

Deeply stratified settlements are a distinctive site type featuring prominently in diverse later prehistoric landscapes of the Old World. Their massive materiality has attracted the curiosity of lay people and archaeologists alike. Nowadays a wide variety of archaeological projects are tracking the lifestyles and social practices that led to the building-up of such superimposed artificial hills. However, prehistoric tell-dwelling communities are too often approached from narrow local perspectives or discussed within strict time- and culture-specific debates. There is a great potential to learn from such ubiquitous archaeological manifestations as the physical outcome of cross-cutting dynamics and comparable underlying forces irrespective of time and space.

This volume tackles tells and tell-like sites as a transversal phenomenon whose commonalities and divergences are poorly understood yet may benefit from cross-cultural comparison. Thus, the book intends to assemble a representative range of ongoing theory- and science-based fieldwork projects targeting this kind of sites. With the aim of encompassing a variety of social and material dynamics, the volume's scope is diachronic –from the Earliest Neolithic up to the Iron Age–, and covers a very large region, from Iberia in Western Europe to Syria in the Middle East. The core of the volume comprises a selection of the most remarkable contributions to the session with a similar title celebrated in the European Association of Archaeologists Annual Meeting held at Barcelona in 2018. In addition, the book includes invited chapters to round out underrepresented areas and periods in the EAA session with relevant research programmes in the Old World. To accomplish such a cross-cultural course, the book takes a case-based approach, with contributions disparate both in their theoretical foundations –from household archaeology, social agency and formation theory– and their research strategies –including geophysical survey, microarchaeology and high-resolution excavation and dating.

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CURRENT APPROACHES TO TELLS IN THE PREHISTORIC OLD WORLD

Edited by
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AN OFFPRINT FROM

CURRENT APPROACHES TO TELLS
IN THE PREHISTORIC OLD WORLD

edited by

ANTONIO BLANCO-GONZÁLEZ & TOBIAS L. KIENLIN

Paperback Edition: ISBN 978-1-78925-486-0
Digital Edition: ISBN 978-1-78925-487-7 (epub)

 OXBOW | books
Oxford & Philadelphia

Moving Bottom-up: The Case Study of Kakucs-Turján (Hungary) and its Implications for Studies of Multi-layered Bronze Age Settlements in the Carpathian Basin

Robert Staniuk, Mateusz Jaeger, Gabriella Kulcsár, Nicole Taylor, Jakub Niebieszczanski and Johannes Müller

Introduction

This article outlines the investigation of the Middle Bronze Age settlement in Kakucs-Turján as a bottom-up research project studying communities inhabiting the Carpathian Basin in the first half of the 2nd millennium BC (Fig. 5.1). The method is based on the identification and classification of material culture related to the formation of a particular archaeological site which, subject to question-oriented analysis, is used for the construction of socio-cultural models. First, it is argued that the bottom-up method provides the means of generating comparable, cross-site results, while maintaining their historical particularities. Secondly, the developed models provide grounds for investigating inter- and intra-regional patterns. Lastly, the method provides the means for considering the interplay between particular historical processes and long-term historical trajectories. A historical overview of the development of Middle Bronze Age research is presented, aimed at providing perspective on how research on tell and multi-layered settlements was tied to the historical development of archaeology in the Hungarian¹ part of the Carpathian Basin.² It is argued that a historical perspective on the formation of the prevalent frameworks enables contextualisation of the relations between the analysis of archaeological finds and the formulated interpretations in former research. Such a critical analysis is necessary in order to integrate previous findings into present-day analytical projects, especially due to the increasing complexity of the questions raised by modern-day research.

The bottom-up model applied throughout the excavation of Kakucs-Turján is outlined on the basis of the

underlying research principles, the implemented methodology and an overview of recent findings. The recognised threads of the investigation are then used in an exploratory sense as a tool for structuring follow-up research along human–environment relations, local histories and interregional processes.

Methodological development of Hungarian Bronze Age tell archaeology

Culture-historical archaeology is considered the primary form of archaeological practice in Central and Central-Eastern Europe, where it is characterised by an extensive inclination towards the study of material culture, limited (if any) theoretical framework, and an ever-persisting reliance on the ‘archaeological culture’ concept (Laszlovsky & Siklódi 1991; Trigger 2008; Bertemes 2011). In historical terms it is often associated with the so-called German school of archaeology, despite increasing evidence that the principles and execution of continental research has undergone changes related to state histories since the mid-20th century and, considering the historical circumstances of the discipline formation, only partially represent the historical trajectory of the region (Childe 1929; Neustupný 1991; Kadrow 2011; Rączkowski 2011). The latter case is illustrated by the Hungarian archaeological practice, where the paradigm shifts within the culture-historical perception of archaeology are well-linked to the changing socio-political situation. Beyond understanding the particularities of archaeological research in one country, such an investigation provides an opportunity to understand

how archaeological sites, in this instance tells, are used in scientific investigations and how the established perspectives undergo change. Attempts at characterising the shifts in research perspectives were already made on various occasions with an emphasis on describing the history of research in Hungary (e.g. Banner 1956; Laszlovsy & Siklódi 1991) or serving as a point of departure for the discussion of new results (e.g. Sørensen & Vicze 2013, 160). In this particular instance, it provides the possibility to outline a refined model which focuses primarily on the explicit scientific investigation of the site.

Before discussing which theoretical principles of Hungarian research on Bronze Age tells were established and how they underwent change, it is important to consider how archaeological research and Central European Archaeology specifically (Harding 2009; cf. Gramsch 2011), deal with reimplementing old findings into new statements regarding past communities. Rather than investigating the discussion of the outlined theoretical principles, consideration of the responses to previous results provides a

contextualised observation on how scientific discourse was structured in a particular research milieu. The cumulative nature of archaeological research, where the findings of the preceding generations of researchers are incorporated into new scientific ventures, is expressed in at least four forms of implementation of past results.

