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Ways In, Ways Out: A Preliminary Study of Neolithic Wall and Roof Openings

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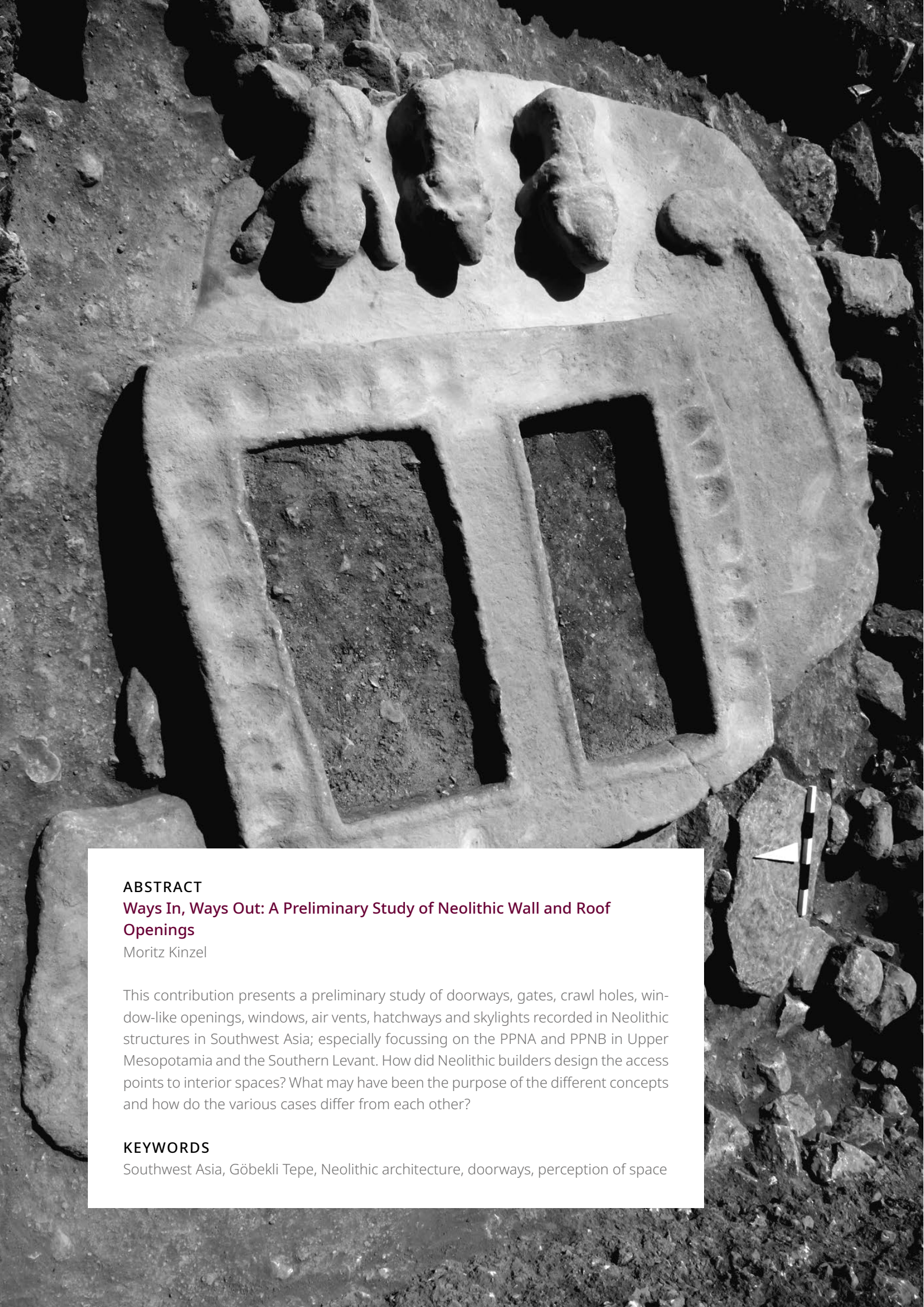

ABSTRACT

Ways In, Ways Out: A Preliminary Study of Neolithic Wall and Roof Openings

Moritz Kinzel

This contribution presents a preliminary study of doorways, gates, crawl holes, window-like openings, windows, air vents, hatchways and skylights recorded in Neolithic structures in Southwest Asia; especially focussing on the PPNA and PPNB in Upper Mesopotamia and the Southern Levant. How did Neolithic builders design the access points to interior spaces? What may have been the purpose of the different concepts and how do the various cases differ from each other?

KEYWORDS

Southwest Asia, Göbekli Tepe, Neolithic architecture, doorways, perception of space

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Introduction: Defining Spaces – Defining Entries

1 Doorways are such a common feature of the present-day built environment that we rarely consider what they do to us as well as for us. Doorways not only define the passage between territories but are – also in their simplest forms – powerful tools for shaping spaces and, therefore, shaping social interactions and hence societies. There are a series of archaeological and architectural studies[1] investigating doors and windows in classical and medieval periods. In contrast, there are only a few studies that take a closer look at prehistoric and, in particular, Neolithic doorways, doors, windows and other kinds of wall openings[2]. At first glance, this topic seems to be straightforward; however, a large number of Neolithic structures do not show any evidence for clearly defined doorways or other means of access[3]. How to enter a building without doors? This contribution aims to show some of the potential of studying these architectural elements and features in order to get a better understanding of Neolithic architecture, social behaviour and the Neolithic mind.

2 What is a doorway? In his basic architectural handbook »Architecture – Form, Space, and Order«, architect Francis Ching points out that »entering a building, a room within a building, or a defined field of exterior space, involves the act of penetrating a vertical [or horizontal] plane that distinguishes one space from another. [It] separates ›here‹ from ›there‹. The act of entering can be signified in more subtle ways than […] a hole in a wall […]. In situations where greater visual and spatial continuity between two

Title page: Göbekli Tepe, large portalstone with two openings (Loc. GTK10-88-7, 2010)

1 E.g. Klenk 1924; Salonen 1961; Büsing-Kolbe 1978; Walsh 1983; Brunner 1986; Hochreiter 1986; Laun 1986; Waelkens 1986; Damerji 1991; Beyer et al. 2006; Abdel-Gawad 2007; Taravati 2008; Mecca – Dipasquale 2009, 339–343; Selbmann 2010; Tsukamoto – Atelier Bow Wow 2010(2014); Eriksen 2013; Atelier Bow Wow 2014; Boettger 2014; Atelier Bow Wow 2016; Mumcuoglu – Garfinkel 2018; van Opstall 2018; Eriksen 2019; Campbell – Tutton 2020; Michielin 2021; Roeten 2021; Rönnberg 2021; Pech et al. 2022; Taubert 2022.

2 E.g. Naumann 1971; Butterlin et al. 2012.

3 E.g. Watkins 1989–1990, 339.

spaces is desired, even a change in level can establish a threshold and mark the passage from one space to another«[4].

3 While Ching concentrates more on the general functional aspects of doorways, the architect Simon Unwin, in his compilation on the importance and meaning of the doorway, stresses that »[t]he doorway is one of the most powerful instruments available to the architect. It is even richer in its powers than the wall, upon which it almost always depends. Where the power of the wall is to deny (to keep things apart), that of the doorway is to permit (to allow passage). And permission usually has more dimensions of possibility – risks as well as rewards – than denial. Doorways and the doors by which they may be closed are so common a feature of our surroundings that we rarely give conscious thought to what they do, to us as well as for us. Until we encounter a door that is locked against us, or one that has been violated and failed to protect our belongings from thieves, they seem just part of the background, a mere component of the stage-set within which we act out the small and grand dramas of our lives. We cannot exactly ignore them – we pass through doorways probably hundreds of times every day – but neither do we pay them much attention. Because our minds are taken up with more immediate concerns – buying food, talking to friends, getting our work done – we tend to acknowledge doorways only at a subliminal level. But the powers of the doorway pervade our lives. There is hardly a culture on earth that does not use the doorway. It is an essential element in the organisation of space, a key part of the common language of architecture«[5].

4 In his study on doors, French anthropologist Pascal Dibie[6] raised the simple but basic question of what a door actually is. He argues that its very definition implies the existence of an ›outside‹, of what is ›beyond the door‹. In his account, doors are first seen from the inside of the house by one who is inside; however, it could as well be vice versa, but it reflects an internal spatial perception as presented in Plato's cave allegory. Based on this we can easily imagine terms as *inside*, *outside*, *open*, *closed*, *well-being* and *danger*. According to Dibie, there is no space we (humans) have wanted to sleep in that we have not barricaded, not a field we have not fenced, not a temple we have not charged, nor a family or city we have not protected. He states that »our doors are everywhere, be they narrow exits or monumental gates. […] Folklore appropriated thresholds, nourishing our beliefs and our strange rites of passage. Others like us, from ›an elsewhere close by‹ or far away, did the same: nouns and locks keep watch in Africa, while in China people still calculate the direction of openings, the balance of the entire universe depending on each door. In the Amazon, doors are within us, whereas in Oceania, they are a long path of partnership. Doors are for each of us a daily source of joy and worry simply because, of all our daily objects, they represent an inexhaustible world of thoughts«[7].

5 There are some archaeological studies that deal with classical or medieval doorways, but actual building archaeological studies on doorways are very rare. Taking this into account, it is not surprising that studies concerned with Neolithic doorways are almost non-existent. With the establishment of more permanent buildings and settlements during the transitional period from the Epipalaeolithic to the Neolithic, humans were forced to re-define their world, their cosmos and their social arrangements[8]. By creating some sense of belonging, ownership as well as ›privacy‹, buildings turned into houses and homes. How were these spaces organised and accessed? This contribution

4 Ching 2007, 250; for a more technical turn compare with Koepf – Binding 1999, 474 f.
5 Unwin 2007, 3.
6 Dibie 2012.
7 Dibie 2012, blurb. Crouch – Johnson 2001.
8 Benz – Bauer 2021.

is an attempt to shed light on some of the earliest examples of doorways in the history of human buildings. The cases known from the Neolithic of Southwest Asia display not a single approach but a wide array of solutions. Some of these may seem more familiar to us than others.

The Invention of Doorways or Entering and Exiting Neolithic Spaces

6 It is difficult to determine when the first doorway was constructed. We have to assume that already during the earliest attempts to occupy caves and rock shelters, the control of access was organised and perhaps also that stones were moved and intentionally placed to demarcate a border or point of access. Similarly, we have to assume this was also the case for very early tent or hut constructions[9]. How was the access to buildings organised when architecture emerged in the Early Neolithic of Southwest Asia? Some building elements can be traced back to earlier attempts to create spaces and structures that met the needs for sheltering, gathering and creating identities[10]. When constructing a building, the access defines the internal and external orientation. It is an essential key point for understanding a building and its relationship to its surroundings – both the natural and the built environment. Access to a building can be organised in various ways depending on the general design of the spatial arrangements and structural solutions.

7 At first glance, most of the earliest human buildings follow a quite similar spatial layout: They are single spaced, round to oval in shape and semi-subterranean or set into slopes. Some have a fireplace, some of them open to one (front) side or can be access only by a single opening in the perimeter wall, whereas others have no traces of access points at all[11]. Some early examples at, e.g., Tell es-Sultan (Jericho)[12], Wadi Tumbaq 1[13], Mureybet[14] and Nahal Oren[15] have entrances with short wall extensions leading away from the building, creating short corridors. These short walls could be interpreted as windbreaks, but also as transitional zones between the inside and the outside. In some cases, a few steps leading down to the interior had been placed there[16].

8 The concept of how access was organised dependents as well on the material chosen for the building. However, the choice of type of access was also influenced by other (key) factors, e.g., control of access for reasons of security and social control, or natural factors, such as prevailing wind directions. It may also be related to a certain narrative and could have been connected to ›cosmological‹ explanations and with references thereto. In addition, to be in control of a space played an important role in this context; establishing an ›environmental buffering system‹ that excludes the impact of the natural environment and thus offering a ›safe space‹[17]. In this way, the social cohesion and resilience of a society could be ensured[18].

9 Compare with nomadic ephemeral structures presented in, e.g., Cribb 1990.

10 For further details see Kurapkat 2012; Kurapkat 2014 and Kurapkat 2010.

11 Aurenche 1981; Eichmann 1991; Nissen et al. 1991; Schachner 1999; Stordeur 1999; Byrd 2000; Bıçakçı 2001; Banning 2003; Banning – Chazan 2006; Sicker-Akman 2007; Duru 2013; Kinzel 2013; Gheorghiu 2014; Kurapkat 2010; Baudouin 2019.

12 Kenyon 1981.

13 Abbès 2008.

14 Ibáñez 2008.

15 Stekelis – Yizraely 1963; Grosman et al. 2005.

16 Kenyon 1981, 280.

17 Vetter 2019, 23–29.

18 Graeber – Wengrow 2021, 244–247.

9 One aspect of early Neolithic building practices – which will be discussed in a bit more detail below – is the control of daylight. In early human permanent structures, daylight played almost no role in the interior. However, over time there was a slight shift in the concept, perception and usage of it. In general, there was a tendency to have only relatively small openings to enter and exit a structure. This may not only be connected to the control of access, but also a way to limit the effects of weathering on the interior spaces, especially for people to shelter from unpleasant winds or extreme sun. The possibility to regulate the air circulation may not have been a primary goal but a welcomed side effect and later used strategically.

10 According to Andreas Vetter, the meaning and perception of buildings also have a direct influence on the perception of doorways and the ›invention‹ of the threshold[19]. If – with reference to Vetter's work – there is a doorway or entrance that, in principle, can be used by everyone, then the power and meaning of the building regulates its de facto openness. In the case of Neolithic ›special buildings‹, the possible evocation of anxiousness, awe and fear, which had an effect on people who found themselves in an extreme situation when confronted with monumental architecture, contributed significantly to the fact that individuals did not dare to enter even if the doorways or portals were open and unguarded[20]. Such ›threshold anxiety‹ demonstrates the strength of the architectural ›presence‹ of a building with metaphysical significance. The less a person knows about the cult and the system of reference, the more impact can be attributed to the architectural form[21]. Doorways play a major role in such contexts. The same is true for the threshold playing an essential role as a protection. The threshold is where the ceremonies and rituals to repel the bad spirits from a house occur[22]. Therefore, some doorways are thought to be protected by a ›guardian spirit‹ or other mythical entities. For example, the snake reliefs and animal sculptures on the portal stones from Göbekli Tepe may be understood as such guardians[23]. These kinds of guardians were there to perform two tasks: to protect the entrance from evil and to highlight the entry to the ›sacred‹ interior. In Roman mythology, Janus, the god of the door, was depicted with two faces looking in opposite directions: symbolising the changes between the past and present, and the transition from one world to another. It was because of his ability to see both forward and backward that he became known as the two-faced god of boundaries, doors, gates, beginnings and all movements of transition[24].

Types of Access

11 As stated above, it seems that early human buildings follow a simple and almost identical plan. The aesthetical conceptions of the buildings are based on simple but powerful mathematical and geometric principles. One basic aesthetical concept is the symmetrical organisation of spaces. The single-spaced structures are organised in a symmetrical way that first follows structural needs and is later filled with meaning and different functional needs, leading to distinct features, which can differ from site to site. However, although the interiors may have a similar spatial organisation, the points of access are treated quite differently. While horizontal wall openings served as doorways in some settlements – as we still see today – others were only accessible vertically through openings in the roofs. In general, we can distinguish between these

19 Vetter 2019.
20 see Fleisher – Norman 2016 as well as Wilburn 2018, Wilburn 2019.
21 Vetter 2019, 34 f.
22 Taylor 1985; Taravati 2008, 62.
23 Schmidt 2010, 252.
24 Hochreiter 1986; MacMahon 2003; Taravati 2008, 64.

two ways of access: a direct horizontal access and a vertical access. The size of the access defines not only the term used to describe it but also the practical, functional, social and cultural connotations[25].

12 Entering a house from above offers some advantages as well as a series of disadvantages. It is undeniable that the access over the roof has some advantages when it comes to security. By removing the ladder(s) to the roof, the house walls serve as ›fortification‹. However, this only really applies if the normal traffic runs on a level that is lower than the roof. In steep slope settlements, this is often not the case. Here, the roofs are the actual streets. Anyone who makes it onto the roof could possibly also enter a house. In sub-recent examples, e.g., from Afghanistan[26] the village in its entity forms an inaccessible structure and provides the necessary security for the community. In addition to the security aspect, access from the roof in a slope settlement somehow ensures a clear visual social control over who is moving in the settlement and who is entering buildings. At the same time, the relatively narrow access ensures that curious eyes see nothing of the house interior[27]. However, in densely built settlements, it also ensures that some light is channelled into the interior at the same time as the access is kept under control. An argument for having such entrances could be that animals and unwanted creatures cannot easily enter and that smoke can exit the space easily through it[28].

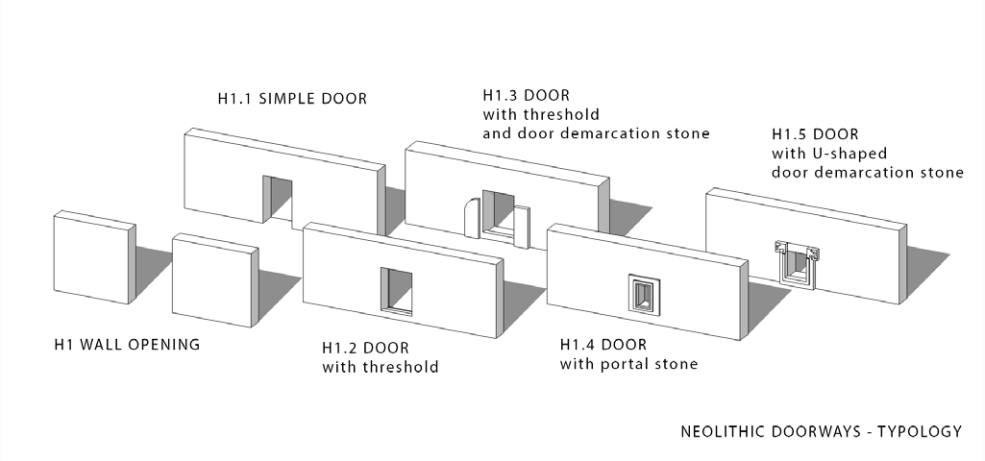
13 The relatively small opening limits the accessibility and makes it difficult to bring things and people into and out of the ›house‹. Nowadays, this could be seen as a disadvantage. Who could actually pass through the openings? Were there gender- or age-specific buildings where only a certain group was allowed to enter and exit?

14 Another aspect to consider is that rain can easily enter the interior when the roof opening is not covered or inadequately executed. It is essential to maintain the roof surface and the area around roof openings regularly to keep the building accessible and the roof watertight. Water management in dense settlements, especially on steep slopes, is crucial for the survival of the built environment. The impact of heavy rain or snow should not be underestimated and may have caused severe damage[29]. In addition, roof material can easily be washed into the house interior through the opening if it is not carefully designed and maintained. The circulation of air through the hatchway is not optimal, although feasible. The integration of an opening into the roof may lead to some structural decisions being made and cause structural weaknesses depending on the size and location of the opening. Roof openings can be seen as a weak point when sheltering against the elements is the goal – variations in temperature (too hot and too cold should be avoided) as well as rain and wind. However, it is, as many examples show, possible to cover roof openings. There are various ways that this was and is done, and almost all variations were shown in Çatalhöyük reconstruction artworks[30]. Not all may have had the anticipated effect, e.g., a stone slab placed atop to close an opening could lock people inside when additional weight was loaded on top (stones). On the other hand, a lack of ladders or other climbing supports had perhaps a higher impact on the accessibility of such buildings.

Horizontal Access Points

15 Entering a space by moving horizontally through a gap in a wall is obviously one of the simplest ways of crossing a spatial boundary. However, there are various types of doorways (fig. 1). For classical and later periods, the terms doorway and door

25 Steadman 2015, 59–62.
26 Hallet – Shamizay 1980; Wutt 1981.
27 Steadman 2015, 59.
28 On the importance of air vents in regard to health conditions, see Shillito et al. 2021.
29 Kinzel 2013; Kinzel et al. 2021.
30 Kurapkat 2010, 143–148 and references therein.



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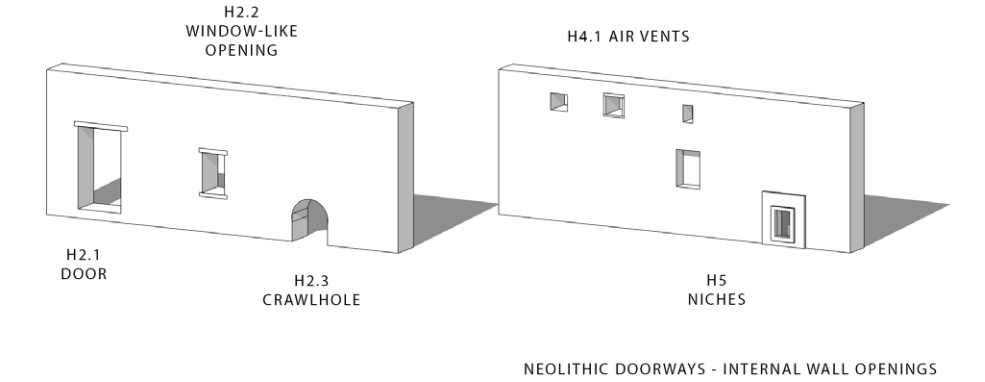

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Fig. 1: Neolithic doorways: horizontal access

Fig. 2: Neolithic doorways: horizontal access variations

are used as synonyms, although initially the doorway was the actual opening and its construction, whereas the door was the movable part that closed the doorway[31]. Nowadays, the door is seen as the entire construction, including the frame, the closing part and the opening itself. However, in the following, the term doorway will be used since, in most cases of Neolithic doorways, no traces of the closing part have survived and may have never existed.

16 *Doorways*: Doorways or doors are, in general, defined by two vertical elements on both sides of the wall opening – the recess or reveal – and a horizontally placed element on top to span the opening – the lintel.

Type H1 – Doorways to the Exterior

17 Doorways that connect the exterior with the interior of a building are the very basic means of entering an interior or exterior space. It is the basic concept of being at a place by crossing a line and stepping into, e.g., a circle. The easiest way of doing so is to create a simple gap – wide enough to slip through – in the boundary, which, in the case of a building, is a wall.

31 For Çatalhöyük, the various doorways were defined as ›access holes‹, including crawl holes, openings, doorways and windows: a gap in a wall that goes right through, connecting two adjacent spaces. These were generally small with a raised threshold and bridged over the top; there is rarely evidence of these being of full height as a doorway (Taylor 2016, 146 after Farid – Hodder 2014, 38 f.).

18 *Type H1.1 Without any special treatment*: A simple gap in the wall; with or without a lintel.

19 *Type H1.2 With threshold*: A wall opening with a wooden or stone-made threshold. The threshold can consist of several steps and have a stone slab as the actual threshold.

20 *Type H1.3 With door demarcation stone*: Doorways with two vertically placed stone slabs on both sides of the wall opening are perhaps best known from PPNB Beidha[32] and Shkārat Msaied[33].

21 *Type H1.4 With portal stones*: Perforated monolithic stone slabs used as door frames or portal stones are known from the Urfa Region in Southeast Anatolia[34]. There are now also examples reported from the Tigris basin. The openings in these portal stones measure from 0.45 to 0.7 m. The few known examples have only slightly raised rims around the opening, in contrast to the portal stones used as vertical access points (see also below).

22 *Type H1.5 With U-shaped portal stone*: A unique U-shaped portal stone is known from Building C at Göbekli Tepe[35]. There are another two possible examples found at the sites, but these are heavily fragmented. There is a good chance that there were more examples of this special form of door demarcation at the site. The portal stone in Building C was decorated on the top with carved predators that evidently had an apotropaic function[36].

Type H2 – Internal Doorways

23 What is an internal connection? (fig. 2) There are differences depending on the topography and individual approaches at sites; e.g., at LPPNB/PPNC Ba'ja doorways on the first floor of buildings are wider and higher so that it is possible, in some cases, to move through them walking upright and transport »things« from one room to the other. However, in basements or on the ground floors, internal connections are generally kept small in combination with a high threshold (window-like openings) limiting the access.

24 *Type H2.1 Doorway*: Wall openings made in a similar fashion to the external doorways – with or without a threshold. In rubble-stone masonry, the recess is carefully set and indicates the possible use of plumb lines to define the vertical limits of the wall opening. Lintels are made the same way as for external doors. Sometimes, internal doorways are a bit wider than the exterior ones to allow better air circulation and light distribution inside a structure[37]. In sub-recent traditional architecture, lintels of internal doorways are made of wood only; stone seems to be reserved for the external doorways. Several doors connecting internal spaces are known from Area B at Basta, e.g. in Building BI, where they measure around 0.75–0.85 m in width, and in Building BVIII, where they are also around 0.75 m wide and about 1.5 m high[38]. In several cases, it is hard to decide if the doorways are actually internal connections. At Ba'ja, for example, doorways are predominantly internal connections on the upper floor level of a building complex but at the same time also connecting individual building units with each other.

25 *Type H2.2 Window-like opening – high threshold*: In some cases, the threshold of a doorway was raised to a height that means it could be viewed as a parapet[39]. However, these should still be understood as (raised) thresholds. Some of the best examples for

32 Kirkbride 1966; Byrd 2005.

33 Kinzel 2013; Kinzel 2019.

34 Schmidt 2009, 206 f.; Kurapkat 2010; Kinzel – Clare 2020; Kinzel 2023; Kinzel in press.

35 Kurapkat 2010, 140–142.

36 Schmidt 2005, 17 fig. 5; Piesker 2014, 42–44; Kurapkat 2010, 140–142.

37 Kinzel 2013, 180.

38 Nissen 2006, 162. 171–177; Kinzel 2006, 196 f.

39 Kuijt 2011, 142 describes this as »half-doors« with the appearance of windows.

this kind of access into rooms are known from the LPPNB architecture of the Southern Levant, at sites such as Basta[40], Ba'ja[41], Ghwair[42], ʿAin Jammam[43], as-Sifiyya[44], el-Hemmeh[45], ʿAin Ghazal[46] and Wadi Hamarash[47], but have also been found at sites along the Euphrates Valley, including Jerf el-Ahmar[48]. Almost all examples have the same size and ratio. In general, window-like openings connecting internal spaces – often in basements or on ground floor levels. The parapet is between 0.5–0.7 m high and the portrait-oriented, rectangular-shaped openings measure about 0.4–0.5 m in width and 0.6–0.7 m in height[49]. The windowsill (threshold) is made of one or two larger, flat stone slabs. The lintel is constructed in a similar way. In some cases, branches were likely placed there in addition to the stone slab spanning the width of the window. In traditional houses of the greater Petra area, combined wooden and stone lintels are attested. As recent archaeological experiments undertaken in Area B at Basta have shown, it is possible to pass through those wall openings[50]. However, the access is limited by the size and flexibility of the user. The sills have slightly polished surfaces, plausible traces of regular use, but how intensely those wall openings were actually used and for how long cannot be determined.

