Ethnoarchaeological Survey of Cave Dwelling in the Qoḥayto Plateau of Eritrea

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SOMMARIO

Gli studi speleologici presentano un considerevole potenziale per la comprensione dei processi di sviluppo culturale sull'Altopiano del Qoḥayto[1], e per lo studio dei pattern di mobilità e dei sistemi residenziali dei gruppi pastorali. Questo contributo è basato su un survey archeologico e l'osservazione etnografica dell'organizzazione dello spazio domestico in grotte dell'Altopiano del Qoḥayto, ponendo in particolare evidenza: a) l'opposizione tra lo spazio umano e quello destinato agli animali, e b) le variazioni all'interno di questi due domini. I risultati mostrano l'esistenza di due tipi di organizzazione di questi spazi: l'una con la zona del *goḥo-makādo* separata da quella per gli animali, l'altra con la zona del *balbala* separata dalla seconda.

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1. Introduction

Human occupation of caves provides valuable ethnographic and archaeological information about the occupants (Kempe 1988). The spatial layout of the domestic space and the material remains within it, such as hearth, bones, ashes, ceramics and lithics, supply archaeologists and anthropologists a broad range of information. Advantages of cave sites go beyond their being mere suppliers of abundant and diverse data. They are easy to locate compared to open-air sites (Moyes 2012), and "serve as fairly permanent postdepositional containers for material residues" (Strauss 1979: 333). Given these fundamental advantages, cave studies, particularly their utility pattern, dates back to the early days of archaeology, forming the back-bone of Paleolithic Studies in Europe.

Despite these crucial advantages, speleological study in archaeology and anthropology suffered from preconceived assumptions and narrow perspectives especially with regard to the influence of the sacred-profane dichotomy attributed to human cave uses. Fewkes (1910) argued that caves were used for hiding sacred images, ceremonial paraphernalia, and as burial places, and he asserted that "their use for habitation was secondary, the primary motive being mainly altruistic" (Fewkes 1910: 392). For him the habitational uses of caves remained minor compared with the altruistic one. He advocated for the altruistic type of cave uses, meaning collective ritual and ceremonial activities for common purpose (non-profane), rather than the occupation of caves by an individual family for dwelling purposes.

[1] The orthographic notation in this article is adopted from the style developed by the editorial team of Encyclopedia Aethiopica. The official Eritrean Saho Latin spelling is put in square brackets at the first occurence.

Post-Fewkes speleological research, however, has focused on the habitational and adaptive uses of caves. This practice was highly reinforced by the Paleolithic cave studies in Europe. This shift again led to the marginalization of ceremonial and ritual uses of caves. Recently Moyes (2012) complained that anthropologists and archaeologists have neglected the ritual uses of cave. It was recently that the full range studies on ritual, cosmological, and sacred aspect of cave uses have begun to emerge in archaeology and anthropology, and fascinating research reports have begun to appear in the speleological discourse. Brady's (1997) influential research on the trilateral relationship among Pre-Hispanic Mesoamerican cosmological views, artificial caves and the spatial layout of villages and cities, in my view, have set a transformational turn in the scope of speleological study. Recently, the collected essays in *Sacred Darkness: A Global Perspective on the Ritual Use of Cave* (2012), edited by Holley Moyes, has revived interest in the sacred uses of caves in anthropology and archaeology, and attempted to formulate global perspectives of human cave use. Katerin Kopoka has found similar tendencies in cave-site research of ancient Crete in Greece. She notes "the habitational aspect of natural shelters has been rather overlooked thus far especially with regard to Cretan cave sites of the second millennium BC" (Kopoka 2011: 274).

This article examines the vernacular aspect of cave dwelling on the Qoḥayto [Qooxayto] Plateau of Eritrea based on the spatial technique widely applied in ethnoarchaeological research. In her "Affluence and Image: Ethnoarchaeological research in a Syrian village", Kathryn Kamp (1987) notes that the "… relationship between the form of a dwelling and the socioeconomic characteristics of its occupants is by no means simple one" (Kamp 1987: 283). The morphological, not to mention technological, characteristics of a dwelling reflect the social make-up of the occupants. Ethnoarchaeological methods help to highlight this correlation by comparing the archaeological and ethnographic record in this subject. Adams (2005) has discovered similar dwelling forms and social nature of the occupants' relationships between ancient Çatalhöyük and two ethnographic societies in Indonesia. According to him, about nine important similarities were noted in various aspects of the dwelling. He analyzed the phenomenon through the 'social memory' approach and argued that "the build in environment and burial is inexorably tied to the importance of the feast associated with such events as funerary rites, house building and tomb building" (Adams 2005: 187).

Gender relationships among cave dwellers is depicted in the floor plan (space organization) of the dwelling, and this presents an interesting approach in comparative ethnoarchaeology. Brumbach and Jarvenpa (1997) argue that prehistoric subsistence and gender can be examined trough "spatial organization, a dimension that has immediate, concrete mapping implication for prehistoric archaeologists and ethnoarchaeologists alike" (Brumbach and Jarvenpa 1997: 414). Cave dwelling in Qoḥayto illustrates the significance of gender relationships in the configuration of domestic architecture and space specialization.

This article follows the archaeological ethnographic research method, recently advocated by Yannis Hamilakis (2011), which focuses on temporality and materiality of archaeological and ethnoarchaeological data. The cave and rock shelter sites on the Qoḥayto Plateau have a variety forms of spatial organization, and have variable function depending on the social make-up of the occupants. Often contemporary cave occupation

has short-term duration; ranging from a few weeks to one or two season/s. The main methodological aspect of the spatial approach widely used in ethnoarchaeological and like research emphasizes the breakdown of the social landscape into distinct functional units. Hence, the article examines human cave uses on the Qoḥayto Plateau by focusing broadly on habitational and social organizational dimensions of cave dwelling in both contemporary and previously used caves. It seeks to sketch a preliminary analysis of the social principles guiding domestic space organization in contemporary caves use in the area, and their analogical implication in order to reconstruct the social and subsistence habits of cave dwelling on the plateau.

