



THE UNIVERSITY *of* EDINBURGH

Edinburgh Research Explorer

Temporalities in the study of mobility

Citation for published version:

Bernbeck, R, Heit, I, Kaiser, E, Pollock, S, Rowland, J, Russo, E, Schier, W & Tassie, G 2021, Temporalities in the study of mobility. in D Knitter, W Schier & B Schütt (eds), *Spatial Environment and Conceptual Design: The concept of social ecology as a means to integrate humanities and science in landscape archaeological research*. Berlin Studies of the Ancient World, vol. 74, Edition Topoi, pp. 83-106. <https://doi.org/10.17171/3-74>

Digital Object Identifier (DOI):

[10.17171/3-74](https://doi.org/10.17171/3-74)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Publisher's PDF, also known as Version of record

Published In:

Spatial Environment and Conceptual Design

General rights

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact openaccess@ed.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.



Reinhard Bernbeck, Ilia Heit, Elke Kaiser, Susan Pollock, Joanne Rowland, Emmanuele Russo, Wolfram Schier, Geoffrey Tassie

Temporalities in the Study of Mobility

Summary

The research group *Political Ecology of Non-Sedentary Communities* examines differently mobile societies from the Epipaleolithic in the Nile Delta to Neolithic and Aeneolithic settlements in the foothill plain of the Kopet Dag in Turkmenistan and Aeneolithic and Early Bronze Age groups in the Eastern European steppe. We recognize mobility as a feature of every society. To describe different forms, conditions, and strategies of mobility and avoid a dichotomy of non-sedentariness vs. sedentariness, we emphasize temporalities. In this context, crucial questions are how extensive, how routine or unusual, over what periods of time mobility occurs and which segment(s) of a group are engaged in different aspects of mobility. We exemplify our approach through a comparison of two case studies.

Keywords: temporality; political ecology; scalarity; mobility; Eurasian prehistory

Die Forschungsgruppe *Political Ecology of Non-Sedentary Communities* untersucht unterschiedlich mobile Gesellschaften vom Epipaläolithikum im Nildelta bis zu den neolithischen und äneolithischen Siedlungen, nördlich des Kopet Dag in Turkmenistan und äneolithischen bis frühbronzezeitlichen Gruppen in der osteuropäischen Steppe. Um verschiedene Formen, Bedingungen und Strategien der Mobilität zu beschreiben und eine Dichotomie der Nichtsesshaftigkeit vs. Sesshaftigkeit zu vermeiden, analysieren wir Temporalitäten und die Frage, wie umfangreich, routinemäßig oder ungewöhnlich sowie über welche Zeiträume hinweg die Mobilität auftrat und welche Segmente einer Gesellschaft an welchen Mobilitätsaspekten teilhatten. Als Illustration dient der Vergleich zweier Fälle aus Süd-Turkmenistan und der osteuropäischen Steppe.

Keywords: Temporalität; Zeitlichkeiten; politische Ökologie; Skalarität; Mobilität; Eurasische Vorgeschichte

1 Resilience, political ecology, and time scales

Large, multidisciplinary research groups are faced with the challenge of developing or identifying concepts that allow meaningful collaboration across a multitude of individual projects. The socio-ecological model discussed in many of the contributions in this volume, which was developed and refined over several decades, principally by a group led by Marina Fischer-Kowalski,¹ has strong parallels in the Anglophone literature (see chapter 1, this volume). Such models of resilience and vulnerability present a number of serious problems, however, when one attempts to merge them with ideas derived from political ecology. We mention just a few of the problems that have been highlighted in recent discussions on the subject.² First, the overall approach of a socio-ecological framework is a systemic one that is interested in equilibria, disturbances, and the various processes that lead a disturbed system back to a more stable state or transform it into a new system. In contrast, the interests of political ecology center on inequalities and power differences rather than (dis-)equilibria. Second, resilience – a central tenet of socio ecology – is, as Katrina Brown writes, “conservative, focused on the persistence of a ‘system’” that is threatened from the outside, but not from within.³ Political ecology starts from the assumption that all social phenomena are inherently unstable because of *internal* power differentials. Third, while both of these approaches are firmly interdisciplinary, political ecology research is fundamentally driven by a critical approach, whereas a systems paradigm is pragmatic in its aim to support policy planning and ecological management.⁴ Fourth, approaches focusing on adaptation and resilience include the assumption that ‘desirable states’ in an adaptive cycle are obvious. However, the boundaries of a system, indicating what is conceptualized as resilient and what is not, are insufficiently questioned, and even when they are, resilience remains in the eye of the beholder, as demonstrated in an example that emphasizes issues of differential political-economic power.⁵ Finally, as mentioned in the introduction to this volume, the social side of social-ecological models is envisioned as a mirror of the ecological, leading to an imagination of societies that is functionalist and reductionist in its neglect of people’s motivations for action on, and in, the environment.

This paper lays some groundwork for a rapprochement of political ecology and resilience approaches by starting from the side of political ecology. Both approaches evince preoccupations with change and temporality. In resilience theory, change is conceptualized as non-linear but with a strong bent for an assumed recurrence of ‘adaptive

1 Fischer-Kowalski, Mayer, and Schaffartzik 2011; Fischer-Kowalski and Weisz 2005.

2 Berkes, Colding, and Folke 2003; Brown 2014; Turner 2014; Ingalls and Stedman 2016; Kull and

Rangan 2016.

3 Brown 2014, 109.

4 Turner 2014, 8–9.

5 Beymer-Farris, Bassett, and Bryceson 2012.

cycles.⁶ In contrast, political ecologists envision social change as historically contingent and driven by both the agency of humans and structural conditions for human action. For our research group, the dynamics of multiscale change are of fundamental importance. Change unfolds at very different but interwoven temporal scales. This paper reflects on multiple temporal dimensions and their potential inclusion in archaeological-ecological research. In terms of the model of Fischer-Kowalski, we remain largely in fields that are described as the relations between material and the immaterial characteristics of culture.

1.1 Scales and temporalities

Archaeological investigations typically begin with conventional periodizations. These broadly and often poorly defined periods, such as the Epipaleolithic, Neolithic, and Aeneolithic, may in turn be divided internally into sub-periods or phases. These kinds of division are premised on the notion of (relative) homogeneity within a particular (sub-)period and significant variation between periods. Transitions tend to be conceptualized as sudden breaks rather than gradual changes, whereas it is assumed that little or nothing changes fundamentally *within* a phase. This, of course, oversimplifies a much more complex reality.

We approach matters of temporality from several premises. First, we acknowledge that change is always present, except – or perhaps even when – people work actively to prevent it. That said, the degree, tempo, and form of change are highly variable. Second, our typically coarse temporal divisions offer a general orientation, but they are by themselves inadequate for many of the questions we ultimately wish to address. Third, as such, periodizations are generally used in archaeology. They tend to imply that there was long-term planning behind the trends we observe, but in fact people's actions in the short-term usually have unintended consequences. As a result, we argue that it is crucial to take a closer look at a range of scales varying from short- to long-term, as well as the ways they are interrelated, in order to investigate the bestowal of meaning on chronological sequences. We work towards an analytical framework that allows the investigation of the interconnectedness of different dimensions of time and the positioning and participation of practices and dispositions of historical actors across these dimensions. Such a framework must ultimately take into consideration multiple temporalities linked to change, recurrence, and duration.