First, the existing findings justify not only the initial assumptions but validate the need for investigating previously recognised patterns and trajectories (e.g. Vicze 2011). In this sense, the research follows the established paradigm and verifies its validity by applying the developed principles in a previously unexamined setting. Secondly, the existing findings are explicitly reaffirmed as supporting the proposed scientific project with the main emphasis made on previously unexplored aspects (e.g. Sofaer 2015). As such, it is either assumed that research was preceded by re-evaluation of the initial findings or that the determinations representing the point of departure for further research are legitimised by the fact of their publication. The shift is made towards the contribution made by the novelty of the applied method and

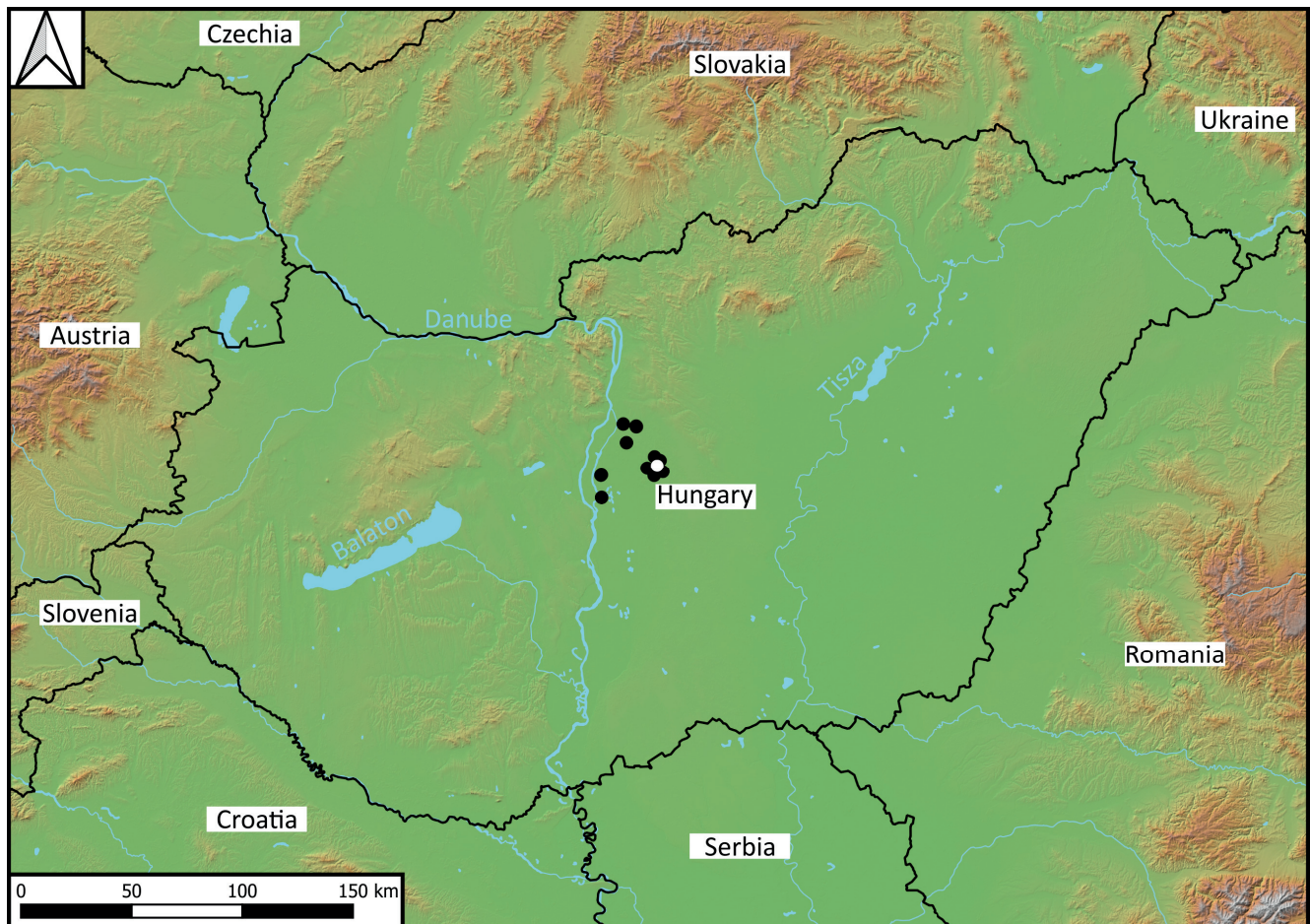


Figure 5.1 Present-day borders of Hungary and the location of the Kakucs microregion. Black dots: Early and Middle Bronze Age settlements, white dot: Kakucs-Turján.

its impact on the state of knowledge. Thirdly, the incorporation of the preceding results into the new research projects is characterised by a critical overview of particular findings, which in itself is considered the reason for the formulation of a particular research project. In this particular approach it is often explicitly stated that there is a need to address and correct the logical fallacies of preceding research as the essential step towards the advancement of the discipline, and a necessary one towards formulation of sound, new directions in research (e.g. Szeverényi & Kulcsár 2012; Jaeger 2016). In this case, the change of the results is often characterised by a change in the applied perspective, which is argued to be a more viable representation. Lastly, a selective approach, where only particular aspects of the past research are used, favours the importance of the investigated problem rather than adherence to the existing determinations (e.g. Kreiter 2007). The results – usually expansive in both fields since they alter the state of departure by venturing into previously unrecognised aspects of the framework, while providing an additional case study in the investigation of a particular problem – represent a separate, instrumental form of reimplementation of old findings.

While all responses to the integration of the past results can be anticipated to occur simultaneously, their emergence can be considered as representative in the change of the discourse by reaffirming, exploring, negating or selecting the relevant scientific field. From the perspective of the current investigation, it is worth considering whether such changes were implemented in the discourse from early on, or represent a recent development tied to contemporary projects. Since the majority of the investigations were conducted by local archaeologists it requires consideration of the historical process related to the formation of archaeology as a scientific discipline and its ties to the socio-political changes in the 20th century (Laszlovsky & Siklódi 1991, 272).

Pre-World War I

The time period 1802–1914 represents the long century of antiquarian interests, focusing primarily on the collection of finds, and associating archaeology with object-oriented interest (Bóna 1975, 20). This temporal delimitation overlaps with the impact of the French Revolution, the Napoleonic Wars, the Spring of Nations, and finally, the formation of the Austro-Hungarian Empire (Molnár 2001; Fig. 5.2A), *i.e.* the long century of establishing the nation as the entity to be equated with state-formation; a common thread in the history of European archaeology (Jones 1997, 2; Sommer & Gramsch 2011, 10). The post-revolutionary industrial investments, including railway construction, draining of swamps and regulating the flow of the Danube (Cartledge 2011, 251), certainly contributed to the increasing frequency of recovering archaeological objects by means of circumstantial finds. Although based on collections, both amateur and professional, the position of archaeological research was becoming increasingly well-established as indicated by the formulation of specific research groups, e.g. the Archaeological Committee of the Academy of Sciences (1858) or the presence of continuously published journals (*Akadémiai Értesítő* or *Archaeologiai Közlemények*), not to mention the increasing infrastructure of museum institutions (Vékony 2003, 17–18). From the perspective of Bronze Age research, the significance of the period for the prehistory of Hungary was associated with the presentation of the findings from the tell in Tószeg (Vékony 2003, 19). The effort of individual collectors culminated in the Hungarian Millennial Exhibition, which served as a foundational event for the cultural significance of archaeological research for archaeologists and citizens alike (Vékony 2003, 19; Barenscott 2010). The final stage of the research period is represented by the increasing discussion of methodological aspects, *i.e.* the implications of stratigraphic excavations and the usefulness