The article is organized as follows. Following the introductory part, a historical overview of cave and rock shelter occupation in the Red Sea region and Qoḥayto Plateau will be presented. Epigraphic evidences, ancient ethnological descriptions, and modern travelers' accounts will be examined in section two to show the long history of cave use in the area. Section three details the ethnographic and archaeological data collected during the fieldwork. Finally, the discussion and conclusion part in section four outlines the basic ethnoarchaeological premises and arguments that can be established on the basis of the firsthand data presented in the previous section. It will attempt to establish certain fundamental points on the relationship between spatial organization and social unit correlates.

2. The Prehistory and Ethnography of Cave Dwelling in the Qoḥayto Plateau

The Qoḥayto Plateau, which is located in southeastern Eritrea, covers a total of 32km^2 (Wenig and Curtis 2008), and 84km circumference (CARP 2007), and is circumvented by valleys such as Subiraso [Sibirraso] in the north, Sanako [Sanako] in the south, Ḥaddas [Xaddas] in the west and Nabagadä [Nabagade] streams in the east. Qoḥayto Plateau (Map 1) is part of the extensive north-south aligned mountainous terrain that cuts across three countries in the Horn of Africa, namely Eritrea, Ethiopia and Sudan. The general plateau (Qoḥayto) drops from its eastern edge several thousand feet to the strip of lowland lying between it and the Red Sea, on the north towards the Nile Basin of the Nile, on the west and south to that of the Abai or the Blue Nile (Parkyns 1966: XV).

The Red Sea basin in general and the Horn of Africa in particular have a well documented history of human cave dwelling. The evidence for prehistoric cave dwelling emerges primarily from the rock art of the region under investigation. The stylistic and chronological similarities of rock art in the Sahara and the Red Sea Basin region of the Horn of Africa and Arabian Peninsula indicate the emergence and expansion of pastoral societies 4-5 millennia ago (Smith 1995). The similarities in motifs, styles and the human and animal figurines in the rock drawings are widely associated with pastoral movements in the region. In this respect, the Qoḥayto Plateau and its adjacent ʿAddi-Qäyyəḥ [Caddi Qayyix], May ʿAyni [May Cayni] and Qarora [Qarora] plains are areas with a high concentration of rock art sites in Eritrea.

Other important source of evidence for ancient human cave dwelling in the Red Sea region and the Horn of Africa comes from the paleo-ethnographic descriptions of the ancient Graeco-Roman writers, like Agatharchides, Strabo, Pliny and other writers, usefully wrote about the Aethiopian (parts of Sudan, Eritrea and Ethiopia) way of life

(Kempe 1998). Of all the appellations derived from the dietary habits of the people the description of the country of Trogodytica, a region inhabited by cave dwellers, is well discussed. For Pankhurst (1989) it is the Troglodytes who gave a name to this region (Pankhurst 1989: 36).

For David Kempe (1988) the country of Trogodytica is mainly located in the Red Sea coast of Ethiopia (by now Eritrea[2]) and particularly northern Sudan. The chronicles further describe that the country of Trogodytica was ruled by Meroe, and prior to Meroe the country had been occupied by the Ptolemy Euergetes in the mid-3rd century BC. Other commentators, such as Heeren (1838), attempted to delimit the eastern and western frontiers of the country of Trogodytica referred in these ancient texts. Heeren (1838) argued that the scattered races who wandered between the Nile and the Arabian Gulf fit well with the ancient description of people who lived in the mountain and the coastal habitations, i.e., the Troglodytes or 'cave dwellers'. Thus, the eastern and western margins of the country of Trogodytica can roughly be demarcated as lying between the Nile Valley and the Red Sea coast.

Qoḥayto Plateau remained topographically, culturally and historically interconnected with the Gulf of Zula [Zoola] through the narrow corridor of the Ḥaddas and Komayle [Kumayle] river valleys. The earliest written record of cultural contact between these two points was discovered in the ancient Greek inscription found in Adulis. This epigraphic source of the 3rd century BC, which was transcribed by the author of the Periplus of the Erythraean Sea, mentions that Ptolemy Euergetes conquered the Gulf of Zula and advanced into the interior territory[3] and that he established an ivory market in the hinterland at Koloe (nowadays Qoḥayto), and his port in Adulis (at the mouth of the River Ḥaddas in the Gulf of Zula). Koloe is the city mentioned in the Periplus of the Erythraean Sea as the inland ivory market. Although many archaeologists and historians identify Koloe as modern-day Qoḥayto, others sites have been proposed.

The fact that the military expedition of Ptolemy Euergetes in the Gulf of Zula and its immediate hinterland was a 'war' waged against the Troglodyte population demonstrates that the Zula-Qoḥayto region had beeb inhabited by people who dwelt in caves since at least the 1st millennium BC. Similarly, Agatharchides in the 1st century BC noted that the region was inhabited by Troglodytes, and described the inhabitants as 'Bisharies' (Heeren 1838). Later, European travelers starting from the 18th century AD, such as Bruce, found similar cave habitations throughout the region. Bruce, who travelled in the years between 1765 and 1773 from the coastal city of Massawa into the highlands, noted "They [the Saho] have neither tents nor cottages but live either in caves in the mountains, under tree or in a small conical hut built with a thick grass resembling weeds" (Bruce 1805: 159).

[2] Eritrea became independent from Ethiopia in 1991.

