Bridging the Gap:
Disciplines, Times, and Spaces in Dialogue

Volume 1

Sessions 1, 2, and 5 from the Conference Broadening Horizons 6 Held at the Freie Universität Berlin, 24–28 June 2019

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Foreword

These volumes represent the proceedings of the conference Broadening Horizons 6, hosted by the Institute for Ancient Near Eastern Studies and the Institute for Near Eastern Archaeology at the Freie Universität Berlin from 24–28 June 2019. Taking the long-standing partnership of the two institutes and the multidisciplinary tradition of Ancient Studies in Berlin as inspiration, the general theme of 'Bridging the Gap' was chosen to encourage approaches to the study of the Ancient Near East which transcend traditional disciplinary boundaries in bringing a range of evidence and methods into dialogue.

The Berlin conference was fortunate to include over 100 papers presented by participants from over 22 countries and 70 universities. These were divided into eight thematic sessions, each framed by an introductory keynote. Since its first incarnation at the University of Ghent in 2006, Broadening Horizons has developed into a regular venue for young scholars in the field. In many respects, it remains the only conference of its kind, taking both 'ancient' and 'Near East' in the broadest sense possible, from the prehistoric to the Islamic periods. It is a particular point of pride that the conference is not confined by field, but remains open to any philological, archaeological, and methodological approaches to the material. As a conference for and organized by young scholars, it thus provides a uniquely wide snapshot of current work.

Berlin was chosen as a venue for Broadening Horizons 6 by the members of the Organizing Committee of the previous conference that took place in Udine in 2017, and to whom we are grateful. In agreement between the two committees and in the spirit of international cooperation, the organization of the conference in Berlin also included members of the preceding one. We are happy to express our enormous thanks to the institutions and persons without whose support the conference, and these proceedings, would not have been possible. Funding for the conference was provided by the German Research Foundation (DFG), the Office of International affairs of the Freie Universität Berlin, and the Ernst-Reuter Gesellschaft. The university's administration and staff, the Department of History and Cultural Studies, Prof. Dominik Bonatz (Institute for Near Eastern Archaeology), and Prof. Jörg Klinger (Institute for Ancient Near Eastern Studies) all provided generous logistic and administrative support during the organization and the conference itself. Rana Zaher designed our brilliant logo, which contributed greatly both to conference identity and now the cover of these volumes. Members of our Scientific Committee, some of whom joined us during the conference, provided generous advice and encouragement.

The smooth and timely flow of the individual sessions was largely due to the tireless efforts of the numerous student assistants and session chairs. It is only fitting that we mention here explicitly the catering and hosting offered by Cosimo Dalessandro and the Ristorante Galileo, which has long since become an institution of its own within the Freie Universität Berlin, and which kept the breaks of the conference amply supplied with coffee and refreshments. The conference's opening and closing events hosted at the Museum Europäischer Kulturen (MEK) by EßKultur provided the ideal setting for social interaction and exchange.

These volumes were only possible due to the perseverance of the participants who submitted their contributions despite the closure of libraries, difficulties in accessing resources, and the many hardships

the pandemic imposed on our lives in 2020 and 2021. Our thanks are due especially for their heroic efforts in the timely submission of their papers during a most difficult year. We also express our sympathy and understanding to those who decided to withdraw their papers as a result of the imposed limitations. Finally, we are especially grateful to the many referees who graciously agreed to donate their time and efforts to the reviews, even as their crucial contributions remain anonymous.

Costanza Coppini
Georg Cyrus
Hamaseh Golestaneh
Christian W. Hess
Nathalie Kallas
Federico Manuelli
Rocco Palermo

Berlin, 18 July 2021

Introduction

Christian W. Hess and Federico Manuelli

The first volume of the proceedings of the conference 'Broadening Horizons 6 — Bridging the Gap: Disciplines, Times, and Space in Dialogue' gathers the papers presented in three sessions: Session 1 — Entanglement. Material Culture and Written Sources in Dialogue; Session 2 — Integrating Sciences in Historical and Archaeological Research; Session 5 — Which Continuity? Evaluating Stability, Transformation, and Change in Transitional Periods. The range of topics covered here is certainly bewildering, and leaves us shuttling across vast periods and regions, from Neolithic Göbekli Tepe to the ink recipes of medieval Arabic manuscripts. At the core of each session and paper, however, is not only the overt confrontation with methodology in dealing with the evidence, but the need for multiple, intersecting methodologies in order to interpret that evidence in any meaningful sense.

The 'entanglement' of Session 1 takes as its starting point the complicated dependences and dependencies of things, most famously brought to the fore again by Ian Hodder.[1] More concretely, the papers in the session all to some degree address how and whether the 'thinginess' of objects and of texts relate. Augusta McMahon's keynote ('Tamed Violence: Inscribed Weapons in Mesopotamia') moves beyond Hodder's entanglement to design-theory and Malafouris' material-engagement theory to analyze how inscription and figurative imagery might serve to change the affordances of an object.[2] Both contribute to a shift from brutally violent practicality to tamed symbolic piety.

While McMahon's keynote advances our understanding of text-and-object, two papers of the session focus on text-and-architecture. Juan Álvarez Garcia ('*La Maison d'Urtenu*. A Functional Study of a "Great House" from Ugarit') gives a brief overview of how the architecture and archives of the 'House of Urtenu' at Ugarit might contribute to a better understanding of the archives within the context of Late Bronze Age political and mercantile networks. Giampiero Tursi's 'Protecting the Residence' also adds color into the mix. Despite the hybrid Egyptian-Canaanite nature of the architecture at Beth-Shean, inscription, blue pigmentation, and imagery combine to turn an administrative complex into a powerful symbol of Egyptian rule. Texts and objects also combine to show how art is produced by and circulates within ('art of' vs. 'art in') the Achaemenid Empire in Zohreh Zehbari's 'On the Participation of Egyptian Artists in Achaemenid Art'. In side-stepping the thorny correlation of ethnic affiliation and stylistic traits, Zehbari combines evidence from objects and inscriptions to demonstrate the major role played by Egyptian craftsmen in the 'performance' of art in the Achaemenid heartland.

Session 2 reflects Ancient Near Eastern Studies' ever-expanding toolkit to include both the digital and natural sciences. There is no doubt that in all fields of study, the scale of hard data available has become overwhelming. In Jerome McGann's apt formulation, we have long since come to the point of 'drinking information from a fire hose'.[3] Nowhere is this more apparent than in Caroline Waerzegger's review of the history of prosopography in her keynote address on 'Digital Prosopography of Babylonia.' Both

[1] Hodder 2012.
[2] Malafouris 2013.
[3] McGann 2014, 15.

the philological tyro and the experienced scholar reading through the thousands of texts available inevitably come back to the basic question: 'Who are all those people?'[4] Waerzegger's use of network analysis neatly joins the individual to the collective, showing along the way how we might finally move away from lists of names and persons towards a robust integration of prosopographical data into socio-economic research.[5]

Some of the most innovative work today is being carried out in graduate and post-doctoral projects. Both Hassan el-Hajj and Felix Wolter argue for the use of digital imagery at various scales to deal with information either inaccessible or invisible to other methods. The methods of el-Hajj's 'Monitoring Damage to Cultural Heritage Sites Using Open Source Sentinel-1 and Sentinel-2 Data' employ Very High Resolution (VHR) satellite imagery as a monitoring tool for the urgent problem of site disturbances and destruction. While destructive events have an obviously major impact on heritage sites, the effect of other natural and anthropogenic processes can be more subtle, and easily slip under the radar. Both the well-known, tragic destruction of Palmyra, which has rightly been the focus of so much attention, and the lesser known site of Qornet ed-Deir in Lebanon serve as test cases for the method. Felix Wolter, in turn, uses 3D photogrammetry ('3D Imagery for On-Site Assessment of Mud Brick Architecture') at the site of Girdi Shamlu, not only as a product of final documentation, but as a constant tool for site evaluation during the excavation process. The camera takes its place alongside the trowel in the excavator's toolbox.

Ghias Klesly's paleobotanic comparison ('Ancient Agriculture in Early Bronze Age Northern Mesopotamia Reconstructed from Archaeobotanical Remains') brings us back to the laboratory microscope for a reconstruction of natural and agricultural environments of three Early Bronze Age sites in Syria. Carolin Dittrich and Eva Götting-Martin's paper ('Green Frog in the Water. A herpetological approach to the magico-medical use of frogs and frog-amulets in Mesopotamia') successfully integrates textual and figurative representations of frogs in order to bring fresh light on their manifold use in ancient Mesopotamian medicine and rituals. Chemical analysis is the focus of both Negar Abdali's ('An Overview of the Achaemenid Glazed Architectural Decoration') overview of colors and glazing techniques in the Achaemenid period and of Claudia Colini's 'Ink Recipes from the Islamic Era,' which puts the ink recipes found in Arabic manuscripts to a rigorous scientific test. Where the recipes or glazes feed into discussions of social and historical movement, as in the posited Babylonian influences on glaze production at Tol-e Ajori or of common manuscript practices in the Islamic world, both papers highlight that not all glazes and inks are equal. The details of chemical composition and production are directly relevant. Together, the papers of the session give a real sense that the integration of the sciences, both digital and natural, is no longer a scholarly outlier, but has fast become an integral part of the field.

Marcella Frangipane's keynote address to Session 5 elegantly frames one of the core issues of Ancient Near Eastern historiography. Long-term evolutionary narratives tend to lurch from immutable period to period, separated by 'transitional phases' where everything is in flux. But not all changes are equal. As Frangipane argues, historical and cultural breaks so often remain elusive because abrupt shifts themselves are the exception and not the rule. The keynote equally serves as a call to arms for a rigorous identification and documentation of contexts in stratigraphic succession in order to re-evaluate these shifts.

These conclusions are nicely reflected in Jesse Millek's overview ('Dual Narratives: Collapse and Transition at the End of the Late Bronze Age') of how much of the evidence from the Late Bronze Age in

[4] Renger 1973.

[5] Every researcher is invited to apply the method herself: Seire 2020 provides a basic introduction to constructing datasets for the technologically unitiated, using the open data provided by the project.

Syria and the Levant defies a clean historical narrative of catastrophic collapse, or in Lodeiro's summary of the historical development of Tarḫuntašša as a center within the Hittite Empire ('Tarḫuntašša: Rise and Fall of the New Capital for the Hittite Empire'). Moreover, the article by Mariacarmela Montesanto ('Do Not Fear the Dark: Change and Continuity in the Amuq Valley') offers further insights into the Late Bronze-Iron Age transition at the sites of Alalakh and Sabuniye through an overview of their pottery repertoires.