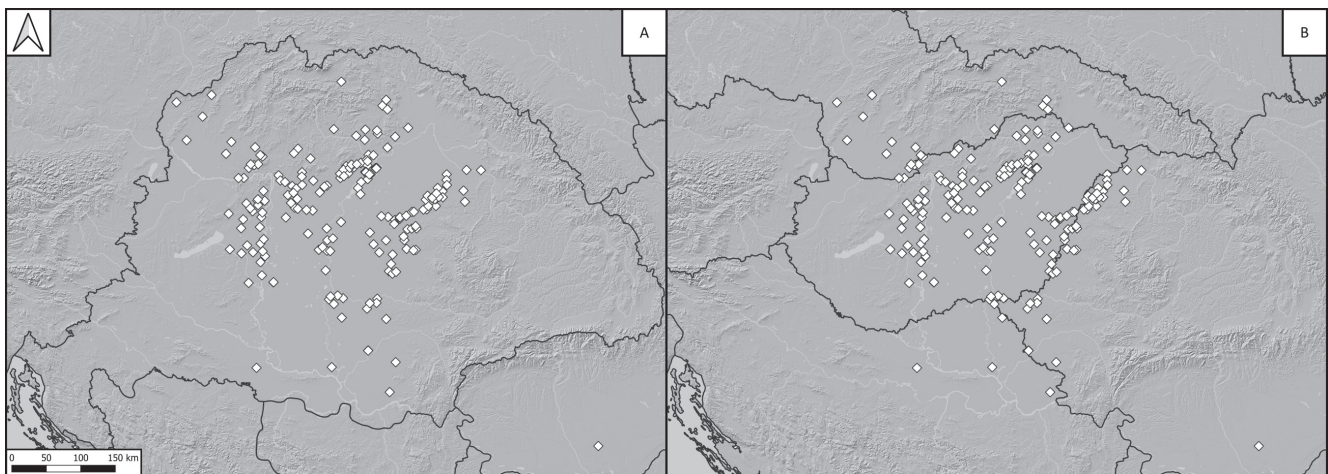


Figure 5.2 Changes of state boundaries in the first half of the 20th century. A – state borders c. AD 1900; B – state borders c. AD 1930.

of the typological method (von Márton 1912, 180). In this sense the initial standpoint, despite the differences in the types of archaeological sites encountered in Hungary, and the scientific origins were similar to other European, find-based and description-oriented standards.

Between the wars

The trajectory of the Hungarian school of archaeology was altered by the outbreak of World War I and further affected by the post-war peace treaties resulting in the changes of political borders in light of the Treaty of Trianon (1920), with archaeological institutions and researchers finding themselves as citizens of other states (Macartney 1937; Molnár 2001, 262; Vékony 2003, 19; Cartledge 2011, 325; C.G. Kiss 2013, 25; Fig. 5.2B).

Despite the deep political changes, this time-period represents the formation of archaeological theory and the increasing refinement of field archaeology (Bóna 1975, 20–21). The former is linked to the first European grand narrative of V.G. Childe in which, beyond presentation and the discussion of archaeological finds linked to the flow of the Danube, an emphasis is made explicitly on formulating the principles behind the study of prehistoric material culture and its link to social processes (Childe 1929). The explicit outline of the theoretical principles behind the investigation and interpretation of archaeological finds emphasised the normative aspects of culture, where the link between material culture and social life was governed by the principle of pursuing invariable deposits of material culture (Childe 1929, vi–vii; Kadrow 2017, 174). Integration of the paradigm with the universally considered aspects of social life (*i.e.* movements of people or methods of diffusion) was constrained towards re-enforcing the underlying statement. From a local perspective, the application of this approach was incorporated in the works of F. Tompa (1937) in his consideration of Bronze Age archaeology in Hungary. The principles of the archaeological work were based on a positivist perspective on material culture, where tells represented static and non-transformed fossils of past reality to a degree that findings from one particular settlement could be used as explanatory for the entire cultural area. Furthermore the archaeological findings and the established typo-chronological cycles were immanently objective and direct evidence of concrete cultural groups (Tompa 1937, 63–66). The positivist approach to archaeological studies was further justified by a specific form of scientific discourse: the interpretation of reports from other sites were not viewed as contradictory, in the sense of requiring the re-consideration of the recognized principles such as the existence of well-defined social groups across large geographical areas. Instead, the identification of similar findings was used to validate the chronological observations made on the basis of etically-viewed stylistic similarity. This form of archaeological inference emphasized the significance of archaeological sites for understanding

archaeology, and the primary focus on using site-based archaeology to formulate statements on chronological characteristics. In this sense, the primary epistemological tool and analytical method of archaeological work was equated with excavations. However, as will be shown later, this particular paradigm, similarly to the antiquarian approach, was also to undergo change.

Post-World War II

As destructive as World War II was on the demographics and material culture of Hungary, the borders of the state remained unchanged. Instead, the pre-World War II research paradigms underwent changes of a non-linear trajectory. The separation of archaeological studies into excavation-based investigations and material culture studies are an example of this direction (Bóna 1975, 21).

Excavations of large tell settlements formed two approaches to settlement archaeology: characterisation studies at Tószeg-Laposhalom (Csalog 1952) and question-formulating investigations at Békés-Várdomb (Banner 1956). In both cases the positivist and normative perception of archaeological finds was reinforced, with the latter example clearly linked to the open formulation of statements drawing on urbanisation, construction, social structure, craftsmanship, and interaction. The limited scope of the investigation and its direct tie to a specific archaeological site represented a development of the characterisation-based studies (Banner & Bóna 1974).

Beyond localised investigations, attempts at formulating a holistic approach required explicit formulation of principles behind archaeological studies. Reliance on a materialistic perspective of the past reality used particular material evidence to directly reconstruct the social process they were formed in and the cultural influences involved in their constitution (Kalicz 1968). The principal role of archaeological theory was to provide the means of making associations and reconstructing the dynamics of the otherwise static archaeological finds (Kalicz 1968, 7). The applied method was the reconstruction of the historical positioning of finds, which, if done properly, would allow forming a dynamic perspective on universally considered aspects of human culture. As such, the investigation of material culture found on archaeological sites is linked to the study of past human groups where the delimited material principles are considered representative of actual social groupings.