In recent years, there have been a variety of theoretical discussions about concepts of time. These are relevant to a wide variety of issues, including the human perception of time and change. In the treatment of change over time, an area in which archaeologists

6 Folke 2006, 255–258.

have traditionally operated with long-term diachronic comparisons, one can now identify a trend towards differentiation among temporal processes in terms of their speed, range, and duration.

The early impetus for a multiscale consideration of time came from the neighboring discipline of history, through the reception of the works of Fernand Braudel and other historians of the Annales School.⁷ Above all, Braudel's notion of history as a composite of varying temporal rhythms – *longue durée*, *conjoncture* or *moyenne durée*, and *événement* – held out an epistemological potential for archaeological inquiries into change and its temporal dimensions. While Braudel associated the *longue durée* with ecological time, the *conjoncture* with economic cycles, and the *histoire événementielle* with the realm of political decision making, archaeologists have often turned this tripartite division of temporal scales into a short-term associated with events that occur within an individual's lifetime, a medium scale measured in several generations, and a long-term involving multiple centuries or even longer. This Braudelian scheme has also created opportunities for the integration of small-scale research questions.

More recent approaches, such as that of Geoff Bailey's time perspectivism,⁸ picked up the idea of multiple time scales and called for a distinction between short-term and long-term archaeological phenomena. Bailey argues that phenomena operate on different time scales and investigating them requires better resolution of archaeological data and different explanatory principles. This dichotomy between short- and long-term is mirrored in treatments of time in processual and post-processual archaeology: the one school addressing principally long-term processes, the other tending rather to filter out any large-scale dimensions because of its research focus on local, if not individual, experiences of the world.⁹

An important element in postprocessual understandings of time originates in Michael Shanks and Christopher Tilley's radical critique of the chronological understanding of time in archaeological research: an 'abstract time' that is construed through a capitalist chronometry and produces narratives that have nothing to do with the way people in the past understood time.¹⁰ They contrast this concept to substantial time, which takes shape and is experienced through social practices.¹¹

Recent works that develop these ideas further provide a more comprehensive treatment of chronological and experienced time in archaeological discourse and open up room for the interpretation of archaeological remains as temporalized objects.¹² Yannis Hamilakis, for example, has emphasized the notion of multi-temporalities in his work.¹³

7 For more detail see Knapp 1992; Smith 1992.

8 Bailey 1983; Bailey 1987; Bailey 2007.

9 Robb and Pauketat 2013.

10 Shanks and Tilley 1987.

11 See also Fabian 1983 for an anthropological critique.

12 Thomas 1996; Lucas 2005.

13 Hamilakis and Anagnostopoulos 2009; Hamilakis 2013.

Drawing on Bergson's idea of duration, he notes that material things – the stuff of archaeology – are able “to re-enact multiple, coexisting times”.¹⁴ Time as experienced is not something abstract and uniform, as we conceive of it in our chronologies, but is rather “diverse, multiple, and socially and materially produced”.¹⁵

As Hamilakis argues, archaeological materials are already multi-temporal by virtue of having been taken – by us – out of the context of past experience to be re-experienced and re-conveyed from the present into the past. The act of decontextualizing archaeological objects through excavation can be seen as a collision of chronological and experiential time. Can ‘objective’ or external time be linked to experiential time at all? Alsdair Whittle et al. see an opportunity to depict not only long-term processes but also short-term developments by using models with very high chronological resolution, achieved through Bayesian statistical analysis.¹⁶ Whittle and his colleagues draw on considerations of events as perceived by people and the fact that their perceptions can encompass different temporal durations. Crucial is the concept of memory, the “kinds and scales” of which are “inescapably part of the nexus of structure and agency, in which social existence unfolds”.¹⁷ In their exposé, archaeological time scales are differentiated more finely than usual.¹⁸ Events occur within an individual's experience, personal memory involves lifetimes and generations, active memory extends as far as one's ‘grandmother's grandmother’, social memory into centuries, and finally myth is something outside time. A problem that arises when trying to frame scalar categories from the outset, however, is that there is every reason to think that different criteria play variable roles in different social and cultural contexts.¹⁹

The diversity of approaches to temporalities and the complexity of investigating them archaeologically take us well beyond the scope of a brief paper. Here, we endeavor to take the first steps toward a multiscalar approach to our own research projects.

We begin with a basic notion of time as treated by archaeologists in the past decades, which acknowledges both external and internal perspectives and long and short scales. An external view refers to time scales conceivable and time resolutions achievable by archaeological chronologies. An internal or experiential view focuses on the perception and representation of time in past societies, inspired by research and theoretical reflections in sociology and anthropology.²⁰ Linear vs. cyclical concepts of time, chronotypes, and the notion of social and cultural memory are just some of the key issues in this experiential perspective on temporality.²¹ Since short-term events and practices are often easily perceptible, an internal perspective is frequently thought to be more applicable

14 Hamilakis and Anagnostopoulos 2009, 78.

15 Hamilakis and Anagnostopoulos 2009, 79.

16 Whittle, Bayliss, and Healy 2011.

17 Whittle, Bayliss, and Healy 2011, 911.

18 Whittle, Bayliss, and Healy 2011, Fig. 15.28.

19 E.g. Haber 2016, 475–476.

20 Lucas 2005, 61–67.

21 Lucas 2005, 71–92; Reinhold and Hofmann 2014.

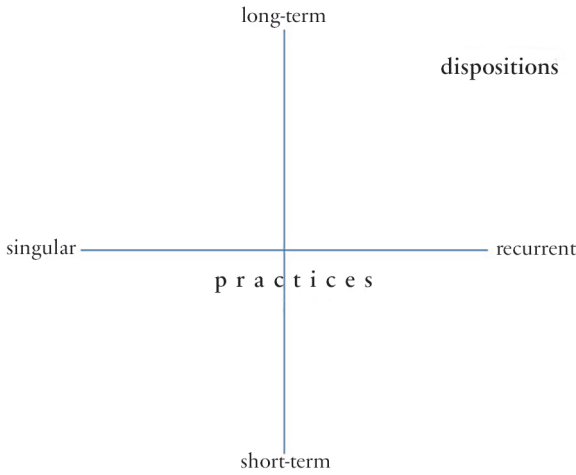


Fig. 1 Two axes of temporality based on scale and degree of recurrence.

at the short end of time scales, while long-term changes tend to be considered as externally triggered and beyond the motivational horizon of actors. Long-term dynamics and change are often assumed to be the result of social institutions within which people act.

Here, we draw attention to another aspect of temporality: recurrence. Events or practices may occur singularly, sporadically, or regularly. If recurrent, practices may happen more or less frequently. Recurrence and its frequency and rhythm are important elements of the degree of unexpectedness versus familiarity in a horizon of expectations of social time. Social practices can thus be mapped along two intersecting axes of temporal occurrence (see Fig. 1).

In the remainder of this paper, we focus on time viewed from an external perspective, with attention to the interwovenness of scales, frequencies, and recurrence. We provide examples for the interdigitation of temporal scales from research projects in Turkmenistan and the eastern European steppes. Toward the end of the paper, we draw on some of the ideas of the historian Reinhart Koselleck as an entry point for thinking about experiential time.²²

2 Temporalities at Monjukli Depe, southern Turkmenistan

In research on early settlements in the foothills of the Kopet Dag of southern Turkmenistan, standard narratives have focused on evidence of major shifts between the Late

²² Koselleck 1985.