Even in periods of considerable change, as in the Hellenistic period, where Ancient Near Eastern Studies has traditionally resigned its purview, transitions rarely mean a break. Stefanos Karampekos' study of house forms attested in Hellenstic settlements ('A Possible Neo-Babylonian House-Type for the New Seleucid Foundations?') highlights their debt to older prototypes. The paper by Julia Schönicke ('There and Back Again — Towards a New Understanding of Abandonment Practices at the Neolithic Settlement of Göbekli Tepe') also leads us back to the themes of Session 1. Even as 'entanglement' remains a theme, what about 'disentanglement', the long divorce of occupation from site? Exactly the sort of rigorous attention to stratigraphic context called for by Frangipane here provides conclusive evidence against a sudden 'ritual back-filling' during abandonment and for a continuous re-building of structures.

So much for the overview, which can hardly due justice to the variety and depth promised by the keynotes and the contributions by so many young scholars in the field. Here, the reader is invited to peruse the papers herself.

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There and Back Again — Towards a New Understanding of Abandonment Practices at the Neolithic Settlement of Göbekli Tepe

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Abstract

Göbekli Tepe is well-known for its monumental buildings with anthropomorphic T-shaped pillars, decorated with reliefs of wild animals which have been featured prominently in earlier works. The abandonment which occurred some 1500 years after the initial occupation of the site, however, remains virtually unexplored. This paper attempts to reconstruct abandonment practices and routines within and parallel to phases of occupation. A crucial source of data for the abandonment of Göbekli Tepe is provided by considerations relating to site formation, including the topography of the site with its mounds, steep slopes, and hollows where strong winter rainfalls potentially favoured erosional processes. I clearly oppose the widespread yet outdated interpretation of 'ritual backfilling' of the monumental buildings. Instead, I propose that the inhabitants of the Neolithic settlement were strongly intertwined with their landscape and built environment, which is reflected by the continuous re-building of structures as a response to slope slide events, the use of ruins for extracting recycled building material, and the creation of memory spaces by following a specific habitus. I argue that by applying microarchaeological approaches and the social sphere of 'detachment from place' the heterogeneity of settlement layout can be reconstructed by including the engagement of ancient people with ruins, abandonment, and memory.

Keywords

Pre-Pottery Neolithic, Microarchaeology, Intra-Site Abandonment, Detachment from Place, People-Ruin Interactions

Introduction

The long-term process known as neolithization is one of the most discussed transformations in Western Asian archaeology and beyond. In South-Eastern Anatolia, the Pre-Pottery Neolithic A and B hilltop settlement Göbekli Tepe (*c.* 9500–8000 calBCE), which spans nine hectares, is an outstanding example for these changes, since its inhabitants lived exclusively from foraging and hunting.[1] For the past twenty-five years, excavations have been carried out at Göbekli Tepe and research is still ongoing. It was assumed that the appearance of domesticated plants and animals was one of the main reasons for

[1] For the chronology at the site see Clare 2020; Kinzel and Clare 2020; Dietrich 2011; Dietrich *et al.* 2013.

the abandonment of Göbekli Tepe.[2] However, since the uppermost layer of the site is scarcely studied and severely eroded, this is a subject for future research. In order to trace abandonment processes and the associated daily practices of the inhabitants, the following presents an intra-site, small-scale study of selected settlement spaces embedded in the theoretical discourse of 'detachment from place'.[3]

From settlement abandonment to detachment from place — a theoretical approach

An indispensable part of mobility and change is to leave things behind — to abandon them. The discourse on how to interpret what is left in the archaeological record has challenged archaeologists since the beginning of the discipline and led to entrenched discussions in the fields of processual, behavioural, and post-processual archaeology as well as in anthropology.

Formal processual approaches interpret the archaeological record as a representation of the 'structure of the total cultural system', as Lewis Binford stated in the 1960s.[4] Hence, activities of ancient communities and their material remains leave a 'fossil record' behind that can be interpreted by analysing spatial artefact clusters.[5]

The view of Binford was heavily criticised in the 1970s and thereafter by Michael Schiffer, who defines site formation processes as crucial factors that inevitably affect the archaeological record.[6] His work is fundamentally influenced by the ethnoarchaeological research of Robert Ascher,[7] who suggested that the temporal scale ('time's arrow') heavily influences the state of preservation of the archaeological record and is therefore to be seen as part of taphonomic processes.[8] According to Schiffer, archaeological context is created during the process in which activity areas, structures, or entire settlements are abandoned.[9]

From the 1990s onwards, numerous ethnoarchaeological and archaeological studies were carried out that focused on different scales of abandonment and on the material patterns that abandonment practices leave in the archaeological record.[10] In Catherine Cameron and Steve Tomka's influential publication, Cameron states that all archaeological sites are in fact abandoned.[11] It is the different ways in which the abandonment took place that have to be examined. These ways are referred to as 'abandonment processes', which she defines as 'the activities that occur during abandonment' that 'condition the entry of cultural material into the archaeological record'.[12] Steve Tomka and Marc Stevenson add that the factors that condition abandonment processes, such as environment, technology, and social-cultural circumstances, set the frame for the interpretation of site abandonment.[13] Almost twenty years

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[2] Schmidt 2016, 255.

[3] This paper contains preliminary results of my ongoing dissertation project 'All places are temporary places' – Praktiken des Verlassens und Auflassungsroutinen in der neolithischen Siedlung Göbekli Tepe (working title)' embedded in the PhD program 'Landscape Archaeology and Architecture' of the Berlin Graduate School of Ancient Studies (BerGSAS) at the Institute for Near Eastern Archaeology, Freie Universität Berlin.

[4] Binford 1962, 217.

[5] Binford 1964, 425.

[6] Schiffer 1972, 156.

[7] Ascher 1968.

[8] Schiffer 1996, 8.

[9] Schiffer 1996, 89.

[10] Cameron and Tomka 1993; Inomata and Webb 2003; Nelson and Hegmon 2001; Nelson and Schachner 2002.

[11] Cameron and Tomka 1993; but cf. Lamoureux-St-Hilaire and Macrae 2020b, 4.

[12] Cameron 1993, 3, see also Lamoureux-St-Hilaire *et al.* 2015, 550.

[13] Tomka and Stevenson 1993, 191.

later, the focus of abandonment studies has moved again towards the examination of broader social phenomena, such as the dynamics of mobility and migration, ritual practices, and resilience.[14]

In order to examine the reasons why people abandon places and how their decisions were made, recent research in the archaeology of settlement abandonment has dealt with people-place disentanglement, which involves 'migration and resettlement, and inquires into the dynamic relationship between people and their landscapes before, during, and after abandonment'.[15] These studies are concerned with a concept called 'detachment from place'.[16] The approach analyses the complex decisions people make for leaving places embedded in both social and landscape interactions.[17] Accordingly, the main research shifted from the study of formation processes as the main tool for examining abandonment processes to post-processual approaches by engaging 'with ancient people's decision-making regarding place-making and place-leaving'.[18]

Following Catherine Cameron's concept of scales of detachment, detachment from place comprises scalar and temporal aspects which reach from activity areas to structures within occupied areas (intra-site scale), to settlements, to entire regions or landscapes (regional scale).[19] These scales of detachment, in turn, can be distinguished between episodic, seasonal, or permanent abandonment, all of which can be planned or unplanned.[20] However, Cameron implies that these scales affect 'decision making regarding leaving, the ways in which migrants leave, and post-abandonment interactions with the place'.[21] Furthermore, the decisions people make when it comes to detaching from place are intertwined with the underlying reasons. Changing ecological conditions and climate catastrophes are often considered to be main motivations for leaving and are used as hypothetical scenarios to suggest collapse and disaster mindsets, which lead to final abandonment scenarios.[22] Recently, researchers have addressed social issues that are concerned with the transformation of communities and spaces, the reuse of formerly abandoned places, and the interactions of 'abandoners' with their home communities.[23] Hence, this research asks where people went to once they abandoned a place, and whether the individuals and communities perceived detaching from place in similar or different ways to one another.[24] When people remain both physically and spiritually connected to places, the concept of 'abandonment' becomes permeable and functions more as an archaeological term rather than describing social phenomena.[25]

The frame of my dissertation project embeds intra-site abandonment and gradual abandonment routines, which are still underrepresented in the discourse on detachment from place.[26] I say explicitly 'routines', by which I mean repetitive, often unquestioned, and unconscious practices with a fixed rhythm that makes them into events with some predictability. This runs against much of the literature which considers 'abandonment' as a singular or final event. My aim is to highlight the detachment practices and routines people developed within a settlement that was occupied for more than 1500 years. Additionally, I am interested in the ways in which the inhabitants of Göbekli Tepe dealt with periodic

[14] Lamoureux-St-Hilaire and Macrae 2020a; Edwards 2017; McAnany *et al.* 2016; Glowacki 2015; Sullivan *et al.* 2008.
[15] Lamoureux-St-Hilaire and Macrae 2020b, 5; for entanglement and disentanglement see Hodder 2016.
[16] Lamoureux-St-Hilaire and Macrae 2020a.
[17] Cameron 2020, 178.
[18] Cameron 2020, 180.
[19] Cameron 2020, 180; 1993, 3.
[20] Brooks 1993, 178.
[21] Cameron 2020, 180.
[22] Cameron 1993, 3.
[23] Lamoureux-St-Hilaire and Macrae 2020b, 6.
[24] Cameron 2020, 179.
[25] In the context of Mesa Verde, Donna Glowacki points out that Pueblo people do not perceive their landscape as 'abandoned'; see Glowacki 2020, 44.
[26] Lamoureux-St-Hilaire *et al.* 2015, 551.