26 *Type H2.3 Crawl hole*[51]: Crawl holes are, in contrast to window-like openings, placed on or just above floor level and have, in some cases, also a threshold. One has to physically bend down to crawl through it. Crawl holes are most prominently known from Çatalhöyük[52]. Dimensions are reported to be between 0.4–0.75 m in width and 0.72–0.77 m in height[53]. Sizes are sufficient for passing through on a daily basis but are also kept small enough to allow for a stable indoor climate in the separated spaces. A variety of different shapes are known for crawl holes at Çatalhöyük[54].

Type H3 – Gate

27 Gates should be understood as large doors – often closed with two gate leaves to allow more people or animals to pass through at the same time. So far, no real gates have been attested in the context of Early Neolithic architecture. A possible gate, which was later blocked, was identified in Area B South at Ba'ja, in Wall B74:22. The gate is about 1.4 m wide and has so far been exposed to a height of c. 1.15 m, which is obviously not its full size. The lintel is made of a long stone slab, which was probably combined with a wooden lintel (Loc. B74:35)[55].

40 Gebel et al. 2006b.
41 Bienert – Gebel 2004; Kinzel 2013.
42 Simmons 2000; Simmons – Najjar 2003; Ladah 2006.
43 Waheeb – Fino 1997; Gebel 2008; Kinzel 2013.
44 Mahasneh 2001; Mahasneh 2004.
45 Makarewicz – Rose 2011.
46 Banning – Byrd 1987; Rollefson – Kafafi 2013.
47 Sampson 2010, Sampson 2011, Sampson 2013.
48 Stordeur 2015, 78.
49 In the case of Neolithic Basta: 0.35 × 0.5 m to 0.45 × 0.65 m – sills/thresholds are between 0.6–0.75 m above the floor surface (Kinzel 2006, 197).
50 Kinzel 2013.
51 For crawl holes, the terms ›portholes‹ (e.g. Smith 1990, 330 f.; Lelek Tvetmarken 2012, 89) or ›access holes‹ (Taylor 2016, 146 after Farid – Hodder 2014, 38 f.) are also used.
52 Mellaart 1967; Hodder 2006; Barański et al. 2015; Haddow 2016; Barański et al. 2022a.
53 Mellaart 1967, 56.
54 Barański 2016; Haddow 2016; Haddow 2017.
55 Kinzel 2013, 106.

Types H4, H5 and H6 – Other Horizontal Wall Openings and Features

28 The features presented here are in general too small to be used as physical access points or are structurally related to wall openings, e.g. niches. However, they may have served as communication openings, air vents or to store items.

29 *Type H4.1 Air vents/air circulation openings*: Only a few examples of air vents are known. Many of them are poorly preserved, whereas others, e.g. at LPPNB Ba'ja or Göbekli Tepe, were found blocked or closed as a result of later building events[56].

30 *Type H4.2 Smoke/fume exits/ventilation shafts (preforms of chimneys)*: A special form of air vent is one where the extension of it has a passage into a smoke or fume exit, or chimney. There are a few examples attested at, e.g., PPNB Ghwair (Area A/1, Room 1)[57] in the greater Petra area and roughly contemporary Aşıklı Höyük and Balıklı in Central Anatolia. Here, they are strategically placed near the fireplaces/roasting pits to ensure a proper airflow[58]. There is also a recently exposed possible air vent/smoke exit opening in Space 61 at Göbekli Tepe. Only two sides – made of thin stone slabs – have survived in the upper part of the wall, just below the remains of the roof or ceiling screed. The opening is located above a fire installation and would ideally have led the smoke out into the stepped alley.

31 *Type H5 Niches*: Niches are found in many Neolithic buildings. They are constructed in a very similar manner to window-like openings and crawl holes. Sizes can vary greatly, but generally have the same proportions as window-like openings or air vents. When filled with sediment material, niches can be easily mistaken for window-like openings. Niches are known from, for example, ʿAin Jammam, in the northern wall of Space AJ01 (fig. 3)[59], Beidha, Phase C 1, Building 5[60], Basta, Building BVIII[61], Boncuklu Tarla, Building EA 1[62], Çatalhöyük, e.g. Building 43, Space 600[63], Ghwair, Area 1, Room 1 (fig. 4)[64], and Göbekli Tepe, in the northern walls of Building B (fig. 5. 6. 7)[65].

32 *Type H6 Low walls/kerbs/platforms and benches*[66]: At some sites, the internal spaces are divided by low walls that do not reach up to the ceiling, a set of stones, kerbs, or earthen or wattle-and-daub structures that are easily crossed by stepping over; these serve more as extended thresholds than walls (fig. 8. 9). Sometimes, a stepping stone was placed in front of the wall to ease the access to and exit from a space. This arrangement is often found where room compartments are used as storage bins or workshops[67]. At other sites, e.g. Çatalhöyük, the space is divided by platforms and benches placed against the walls, forming a central sunken floor area. According to the activities that took place on them and based on the deposits found there, these features can be further divided into ›clean‹ and ›dirty‹ areas. The step up to the platform forms the physical and intangible limit of this spatial unit.

56 Kinzel 2013, 107. 179 f.

57 Simmons – Najjar 2003, 413.

58 Simmons – Najjar 2006; Duru et al. 2021a; Shillito et al. 2021.

59 Waheeb – Fino 1997; Gebel 2008; Kinzel 2013, 558.

60 Byrd 2005, 55 fig. 305.

61 Kinzel 2013, 556 pl. 5.20.

62 Kodaş – Çiftçi 2022.

63 Barański 2016. At Çatalhöyük, niches were also referred to as a ›shelf‹, ›hand recess‹ or ›recess‹. A plastered opening in the wall of a house, acting as a shelf, often utilised the back of the neighbouring house wall as its back (Taylor 2016,147 after Farid – Hodder 2014, 38 f.).

64 Simmons – Najjar 1998, 94; Simmons – Najjar 2003, 413.

65 Kinzel – Clare 2020.

66 For Çatalhöyük, this was described as follows: »Kerb: Ridge, Threshold, Step. Raised clay ridges across the floor area creating internal demarcation zones for internal activity areas; sometimes the demarcation occurs as a shallow step. Kerbs can also be created by the edges of platforms and other raised furnishing« (Taylor 2016, 146 after Farid – Hodder 2014, 38 f.).

67 See Bartl 2004; Kuijt – Finlayson 2009; Kuijt 2011; Kinzel 2013.

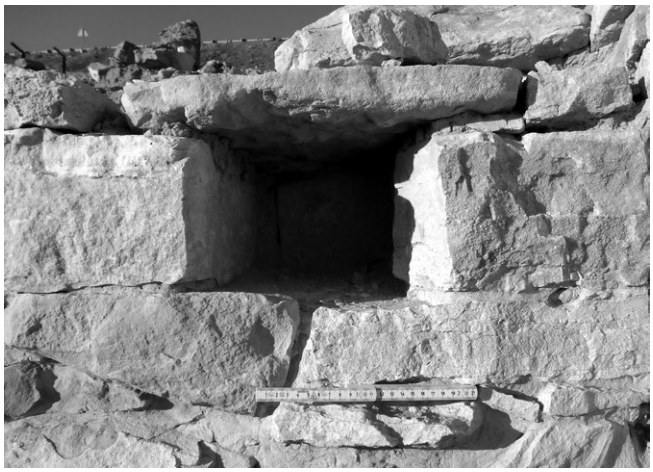

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Fig. 3: Niche at ʿAin Jammam, Space AJ01

Fig. 4: Niche at Ghwair, Area B, Space 1

Fig. 5: Göbekli Tepe, Building B, niche Loc. L09-67-101

Fig. 6: Göbekli Tepe, Building B, portal stone of niche Loc. L09-67-87

Fig. 7: Göbekli Tepe, Building B, elevation drawing of walls Loc. L09-67-102 and L09-67-103 with niches L09-67-101 and L09-67-87

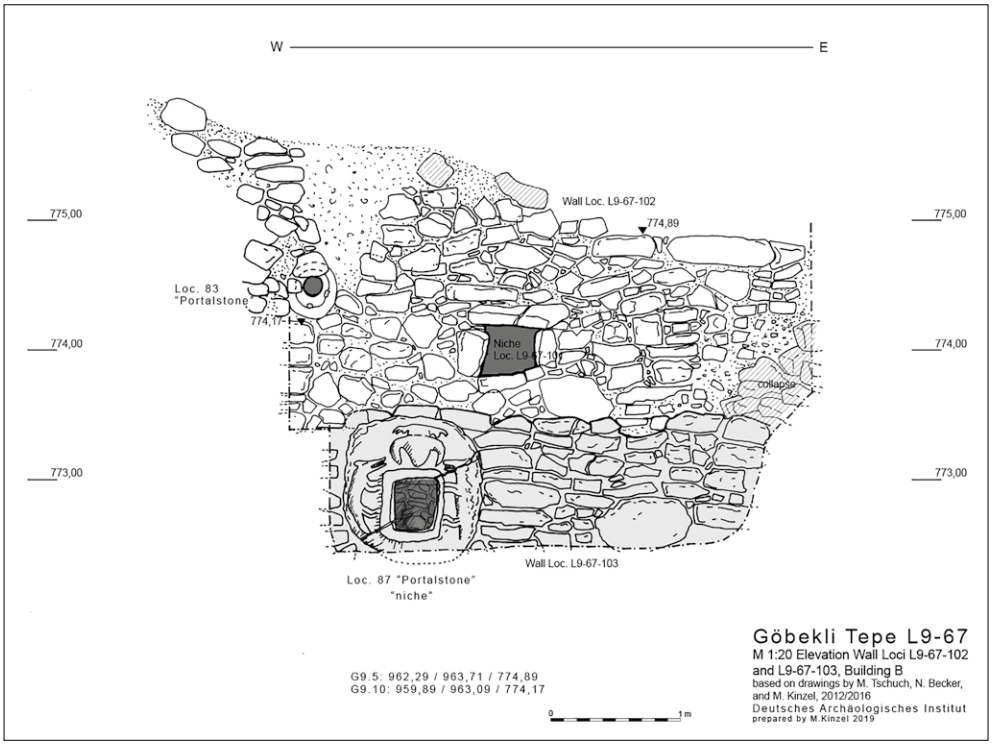

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Fig. 8: Shkārat Msaied, Unit J, stone setting to separate activity areas

Fig. 9: Shkārat Msaied, Unit F, low stone built kerb wall to separate activity areas

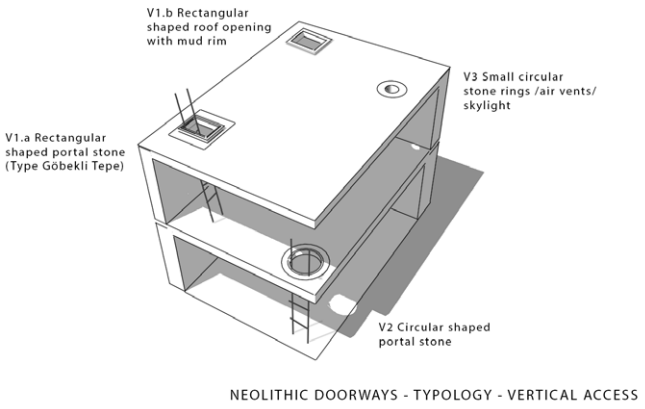
Vertical Access Points – Roof Openings, Hatchways and Trapdoors

33 For a great number of Neolithic buildings, no entrances have been preserved in the archaeological record. In 2012, Pascal Butterlin et al. raised the question, »But where are the doors?«[68] We know from sites such as Basta[69] that in most steep slope settlements, the roofs were one of the main access ›roads‹ and that daily life took place on the roofs. Consequently, it seems logical to assume that the means of access into the buildings were located in the roofs (fig. 10). However, one could also argue that from the roof of one building it would be possible to access buildings on the higher (elevation) level on the slope horizontally, through doorways between buildings. At Basta[70], Ba'ja[71] and Göbekli Tepe[72] there are indications that this may have been the case.

34 In these same settlements, there are many examples of trapdoors in the roofs being the commonly used doorways – a vertical access into the interior from above. Such roof openings could be termed as hatchways or trapdoors[73].

35 We have to assume that there was a wide range of technical solutions for constructing the roof openings; ensuring that roof material was not washed into the interior of the building or pushed in when entering the structure. Wooden frames, possibly combined with flat stones, could have been used as a frame for such roof openings. Ethnographic examples, e.g., from the Pueblos of Southwestern United States, show a very similar setup, best described by Victor Mindeleff: »The smaller roof openings

Fig. 10: Neolithic doorways: vertical access



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68 Butterlin et al. 2012.

69 Gebel et al. 2006b.

70 Gebel et al. 2006b.

71 Kinzel 2013.

72 Kurapkat 2010.

73 Cf. Mindeleff 1891, 201: »ROOF OPENINGS. The line of separation between roof openings and doors and windows is, with few exceptions, sharply drawn. The origin of these roof-holes, whose use at the present time is widespread, was undoubtedly in the simple trap door which gave access to the rooms of the first terrace. […] The smaller roof openings in their simplest form are constructed in essentially the same manner as the trap doors, and the width is usually regulated by the distance between two adjacent roof beams. The second series of small roof poles is interrupted at the sides of the opening, which sides are finished by means of carefully laid small stones in the same manner as are projecting copings. This finish is often carried several inches above the roof and crowned with narrow stone slabs, one on each of the four sides, forming a sort of frame which protects the mud plastered sides of the opening from the action of the rains«.

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36 Until now, no trapdoor or hatchway has been found preserved in situ. On the other hand, there are numerous hints and traces that point towards the existence of such roof openings used for ingress and egress. At, for example, Göbekli Tepe[75], Ayanlar[76], Karahantepe[77] and Gre Filla[78], monolithic door frames – so-called portal stones – were found within the roof collapse in the room interiors. At Çatalhöyük, this assumption was confirmed by the documentation of the imprints of ladders on floors and walls[79].

37 How was such a roof opening constructed? As suggested by Dietmar Kurapkat[80], the edge of roof openings could have been made of wood or other perishable material. Such constructions would have left no clear traces in the archaeological record. Roof openings encircled with a raised edge or rim were also found in PPNA/EPPNB buildings at Jerf el-Ahmar on the middle Euphrates[81].

Type V1 – Rectangular Openings

38 *Type V1.a Rectangular portal stones*: At Göbekli Tepe, several stone-made frame-like objects have been found. The common characteristics of this group of finds are that these monolithic frames a) are made of limestone, with external dimensions of about 1.5 × 1 m to about 2 × 1.5 m; b) have openings measuring about 1 × 0.5 × 0.5 m; and c) that their edges are L-shaped in profile. In some cases, the upper edge is also articulated with shallow relief bands, which could be interpreted as snakes[82]. Other pieces have animal sculptures, perhaps guarding the entrance[83]. One of the best-preserved examples (Loc. L09-66-84) was found in the fill inside Building B, about 0.5 m above the plaster floor surface[84]. The stone frame is carved from one piece of limestone and measures 1.8 m by 1.4 m and is 0.3 m thick. The lower 15 cm of the object is a slightly ovoid plate, from which rises a rectangular frame with a thickness of 15 cm. The latter frame is rectangular in shape and measures 1.25 m by 0.85 m, with an opening that measures 0.95 m by 0.55 m. Only the visible part of the object – the raised rectangular frame around the opening – had been carefully smoothed, whereas the other parts were not. Kurapkat has suggested that this object served as a hatchway that was incorporated into the structure of an earthen (most probably flat) roof construction[85]. Indeed, the frame would have fulfilled most requirements for an opening in a flat-roof structure: its raised rim would have prevented rainwater run-off from penetrating the interior of the building, and its lower part (the

74 Mindeleff 1891, 201.

75 Kurapkat 2010, 143–148; Kinzel – Clare 2020; Kinzel et al. 2021.

76 Çelik 2017.

77 Karul 2021, 25; Karul 2022b, 6–8.

78 Ökse 2021; Ökse 2022; Ökse et al. 2022; Ökse in press.

79 »Evidence for wooden structures used to access buildings from the roof. Ladders have not been found in situ but are represented by scars in the wall plaster or carbon staining on the walls in burnt buildings. The ladder location is generally identified by areas of disturbance or shallow depressions or cuts on the floor. Generally found in the southern zone of the building close to the oven location from where smoke would escape the house« (Taylor 2016, 146 f.).

80 Kurapkat 2010, 143–148.

81 Stordeur 2015.

82 Peters – Pöllath in press.

83 Schmidt 2011.

84 Kurapkat 2010, 145. 232; Kinzel – Clare 2020.

85 Kurapkat 2010, 145.

ovoid plate) would have held the stone in place, being incorporated into the roof layers and thus also hiding the roughly worked part of the object. From a structural engineering point of view, the weight of the stone frame (approx. 900–1000 kg) is far too heavy for a Neolithic roof construction[86]. This may indeed have been the case, as indicated by the collapse of the roof; on the other hand, the earthen roof was already a heavy load for the overall load-bearing structure and the addition of a stone-made hatchway may not have added a significant extra load. Unfortunately, no traces of structural elements made of wood have been found at Göbekli Tepe. However, as the Neolithic builders did not abide by any building regulations, we can assume that the structural loads in constructions were stretched to the edge and beyond, perhaps even bordering on structural failure[87].

39 A comparable but significantly different piece was found in the very same building. Here, the stone frame was placed in front of a niche (Loc. L09-67-87) and has a bucranium and two fox reliefs. Around the opening, a slightly raised rim can be traced. In contrast to the portal stone (Loc. L09-66-84), this rim does not show the distinct L-shaped section that would rise above the roof surface[88].

40 Fragments of portal stones have been frequently discovered in the fill of rooms or collapse material. Their mostly fragmentary state of preservation can also be explained by their original location in the roof structures. When roofs collapsed – either because of a lack of care or wilful destruction – the roof openings, represented here by the portal stones, inevitably fell into the interior of the building where they usually broke on impact. Several similar contexts with fragmented stone frames within roof collapse on floors have been attested at Göbekli Tepe, e.g. in Building C, Space 38, Space 16 and Structure DR1-2 (see below), as well as at other sites such as Karahantepe[89], Sefertepe[90], Sayburç[91] and Gre Filla[92].

41 *Type V1.b Rectangular roof opening (with wood or mud rim)*: The stone-made roof doorway of the Urfa Region is a special format of the simple rectangular roof opening. In most cases, the simple form was the standard. Here, the edges of the roof opening were less strictly formalised. It can be assumed that, in some cases, wooden elements may have formed a frame around the opening or that simple stone slabs were placed so as to form an edge to prevent earthen material and rainwater from entering the house interior. A common way of dealing with the issue is to build a raised rim made of mud around the opening. This solution certainly requires regular maintenance, but this can be done with relatively little effort.

Type V2 – Circular Portal Stones

42 This type is quite common at Göbekli Tepe, too[93]. The circular portal stones have a less pronounced L-shaped section, which is characteristic for the rectangular ones. One example from Space 1 in Area L09-55 is about 0.62–0.65 m in diameter with an opening that measures 0.35–0.4 m in diameter[94]. Other examples are within the same size range, but differ in the shape of the section.

86 Kurapkat 2010, 145; Kinzel – Clare 2020, 43.
87 Kinzel – Clare 2020, 43.
88 Kinzel – Clare 2020.
89 Çelik 2003; Çelik 2011; Karul 2021; Karul 2022a; Karul 2022b.
90 Çelik 2006; Güldoğan 2021.
91 Özdoğan 2022; Özdoğan – Uludağ 2022.
92 Ökse et al. 2022.
93 Schmidt 2006; Kurapkat 2010.
94 After Kurapkat 2010, 73 fig. 180.

Type V3 – Small Stone Frames/Air Vents/Skylights

43 In contrast to the aforementioned examples, there is an additional group of stones rings with perforations that rarely exceed 0.2 m in diameter. They have no L-shaped section either and are obviously too narrow to pass through. These are interpreted as air vents or skylights. They have so far mainly been found in deposits that can be interpreted as roof or wall collapse.

Doorways – Construction Elements and Details

44 Depending on the general choice of building material and concept for the doorways, the overall (structural) design differs (fig. 11). The earliest examples of doorways lack, to our knowledge, what we today consider the main element: the door or door leaf; the part that actually closes the opening. Doorways are constructed with a reveal or recess – defining the width of the opening – a threshold that defines the ›border‹ to cross between spaces and a lintel, which covers the opening on the top.

45 This may be true for horizontal access points and doors, but how should we describe a vertical roof opening? Roof openings have no defined threshold, lintel or recess. In the case of the portal stones used in the roofs at, e.g., Göbekli Tepe, the raised rim could be understood as a threshold that can be approached from all directions. By moving through this ›gate‹ or ›portal‹ one would enter or leave a sphere of a defined world or cosmos. In the following, some general construction details are given for both horizontal and vertical doorways, mainly based on examples from Göbekli Tepe.

46 *Sill and threshold*: Sometimes, a threshold can mark a physical and psychological barrier stronger than any actual door[95]. Based on cultural traditions, crossing thresholds can be connected with anxiety, awe and fear – ›Schwellenangst‹. In most cases, one single horizontally placed stone slab serves as threshold or windowsill. Sometimes there are additional steps leading towards the threshold – both on the exterior and interior. For doors, wooden thresholds are commonly known but rarely well preserved. Thresholds made with mud bricks and covered with plaster are a common feature in earthen architecture[96].

47 *Reveal/recess*: In general, the reveal or recess defines both opposing (vertical) sides of a wall opening (fig. 12). It is constructed, depending on the building material, very carefully. When built in stone, it seems that plumbs and strings were used to create an accurate recess line for the opening. In some cases, flagstones or wooden posts have

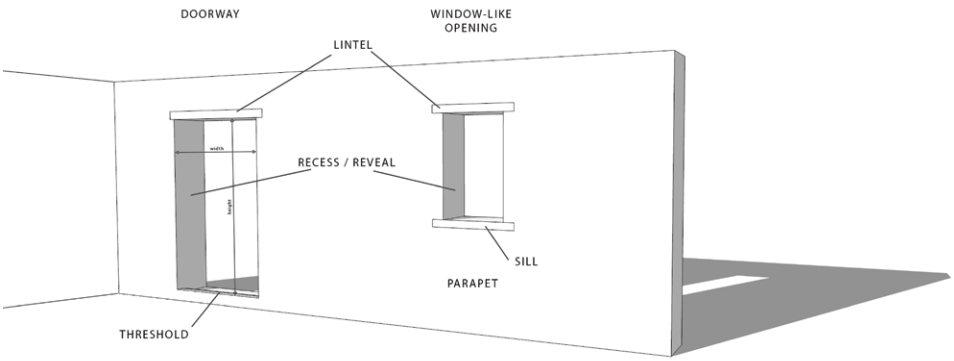

Fig. 11: Terminology of wall openings

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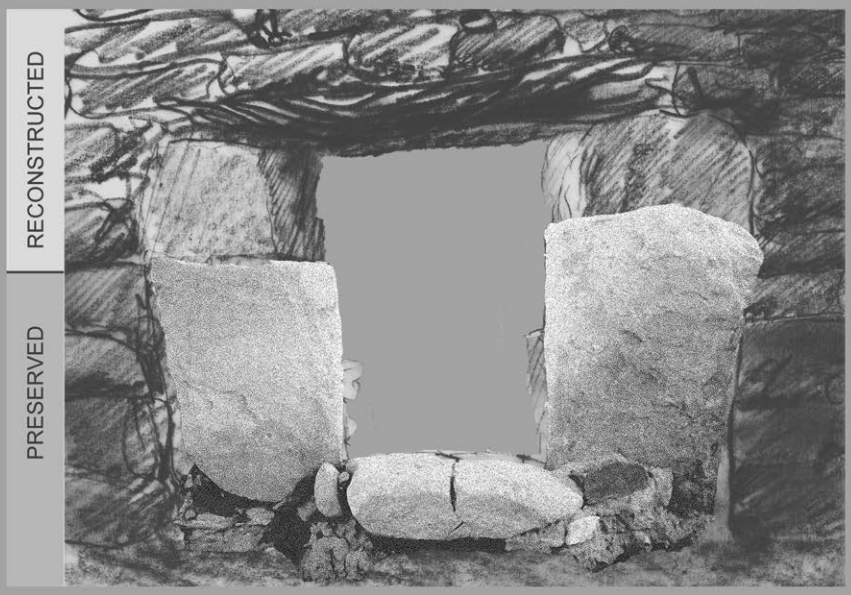
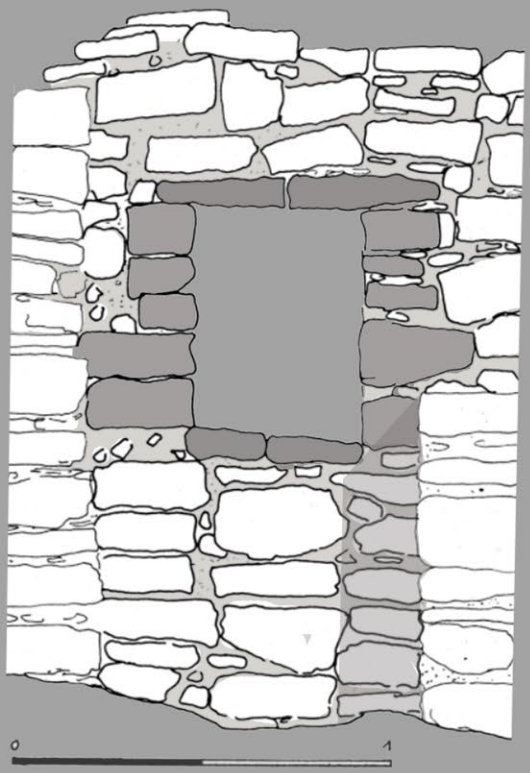
95 Wilburn 2018, 104 f.; Wilburn 2019.