[3] From a strategic and military point of view, the Gulf of Zula-Qoḥayto route is the shortest distance from the Red Sea coast to the highlands. The corridor was later used in the mid-19th century British military mission sent to Abyssinia to rescue the British hostages held by Emperor Tewodros II of Shoa, because Shoa was then the domain of a young prince but later king, Menilik. Richard Pankhurst also note that the Gulf of Zula was the shortest route entry point to the ancient kingdom of Axum, and later to medieval Ethiopia (Pankhurst 1989: 28).

Several years after Bruce, Henry Salt led a major expedition from Massawa to the highlands following the exact route taken by Bruce. Salt's account, however, tends to contradict Bruce's description and notes that it "only existed in the imagination of the author" (Salt 1814: 232). He further claims that Bruce might have confused his account of cave dwelling with another kind of traditional architecture called *həḍmo* [*ḥidmo*] that he claims resembles a cave. This seems an irrational rejection, because a *həḍmo* and cave have totally different architectural forms that can be readily recognized. Subsequent writers, such as Burckhardt (1806) and Heeren (1838), confirmed that Troglodytic communities continued to exist around the region; and as observed during my fieldwork, seasonal occupation of rock shelter is still practiced in the area.

The opposing reports of Bruce and Salt might have arisen from the seasonal nature of cave occupation and the different seasons both Bruce and Salt travelled across the region. Bruce departed from Massawa to Ḥərgigo [Xirgiigo] on November 10, left Ḥərgigo on the 15th and crossed the slope leading to the vicinity of Qoḥayto on the 17th. The rainy season of the eastern slopes extends from late October to February, and during these months the Saho pastoralists migrate from their villages on the plateau to the eastern lowlands in search of water and pasture. So, Bruce travelled through the region when it was the right moment for the pastoralists to migrate to their seasonal caves. On the contrary, Salt passed through the same location on March 3, and generally in March and April the pastoralists return to their villages on the plateau and stay there until the next rainy season.

Nowadays, the Qoḥayto Plateau is inhabited by several lineage groups of Saho [Saaho] agro-pastoral communities. The northern part of the plateau is inhabited by the Lēliš ʿAre [Leelish Care], belonging to the Kōna ʿAre [Koona Care] tribal group, the central part is occupied by the Faq̲at Ḥarak [Faqhat Xarak], while the southern section by the Gaʿaso [Gacaso], the latter two belonging to the Minifire tribal group. Ethnohistorical accounts and lineage segmentation history, along with settlement pattern remains, indicate that the Qoḥayto plateau experienced rapid expansion of sedentary villages in the late 19th century and throughout the 20th century. For example, the villages of Gurubtiya, Abʿa [Abca] and Qulluʿuz [Qullucuz], which, based on genealogical reconstruction, were founded in Central Qoḥayto in the late 19th century. Similarly, the villages of Bōzo [Boozo] and Afuma [Afuuma] appeared in the 1960s, while Märäbbaʿ [Marabbac] and Wäq̲äyro [Waqhayro] in the 1970s and 1990s, respectively.

3. Archaeological and Ethnographic Survey of Rock Shelter Dwellings

The eastern slope of the Qoḥayto Plateau is characterized by a steep escarpment that sometimes drops scores of meters from the upper edge of the cliff downward. The western slope, which by comparison has gentle gradation, gradually descends to the floor of the Ḥaddas Valley. The 84km long circumference of the plateau hosts frequent outcrops of rock shelters and, more rarely, caves. The overwhelming majority of the caverns that I have visited have wider entrance than the width of the inner walls, and in some cases the entrances and the inner walls have equal dimensions. The width of the rock shelters (distance between the two lateral ends) is usually greater than the depth or distance between the entrance and the inner wall. Due to the shallow depth yet broad width of the rock shelter, all parts of the cavern are exposed to direct sunlight, and the twilight or dark parts do not exist at all in the caverns. Thus, following Moyes (2012) I

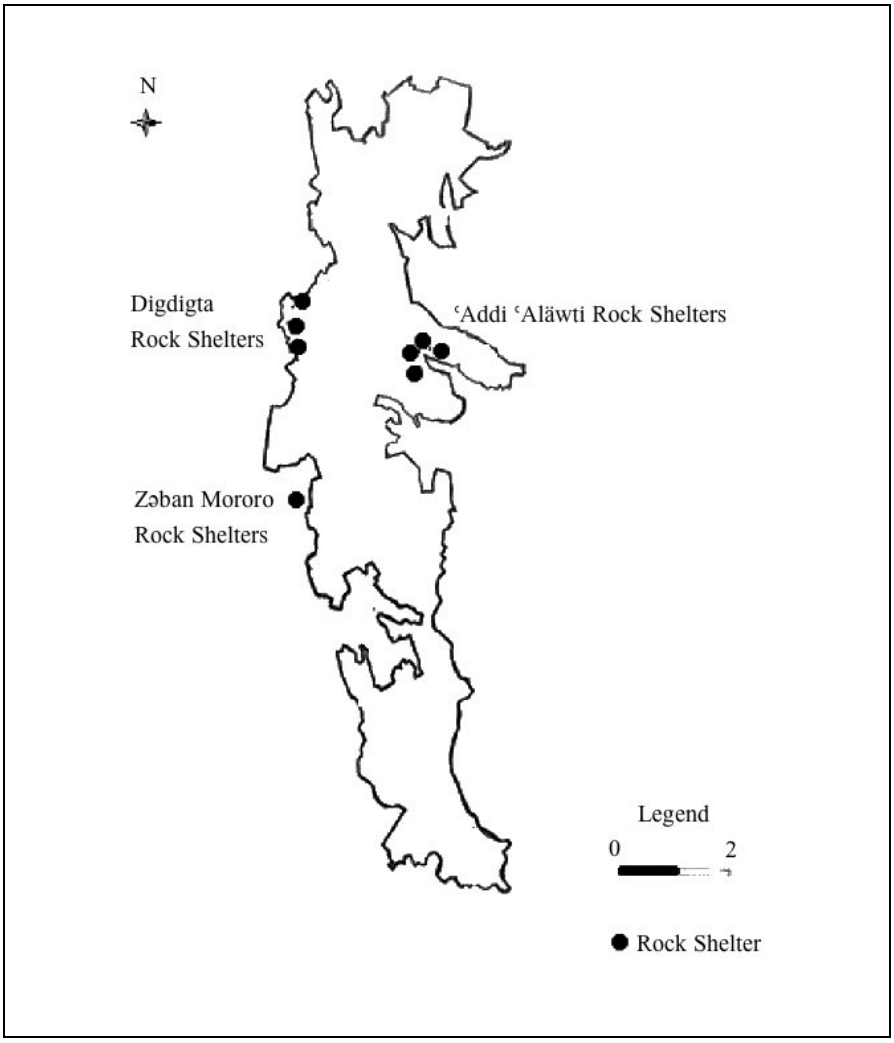
categorize the caverns in my study area as ‘rock shelters’, and hereafter I use the term ‘rock shelter’.