Neolithic and Early Aeneolithic periods (6000–4000 BCE). These are said to include significant changes in pottery production and use, textile production, the appearance of copper, and the layout of settlements. Our work at Monjukli Depe has shown that this picture of clearly divided, internally homogeneous periods is too simple. There are, on the one hand, surprising long-term continuities, for example, in building forms and the organization of space in houses. On the other hand, some elements show more change than the standard narratives would lead us to expect; these include settlement layout, practices of house abandonment, and variations in small-scale practices that took place in houses or in open spaces.²³

To address these variable elements and their associated temporalities, we start from the understanding that long-term dispositions and processes and short-term practices are mutually constitutive. In contingently developing (pre-)historic settings, culturally specific dispositions are formed by recurrent practices, and those dispositions in turn guide and structure practices. Change in deeply engrained routines may either occur slowly and remain almost unnoticed by actors, or it can happen suddenly through external impetus or critical internal thresholds. Our questions, therefore, center on the ways that practices contribute to longer or shorter-term dispositions that in turn structure those practices, as well as the ways in which different temporal rhythms – of productive activities and engaging with the products of those activities – intersect to produce tensions that may then engender fundamental change.

2.1 Recurrent practices and the dispositions they produce

We begin with architecture. The built environment is widely acknowledged as being a product of the social and natural environment of those who construct it and live in and with it, while at the same time the built environment structures people's practices, dispositions, and social relations.

At Monjukli Depe, portions of 20 Aeneolithic buildings were excavated, many of them quite well preserved. There was a marked continuity in house plan and configuration over four Aeneolithic building levels, which lasted for an estimated total of between 115 and 315 years.²⁴ These speak to a shared, long-lasting disposition regarding the form of a dwelling as well as elements of its internal arrangement. Houses typically consist of a more or less square room divided in two by means of opposing buttresses and a low threshold that separated the front and back portions of the structure. Installations for food and storage are found in the lower, front part.

23 Bernbeck, Cubasch, et al. 2016.

24 Heit 2019.

In contrast to the well documented Aeneolithic buildings, only fragments of Neolithic architecture have been exposed at Monjukli Depe. Although one should not ignore the importance of potential regional variation, we draw tentatively on observations from Neolithic houses at other sites from the Kopet Dag piedmont zone for purposes of comparison. This reveals a remarkable continuity in the general structure of houses: a single, more or less square room but with a division of the space suggested by an oven located in the center of one wall and, in some cases, a slight protrusion or buttress on the opposite wall.²⁵

Overall, house plans remained substantially similar over the approximately 1500 years of the Late Neolithic and earliest Aeneolithic occupation in the Kopet Dag piedmont zone. Since living with, and in, buildings was a part of everyday life for most people from birth to death,²⁶ they also framed the social relations of those occupying such buildings. The striking similarity in both plan and size of the houses suggests a modular village organization, where similarly structured domestic architecture implies an unspecifiable but similar kin structure. We do not know how often houses were newly constructed, although each of the four Aeneolithic building levels at Monjukli Depe are estimated to have lasted from between 40 and 75 years.²⁷ Since it is most unlikely that all houses were abandoned or rebuilt at the same moment, it seems reasonable to assume that a new house was built at least every decade or two. Thus, house construction would have been a recurrent, albeit episodic, short-term practice that would have taken place within a shared space – a settlement – consisting of other similar houses, a material frame that organized social experiences and helped maintain social life in specific, likely unquestioned and unquestionable limits.²⁸ This long-term continuity of social structures from the late 6th to the mid-4th millennium BCE is also evidence for a stable economic relationship between this society and its natural environment. Furthermore, household configurations are strong indicators for economic structures.

Although house form remains largely similar from the Neolithic to the early Aeneolithic, settlement layout shows a different rhythm of change (and/or perhaps greater regional variation). Some early Neolithic settlements such as Jeitun and Pessejik consist of free-standing structures with no apparent plan and no discernible paths/streets, whereas middle or late Neolithic architecture in Chagyly and Chopan Depe tends to be agglutinative and there are some hints of paths through the villages. These trends become clearer in early Aeneolithic sites such as Monjukli and Chakmakly Depe, which have straight streets along which houses are aligned.²⁹ The layout of a village is some-

25 Müller-Karpe 1982, 16–22.

26 Unless there was substantial medium- or long-term mobility that took at least some members of the community away from the settlement for lengthy periods of time.

27 Heit 2019.

28 Goffman 1974.

29 For an overview see Müller-Karpe 1982, for Monjukli Depe see Pollock and Bernbeck 2019.

thing within which people were enmeshed in their everyday lives, and movement from one part to another was likely so taken for granted that it remained largely unquestioned and uncontested. It is, therefore, all the more surprising that changes in settlement layout occurred more rapidly than those in house form. The change from free-standing buildings to agglutinative ones is unlikely to have been an explicit decision; however, the result was the need to plan and maintain a thoroughfare. Could there have been outside threats? No evidence for inter-community violence could be discerned, and the burials analyzed do not contain any traces of broken bones.³⁰ Threats from wild animals can likely be ruled out as well, both because of the absence of village walls and the rarity of wild species in the faunal remains. The most likely reason for the concentration of houses on the mound is flooding in springtime when the winter snows melt in the Kopet Dag.

In Aeneolithic Monjukli Depe, there is intriguing evidence for a practice of ritual closing of houses prior to abandonment. In three buildings, small cobblestones were found strewn across the last floor. The three houses are from three different building levels, implying that this was an occasional practice that was transmitted over multiple generations. The performance of this kind of abandonment ritual may thus have taken place every generation or two. The fact that such deposits occur only in certain houses suggests a degree of flexibility in deciding how to leave a dwelling and/or different reasons for ending the residential use of a house. It is possible that such abandonment practices were triggered by highly specific preceding events, such as the death of a family member; we have no empirical data to assess such connections.

Another recurrent practice that, like the strewing of stones on a house floor prior to abandonment, was never uniformly followed, was the burial of some individuals in graves with L-shaped cross-sections. This grave form is known in Central Asia until the end of the Bronze Age.³¹ Considering the number of graves recovered at Monjukli Depe, it is clear that not all of the deceased were buried within the settlement, but it is likely that the interment of a person in an L-shaped grave was an event that occurred once every several years at most.³² Death is, of course, expectable in a general way, but its timing is at best barely foreseeable. As vividly portrayed by Fredrik Barth,³³ ritual occasions in small-scale societies that occur irregularly and at intervals of several years or more strain the knowledge of those who perform them to the point that the participants may invent elements as they go along. We cannot ascertain to what extent this was the case for burials in L-shaped graves at Monjukli Depe. However, detailed documentation of the burial practices shows an astonishing level of variability, pointing perhaps to such

30 Steadman 2019.

31 Teufer 2013, 23–25.

32 Rol 2019.

33 Barth 1987.

conditions.³⁴ This constellation – an overall long-term continuity marked by shorter-term, smaller-scale variabilities – indicates a sociocultural formation that has strongly resilient elements.