96 Naumann 1971, 160–174; Aurenche – Callot 1977, 158; Aurenche 1981, 45–72; Esin – Harmankaya 1999. According to Taylor 2016, 147, thresholds at Çatalhöyük were defined as follows: »Threshold: Raised step in access holes from one space to another. Can be shallow or deep. Often created by the initial course of the building's walls.«

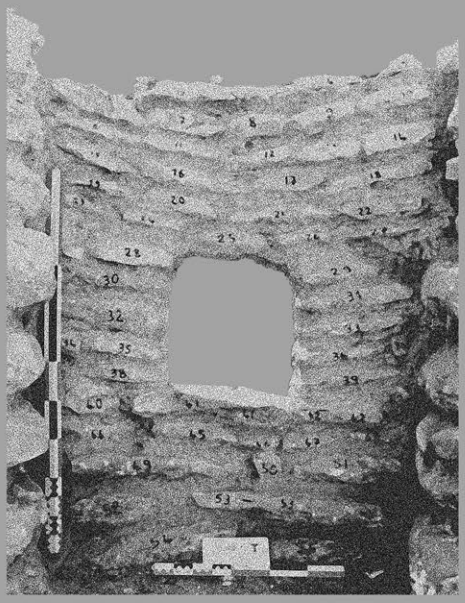


Shkarat Msaied Building Unit C
(after Kinzel 2013: Plate 2.23.B/C)

Ba'ja Building BIV,
space BNR 2, Loc. 32
(after Kinzel 2013:414, plate 3.10e)



BASTA B I - Squares B 68, Locus 19 and B 69, Locus10
doorway between spaces 2 and 11 (after Kinzel 2006: Fig.6)



Jerf el-Ahmar Building EA30 II/W
(after Stordeur 2015: Fig. 19.5)

NEOLITHIC WALL OPENINGS
Scale 1:20

Fig. 12: Neolithic means of access 1 – wall openings at Shkārat Msaied, Baja, Basta and Jerf el-Ahmar

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Fig. 13: Traditional lintel construction at Old Basta, Jordan

Fig. 14: Traditional door hinge detail at Old Basta, Jordan

been put in place to define the opening and possibly to fix a door leaf or similar to close the opening. The vertical posts of a wooden (door) frame are called jambs.

48 *Lintel*: In earthen constructions – wet-loam techniques, rammed earth or mud bricks – the lintel could be made with smaller branches, arm-thick beams and, rarely, stone (fig. 13. 14). A combination of wood and stone for lintels is also well attested for stone-built structures both from archaeological and ethnographic studies[97]. In contrast to later periods, no arched wall openings have so far been attested for the Neolithic. Single stone slab lintels are often found broken as the loads stemming from the wall were focused directly on the centre of the lintel. These structural defects of broken lintels are clearly a result of inadequate structural design due to knowledge about load bearing and structural principles not yet having been established. Neolithic builders constructed all of them without any security and often just at the edge of what is possible.

49 *Wood-made frames and mud-made rims*: Only traces of possible wooden door-frames have survived. There were surely many wooden elements in Neolithic architecture. Most of the preserved samples are charred wood. The carbonised wood stems mainly from the roof construction itself[98] and not from the frames around the roof opening. As mentioned above, another possibility for preventing rainwater running into the roof opening is to make a rim of mud, sometimes incorporating smaller stones. However, although we have many ethnographic records of such solutions, none has been found so far in an archaeological context.

97 Peters 1976; Kammash 1986; Biewers 1997; Blum 2003; Mecca – Dipasquale 2009, 339–343; Kinzel 2013, 161–209; Schäfer – Kinzel 2021.

98 e.g. at Shkārat Msaied, Jordan (Kinzel 2013; Kinzel 2019), Aşıklı, Turkey (Özbaşaran et al. 2018) or Tell Qarassa, Syria (Balbo et al. 2012).

50 *Monolithic Frames*[99]: Monolithic frames are known especially from the Urfa Region[100]. They are used for both wall and roof openings, as well as to frame niches as known from Building B at Göbekli Tepe[101]. However, there are slight – but significant – differences: The raised rims surrounding the openings are much higher and more carefully worked for roof entrances. The rims or frames for wall openings are less pronounced and reduced in height. The same is true for the ones found in front of niches[102]. In general, we can distinguish between two groups based on shape: *1) Round or circular* and *2) Rectangular* (fig. 15).

51 Especially in the context of PPNB domestic structures at Göbekli Tepe, both shapes have been found together in the same structure, raising the question of why two portal stones were needed in one structure. Both shapes are known to be in different sizes. Especially smaller stone rings are well attested. Could the possible two-storey conception of the PPNB buildings be a key for our understanding here? Considering the case of Structure DR1-2[103], located south of the main excavation area, and the portal

99 For comparison: »One more characteristic type of the ancient pueblo doorway remains to be described. During the autumn of 1883, when the ruined pueblo of Kin-tiel was surveyed, a number of excavations were made in and about the pueblo. […] Built into an inner partition of this room was found a large slab of stone, pierced with a circular hole of sufficient size for a man to squeeze through. This slab was set on edge and incorporated into the masonry of the partition, and evidently served as a means of communication with another room. The position of this doorway and its relation to the room in which it occurs may be seen from the illustration in Pl. C, which shows the stone in situ. The doorway or ›stone-close‹ is shown in fig. 86 on a sufficient scale to indicate the degree of technical skill in the architectural treatment of stone possessed by the builders of this old pueblo. The writer visited Zuñi in October of the same season, and on describing this find to Mr. Frank H. Cushing, learned that the Zuñi Indians still preserved traditional knowledge of this device. Mr. Cushing kindly furnished at the time the following extract from the tale of ›The Deer-Slayer and the Wizards‹, a Zuñi folk-tale of the early occupancy of the valley of Zuñi. ›»How will they enter?« said the young man to his wife. »Through the stone-close at the side«, she answered. In the days of the ancients, the doorways were often made of a great slab of stone with a round hole cut through the middle, and a round stone slab to close it, which was called the stone-close, that the enemy might not enter in times of war.‹ Mr. Cushing had found displaced fragments of such circular stone doorways at ruins some distance northwest from Zuñi, but had been under the impression that they were used as roof openings. All examples of this device known to the writer as having been found in place occurred in side walls of rooms. Mr. E. W. Nelson[…] found and sent to the Smithsonian Institution, in the autumn of 1884, ›a flat stone about 18 inches square with a round hole cut in the middle of it‹. This stone was taken from the wall of one of the old ruined stone houses near Springerville, in an Indian ruin. The stone was set in the wall between two inner rooms of the ruin, and evidently served as a means of communication or perhaps a ventilator. […] Mr. F. Webb Hodge […] describes this form of opening as being of quite common occurrence in the rooms of this long-buried pueblo. Here the doorways are associated with the round slabs used for closing them. The latter were held in place by props within the room. No slabs of this form were seen at Kin-tiel, but quite possibly some of the large slabs of nearly rectangular form, found within this ruin, may have served the same purpose. It would seem more reasonable to use the rectangular slabs for this purpose when the openings were conveniently near the floors. No example of the stone-close has as yet been found in Tusayan. The annular doorway described above affords the only instance known to the writer where access openings were closed with a rigid device of aboriginal invention; and from the character of its material this device was necessarily restricted to openings of small size. The larger rectangular doorways, when not partly closed by masonry, probably were covered only with blankets or skin rugs suspended from the lintel. In the discussion of sealed windows modern examples resembling the stone-close device will be noted, but these are usually employed in a more permanent manner« (Mindeleff 1891, 192–194).

100 Benny Waszk is currently working on a comprehensive study of the portal stones from Göbekli Tepe as part of his PhD thesis at the University of Mainz, including a full catalogue of all portal stones (Waszk in prep). This detailed study of tool- and use-traces, as well as weathering, may help us better understand the nature and location of the portal stones as roof openings and their meaning. Analysing the various types, their state of preservation and their find context may help to provide additional clues for a relative chronological stratigraphy. See also Schmidt 2010, 250–254.

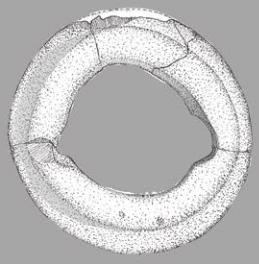
101 Kurapkat 2010; Kinzel – Clare 2020.

102 Kinzel – Clare 2020.

103 Kinzel 2023: »In the eastern chamber (Loc. DR1-55), the fragments of a round portal stone (Obj.-No. GT17_WS_2117) were found under a slab covering of a later phase [of the bench] (DR1-Feature 1 and Loc. DR1-27). The portal stone with a diameter of about 50 centimetres could be almost completely re-assembled; showing traces of heat exposure and heavy sintering. Another portal stone - rectangular in shape - was found in the collapse near the northern wall […] (fig. 5). This one showed the characteristic six-centimetre-high stone rim and the surrounding ›flange‹, which Kurapkat interprets as the connecting surface to the [earthen] roof. This interpretation is in general correct. Unfortunately, it is hardly possible to make a satisfactory statement about the interior height of the space, as the wall collapse does not provide any clear indication. The presence of two different forms of portal stones certainly raises the question of why two differently designed stone frames appear in one and the same building. They obviously serve very similar purposes, but probably in different contexts« (translated and edited by the author).

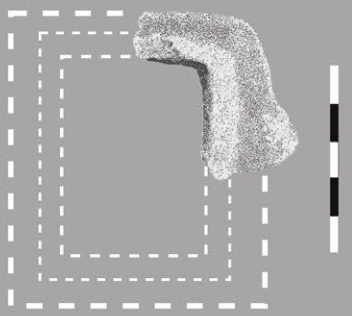
Shkarat Msaied Unit H
Air Vent in the roof (Kinzel 2013)

Göbekli Tepe
L 09-46-22 (based on GT2022, B. Waszk)



Göbekli Tepe- Space 1
L 09-55 (after Kurapkat 2015:72, Fig.178)

Göbekli Tepe- Building B
Niche, Loc. L09-67-87 (after Kinzel - Clare 2020)



Karahantepe
surface find (after Celik 2017)

Göbekli Tepe - Building B
Loc. L09-66-84 (based on SFM model by B. Waszk, edited by M. Kinzel)

Gre Filla Structure 7
Obj. P10/0037/R/01 (after Ökse 2022:33, Fig.10)

0 1 m

Fig. 15: Neolithic means of access 2 – portal stones – round types: Shkārat Msaied, Göbekli Tepe; rectangular types: Göbekli Tepe, Karahantepe, Göbekli Tepe, Gre Filla

stones found within it, the following interpretation may be possible: It could be that buildings such as Structure DR1-S2 were two-storeyed. If that was the case, the round stone ring could be understood as a hatchway in the ceiling between the ground floor and the upper floor, whereas the rectangular one with the raised, circumferential edge was used for access between the roof and the upper floor.

52 *U-shaped stone frames*: Building C at Göbekli Tepe contains a remarkable, yet unique door demarcation stone in the shape of a large U (fig. 16)[104]. The stone is c. 2.55 m wide and at least 1.60 m high with an opening that is 0.7–0.8 m wide. On its left top side is a carved sculpture of a predator, most likely a leopard. The corresponding right side is missing, but it may be assumed that it was symmetrically placed and of a similar nature. The actual opening is marked by a 0.14 m wide and 5 cm high frame running along the edge of the opening. The U-shaped stone was originally placed in front of an older portal stone, which was around 1.70 m wide but with an only 0.56 m wide opening, demarcating the entrance to a narrow corridor. The latter was described by the excavator as a *dromos*[105]. The corridor was probably covered by stone slabs and partially with a corbelled roof. In later occupation phases, this corridor became inaccessible, and the entrance lost its function. A comparable corridor with corbelled roofing is known from Building K10-55, but this one leads into a rock-cut space that is currently interpreted as a large cistern[106].

53 A fragment of a portal stone has also been reported for the entrance of Building A in its last phase[107]. However, the state of preservation makes it impossible to reconstruct. It may also have been part of a U-shaped stone or a full portal stone. Based on the presence of a low rim around the opening, it is likely that it was a portal stone made for a wall opening rather than a roof opening. In the later Megalithic ›special buildings‹ on Malta, the U-shape stone was turned upside down and completed with an additional stone slab as threshold[108].

How to Close Openings?

54 There is so far no direct evidence for door leaves or stone plates to close the doors preserved from Neolithic contexts in Southwest Asia. Traces of wooden doorframes with thresholds hinting at double-leaf doors are known from Hacılar VI[109].

55 Examples of wooden door leaves are well known from Central Europe, such as the one from Robenhausen, Switzerland, which is around 5000 years old. This door is 0.65 m wide and 1.60 m high and its thickness varies between 3–6 cm. The spur was placed in the sill and acted as pivot. Holes along the left side of the panel indicate that the door was additionally affixed to the doorframe with leather strips or cordage[110]. Another possible option is that a skin was fixed onto a wooden frame or that just fur, skin or leather cloth was placed over the opening (see also) (fig. 6). The conditions are, in most cases, not optimal for these components to be preserved. In general, we lack most of the representation of organic materials. At Göbekli Tepe, several large stone slabs were found that could have been used to cover portal stones. In contrast to the finely worked portal stones, these stone slabs are surprisingly rough and not treated or shaped in a way that they could actually be fitted to a certain portal stone. Was it not important? And if so, why not? Were they generally left open and only covered with any random slab lying around when necessary? Before the invention of doors and as

104 Schmidt 2005; Schmidt 2006; Piesker 2014, 42–44; Kurapkat 2010, 140–148.
105 Schmidt 2006; Schmidt 2012; Dietrich et al. 2013; Piesker 2014; Kurapkat 2010, 75 f. 140–142.
106 Clare 2020.
107 Kurapkat 2010, 143–148.
108 Trump 1983; Ferguson 1991; Robinson 2018; Campbell – Tutton 2020, 91.
109 Mellaart 1961, 42; Naumann 1971, 160; Anvari 2021.
110 van Willigen 2019.

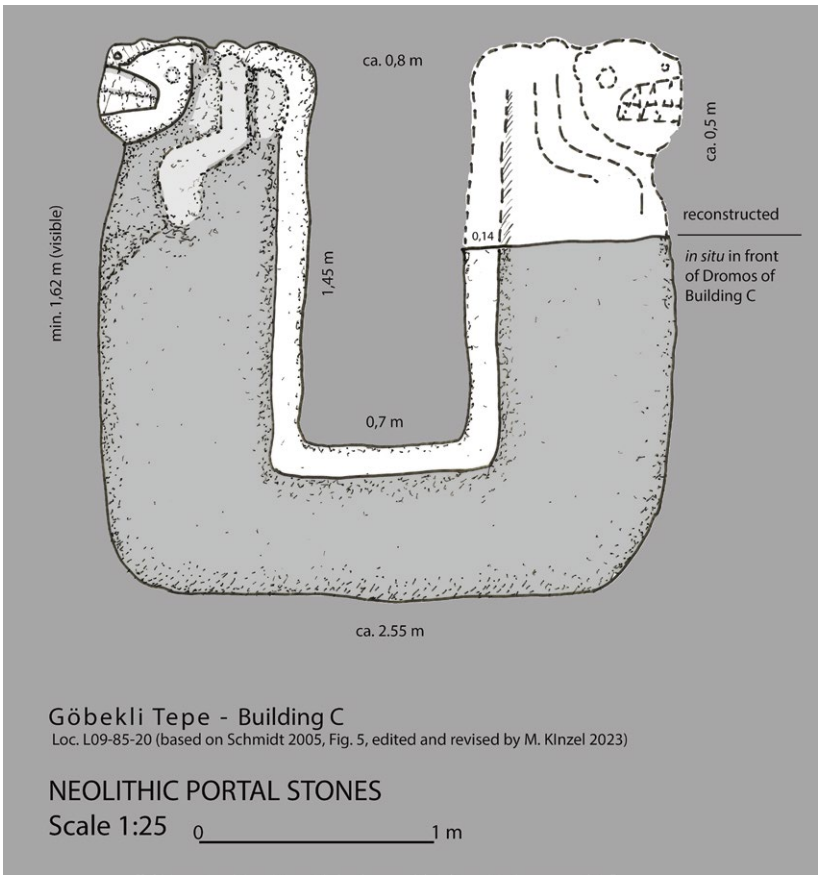


Fig. 16: Neolithic portal stones: Göbekli Tepe, Building C L09-85-20 U-shaped monolith

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an alternative to using organic materials to close doorways, humans just blocked the doorway with actual walls.

Blocking of Doorways

56 There are several cases of deliberately blocked doors known from, for example, PPNB Shkārat Msaied (fig. 17), Ba'ja and Basta. In most of these cases, the doorways were blocked with drystone walls, though mortar-set rubble-stone walls are also attested. The latter seems, in general, to be related to stabilisation measures after, e.g., earthquake events or major modifications in the restructuring of a building complex[111]. The drystone walls known from, e.g., Shkārat Msaied seem to hint towards a seasonal use of the buildings. Similar situations can be found in ethnographic records of transhumance-practising groups: closing the houses when leaving for the next seasonal campsite (fig. 18. 19). The blocking would indicate that the owner is gone but intends to return. For pueblos, Mindeleff describes that (temporary) drystone-wall blocking as well as non-permanent blocking with rubble-stone masonry and mortar was used[112]. He reports, for some of the pueblos, that in severe winters the inhabitants actually closed the doorways with masonry to ensure and maintain bearable conditions inside[113]. In some cases, the blocking of doorways appears after earthquakes as stabilisation measures to ensure that the remaining structure can stay in use[114].

111 Furger 2011; Rodríguez-Pascua et al. 2011; Alfonsi et al. 2012; Kinzel 2013; Martín-González 2018.
112 Mindeleff 1891, 199; Lekson 1986; Lekson 2007.
113 Mindeleff 1891, 188–190.
114 Kinzel 2013.

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Fig. 17: Shkārat Msaied, blocked entrance to Unit M

Fig. 18: Blocked door at Umm Babayn, Jordan

Fig. 19: Blocked door of abandoned cave dwelling at Hasankeyf, Turkey

Case Studies of Neolithic Doorways from Anatolia, the Levant and the Zagros

57 In the following sections, a few relevant findings of doorways from Neolithic sites are presented in more detail (fig. 7. 8). This is neither a full catalogue of doorways and trapdoors nor a comprehensive inventory of findings related to doorways: it is a rather random collection of cases showing certain types and features discussed in this paper (presented in alphabetical order).

Akarçay

58 The Neolithic site of Akarçay sits on a gentle slope of a tributary to the Euphrates River. According to the excavators, horizontal doorways are attested in several buildings[115]. Most structurers are rectangular in plan and have both grill-plan and cell-plan substructures (fig. 20). However, only one entrance is preserved in its entity (fig. 21). The doorway to Building C sits in the exterior wall, which is preserved up to a height of 1.6 m and still has both threshold and its stone-made lintel[116]. The opening is 0.85 m wide and 0.90 m high; with a ratio of 1 : 1.058. The doorway was blocked in a later building phase[117]. No further information regarding the means of closing or door leaves is reported.

Aşıklı Höyük

59 The predominant form of access into buildings at Aşıklı Höyük was vertically from the roofs. No actual roof openings have survived, but there are traces of ladders and ›climb trees‹ on the floors[118]. According to these traces, it is plausible to assume that the roof opening measured around 0.40 m by 0.60 m, similar to the internal doorways (fig. 22. 23). According to Ufuk Esin and Savaş Harmankaya, »there was no communication between one house and the next, there were openings in the partition walls of the multi-room dwellings, providing access between the individual rooms. There were no doors in the exterior mudbrick walls, however; access must have been from the flat roofs of the residences or through a window-like opening high in the walls«[119]. Such a window-like opening can be found, e.g., in a mudbrick wall in trench 5-L-M. It is 0.45 m wide and 0.4 m high. The windowsill is c. 0.4 m above the floor surface[120].

115 Özbaşaran – Molist 2006; Özbaşaran – Duru 2011; Duru 2013.
116 Özbaşaran – Duru 2011, 169.
117 Duru 2013, 244.
118 Duru 2013; Özbaşaran et al. 2018.
119 Esin – Harmankaya 1999, 125.
120 Esin – Harmankaya 1999, 98 fig. 16.

Fig. 20: Akarçay, overview image with Structure C

Fig. 21: Akarçay, elevation of exterior wall of Structure C with door opening

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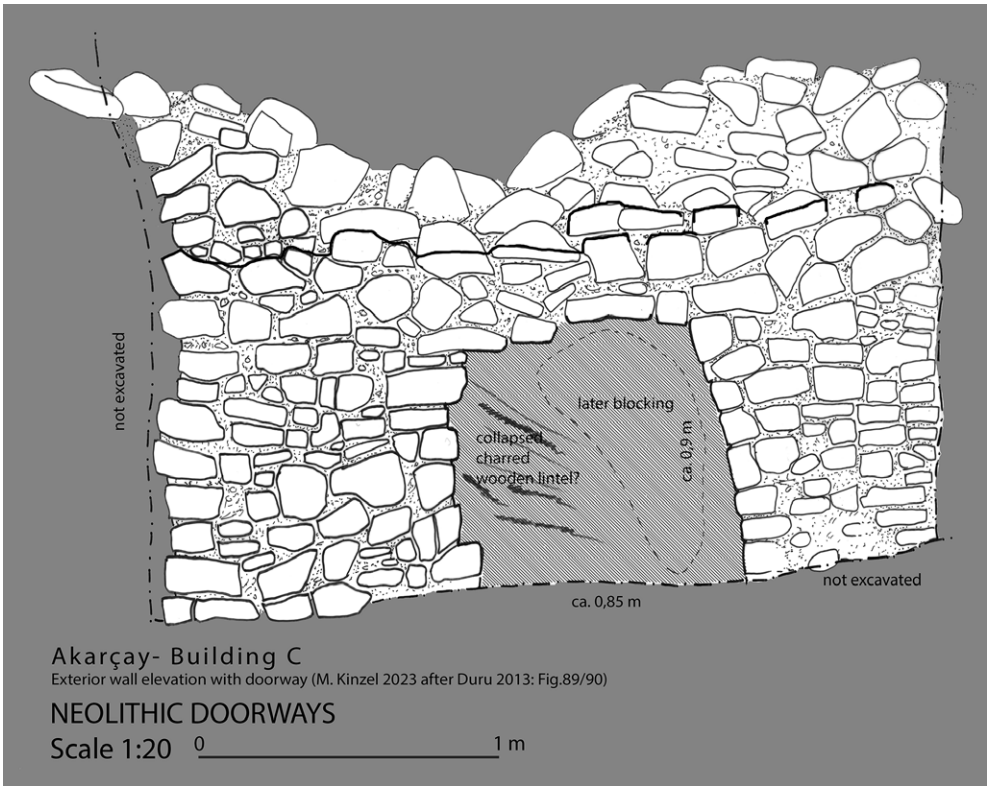

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60 Horizontally organised doorways are attested only for internal connections. The internal doorways measure a minimum of 0.4–0.5 m in width and at least 0.6–0.65 m in height, representing a ratio of 1 : 5. Wooden lintels seem to be used here but are not preserved in situ.

Ba'ja

61 LPPNB/PPNC Ba'ja is located a few kilometres north of Beidha in the Petra region, Jordan[121]. It is known for its steep slope architecture[122]. At Ba'ja horizontally organised doorways (Type 2a) (fig. 24) and window-like openings (Type 2b) (fig. 25) are attested[123]. However, we have to assume that the main access into a building was organised vertically through a trapdoor or hatchway in the roof (fig. 26). Roofs were

121 Bienert – Gebel 1998, 2004.
122 Kinzel 2004; Gebel 2006; Kinzel 2013.
123 Kinzel 2013.

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Fig. 22: Aşıklı Höyük, roof openings in reconstructed PPNB houses and light conditions

Fig. 23: Aşıklı Höyük, roof openings in reconstructed PPNB houses and light conditions

one of the major parts of the inner settlement circulation system. When entering the upper storey of a building unit a person could move within a building complex from one spatial unit to another by using doorways. The upper storeys were connected with the basements or ground floors by stairways or a few steps[124]. Often, the steps or stairs end in front of a wall, suggesting that a hatchway or trapdoor was placed in the ceiling/floor there. In the basements, spaces were commonly connected by window-like openings from one space that served as a distributer.

Basta

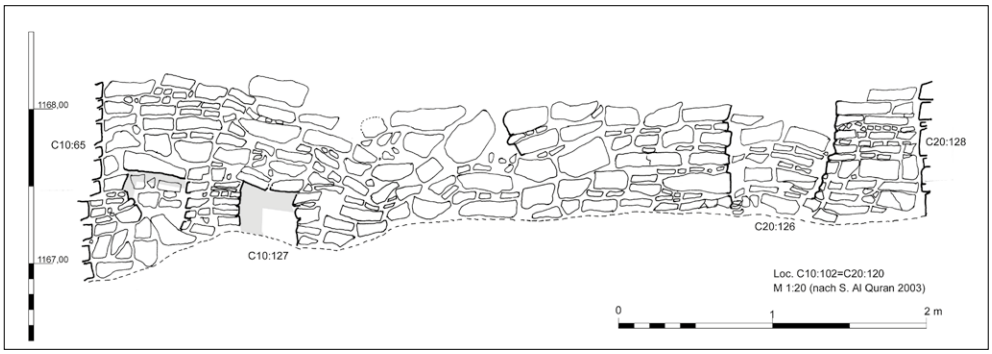
62 For the architecture at LPPNB Basta, mainly Type 2a doorways and Type 2b window-like openings are attested[125]. The latter wall openings measure between 0.35 m by 0.5 m and 0.45 m by 0.65 m. The best-preserved cases are from Building BI (fig. 14. 30). In Building BI, the ground level has mainly window-like openings connecting the surrounding cell-like spaces to the central space, comprising Space 1 and Spaces 2/3[126]. The walls are constructed as double-faced rubble-stone walls. The lintels are made of flat limestone slabs spanning the width of the opening. In some cases, one slab covers the entire opening; in other cases, up to three stones traverse the opening. It seems that a combination of stone and wood lintels was also used, as is known from the sub-recent traditional architecture of the greater Petra region[127].