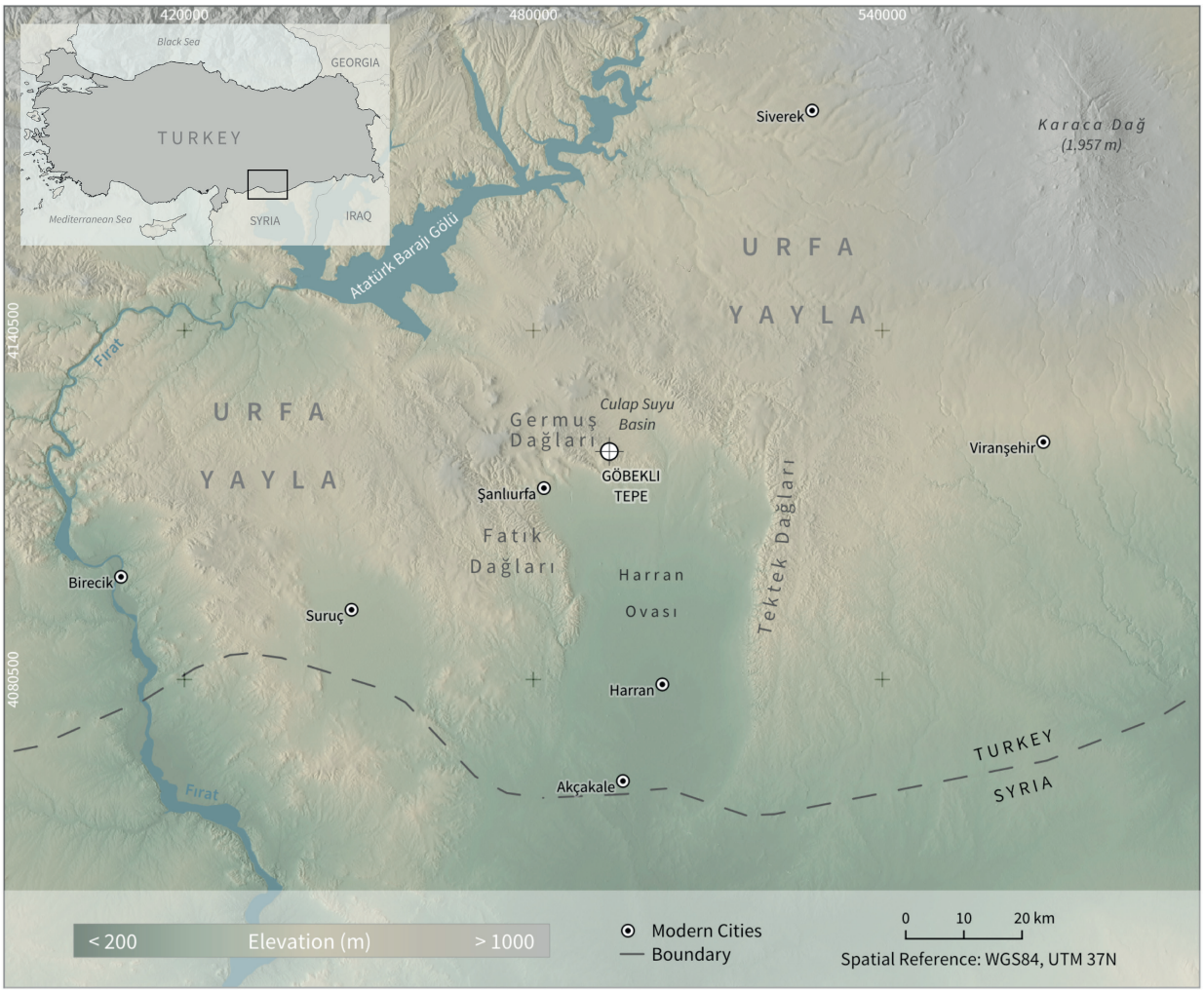

Figure 1: *Overview map with main topographic features showing the geographic setting of Göbekli Tepe (Knitter* et al*. 2019, Fig. 1, with permission).*

destruction of their settlement; how abandoned areas within the settlement were connected to their daily practices; and how memory spaces in their built environment were created, since detachment from place and memory are deeply intertwined.[27] According to Pierra Nora, memory spaces or *lieux de memoire* are 'simple and ambiguous, natural and artificial, at once immediately available in concrete sensual experience and susceptible to the most abstract elaboration. Indeed, they are *lieux* in three senses of the word - material, symbolic, and functional.'[28] Therefore, referring to Heike Delitz, architecture can be seen as a 'medium of the social', and represents spheres of interaction between built environment and social practice.[29] Speaking of the archaeological record, the biography of a building, which includes phases of modification, repair, re-use, abandonment, re-occupation, and final abandonment, reflects social practices and abandonment routines.[30] Thus, the biography of a building is the material record of essential daily practices and is therefore one of the focal points of my research.

[27] McAnany and Lamoureux-St-Hilaire 2020, 18.
[28] Nora 1989, 18–19.
[29] Delitz 2010.
[30] Trebsche 2010, 157.

New insights on stratigraphy and site formation in Göbekli Tepe

The Neolithic settlement of Göbekli Tepe is located about 15 kilometres east-northeast of the modern city of Şanlıurfa in South-Eastern Turkey. It is situated on the second highest point of the Germuş mountain range (786 m above sea level). The vast Harran plain opens towards the south. The plain itself is limited in the west by the Fatık and by the Tektek mountain range in the east.[31] From the mound, panoramic views open towards the distant areas of the Harran plain the nearby Culap Suyu basin in the northwest (**Figure 1**).[32] Due to its hillside location, the mound is exposed to extreme weather that causes severe erosion. Recent geomorphological studies demonstrate that the tell layers slide down the slopes and accumulate in the river basins.[33]

Göbekli Tepe was discovered in 1963 by Peter Benedict during a survey as part of a joint research project by the University of Istanbul and the University of Chicago, under the direction of Halet Çambel and Robert Braidwood.[34] More than thirty years passed before a small team around Klaus Schmidt revisited the site in 1994, followed by excavations starting in 1995 under the direction of the German Archaeological Institute (DAI) and Şanlıurfa Museum. From 2007 until his untimely death in 2014, the excavations were directed by Klaus Schmidt. Meanwhile, the Göbekli Tepe excavations have become part of a broader project 'Göbekli Tepe Culture and Karahantepe Excavations' directed by Prof. Dr. Necmi Karul from the Istanbul University in collaboration wthe the German Archaeological Institute (DAI) and the Şanlıurfa Museum. In 2018, Göbekli Tepe was inscribed in the UNESCO World Heritage list.[35]

Whereas excavation work in the early project phases focused on the special buildings with their iconography and sculptural art, small-scale analyses and microarchaeological approaches have been added in recent times. They aim at a better understanding of the intra-site stratigraphy and the reconstruction of social practices.

The anthropogenic layers accumulate on the underlying, undulating limestone plateau. The latter determines the topography of the site, forming mounds with steep slopes and hollows (**Figure 2**). The site was occupied between the second half of the 10th and the early 8th millennium BCE.[36] Göbekli Tepe is well-known for its large, round to oval-shaped monumental buildings, which boast up to 5.5 m high anthropomorphic, monolithic T-shaped pillars. These pillars, in turn, are decorated with reliefs of wild animals and abstract symbols which might reflect the symbolic world of the community.[37] To date, this is considered the earliest monumental architecture in a settlement and therefore a unique characteristic of Göbekli Tepe. Furthermore, the mound is densely covered with both round to oval-shaped and rectangular domestic structures, many of which contain smaller versions of the T-shaped pillars as well (**Figure 3**). Altogether, eight monumental structures have been completely or partially exposed so far.[38] It was repeatedly stated by the former excavators that Göbekli Tepe is a purely ritual site, or 'mountain sanctuary', with no or little domestic character.[39] Yet, some scholars strongly disagreed with this interpretation, including Edward Banning, who argued that the 'temples'

[31] Knitter *et al.* 2019.

[32] Although it is commonly stated that the view towards the Harran plain was important for the foraging community, recent studies on view axes from the site suggest that the view towards the nearby Culap Suyu basin was much more important for herd observations, see Braun 2020.

[33] Nykamp *et al.* 2021; 2020a; 2020b; Knitter *et al.* 2019.

[34] Benedict 1980.

[35] Clare 2020, 86.

[36] Clare 2020, 81; Kinzel and Clare 2020, 34.

[37] Dietrich *et al.* 2012, 684; Schmidt 2010a.

[38] Clare *et al.* 2015; Dietrich *et al.* 2014; 2016; Schmidt 2016; 2011; 2000b; 2000a; 1995.

[39] Dietrich *et al.* 2015; Notroff *et al.* 2014; Dietrich *et al.* 2019. For the definition of 'mountain sanctuary' see Schmidt 1995; 2010b; 2016.

Figure 2: *Aerial view of Göbekli Tepe facing northeast. The main excavation area with buildings A-D is located in the southeast, building F can be seen at the southwestern mound, building H is located in the west (unexcavated then) (Photo: Erhan Kücük, DAI).*

were likely community buildings serving various purposes, and Reinhard Bernbeck, who stressed the importance of microarchaeological studies to determine what activities have actually taken place in these buildings.[40] These promising new approaches were rejected by the excavators at the time.[41] However, recent archaeological findings, such as domestic structures, domestic Neolithic artefactual assemblages,[42] domestic features,[43] and water supply installations, clearly point to the site being a settlement.[44] Hence, research has focused more on similarities to other Neolithic settlements than on simply stressing differences and the exceptional position of the site.

According to Moritz Kinzel and Lee Clare, both the monumental structures and some of the domestic buildings show a long use and maintenance history, including phases of destruction, rebuilding, and modification which have created vertical and horizontal stratigraphies. This can be seen in the way

[40] Banning 2011; Bernbeck 2013. Moreover, Dietmar Kurapkat has already demonstrated in his dissertation (submitted 2010) that the special buildings were most likely roofed and that the pillars served static functions; see Kurapkat 2015, 230–236; 2012, 163.

[41] Dietrich and Notroff 2015.

[42] Breuers and Kinzel forthcoming. According to Jonas Breuers (personal communication), the lithic assemblage represents the common PPN tool kit. Breuers is analysing the lithic assemblage from Göbekli Tepe in the framework of his PhD project 'Diachrone Studien zur Lithik des Göbekli Tepe: Locus 166, Raum 16 und die Sedimentsäule aus Gebäude D', conducted at the University of Köln.

[43] In the 2017 autumn season, a midden with fire installation located in a potential outdoor area (see below) and a burial under the floor of a PPNB building were found; see Clare 2020; Lelek-Tvetmarken and Kinzel 2017.

[44] For the water supply installations, see Clare 2020, 84–85; Ernst 2016; Herrmann and Schmidt 2012.