Among the portable objects that people made and used in later Neolithic and especially Aeneolithic societies, pottery is often regarded as an element of daily life. Changes in technology, vessel morphology, and decoration are often employed as chronological markers, and the situation in the Kopet Dag piedmont zone is no different in this respect. Neolithic pottery is thick-walled, vegetal tempered, often has a dark core indicating incomplete oxidation, and is only rarely painted. In contrast, the early Aeneolithic pottery is well-fired, thin-walled, contains either fine sand or no temper, and is frequently painted. Surprisingly, however, Aeneolithic pottery is quite rare, occurring in much lower densities than Neolithic ceramics.³⁵ Based on occasional finds of unfired clay vessels as well as basketry, it appears that the Aeneolithic inhabitants mostly used non-ceramic containers. This is in stark contrast to the contemporary situation in highland Iran. Whether the changes in pottery frequency, technology, and decoration occurred abruptly or gradually cannot be determined, as the Neolithic and Aeneolithic occupations are separated by as much as 800 years. Whether pottery vessels were a part of daily life in Aeneolithic Monjukli Depe also remains an open question. However, as in the case of burial practices, the production of pottery vessels was a recurrent practice, but must have occurred only sporadically. This leads to the question of how such a technology persisted. Archaeometric analyses show that pots were made of local clay, so a foreign origin can be excluded. Another possibility is the existence of itinerant craftspeople, in which case, it would have been the social contact with non-local people that was of a sporadic character.

The spinning of fibers is an integral part of textile production. The Aeneolithic levels at Monjukli Depe contain a large number of clay spindle whorls, in sharp contrast to their near absence in Neolithic times. The spindle whorls are simple and seem to have been made and probably discarded relatively quickly, suggesting that spinning was a frequent and recurrent practice.³⁶

2.2 Singular events

In the back portion of the Aeneolithic House 10 at Monjukli Depe, the footprints of a child, as well as the paw prints of two dogs, were found impressed into the mud plaster of a floor, suggesting that the dogs and the child had run in opposite directions across the newly plastered surface.³⁷ Replastering of a house floor was an event that probably

34 Rol 2019.

35 Schönicke 2019.

36 Keßeler 2019.

37 Egbers 2019.

occurred only every few years, based on the number of floors per house. The time required to lay the plaster and allow it to dry amounted to perhaps one to two days, depending on the time of the year. This is a very brief period of time, and dogs were not particularly frequent animals in the faunal assemblage at the site. The paw prints in House 10 as well as in a second house are, therefore, unlikely to have been a purely accidental occurrence – the likelihood that by chance dogs gained entry to two houses when the floor plaster was fresh, but otherwise did not do so, are statistically extremely low. The fact that the houses in which the paw prints were found are from two separate levels of the Aeneolithic village indicates that allowing dogs the run of the house was not restricted to one specific house or a particular moment in the village's history. Indeed, the presence of paw prints on one floor in each of the two houses suggests that it was not uncommon for dogs to be in houses, although there were probably attempts, not always successful, to keep them out when floors were newly plastered. In other words, we can distinguish between what may have been a familiar occurrence – dogs gaining access to houses – and a nearly singular event in which dogs entered a house with a freshly plastered floor.

An event that for now appears to have been a unique occurrence at Monjukli Depe, is the painting of designs on a buttress in House 14.³⁸ While buttresses were invariably plastered, often multiple times and with pigmented plaster, the application of painted designs occurs only once. In most other respects, House 14 is similar to the others, although it is the only one yet excavated that was abandoned following a major conflagration. Whether those two events were connected is unclear.

These two examples make clear that it is possible to identify singular, unusual events archaeologically. In one of these cases (the wall painting), the event seems not to have been repeated, in the other case (paw prints), the occurrence was rare. They stand in contrast to recurrent practices and their associated dispositions that characterize contexts in which people are immersed in a particular (built and social) environment. However, the two cases of particular events diverge in another temporal respect. One, the wall painting, was carried out with the prospect of an enduring and visible result, whereas the other, the paw and footprints, were inadvertent and without any expectations of leaving a trace for future reference by those who created them.

3 Temporalities in the eastern European steppe

The transition from Aeneolithic to Early Bronze Age (3500–2500 BCE) in the eastern European steppe is marked by a clear change in funerary traditions. Until 3100/3000 BCE,

38 Bernbeck and Pollock 2016, 73–75.

only a small number of graves are observed, and they exhibit highly variable constructions and burial rites. They are attributed to different archaeological cultures. After 3100/3000 BCE, pit graves with very homogeneous features were built under or in burial mounds, and the number of burials increases enormously in comparison to the Aeneolithic. But longstanding traditions can also be observed. The first grave mounds were already erected in the 4th millennium BCE, but only in the 3rd millennium BCE did they become ubiquitous in this vegetation zone.

3.1 Short-term processes

As was also pointed out for Monjukli Depe in southern Turkmenistan, the short-term scale has often been ignored in archaeological research on the Aeneolithic and Early Bronze Age in the Eastern European steppe. This is quite astonishing, as burials are the main element of the archaeological record in both periods and they have been investigated intensively. One can look at each burial as the result of a short-term process, at least when post-interment activities lasting over a longer period can be excluded. We discuss in more detail the changes in burial rites and grave constructions observed in a burial mound that was used for several generations as an example of medium-term processes. For now, each grave can be understood as a sequence of events: a ceremony of interment of the deceased and the closing of the grave – sometimes covered with an earthen layer or tumulus – perhaps followed by several post-burial rituals. The excavated graves reflect only a part of these events. They have mostly been investigated from a purely analytical point of view in order to classify and date them without trying to reconstruct a concrete burial ceremony.

In our current project, we examine subsistence strategies and lifestyles of the inhabitants of the steppe. In the 3rd millennium BCE, subsistence was based on specialized cattle breeding in the Eastern European Steppe zone, with seasonal cycles determined by the search for good pastures. The differences between summer and winter residences can be reconstructed with the help of isotope analyses.³⁹ The residential shifts perceived by an individual at that time may have been more regular than was the case in the second half of the 4th millennium BCE, when different subsistence strategies were used. A more flexible exploitation of environmental resources can probably be assumed for groups living in the 4th millennium BCE in the same vegetation zone; thus, people might have changed their resource strategies several times during their lifetimes or even within one particular time span in their lives.

As subsistence strategies might be reflected by the food people consumed, Simona Mileto conducted residue analyses of pottery with the aim of identifying changes in the

³⁹ Gerling 2015.

use of vessels and to investigate the foods that were cooked in them.⁴⁰ In addition to changes in the human diet, which she investigated diachronically using the conventional division into Late Aeneolithic and Early Bronze Age and also spatially (forest steppe and steppe zone), it is possible to study changes in the life of a pot. All analyzed fragments of ceramic vessels were found during excavations in settlements in the basin of the river Dnieper. Some fragments exhibited residues from different sources, indicating that they were used for cooking different kinds of meals. This might lead to a new understanding of the use of pots, since at least some of them were not restricted to specific tasks such as the preparation of milk, meat (of a specific species), or fish, but rather were used for several of them. This can lead to questions of whether they were used by only one person or by several, for how long, and how often.