124 Kinzel 2013; Kinzel 2014, 283 f.; Purschwitz – Kinzel 2017; Benz et al. 2019.

125 Kinzel 2006; Nissen 2006.

126 Gebel et al. 2006b.

127 Kinzel 2006; Kinzel 2013.



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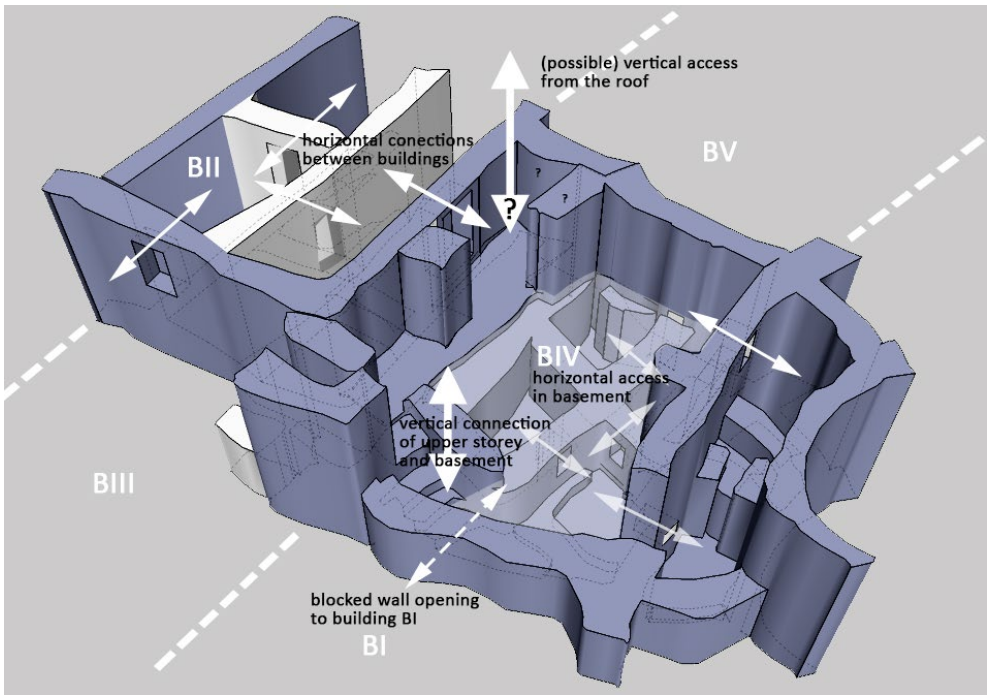

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Fig. 24: Baja, Area C, Space CR28, wall elevation C10:102-C20:120

Fig. 25: Neolithic doorways: Ba'ja, Area B North, Space BNR2, window-like openings Loc. B22-42 (left) and Loc. B22-35 (right)

Fig. 26: Ba'ja: horizontal and vertical means of access of building BIV

63 Type 2a doorways are about 0.75–0.85 m wide. The doorway in wall Loc. B84-6, connecting Spaces 2 and 3 in Building BVIII, is about 0.8 m wide and 1.5 m high[128]. The lintel has not been preserved, but its former position is clearly marked by a recess in the wall structure (fig. 27. 28. 29). Noteworthy is that both rooms are additionally connected by a window-like opening in wall Loc. B86-20, just east of a buttress (Loc. B84-16). Space 2 is, furthermore, connected to Space 1 to the south with another doorway (Type 2a) of unknown width. This doorway is located just east of a buttress (Loc. B84-21) associated with wall Loc. B84-17. The examples from Basta show that there is not only one type of access but several existing at the same time, obviously with distinguished functional differences (fig. 31. 32).

Beidha

64 The PPNB settlement at Beidha had a series of well-preserved doorways. The PPNB round structures at the site had – very similar to Shkārat Msaied – doorways with threshold and an additional one or two external steps, with sandstone slabs placed upright on both sides of the wall opening (fig. 33). Some show a few steps leading down to the interior floor surface (fig. 34)[129]. Diana Kirkbride has described those entrances as built with well-dressed stone recess and in some cases with vertically placed sandstone slabs on both sides[130]. The doorways of the later, rectangular MPPNB structures are wider than the ones of the earlier houses. In general, three to four steps lead down to the basement. It is assumed that wooden lintels spanned the doorways. However, the locations of the access points are often not completely certain. Some buildings, e.g. Building 14, display another conception (fig. 35). Here, the main access to the building was placed in the upper storey and only an internal connection via a hatch and two steps led to the ground floor/basement[131]. It is still unclear if the direct access from the outside to the basement is a later addition or vice versa, i.e. it went out of use and was replaced by the above-described concept.

65 According to Kirkbride[132], the doorways to the large houses in ›Level II‹ were entered by three descending stone steps, which were covered with plaster. She states that »[t]here is no evidence for proper doors. […] In many cases buildings were found with their doors closed by rough stone walls built inside the apertures«[133].

Boncuklu Tarla

66 The site is located in Mardin Province, southeast Turkey, approx. 2 km west of the Tigris River (or the recently built Ilısu Dam), on the south bank of the Nevala Maherk River[134]. In contrast to Çemka Höyük[135], which is a contemporary Early Neolithic site located on the banks of the Tigris River, some doorways are attested for the PPNB structures at Boncuklu Tarla. Fragments of portal stones are also known from the PPNA/PPNB structures at the latter site.

128 Kinzel 2006, fig. 6; Kinzel 2013.

129 Kirkbride 1966; Kirkbride 1967; Byrd 2000; Byrd 2005, xx; Dennis 2009; Kinzel 2013; Makarewicz – Finlayson 2018.

130 Kirkbride 1967, pl. III.A: Kirkbride describes the sandstone slabs as door jambs that were part of a wooden door construction.

131 Kinzel 2013.

132 Kirkbride 1966, 13.

133 Kirkbride 1966, 16.

134 Kodaş 2018.

135 Çemka Höyük is located on the banks of the Tigris River, east of Boncuklu Tarla. Available radiocarbon dates suggest that the site was occupied during the Epipalaeolithic and PPNA (Kodaş et al. 2020). None of the roundhouse structures have horizontal doorways or access points indicative of vertical access from the roofs. For further insights see Kodaş – Genç 2019; Kodaş et al. 2020; Çiftçi 2022.

Fig. 27: Basta, Building BVIII reconstruction of Space 2

Fig. 28: Basta, reconstruction of Building BVIII

Fig. 29: Basta, elevation of wall Loc. B84-6 in Building BVIII – Space 2

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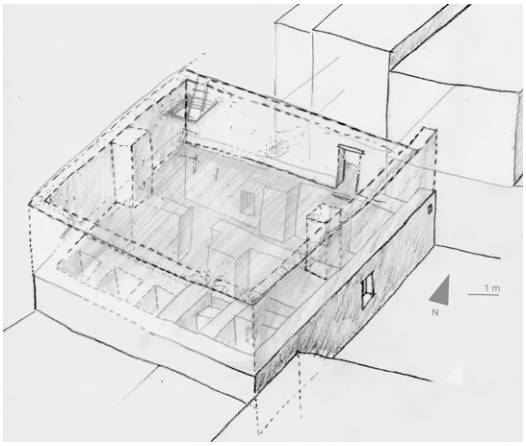

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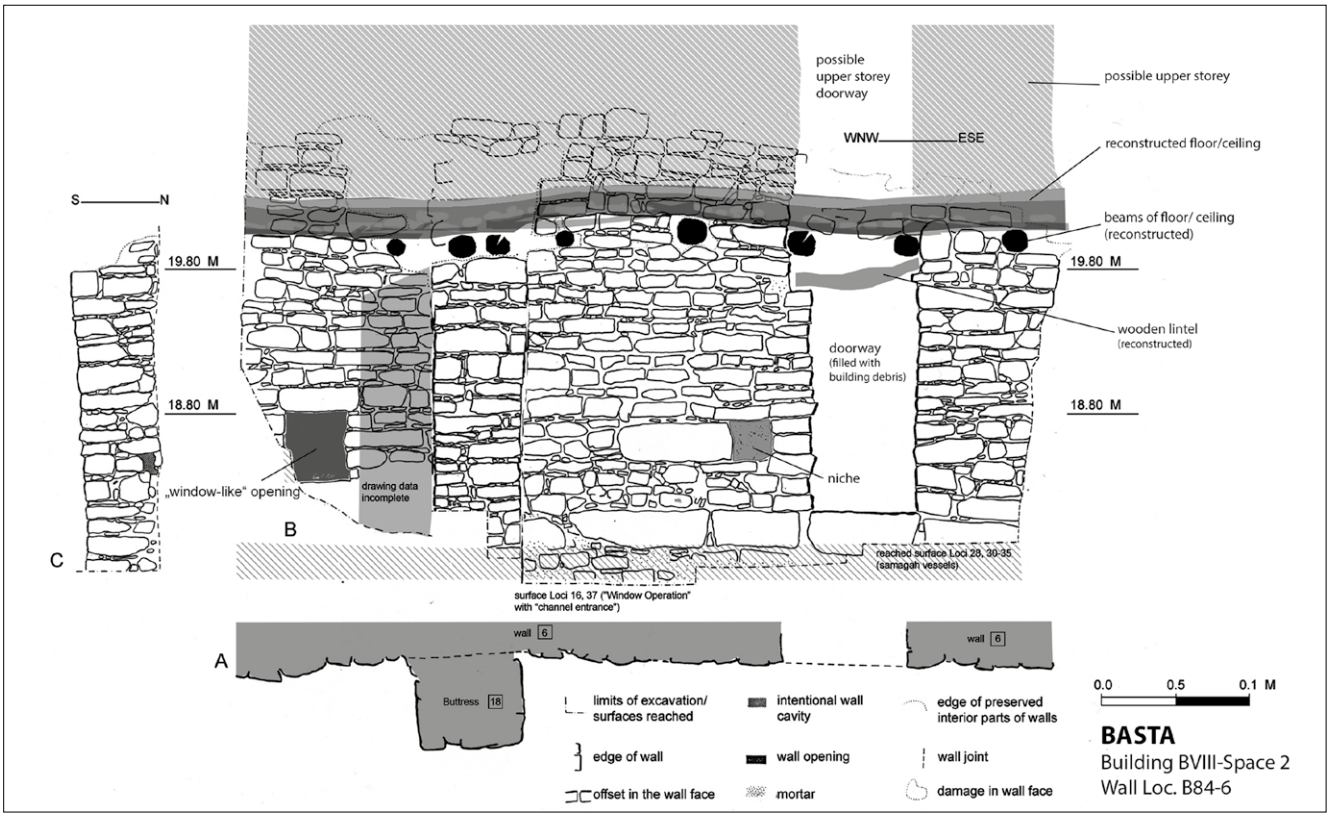

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Fig. 30: Basta, Area B, Building BI, window-like opening between spaces 2 and 11, experiment to access spaces in 2007

Fig. 31: Basta, Area B, Loc. 39

Fig. 32: Basta, Area B, Loc. 89

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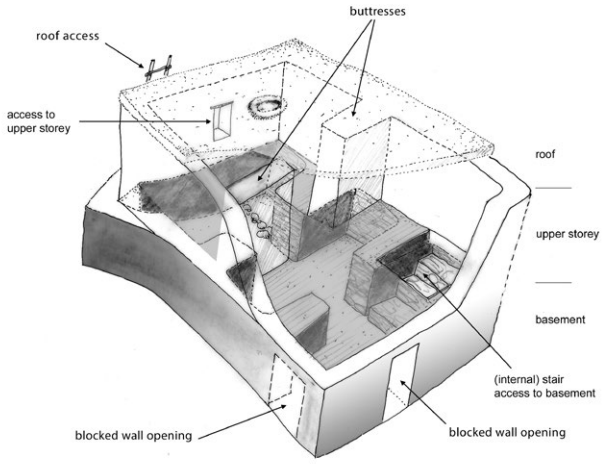

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67 The niche documented in Building EA1 is located in the southwest wall (fig. 36), close to the western corner of the structure, and resembles examples known from Göbekli Tepe[136] and Harbetsuvan Tepesi[137]. The building is almost square in plan, measuring 8.5 m E–W and 8.3 m N–S. The floor of Building EA1 is plastered with hard, compacted mud-clay. The niche in the building is well preserved and measures 0.4 m in height and 0.4 m in width and is about 0.3 m deep[138]. The sill is c. 0.95 m above the floor surface.

68 Another niche is known from Building GD4[139], which might have served as an entrance. The niche sits in the central axis of the building and points towards the east. The upper parts, including the lintel, have not been preserved. It is 0.4 m wide, has a preserved height of c. 0.4 m and is c. 0.55 m deep[140]. There are traces of an earlier feature of the same nature just north of this niche. However, the earlier one is blocked; it is fully integrated into the wall and its appearance blurred by wall plaster applied at a later point.

69 Just south of the niche, a broken portal stone may hint at another access or air ventilation opening (fig. 37. 38. 39). With only 0.28 m in diameter, it is a bit too narrow for an entranceway. However, as the examples from Ganj Dareh (see below) show 0.3 m seems to be sufficient for passing through it. Could it be for children? The doorways in the domestic PPNB houses are not well preserved and only in a few cases traceable as thresholds or gaps in the walls. Because of the very poor preservation of the wall structures, the identification of doorways is problematic[141].

Fig. 33: Beidha, Phase A2, B21 doorway marked by flagstones similar to examples from Shkārat Msaied

Fig. 34: Beidha, Building B40a

Fig. 35: Beidha, reconstruction of Building C14

136 Schmidt 2010; Kinzel – Clare 2020, 30–35.

137 Çelik 2019, 26–28.

138 Kodaş 2021; Kodaş – Çiftçi 2022, 58–60.

139 Building GD resembles some features known best from the Neolithic site of Nemrik 9 (Kozłowski 1989; Kozłowski 1990).

140 Kinzel 2022.

141 Kodaş 2019; Kodaş 2021; Kodaş – Çiftçi 2022; Kinzel in press.

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Fig. 36: Boncuklu Tarla, Building EA, niche in exterior wall

Fig. 37: Boncuklu Tarla, Building GD4, portal stone fragment

Fig. 38: Boncuklu Tarla, Building GD4, portal stone fragment

Fig. 39: Boncuklu Tarla, Building GD4, portal stone fragment

Çatalhöyük

70 James Mellaart already reported two distinct, different types of doorways[142]. First, the trapdoors in the roofs to enter the spaces from above, with the imprints of ladders or ›climb trees‹ preserved. Secondly, the much smaller crawl holes connecting interior spaces (fig. 40. 41. 42. 43. 44. 45). Both features were confirmed by Ian Hodder's research at the site[143].

71 Various different shapes of crawl holes – square, rectangular and oval (both vertically and horizontally oriented) – are known from Çatalhöyük, measuring between 0.4–0.75 m in width and 0.72–0.77 m in height[144]. The sizes and shapes are sufficient to pass through on a daily basis. In Building 65 there were three different crawl holes or doorways recorded (fig. 46), which connected the centrally placed Space 297 with Spaces 314, 298 and 299. The preserved widths of these were around 0.35 m, 0.45 m and 1 m[145]. One of the crawl holes, leading to Space 314 in Building 69, was found blocked[146].

Çayönü

72 Because of its topographical setting on the banks of the Boğaz Creek, the built environment of Çayönü only has horizontally accessed spaces[147]. Almost all buildings

142 Mellaart 1967.

143 E.g. Hodder 2007a; Haddow 2016; Barański 2017.

144 E.g. Hodder 2006; Hodder 2007b; Hodder 2008; Haddow 2016; Barański 2017; Hodder – Tsorak 2021; Barański et al. 2023.

145 Regan 2007, 100–112.

146 Regan 2007, 106.

147 Çambel – Braidwood 1983; Redman 1983; Schirmer 1988a; Schirmer 1988b; Schirmer 1990; Özdoğan – Özdoğan 1998; Özdoğan 1999; Bıçakçı 2001; Sicker-Akman 2007; Erim-Özdoğan 2011.

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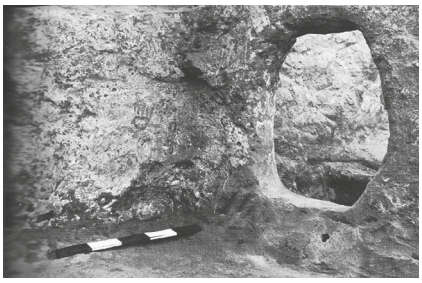

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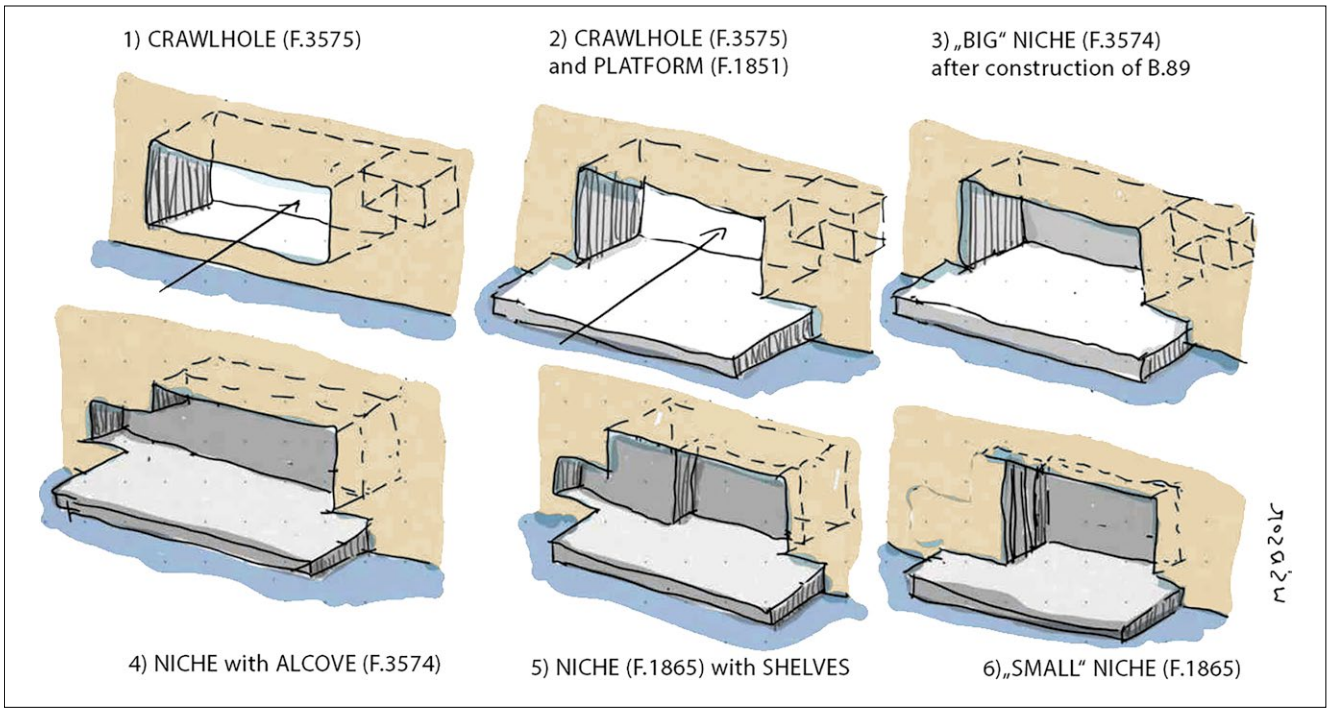

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Fig. 40: Çatalhöyük: experimental house with modern horizontal access

Fig. 41: Çatalhöyük: Crawlhole 1

Fig. 42: Çatalhöyük: Crawlhole 2

Fig. 43: Çatalhöyük: Crawlhole 3

Fig. 44: Çatalhöyük: crawlhole

Fig. 45: Çatalhöyük: transformation of crawlhole into a series of niches

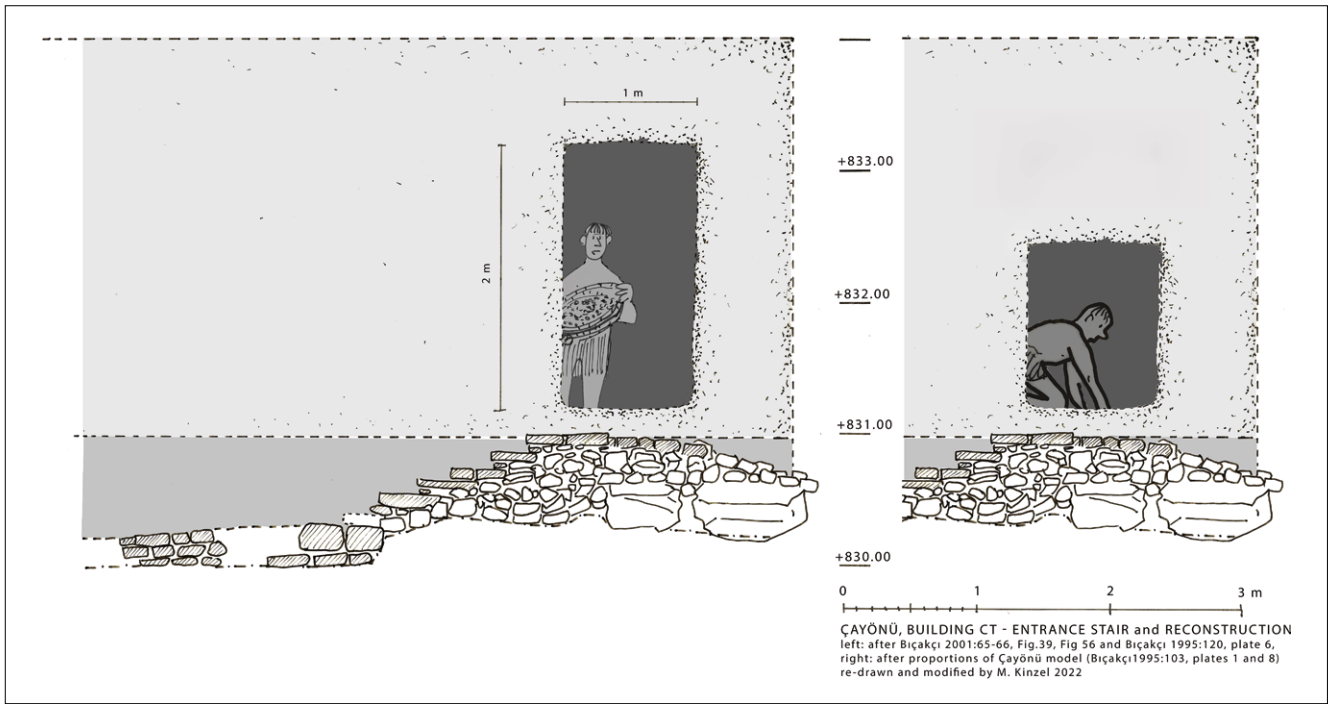
Fig. 46: Çatalhöyük: internal doorway

were erected on substructures with raised floors or platforms. Only a few traces of actual doorways were recorded. One main entrance is known from Building CY and one from Building CV, both from the cell-plan building phase Level C3[148]. The doors are around 0.95 m wide and their reconstructed heights about 2 m[149]. Internal wall openings, e.g. in Building CY, are around 0.4–0.5 m wide[150]. The Neolithic house models found in the buildings show different proportions for the wall openings[151]. While we have to assume that the openings had portrait-oriented, rectangular shapes with a ratio of 4 : 3 or 2 : 1, the house models show openings with a ratio of 1 : 1. As the models are understood by Ercan Bıçakçı, Dietmar Kurapkat and Sarah Dermech as informal representations of houses or children's toys rather than exact replicas of buildings, this change in ratio is understandable[152]. The general proportions of the models do not reflect the actual proportions of the buildings. However, some details clearly reflect, in a simplified way, the architecture exposed at the site[153]. The general conception and placement of building elements on the house models follow the excavated structures. In particular the entrance seems to represent a very plausible solution.

73 *Case 1, Building CV*: At the rear of the building, a total of five doorways were found, connecting all the internal spaces. In the northeast area of the structure, the remains of a ›main entrance installation‹ with steps were found, though it was not well preserved[154]. No traces of the actual doorway had been preserved.

74 *Case 2, Building CT*: In the rear part of the building, four doorways were found, providing access to the internal spaces (fig. 47). Again, the main entrance to the building was situated in the northeast area of the building. According to Bıçakçı, it is composed of a set of stairs with five (possibly six) preserved steps, a platform and a

Fig. 47: Çayönü, Building CT



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148 Bıçakçı 1995, 105.
149 Bıçakçı 1995, 120 pl. 6.
150 Bıçakçı 2001, 66–71.
151 Bretschneider 1991; Bıçakçı 1995.
152 Bretschneider 1991; Bıçakçı 1995; Kurapkat 2010; Dermech 2018, 2022; see also Trenner 2010.
153 Bıçakçı 1995.
154 Bıçakçı 2001, 66–68.

corridor[155]. The actual size of the entranceway is unknown because of the poor preservation, and the so-called corridor could be a substructure channel of a higher platform level and not, as initially thought, a corridor.

48

Fig. 48: Ganj Dareh

Ganj Dareh

75 Ganj Dareh is a Neolithic site located in the Kermanshah province in the central Zagros Mountains of Iran[156]. The mound sits on an alluvial floodplain situated between steeply rising limestone cliffs. Complex, rectangular mudbrick and pisé architecture is attested. For Philip E. L. Smith – the initial excavator of Ganj Dareh – the documented portholes found in some of the walls may present another means of access. He was not sure that they were used as conventional entrances. The wall openings had a considerable variability in size and shape (fig. 48). They are also present in walls of both the larger and the smaller spaces. Smith suggested that they served a variety of functions, e.g. ventilation, access to contents kept in the smaller spaces, and/or what he calls ›peepholes‹[157]. Cecilie Lelek Tventmarken questions in her study (fig. 49) if some of these portholes may have been used as cursory entrances, what size a porthole would have had to be for a person to crawl through it. According to her, a person that is similar in height and width of shoulders, but with slightly wider hips than the Size A individual[158] used for the scenario modelling can crawl through a hole with a diameter of about 0.33 m; consequently she suggests that the portholes that measured c. 0.30 m or more in diameter may have provided a means of entering a space for a Size A (or smaller) adult or child[159].

In wall between spaces	S4–12	S8. 9	S9–13	S19*	S21–30	S22–24	S24–25	S25–26	S31–33
Diameter (m)	0.2	0.39	0.25	0.16	0.24	0.13	0.3	0.48	0.29

* The porthole is located in a plastered feature by the southern wall, but there is no evidence whether it extended through the wall into S31 or not.

49

Fig. 49 Ganj Dareh: Wall openings (portholes)

76 »Assuming that the portholes measuring 0.30 m or more may have been cursory entrances, there are three, or perhaps four, portholes that may have provided enough space for a Size A individual, or smaller, persons to crawl through. Another possibility is that various materials and items passed between these spaces, from one person to another, through the portholes without necessarily someone crawling through them. The openings may also have allowed people in different spaces to communicate verbally, provided ventilation or lighting, or visual connections, e.g. in the case of S8 and S9. Tvetmarken states »that even if portholes were points of access, the majority of spaces have no obvious entryways. The larger spaces may have been entered from the roof or through doorways that have not been preserved or are located outside the

155 Bıçakçı 2001, 65 f.

156 Smith 1990; Lelek Tvetmarken 2012; Darabi et al. 2018a; Darabi et al. 2018b; Riel-Salvatore et al. 2021.

157 Smith 1990, 330 f.

158 Lelek Tvetmarken 2012, 273 f. defines the sizes of the two categories of adult persons in various positions as follows: Size A: sitting with legs crossed 0.57 × 0.67 m, squatting 0.57 × 0.44 m, kneeling 0.41 × 0.46/0.65 m and sleeping 0.53 × 1.44 m; and Size B: sitting with legs crossed 0.65 × 0.85 m, squatting 0.67 × 0.80 m, kneeling 0.5 × 0.35/0.67 m and sleeping 0.56 × 1.47 m. However, these are measurements for two-dimensional areas placed on ground plans, not three-dimensional measures in space.

159 Lelek Tvetmarken 2012, 89.

excavated area. With regard to the small spaces, it is possible that they were accessed from above – through the floor of the spaces above if these were part of a two storey structure or from the roof if they were not. If the former was the case, then the floors of the spaces on the upper floor would have had a considerable number of openings in them. Their placement would, therefore, have had to be considered during construction so as not to be in the way of activities taking place in the upper storey, or reduce the amount of ›usable‹ or available floor space«[160].