The latter point was further emphasised in the works of I. Bóna, where the identification of real-life human groups was the primary research question and where the history of Bronze Age was related to the cycles of cultural formation, interaction and disintegration (Bóna 1975). The previously identified archaeological cultures were directly correlated with groups of people self-identifying themselves because of the material culture differences (Bóna 1975, 15). Further methodological principles following this premise were

flexibly used as means of precisely characterising the chronological stages of group-formation, spatial delimitation of such entities, and, in anthropological terms, the means of change, *e.g.* conflict, migration and, last but not least, diffusion (Bóna 1975, 16). Application of the method resulted in a specific interpretation of the archaeological record where, instead of site histories representing the primary tool of archaeological inference, the primary entity became an *a priori* defined ethnic group which was then used to both 'sort' the distribution of other ethnic groups (in this particular example such an entity was the Vátya culture) and objectively reconstruct the historical trajectory. While similar in principles to G. Kossinna's *Siedlungsarchäologie*, this particular paradigm-shift in Hungarian archaeology occurred more than 50 years after the formulation of such principles in German archaeology (*e.g.* Heyd 2017, 350). While it provided the means and stimuli towards the investigation of multiple archaeological sites and expanding the state of knowledge on tell archaeology, the emphasis on precisely defined constellations of finds as indicators of ethnic uniformity would result in confusing interpretations of tell sites. Since pottery was linked to specific cultural groups with well-defined historical formations and trajectories, the occurrence of interchanging styles on tell sites would imply regular ethnic replacements and almost a constant state of conflict without any architectural evidence of such (*e.g.* Bóna 1992). From an epistemological perspective, this thread of the Hungarian school of archaeology should be linked to the personal transfer of post-World War I experience and the post-Trianon history of Hungary, where places previously recognised as historically Hungarian, became subject to other states. The emphasis on a group-centered perception of particular places rather than accentuating the historical development of archaeological sites remains problematic in archaeological research since the precise identification of groups and communities keeps being conceptually and empirically challenging (*e.g.* Jones 1997; Sørensen 1997; Kadrow 2017). However, the historical perspective on the possible formation of such a process highlights the significance of investigating cultural change as an internalized process (Minta-Tworzowska 2011). The other accomplishment of this direction was aggregating finds into distinct groups, which remains the hallmark of Central and Eastern European archaeology.

The discussion on the development of theoretical principles of Hungarian archaeology after World War II emphasised the highly empirical nature of the research, where the development of the archaeology was not necessarily linked to uncovering new ways of thinking about the past but finding evidence of it (Laszlovsky & Siklódi 1991). To a degree this particular direction is linked to the discontinuities in the institutionalisation of scientific life, where archaeological schools of thought are not linked to administrative units but particular individuals. The instability of institutional life

is rather well-documented considering the post-World War I political changes, post-World War II casualties, and the impact of the subjection to the politics of the Soviet Union (Vicze 2011, 13). What is significant is that the situation and the multiplicity of perspectives towards Bronze Age archaeology began increasing towards the end of the 20th century. However, considering the global development of archaeological theory and the formulation of the principals of processual archaeology in the English-speaking world (*e.g.* Binford 1962; Clarke 2015), both the scope of the investigations and their integration with non-archaeological theory was rather limited.

Post-1990

The political change brought by the fall of the Soviet Union and the rapid process of transformation introduced new forms of engaging in archaeological practice (Milisauskas 1990). Beyond changes related to the political and economic organisation of archaeology, the establishment of long-term scientific collaborations resulted in the formation of pluralistic approaches to the Bronze Age. The common thread is represented by an emphasis on inter-regional connections between former, culture-historically constrained archaeological entities (*e.g.* Czebreszuk 2003; Fischl *et al.* 2013a; Ling *et al.* 2014). The shift towards investigation of long-distance ties facilitated the need for high-resolution definitions of local processes, as well as the ambiguity of the results provided by field archaeology (Jaeger & Czebreszuk 2010; Kienlin 2010; Găvan & Gogâltan 2014). Both trends are visible in the studies of Bronze Age tell settlements indicating the departure from normative perspectives characterising research until the end of the 20th century.

The structural opposition of local and broad processes is tied to the reformulation of grand narratives with a clear stating of the Bronze Age societal trajectories triggered by the pursuit of wealth and amplified by reliance on anthropological models (Kristiansen 1998; Kristiansen & Larsson 2005). Within this spectrum tell sites represent not a historical particularity as an occupational form practiced by historically-specific groups but the consequence of the pendulum of world processes, where adaptation of institutional principles of Mediterranean societies is exemplified, among others, by interpretation of archaeological sites as static reflections of past social structures (Kristiansen & Larsson 2005, fig. 1).

Accentuation of the historical particularities in the Carpathian Basin is provided by an increasing number of case studies, where site-specific or regional investigations represent the backbone of model construction (Gogâltan *et al.* 2014; Kienlin *et al.* 2018; Rassmann *et al.* 2018). The over-arching archaeological similarities of site-characteristics and the contemporaneity of phenomena indicate the importance of local processes of interaction prior to the structural assertion of ties with the Mediterranean.

Within this structural opposition, the position of Hungarian archaeology is central to the acquisition of information and materials on archaeological sites, increasing awareness of the heritage-related aspects of archaeological practice and maintenance of international cooperation. The former is exemplified by exploration of anthropological perspectives of material culture (Fischl *et al.* 2013b), site-specific investigations (Endrődi & Reményi 2016) and pursuit of new topics within archaeological research (Kreiter 2007). Common thread of these investigations is the adherence to the principles established in the interwar or post-war period. These statements are used as concepts subject to verification or falsifying, indicating that the pursuit of new frameworks is secondary to provision of new results. In other words, the development of the discipline is examined from the perspective of new findings rather than the focus of how they were obtained, as shown by the variability of theoretical approaches used in different investigations organized primarily by an expressed interests in a particular time-period, or sometimes, geographic area (*e.g.* V. Kiss 2011; Kulcsár 2011; Vicze 2013). In this sense, post-1990s Hungarian archaeology represents a shift from a monolithic pursuit of individual interests towards an exploration of previously unacknowledged or unavailable, due to the historic circumstances, aspects of the Bronze Age.

Based on this historical overview it is possible to formulate important guidelines for future research on Bronze Age tell archaeology: The links between historically specific groups of people and tells is extrapolated based on the similarity of material culture, not empirical observations; site-specific investigations allow development of regional anthropological models; the significance of the natural environment is understated; last but not least, in order to provide a coherent socio-cultural model, it is necessary to consider both local and broad scale processes.