3.2 Medium-term processes

The Eastern European steppe settlements of the 4th and 3rd millennium BCE are poorly investigated and mostly of ephemeral character. Especially for the 3rd millennium BCE, however, a large number of burials in mounds have been excavated. With the help of well stratified sequences taken from graves within a single burial mound, which have been verified through radiocarbon dating, it is possible to analyze the differences among graves of one specific archaeological culture. At a burial mound known as Sugokleya, excavated near the city of Kirovograd, despite the generally very similar construction of Yamnaya culture graves and comparable burial rites, certain differences do appear.⁴¹ According to the results of radiocarbon dating and a small number of dendrochronological analyses, some of the graves were dug into the existing burial mound one by one over a relatively short span of time (3000–2800 cal BCE, or ca. 6–8 generations). This must have been the result of a medium-term routine. Although the grave structure and burial rites associated with these interments are directly comparable to one another, two of them contained parts of a wagon with disc wheels, and in one of them there was also a dugout. The radiocarbon date of grave 16 shows that it was erected around two centuries later than the other chronometrically dated burials of the Yamnaya culture in the Sugoklaya Mound. How are we to explain these similarities and differences? How were changes in the communities that buried these people reflected in changes in burial rites, the accompanying objects such as wagons and differences in grave construction? Were the burials in this mound deposited continually by one and the same social group, or were there temporal interruptions or use by others, and what might be associated with changes of that kind? We have just begun to explore the answers to these questions.

40 Mileto 2018.

41 Nikolova and Kaiser 2009.

3.3 Long-term processes

It is interesting to note that up to today there is no agreement on the extent to which a real division can be made between the Aeneolithic and the Early Bronze Age in the Eastern European Steppes. Nikolai Ya. Merpert assumed a continuous development, assigning the early Aeneolithic groups to the Yamnaya culture on the basis of certain characteristics of burial rites, such as the flexed position of the bodies, the use of ocher, and the construction of burial mounds.⁴² In contrast, Dmytry Ya. Telegin distinguished a Srednyi Stog culture for the Aeneolithic north of the Black Sea and claimed that the Yamnaya culture could only be discerned as fully developed in the Early Bronze Age.⁴³ This caesura was also accepted by Yuri Ya. Rassamakin.⁴⁴ However, he distinguished between different burial traditions within the Aeneolithic (4500–3100 cal BCE) and regarded these burial customs partly as a characteristic of specific archaeological cultures.

In recent investigations, changes in subsistence strategies from the late Aeneolithic to the Early Bronze Age have become more and more evident and can be differentiated with reference to archaeozoological,⁴⁵ but also to stable isotope data⁴⁶ and organic residue analyses.⁴⁷ Unfortunately, preservation and the state of research on the settlements in Eastern Europe are still too limited for changes in the patterns to be detected. Changes in the subsistence economy seem to happen more or less at the same time as fundamental changes in the funerary sphere start to appear. As already mentioned, the number of burials increases after 3100 cal BCE in the steppe zone, the interments were mostly connected with a burial mound, and the grave constructions and burial rites became more and more homogeneous. But can we suppose any interrelation between changes in subsistence economy and the funerary sphere? And if so, how can we understand that relationship?

4 A hermeneutic approach to multiscalar time

As discussed throughout this paper, multiple time scales can be measured in the external, objectivized time of archaeological research: calculated in calendar years via probabilistic radiocarbon dates and their modelling into stratigraphic-sequential time series. However, we argue that an internal view of time needs to complement this external one. In archaeology, subjective and objective temporalities stand in a mutually constitutive relation, since the perception of time and its material manifestations led to historically

42 Merpert 1974.

43 Telegin 1986.

44 Rassamakin 1999; Rassamakin 2004.

45 Kaiser 2010.

46 Gerling 2015.

47 Mileto 2018.

specific human actions in the past. These actions resulted, in turn, in materializations of routine or singular practices, producing a culturalized landscape.

A problem that emerges in investigating subjective ('emic') time for societies without writing is the difficulty of knowing about the modes in which time was conceived: linear, cyclical, concentric, pendulum-like, or variable in different spheres of life.⁴⁸ Here we briefly explore Koselleck's notions of a 'horizon of expectation' and a 'space of experience' within which human activities are located, viewed from a present moment. Neither expectations, nor experience imply temporal linearity in terms of an arrow of time from a limitless past to a limitless future, as in materialist Western conceptions, nor do they depend on any other specific temporal mode. However, horizons of the future and spaces of the past potentially include scalar differences.

Koselleck stands in a tradition that approaches the past phenomenologically, analyzing perceptions and their linguistic expression. For prehistory, we are restricted to non-linguistic elements that are apprehended through the senses. Traditionally, phenomenological approaches in archaeology have been cast in static terms. Tilley's analysis of past worlds as sets of bodily perceptions describes states of color, tactility, movement, and so forth.⁴⁹ We attempt to insert the potential of temporal change into such perceptual universes. This can be accomplished via Koselleck's abstract temporal vocabulary of horizons of expectation and spaces of experience. While research on the particularities of a single case may produce some insights, the full potential of such a phenomenological and temporally sensitive approach comes to the fore in comparative analysis. For illustrative purposes, we draw again on the two case studies of Monjukli Depe and the Eastern European steppe region.

Both of these landscapes consist of plains, one with mountains to the south, the other with the Black Sea as its limit. Both included stands of low-growing shrubs, in the case of Turkmenistan, mainly tamarisks, in the Eastern European, feather grass steppe. Both plains were also dotted with mounds. In southern Turkmenistan, some but not all of these mounds were topped by villages and, in later times, cities, while in the steppes of Eastern Europe, the mounds rose above a steppic environment of mobile camps and were not covered by large population agglomerations.

On a purely visual level, the difference between the two regions is not radical. The mounds were surely known to be related to human activities and may have had the status of place markers for orientation, whether purely geographic, group-related, or other. However, the initial practices that led to the emergence of these elevations above the plain were markedly different in the two regions. In the Eastern European steppes, the mounds were primarily the result of massive tomb constructions. As burial mounds, they were not necessarily built at one point in time and then left in the landscape as

48 Reinhold and Hofmann 2014.

49 Tilley 1994.

symbols of a deceased individual. Rather, they were frequented continuously, to add another grave or another layer of earth, therefore, increasing their height and size. Still, the initial construction and enhancement of such mounds were rare events in the long-term history of the European Steppe. In contrast, mounds in southern Turkmenistan developed gradually through the act of living there, constructing houses and other buildings out of mud and mud brick, and discarding rubbish. Over time, they became visible features, but they were not planned with that in mind. As topographic elevations in the landscape, they would have grown almost imperceptibly in terms of individuals' perspectives.

We might then ask, what was the 'horizon of expectations' connected to such mounds? To answer this question, we need to consider different moments in their history. At the point of building a *kurgan*, there was an expectation oriented towards the immediate future, namely to bury one or several people with grave goods and to erect a mound of earth on top. The design of such mounds led to expectations that they would have a shape and a height comparable to, greater, or less than other mounds. There was, thus, a relatively narrow horizon of expectations bound up with practical actions of erecting a grave mound. These actions relied on different scales of experience. On the one hand, people contributing to the construction must have had the necessary bodily, conceptual, and organizational skills to produce the mound. This may sound trivial, but when considering the placement of a burial within a mound, the decisions about how to organize the construction, the slope and the height, not to mention ritual actions that may have taken place alongside the physical labor, it is clear that such a task of communal labor was far from an easy endeavor.

In the realm of decisions over design, we encounter a different scale of experiential spaces. People in the Eastern European steppes were accustomed to a landscape of burial mounds, and the additional one they were erecting certainly included conceptual comparisons with others in the region: should a particular one be larger, flatter, or differently shaped? This matter also involved 'personalized time': the mound to be constructed was for one (or a select few) person(s), and the comparative scale included knowledge that other mounds originated in similar considerations and events. Thus, the space of experience included the notion that a mound stood for a person, even when the particulars of that person had been lost in the mists of time. Starting to produce a new mound must have set in motion an intense process of collective memory that led to the remembrance of individuals or ancestors who were entangled in a complex mounded landscape.