Ghwair

77 MPPNB Ghwair, located where Wadi Ghwair and Wadi Faynan meet in southern Jordan, has complex, rectangular, multi-storey architecture[161]. Spaces are connected via window-like openings and doorways. Niches are attested as well (fig. 6). Ground floors and upper storeys are connected via stairs[162]. Window-like openings seem to connect smaller spaces that may have been used for storage[163].

78 In Room 1 in Area 1, three niches and one blocked doorway are attested (fig. 50). Two of the three niches could be understood as ventilation shafts[164]. Measurements of these features have not been published but resemble the ones at Ba'ja and Basta.

Göbekli Tepe

79 Göbekli Tepe is located around 20 km northeast of Şanlıurfa, SE-Turkey[165]. It is well known for its monumental architecture. In recent years it became clear that Göbekli Tepe has to be understood as a settlement with steep slope architecture and a series of large communal buildings, which was occupied over 1500 years[166].

Fig. 50: Ghwair I, Area 1, Room 1 – niche feature made of stone slabs

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160 Lelek Tvetmarken 2012, 89–91.
161 Ladah 2006; Simmons – Najjar 2006; Kinzel 2013.
162 Kinzel 2013, 225 f. 552–554.
163 Ladah 2006.
164 Simmons – Najjar 1998, 94; Simmons – Najjar 2003, 413.
165 Schmidt 2006; Clare 2020; Kinzel – Clare 2020; Breuers – Kinzel 2022.
166 Clare – Kinzel 2020.

80 *Horizontal doorways – wall openings*: According to Kurapkat[167], two of the ›special buildings‹ uncovered at Göbekli Tepe were accessed horizontally through regular doorways: Building A and Building C. Both had at some point horizontally organised entrances. Apparently, both buildings had south-facing exterior façades. Wall openings were placed into these façades. Both of the doorway reveals were not made of ordinary rubble stones but were instead emphasised by special monolithic stone objects. In the case of Building C, this was initially a non-profiled monolithic stone slab that stands vertically and is set against the outside of the rubble-stone masonry (fig. 51). It is pierced by a c. 0.45 m wide opening. At the front, below the passage, the slab is decorated with a wild boar relief. This monolithic doorway has been preserved to only just above the level of the threshold, thus the height and shape of the opening cannot be reconstructed with any degree of certainty. At a later date, a U-shaped door stone with a clear opening, which measures about 0.7 m in width, and fully sculptured animal representations at the two upper ends was erected directly in front of the arrangement described above (fig. 16)[168]. The different widths of the openings of the two monolithic jambs created a stepped portal situation which was further enhanced by the sculptural work. In a later phase of the use of Building C, perhaps in connection with a possible earthquake event, the U-shaped stone tipped over and remained at an angle of about 45° in front of the entrance. However, the fact that the entrance was still in use after this is evidenced by masonry that sits on top of the tilted U-shaped stone and flanks the access path. This entrance situation was abandoned in later phases of the building's use, when the access corridor had lost its function and its inner end was blocked. Three of the stones in this blocking have been preserved in situ on top of the remains of the door jamb.

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Fig. 51: Göbekli Tepe, Building C, detail of portal stone fragment with wild boar relief

81 *Niches*: In Building B, a series of niches is attested (fig. 7. 8. 9), each of them related to a different building phase[169]. Two niches have been investigated in detail. The earlier one (Loc. L09-67-101) in wall Loc. L09-67-102 measures 0.4 m by 0.4 m and is 0.48 m deep. The lintel is made of a single stone slab spanning the entire opening. This stone slab is broken as is the sill. The later niche (Loc. L09-67-87) sits in wall Loc. L09-67-103 and is about 0.46 m deep. The cover is built as a corbelled roofing and integrated into the (now largely collapsed) wall. In front of the niche sits a portal stone-like perforated stone slab, measuring 1.01 m by 0.95 m. The opening of the portal stone is c. 0.3 m wide and c. 0.4 m high. In contrast to the portal stones used in roofs, the rim around the opening is only minimally raised – about 1 cm. Above the opening is a bucranium carved out of the slab, and on both sides of the opening is a jumping fox (fig. 8).

82 *Vertical doorways – roof openings*: Roof openings seem to have been the most common solution for both domestic and ›special buildings‹ at Göbekli Tepe. Based on our current knowledge, it seems that portal stones only came into use during the PPNB,

167 Kurapkat 2010, 140–142; cf. Piesker 2014, 42–44.

168 These doorways have similar characteristics to the doorways of the much later megalithic ›temples‹ in Malta: most of the horizontally organised access points to the Maltese ›temples‹ are constructed as trilithon entrance passages (Trump 1983, 66). Two vertically placed jambs are covered by a stone slab serving as a lintel. In some cases, e.g., at Hagar Qim and Skorba, perforations in the jambs were apparently for holding rope-made hinges for some sort of door or screen (Trump 1983, 66). It is still unclear when these perforations were actually made. Portal stones and U-shaped frames turned upside down, with additional threshold stones, are also attested in these megalithic structures (Trump 1983; Ferguson 1991; Campbell – Tutton 2020, 91).

169 Kinzel – Clare 2020.

within the context of the transition from round to rectangular building shapes. The monolithic portal stones used at Göbekli Tepe can be classified into at least three types, as explained above. The sizes vary. Most of the portal stones, both the circular and rectangular ones, are found close to wall corners. Only the slightly larger rectangular portal stones found in ›special buildings‹ were positioned more centrally.

83 A complete circular portal stone (Loc. L09-46-22) was found in Structure 103 (L09-46), about 1 m west of a bench and a ›totem pole‹ inserted into the bench in the northwest corner of the building (fig. 51). The ring measures 0.56 m in diameter and the opening 0.37 m in diameter, and the stone has a thickness of 0.14 m.

84 A prominent rectangular case is known from Building B[170]. It was found lying diagonally in the room filling of Building B, about 50 cm above the floor. The monolithic frame is around 1.8 m long, 1.4 m wide and 0.3 m thick (fig. 15). Of this, the lower 15 cm are accounted for by a slightly oval plate, from which the actual frame rises by about 15 cm. The piece is almost rectangular, and is c. 1.25 m long and about 0.85 m wide. The monolith is penetrated by an opening, which is about 0.95 m long and 0.55 m wide. The surface of the collar-like peripheral part of the object is worked quite roughly, while the frame rising from it is very carefully smoothed. In addition, the edge of the opening is profiled by an approximately 4 cm wide and slightly raised band. Finally, noteworthy is a U-shaped indentation on one of the narrow sides of the collar-like slab edge, for which we have no explanation so far. This feature has been observed only on this portal stone. If this object was integrated into the roof of an earthen roof structure, it would fulfil the requirements for a practical solution to frame a roof opening. Since the rectangular frame rises a few centimetres above the roof surface, it would reliably prevent water from penetrating the interior. The collar-like, slightly oval, lower part of the frame plate is not visible at all when installed. This may explain why it is differently treated than the visible parts. This could be explained with its two-fold function, firstly, to ensure the transfer of the load of the stone to a larger (load bearing) area of the roof structure and, secondly, to provide a tight connection between the earthen roof material and the stone frame, by covering the lower edge of the frame covered by earth. The size of the opening of the portal stone from Building B corresponds very well to the purpose of a roof hatch to enter and exit the building[171]. In comparison the portal stones found in other PPNB (domestic) structures regardless of the presence of T-shaped pillars and the building type (fig. 52), e.g. L09-56 Space 8 (fig. 53), L09-69-Space 61 (fig. 54), and DR1-structure 2 (fig. 55), are slightly smaller. On the other hand, in all those structures often both types of portal stones – circular and rectangular – are found in the same building.

Gre Filla

85 At the early Neolithic site of Gre Filla[172], located on the banks of the Ambar River (a tributary of the Tigris River), horizontal and vertical doorways are attested.

86 In Structure 7, the fragments of a portal stone (Obj. P10/0037/R/01) were found within the roof collapse in the central-eastern half of the building (fig. 56). The broken portal stone can be fully reconstructed (fig. 57): it measured 1.5 m by 1.22 m with an opening of 0.55 m by 0.47 m[173].

87 Structure 8 has a horizontal access marked by a monolithic, ring-shaped portal stone (fig. 58. 59). It measures 1.29 m in diameter and has a 0.54 m wide opening[174].

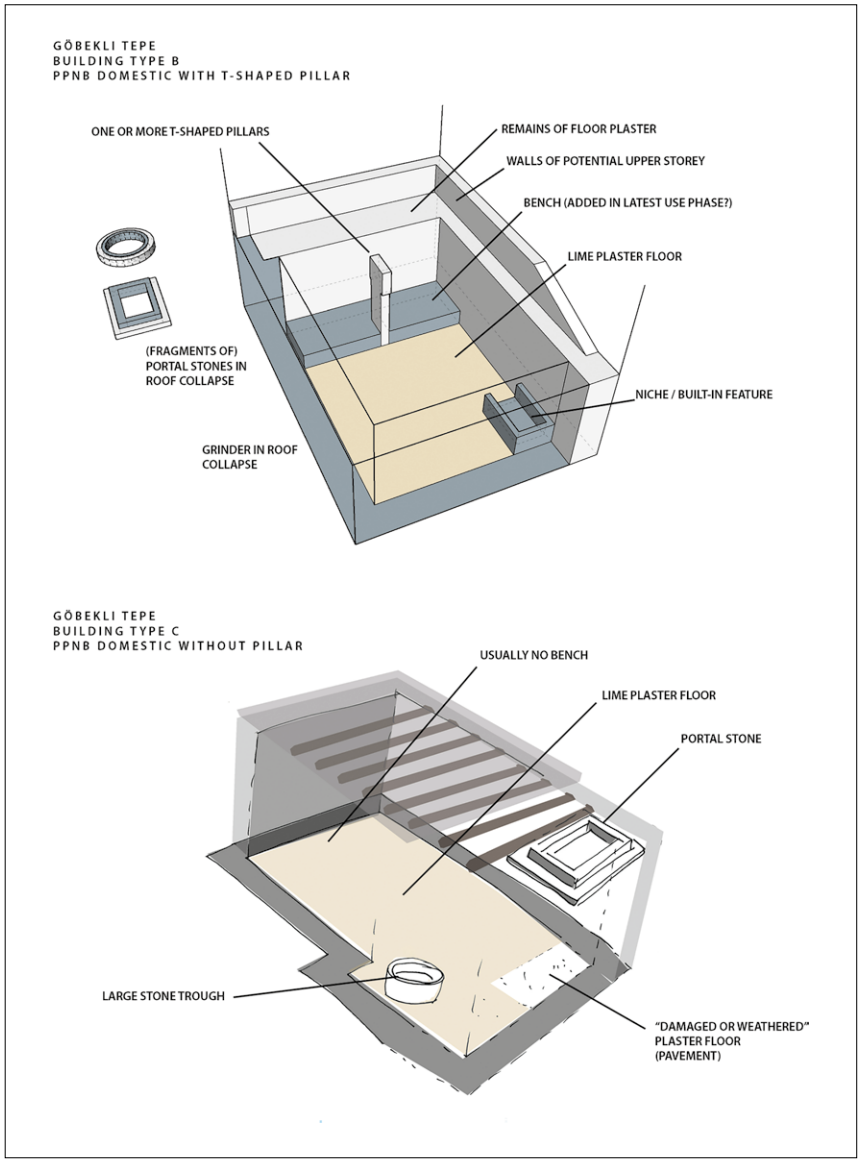
170 Kurapkat 2010; Kinzel – Clare 2020.

171 Kurapkat 2010, 145.

172 Ökse et al. 2022. Special thanks to Ayşe Tuba Ökse for providing information on and images of the portal stones.

173 Ökse 2022, 32; Ökse in press.

174 Ökse 2022, 31.



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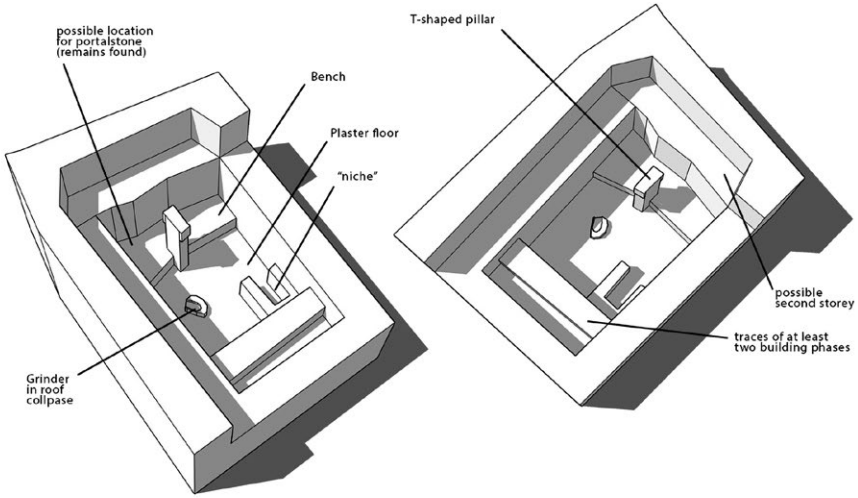

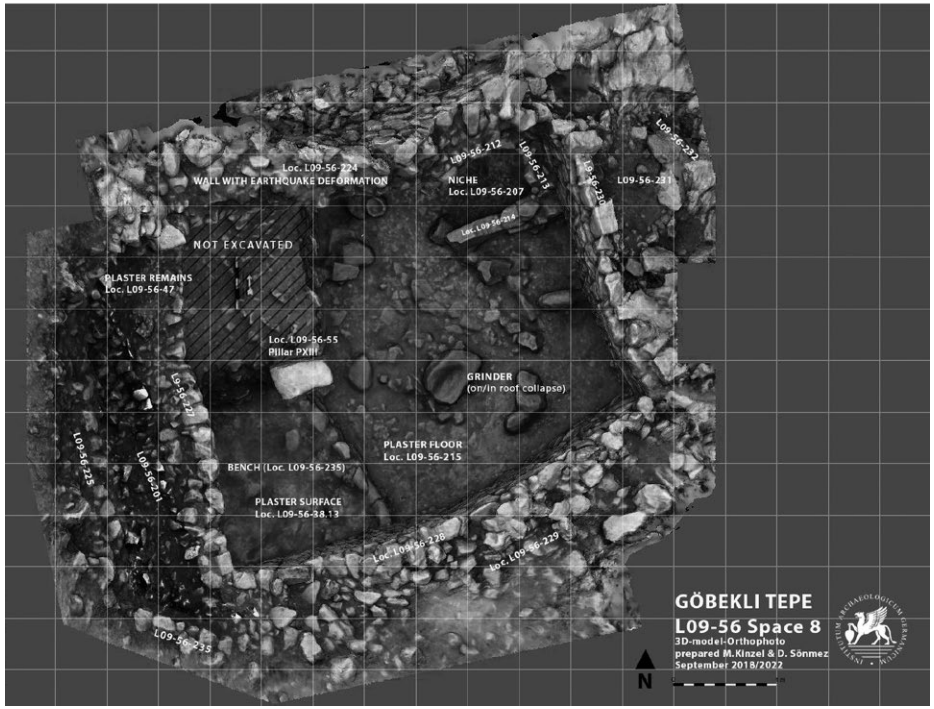

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Fig. 52: Göbekli Tepe, domestic building types with T-shaped pillars (Type B), without T-shaped pillars (Type C)

Fig. 53: Göbekli Tepe, L09-56, Space 8 – a PPNB building (Type B – with T-shaped pillars), plan and reconstruction

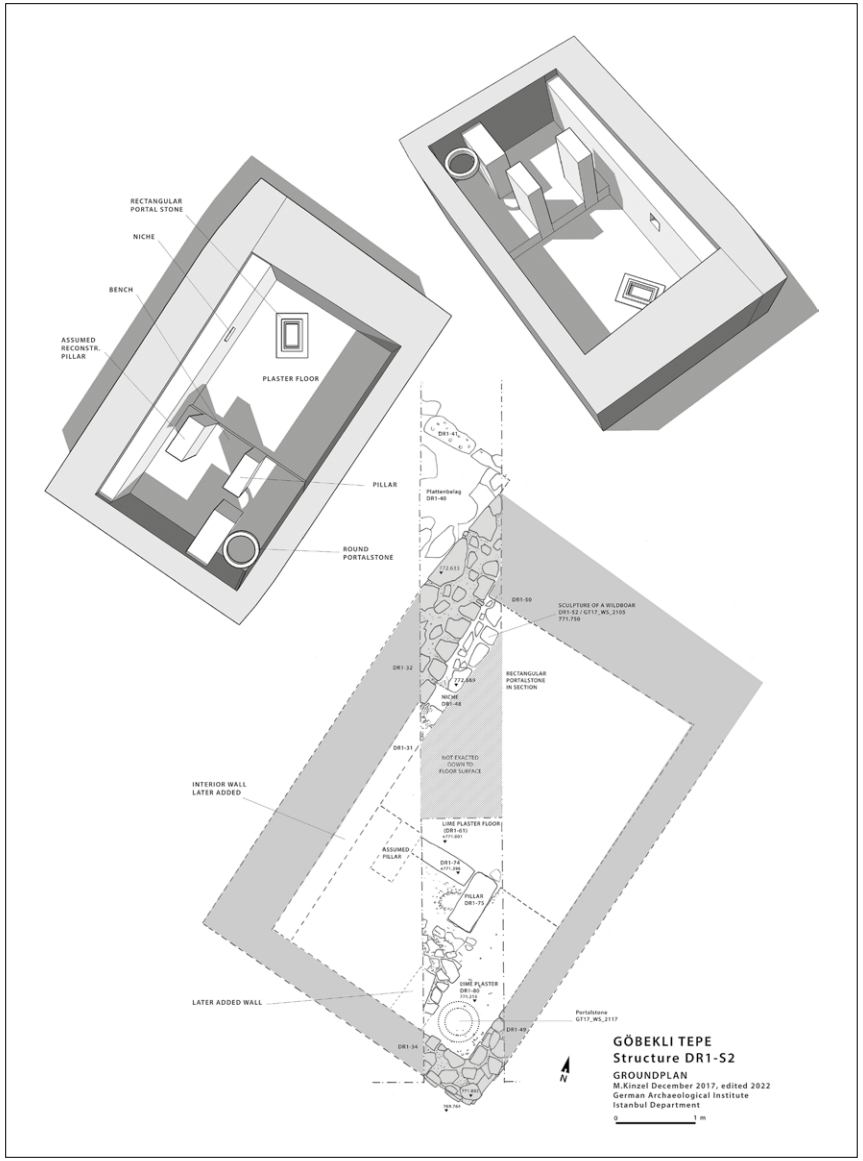

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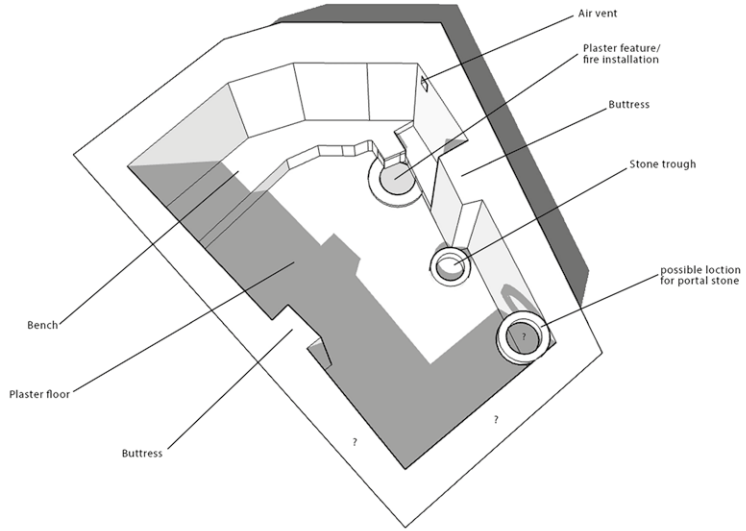
Fig. 54: Göbekli Tepe, DR1, Structure 2, a PPNB building with two portal stones, plan and reconstruction, Type B



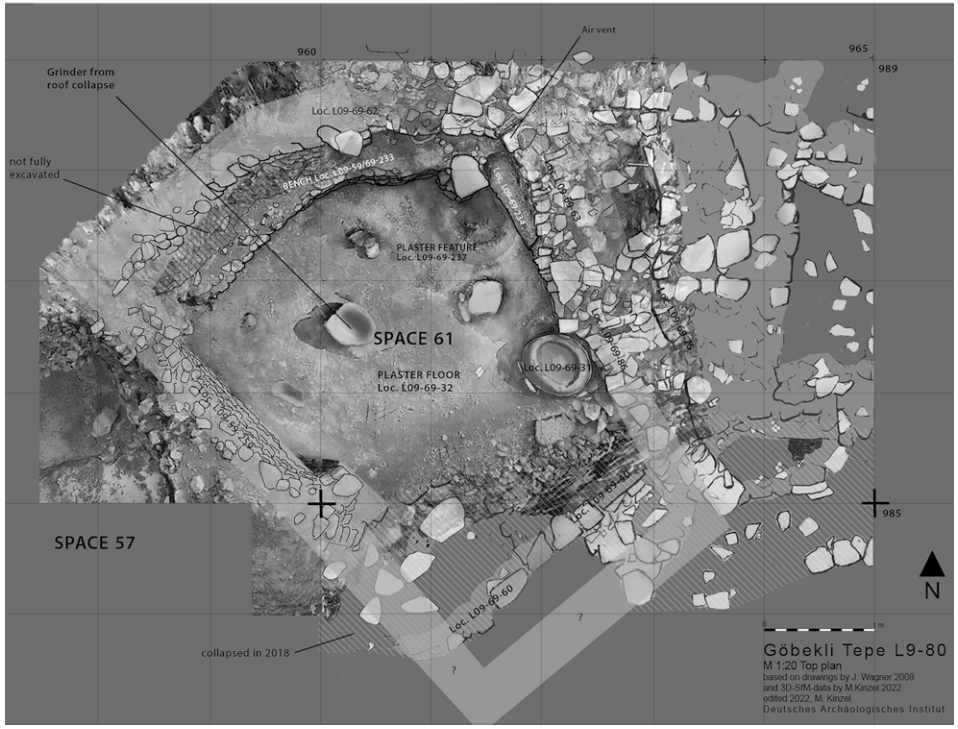


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Fig. 55: Göbekli Tepe, L09-69, Space 61, a PPNB building (Type C – without T-shaped pillars), plan and reconstruction

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Fig. 56: Gre Filla, portal stone from Structure 7 at Gre Filla in context

Fig. 57: Gre Filla, close-up of portal stone from Structure 7

Fig. 58: Gre Filla, overview of Structure 8 in context

Fig. 59: Portal stone built into exterior wall of Structure 8

The edges of the narrow entrance clearly show traces of use-wear[175]. The c. 7 cm broad rim around the opening is only raised around 2 cm, which resembles a feature that is known from horizontal doorways at Göbekli Tepe. A small niche, measuring c. 0.2 m by 0.2 m and placed almost on the central axis in the northern exterior wall, recalls similar features at, e.g., ʿAin Jammam[176].

175 Ökse in press.

176 Kinzel 2013, 228. The niche in space AJ01 at ʿAin Jammam measures 0.25 × 0.2 m, with approx. the same depth.

Jerf el Ahmar

88 At Jerf el-Ahmar, only a few doorways could be identified because of the state of preservation. In many cases, only the threshold has survived, providing very few clues regarding the size and dimension of the openings. Danielle Stordeur differentiates between direct and indirect access to the buildings; in particular between a) internal circulations, b) movements between the interior and the courtyard, and c) from the courtyard to the exterior. In her case study – Building EA10 II/W – the doorways from the two internal spaces to the porch or portico are identified by thresholds that each mark a c. 0.5 m wide aperture, which is sitting about 0.5 m above the exterior surface[177].

89 In one of the communal buildings – Building EA30 II/W – a well-preserved window-like opening (fig. 14. 60) was found[178]. The wall has a preserved height of about 1.3 m. The wall opening connects the central area of the building with a smaller cell situated between the two thicker partition walls protruding from the perimeter wall. The opening is c. 0.4 m high, about 0.35 m wide and sits c. 0.4–0.5 m above the floor surface. The ratio of the opening is 1 : 1.142. The sill is made of one stone slab that is broken in the middle. The lintel is not clearly visible. Two other cells in the building are accessed by two steps and low walls to cross/step over.

Karahantepe

90 Based on the published material, it is apparent that there are similar portal stones at Karahantepe as were used at Göbekli Tepe[179]. Fragments of portal stones were reported already from Bahattin Çelik's survey work (fig. 15). However, with the recently started excavations many more well preserved examples have appeared. In Buildings AH and AV large stone slabs with a rectangular perforation were discovered. In Building AE as well, a complete but fragmented portal stone was found between two T-shaped pillars within the roof collapse[180]. The portal stone was made of a substantial limestone slab measuring c. 2,50 m by 2,00 m with an rectangular opening of c. 0,8 m by 0,6 m (fig. 61. 62). It seems that it was supported by a wooden substructure which may have been resting on the T-shaped pillars and the eastern wall of the building.

91 In addition, Buildings AB and AD are connected by a narrow opening resembling a portal stone, but it is carved directly out of the bedrock[181]. It is hard to say if the opening was used to enter or to exit Building AB. However, it seems probable that whatever activities took place in Building AB, the communal celebration of these events may have taken place in the larger Building AD. Also in Building AD a niche – similar to the one found at Göbekli Tepe, Building B or Boncuklu Tarla, Building EA – was exposed in the central axis pointing southwards. Further studies of the portal stones from Karahantepe would add significantly to our understanding of Neolithic doorways.

Nevalı Çori

92 At Nevalı Çori, only horizontally organised doorways are attested[182]. The best-preserved doorway is in the so-called cult building. The building had, according to Harald Hauptmann, at least two building phases (fig. 63. 64). The entrance in both phases was located at the same spot. No portal stones were found at Nevalı Çori, otherwise Klaus

177 Stordeur 2015, 160 fig. 55, 1. 2.

178 Stordeur 2015, 78 fig. 19, 5. Thanks to Danielle Stordeur for providing the image of the ›hublot‹.

179 Çelik 2003; Çelik 2011; Çelik 2017, 363; Karul 2021; Karul 2022b.