The archeological survey and ethnographic observation of rock shelter uses on the Qoḥayto Plateau were simultaneously carried out during repeated fieldwork between October 2014 and mid-July 2015, covering all seasons of the year. The archaeological survey and ethnographic observation examined the floor plan of the rock shelters and artifact distribution and the spatial organization of the domestic space in the rock shelters. A special focus was given to the spatial organization of the artifacts and their features and the physical characteristics of each rock shelter, including geometrical forms, degree of specialization of the living quarters and the pen, artifact variability, and internal compartmentalization of the domestic space.

The archaeological survey of the rock shelter sites and contemporaneous ethnographic study of uses of rock shelters was carried out by grouping the rock shelters into clusters based on the combined criteria of contemporary village boundaries and the location of rock shelters on either eastern or western slopes of the plateau. Accordingly, three clusters with a total of eight individual rock shelters were investigated during the fieldwork. The ʿAddi ʿAläwti [Caddi Calawti] cluster is located on the eastern brim of the Qoḥayto Plateau, and consists of four rock shelters situated at close distance to each other. The Dəgədəgəta cluster is located on the upper edge of the western slope of the plateau, and is composed of three scattered rock shelters. This group of rock shelters is located between the archaeological site of Digdigta and the village of ʿIyāgo [Ciyaago]. Finally, the Zəban Mororo [Ziban Marooro] rock shelter is represented by one rock shelter located in the southern part of the plateau near the village of Zəban Mororo.

The majority of the rock shelters I studied belong to the Faq̄at Ḥarak lineage of the Minifire Kišo [Kisho] (tribe) of the Saho ethno-linguistic group, except the rock shelter at Zəban Mororo and rock shelter #3 of Digdigta. The Faq̄at Ḥarak lineage group dwells in the central part of the Qoḥayto Plateau, which has the highest concentration of prehistoric remains of the ancient Qoḥayto. It is this prehistoric and contemporary overlap that sets the ground for comparative ethnoarchaeological research. Because cave and rock shelter sites comprise a significant proportion of the prehistoric archaeological remains of Qoḥayto, along with Neolithic lithic industry and ceramic assemblages, ancient urban dwelling and podium building with ancient Graeco-Roman affinities, and an ancient dam. Hence, the ethnographic research of the Faq̄at Ḥarak lineage and archaeological survey of the rock shelters on the central Qoḥayto Plateau present a striking ethnoarchaeological set up for rock shelter use studies.

Map 1: Sketch of Qoḥayto Plateau and the clusters of rock shelters
(layout adapted from CARP 2007)



Accordingly, the description of the three rock shelter clusters mentioned above focuses on the comparison between domestic space organization and the associated material culture, explains the spatial organization of the rock shelter according to morphological parameters, and compares the residential units of the rock shelter dwelling with other types of traditional architecture practiced by contemporary Saho inhabitants. The comparison between other types of dwellings, such as *agdo* and *naḥsa* [naxsa], and contemporary rock shelter is meant to illustrate and determine the function of the previously inhabited/occupied rock shelters, regardless of how ancient they might be.

The ʿAddi ʿAläwti rock shelters

The ʿAddi ʿAläwti cluster comprises four pockets of rock shelters that share significant similarities in their architectural design and artifact pattern, wall structure, spatial organization, floor plan and presence of dung in the surface. Architecturally, the entrance of these rock shelters is enclosed by a 60-100cm-high gravel and boulder rock wall. The wall has broad breadth at the base but shrinks towards the top. The construction type of the frontal wall involves the placement of layers of stone without mortar or any

plastering material. Since the rock shelters are situated at a high elevation, the primary function of the frontal wall is to protect the dwellers and their animals from the cold breeze blowing from the valley up onto the plateau.

In addition to the frontal wall, internal walls separate the interior space of the rock shelter into several sections or rooms. The main purpose of the internal division of the floor into various sections is to separate human living spaces and animal pens, and to differentiate classes of animals based on age and species. The associated material culture indicators of the living space-pen separation include the polishing of the surface, presence/absence of entrance, hearth, ash deposit and stone tools, such as, mostly, grinding stones. The rooms of the human living spaces have entrances and internal passageways connecting the rooms, a set or sets of hearths, the surface and the living floor as a whole are polished with a *gadʿa* [*gadca*] daub, which is a plaster prepared from a mixture of dung and clay. It is a traditional practice of leveling and softening the natural rocky surface of the dwelling for human occupation common in most traditional dwellings across the region. The pen section of the rock shelter, however, has none of these features, except distinct room for different classes of animals and, occasionally, thick layers of dung remains and urine marks seen on some parts of the surfaces.