Mounds in the Eastern European steppe display a dimorphism of experiential time. A short-term horizon of construction time in which instrumental reason and know-how played the main role is clearly separate from a long-term horizon of expectations, in which a person-mound-complex will be remembered in the future. This adds a new

relation to an already complex network of materially symbolized landscape relations. Remembering, itself, belongs to the realm of experiences, and the erection of a mound may be described as a projected experience.

The mounded landscape in southern Turkmenistan is quite different in these respects. Mounds there did not emerge out of momentary actions, but rather from continuous quotidian practices that derived from the tradition of living in one place over generations. People who moved about in the strip of land between the Kopet Dag mountains in the south and the Karakum Desert to the north were surely aware of the fact that mounds of a certain shape were the result of human activities, mainly the construction and decay of houses, plus the accumulation of debris from daily life. They were the result of decades, if not generations, of life at one spot – whether those occupations were continuous or episodic. It is possible that the reason for their existence was the search for a safe spot against flooding. When houses dotted the top of an early Aeneolithic mound, it is likely that a visitor would have known whose they were, since recent analyses suggest that seasonal movements away from a settlement were of limited frequency and distance. An abandoned mound was a sign of leaving a living space, in contrast to the European Steppe example, in which a mound meant the occupation of a place (in death) by a specific individual or small number of individuals. An outsider's knowledge about a mound in southern Turkmenistan was most likely less explicitly discursive than in the Eastern European steppe: on the one hand, inhabitants were known not as buried individuals, but rather collective occupants and, on the other, it was a matter of course that the customary habit of living in one place would slowly create a mound. However, the sight of an uninhabited mound as opposed to an inhabited one would likely have led to a consideration of the reasons for abandonment.

The relations between moments of action and inaction at mounds in the Kopet Dag piedmont zone is the reverse of that in the Eastern European Steppe. Abandonment of a mound – halting its imperceptible daily growth – marks the beginning of a relatively steady, long-term state. Abandonment was the result of a move to a different place. At the time of a move, the concrete content of past actions and people associated with them at a particular place, likely involved an expectation of forgetting, but without a specific idea about when it would set in. At Monjukli Depe, where there are indications of a hiatus lasting some 800 years after the Neolithic occupation, this abandonment was, in experiential terms, an abandonment *forever*. No specific memories connected to individuals or events at the old place were likely to be associated with a re-occupation after such a long abandonment.

There must have been frequent encounters with a variety of abandoned mounds in the plains north of the Kopet Dag. They could have been accompanied by the knowledge that there was once a group that lived there, carrying out its quotidian practices, but most likely without more specific notions of who they were.

	Eastern European Steppe	Southern Turkmenistan
	A c t i o n	
Horizon of short-term expectations	Construction of mound (addition of layers, burials)	Abandonment of settlement mound
Long-term expectations	Remembrance of individuals or lineages	Quotidian recursive practices

Tab. 1 Different shapes of landscapes.

In comparison, the shape of landscapes, while not fundamentally different in these two regions, was likely dominated by a ‘political mapping’ of (in)equalities in the case of the Eastern European Steppe, and by a completely different ‘ecological mapping’ of dwelling safety in the case of southern Turkmenistan.

5 Summary

We started this paper with a discussion of the relationship of political ecology and resilience, in order to highlight the relevance of a differentiated understanding of temporalities for both of these approaches to space/time processes for past human societies. This entry point led us to argue for a comparative approach to temporalities in archaeology that takes the complexities of temporal scales, degrees of recurrence, and multiperspectivity into account. Our approach is not conducive to a systematic manner of dealing with temporalities in archaeology. Despite the fact that time is one of the most obvious and oldest pre-occupations of archaeology as a discipline, the complexities of various temporalities have yet to be dealt with adequately. Our goal here has been to show some of the problems that arise when attempting to give a nuanced account of (pre-)historic change, rather than providing clear solutions.

A question of major theoretical and empirical importance is how dispositions and the routines they engender – that which makes up the everyday lives of most people most of the time – change. Examples from southern Turkmenistan and the Eastern Eurasian steppes offer some first steps toward unraveling some of the ways in which such changes came about.

Bibliography

Bailey 1983

Geoff N. Bailey. "Concepts of Time in Quaternary Prehistory." *Annual Review of Anthropology* 12.1 (1983), 165–192.

Bailey 1987

Geoff N. Bailey. "Breaking the Time Barrier." *Archaeological Review from Cambridge* 6 (1987), 5–20.

Bailey 2007

Geoff N. Bailey. "Time Perspectives, Palimpsests and the Archaeology of Time." *Journal of Anthropological Archaeology* 26.2 (2007), 198–223.

Barth 1987

Fredrik Barth. *Cosmologies in the Making: A Generative Approach to Cultural Variation in Inner New Guinea*. Cambridge: Cambridge University Press, 1987.

Berkes, Colding, and Folke 2003

Fikret Berkes, Johan Colding, and Carl Folke. "Introduction." In *Navigating Social Berkes-Ecological Systems: Building Resilience for Complexity and Change*. Cambridge: Cambridge University Press, 2003, 1–30.

Bernbeck, Cubasch, et al. 2016

Reinhard Bernbeck, Ulrich Cubasch, Anton Gass, Elke Kaiser, Hermann Parzinger, Susan Pollock, Joanne Rowland, Emmanuele Russo, Wolfram Schier, and Geoffrey Tassie. "Notes for a Political Ecology of Non-Sedentary People." *Space and Knowledge. Topoi Research Group Articles. eTopoi. Journal for Ancient Studies* Special Volume 6 (2016), 45–73.

Bernbeck and Pollock 2016

Reinhard Bernbeck and Susan Pollock. "Scalar Differences: Temporal Rhythms and Spatial Patterns at Monjukli Depe, Southern Turkmenistan." *Antiquity* 90.349 (2016), 64–80.

Beymer-Farris, Bassett, and Bryceson 2012

Betsy A. Beymer-Farris, Thomas J. Bassett, and Ian Bryceson. "Promises and Pitfalls of Adaptive Management in Resilience Thinking: The Lens of Political Ecology." In *Resilience and the Cultural Landscape: Understanding and Managing Change in Human-Shaped Environments*. Ed. by T. Plieninger and C. Bieling. Cambridge: Cambridge University Press, 2012, 283–299.

Brown 2014

Katrina Brown. "Global Environmental Change I: A Social Turn for Resilience." *Progress in Human Geography* 38 (2014), 107–117.

Egbers 2019

Vera Egbers. "The House as Process. A Biography of Building 10 in Monjukli Depe." In *Looking Closely. Excavations at Monjukli Depe, Turkmenistan, 2010–2014, Volume I*. Ed. by S. Pollock, R. Bernbeck, and B. Ögüt. Leiden: Sidestone Press, 2019, 107–132.

Fabian 1983

Johannes Fabian. *Time and the Other: How Anthropology Makes Its Object*. New York: Columbia University Press, 1983.

