Die Bauwerke. Grabungen 1954–1966*, Boğazköy-Ḫattuša 12. Berlin, Gebr. Mann
- 1999: *Die Oberstadt von Ḫattuša. Die Bauwerke 1. Das zentrale Tempelviertel*, Boğazköy-Ḫattuša 16. Berlin, Gebr. Mann
- 2001: *Die Oberstadt von Ḫattuša. Die Bauwerke 2. Die Bastion des Sphinxtores und die Tempelviertel am Königs- und Löwentor*, Boğazköy-Ḫattuša 17. Mainz, P. von Zabern
- 2004: 'Die hethitischen Stadtmauern von Ḫattuša: eine Bestandsaufnahme' *Architectura* 34: 169–82
- Neve, P., Seeher, J. 2018: *Die Oberstadt von Ḫattuša. Die Bauwerke. III, Die Bebauung im südlichen Vorfeld von Büyükkale. Nişantepe – Südburg – Ostplateau* (Grabungen 1988–1993). Berlin, De Gruyter
- Oreshko, R. 2016: *Studies in Hieroglyphic Luwian: Towards a Philological and Historical Reinterpretation of the SÜDBURG inscription*, PhD thesis, Freie Universität, Berlin
- Orthmann, W. 1963: *Frühe Keramik von Boğazköy aus den Ausgrabungen am Nordwesthang von Büyükkale*, Boğazköy-Ḫattuša 3. Berlin, Gebr. Mann
- 1969: 'Hethitische Keramik aus den Grabungen nordwestlich vom Haus am Hang' in W. Schirmer (ed.), *Die Bebauung am unteren Büyükkale-Nordwesthang in Boğazköy: Ergebnisse der Untersuchungen der Grabungscampagnen 1960–1963*, Boğazköy-Ḫattuša 6. Berlin, Gebr. Mann: 42–48
- 1984: 'Keramik aus den ältesten Schichten von Büyükkale' in K. Bittel (ed.), *Boğazköy VI, Funde aus den Grabungen bis 1979*. Berlin, Gebr. Mann: 9–62
- Puchstein, O. 1912: *Boghasköi, die Bauwerke*. Leipzig, Hinrichs
- Rapoport, A. 1969: *House, Form and Culture*. Englewood, Prentice-Hall
- 1982: *The Meaning of the Built Environment: A Nonverbal Communication Approach*. Tucson, University of Arizona Press
- 1993: 'Systems of activities as systems of setting' in S. Kent (ed.), *Domestic Architecture and the Use of Space: An Interdisciplinary Cross-Cultural Study*. Cambridge, Cambridge University Press: 9–20
- Schachner, A. 1999: *Von der Rundhütte zum Kaufmannshaus*, BAR International Series 807. Oxford, Archaeopress
- 2006: 'Auf welchen Fundamenten? Überlegungen zum Stand der Erforschung der hethitischen Architektur' in D.P. Mielke, U.-D. Schoop, J. Seeher (eds), *Structure and Dating in Hittite Archaeology*, Byzas 4. Istanbul, Ege Yayınları: 149–66
- 2008: 'Die Ausgrabungen in Boğazköy-Ḫattuša 2007' *Archäologischer Anzeiger* 2008.1: 113–61. <https://publications.dainst.org/journals/aa/1924/5928>
- 2009a: 'Die Ausgrabungen in Boğazköy-Ḫattuša 2008' *Archäologischer Anzeiger* 2009.1: 21–72. <https://publications.dainst.org/journals/aa/37/4718>
- 2009b: 'Das 16. Jahrhundert v. C. – eine Zeitenwende im hethitischen Zentralanatolien' *Istanbul Mitteilungen* 59: 9–34
- 2010: 'Die Ausgrabungen in Boğazköy-Ḫattuša 2009' *Archäologischer Anzeiger* 2010.1: 161–221. <https://doi.org/10.34780/fxrm-1x4s>
- 2011a: *Hattuscha: auf der Suche nach dem sagenhaften Großreich der Hethiter*. Munich, C.H. Beck
- 2011b: 'Von einer anatolischen Stadt zur Hauptstadt eines Großreichs – Entstehung, Entwicklung und Wandel Hattušas in hethitischer Zeit' *Mesopotamia* 46: 79–101
- 2011c: 'Hattuša. Kayalardan şekilendirilmiş bir şehir' in Ö. İpek (ed.), *1. Çorum Kazı ve Araştırmalar Sempozyumu*. Çorum, Valilik: 111–35

- 2012a: ‘Die Funktionen des Palastes der hethitischen Großkönige in Boğazköy-Hattuša’ in F. Arnold, R. Haensch, U. Wulf-Rheidt (eds), *Orte der Herrschaft. Charakteristika von Machtzentren von der babylonischen Zeit bis in den Frühislam*. Rahden, Marie Leidorf Verlag: 81–96
- 2012b: ‘Gedanken zur Datierung, Entwicklung und Funktion der hethitischen Kunst’ *Altorientalische Forschungen* 39.1: 130–66
- 2013: ‘Die Arbeiten in Boğazköy-Hattuša 2012’ *Archäologischer Anzeiger* 2013.1: 147–93.