In the geometrical plan of the rock shelters, the living space-pen separation takes two forms. The first form represents *gōḥo-makādo* [*gooxo-makaado*] and pen separation. Rock shelters 1, 2 and 3 in ʿAddi ʿAläwti have the *gōḥo-makādo*[4] and pen form of separation. This form of domestic space includes a secluded place for each gender, and the second section of the domestic space is meant for the livestock. The diagnostic indicator of this form of spatial layout is the presence of more than two *miskilliḥ* [*miskillix*], meaning 'hearth', placed separately at *gōḥo* and *makādo*. The *gōḥo-makādo* and pen separation is observed in rock shelters occupied by pastoral families. And the multiple rooms of the living space with several *balbala* 'sleeping areas' indicate that the *gōḥo-makādo* type of domestic plan is meant for family habitation. For example, in the *makādo* of rock shelter 3 (feature no. 5 in Diagram 1), there are two closely situated *balbala*s, with respective dimensions of 196cm by 150cm and 110cm by 141cm, each with its own *miskilliḥ*.

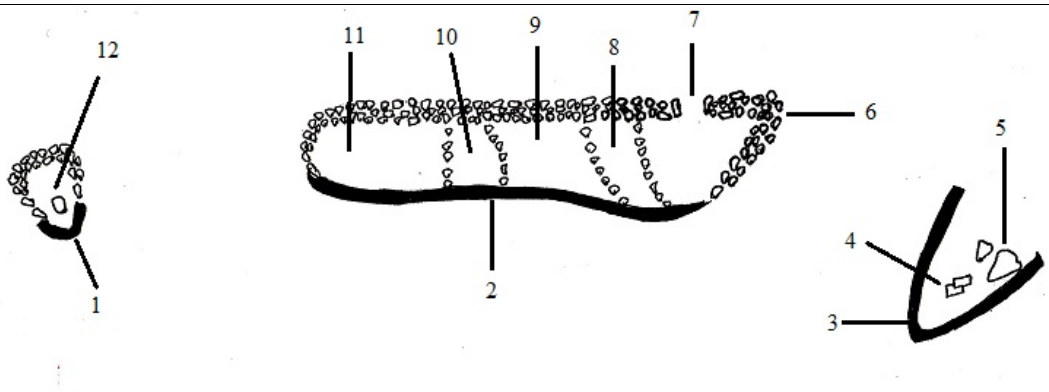
The second form of the living space-pen spatial division is the *balbala*-pen layout. *Balbala* is on average a 2m by 2m rectangular area located outside the main rock shelter that serves as a sleeping space for the occupants, even if the floor has no *gadʿa* or any artificial polishing beyond clearing grave and other undulations from the surface. Usually, the *miskilliḥ* is located adjacent to the *balbala*, which is an enclosed space delimited by pebble stones placed on the surface at close intervals. In this spatial layout, the human space is represented by a small area, *balbala*, while the overwhelming proportion of the domestic space of the rock shelter is used as a pen for housing the livestock. This type of separation characterizes rock shelter 4 of the ʿAddi ʿAläwti cluster.

In both forms of living space-pen separation layouts, the pen is further divided into two spatial sub-units (rooms) called *uguḥ* [*ugux*] and *abur* [*abur*], where young and adult animals are kept, respectively. The *uguḥ* is usually small in size compared to the *abur,*

[4] *Gōḥo* in Saho is the 'women's room', and *maḵado* is the 'men's room' (Vergari 2007).

and often is located at the inner part of the rock shelter. A rock shelter may have a number of *uguhs* and/or *aburs* depending on the size and type of herd kept by the dwellers. Another feature found in *uguḥ* and *abur* is a small lattice, called a *malḥo* [*malxo*], at the base of the entrance wall. A *malḥo* is usually located at the lowest part of the internal floors of an *uguḥ* and *abur*, and the purpose of the opening is to allow the flow of animal excrement from the inside of these rooms to the outside.

Diagram 1: Floor Plan of Rock Shelter # 2 in ʿAddi ʿAläwti



Legend:
1,2,3. inner walls of the rock shelters, 4. grinding stone, 5. *gōḥo*, 6. *makādo*, 7. entrance, 8. *uguḥ* one, 9. *uguḥ* two, 10. *abur*, 11. *uguḥ* three, 12. grave.

The surface of the *gōḥo-makādo* in rock shelters 1, 2 and 3 is polished with the *gadʿa* daub. The with *gadʿa* daub polish requires regular reapplication in the course of continuous use or reoccupation. One of the interesting aspects of the *gadʿa* maintenance cycle is when we compare it with other traditional architecture forms in the area. Specifically, the frequency of maintenance can be estimated from analogous *gadʿa* maintenance practices in other traditional house forms. The daub polishing of *hədmo* needs to be done on average biannually for convenient use. We can also argue similar periodic maintenance for the rock shelter dwelling, although the bed rock for *hədmo* and rock shelter is quite different. Another difference regards the duration of occupation. Rock shelters are seasonally occupied, while *hədmo* are perennial, and this might affect the frequency of maintenance.

Rock shelters 1, 2 and 3 in this cluster show highly eroded *gadʿa* floors. In some parts of these rock shelters the bed rock is exposed, presumably due to a long period of abandonment. In one particular spot within rock shelter #2, there is a thick stratigraphic exposure showing alternate layers of *gadʿa* (Figure 1), and this proves the occupation of the rock shelter for successive periods of time. This stratigraphic exposure indicates the continuous occupation, abandonment and reoccupation cycle of the rock shelter. It has a 70cm-thick stratum with identifiable series of *gadʿa* layers, and at a depth of 8cm from the upper surface is an in situ mat made from basketry. This type of mat is used for sleeping, sitting or prayer in different parts of the country.