Kakucs-Turján: The aims of the project and the methodology

The Kakucs micro-region in the Middle Danube Valley was selected for this investigation based on observations of the research history (*cf.* Fig. 5.1). The study area is characterised by a geographical offset from large tell settlements (Kulcsár *et al.* 2014), the presence of Early Bronze Age occupation (Kulcsár 2011) and the variability of settlement organisation (Szeverényi & Kulcsár 2012). This point-of-departure stands in opposition to the existing narratives of centralized models (Earle & Kristiansen 2010) and reinforces the increasing consensus regarding the non-economic principles of social interaction in the 2nd millennium BC (Kienlin 2012; Brück & Fontijn 2013) by investigating the constituents of a particular settlement landscape (Jaeger *et al.* 2018b). From this perspective, the Kakucs-Turján settlement represents a unique case study of architectural planning, where the settlement

organization is archaeologically recognised as comprising of internal and external ditches, household space and architectural structures related to everyday existence.

While the temporality of the ditch systems and the inter-relation of their construction with the inhabited areas remain open, the investigation opens the possibility of considering the dynamics of Bronze Age settlement systems in the 2nd millennium BC as a crucial factor in understanding human–environment relations, local histories and inter-regional processes. These three foci are used as commonalities related to the anthropological perspective of settlement life which can be used to integrate large-scale social phenomena in the Bronze Age. These foci allow for a narrative-driven organisation of the analytical part of the research aimed at characterisation of the selected settlements and the discussion of their anthropological significance by structuring the methodological inquiries towards the particular threads of settlement histories. However, rather than being a manifestation of the inherent properties of the material record, they are considered as approaches to data acquisition, which can be later integrated towards formulation of a holistic perspective (Fig. 5.3).

Human–environment relations focus primarily on conceptualising the properties attributable to the physical aspects of the social space. In this particular case, they were investigated by means of geoarchaeological methods. The local histories aspect focuses on investigating small-scale, high resolution and site based interactions, primarily via field archaeology. Lastly, the focus on inter-regional processes is oriented towards the characterisation of large-scale, long-term phenomena. The focus on legacy data is twofold: in many cases it involves consideration of the past narratives and consideration of the findings related to valuable resources, *e.g.* bronze and amber. Having outlined the contents of the specific foci, it is necessary to outline the findings related to concrete sections in order to highlight a holistic bottom-up approach to the settlement in Kakucs-Turján.

Human–environment relations

The study of human–environment relations is linked to understanding the relationship between Bronze Age communities and their landscape. The following questions were outlined towards achieving this goal:

1. What are the components of the settlement landscape?
2. How did the inhabitants of the settlement alter their environment over the course of the settlement duration?

Answering these questions was based on the application of non-invasive geoarchaeological methods: the analysis of satellite imagery, magnetometric prospection, targeted coring and sediment analysis (Pető *et al.* 2016; 2018; 2019; Niebieszczański *et al.* 2018; 2019).

OUTLINE OF THE RESEARCH PROCEDURE

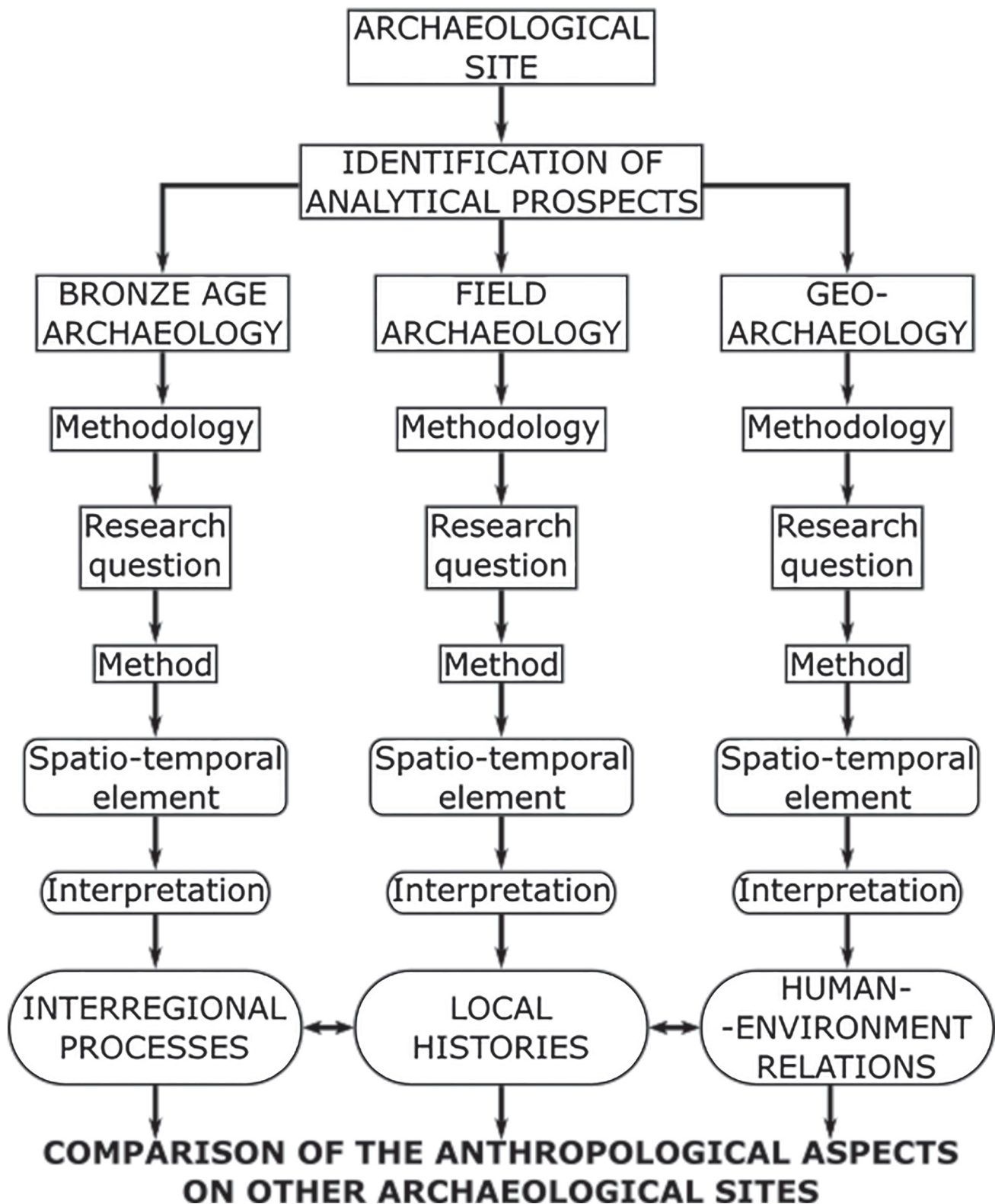


Figure 5.3 The bottom-up methodology of the Kakucs-Turján investigation.