180 Karul 2021.

181 Karul 2021.

182 Hauptmann 1988; Hauptmann 1993.

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Fig. 60: Jerf el-Ahmar, ›hublot‹ in building EAVI

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Fig. 61: Karahantepe: Building AX with broken portal stone between T-shaped pillars

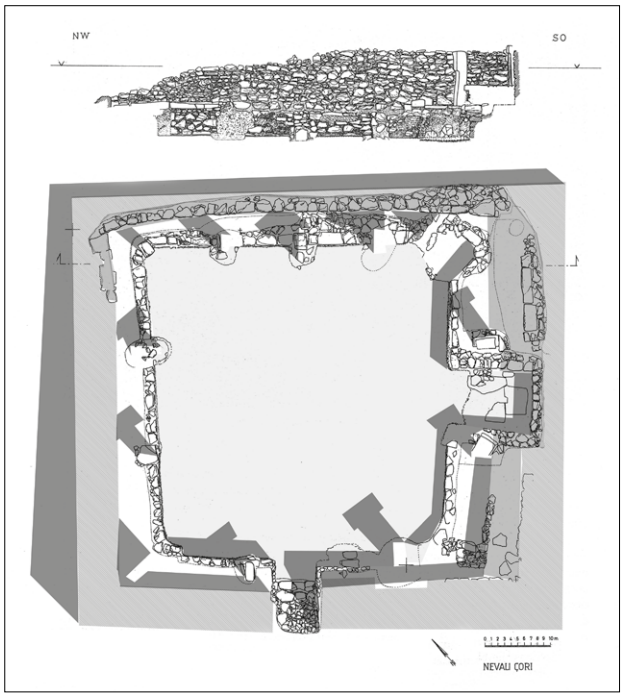
Fig. 62: Karahantepe: Building AX with fragmented portal stone, close-up

Schmidt and colleagues, who had worked at Nevalı Çori, would have known about them when starting work at Göbekli Tepe. The doorway of the ›cult building‹ consists of three steps that descend from the threshold down to the interior floor surface. The entrance, however, is not positioned on the main axis of the building[183]. The doorway and the stairs descending to the interior are 1.15 m wide[184]. No further data regarding the means of access into the other buildings are available.

Shkārat Msaied

93 At Shkārat Msaied, the horizontal access through distinct doorways that are marked with vertically placed sandstone slabs are predominant features (fig. 14. 65. 66)[185]. Larger structures (e.g., Units J, H and K) had, at some point in their use history, two opposing entrances oriented towards the southeast and northwest. The north-western accesses had – because of their location towards the slope – up to four internal steps forming a short ›corridor‹ or porch[186]. For Shkārat Msaied, all widths and orientations of doorways have been published[187].

183 Kurapkat 2010.
184 Hauptmann 1993, 46.
185 Bille 2003; Kinzel 2004; Kinzel 2013; Kinzel 2019.
186 Kinzel 2014.
187 Kinzel 2013; Kinzel 2019.



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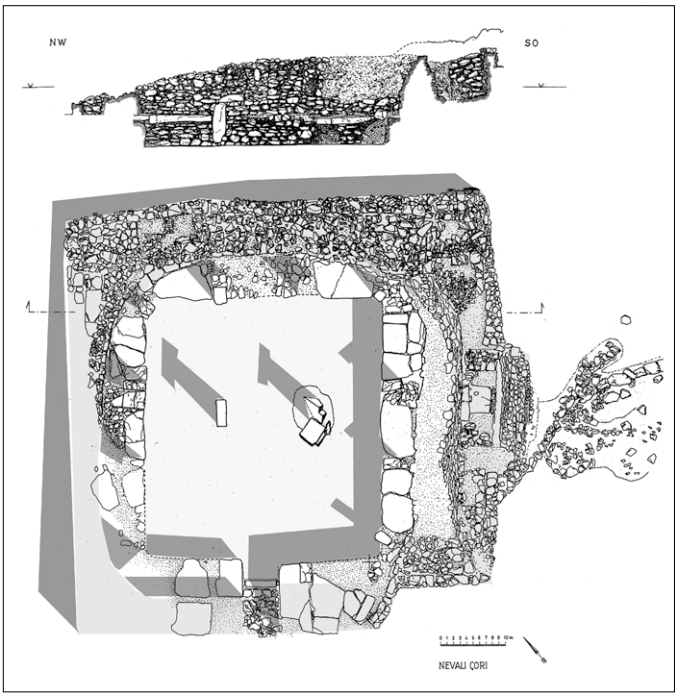

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Fig. 63: Nevali Cori, Building II
Fig. 64: Nevali Cori, Building III

94 In the case of Unit K, we have to assume that there was also a roof opening (fig. 67. 68. 69). Here, a set of stairs in the eastern part of the building leads upwards to the roof. No traces of the actual roof opening have survived, but the findings in Unit K have provided invaluable information regarding the general roof construction and materials. In Unit H, a broken roundish stone slab, with a diameter of 0.4 m and a large perforation measuring 0.17 m in diameter, was found within the roof collapse (fig. 70. 71. 72). It is interpreted as the frame of an air ventilation opening installed in the roof[188].

95 At least half of the exposed buildings were found with blocked doorways (fig. 17. 65. 73)[189]. In the case of Shkārat Msaied, this was seen as an argument for the seasonal use of the settlement (fig. 74) and the temporary closure of the doors with dry-stone walls as a sign that the inhabitants would return in near future[190].

Tell es-Sultan (Jericho)

96 A very characteristic entrance to a PPNA house at Tell es-Sultan is the one to Building E5 (fig. 75). Kenyon describes it as follows: »[T]he entrance consists of a projecting porch, widening towards the interior of the house, in which a series of rough stone steps descended steeply to the interior floor, now some 0.5 m below the interior level. […] The photograph shows, almost immediately at the floor of the steps, which would appear to be an inconvenient arrangement, there is a pit that was probably an oven. It was surrounded by a plastered rim, and the base was plastered over a foundation of stones«[191]. No information is given about the lintel or height of the entrance. According to the published plan, the width of the opening was around 0.4 m at the exterior and c. 0.7 m at the interior.

188 Kinzel 2013, 74. 402.
189 Kinzel 2019, tab. 1; Kinzel et al. 2020b, 62.
190 Kinzel et al. 2020b.
191 Kenyon 1981, 280.

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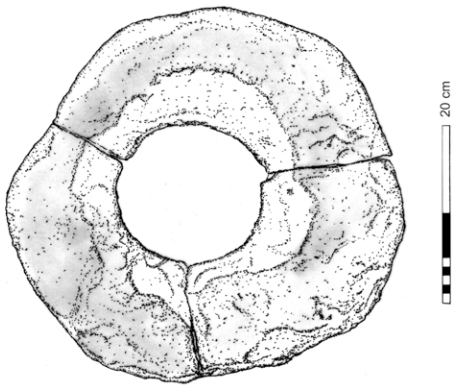

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Fig. 65: Shkārat Msaied, entrance to Unit A

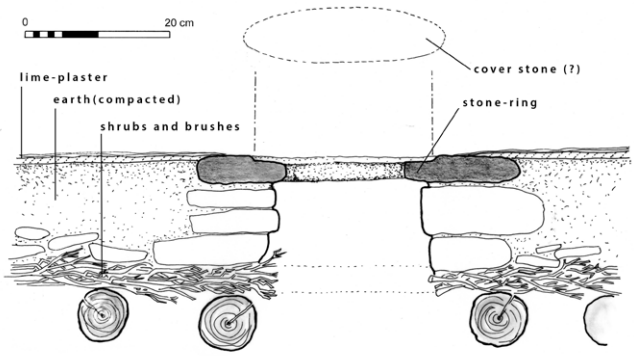
Fig. 66: Shkārat Msaied, entrance to Unit N

Fig. 67: Shkārat Msaied, Unit K

Fig. 68: Shkārat Msaied, Stair in Unit K

Fig. 69: Shkārat Msaied, reconstructed interior of Unit K

Fig. 70: Shkārat Msaied, stone ring, possible air vent or sky light



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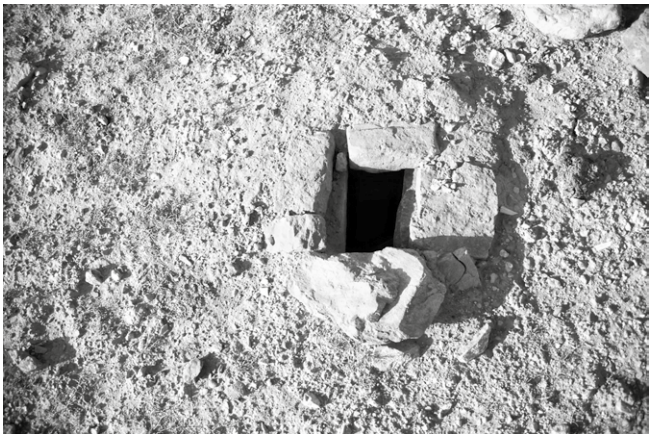

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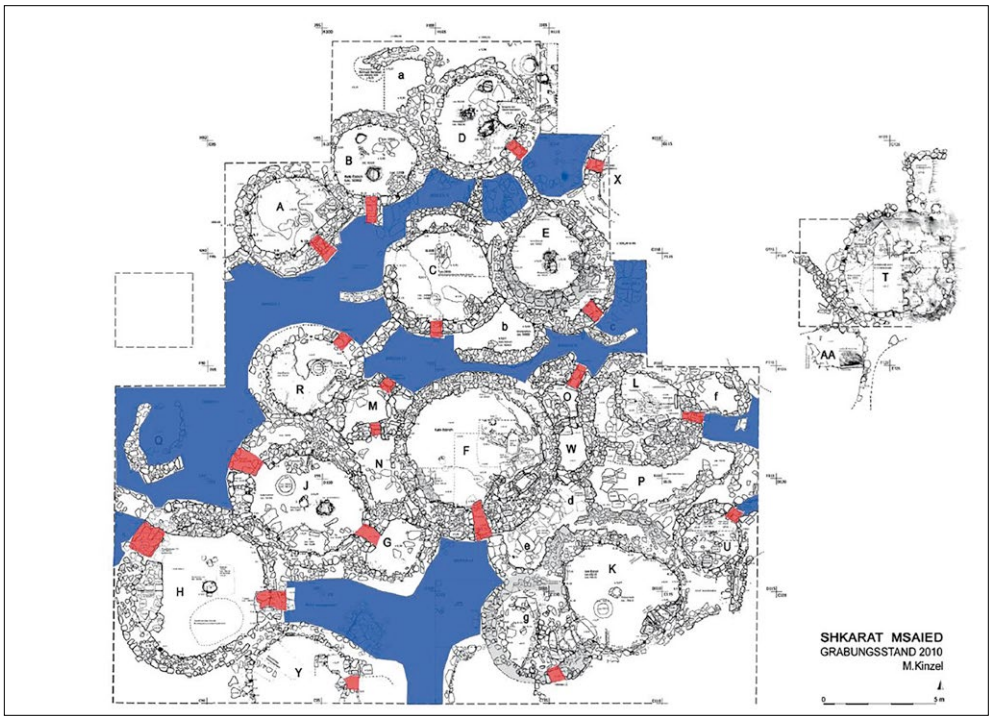

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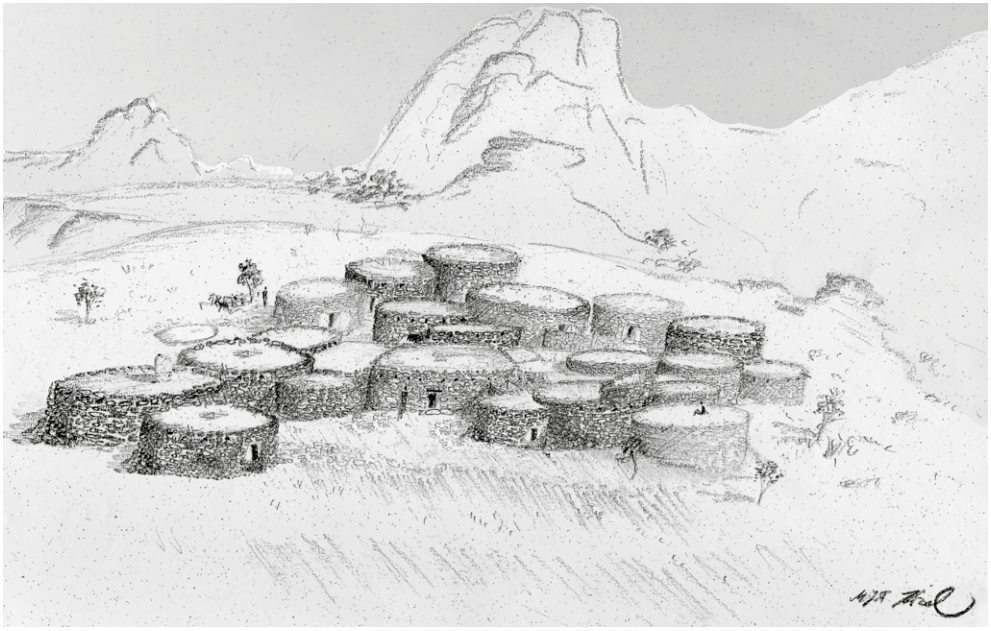

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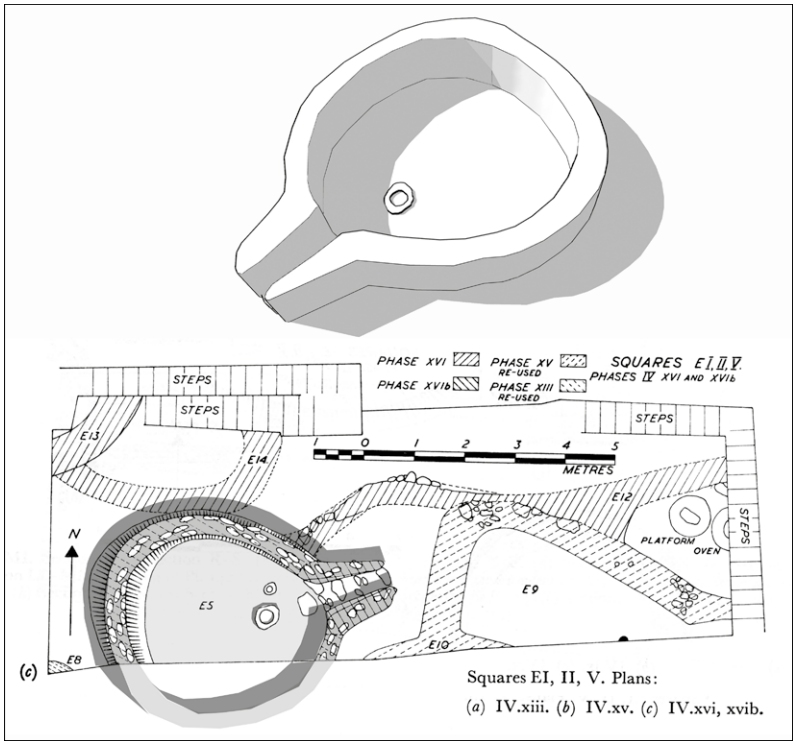
Fig. 71: Shkārat Msaied, stone ring, possible air vent or sky light, reconstructed cross-section through roof

Fig. 72: Air vent in a roof at Old Basta

Fig. 73: Shkārat Msaied, site plan with entrances marked

Fig. 74: Shkārat Msaied, reconstruction proposal for the excavation areas at Shkārat Msaied



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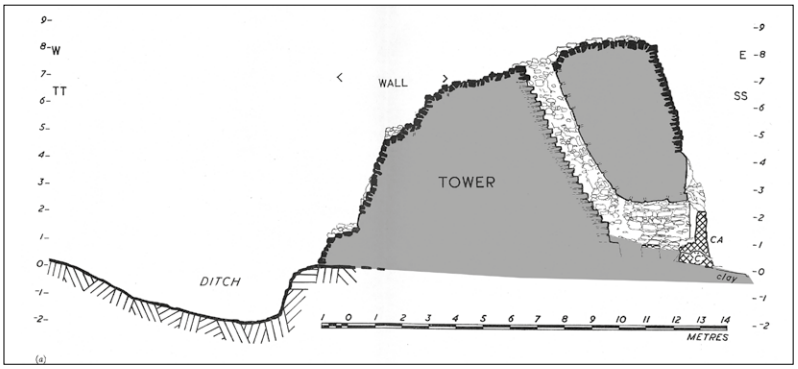

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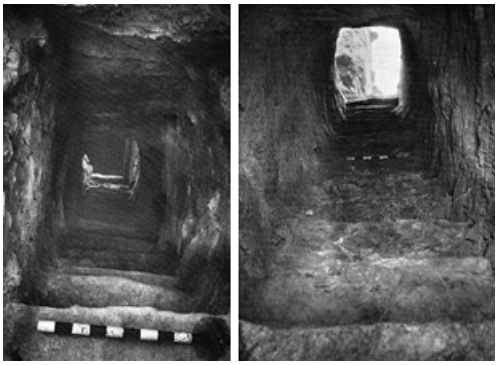

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Fig. 75: Tell es-Sultan/Jericho, PPNA structure E5

Fig. 76: Tell es-Sultan/Jericho, cross section of the Neolithic tower

Fig. 77: Tell es-Sultan/Jericho, staircase in tower

97 Another example, found in Square F-I, is »an aperture in the wall roofed with a lintel stone«[192] that is c. 0.5 m high and 0.2–0.25 m wide, sitting about 1.6 m above the base of the wall. The aperture turned out to be the outlet of a water-channel. The related structures – obviously used as cisterns – had no doorways[193]. Blocking of doorways is a common feature at the site throughout the Neolithic.

98 A very prominent case at Tell es-Sultan is the passageway and staircase, which has 20 preserved steps, in the tower (fig. 76. 77). Both the passage and stairs were ›roofed‹ and about 0.8 m wide[194]. No information is given about the actual entrance doorway to the tower. The published plan suggests a height of 1.2 m for the opening and a height of about 1.5 m for the corridor behind it, leading to the stairwell. The doorway seems to be c. 0.7 m wide.

192 Kenyon 1981, 21.

193 Kenyon 1981, 21: »None of the walls has a doorway in it within the area excavated. For all these reasons it is clear that these walls did not form parts of houses*[…]. [footnote:]* There is no evidence at Jericho that ordinary houses were entered from the roof, as in some other early Neolithic cultures, for instance at Çatalhöyük (J. Mellaart, The Neolithic of the Near East, p. 100).«

194 Kenyon 1981, 20.

Wadi Faynan 16

99 The site of Wadi Faynan 16 (WF16) dates to the PPNA[195] and the architecture shows great variation. In most of the ›normal‹ dwellings, short ramps within a projecting porch led down to the interior[196]. This arrangement resembles some features at Tell es-Sultan. Pascal Flohr and colleagues note that »[t]he internal faces of the subterranean cut were lined with pisé, which was also used to construct the above ground walls, surviving to a height of c. 0.5 m. Several mud-plaster floors were exposed during excavation. Indications of a stone-lined ramp leading to an entrance were also found«[197]. The setting with the inwards-leading ramp would have created some issues with washed-in sediments, which was perhaps a reason for this approach being abandoned later. The roof construction obviously marked the upper limits of the doorways. Flohr et al. remark, based on the experience of constructing the experimental house – taking inspiration mainly from structure O11 (fig. 78) – at WF16, that the structure was clearly too small to be used as a domestic structure for, e.g., sleeping. In addition, they felt that it was quite hard to enter or leave the structure, and this would have been even harder with a smaller opening, which was probably what the PPNA structure had[198].

100 It is entirely unclear how the ›special building‹ Structure O75 was entered. Also, how did one move within the settlement and between the buildings? Which buildings were in use at the same time? Which buildings were abandoned and ruined, thus leaving corridors and empty spaces within the settlement for moving around and to be used as activity areas? Or did people move across the roofs?

Wadi Hamarash

101 At PPNB Wadi Hamarash[199], the rectangular PPNB architecture shows similar wall openings to those found at Basta[200], Ba'ja[201], as-Sifiyya[202] and el-Hemmeh[203]. A doorway in Area I (fig. 79) that connects Spaces 2 and 18 measures 0.76–0.8 m in height and 0.4–0.5 m in width, which corresponds to a ratio of 2 : 1[204]. The preserved lintel is made of a single, roughly worked stone and the threshold is made of a stone slab[205]. In Area V, Spaces 5 and 7 are connected by a window-like opening, which is 0.45 m high and 0.3–0.38 m wide (fig. 80). The lintel facing towards Space 5 is made of a long and c. 12 cm thick stone slab. The sill consists of a single, max. 5 cm thick stone slab[206].

102 In contrast, the LPPNB ›special building‹ (fig. 81) identified in Area IV has two doorways, one measuring 0.9 m in width and the other 0.95 m[207]. Both doorways had stone-made thresholds. It also has a very unusual series of three wall openings in the exterior wall, placed next to each other and facing west; each measuring approx. 0.38 m in width[208]. It appears that their sills are on the same level as the latest floor surface.

195 Mithen et al. 2019.

196 Flohr et al. 2015.

197 Flohr et al. 2015, 147.

198 Flohr et al. 2015, 160; Mithen et al. 2019, 659.

199 Sampson 2013. In the publication by A. Sampson 2013, spaces are also called ›Locus‹. For a better understanding of the spatial contexts and to avoid confusion, the original ›Locus number‹ is here used for the spaces and the term ›Locus‹ is used for archaeological deposits or features but not for spaces.

200 Gebel et al. 2006b; Kinzel 2006; Nissen 2006.

201 Kinzel 2013.

202 Mahasneh 2001; Mahasneh 2004.

203 Makarewicz – Rose 2011.

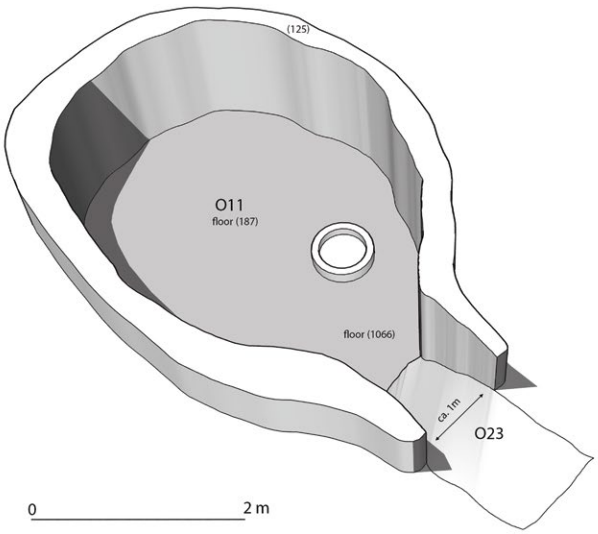
204 Kinzel 2013, 229 f. 564; Sampson 2013, 8 f. 62.

205 Sampson 2013, 8 f. 62.

206 Sampson 2011, 75 f.

207 Sampson 2010, 85; Kinzel 2013, 563.

208 Sampson 2013, 17–23.



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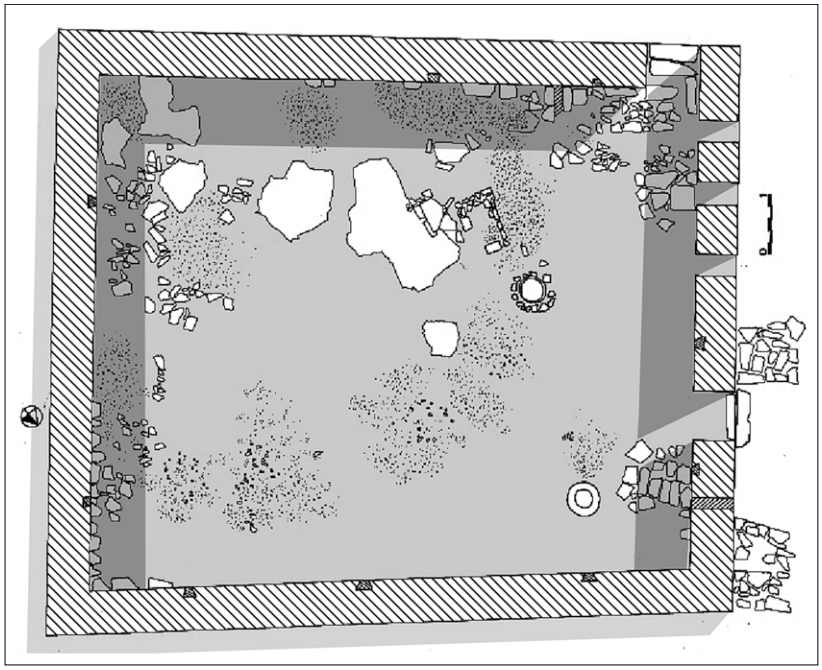

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Fig. 78: Wadi Faynan 16, top: reconstruction of Structure O11; bottom: experimental structure of a typical PPNA building based on e.g. Structure O11

Fig. 79: Wadi Hamarash, Area I, preserved doorway to Space 2

Fig. 80: Wadi Hamarash, Area V, Space 5 with preserved doorway

Fig. 81: Wadi Hamarash, ›special building‹ in Area IV

Sizes, Measures and Proportions

103 The reconstruction of ancient measurement systems is a discipline of its own and has been studied comprehensively[209]. However, for early Neolithic architecture we still lack an established reference system or a common canon[210]. Nevertheless, the dimensions of wall and roof openings seem to be based on human body measurements, proportions and scales[211], particularly digit, inch, span, cubit, foot, yard and fathom. They all rely on each other as a multitude of digits, cubits, yards or feet[212], and they relate to each other at a ratio of 4 : 3 or 1 : 1.5.

104 During the Neolithic, the later, often-used ›golden ratio‹ of 1 : 1.61803 or a ratio of 1 : 2 is rarely found though it exists[213]. According to Ricardo Eichmann, simple ratios of 1 : 1, 1 : 2, 2 : 3 and 3 : 4 helped communicate these measurements to the builders involved in the construction process[214].

105 Empirical experience and numerous failed attempts during the construction process established some guidelines for Neolithic building practices in regard to suitable technical and structural solutions as well as dimensions (see table: https://doi.org/10.34780/2h4684vq). The invention of mud bricks produced with formwork started a process towards standardisation[215]. However, a high degree of individual approaches for overcoming structural challenges can still be observed throughout the Neolithic. The Early Neolithic is the ›nursery‹ of architecture and a large scale laboratory for spatial arrangements, geometric conceptions, and building technologies. Through the repeated use of these dimensions and proportions, the Neolithic builders established step-by-step a reference system for some building elements and related spaces. In this context, architecture can be read as the geometrical aesthetic of proportions and scale. It represents a unity with a scale based on human measures. Being based on the visual scale defines the way the building should be perceived. Height and proportion of a building respond to setting. The understanding of spatial relationship and scale sets the framework for the visual perception of space. Sensorial perception of space depends on various factors. Consequently, the direct and indirect impact of the built environment on human psychology should not be underestimated. Therefore, throughout history builders and architects set out to be in control of human behaviour; by creating the right setting with an appropriate appearance and ›aura‹ of space for the anticipated users. Generally speaking, the main role of buildings is to protect and shelter potential users. How well this works and the human body responds, defines the efficiency of the built environment. The user's size and anticipated activities have a direct influence on designing a building[216]. In contrast to domestic structures, the spaces for communal activities are in general much larger and magnified in comparison to the human scale signifying daily life.