Figure 1: Stratigraphic exposure in ʿAddi ʿAläwti

The foliated layers of this stratigraphic exposure show how successive phases of occupation of the rock shelter are preserved in the stratigraphy. The presence of the mat within the stratigraphy clearly demonstrates that the inhabitants at that particular phase were a transhumant family rather than shepherds or corporate individuals, because mats are highly associated with family mobility rather than either a sedentary life-style or individual/corporate social formation.

Artifactual variations distinguish the four rock shelters in ʿAddi ʿAläwti cluster, including pictogram and petroglyphic rock drawings in rock shelter 2 and 4, respectively. Rock shelter 2 has human and animal figurines (Fig. 3 Plate 1), while rock shelter 4 shows engraving of geometrical figures, non-conventional symbols, and lines. Rock art researchers associate the naturalistic and schematic rock drawings with the prehistoric pastoral occupation and expansion from the Nile Basin and the Sahara to the Northern Hill of Eritrea, the Horn of Africa and the Arabian Peninsula. Another difference observed among the rock shelters is the presence of stone tools in the surface other than the 3-stone hearth. A grinding stone comprising the fragments of two grinding stones and located in different sections is found only in rock shelter 1. Both of the grinding stones are upper grinding stones with respective dimensions of 19cm by 14cm and 23cm by 21cm. The last difference worth mentioning refers to the graves; rock shelter 1 has a well demarcated child grave, while rock shelter 2 (feature 12 in Diagram 1) has a grave-like feature.

The Digidigta Rock Shelters

The Digidigta rock shelters are located on the western slope of the Qoḥayto, between the archaeological site of Dəgədəgəta and the modern village of ʿIyāgo. There are three rock shelters in this cluster, the first two belonging to the Faqat Ḥarak lineage group, the last pertaining to the neighboring lineage group, Qomma ʿAre [Qomma Care]. In addition to these three rock shelters, there is an artificial cave (Fig. 6 in Plate 1) next to rock shelter 2 with a circular entrance approximately 1m in diameter. The three rock shelters show very different characteristics from the other two clusters studied in this research in terms of geomorphology, spatial layout and utility patterns. Geomorphologically, these rock shelters deeper with greater distances from the mouth

of the rock shelter to the interior wall of the rock shelter, deeper chamber allowing for horizontal partitioning of rooms in the rock shelter. Rock shelter 2 has a depth of 5.5 meters, allowing for outer and inner rooms in the rock shelter (features 3 and 4 in Diagram 2). Moreover, these rock shelters are of short height, but are fully covered by roofs. Unlike the other rock shelters on the plateau, the ceiling of these rock shelters covers almost all the activity area (Fig. 4 in Plate 1).

PLATE 1

Fig. 1: Rock shelter #2 in ʿAddi ʿAläwti

Fig. 2: Rock painting in Rock shelter #2 Addi ʿAläwti

Fig. 3: Rock shelter #4 ʿAddi ʿAläwti

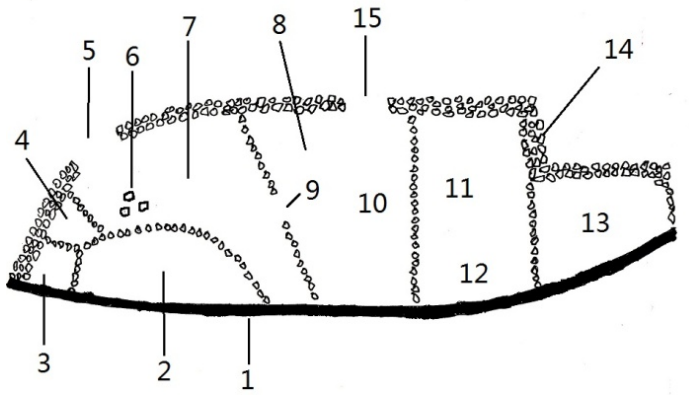
Fig. 4: Rock Shelter # 2 in Digdigta

Fig.5: Artificial cave in Digdigta

Fig. 6: Zəban Mororo Rock shelter

The variations in spatial layout exhibited in the three rock shelters and their material culture reflect the special functions of the rock shelters. Rock shelter 1 is a single room with a wall about 2m in height but with no entrance. At the top of the wall is a fence of dry thorny shrubs placed along the entire perimeter of the wall. The thorny shrub enclosure is a typical way of fencing a compound in the surroundings of Qoḥayto and in other parts of the country. A small ash deposit and three pieces of firewood lie on the ground on the southern side of this rock shelter. Inside the rock shelter, there was stack of corn that belonged to a family who lives in the nearby village. Thus, the rock shelter was used as granary. Unlike the rock shelters used as family dwellings this rock shelter has no entrance, artifacts, dung, *uguḥ* or *abur*.

Diagram 2: Plan of Rock Shelter #2 in Digdigta



Legend:
1. inner wall of rock shelter,
2. *makādo*, 3. and 4. *uguḥ*,
5. entrance one, 6. *miskilliḥ*,
7. *makādo*, 8. living room one,
9. internal door, 10. living room two,
11. *abur* one, 12. fresh marks of urine, 13. *abur* two, 14. frontal wall,
15. entrance two

Rock shelter 2 in the Digdigta cluster has precisely the same spatial layout as the ʿAddi ʿAläwti rock shelters. The 1.2 meter high frontal wall is well preserved, and isolated rock outcroping interrupt the continuity of the frontal wall. The internal wall separating the rooms has collapsed almost completely, although a clear trace is visible (Fig. 4 in Plate 1). This rock shelter is a multi-room dwelling, and about seven big and small rooms can be recognized. The living space-pen area differentiation follows the *gōḥo-makādo* and pen separation, but unlike the rock shelters in ʿAddi ʿAläwti there is only one *məsəkəliḥə* in the human living space of this rock shelter.