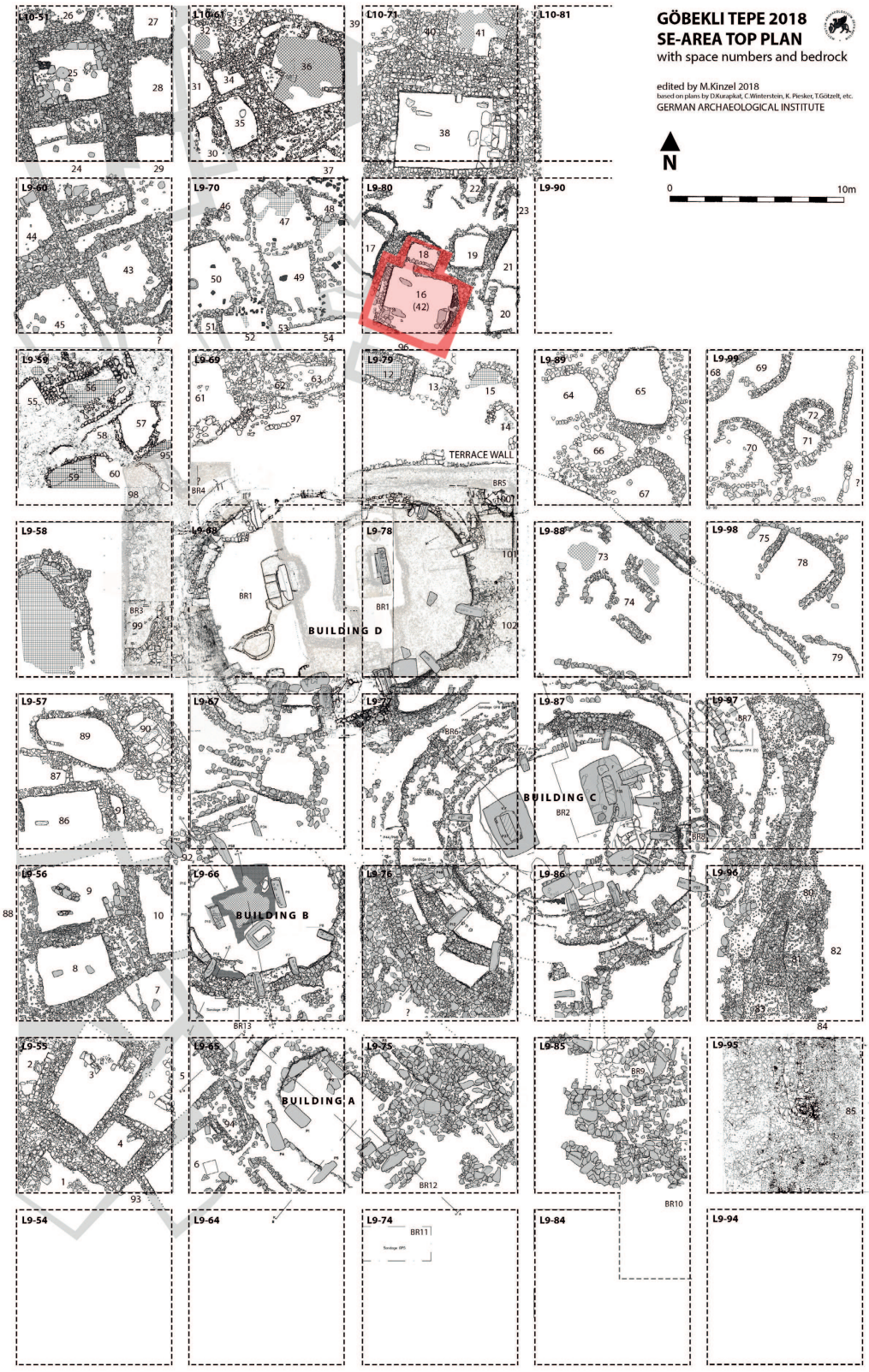

Figure 3: *Architectural top plan showing the main excavation area in the southeast hollow and the adjacent north-eastern slope. Superimposed rooms 16 and 42 mentioned in the text are marked red (after Kinzel and Clare 2020, Fig. 3.2.).*

the structures are not only built on top of but also into each other.[45] Also, structural elements, such as walls and pillars, were carefully relocated or used as *spolia* while the buildings themselves were modified to fit the needs of the inhabitants.[46] Based on recent and ongoing building archaeological studies, these models clearly contrast with and modify the preliminary yet oversimplified stratigraphic model of architectural Layers I, II, and III.[47] In the preliminary stratigraphic model, the special buildings were attributed to Layer III, e.g. to the 10th millennium BCE (PPNA), whereas Layer II (the rectangular structures) was attributed to the 9th millennium BCE (early and middle PPNB). Layer I comprised the modern surface, including post-Neolithic activities, and the plow zone.[48] New radiocarbon dates, however, suggest a more complex sequence of construction events and confirm observations that the special buildings, formerly of Layer III, were still in use in the late-9th millennium BCE.[49] To date, the new chronology comprises eight phases that span at least 1500 years.[50]

The settlement layout of Göbekli Tepe is formed by the natural landscape. The earliest structures were built directly on the natural limestone plateau.[51] Even though the limestone formation of the Urfa plateau is 'nearly horizontal',[52] the small-scale topography is much more complex than previous reconstructions have suggested (**Figure 4**).[53] Instead of reconstructing the anthropogenic layers of the mound as an accumulation on a generally flat limestone plateau with buildings being cut into older deposits (referred to as a 'nucleus tell', or 'layer IV'),[54] it is much more likely that the people of Göbekli Tepe used natural terraces to build their settlement. This means structures were built in first, the naturally hollowed-out spaces of the plateau (which also seem to be the preferred spaces for special buildings),[55] second, along the slopes of the limestone formation, and third, on top of the limestone terraces. Whereas some areas were built over, long-living structures, such as the special buildings, were not (but yet modified multiple times), as they were still being used parallel to younger structures. This led to an accumulation of architecture sloping up from the special buildings to the top of the plateau.

Exposed to wind, heavy rain- and snowfalls, and earthquakes, the structures located along the slopes and on top of the mounds suffered from severe landslide events.[56] With increasing instability of the mound, the structures slid into the depressions and damaged the buildings below severely.[57] So far, it was assumed that the special buildings were 'ritually buried' at the end of their use phase, which would require substantial impact of labour to supply the vast amounts of filling material.[58] The slope slide events, however, seem to provide much more likely explanations for the enormous amount of detritus material that was excavated inside the special buildings. As the fill of the special buildings in the hollows consists of a mixture of erosional layers, anthropogenic material, and the remains of slope stabilizing activities, it can be assumed that most remains of the eroded upper layers should at least partly be

[45] Kinzel and Clare 2020, 34.
[46] Kinzel *et al.* 2020, 15; for the use of *spolia* in Göbekli Tepe, see Kurapkat 2015.
[47] Dietrich *et al.* 2013, 36.
[48] Notroff *et al.* 2014, 84–85; Kurapkat 2015, 18.
[49] Kinzel and Clare 2020, 40.
[50] Kinzel and Clare 2020, 34.
[51] Kinzel and Clare 2020, 32; Kinzel *et al.* 2021, 10.
[52] Knitter *et al.* 2019, 2.
[53] Kurapkat 2015, 14.
[54] Piesker 2014, 36; Dietrich 2011, 15.
[55] I use the term 'special buildings' assuming that the large oval-round structures served several purposes such as community buildings, spaces for ritual practices, but also domestic activities. For a discussion concerning 'special buildings' and their monumentality, see Kinzel and Clare 2020.
[56] Climate changes with higher precipitation around 10.2 ka calBP might have increased seasonal destructions by slope slide events, see Weninger 2017.
[57] Kinzel and Clare 2020, 34.
[58] Notroff *et al.* 2014; Dietrich 2011; Schmidt 2016; for a re-evaluation of labour involved in building and burying the structures see Kinzel and Clare 2020.

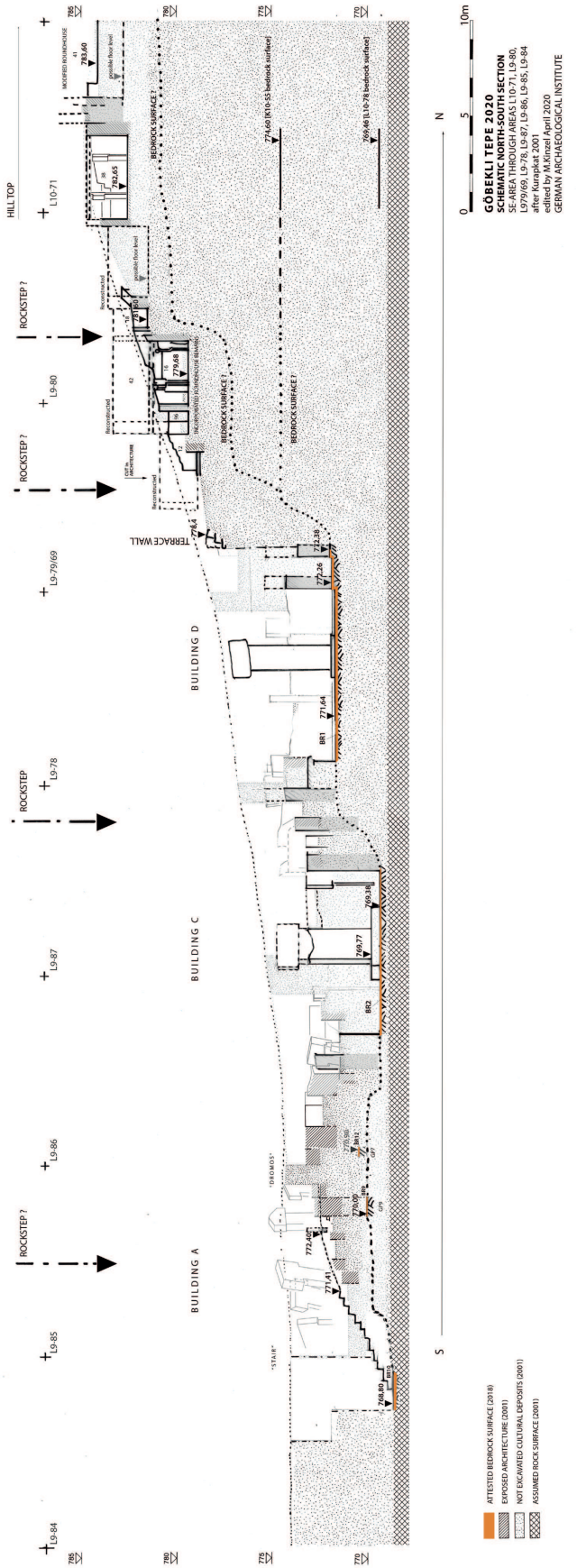

Figure 4: *Schematic North-South section through areas L10-71, L09-80, L09-79/69, L09-78, L09-87, L09-86, L09-85, L09-84 (Kinzel* et al. *2021, Fig. 5, with permission).*

found in the hollows. Kinzel and Clare state that 'we are now certain that the faunal remains from the buildings are not attributable to individual feasting events but instead represent accumulations of older displaced deposits.'[59] After destructive events, the inhabitants of Göbekli Tepe cleaned and repaired some buildings, while others were abandoned. Nevertheless, the backfilling of some of the special buildings is not only the result of natural catastrophes. Soil sediment analyses determined fossil humus (Ah) horizons within the partly filled building D that mark hiatuses in the sedimentation of the fill.[60] The depression that accommodates the special buildings A-D was not (fully) overbuilt in Neolithic times. At a certain point, building D was at least half filled with detritus material, but the pillar heads were still visible. It can be assumed that the intentional sparing of an otherwise densely built environment created a memory space and might also have served as a meeting or visiting place, maybe as early as when buildings A and C were still in use.[61]