The settlement structure, initially classified as bipartite due to the evidence from satellite imagery (Fig. 5.4), was verified using geophysical methods. These indicated the presence of a tripartite structure with a system of internal and external ditches and three primary occupation areas (Fig. 5.5). The distinctiveness of the three occupation areas lead to a classification into zones A, B, and C (Fig. 5.6). The geophysical prospection indicated the presence of shared characteristics, *i.e.* household- and pathway-like anomalies primarily in zones A and B. The anomalies related to area C were limited to pit-like ones suggesting spatial differences of settlement use. In addition, 16 house-like structures located in zone A were documented in the geophysical imagery, regularly distributed around the central feature. Due to the structure of this occupation zone, it is not clear to what extent the geophysical anomaly can be used to distinguish structures related to particular settlement layers. The exact nature of the spatial separation by the ditch-system remains open, due to the observed discontinuities of the ditch outlines, which potentially could signal the presence of access

points, and the unclear chronology of the different ditch segments.

The structural similarities were further investigated on the basis of coring transects. These showed that the settlement was established upon a natural elevation. The settlement landscape of zone A was characterised by thick deposits of anthropogenic refuse and debris, while zones B and C were devoid of such characteristics. This indicated that the tell-like characteristics of the site were spatially restricted, and that middening behaviour was a form of waste disposal that was of limited significance.

The investigation of the ditches by means of ground-penetrating radar (GPR) and electrical resistivity tomography (ERT) revealed their large scale: *c.* 12 m wide and with an excessive depth of 4.5 m. The selected cores comprised both anthropogenic and natural deposits, suggesting infilling and natural erosion related to the post-abandonment stage of the settlement. While the constant presence of water is still under investigation, a hypothetical argument for such an interpretation is presented by the circular anomalies



Figure 5.4 Kakucs-Turján: satellite imagery of the site.



Figure 5.5 Kakucs-Turján: magnetometric prospection.

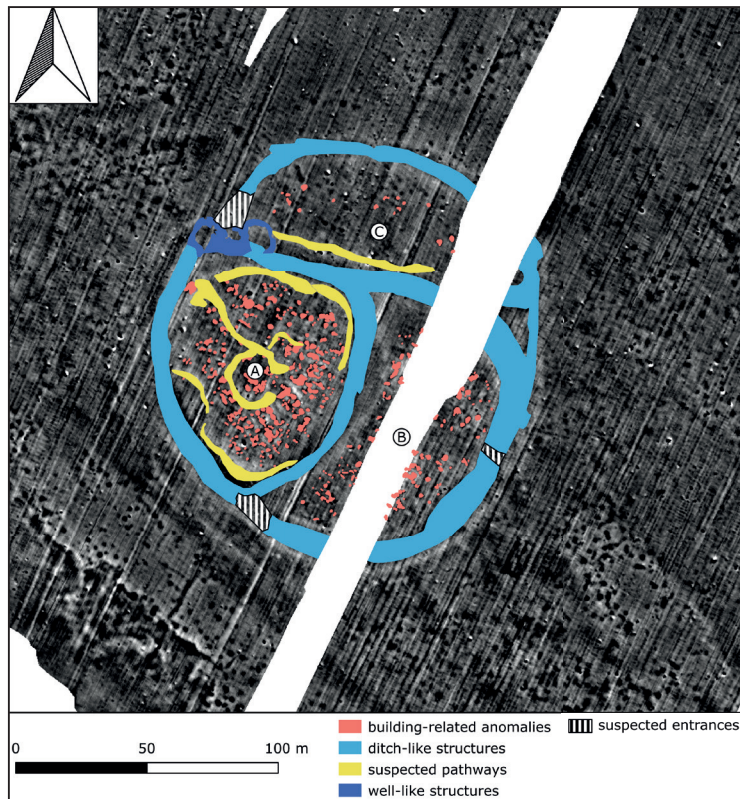


Figure 5.6 Kakucs-Turján: magnetometric prospection with the interpretation of magnetic anomalies.

documented in the northwestern part of the settlement at the intersection of internal and external ditches. The depth of the features which generated the anomaly exceeds the depth of the ditches (*c.* 5 m) and, assuming that the water was present in the ditches, would indicate a hydrological system for maintaining water flow.

The current stage of the investigation shows that the present-day landscape of the Kakucs-Turján settlement is substantially different from its original state. Initially, the settlement location was likely chosen due to the natural elevation and was transformed into a tell-like settlement due to the practiced waste disposal strategies. Whether used for water flow or not, the construction of the ditches permanently altered the landscape of the settlement through the formation of large-scale divisions between areas, firmly separating the natural and cultural landscape.

While the human–environmental relations of the inhabitants exceeded the landscape modification for settlement practices, *e.g.* economic or subsistence processes, the evidence at hand shows the impact human populations had on the transformation of the natural landscape. From a broader perspective, the widespread presence of such practices is well-established in the Carpathian Basin (Kienlin *et al.* 2018) and, if investigated in detail, could provide a possibility for cross-regional investigation of landscape impact.

Local histories

In order to explore the anthropogenic constituents of the occupation layers documented in zone A, an excavation area of *c.* 110 m² was outlined around the best-preserved structure anomaly. The excavations aimed to answer the following questions:

1. What was the occupation history of settlement zone A?
2. What material constituents of the settlement can be documented?
3. What information can be obtained on architectural, subsistence and economic practices?

While the two primary questions are directly linked to field archaeological questions, the last one is aimed at extending the investigations towards the social processes during the Middle Bronze Age in the Middle Danube Valley.

The excavation seasons 2013–2016 showed that the constituents of the archaeological deposits identified by means of coring allow only a general characterisation of the archaeological deposits. In order to properly identify their sequences it is necessary to conduct stratigraphic excavations. Beyond the ploughzone, 11 settlement phases datable to the Early and Middle Bronze Age were documented in zone A (Table 5.1), indicating the long-term history of the settlement in Kakucs-Turján (Jaeger *et al.* 2018a).

The earliest stages of the settlement (phases 1–3) were characterised by the presence of rudimentary architectural structures, reduced to regularly distributed postholes and large waste-disposal pits. Based on their size and distribution, it is plausible that their construction severely limited the possibility of maintaining adjacent occupation due to the destruction of the natural soil. The number of such pits indicates that occupation was rather intensive during this settlement stage.