106 What measures can be taken into account? The cases from Shkārat Msaied, Basta and Ba'ja show very similar patterns. The length used for one cubit seems to vary from site to site between 0.35–0.55 m; on average, 0.4–0.45 m is used as the width of window-like wall openings. A cubit can be divided into three equal parts of 0.15 m. A ratio of 4 : 3 is often used in this case. The width of stone-built walls was commonly between 0.45 m and 0.66 m, which suggests that the same scale used for the openings

209 Thom 1962; Rottländer 1979; Hoepfner 1984; Trapp 1992; Beinhauer et al. 1999; Morley – Renfrew 2010; Gericke 2017.

210 Kinzel 2013; Kurapkat 2014.

211 Eichmann 1991; Kinzel 2013; Kurapkat 2010; Kurapkat 2014; Barański 2020; Haklay – Gopher 2020; Dermech 2021.

212 Rottländer 1979, 3–9; Rasch 1987; Barański 2020.

213 Beinhauer 1999.

214 Eichmann 1991, 76.

215 Stordeur 2010; Barański 2020.

216 Kuijt 2000.

was also used for other construction works. Gil Haklay and Avi Gopher concluded their computing investigation into the architectural planning and measuring at PPNB Çayönü by establishing that a cubit with a length of 0.48 m was used as the basic unit of measurement[217]. However, earlier attempts to define basic scales and measures deal e.g. with the Nippur cubit, the Megalithic Yard and related scales[218].

107 In Building C at Göbekli Tepe, there is a carving on a stone slab used in the construction of one of the benches that could represent the outline a pair of feet (fig. 82)[219]. The length of a foot is 0.29 m, and the width varies from 0.13 m to 0.95 m. It is hard to say whether the carving marks a place for standing and watching the interior or if the carving may represent an agreed-upon scale used for measuring.

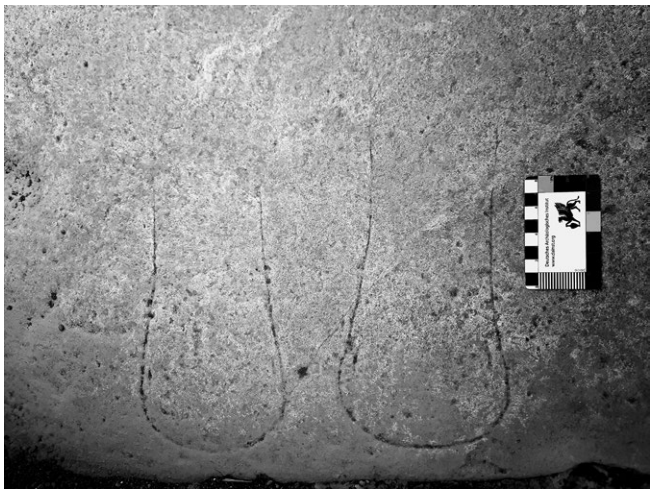

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Fig. 82: Göbekli Tepe, Building C, carving on stone slab, scale feet?

108 According to James Campbell, the human body places certain obvious limits on the advisable widths for doorways (fig. 83. 84. 85). A minimum standard door size nowadays can be 0.457 m in width. However, the average width of a man's shoulders is 0.465 m and for a woman the figure is 0.395 m. Hips are generally narrower than shoulders. Nevertheless, from this it is clear that a door width of less than 0.5 m may be too narrow for people of a more substantial build to fit through[220]. In the Neolithic of Southwest Asia, the minimum width or diameter of an opening through which an adult may fit is approx. 0.45 m – corresponding to the length of one cubit (fig. 84. 85). Smaller openings may have been used by, e.g., children or adults that were more flexible and slender. However, only in a very few cases are openings only 0.35 m wide[221] and 0.55 m high. The question is, how often these rooms needed to be accessed and whether perhaps this was only done by people with an ›appropriate‹ size – as was the case with, for example, the cleaning and sanitation of wooden barrels in wineries until the second half of the 20th century, a job traditionally done by juveniles. What other implications may the limited access to buildings have? Could this also tell us something about the possible functions and use of buildings? Or is this limitation in size only unfamiliar to us because we are used to doors that open automatically and generally have very comfortable sizes and widths?

Enter and Exit: Crossing the Borders and Boundaries of the Neolithic World – Perception of Space and Atmosphere

109 Keeping warm, sheltering from adverse weather and protecting oneself from danger has always been a concern to humans. The case studies presented above show some of the answers to these concerns formulated by Early Neolithic people in Southwest Asia when they were incorporated into architecture. Doorways are a key

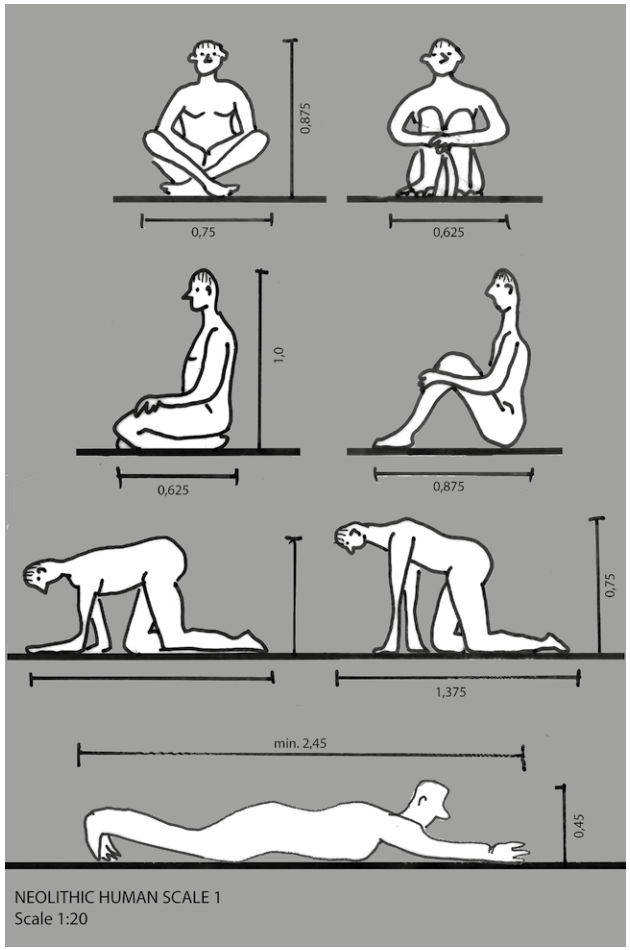
217 Haklay – Gopher 2019.

218 e.g. Thom 1962; Rasch 1987; Rottländer 1994; Beinhauer 1999. According to Rottländer 1994 as well as Beinhauer 1999 the Megalithic yard corresponds to 0.8294 m in length, which is equal to three times one Nippur cubit measuring 0.2765 m.

219 On the very same slab, a third carving shows a similar but unfinished outline with the same dimensions but turned 90 degrees to the right.

220 Campbell 2020, 257.

221 Or in diameter.



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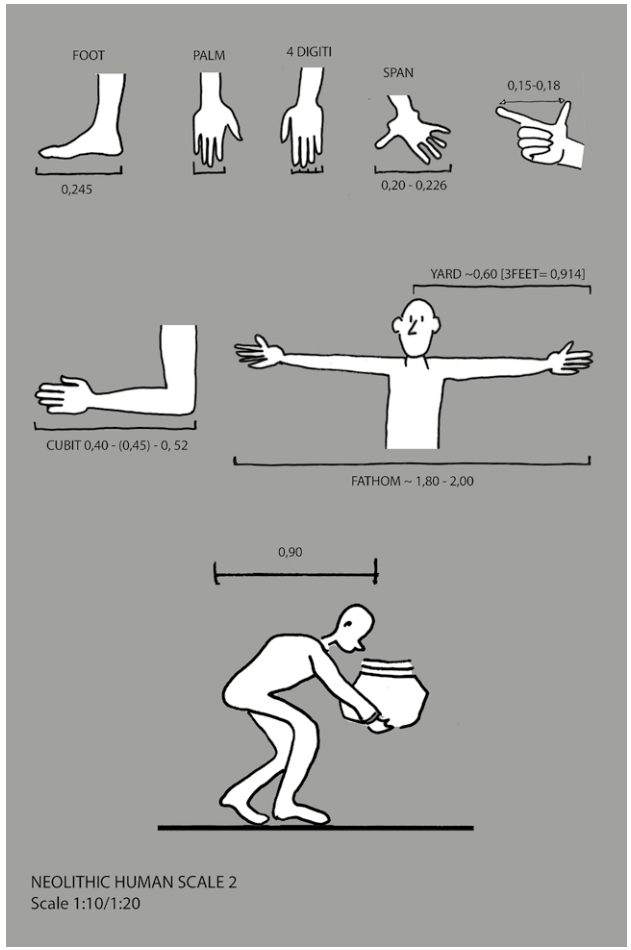

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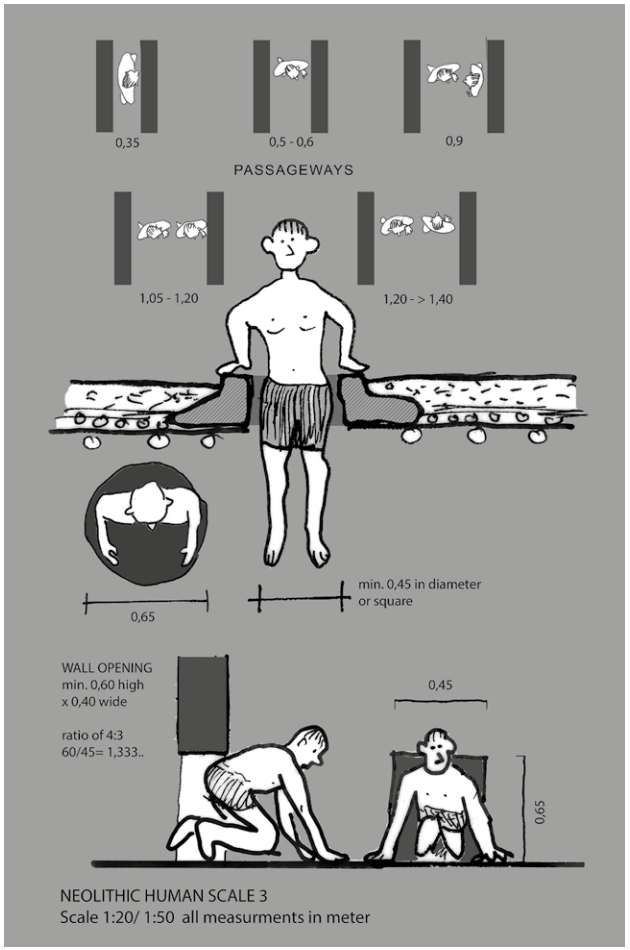

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Fig. 83: Human scale 1 as precondition for wall and roof openings

Fig. 84: Human scale 2

Fig. 85: Human scale 3, minimum sizes for openings and movements

to create, control, and understand spaces[222]. Through them it is possible to cross the borders between natural and »man-made« environments. The placing of access points into the buildings seems to be linked to the overall structure and layout of settlements[223]. It is hard to identify actual guidelines or patterns as to why a certain solution was preferred over others. However, it is possible to make some observations related to the topographical setting, the imagined functionality, the relevant size or needed spatial dimensions as well as the available building materials.

110 Portal stones, demarcation stones and thresholds mark clear borders and spatial limitations. To pass through or cross over such a feature was the same as crossing a border – also in a literal, cosmological sense. The built environment at Göbekli Tepe[224], for example, could be understood as a representation of the Neolithic cosmos (fig. 86). This would apply for most ›special buildings‹ as well as for ›normal‹ domestic dwellings. According to the imagery known from the T-shaped pillars at Göbekli Tepe and decorations on small finds found throughout Southwest Asia, the Neolithic world could be understood as a three-part cosmos comprising a world of the living, a ›Heaven‹ and an ›Under- or Otherworld‹ guarded by wild animals. The depicted animals may be understood, on the one hand, as guardians of the border between life and death, showing clearly territorial behaviour[225] and, on the other hand, as mediators between the worlds (fig. 87). Some animals, such as foxes and snakes, seem to take the role of mediators to the ›Underworld‹, whereas wild boars, bears and leopards guard those borders. In contrast, birds, and especially vultures, are related to the upper world – ›Heaven‹ – taking deceased members of the community onwards on their last journey. The portal stones and the doorways have to be understood as somewhere where the (imaginary) borders of the world are crossed; entering a building meant that one entered a different world or a representation of the world. At the same time, the building represents the well-defined and ›hermetically closed‹ cosmos[226]. Especially at Göbekli Tepe, the initial spatial arrangement of the ›special buildings‹ seems to reflect exactly such a concept (fig. 88).

111 In the case of Building D in the SE Area of the site, the interior is organised in three zones or spheres. In the innermost zone are the ›free-standing‹ T-shaped pillars. It is very likely that an entrance to the building was placed in the roof, possibly between the two central pillars. The inner area would have been lit by light from the trapdoor, creating a relatively brightly lit space. The inner space is clearly defined with a raised rock step encircling it. On the slightly raised platform, T-shaped pillars were placed, guarding this transitional zone, which had dim lighting. Each of these monolithic building elements shows very individual characteristics. None of them are treated the same way or have a similar outline. Each one carries a different imagery and combination of animal depictions – telling an individual story as part of a common narrative. The animals depicted show defensive territorial behaviour[227]. Behind this transitional zone, and in darkness, dwells the unknown. It is difficult to determine if the deep niches or apsidal spaces between the T-shaped pillars were lit by lamps or skylights, or some type of flickering lights to make the reliefs on the pillars more visible. The visually indefinite or imperceptible limits of the space seem to be part of the building concept: a defined but dimensionless space with transitional zones guarded or controlled by certain creatures.

112 How to approach such a space? How to understand its syntax and social logic? How did people move in such a space? How did they perceive the contrasts between the ›special buildings‹, communal spaces, domestic dwellings and the nature around

222 Ingold 2016; Rafailidis – Davidson 2016; Duru et al. 2021b; Stender – Bech-Danielsen 2021.

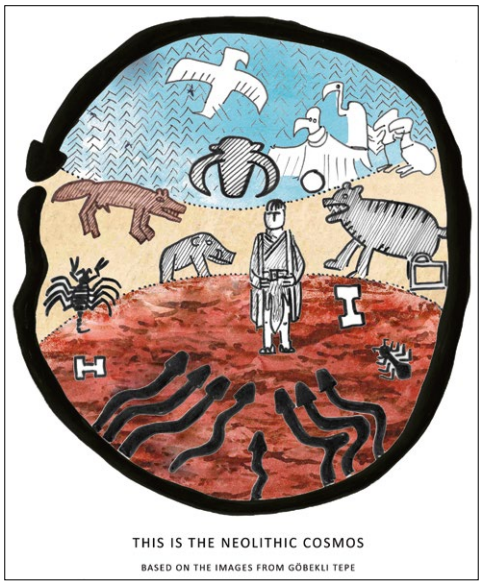
223 Delitz 2009.

224 Clare – Kinzel 2020.

225 Peters – Pöllath in press.

226 Cf. Vetter 2019, 17–62.

227 Peters – Pöllath in press.



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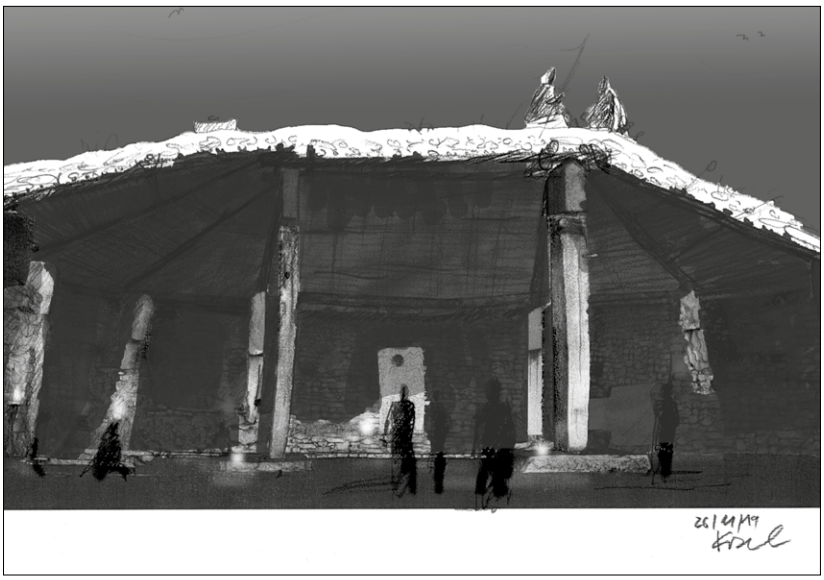

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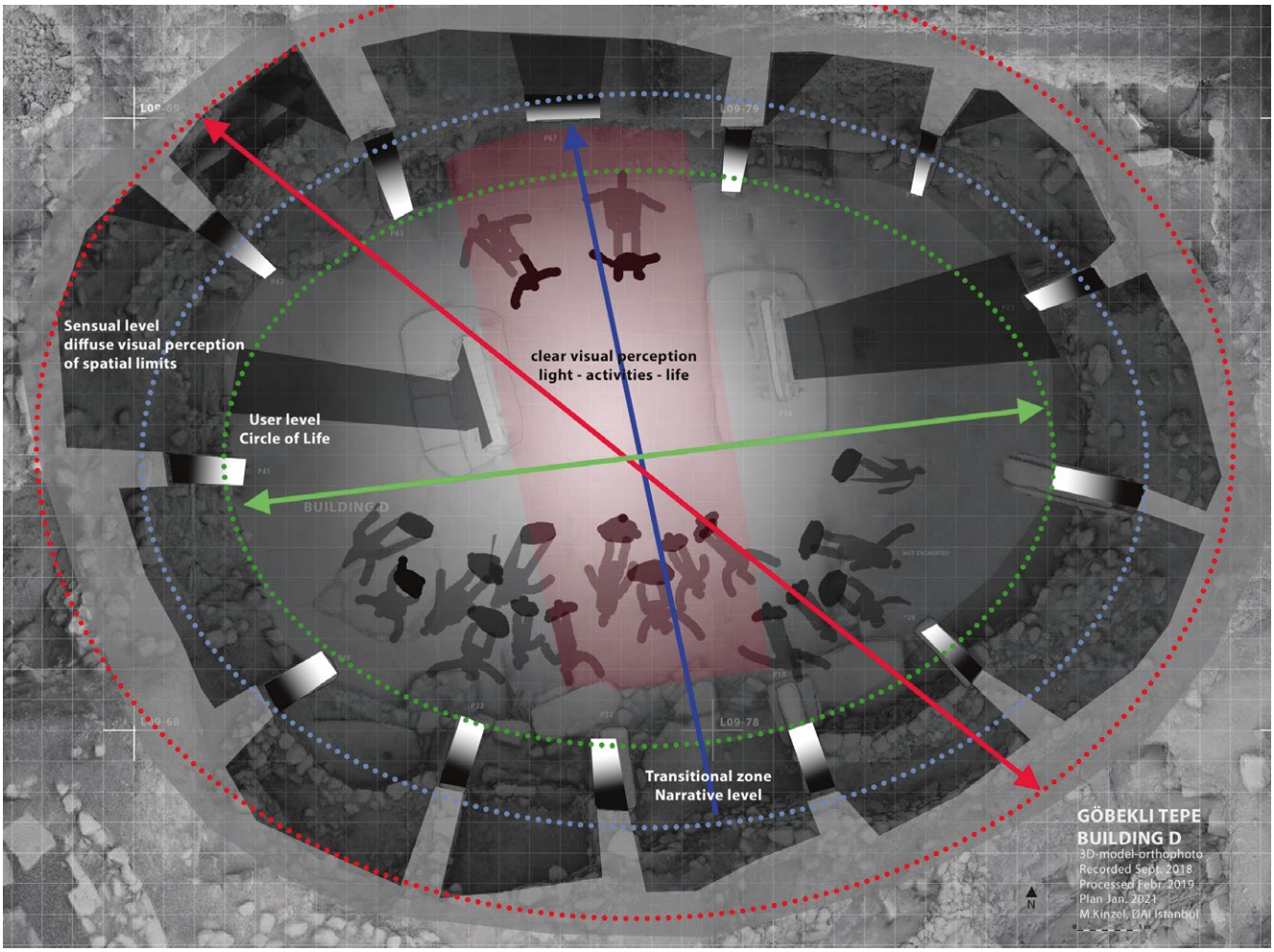

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Fig. 86: A possible reconstruction of a three-tiered »Neolithic cosmos«

Fig. 87: Göbekli Tepe, Building D, reconstruction of interior space and perception

Fig. 88: Göbekli Tepe, Building D, a built »Neolithic cosmos«?

them? Did doorways also play a role in transcending between ›worlds‹[228]? It is beyond the scope of this article to answer these questions; however, these are all aspects that seem to be connected to the question of ways in and out of Neolithic buildings or, in other words, Neolithic doorways.

228 Hume 2006, 1–24.

113 Although most Early Neolithic buildings are single spaced, these spaces are organised into different zones. In some cases, e.g. at Çatalhöyük or Aşıklı Höyük, the rooms are differentiated into ›clean‹ and ›dirty‹ areas, sometimes separated by different floor levels or low partitions[229]. At Göbekli Tepe and other sites in the region, the interior spaces are structured with built-in features, such as benches, niches and grinders[230]. A hierarchy of space is difficult to identify or attest. However, as Banning and Byrd have shown for the southern Levant (e.g. at ʿAin Ghazal, Beidha and Basta) the complex PPNB architecture is much more suitable for spatial and space syntax analyses and interpretations[231].

Excursus 1: Perceiving Space in E/MPPNB Contexts – the Case of Shkārat Msaied[232]

114 Moving through a MPPNB settlement and its buildings, forces the visitor to change direction continuously. Such a conception of wayfinding enables a very conscious perception of space, spatial arrangements and dimensions. Within the settlement, the routing appears as a product of an ongoing modulating village layout that does not necessarily reflect pre-planning. However, at Shkārat Msaied the orientation of house entrances takes different aspects into account: 1) changing wind directions between morning and afternoon hours, 2) sunrise over the mountain rim to the southeast, 3) existing neighbouring buildings and open spaces between buildings, and 4) (traditional) pathways established over time. Orientation is given by the distinctive design of the doorways: vertically placed sandstone slabs as reveals and stepping stones leading up to a threshold.

115 In Building Unit K, there are various elements of routing attested (fig. 67. 68). There is the flight of stairs leading down into the interior of Unit K, which immediately directs those entering through the south-facing, narrow entrance to the right and downwards. When entering the interior space one encounters, among other things, a ›basin‹ with a raised rim set into the lime plaster floor and a sandstone slab oriented in a north–south direction set upright into the floor, which blocks the path leading to the right half of the room. On the left behind the ›basin‹ is the central post, made of three tree trunks, upon which the roof construction rests (fig. 69). There are only two paths for the visitor to follow: either to the left, in an arc around the ›basin‹ and the central post, or through the narrow gap between the 'basin' and the upright stone slab, in a slightly curved line towards the (second) staircase located further towards the back of the room. The eye-catching feature here is a very conspicuously shaped red sandstone slab, which was part of a built-in feature that is quite common at Shkārat Msaied: a combination of a vertically placed stone slab with a platform or stone cists behind it. Behind the central post is a ›track‹ of grinding stones that – similar to a paving – leads to the staircase in the eastern part of the room. Whether this ›track‹ of grinding stones is actually part of an intentionally made path or just the accidental result of the ground stones tumbling down the stairs cannot be conclusively determined. In addition to this wayfinding, the role of light as a creative means of wayfinding must also be addressed here (see also below). To our current knowledge, the staircase was illuminated by the light shining down through the roof opening and was thus clearly visible in the otherwise quite gloomy and dim interior. The alternation of bright and dark sections along the path as well as the continuous change in direction of the path, following slightly curved

229 Mellaart 1967; Cutting 2003; Duru 2013; Steadman 2015, 60–62; Barański 2016; Haddow 2016; Haddow 2017; Barański et al. 2022b; Shillito et al. 2021.

230 Kurapkat 2010; Kinzel – Clare 2020.

231 Banning – Byrd 1984; Hillier – Hanson 1984; Banning – Byrd 1987; Bafna 2003; Bafna – Shah 2007; Trebsche et al. 2010; Hillier 2014; Gao 2022; see also Unwin 2014, Unwin 2017, Unwin 2019a, Unwin 2019b, and Unwin 2019c.

232 Based on Kinzel 2014, 278 f.

walking lines, enable a clear perception of the space, its dimension and furnishing. The design elements used during the E/MPPNB can be summarised as follows: a) stairs and steps that define walking lines, b) vertically placed stone slabs and/or worked stones to mark, e.g., doorways, c) light and shadow to lead through and structure space, and d) a pathway that forces a change in direction in order to perceive space as a three-dimensional entity.

Excursus 2: Perceiving Space in LPPNB Contexts – the Case of Ba'ja[233]

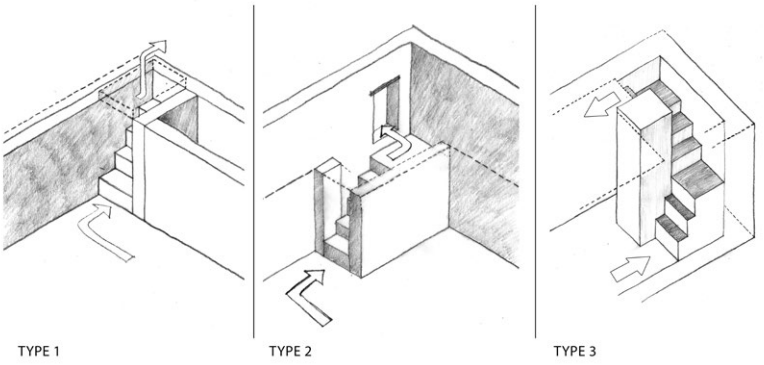
116 The principle of continuous changes in direction when moving through the built environment is maintained in the LPPNB and is given a clear expression through the consistent application of the right angle. In the interaction of the construction joint, construction phase, spatial sequence and wayfinding analysis, building units can be identified at Neolithic Ba'ja. The identified building type is referred to in the literature as a ›double-buttress house‹[234]. The BIV building is an ideal example of this building type (fig. 26). The building unit consists of a so-called central room, which is usually a quite spacious upper floor room with a floor area of up to 25 m². The room is divided by two ›wall buttresses‹ facing each other, which are more correctly referred to as wall projections or wall tongues. The room may be connected to other rooms by doors and windows, both on the same level and on a higher or lower level. It is currently not possible to make a statement regarding access from the roof or an upper storey.