Tracing detachment practices and abandonment routines

Taking the exceptional size of the Neolithic settlement and the long duration of occupation into account, it can be assumed that not all parts of the settlement were inhabited simultaneously. Furthermore, settlement centres shifted over the centuries with abandoned structures and areas existing next to occupied ones. These differently used abandoned spaces formed an integral part of a highly diverse settlement layout. Taking the topography of the site into consideration, the inhabitants of Göbekli Tepe likely had to deal frequently with the cleaning and repair of their built environment during and after harsh weather conditions or small and larger natural disasters. How and why did the Neolithic people maintain their settlement in specific ways? Did they develop certain repair and maintenance routines? And in what way was their symbolic world crucial to their decisions? In the frame of this study, similarities and differences regarding abandonment routines are discussed. Presumably, multiple intertwined phases of occupation and abandonment can be defined in both a single building and various settlement areas. Continuous processes and changes nevertheless produced some constancy up until the inhabitants of Göbekli Tepe detached themselves entirely from the place.

An attempt to visualise the successive repairing, re-building, recycling, and abandonment practices which the Neolithic people left in the archaeological record is carried out by establishing a systematic methodology for handling detachment practices from, but also interweavement with the place. As the abundance and lack of material remains in the archaeological record incorporate (to a certain point) the decisions and practices of the people, systematic mapping and sampling are used as archaeological tools to trace the materialisations of these activities.

Contextual comparability is provided by a consistent tripartite approach for several settlement areas which are analysed as examples. By embedding the following small-scale and microarchaeological analyses, I attempt to visualise these daily practices to carve out similarities and differences concerning living with ruins: first, architectural analyses in the form of systematic mapping of *spolia* use in buildings,[62] second, room internal stratigraphy, i.e. room fill analyses and artefact distributions

[59] Kinzel and Clare 2020, 37.

[60] Pustovoytov 2006, 716; recent studies are concerned with small-scale re-evaluation of the sediments in building D, see Pöllath *et al.* in prep.

[61] Schmidt 2010b; Kurapkat 2015, 214. However, the surface was not horizontal and therefore presumably not intentionally levelled; see Pöllath *et al.* in prep.

[62] *Spolia* are reused structural elements that originate from older buildings and are integrated into more recent architecture. They are usually deliberately and visibly placed and therefore describe an intentional building practice; see Meier 2021, 27–28.

Figure 5: *Room 16 in Area L09-80 after excavations in autumn 2017. Superimposed room 42 is indicated by the stepped walls. Note the disturbed floor (presumably of the deconstruction of former installations/benches) as well as the pits cut into the floor (Photo: C. Lelek-Tvetmarken, DAI).*

and densities, and third, geochemical sediment analyses.[63] The tripartite methodology leads to the construction of detailed biographies of several buildings that are to be understood as examples for the settlement as a whole. In these life cycles of architectural structures, their construction and subsequent building phases are described. Furthermore, re-use of ruins, taphonomic processes, and abandonment events are also included. In addition to building phases, 'activity phases' describe the diverse stages in the life of a building.

In this paper, my approach is highlighted by showing some preliminary results of two analysed contexts. I begin with a well-studied domestic building with a rectangular ground plan north of building D dated to the early to middle PPNB (part 1. *spolia* mapping and part 2. internal room-fill stratigraphy, **Figure 5**).[64] Afterwards, insights are presented from the ongoing analyses in a newly discovered potential PPNA outdoor area (part 3. geochemical sediment analyses).

[63] Within my dissertation project, I conducted geochemical sediment analyses at the Laboratory of Physical Geography, Freie Universität Berlin in collaboration with Philipp Hoelzmann, Moritz Nykamp, Manuela Abendroth, and Frank Kutz.

[64] The overall biography of this building begins in the PPNA and ends in the middle PPNB (new chronology phases 2–6/7), see Kinzel and Clare 2020, Fig. 3.2.

Part 1: Architecture - spolia *mapping in room 16*

Speaking of rooms 16, 18, 42, and 96 in Area L09-80, it is difficult to determine what is actually referred to as 'the' building. Recent building archaeological studies revealed that this structure, formally described as 'Layer II architecture', comprises at least four, likely five, building phases, whereupon an originally round-oval building was incorporated in a multi-room rectangular structure in a later phase (**Table 1**).[65] Due to the common building practice at Göbekli Tepe, younger walls are often built in front of the inner wall faces of older ones, reducing the size of internal space over time. Hence, it is only possible to map the use of *spolia* of the latest building phase of the room without dismantling the younger walls. I differentiate three different kinds of *spolia*: 1. architectural elements (pillar and portal stone fragments), 2. stone artefacts (ground stone tools and sculptures), and 3. re-used wall stones.

Room 16 is in its youngest phase enclosed by walls Loc. L09-80-63 in the north, Loc. L09-80-44 in the east, Loc. L09-80-43 in the south, and Loc. L09-80-65 in the west.[66] It is attributed to the four-pillar room type similar to the so-called 'lion pillar building'.[67] To illustrate my *spolia* mapping method, wall Loc. L09-80-44 is presented as an example.[68]

The remains of wall Loc. L09-80-44 count 239 visible wall stones (**Figure 6**). The most striking feature of this wall is the abundance of pillar fragments (n=25 resp. 10.5 %, highlighted in red). Several small pillar fragments are situated at the base of the wall all along the inner edge of the room. Two large pillar fragments are placed vertically into the wall. Here, it is unclear whether the southern pillar (PXI) was complete because the upper wall courses are missing. The northern pillar (PX) seems to be the head of an originally larger piece and is set on smaller pillar fragments. Accordingly, both pillars reach up to the same elevation.[69] The pillar fragments frame an eastwards-oriented setback in the masonry forming a niche. Another pillar fragment is placed horizontally in between the pillars, forming a bench (Loc. L09-80-70) that projects out from the wall itself. This general conception of space (benches being situated in between pillars) is well-known from the special buildings. Additionally, few grinding stones and stone bowl fragments were used as wall stones (n=8 resp. 3.4 %, highlighted in blue). They are made from basalt and are rarely but repeatedly found in masonry.[70] The large amount of re-used wall stones (n=46 resp. 19.3 %, highlighted in yellow) that clearly contrast the straight edges of the pillar fragments is remarkable. They are identifiable by their irregular shape, rolled and multiple chipped edges.[71] It can be assumed that they originate from other collapsed buildings. Altogether, the percentage of *spolia* in wall Loc. L09-80-44 sums up to n=79 resp. 33.1 %. In other words, it is made up at least of a third of *spolia*. Not only the masonry but also the mortar contains large amounts of secondary and tertiary used material including chipped stone and animal bone; there is no evidence that sterile soil has been used.[72]

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[65] For a detailed building archaeology study of this structure see Kinzel *et al.* 2020, 15; see also Kurapkat 2014; 2015; Winterstein and Kurapkat 2002.

[66] Locus numbers in Göbekli Tepe are composed of Area-Locus; here being Loc. L09-80-44 Locus 44 in Area L09-80.

[67] Often referred to as the 'lion pillar building' (Schmidt 2016, 228), yet archaeozoological analyses interpret the relief as a leopard since lions have a different physiognomic appearance, see Peters and Schmidt 2004, 184.

[68] *Spolia* mapping was conducted in the field while marking the spoils on a photo or drawing of the wall and later digitally redrawn. I would like to thank building archaeologist Moritz Kinzel for his help and instruction.

[69] Most likely, the pillars had a static function in buildings carrying the roof or suspended ceiling, see Kurapkat 2015; Piesker 2014; Kinzel and Clare 2020; Kinzel *et al.* 2020.

[70] Kurapkat 2015, 119.

[71] I am aware that it is difficult to discriminate between first and secondary (re-)fashioning of wall stones. In comparison with older buildings that contained less spoils and were constructed of large boulders such as the oval-round structures and the terracing wall in DR-2 (see below) these differences become more distinct. For the classification of masonry types and the localization of *spolia* in buildings see also the comprehensive dissertation on building archaeology in Göbekli Tepe by Dietmar Kurapkat (2015).

[72] Kurapkat 2015, 119.

Figure 6: Spolia *mapping of wall Loc. L09-80-44 in room 16. Re-used architectural elements are marked red, ground stone objects in blue, and re-used wall stones in yellow (Photo: M. Kinzel, DAI with illustration of J. Schönicke, DAI).*

In summary, it can be assumed that the majority (if not all) of PPNB architecture consists mainly of re-used building material. It is conceivable that the percentage of *spolia* rises in the younger levels. With increasing density of built environment, the quarries of the surrounding limestone plateau can only be reached by cumbersome routes. Therefore, abandoned structures were frequently used as raw material sources. Re-used architectural elements, such as pillar fragments, are deliberately placed in prominent positions. They thus resemble their former function (pillar) or imitate a spatial concept (bench). Although it seems obvious that the use of *spolia* follows practical and economical decisions, it becomes clear that they were not randomly used within the walls. This adds a symbolic value to their function.