The *makādo* and *gōḥo* (features 7 and 8 in Diagram respectively) have their own entrances, and an internal passage connects both of them. With a width of 1.2m and 1.75m, respectively, the entrances are wider than those of the other rock shelters. A broad sitting or sleeping bench whose surface is well polished with *gadʿa* daub is also found in the *makādo*. This bench is 3m long and about 1.5m wide, and the *miskilliḥ* and ash deposits are found next to it. The *makādo* and *gōḥo* have a fairly uneroded daub-covered surface, although in some parts of the rock shelter the daub is highly eroded. The pen is separated into *uguḥ* or *abur* by a well-built wall, but the rooms do not have

entrances. There are scattered deposits of fresh goat and camel excreta, and some fresh urination marks in the bed rock of the rock shelter.

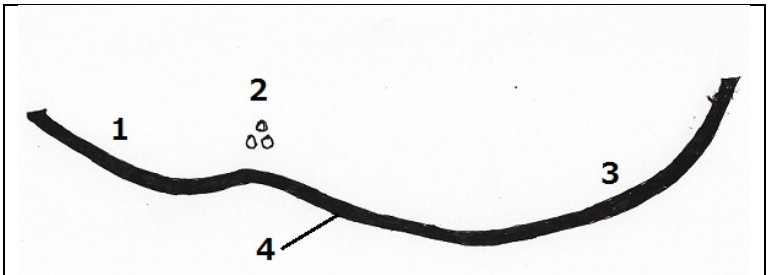
The artificial cave near rock shelter 2 has no trace of uses or material culture remains in its surface. The reason this cavern is considered an artificial cave is because of its very narrowness and relative depth. The width of the cave is less than a meter while the depth is up to five meters. The artificial cave might have been used as a storage or cache, although there was no artifactual trace inside the cave during fieldwork. Rock shelter 3 in this cluster deserves special discussion in this section because it has exactly the same outline as rock shelter 2 in this cluster, and because it is part of a compound (household) owned by a family residing in the village of ʿIyāgo. It has a high wall and no entrance. It is used as corn granary by the nearby family.

The Zəban Mororo Rock Shelter

This rock shelter is distantly located east of the village of Zəban Mororo. The village is found at the talus of the western slope of the Qoḥayto Plateau near the Masāliḥ [Masaalix] Stream, while the rock shelter is located high at the brim of the slope. At the time of fieldwork, the Zəban Mororo rock shelter had been occupied for three weeks, April 12 to May, by a group of livestock merchants (Fig. 6 in Plate 1) consisting of ten itinerant traders who shuttle between the highland and the eastern lowland in order to sell their livestock in the town of ʿAddi-Qäyyəḥ during the Easter and following celebrations. It took the group and their flock about two weeks to ascend to the 2700m elevation and reach the vicinity of Qoḥayto, and by April 10 the group had arrived at Zəban Mororo rock shelter. The livestock traders brought about 200 goats for sale. Since the livestock market in ʿAddi-Qäyyəḥ operates once a week, every Saturday, they had to stay in the rock shelter until the next livestock market day. In other words, the traders lived in the rock shelter until they finished selling their livestock on the following Saturday livestock market day. By the third week, most of the traders had sold enough and decided to take their few unsold goats back to their villages, and hence the rock shelter was abandoned on May 5.

Almost all of the inhabitants had a homogenous social status with minor variations concerning age. The youngest of them was a 20-year-old, who dropped out of school at elementary level and ever since had engaged in petty trade involving livestock and other merchandize. The age of the other members of the corporate group ranged from the mid-30s to the mid-50s, and all engaged in periodic trade activities that predominantly focused on livestock. Due to the seasonal nature of the livestock trade, the traders periodically shifted to other kinds of commercial activities in their home villages along the Red Sea coast and other localities. The corporate group occupation of this rock shelter is of an ephemeral nature. All of the members came from different villages and belong to different clans, and after completing the sale of their livestock, the group returned to their respective villages.

Diagram 3: the floor plan of the Zəban Mororo Rock Shelter



Legend:
1. *Balbala*, 2. *miskilliḥ*, 3. *uguḥ,* 4. inner wall of the rock shelter

Unlike other rock shelters, the domestic space of Zəban Mororo lacks pronounced modification and specialization induced by the inhabitants (Diagram 3). The only artifact that can be seen on the surface is the *miskilliḥ* constructed in between the living floor and the *uguḥ*. The inhabitants slept on the bedrock of the shelter in random disposition, and every member had a fixed *balbala* throughout the occupation period. Each person put his belongings in his *balbala* including haversack, shawl, sheet and commodities bought from ʿAddi-Qäyyəḥ to be taken to their family. There is no feature or artifact meant for food preparation, except the *miskilliḥ*. The group prepares tea twice a day, morning and evening, in the *miskilliḥ*. At night they sit around the *miskilliḥ* to warm themselves, and using cellular telephones they contact friends and/or family members in order to gather information on livestock prices around major towns.

Every member takes regular turns to participate in the domestic activities. The three basic duties to be accomplished every day include shepherding the herds to the nearby meadow for pasture and water; purchasing food products from ʿAddi-Qäyyəḥ town, such as fruit, bread, sugar, tea, cigarette, kerosene, matches and so on; and looking after their possessions kept in the rock shelter. Similarly, each member contributes an equal amount of money to the shared fund collected to cover living expenses during their communal stay at the rock shelter. All necessity is covered by the funds raised from each person except cigarette expenditure, which is borne independently by each user. Most of them use tobacco, but in different forms; either cigarette or shag (tobacco ball inserted between the lip and the lower jaw). Thus, with the exception of tobacco and cigarettes, all food needs were procured from the common fund.