The formation of a tell-like occupation practice, *i.e.* the superimposition of waste disposal and household construction and abandonment stages, occurred directly after phase 3 and lasted until the end of the documented habitation sequence (phases 4–10). During this time-period,

Table 5.1 Phasing of the Kakucs-Turján settlement, respective characteristics, chronology and position within the local periodization scheme (after Jaeger *et al.* 2018, table 1).

| Local periodisation scheme | Absolute dating cal BC (2σ) | Occupation type | Phase |
|----------------------------|--------------------------------------|-----------------------|-----------|
| Migration Period | – | workshop | Kakucs 12 |
| Bronze Age–Iron Age | – | – | hiatus |
| MBA3 | 1752/1676–1751/1640 | deep pits | Kakucs 11 |
| | 1760/1696–1756/1686 | levelling | Kakucs 10 |
| MBA2 | 1777/1706–1768/1705 | household destruction | Kakucs 9 |
| | 1813/1739–1802/1731 | household | Kakucs 8 |
| | 1844/1749–1827/1745 | levelling | Kakucs 7 |
| MBA1 | 1903/1879–1752 | household destruction | Kakucs 6 |
| | – | household | Kakucs 5 |
| | – | levelling | Kakucs 4 |
| EBA3/MBA1 | – | settlement activities | Kakucs 3 |
| EBA3 | – | waste disposal | Kakucs 2 |
| EBA1-2 | – | household remains | Kakucs 1 |

two well-documented household phases took place. The older structure was subject to extensive post-abandonment destruction, significantly affecting the possibility of studying its internal organisation. The later structure correlated well with the anomaly documented on geomagnetic imagery. In both instances, the overall positioning of the households showed spatial overlap, indicating that basic knowledge on the architectural parameters of the earlier construction was taken into consideration.

The final documented occupation stage was characterised by extensive pits cutting through the entire stratigraphic sequence of the settlement (phase 11). Their volume and specific beehive shape suggest that they represent large storage structures dug into already-deposited strata. Based on the available evidence, the abandonment stage of the entire settlement and the possible reasons for this event are unclear. No evidence of large-scale destruction and rapid abandonment was documented, nor was there any clear indication of the settlement undergoing a decline. This is most likely due to the constant agricultural use of the area

and the destruction of the archaeological data due to modern ploughing.

From an architectural standpoint, both households comprised thick clay floors (in some instances measuring up to 20 cm), and wattle and daub walls (as evidenced by the extensive daub deposits and lines of postholes). However, architectural structures were not restricted to houses and their interiors: Investigation of the archaeological deposits showed the differences in the site formation processes between household and non-household structures, *e.g.* pathways (Niebieszczański *et al.* 2019). The differences between the mixed cultural deposits found inside and outside the houses show that waste disposal outside the household structures was characterised by an increased presence of phosphorous, zinc, copper, and manganese elements, suggesting that consumption and disposal occurred directly in front of the occupied structure, most likely directly opposite the main entrance. The different elemental content could be linked to small-scale accumulation of remains linked to consumption or metallurgy. However, no major furnace

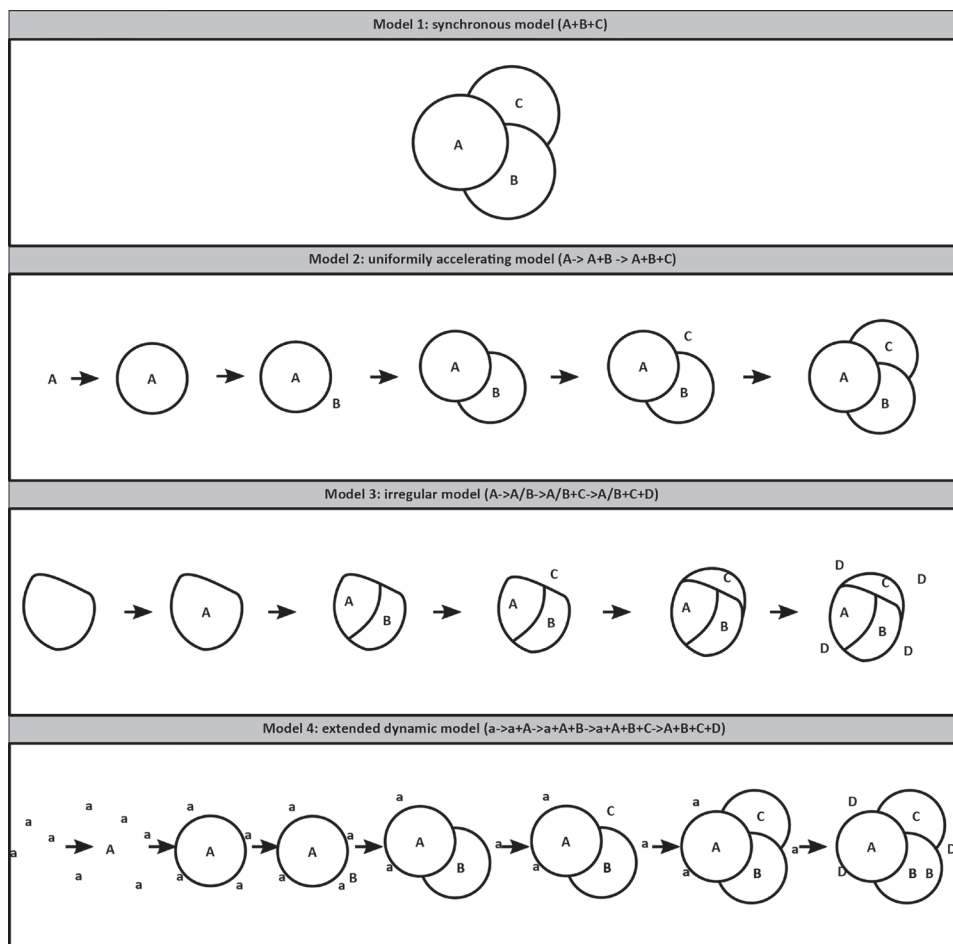


Figure 5.7 Possible scenarios for the formation of the Kakucs-Turján settlement (after Staniuk (in press)).

installations which could be related to on-site metallurgical activities were observed.

From a socio-economic perspective, the households were characterised by the presence of internal or external storage pits and the use of firing installations, *e.g.* hearths or ovens. Evidence of consumption is related to widely distributed macro-botanical and zooarchaeological remains found in almost all documented contexts (Biller 2018; Filatova *et al.* 2018). Investigation of the botanical remains shows reliance on agricultural produce, namely cereals and legumes. The animal economy was based on domestic animals, with sheep/goat and cattle representing the majority of the documented animal remains. From a material culture perspective, the site was continuously used for the consumption and storage of produce as indicated by the presence of both small and large vessel forms (Staniuk 2018a).

Based on the evidence discussed, it is clear that throughout its history the settlement of Kakucs-Turján and its inhabitants were actively engaged in the formation of a specific occupational lifestyle linked to the established landscape. The exact sequence of changes is yet unclear, with an instantaneous formation of the archaeologically recognised settlement structure representing only one of the few possible scenarios (Fig. 5.7).