Part 2: Room-internal stratigraphy: fill analyses

The room fill excavated in space 16 and the overlying space 42 is discussed in the following.[73] According to the recently established building phases, the room fill accumulated between phase 4 (last use phase of the multi-room two-storey rectangular structure) and phase 5 (small structures above completely filled rooms 16 and 42 erected by ruin dwellers) and therefore dates to the late 9th millennium BCE (**Table 1**). The structure itself comprises five building phases. I refine these building phases by adding

[73] The spaces were excavated in seasons 1998–2001. Additional documentation was carried out in 2002. In 2017, the remaining fill was excavated (*c.* 25 cm) down to the structure's floor and systematically sampled. Building archaeological studies were conducted in 2017 and 2018. Geochemical sediment and phytolith analyses were carried out and are currently being evaluated.

activity phases (indicated by '*a*' in front of the building subphase) that refer to abandonment practices, post-abandonment interactions, and taphonomic processes that evenly display essential parts of the biography of a building.[74] A potential scenario for the gradual abandonment of and ruin interactions with the building is described in the following.

Activity phase a4.1 – Abandonment

At a certain point, the space was no longer in use and the inhabitants detached from place. The abandonment of the building gives the impression of not being a rapid and unplanned event since almost no *in situ* artefacts were documented on the floor (Loc. L09-80-122) of the building.[75] A grinding stone was found within a shallow pit (Loc. L09-80-142/143) that was cut into the floor, whereas another grinding stone was documented between the bench and wall Loc. L09-80-44. Perhaps they were deliberately placed there. Various patches of silty-sandy material (Loc. L09-80-120 and -124) accumulated on the floor. They might be of aeolian origin mixed with crumbly material from the wall plaster, suggesting that the room was left open for a certain amount of time.

Activity phase a4.2 – Collapse

Subsequently, the eastern part of the ceiling that separated rooms 16 (below) and 42 (above) from each other collapsed. On the floor, an approximate 12 cm thick layer of ceiling collapse consisting of small (fist-sized) and medium-sized stones mixed with silty sand (Loc. L09-80-119) and wall collapse (perhaps from wall L09-80-44) was recorded.

Activity phase a4.3 – Re-use

On top of the wall and ceiling collapse, a trampled surface was identified (top of Loc. L09-80-119 resp. bottom level of Loc. L09-80-61.8).[76] The top level of the surface corresponds to the top level of the *spolia* bench Loc. L09-80-70.[77] Additionally, a re-used pillar fragment (Loc. L09-80-68) was found lying flat on the trampled horizon, whereas a stone bowl (Loc. L09-80-69) was documented south of the bench. These features can possibly be attributed to activities in the partly collapsed and levelled room. If the roof of the building was still intact, the ruin might have served as a shelter.

Activity phase a4.4 – Collapse

The decay of the structure proceeded. About 65 cm of collapse and sediments (Loc. L09-80-61.5-8) mixed with chipped stone, ground stone fragments, an incised bone bead, wall collapse (Loc. L09-80-114, -116 and -117), and erosional deposits on top (Loc. L09-80-112 and -115) have accumulated on the trampled surface. A few floor fragments that likely originate from the upper storey of the building, room 42, were located in the fill.

[74] Trebsche 2010, 157.

[75] Cf. Brooks 1993, however, it might also be the case that the room did not contain many artefacts anyway, or that Neolithic rooms were kept 'clean'.

[76] Before establishing a new excavation and documentation system in 2017, fill contexts were excavated in 10–30 cm thick artificial spits but yet as one Locus. Spits were numbered in order of excavating, e.g. Loc. L09-80-61.8 is the eighth spit of Locus 61 in Area L09-80.

[77] In the earlier documentation system, Locus numbers were also given to certain artefacts such as pillar fragments and ground stones.

Biography of a two-storey structure (rooms 16, 18, 42 and 96) in Area L9-80	
Building and activity (a) phases	Context
1	Oval building
2	Incorporation of rectangular building (16+18)
3	Single-storey rectangular building (16,18, 96) or already two-storey building
4	Two-storey rectangular building (16, 18, 42, 96)
a4.1	Abandonment of the building
a4.2	Aeolian sediments on floor; wall and roof collapse
a4.3	Trampled surface on collapse
a4.4	Wall collapse and erosional deposits
a4.5	Possible activity area in half-filled up room
a4.6	Wall collapse and erosional deposits
5	Small structures and terracing wall, ruin dwellers
A5.1	Site abandonment and detachment from place; slope slide events and erosion processes

Table 1: *Activity phases with attributed building phases and associated contexts and practices for rooms 16, 18, 42, and 96 in area L09-80 forming the biography of the building. The activity phases a5.1–6 described above are marked in blue (Building phases of the structure after Kinzel* et al. *2020; Kurapkat 2015; Winterstein* et al. *2002).*

Activity phase a4.5 – Possible activity area

Within the fill, a patch with high density of animal bones was identified in Loc. L09-80-61.4, which is embedded in sandy-silty sediments. This could point to food consumption in the ruin. Alternatively, it could suggest the collapse proceeded slowly and bone-tempered wall or roof mortar decayed.

Activity phase a4.6 – Collapse

The upper part of the western wall of upper room 42 Loc. L09-80-15 collapsed onto the ceiling that separated rooms 16 and 42 (collapse Loc. L09-80-55) and, thus, the western part of the ceiling collapsed. The existence of a two-storey building is indicated by the position of a portal stone (Find no. GT17-WS-0080) in the south-western corner of the room fill that presumably connected rooms 16 and 42.[78] After these damaging and destabilizing events, the decay of the building proceeded at faster pace. The uppermost 1.30 m of room fill were attributed to room 42 but are sparsely documented (excavated in artificial spits as Loc. L09-80-10 in the northern and Loc. L09-80-19 in the southern part). Yet, collapsed stones (maybe from the roof) and several floor fragments (possibly from room 18, situated north of room 42, and other spaces) were documented in spit Loc. L09-80-19.4. A concentration of burnt limestones in Loc. L09-80-19.8 indicate a fire installation that was perhaps originally located on the roof of the building or might point to activities related to combustion in the ruin.

The interior of the structure was entirely filled with sediments due to erosion processes caused by slope slide events, but settlement activity in Göbekli Tepe continued. Findings indicate a younger building phase (phase 6) on top of the filled rectangular structures, which likely continued even into

[78] For a reconstruction of this building with two stories, see Kinzel *et al.* 2020.

the early 8th millennium BCE.[79] Small structures cut into the deposits of the infilled rooms and a recently discovered terracing wall Loc. L09-70-101/ L09-80-9 south of them are clear indicators for later settlement activities. The bottom levels of these structures appear directly underneath the modern surface. Therefore, it seems likely that their superstructures eroded into the subjacent rooms and into the buildings located along the slopes and in the hollows. Further research, which will include a detailed study of the associated fill layers, will form a part of my ongoing dissertation project.

Part 3: Geochemical sediment analyses in drainage channel (DR-2)

In addition to the geomorphological studies mentioned above, microarchaeological analyses of fill layers are indispensable for understanding sedimentation sequences within the settlement.[80] Human activities performed repetitively and over a longer period of time leave behind distinct chemical signatures.[81] The very loose and crumbly sediments at Göbekli Tepe often impede tracing anthropogenic layers while excavating. Hence, many contexts were excavated in artificial pits. In order to identify activity areas and the intensity of anthropogenic activity anyway and to better reconstruct site formation processes, geochemical sediment analyses were carried out.[82] Especially in light of contrasting the interpretation as ritual backfilling of the special buildings, detailed understanding of the sediments is required.

During the construction of two protective roofs that now cover the excavation area in the southeast (covering the special buildings A-D) and the southwest, drainage channels were dug for the pipes of the rainwater coming down from the roofs. Drainage channel 2 (area DR-2) runs in NE-SW direction at the western edge of the northwestern excavation area.[83] DR-2 is 35 m long and 1 m wide channel and with a 5 x 3 m large tank area (for the installation of a sedimentation container) at its southeastern end. In between, three 1.7 x 1.7 m so-called 'chimneys' (vertical shafts for overflow basins) were dug.

Excavations in DR-2 revealed several possible PPNA round-oval structures (**Figure 7**) as well as a midden with a fire installation in a potential outdoor area (**Figure 8**). An oval structure was built directly on the natural bedrock. Furthermore, a terracing wall indicating early slope stabilizing activities was found. No remains of potential younger layers were recorded. Therefore, it can be tentatively assumed that this part of the settlement was abandoned at the beginning of the PPNB or later traces have fully eroded.

Altogether, four sections in three chimneys were systematically sampled. Samples were taken directly from the section in 5 to 10 cm depth intervals. The sample size adds up to 0.1 l sediment per sample. Here, sediment analyses of the eastern section of chimney 1 are discussed. The uppermost layer of the southern section of chimney 1 (**Figure 9**) is characterized by colluvial deposits resulting from slope wash processes on the mound. The erosion layers running down the slope are clearly visible. Underneath, the remains of a terracing wall (Loc. DR2-18, -21, -81) built of large limestone boulders are located. Below, a collapsed lime plaster floor fragment is visible. The midden layers underneath consist of reddish and brown soft deposits and grey to white ashy layers with frequent pieces of charcoal. Within the midden,

[79] Kinzel and Clare 2020, 35.

[80] Rowley *et al.* 2018; Nicosia and Stoops 2017; Weiner 2010; Parnell *et al.* 2002.

[81] Parnell *et al.* 2002, 332.

[82] Thereof: multi-element analysis using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) with 2100 DV Perkin Elmer; total carbon (TC) and total nitrogen (TN) using LECO TruspecCHN+S-Add-On Elemental Analyzer; total inorganic carbon (TIC) using Woesthoff Carmhograph C-16 Carbon Analyzer; mineralogic composition using X-Ray Diffractometer Rigaku Miniflex 600; particle size analysis by laser diffraction using LS 13320 PIDS Beckmann Coulter Laser particle size analyser; pH values and electric conductivity.

[83] DR-2 was excavated in spring and autumn 2017. Excavations revealed another special building, building H (see Dietrich *et al.* 2016; Waszk 2017), as well as several oval-round domestic structures (Clare 2020; Kinzel *et al.* 2021).