Fischer-Kowalski, Mayer, and Schaffartzik 2011

Marina Fischer-Kowalski, Andreas Mayer, and Anke Schaffartzik. "Zur sozialmetabolischen Transformation von Gesellschaft und Soziologie." In *Handbuch Umweltsoziologie*. Ed. by M. Groß. Wiesbaden: Verlag für Sozialwissenschaften, 2011, 97–119. DOI: https://doi.org/10.1007/978-3-531-93097-8_5.

Fischer-Kowalski and Weisz 2005

Marina Fischer-Kowalski and Helga Weisz. "Society as Hybrid between Material and Symbolic Realms: Toward a Theoretical Framework of Society Nature Interaction." In *New Developments in Environmental Sociology*. Ed. by M. R. Redcliff and G. Woodgate. Cheltenham and Northampton: Edward Elgar, 2005, 113–149.

Folke 2006

Carl Folke. "Resilience: The Emergence of a Perspective for Social–Ecological Systems Analyses." *Global Environmental Change* 16.3 (2006), 253–267. DOI: DOI:10.1016/j.gloenvcha.2006.04.002.

Gerling 2015

Claudia Gerling. *Prehistoric Mobility and Diet in the West Eurasian Steppes 3500 to 300 BC. An Isotopic Approach*. Topoi Berlin Studies of the Ancient World 25. Berlin and Boston: De Gruyter, 2015.

Goffman 1974

Erving Goffman. *Frame Analysis: An Essay on the Organization of Experience*. London: Harper & Row, 1974.

Haber 2016

Alejandro Haber. "Decolonizing Archaeological Thought in South America." *Annual Review of Anthropology* 45 (2016), 469–485.

Hamilakis 2013

Yannis Hamilakis. *Archaeology and the Senses: Human Experience, Memory, and Affect*. Cambridge: Cambridge University Press, 2013.

Hamilakis and Anagnostopoulos 2009

Yannis Hamilakis and Aris Anagnostopoulos. "What is Archaeological Ethnography?" *Public Archaeology* 8.2-3 (2009), 65–87. DOI: <https://doi.org/10.1179/175355309X457150>.

Heit 2019

Ilia Heit. "Chronological Modeling for Monjukli Depe and the Kopet Dag Region." In *Looking Closely. Excavations at Monjukli Depe, Turkmenistan, 2010–2014, Volume I*. Ed. by S. Pollock, R. Bernbeck, and B. Ögüt. Leiden: Sidestone Press, 2019, 81–106.

Ingalls and Stedman 2016

Micah L. Ingalls and Richard C. Stedman. "The Power Problematic: Exploring the Uncertain Terrains of Political Ecology and the Resilience Framework." *Ecology and Society* 21.1 (2016), 6. DOI: <http://dx.doi.org/10.5751/ES-08124-210106>.

Kaiser 2010

Elke Kaiser. "Der Übergang zur Rinderzucht im nördlichen Schwarzmeerraum." *Godišnjak. Centar za balkanološka ispitivanja* 39 (2010), 23–34.

Keßeler 2019

Arnica Keßeler. "The Spindle Whorls from Monjukli Depe." In *Looking Closely. Excavations at Monjukli Depe, Turkmenistan, 2010–2014, Volume I*. Ed. by S. Pollock, R. Bernbeck, and B. Ögüt. Leiden: Sidestone Press, 2019, 353–376.

Knapp 1992

Arthur Bernard Knapp. "Archaeology and Annals: Time, Space, and Change." In *Archaeology, Annals, and Ethnohistory*. Cambridge: Cambridge University Press, 1992, 1–21.

Koselleck 1985

Reinhart Koselleck. *Futures Past: On the Semantics of Historical Time*. Studies in Contemporary German Social Thought. Cambridge, MA: MIT Press, 1985.

Kull and Rangan 2016

Christian A. Kull and Haripriya Rangan. "Political Ecology and Resilience: Competing Interdisciplinaryities?" In *Interdisciplinarités entre Natures et Sociétés Colloque de Cerisy*. Ed. by B. Hubert and N. Mathieu. EcoPolis, 26. Éditions Scientifiques Internationales. Brussels: P.I.E. Peter Lang, 2016, 71–87.

Lucas 2005

Gavin Lucas. *The Archaeology of Time*. Themes in Archaeology. London and New York: Routledge, 2005.

Merpert 1974

Nikolai Ya. Merpert. *Drevneishie skotovody Volzsko-Uralskogo mezhdurechya*. Moscow: Nauka, 1974.

Mileto 2018

Simona Mileto. *Diet and Subsistence Practices in the Dnieper Area of the North-Pontic Region (4th–3rd Millennium Bc): An Integrated Archaeological, Molecular and Isotopic Approach*. Dissertation. Freie Universität Berlin. 2018. URL: <https://refubium.fu-berlin.de/handle/fub188/23116>.

Müller-Karpe 1982

Hermann Müller-Karpe. *Neolithische Siedlungen der Dzejtun-Kultur in Süd-Turkmenistan*. Munich: C. H. Beck, 1982.

Nikolova and Kaiser 2009

Alla V. Nikolova and Elke Kaiser. "Die absolute Chronologie der Jamnaja-Kultur im nördlichen Schwarzmeergebiet auf der Grundlage erster dendrochronologischer Daten." *Eurasia Antiqua* 15 (2009), 205–236.

Rassamakin 1999

Yuri Ya Rassamakin. "The Eneolithic of the Black Sea Steppe: Dynamics of Cultural and Economic Development 4500–2300 BC." In *Late PreHistoric Exploitation of the Eurasian Steppe*. Ed. by M. Levine, Y. Rassamakin, A. Kislenco, and N. Tatarintseva. McDonald Institute Monographs. Oxford: McDonald Institute for Archaeological Research, 1999, 59–182.

Rassamakin 2004

Yurij Ya Rassamakin. *Die nordpontische Steppe in der Kupferzeit. Gräber aus der Mitte des 5. Jts. bis Ende des 4. Jts. v. Chr.* Archäologie in Eurasien 17. Mainz: Philipp von Zabern, 2004.

Reinhold and Hofmann 2014

Sabine Reinhold and Kerstin Hofmann. "Zeichen der Zeit. Archäologische Perspektive auf Zeiterfahrung, Zeitpraktiken und Zeitkonzepte." *Forum Kritische Archäologie* 3 (2014), 17–150.

Robb and Pauketat 2013

John Robb and Timothy Pauketat. "From Moments to Millennia: Theorizing Scale and Change in Human History." In *Big Histories, Human Lives: Tackling Problems of Scale in Archaeology*. Advanced Seminar Series. Santa Fe: School of Advanced Research Press, 2013, 3–34.

Rol 2019

Nolwen Rol. "Dealing with the Dead in Aeneolithic Monjukli Depe: Norms and Handlungsräume in Burial Practices." In *In Looking Closely. Excavations at Monjukli Depe, Turkmenistan, 2010–2014, Volume I*. Ed. by S. Pollock, R. Bernbeck, and B. Ögüt. Leiden: Sidestone Press, 2019, 213–264.

Schönicke 2019

Julia Schönicke. "The Pottery from Monjukli Depe and its Visual Affordance." In *In Looking Closely. Excavations at Monjukli Depe, Turkmenistan, 2010–2014, Volume I*. Ed. by S. Pollock, R. Bernbeck, and B. Ögüt. Leiden: Sidestone Press, 2019, 289–351.