Due to differences between non-tell and tell-like forms of occupation, the single instance formation of the full site represents a highly unlikely scenario (model 1). Other possibilities include the formation of a single settlement area, later encircled by a single ditch, and an even later encircling of the entire area (model 2); the initial encircling of the area chosen for habitation, and its subsequent division over the course of settlement history (model 3); or the formation of the settlement as a consequence of a long-term process of population aggregation resulting in the transformation of a central part of an otherwise non-centralised system (model 4). Apart from model 1, non-centralised aspects of site formation processes are argued for.

The selection of the excavation area, focusing primarily on verification of the household-related anomalies, is a first step towards the study of such settlements. Based on the investigation it is clear that formation of the specific landscape form was a long-term process, already taking place after a successful first occupation stage (phases 1–3). The evidence of agricultural subsistence, *i.e.* cereals, legumes, and animal husbandry, could imply that the formation of a specific landscape, based on waste disposal, was related to limiting the impact of settlement spread towards agricultural areas. Linking such concepts to the large-scale changes, such as the construction of the ditch system and the division of the settlement, requires further attention to clarify the situation. However, it does point to the dynamics of settlement involved in archaeological site formation processes. The latter is especially evident for the comparative investigation of the architectural differences.

The subsequent obliteration of the archaeological deposits due to further construction was documented as the destruction of architectural structures (phases 6 and 9) or infilling of the standing remains with waste (phases 4, 7, and 10). Considering the impact of the permanent state of destruction, the perception of tell sequences as well-preserved temporal records has to be treated with caution. Comparison of different settlement histories will require understanding both the temporal positioning of houses as well as the identification of the most suitable contexts for investigations. The latter aspect is directly linked to the third focus of the methodological approach: interregional processes.

Inter-regional processes

The subsequent generations of the Kakucs-Turján settlement were not an isolated community of the Bronze Age Carpathian Basin. Whether involved in the intra-regional exchange of objects and ideas, as evidenced by the assemblage of non-local ceramic objects (Staniuk 2018b), or inter-regional contacts, as shown by the presence of locally non-available resources such as amber, bronze and gold (Jaeger 2018), the distinct generations were always part of a broad network of interactions, together with their particular historical trajectories. The essential aspect of such trajectories is the temporal scale since it provides the means of positioning the particular settlement stages in a broader context. The reliance on typo-chronological studies derived from burial archaeology is problematic due to regional differences in funerary practices and the grave goods deposited. Thus, inhumation sepultures typical of Eastern Hungary did not deploy the large storage vessels common in household inventories (Thomas 2008), while the cremation burials found in Central Hungary have a highly-standardised inventory (Vicze 2011). Such studies are primarily useful from the standpoint of comparative datasets and require constant re-evaluation in the sense of expanding the spatial scope. In order to develop such perspectives it is necessary to obtain absolute dating of the sites tied specifically to the stratigraphic sequence (*e.g.* Draşovean *et al.* 2017). From this perspective, the primary research question was: How was the development of the Kakucs-Turján settlement linked to the formation of the tell-like occupation form?

The radiocarbon sequence for Kakucs-Turján was modelled on the basis of dated botanical macro-remains collected from the second half of the occupational sequence, representing the developed stage of the tell-like occupation, *i.e.* phases 6–11. The modelling itself was achieved with the Sequence and Phase functions of Oxcal 4.3 (Bronk Ramsey 2017).

Overall, the radiocarbon dating shows that the settlement was already intensively used in the 19th century BC, with the stratigraphic evidence suggesting that the formation of the tell-like form of occupation happened *c.* 2000 BC, while the site history can extend as far back as 2400 BC. From

this perspective, the formation of the site and the communities inhabiting it were integrated into the larger process of the resettling of the Middle Danube Valley after a long period of impermanent occupation (Kulcsár 2013). From this point of view, the transition from Early to Middle Bronze Age occupation practices in the Carpathian Basin has to be perceived as a dynamic period of social and agricultural changes, which resulted in the formation of the persisting landscape. The establishment of a tell-like occupation, even on relatively small settlements, at such an early point suggests the rapid spread of such forms of occupation, which was not necessarily linked to well-established trade routes or power structures, but was directly linked to widely-practiced forms of land occupation.

The contextualised examination of the inter-regional processes and the specific temporal links is a major step towards understanding the 2nd millennium BC beyond typo-chronological classification, and towards understanding the trajectories of change related to large-scale phenomena, such as the spread of metallurgy and its reception among communities of the European Bronze Age (Earle *et al.* 2015) or demographic processes and their socio-environmental impact (Müller 2015).

Conclusions

From a historical research trajectory towards the identification of new problems in studying multi-layered fortified settlements, the investigation of the social processes in the 2nd millennium BC requires the implementation of data from different sources (legacy data and historical studies) and different excavations (contemporary expeditions). In all instances, the attained results rely upon the complimentary presentation of the analytical methods and their reproducibility. As shown by the study of the historical trajectory of tell research in the Carpathian Basin, the increasing multiplicity of approaches increases uncertainty related to the achieved results: While working with the same type of archaeological deposits, different research foci provide different insights on the social formation and the history of particular communities. Integrating results between different investigations will provide the means to identify commonalities between different areas and the developed findings. In order to achieve such a goal, it is necessary to explicitly tie the specific research stages, which in the case of the findings discussed here is related to the outline of the methodological approach of the Kakucs-Turján investigation and its implementation, to analytical and interpretative purposes. From the perspective of the investigated area, the challenges of incorporating findings of past researchers will prove essential in the upcoming years. While contemporary approaches represent selective perspectives, their explicit formulation and the deployment of a bottom-up approach to the study of social processes is, in our opinion, the key towards shifting study from tells as an

inevitable result of occupation towards the social processes resulting in their formation.

Acknowledgements

The financial support for the project was provided by a National Science Centre of Poland (NCN 2012/05/B/HS3/03714); Hungarian Academy of Sciences, National Cultural Fund 3234/261; Lendület/Momentum Mobility Project LP2015-3 (2015–2016); the post-doc project ‘Transforming Landscapes of Fortification in the Bronze Age of Central Hungary’ (JMA 1013 06 685 20) and PhD-position ‘Tradition and Practice – Study on Pottery, Chronology and Social Dynamics of the Hungarian Bronze Age’ (GSC608).

Notes

- 1 While the emphasis is placed on the Hungarian part of the Carpathian Basin in a political sense, this is not to say that it represents the only discussion taking place on the methodology and history of Bronze Age tell archaeology in Central and Central-Eastern Europe (*e.g.* Medović & Medović 2011; Bátorá *et al.* 2012; Lie *et al.* 2018). Due to historical circumstances, the discussion on tell-related archaeology in the Carpathian Basin has become split into particular schools; this paper deals specifically with just one of these.
- 2 The maps used in this publication are partly based on the following source: © EuroGeographics for the administrative boundaries.

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