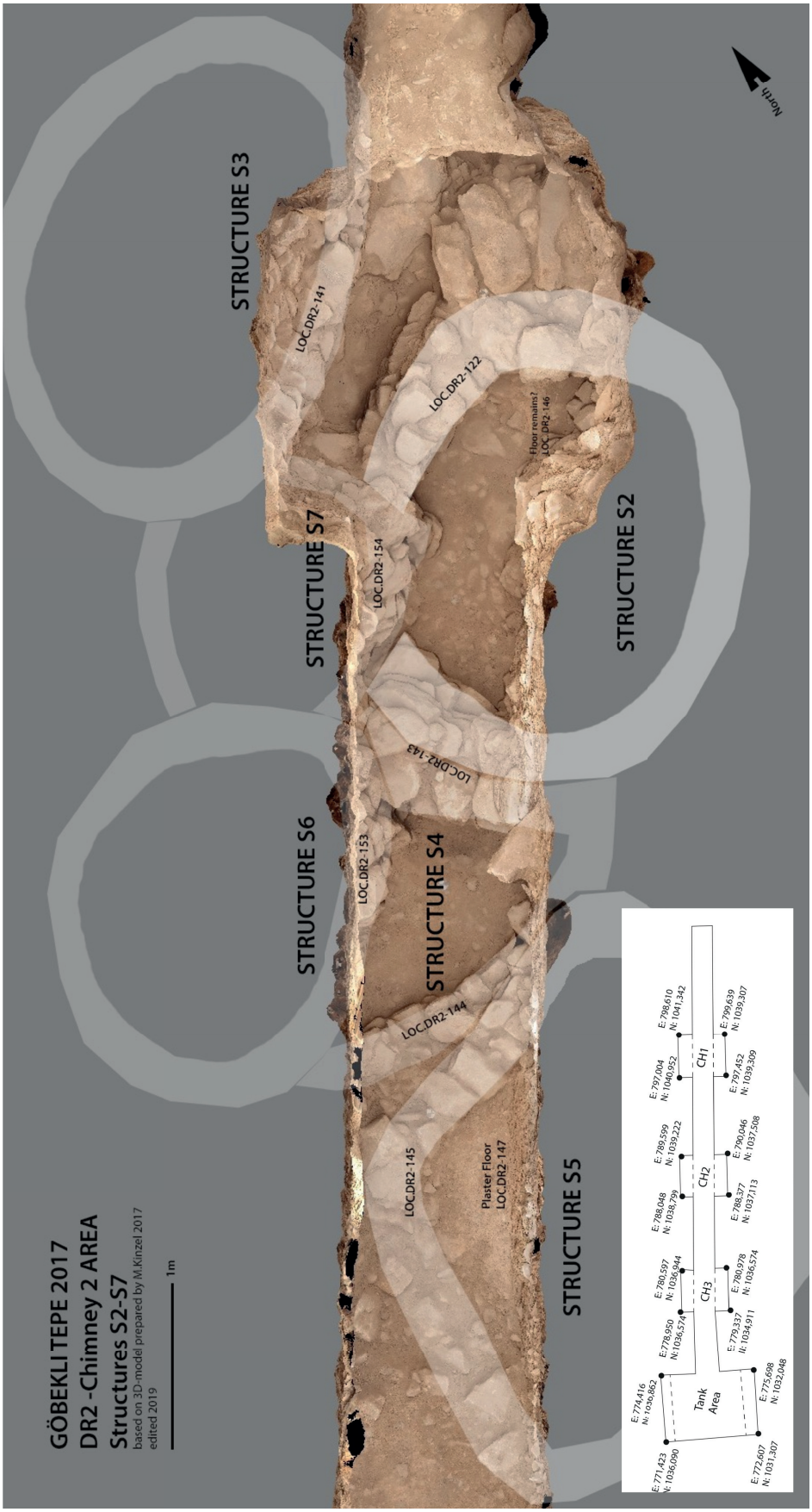

Figure 7: *PPNA Structures excavated in DR-2, chimney 2 and the adjacent channel (based on 3D-model prepared by M. Kinzel/ DAI). The plan in the bottom left corner shows the entire trench layout of DR-2 with chimney (=CH) 1 being the north-easternmost one, chimney 2 and 3 in the centre, and the tank area in the southwest (plan facing north) (Plan: after D. Sönmez in Lelek-Tvetmarken and Kinzel 2017).*

Figure 8: *Midden and fire installation in area DR-2, chimney 1. The fire installation is lined by a thin silty ridge, visible at its western edge. Note the over 50 cm thick ashy layers attributed to the midden visible in section (Photo: C. Lelek-Tvetmarken, DAI).*

a collapsed structure (Loc. DR2-119 and -120) is located. Excavations stopped after 2.5 m, revealing a fire installation inside the midden. The fire installation is lined by a two-layered silty ridge (Loc. DR2-136 and -138) that shows traces of burning. Next to frequent lithic artefacts, the horn of an aurochs and the tail of a wild sheep (with bones still articulated) were found.

The most striking result of the geochemical sediment analyses comes from phosphate measurements.[84] Analyses of both total and available phosphates were conducted.[85] The ratio between geogenic or total ($PO_{4\ tot.}$) and available phosphates ($PO_{4\ av.}$) gives the percentage of phosphates that accumulated through external, likely anthropogenic processes, such as the deposition of organic waste and bone material. Areas of intensive use and refuse are expected to show higher portions of available phosphates when compared to less intensively used ones.

When reaching the fire installation level, the portion of available phosphates rises substantially from 36.4 % (sample GT17_10) to 63.8 % (sample GT17_11), i.e. the amount of imported phosphates almost doubles (**Figure 10**). When comparing the data with the control samples from the surrounding plateau

[84] In archaeology, phosphate measurements are used to determine activity areas, settlement centres, and boundaries; see Kalkan and Özbal 2018; Canti and Huisman 2015; Middleton *et al.* 2010; Middleton and Price 1996.

[85] 'Total' phosphates represent the measured amount of nearly all geogenic phosphates using aqua regia (3:1 mixture of 3 ml 32% HCl and 1 ml 65% HNO_3). Available phosphates were determined using citric acid 2% $C_6H_8O_7$. Both the aqua regia and citric acid dilutions were analysed using ICP-OES.

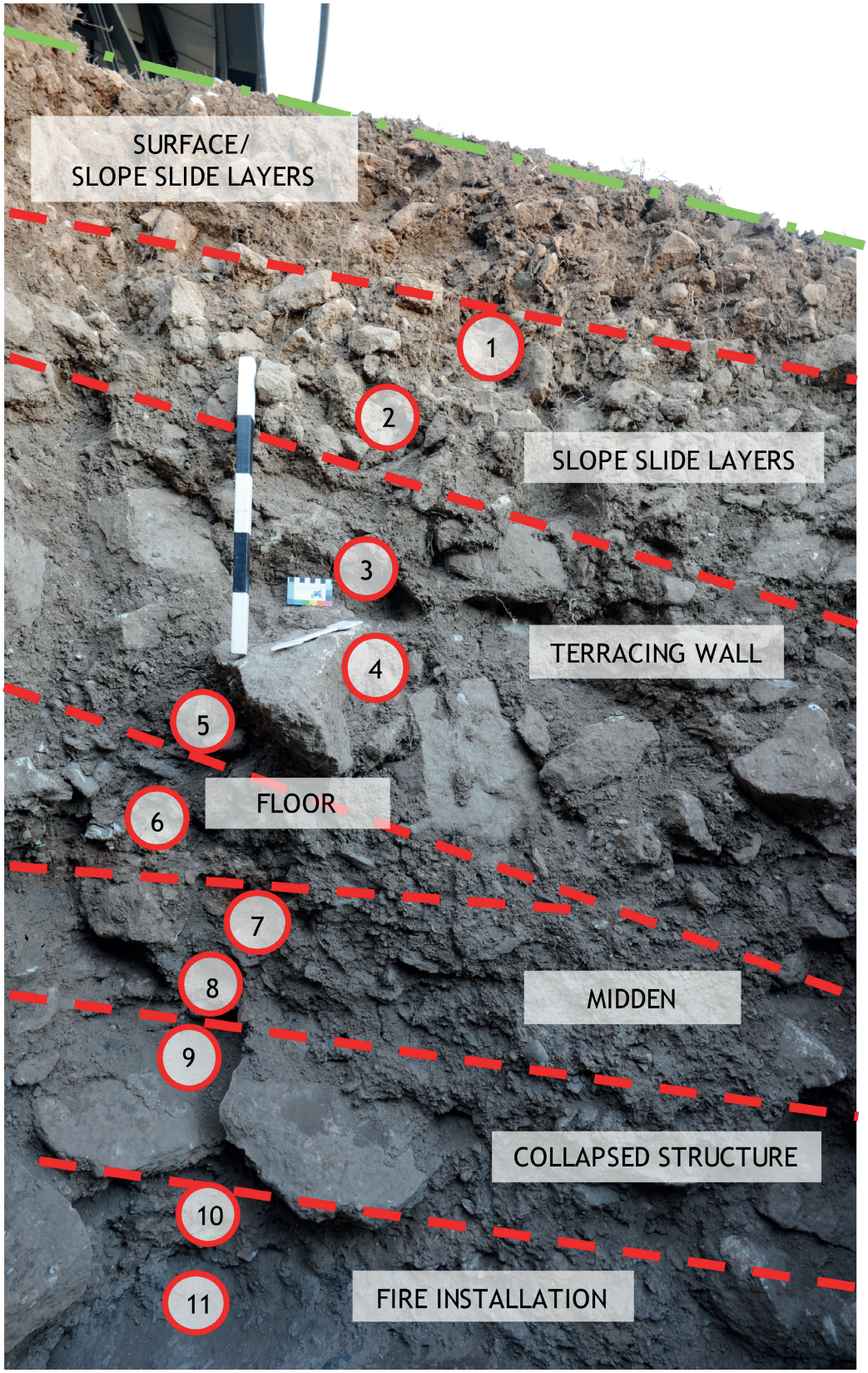

Figure 9: *South section of chimney 1 in DR-2. Locations of extracted samples are marked by red circles; dashed lines show the approximated limits of layers (Photo: J. Schönicke, DAI).*

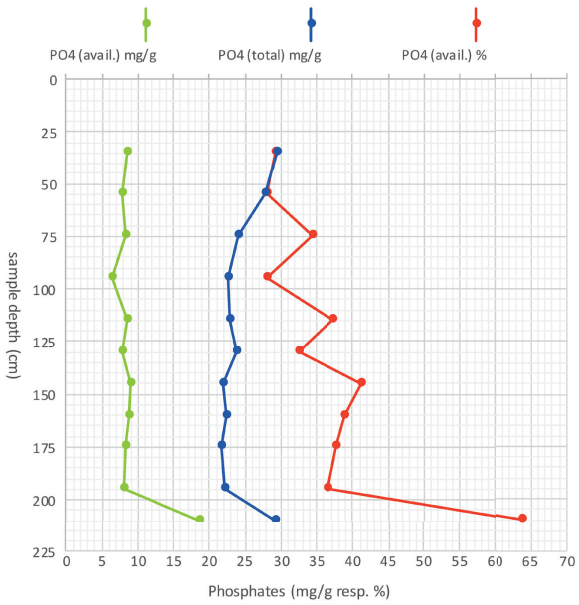

Figure 10: *Diagram showing the portions of $PO_{4\ av.}$ (green), $PO_{4\ tot.}$ (blue), and the percentage of $PO_{4\ av.}$ in relation to $PO_{4\ tot.}$ (red) measured with ICP-OES in the soil samples of DR2-chimney 1, S section. Each dot refers to the certain sample ID marked in the section visible in Figure 9.*