<https://doi.org/10.34780/1cv1-vc4a>
- 2014: ‘Die Arbeiten in Boğazköy-Hattuša 2013’ *Archäologischer Anzeiger* 2014.1: 93–168.
<https://doi.org/10.34780/6771-bmr7>
- 2015: ‘Die Ausgrabungen in der Unterstadt von Hattuša 2009–2014: erste Ergebnisse’ in A. D’Agostini, V. Orsi, J. Torri (eds), *Sacred Places of Hittites and Luwians*, Documenta Asiana 9. Florence, Florence University Press: 67–81
- 2016: ‘Ausgrabungen und Untersuchungen an Yenicekale in der südwestlichen Oberstadt von Boğazköy (2006–2008)’ in A. Schachner, J. Seeher (eds), *Ausgrabungen und Forschungen in der westlichen Oberstadt von Hattuša I*, Boğazköy-Hattuša 24. Berlin, De Gruyter: 1–146. <https://doi.org/10.34780/7zx6-awx3>
- 2017a: *Ausgrabungen und Forschungen in der westlichen Oberstadt von Hattuša II, Ausgrabungen auf dem Mittleren Plateau zwischen Sarikale und Yenicekale (2006–2009)*, Boğazköy-Hattuša 25. Berlin, De Gruyter
- 2017b: ‘The historical development of the urban geography of Hattuša, the Hittite capital city, and beyond’ in M. Alparslan (ed.), *Places and Spaces in Hittite Anatolia I: Hatti and the East*. Istanbul, Ege Yayınları: 29–51
- 2018: ‘Die Ausgrabungen in Boğazköy-Hattuša 2017’ *Archäologischer Anzeiger* 2018.1: 1–72.
<https://doi.org/10.34780/g1fa-674b>
- 2019a: ‘Die Ausgrabungen in Boğazköy-Hattuša 2018’ *Archäologischer Anzeiger* 2019.1: §1–146.
<https://doi.org/10.34780/1vvt-j762>
- 2019b: ‘Anatolia (c. 1400–700 BC)’ in A. Kotsonas, I. Lemnos (eds). *A Companion to the Archaeology of Early Greece and the Mediterranean*, Boston, Wiley: 1107–32
- 2020a: ‘The power of geography. Criteria for selecting the location of Hattuša, the capital city of the Hittite Empire’ in M. Cammarosano, E. Devecchi, M. Viano (eds), *tulageš witteš – Ancient Near Eastern Studies Presented to Stefano de Martino on the Occasion of his 65th Birthday*, Kasion 2. Münster, Zaphon: 399–420
- 2020b: ‘The Great Temple at Hattuša: Some preliminary interpretations’ in S. Görke, C. Steitler (eds), *Cult, Temple, Sacred Spaces. Cult Practices and Cult Spaces in Hittite Anatolia and Neighbouring Cultures*, StBoT 66. Wiesbaden, Harrassowitz: 105–58
- 2020c: ‘The 14th and 13th centuries BC in the Hittite capital city Hattuša: a (re)assessment’ in St. de Martino (ed.), *Anatolia between the 13th and the 12th Century BCE*, Eothen 23. Florence, LoGisma: 381–410
- 2020d: ‘Die Ausgrabungen in Boğazköy-Hattuša 2019’ *Archäologischer Anzeiger* 2020.1: §1–111.
<https://doi.org/10.34780/aa.v0i1.1012>
- 2021a: ‘Die Ausgrabungen in Boğazköy-Hattuša 2020’ *Archäologischer Anzeiger* 2021.1: §1–95.