117 In the case of North Building BIV in Area B, the basement cells below the ›central room‹ are accessed via a staircase (BNR3), which is accessible through a ›hatch‹ in the floor. The staircase leads to the relatively low basement, with Room BNR2 taking on a distribution function. From Room BNR2, the smaller room cells BNR1, 4 and 38 are accessed via characteristic window-like wall openings. BNR37 is also accessed from room BNR38 via this type of wall opening. Whether BNR5 and 6 were accessible via wall openings from BNR4 cannot be ascertained with certainty since both BNR 5/6 and BNR 4 have not been fully excavated. In contrast to the ›Basta House‹ where the small room cells (of the basement) are organised horizontally around a courtyard or ›central room‹, at Ba'ja these small spaces are located below a ›central room‹. The basement is accessed vertically through a hatch and down a set of stairs, leading to a small space that serves as a ›distributor‹. Within the storeys, there is again predominantly horizontal access via window-like wall openings (basement) or doorways (upper storey). The basement floor must have been pitch-dark as there was no direct light – except for possible lamps – to illuminate the small spaces.

118 The movement through a building on the ›usage floor level‹ can be well understood from the features in Area C: Corridor CR33 meets wall C10:101 = C20:120 to the east and is directed north at a right angle to staircase C20:129. Staircase C20:129 leads to corridor CR32 and from it to room CR29. Here, the path bends to the right. The doorway (C20:126), which has a high threshold, connects room CR29 with room CR28. The latter has a floor area of 21.31 m² and was furnished with both a red-coloured lime screed and a fine dark red stained plaster. The southern side of the room was apparently in darkness. The ›walking line‹ leads from the northwest to the staircase opposite the door (C21:139) at a slight angle. This staircase was built in front of wall C21:6 and has a flight of steps oriented in a north–south direction. On the way through Building CVII, one is directed diagonally through the space towards a set of stairs, which leads one up to the next floor level. The flight of stairs runs against a wall (C21:10); forcing one to turn again at right angles to the east and through a doorway (C21:6B) into Building CII. The path described is characterised by a constant change of direction due to the angling of the

233 Based on Kinzel 2014, 279–281.

234 Gebel et al. 2006a; Kinzel 2013.



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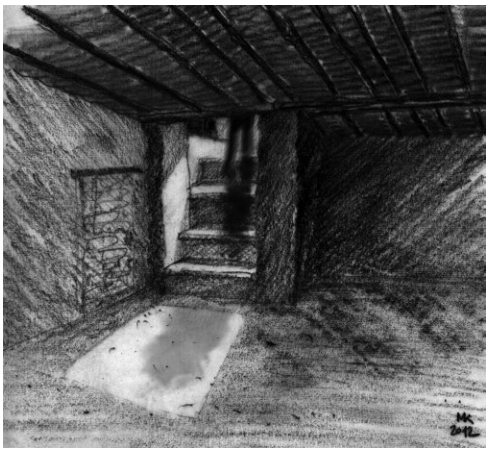

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Fig. 89: Typology of Neolithic stairs

Fig. 90: Beidha, entrance stair to a building

Fig. 91: Ba'ja, reconstructed spatial arrangement of Space CR28, Building CVII

Fig. 92: Göbekli Tepe, Building H, access stair

›walking line‹ (fig. 18. 19). Light, shadow and the difference in heights along the route characterise the movement within the space and makes it possible to experience the movement and the spatial arrangement physically and with all senses.

119 The design elements used during the LPPNB can be summarised as follows: a) the direction and guidance within the settlement via the roofs are unclear, b) spatial sequences guide movement within the structures, c) hierarchy of doorways and ›windows‹, d) no central-axial development, e) diagonal routing within the space, f) change of direction when entering the next room or corridor, g) different types of stairs, h) light and dark zones are part of the design of the ›path‹, i) red-stained lime plaster floor and wall plasters, and j) high thresholds and ›parapets‹.

Excursus 3: Stairs – Accessing Vertical Space

120 Stairs played a formative role to capture the vertical space already during the Early and Middle PPNB[235], e.g. the stairs in Building Unit K at Shkārat Msaied. In the LPPNB, they developed into one of the most significant building elements for moving between different elevations, both within settlements and within buildings[236]. The following three types can generally be distinguished (fig. 89)[237]:

Type 1: straight staircases, some of which end directly in front of a wall or a doorway.

Type 2: straight staircases with a ›landing‹, usually with a ›doorway‹ located at the side of the landing.

Type 3: ›spiral‹ or ›winder‹ staircases that wind around a (stone) pillar sitting in the corner of a room.

121 All three types are attested at PPNB sites in the greater Petra area, although different types of stairs were preferred at each site. For example, Type 3 is predominant at ʿAin Jammam, whereas Types 1 and 2 are preferred at Beidha (fig. 90), Basta and Ba'ja (fig. 91).

235 Stairs are known from a series of Neolithic sites, e.g. Beidha, in the terrace wall and from Phase B onward as part of the entrances (Byrd 2005, 19–24, fig. 85. 120); Tell es-Sultan (Jericho), stairs in the PPNA tower (Kenyon 1981, 20); Ghwair, a broad set of stairs in the centre of the settlement, perhaps the steps also served as a seating area for watching activities taking place on the square in front of it (Simmons 2007, 171); and Göbekli Tepe, the long and steep stairs leading to the entrance to Building C (Dietrich et al. 2013; Piesker 2014).

236 Hermansen 2009.

237 Based on Kinzel 2014, 283 f.

122 Furthermore, the staircases differ not only in conception but also in terms of construction. The Type 1 staircases are commonly solid stone constructions, whereas Types 2 and 3 usually have steps made of stone slabs that rest on a wooden substructure. The risers are made of rubble stone (masonry) that rests on a narrow area of the underlying tread, i.e. there is a void under the stairs. For Type 2, a ›staircase wall‹ was built beside the run of the stair towards the room, which also served as a stringer. Type 3 is usually located between a wall corner of a room and a free-standing stone pillar. For Type 3, both solid stone-built stairs as well as composite structures made of wood, stone and plaster with a space under the steps are attested.

123 The development of this more complex construction method is clearly related to the reduction in the quantity of required stone material as well as the possibility to connect greater height with less or the same amount of material. The staircases are a good case study of the general attitude towards routing in the context of PPNB built environments: continuous change of direction along a path. Approaching the stairs from the room, one has to shift direction in order to use the stairs. The steps of the stairs lead to a higher (or lower) elevation level, where the user is again forced to change direction to enter the next space. Although it would have been possible to create linear access routes, a (often multiple) kinked or bent ›walking line‹ was obviously preferred by the Neolithic builders. To what extent this is connected to possible imaginary worlds and the (cosmological) beliefs of Neolithic people cannot be determined. Nevertheless, the possibility that we may here may grasp some reflections of a cosmos or imaginary world should not be excluded.

124 The examples from Shkārat Msaied and Ba'ja show that the transformation of spatial perception also had an impact on the physical transformation of space. The MPPNB circular buildings at Shkārat Msaied had only one entrance, which led into a self-contained, hermetically closed space. This space was structured by features such as doorways, floor basins, stone installations, wall cladding, etc. The orientation of spaces is established and reinforced by the construction of additional, straightening wall segments (e.g. Unit H) and compartment walls (e.g. Unit F). The addition and separation of rooms and the connection of activity areas at different elevations create pathways through spaces for accessing rooms or activity areas that are located behind, above or below. The relatively clear, axially oriented and symmetrically ordered spaces of the roundhouse structures developed into rectangular spaces that, in contrast, do not have central-axial access. Rather, the spaces at, for example, LPPNB period Ba'ja, become part of the path or a sequence of rooms. The routing is mostly diagonal through the space, allowing for maximum spatial perception. At Göbekli Tepe, stone-built stairs are known from, e.g., Building H (Loc. K10-24-011; fig. 92), the terrace walls (Loc. L09-79-0020/21) and in a corridor leading towards Building C (Loc. L09-84-47/52/58). All these cases are Type 1 stairs – made of stone and built straight or in a line following the spaces left between structures and the (natural) relief[238].

Light and Shade – Aspects of the Perception of Space and the Role of Doorways

125 Neolithic architecture has, in general, a different conception than architecture of the 20th or 21st century[239]. Light seems to have played a less important role in the Neolithic. In contrast, we have to assume that one of the major aspects of Neolithic building was to create spaces that excluded the external environment, e.g. sights, sounds, bright

238 Kurapkat 2010; Dietrich et al. 2013; Piesker 2014; Waszk 2017.

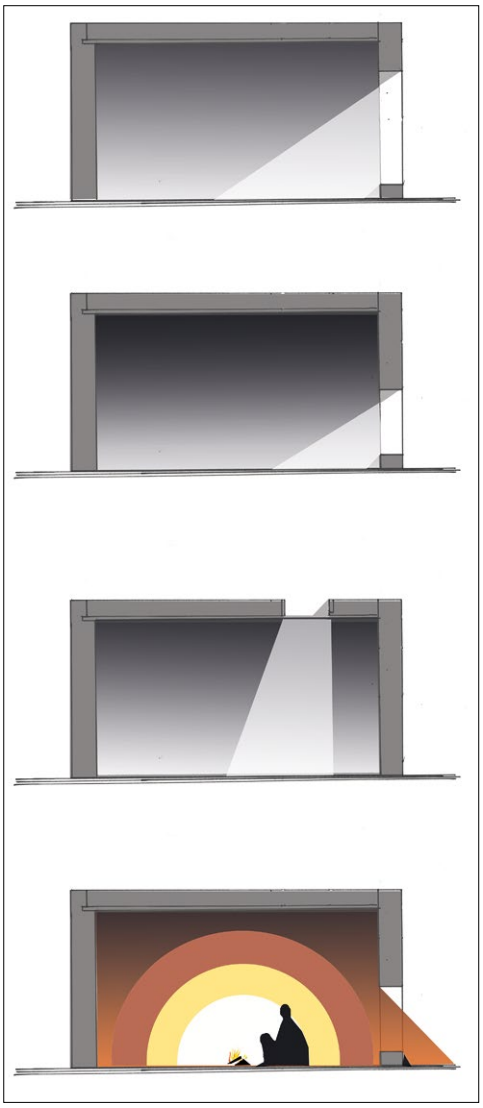
239 E.g. Boubekri 2014; Bille 2019; Unwin 2020; Bartenbach 2021.

daylight, extreme temperatures (heat and cold), wind and rain or snow. Nevertheless, understanding the light conditions of an interior space can provide valuable data for the understanding of its functions and use[240]. Humans cannot see in the dark and they, therefore, need light to enter dark spaces, and their visits to those places depend on the physical characteristics of their lighting systems[241]. The luminous intensity, radius of action, type of radiation and colour temperature of the light determine the perception of space, the environment and the human activities inside caves or human-built spaces[242].

126 The location of access points from the roof may have been chosen strategically not only to enter the building at the preferred spot but also to light up a certain part of the interior space – at least as a way to mark the exit point. Generally speaking, light from above has a better distribution in space than light coming from a horizontally placed opening, e.g. a window (fig. 93). In general, the interiors were therefore most probably quite dark, whether intentionally or just as a matter of fact. As stated above, humans do not see well in the dark; however, the human eye can adapt to a certain degree – albeit slowly – to darkness or weak and dim light. In contrast, bright light has a much more damaging effect on the retina. The dim light is possibly only seen as a disadvantage from our modern-day perspective. Moreover, darkness played a much larger role during the Palaeolithic and perhaps also the Neolithic than assumed[243]. At the same time, the use of light is key to understanding the use of space already in the Palaeolithic[244]. According to a recent study, artificial lighting can be seen as a crucial physical resource for expanding complex social and economic behaviour of groups during that time[245]. The control of fire enabled the development of initial symbolic behaviours in deep and dark caves[246].

127 In addition, as noted by the architect Elisa Valero Ramos[247], it is also through the medium of light that time can be perceived. According to her, time may be described as the measure of changes in light: the alternation of day and night that constitutes a change in light, as do the seasons of the year. The measuring of time has played a fundamental role for humans. Daylight is interrupted and thus measured and structured by night, darkness and starlight. Blue light is associated with morning and golden light with evening; spring is distinguished from winter by changes in the light. This instinctive knowledge of what sort of light is coming next provides us humans with a sense of stability amid the movement of the world. Through light, two-dimensional patterns become a multi-dimensional space.

128 In his study on the usage of light, Mikkel Bille discussed the role and perception of light further[248]. According to him, »light is so natural it is easy to forget how



93

Fig. 93: Light perception according to (1) wall and (2) roof openings or (3) internal fire place

240 Heilmeyer – Hoepfner 1990; Schneider – Wulf-Rheidt 2011; Tregenza – Wilson 2011; McBride 2010, McBride 2012, McBride 2013, McBride 2014, McBride 2015; Witting 2014; Papadopoulos et al. 2015; Bille – Sørensen 2016; Ingold 2016; Bille 2019.

241 Boyce 2014.

242 Pastoors – Weniger 2011; Boubekri 2014; Boyce 2014; Bosch 2021; Medina-Alcaide et al. 2021; Needham et al. 2022.

243 E.g. Dowd – Hensey 2016.

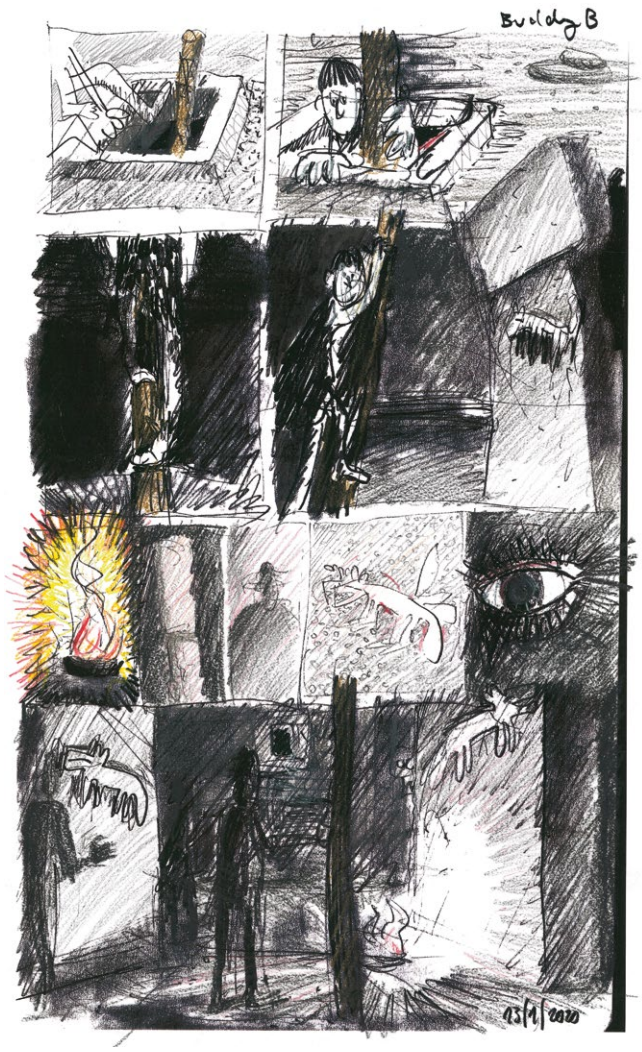
244 Pastoors – Weniger 2011; Medina-Alcaide et al. 2021.

245 Dawson et al. 2007; Ingold 2016; Rafailidis – Davidson 2016.

246 Pastoors – Weniger 2011; Medina-Alcaide et al. 2021.

247 Ramos 2015, 7.

248 Bille 2019.



94

Fig. 94: Göbekli Tepe, Building B, perception of space – an attempt at a reconstruction: entering and initial orientation

socially mediated it always is. A central [...] point [...] is that lighting is actually rarely about visibility. It may not even be so much about seeing in a strictly physiological sense. It is about seeing and sensing in a particular way. Lighting is an atmospheric element that tinges the material infrastructure and its affective presence, and thus also becomes appreciated in particular ways depending on context. Of course, when going up to a pitch-dark attic, lighting is about visibility, but how much light, the tolerance for glare and colour, and even what technology is available, is an outcome of social processes. Light is in essence thoroughly embedded in socio-material life, as much as it shapes the human body's instrumental ability to see the surrounding world«[249].

129 Valero Ramos has extensively studied the role, use and function of light in buildings. She observes that today people very often think that ›good light‹ means the same as ›a lot of light‹, and that increasing the amount of light will therefore help us see a space better. However, this is not always the case. The quality of the light is just as important as its quantity and this attribute may include the position of the light source, the colour and even the dazzling effect of light shining directly in someone's eyes (glare). Also, if assuming that in some cases fire was used to illuminate a space, this may not actually have improved the visibility due to the development and presence of smoke, fumes and a high amount of fine charcoal particles[250]. The (possible) light coming through doorways would have aided in the orientation within a building – as it would ensure a sense of space and time through visibility. To appreciate the complexities of this situation, we must understand that if an object is lit by symmetrical sources of light that eliminate shadows, it can be difficult to perceive it in three dimensions. Side illumination produces relief so that we can see the volume of an object since we need shading as much as light to view the world correctly[251]. The importance of shade and shadows for the perception of space is also stressed by Simon Unwin[252]. Especially within the context of telling or transmitting narratives, shades and shadows can play a major role as a medium, culminating in the later forms of ›shadow theatre‹[253].

130 Shadows cast by parts of the human body or puppets can together with the flickering light of a lamp produce quite realistic images and movements[254]. The shadows are representations of life or, in other words, they come to life. The narratives told, for example, in the ›special buildings‹ at Göbekli Tepe and comparable sites could have been linked to the narrative of how the world came into being and what role humans played in it[255]. What stories were told – whether about animals, wanderers between

249 Bille 2019, 4.
250 Busacca 2021; for possible consequences see also Shillito et al. 2021.
251 Ramos 2015, 12; see also Boyce 2014.
252 Unwin 2020.
253 Jacob 1925; Mayer – Immoos 1981; Linden Museum 2015; Montecchi 2015.
254 Needham et al. 2022.
255 Abt 2014; Benz – Bauer 2013; Benz – Bauer 2021.

worlds, hunters or territories not to enter or only approach in a certain way – we will never know for sure. However, the roles of storytelling and narratives for explaining the world and its rules are well visualised by the reliefs and the imagery at Göbekli Tepe[256]. Light, shadow and darkness definitely played a major role in transmitting these narratives. Over time, the narratives may have changed (fig. 94).

131 To exclude light and to reduce the impact of daily temperature changes by using relatively thick walls and an extreme reduction of wall openings could be understood as consciously made decisions. However, it came at a cost: almost no air circulation was possible. This most certainly led to the introduction of smaller wall or roof openings or additional vents that were meant to conduct air into or out of the structure[257]. A side effect of constructing these wall and roof openings for air circulation was that light could also enter the interior. Perhaps accidental at first, this could have been put into use more strategically later. However, since these small wall or roof openings are rarely well preserved because of their position in the roof or the upper parts of the wall, we cannot be certain of this[258].

132 Nevertheless, at some sites, e.g. Ba'ja[259], Basta[260] and ʿAin Jammam[261], such air vents, though later blocked, have been found. At other sites, such as Shkārat Msaied[262], Göbekli Tepe[263] and Boncuklu Tarla[264], their existence is only indicated through finds that could be interpreted as stone-made, circular frames for air vents (presented above).

Accessibility – Limiting the Number of Users?

133 None of the Neolithic doorways – both the horizontally and vertically oriented ones – are made for large groups to pass through at the same time. All of them seem to be made for single individuals or perhaps a maximum of two persons to pass at the same time. Did people queue up to enter or leave a building? Was queueing part of the group experience or just a daily routine[265]? Alternatively, it can mean that only certain activities and tasks were performed inside the buildings and that major parts of Neolithic daily life took place outside (fig. 95. 96) the structures, on the roofs or in the immediate surroundings of the settlement[266]. How many people were actually present at the same time inside a building? How many people would be present or living in a settlement at the same time? How large were the Neolithic communities[267]? Would it differ from season to season? Studies on the potential capacity of space come to different conclusions, presenting maximum numbers that rarely leave space for practising activities or to move[268]. The limited access could be interpreted as an indication that the number of people able to enter was low, suggesting that an even lower number of people were actively involved in the activities taking place inside the buildings. On the other hand, it cannot be ruled out that entering and exiting the building in a certain order or procession were part of the events taking place. Looking at portal stones in general, it could be

256 Clare – Kinzel 2020.
257 Özbaşaran 1998; Duru et al. 2021a.
258 Kinzel 2013, 74.
259 Kinzel 2013.
260 Gebel et al. 2006b.
261 Gebel 2008; Kinzel 2013.
262 Kinzel 2013; Kinzel 2019.
263 Kurapkat 2010; Kinzel – Clare 2020.
264 Kinzel 2022; Kodaş – Çiftçi 2022.
265 Nicolas et al. 2017.
266 Carpenter – Prentiss 2021; Kuijt 2021; Kuijt – Marciniak in prep.
267 E.g. Kosse 1990; Bocquet-Appel – Bar Yosef 2008.
268 Verhoeven 2002, 247 tab. 6; McBride 2013, figs. 12–14; McBride 2015; cf. Kinzel – Clare 2020, 44.

95

96

Fig. 95: Göbekli Tepe, Space 61, state of excavation summer 2022

Fig. 96: Göbekli Tepe, Space 61, artistic reconstruction of the atmosphere and activities in Space 61

said that the ones found within the context of the ›special buildings‹ are larger in size and had a wider opening than the samples known from the domestic structures. Could this be related to costumes participants would wear as has been reported for the Kiva-doorways in the Pueblos of Southwestern United States[269]? Or was there a need for carrying things into the ›special buildings‹, thus requiring a larger opening? The same questions could be asked in relation to the transportation of things and movement of people within a Neolithic settlement and the buildings. What width was needed for a corridor or a doorway[270]? Which rules applied when entering or leaving a building? How to move and orientate oneself in a Neolithic settlement? How to distinguish between houses? How to remember where not to enter? Who took care of ladders, climbing supports and the maintenance of tracks, stairs and roofs?

134 The buildings on the steep slope north of Building D in the main excavation area at Göbekli Tepe are structured by a series of parallel corridors that follow the inclination of the slope during a later phase of use. These corridors have remains of steps or stairs. At a house corner, the corridors turn right and stop. From here, it seems you could enter the house upslope. Downslope you could access (to our current knowledge) the next corridor, leading you further down the slope to the next building unit. It is currently unclear if one had to climb from the corridor onto the roof to enter the building or if it was possible to enter the house interior via a (horizontal) doorway.

Conclusion or Opening and Closing Doors

135 This preliminary building archaeological study of Early Neolithic doorways is definitely not complete, and it was not my intention to present a comprehensive study of doorways. There are many more cases and variations than those discussed in this paper. However, the aim here was to show the potential of this – so far – neglected topic and the currently not well-studied find group of portal stones mainly known from Upper Mesopotamia, particularly the Urfa Region. Doorways, doors and windows are often much more than just connections between two spaces. Additionally, doorways are not only technical constructions to facilitate moving from one space to another. They can be loaded with much more meaning and narratives as well as ›traditions‹. This is true for the doorways, the related portal stones and the buildings. The Neolithic doorways of the Urfa Region show this very well. The stone-made doorways have reliefs or sculptures of animals guarding the opening – both those in walls and in roofs. On the roofs, snakes are the predominant animal encircling the opening, whereas the horizontal accesses are ›guarded‹ by mammals, such as leopards, foxes or wild boars. Studying doorways enables the drawing together of various approaches to spatial analyses and understand-

269 Mindeleff 1891; Scully – Current 1971; Lekson 1986; Scully 1989; Lekson 2007.

270 E.g., compare with modern-day building regulations and normative guidelines and regulations: Buxton 2022; Neufert 2022.

ing of human use of space[271]. Doorways are a key for studying the perception of space, social behaviour and organisation[272].

136 In this contribution, various types of doorways were identified and described. Locations, shapes and types depend on the architectural concept applied at the individual settlements. Doorways with actual door leaves eventually replace the commonly used and widespread roof openings. Horizontal access to rooms favours the movement and transport of things of certain sizes and weights. Roof opening can only work for this function up to a certain size; exceeding a certain size would mean opening the interior to the elements and ›unexpected guests‹. Therefore, roof openings were kept at a ›reasonable size‹. Stepping on someone's threshold may be seen as an offence and is often linked to ›evil events‹. Doorways can, in contrast, also be places of positive experiences and human interaction: being invited to enter the house to find hospitality and refuge. The Neolithic builder once again set a prescript for most architectural solutions of crossing spatial borders – all the ways in and out were created, constructed and put to the test when ›entering the Neolithic‹.

»Please, come in! Enter in peace; my house is your house. Hoşgeldiniz!«

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271 Kent 1990.

272 Kinzel et al. 2020a.

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ZUSAMMENFASSUNG

Wege hinein, Wege hinaus: Eine vorläufige Studie über neolithische Wand- und Dachöffnungen

Moritz Kinzel

Dieser Beitrag behandelt grundlegende Überlegungen zur Gestalt und Funktion von Wand- und Dachöffnungen neolithischer Bauten Südwestasiens. Der Schwerpunkt der Studie liegt dabei auf Beispielen von Bauten des PPNA und PPNB Obermesopotamiens und der südlichen Levante. Dabei werden Gestalt und Funktion der Öffnungen sowie deren Auswirkung auf die Nutzbarkeit und Wahrnehmung der Bauten untersucht. Wie haben die neolithischen Baumeister die Zugänge zu den Innenräumen gestaltet? Welchen Zweck verfolgten die verschiedenen Konzepte und wie unterscheiden sich die verschiedenen Fälle voneinander?

SCHLAGWÖRTER

Südwestasien, Göbekli Tepe, neolithische Architektur, Türöffnungen, Raumwahrnehmung

ÖZET

Giriş ve Çıkışlar: Neolitik Dönem Duvar ve Çatı Açıklıkları

Moritz Kinzel

Bu makale, Güneybatı Asya'daki Neolitik yapıların duvar ve çatı açıklıklarının tasarımı ve işlevi üzerine temel düşünceleri ele almaktadır. Çalışmanın odak noktasını Yukarı Mezopotamya ve Güney Levant'taki PPNA ve PPNB yapılarından örnekler oluşturmaktadır. Açıklıkların tasarım ve işlevlerinin yanı sıra yapıların kullanılabilirliği ve algılanması üzerindeki etkileri de incelenmiştir. Neolitik inşaatçılar iç mekanlara girişleri nsıl tasarlamışlardır? Çeşitli konseptlerin amacı neydi ve farklı örnekler birbirlerinden nasıl ayırtedilebilmektedir?

ANAHTAR SÖZCÜKLER

Güneybatı Asya, Göbekli Tepe, Neolitik mimari, kapı açıklıkları

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