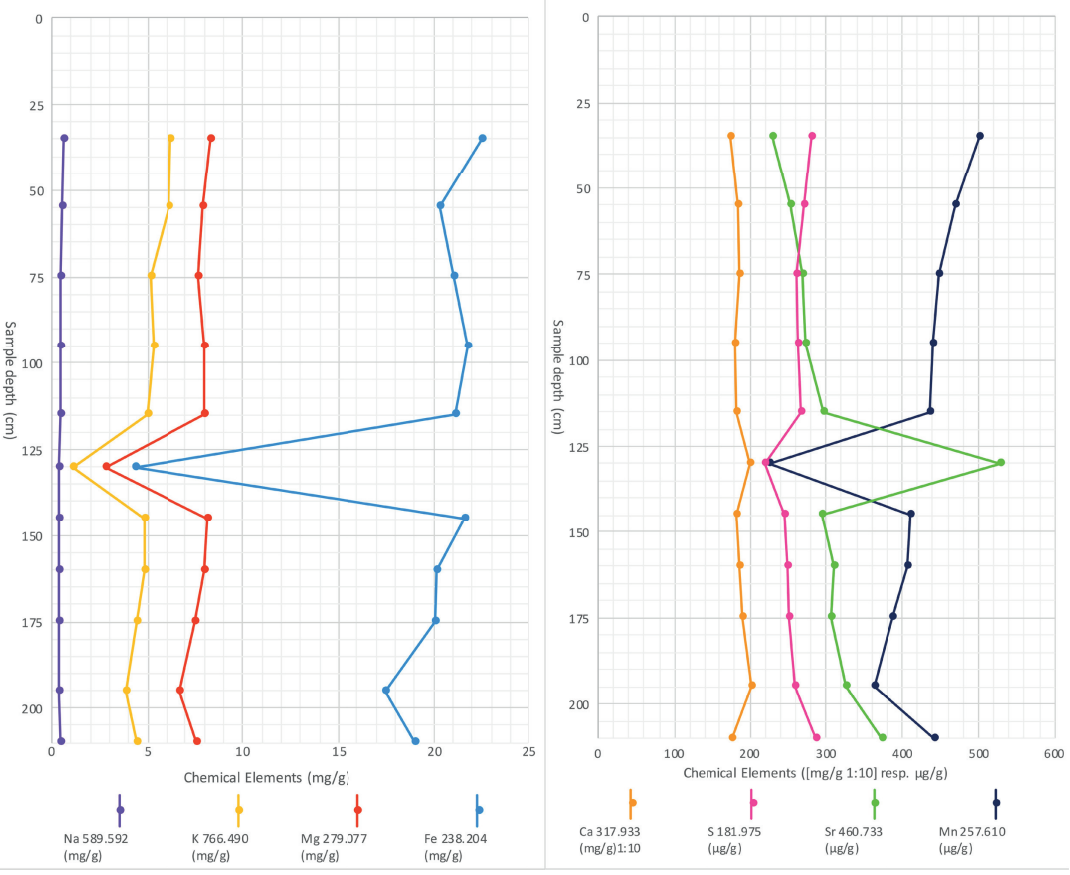

Figure 11: *Diagrams with portions of chemical elements measured with ICP-OES in the soil samples of DR2-chimney 1, S section. Each dot refers to the certain sample ID marked in the section visible in Figure 9. Figure 11 left shows the portions of Na, K, Mg, and Fe (mg/g). Figure 11 right shows the portions of Ca (mg/g) 1:10, S, Sr, and Mn (µg/g).*

($PO_{4\ av.}$ = 1.0–2.6 %), the portion of available phosphates in the fire installation is more than 20 times higher. The fire installation layer shows also slightly increased K, Mg, Fe, S, Sr, and Mn values compared to the layer above. The higher amounts of both Mg and K may indicate wood ash (**Figure 11**).[86]

The layer containing the collapsed floor fragment shows a distinct increase in Sr and Ca. This can presumably be attributed to the chemical composition of the floor, whereas the distinct decrease in K, Mg, Fe, S, and Mn, and the slight decrease of $PO_{4\ av.}$ might indicate a 'clean' surface.[87] Since the floor fragment was not found *in situ* conclusions regarding geochemical residues and associated activities, however, need further examination.

The final interpretation of the results of the geochemical sediment analyses is still ongoing and is even more promising in comparison with the results from other contexts and phytolith studies whose analyses is still pending (thereof room 16 in L09-80 and sediment column in building D).[88] An intra-site comparison with a large number of sampled contexts provides insights in the different intensities of anthropogenic activities and site formation processes in a diachronic and spatial way. This becomes particularly important when questions are asked about how 'abandoned' apparently 'empty' fill contexts really are.

Discussion and conclusions

Recent research allows new insights for understanding Neolithic lifeways in Göbekli Tepe. Small-scale stratigraphic analyses resulted in a radical revision of the chronology. It turned out that the settlement layout is much more diverse and heterogenous than previously thought. Structures have long biographies with multiple re-building activities. Domestic activities such as water management and burial practices leave no doubt that Göbekli Tepe is a Neolithic settlement and not purely a ritual site.

In the light of these findings the question may arise to what extent Göbekli Tepe is still a particularly unique place since it has now lost some of its singularity. There is no denying that the advances in the Neolithic in Central Anatolia in recent years have shown that this area might even be considered a primary region of the Neolithization, as the relationship between the settlements Pınarbası, Boncuklu, and Çatalhöyük demonstrates.[89] Nevertheless, the region of Southeast Anatolia in general and the site of Göbekli Tepe (even with its new interpretation) in particular are still crucial to our understanding of the Neolithization process. The agglomerative building technique we see on the slope architecture in Göbekli Tepe is still much earlier than similar ones in Central Anatolia.[90] This alone opens up questions about the transfer of knowledge. The application of a more neutral terminology (e.g. 'special buildings' instead of 'temples') does not diminish the uniqueness of the monumental structures and the achievements of their creators. In fact, it is quite the opposite: the new approaches demonstrate much more precisely how the inhabitants of Göbekli Tepe were intertwined with their environment and how they reacted to new challenges.

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[86] Maschner *et al.* 2010, 72; Middleton and Price 1996, 678.

[87] Maschner *et al.* 2010, 72.

[88] Sediment analyses in L09-80 and DR-2 have been conducted in the framework of my current PhD dissertation. For sediment analyses in building D see Pöllath *et al.* in prep. Ongoing phytolith analyses are carried out by Birgül Öğüt (Göbekli Tepe Project/DAI, Orient Department) at the Laboratory of Physical Geography, Freie Universität Berlin. Phytoliths from grinding stones were analysed by Laura Dietrich and Julia Meister (Dietrich *et al.* 2019).

[89] See i.a. Feldman *et al.* 2019; Brami 2019; Baird *et al.* 2018; Kılınç *et al.* 2017.

[90] Kurapkat 2015, 125–126.

This becomes particularly clear when taking a closer look at the abandonment processes and the responses of the inhabitants to slope slide events. By analysing structures, room fill, and taphonomic processes in detail, this study shows that the abandonment of the Neolithic settlement Göbekli Tepe was not a single event, and that the inhabitants did not detach from place rapidly and in an unplanned fashion. Shifting settlement centres, the transformation of spaces from oval to rectangular, and the integration of *spolia* in re-built structures are clear indicators for the application of new technologies while preserving a specific habitus.

Abandoned buildings within settlements are not only used as middens but can actually be important building material sources and thus one of the reasons why people interact with them. This seems to be especially true for Neolithic Göbekli Tepe. Re-used architectural elements such as fragments of pillars or ground stones were deliberately taken out of old and incorporated into new structures. Some of them, apart from the economic aspects of re-used material, can be addressed as intentionally chosen and deliberately placed *spolia* and, thus, might have served mnemonic functions creating memory spaces.

The results of microarchaeological analyses show that apparently homogenous contexts such as room fills turned out to be heterogenous, multi-phased zones of successive activities. When studying detachment from place, intra-site abandonment, and site formation processes, it is therefore indispensable to give special attention to these often overlooked contexts.

Small-scale room-internal stratigraphic analyses support the establishment of intra-site occupation levels and provide contextual comparability of building biographies. The latter, in turn, reflect social practices, whereas the incorporation of activity phases provides insights into making decisions regarding place-making and place-leaving. Post-abandonment interactions can be traced in the fill of ruins, either through the use of ruins as middens or the re-use of old walls for ruin dwellers, as shown above by means of the biography of spaces 16/42 in Area L09-80.

When systematically applied, small-scale approaches including architectural, room fill, and microarchaeological analyses could also permit comprehensive comparisons between different settlements. The discourse about intra-site abandonment and detachment from place demonstrates the need to engage more with the decision-making of ancient people and how this is reflected in the archaeological record. We need to ask where people went once they detached from place, and whether we can trace post-abandonment interactions with the settlement. For this, it is relevant to carefully excavate the uppermost settlement layer that is often referred to as 'surface material'.[91] Prior to recent and ongoing small-scale stratigraphic analyses, the importance of the uppermost layer of Göbekli Tepe was not recognised. Even if findings are located directly below the modern surface, their potential to contain information regarding settlement abandonment is crucial, and their careful excavation indispensable. Geochemical sediment analyses of the anthropogenic layers and geomorphological studies of the environment of Göbekli Tepe highlight dynamic formation processes. Here, detailed knowledge is essential if the old interpretation of ritual backfilling is to be contrasted with new approaches which clearly show that the fill of the structures is mainly the result of slope slide events. But not only the final abandonment of the site should be in focus. Rather, I have used my analyses to draw attention to detachment routines that occur within the settlement during the occupation. This provides valuable insights on place-making and the creation of memory spaces, human-environment interactions, and people-place (dis)entanglement by engaging with decision-making in Neolithic communities.

[91] McAnany and Lamoureux-St-Hilaire 2020, 22.

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