<https://doi.org/10.34780/ac1f-6jeu>
- 2021b: ‘A very long 1st Millennium BC at Boğazköy? Longue durée versus changes from the Iron Age to the Roman Imperial Period’ in E. Sökmen, A. Schachner (eds), *Understanding transformations: Exploring the Black Sea Region and Northern Central Anatolia in Antiquity*, Byzas 26. Istanbul, Ege Yayınları: 1–20
- 2022a: ‘Geographical prerequisites versus human behavior: Settlement geography, rural economy, and ideological aspects of anthropogenic relations with the natural environment during the second Millennium BC in Central Anatolia’ in St. de Martino (ed.), *Handbook Hittite Empire. Power Structures, Empires through the Ages in Global Perspective I*. Berlin, De Gruyter: 159–202. <https://doi.org/10.1515/9783110661781-010>
- 2022b: ‘Building for king and country: Architecture as a symbol of the Hittite Empire’ in St. de Martino (ed.), *Handbook Hittite Empire. Power Structures, Empires through the Ages in Global Perspective I*. Berlin, De Gruyter: 421–68. <https://doi.org/10.1515/9783110661781-010>
- 2022c: ‘Die Ausgrabungen in Boğazköy-Hattuša 2021’ *Archäologischer Anzeiger* 2022.1: §1–173.
<https://doi.org/10.34780/97fd-jawc>
- 2023a: ‘Die Ausgrabungen in Boğazköy-Hattuša 2022’ *Archäologischer Anzeiger* 2023.1: §1–210.
<https://doi.org/10.34780/e12d-4ac2>
- 2023b: ‘Bronze Age radiocarbon dates from Bogazkoy-Hattusha, v.1’ in *iDAL.repo*. <https://doi.org/10.34780/sky0-r774>
- forthcoming a: ‘Preliminary reflections on Central Anatolian urbanism during the 2nd millennium BC’ in M. Frangipane (ed.), *City across Time*. Rome: Accademia Nazionale dei Lincei: 249–76

- forthcoming b: *Ausgrabungen in der Unterstadt von Boğazköy II: Der Große Tempel von Ḫattuša, die Magazine in seinem Umfeld und das sogenannte Südeareal*, Boğazköy-Ḫattuša 30. Berlin: De Gruyter
- Schachner, A., Becker, J. 2022: ‘Radiokarbondatierungen von der Büyükkale’ in ‘Die Ausgrabungen in Boğazköy-Ḫattuša 2021’ *Archäologischer Anzeiger* 2022.1: §67–75. <https://doi.org/10.34780/97fd-jawc>
- Schirmer, W. 1969: *Die Bebauung am unteren Büyükkale-Nordwesthang in Boğazköy: Ergebnisse der Untersuchungen der Grabungscampagnen 1960–1963*, Boğazköy-Hattuša 6. Berlin, Gebr. Mann
- Schoop, U.-D. 2006: ‘Dating the Hittites with statistics: Ten pottery assemblages from Boğazköy-Hattuša’ in D.P. Mielke, U.-D. Schoop, J. Seeher (eds), *Structure and Dating in Hittite Archaeology*, Byzas 4., Istanbul, Ege Yayınları: 215–240
- ‘Die Besiedlung des Oberen Plateaus vom Chalkolithikum bis in die althethitische Zeit’ in J. Seeher (ed.), *Büyükkaya II, Bauwerke und Befunde der Grabungskampagnen 1952–1955 und 1993–1998*, Boğazköy-Ḫattuša 27. Berlin, De Gruyter: 11–36
- Schoop, U.-D., Seeher, J. 2006: ‘Absolute Chronologie in Boğazköy-Ḫattuša: Das Potential der Radiokarbondaten’ in D.P. Mielke, U.-D. Schoop, J. Seeher (eds), *Structure and Dating in Hittite Archaeology*, Byzas 4. Istanbul, Ege Yayınları: 53–76
- Schwemer, D. 2019: ‘Textfunde der Kampagne 2018’ in A. Schachner (ed), ‘Die Ausgrabungen in Boğazköy-Ḫattuša 2018’ *Archäologischer Anzeiger* 2019.1: §88–93. <https://doi.org/10.34780/1g76-6b86>
- Seeher, J. 2001: ‘Die Zerstörung der Stadt Hattusa’ in G. Wilhelm (ed.), *Akten des IV. Internationalen Kongresses für Hethitologie, Studien zu den Boğazköy-Texten* 45. Wiesbaden, Harrassowitz: 623–34
- 2002: ‘Die Ausgrabungen in Boğazköy-Ḫattuša 2001’ *Archäologischer Anzeiger* 2002.1: 59–78
- 2006a ‘Die Ausgrabungen in Boğazköy-Ḫattuša 2005’ *Archäologischer Anzeiger* 2006.1: 171–87