Shanks and Tilley 1987

Michael Shanks and Christopher Tilley. *Reconstructing Archaeology: Theory and Practice*. Cambridge: Cambridge University Press, 1987.

Smith 1992

Michael E. Smith. "Braudel's Temporal Rhythms and Chronology Theory in Archaeology." In *Archaeology, Annales, and Ethnohistory*. Ed. by A. B. Knapp. Cambridge: Cambridge University Press, 1992, 223–234.

Steadman 2019

Dawnie Steadman. "Looking Closely. Excavations at Monjukli Depe, Turkmenistan, 2010–2014, Volume I." In *Demography and Pathology at Monjukli Depe*. Ed. by S. Pollock, R. Bernbeck, and B. Ögüt. Leiden: Sidestone Press, 2019, 265–288.

Telegin 1986

Dmitry Ya. Telegin. *Dereivka. A Settlement and Cemetery of Copper Age Horse Keepers on the Middle Dnieper*. Ed. by J. P. Mallory. British Archaeological Reports International Series 287. Oxford: BAR, 1986.

Teufer 2013

Mike Teufer. "Vom Grab als Totenhaus zum 'Haus des Lobliedes' im Jenseits. Überlegungen zum Aufkommen des Zoroastrismus aus archäologischer Sicht." In *Zwischen Ost und West. Neue Forschungen zum antiken Zentralasien. Wissenschaftliches Kolloquium 30.9.–2.10.2009 in Mannheim*. Ed. by G. Lindström, S. Hansen, A. Wiczorek, and M. Tellenbach. Archäologie in Iran und Turan 14. Darmstadt: Philipp von Zabern, 2013, 1–41.

Thomas 1996

Julian Thomas. *Time, Culture, and Identity: An Interpretative Archaeology*. New York: Psychology Press, 1996.

Tilley 1994

Christopher Tilley. *A Phenomenology of Landscape: Places, Paths and Monuments*. Explorations in Anthropology. Oxford: Berg, 1994.

Turner 2014

Matthew D. Turner. "Political Ecology I: An Alliance with Resilience?" *Progress in Human Geography* 38 (2014), 616–623. DOI: <https://doi.org/10.1177/0309132513502770>.

Whittle, Bayliss, and Healy 2011

Alasdair Whittle, Alex Bayliss, and Frances Healy. "Gathering Time: The Social Dynamics of Change." In *Gathering Time. Dating the Early Neolithic Enclosures of Southern Britain and Ireland*. Ed. by A. Whittle, F. Healy, and A. Bayliss. Oxford: Oxbow Books, 2011. Chap. 15, 848–914.

Illustration and table credits

ILLUSTRATIONS: 1 Authors.

TABLES: 1 Authors.

REINHARD BERNBECK

is a professor at the Freie Universität Berlin whose previous positions include faculty posts at Binghamton University and Bryn Mawr College. His research interests include the late Neolithic in the Near East; maintenance of social equality and formation of hierarchies; structural comparison of earlier and modern empires; and connections between ideology, politics, and archaeology and archaeology of modern times. He has excavated in Turkey, Iran, Turkmenistan, Jordan, Palestine, Syria and Germany.

Prof. Dr. Reinhard Bernbeck
Institut für Vorderasiatische Archäologie
Fabeckstr. 23–25
14195 Berlin, Germany
E-Mail: rbernbec@zedat.fu-berlin.de

ILIA HEIT

M.A. (Mainz 2013), is currently a PhD student and formerly PhD fellow of the Excellencecluster Topoi at the Freie Universität Berlin. His current research interests include early village societies in the Circum-Caspian region and Central Asia, Soviet archaeology, time concepts, and Bayesian chronological models in archaeology.

Ilia Heit, M.A.
Freie Universität Berlin
Institut für Vorderasiatische Archäologie
Fabeckstr. 23–25
14195 Berlin, Germany
E-Mail: iliaheit@zedat.fu-berlin.de

ELKE KAISER

Dr. Phil. (Berlin 2000), Habilitation (Berlin 2013), is a professor at the Institute of Prehistoric Archaeology at the Freie Universität Berlin. Her current research interests include western Eurasia, southeast Europe, the Neolithic, the Bronze Age, settlement archaeology, and bioarchaeology.

Prof. Dr. Elke Kaiser
Freie Universität Berlin
Institut für Prähistorische Archäologie
Fabeckstr. 23–25
14195 Berlin, Germany
E-Mail: ekaiser@zedat.fu-berlin.de

SUSAN POLLOCK

received her PhD at the University of Michigan and is currently professor at the Freie Universität Berlin. Her current research interests include studies of commensality in early state and urban societies in Mesopotamia; politics, archaeological praxis, and knowledge production; feminist research in archaeology; and the development and transmission of *Kulturtechniken* in early village societies. She has conducted field research in Turkmenistan, Iran, Iraq, Palestine, Turkey and Germany.

Prof. Dr. Susan Pollock
Freie Universität Berlin
Institut für Vorderasiatische Archäologie
Fabeckstr. 23–25
14195 Berlin, Germany
E-Mail: spollock@zedat.fu-berlin.de

JOANNE ROWLAND

(PhD London 2004) conducted Egyptological post-doctoral at the University of Oxford (2006–2009). From 2009–2010 she served as a scientific collaborator in the Royal Museums of Art and History, Brussels and as co-director of the excavations in Elkab in Upper Egypt. She has been a junior professor in Egyptian archaeology at the Freie Universität Berlin and is Lecturer in Archaeology since 2016 at the University of Edinburgh.

Dr. Joanne Rowland
School of History, Classics, and Archaeology
Room 00M.21, Old Medical School
William Robertson Wing, Teviot Place
Edinburgh EH8 9AG, Great Britain
E-Mail: Joanne.Rowland@ed.ac.uk

EMMANUELE RUSSO

holds a Masters degree in physics (Università degli Studi di Catania, 2012) and a PhD from the Freie Universität Berlin. He currently has a PostDoc research position at the Oeschger Centre for Climate Change Research at Universität Bern, Switzerland. His current research interests include: Holocene climate and ecological changes and regional climate and ecological modeling.

Dr. Emmanuele Russo
Universität Bern
Oeschger Centre for Climate Change Research
Sidlerstraße 5
3012 Bern, Switzerland
E-Mail: emmanuele.russo@climate.unibe.ch

WOLFRAM SCHIER

Dr. phil. (University of Munich, 1985), Professor and director of Institute of Prehistoric Archaeology at the Freie Universität Berlin, previously Professor at Bamberg and Würzburg University. Current research: Neolithic and Copper age in central and southeastern Europe, settlement and landscape studies, experimental and economic archaeology with special interest in early agriculture. Field research in Romania and Germany.

Prof. Dr. Wolfram Schier
Freie Universität Berlin
Institut für Prähistorische Archäologie
Fabeckstr. 23–25
14195 Berlin, Germany
E-Mail: wschier@zedat.fu-berlin.de

GEOFFREY TASSIE

Geoffrey Tassie (†2019), PhD (UCL 2009), was a research fellow in the TOPOI Excellence Cluster. He served as a lecturer at the University of London and associate lecturer and honorary research fellow at the University of Winchester. He was working on the prehistoric and early historic displays at the Grand Egyptian Museum, Cairo, from 2018 until his passing. His last research project was *The Naqada Regional Archaeological Survey and Site Management Project*.

Dr. Geoffrey J. Tassie †
(1959–2019)