- 2006b: ‘Ḫattuša – Tuthaliya-Stadt? Argumente für eine Revision der Chronologie der hethitischen Hauptstadt’ in T.P.J. van den Hout (ed.), *The Life and Times of Ḫattušili III and Tuthaliya IV – Proceedings of a Symposium held in Honour of J. De Roos*. Leiden, Nederlands Instituut voor het Nabije Oosten: 131–46
- 2006c: ‘Chronology in Hattuša. New approaches to an old problem’ in D.P. Mielke, U.-D. Schoop, J. Seeher (eds), *Structure and Dating in Hittite Archaeology*, Byzas 4. Istanbul, Ege Yayınları: 197–215
- 2006d: ‘Die Grabungen am mittleren Büyükkale-Nordwesthang 1998–2000 – Der althethitische Getreidesilokomplex’ in J. Seeher (ed.), *Ergebnisse der Grabungen an den Ostteichen und am mittleren Büyükkale-Nordwesthang in den Jahren 1996–2002*, Boğazköy-Berichte 8. Mainz, P. von Zabern: 45–84
- 2008: ‘Abschied von Gewusstem, Die Ausgrabungen in Ḫattuša am Beginn des 21. Jahrhunderts’ in G. Wilhelm (ed.), *Ḫattuša – Boğazköy. Das Hethiterreich im Spannungsfeld des Alten Orients*. Wiesbaden, Harrassowitz: 1–13
- 2011: *Gods Carved in Stone. The Hittite Rock Sanctuary of Yazılıkaya*. Istanbul, Ege Yayınları
- 2015: ‘Wo sind die Toten der Hethiter? Überlegungen zum Fehlen von spätbronzezeitlichen Bestattungsplätzen in Zentralanatolien’ in A. Müller-Karpe, E. Rieken, W. Sommerfeld (eds), *Saeculum – Gedenkschrift für Heinrich Otten anlässlich seines 100. Geburtstags*, StBoT 58. Wiesbaden, Harrassowitz: 229–38
- 2016: ‘Der Quadratgebäude-Horizont im Tal westlich von Sarıkale’ in A. Schachner, J. Seeher (eds), *Ausgrabungen und Forschungen in der westlichen Oberstadt von Ḫattuša I*, Boğazköy-Ḫattuša 24. Darmstadt, P. von Zabern: 147–53
- 2018: *Büyükkaya. II, Bauwerke und Befunde der Grabungskampagnen 1952–1955 und 1993–1998*, Boğazköy-Ḫattuša 27. Berlin, De Gruyter
- forthcoming: ‘Rethinking the size and role of Ḫattuša!’ in P. Goedegebuure, J. Hazenbos (eds), *Ḫattannaš. A Festschrift on the Occasion of Theo van den Hout’s 65th Birthday*. Chicago, The Chicago University Press: 369–85
- Strupler, N. 2013: ‘Hethitische Keramik aus den Grabungen in der Unterstadt’ in A. Schachner (ed.), ‘Die Arbeiten in Boğazköy-Ḫattuša 2012’ *Archäologischer Anzeiger* 2013.1: 164–70. <https://doi.org/10.34780/afb6-k190>
- 2022: *Fouilles Archéologiques de la Ville Basse I (1935–1978)*, Boğazköy-Ḫattuša 28. Wiesbaden, Harrassowitz
- Süel, A., Süel, M. 2013: ‘Şapinuwa: another capital city of the Hittite state’ in M. Doğan-Alparslan, M. Alparslan (eds), *Hititler: Bir Anadolu İmparatorluğu / Hittites: An Anatolian Empire*, Anadolu Uygarlıkları Serisi 2. Istanbul, Yapı Kredi Yayınları: 178–95
- Sümer, Ö., Drahor, M., Berge, M.A., Ongar, A., Schachner, A. 2019: ‘Geoarchaeological and archaeoseismological observations in Ḫattuša: First evidence of earthquake traces from the Hittite capital’ in A. Schachner (ed.), ‘Die Ausgrabungen in Boğazköy-Ḫattuša 2018’ *Archäologischer Anzeiger* 2019.1: §94–107
- Torri, G. *The Haus am Hang at Ḫattuša. A Late Hittite State Scriptorium and its Tablet Collections*, StBoT 67. Wiesbaden, Harrassowitz
- Trigger, B. 1990: ‘Monumental architecture: a thermodynamic explanation of symbolic behaviour’ *World Archaeology* 22.2: 119–32

- Ünal, A. 1977: 'Naturkatastrophen in Anatolien im 2. Jahrtausend v. Chr.' *Belleten* 41: 447–72
- Weninger, B. 2022: *CalPal Edition 2022.9*. Köln: <https://zenodo.org/records/7422618>
- Wilhelmi, L. 2016: 'Materiality and presence of the Anitta Text in original and secondary context. Considerations on the original nature of the proclamation of Anitta (CTH 1) and its transmission as part of Hittite traditional literature' in T. Balke, C. Tsouparopoulou (eds), *Materiality of Writing in Early Mesopotamia*, Berlin, De Gruyter: 223–39
- Zsolt, S. 2011: 'When were the fortifications of the Upper City of Hattuša built?' *Anatolica* 37: 239–49