Generally, there is a marked contrast between the domestic space organization of the Zəban Mororo rock shelter and the other rock shelters particularly with respect to the specialization of the surface of the human living space and the pen. The other rock shelters exhibit specialized living space and/or pen where the domestic area is modified for clearly designated purposes. Apart from the simple dichotomy between the living space and pen, in the *balbala*-pen format, the Zəban Mororo occupation however doesn't show further specialization or modified surfaces. The *balbala*s are random, showing no pattern of social relations among the inhabitants, and the rock shelter does not have any frontal or compartment walls or any architectural forms whatsoever. The largest section of the rock shelter was occupied by the merchandized goats, and unlike in the other rock shelter, the pen is not divided into functional sub-units. All of the animals were kept

together in the *uguḥ* probably due to the fact that the animal population was of the same type in terms of age.

4. Discussion

The majority of the eight rock shelters surveyed in this archaeological research show convincing traces of reoccupational phases with clear indications of both contemporary and past use, recent and distant. Only two rock shelters have either ethnographic use with no indication of prior occupation or vice versa. Rock shelter 3 of the ʿAddi ʿAläwti cluster lacks any trace of recent use, but shows evidence of prolonged occupation that may extend back several centuries. But the highly eroded surface of the living floor shows that the site has not been used for a long time. The Zəban Mororo rock shelter, on the other hand, lacks any material remains of previous occupation, although it was occupied for three weeks by a corporate group of livestock traders. Besides these two rock shelters, the six other rock shelters visited during fieldwork have sound stratigraphic superimposition of contemporary and past uses in their stratigraphic profile. This phenomenon lays the ground for reconstructing the social aspect of the rock shelter uses in the area under investigation.

This article examines the spatial units of rock shelter uses and their social unit correlates by looking at the floor plan or morphological analysis of the rock shelters. In other words, the entire rock shelter landscape of the Qoḥayto Plateau is divided into functional units, and defined territorially in terms of the discrete settlement structure of a particular social unit in the area. The article thus looks at the morphological variability of a rock shelter occupied by a nuclear family, extended family, corporate groups or non-kin temporary groups or an individual, and outlines how space is organized and the social make up of rock shelter reconstructed by looking into the architectural plan and associated material culture of the rock shelter.

In this regard, the article highlights three types of relationships concerning the domestic space organization and social unit correlates of the rock shelters in Qoḥayto. A situation of *unspecialized domestic space* characterizes the Zəban Mororo rock shelter, where neither the living floor nor the pen are specialized or significantly altered than their natural forms. This rock shelter was occupied by a homogenous social unit and a homogenous animal population. The human occupants of this rock shelter during the study period were all adult men, itinerant merchants, short-term dwellers and so on. Similarly, the animal population kept in this rock shelter consisted of adult male goats meant for sale. The homogeneity of the social status of the dwellers and their livestock reflects the fact that the domestic space of Zəban Mororo was unspecialized. Except for the simple living space-pen dichotomy that exists in the layout of the rock shelters, neither the living space nor the pen show further modification. Moreover, the *balbala*s in the living area were unpatterned, and thus the isolated and scattered positioning of the ten *balbala*s does not reflect any social relations among the inhabitants.

The *semi-specialized* domestic space type of organization of social unit correlation shows partial specialization of the rock shelter. In this kind of space organization, the pen is highly specialized, while the living space comprises only the totally unspecialized *balbala.* The occupants stay overnight with their herd in a rock shelter, and are one or two family members who usually reside in the nearby village. This kind of rock shelter

use is a kind of overnight livestock camp and usually the human occupants are one or two individuals who look after the herd. Rock shelter 4 of ʿAddi ʿAläwti is a good example of this pattern of rock shelter. In this type of occupation, the living floor of the rock shelter is unspecialized and comprises a small proportion of the space compared to that of the pen. The pen, however, is large and specialized because it is divided into functional compartments. The degree of specialization of the domestic space prevalent in all rock shelters depends on factors such as size of the herd, types of the herd and duration of occupation. In any event, the fundamental sub-sections of the pen are the *uguḥ* and the *abur* and are meant for infant and adult animals, respectively.

The *fully specialized* domestic space type of rock shelter is characterized by specialized living space and pen. The floor plan of this type of domestic space shows the highest specialization when compared with the former two types discussed above. The human inhabitants and the animal population have heterogeneous natures from multiple aspects, and the space organization of such rock shelters reflects the diversity and the social relations that characterize the occupants and their livestock populations. The presence of multiple rooms both in the living space and pen correlates with the morphological difference in this complexity. The *gōḥo-makādo* rooms, with respective *məsəkəliḥə* and hearths, differentiate the men-women parts of the three rock shelters in ʿAddi ʿAläwti and in rock shelter 2 of Digdigta.

Similarly, the pens of these rock shelters are divided into functional sub-units, *uguḥ* and *abur*, and house animals of different ages. In some cases, like rock shelter 2 of ʿAddi ʿAläwti, the rock shelters have more than one set of pens: two *uguḥs* and/or two *aburs* or more. The dung remains and the number of rooms in the rock shelter indicate that more than one kind of livestock was kept in such rock shelters. Rock shelter 2 in ʿAddi ʿAläwti and rock shelter 2 in Digdigta yielded dung remains of camels and goats, and this demonstrates the dual livestock bases of the dwellers.

5. Conclusion

The study of human cave use on the Qoḥayto Plateau has suffered double neglect; research of neither habitational nor sacred uses had been carried out on the caves[5]. There seems to be an acute shortage of studies on the human habitation of caves on the Qoḥayto Plateau. Despite the site's discovery in the 19th century by Bent and frequent short-term visits by several archaeologists, none undertook a detailed description or intensive studies of the archaeological remains of the cave sites in the area. All the archaeologists and anthropologists were selectively interested either in the rock drawings or the urban past of the Qoḥayto region. For example CARP[6] attests that the cultural sequence of the Qoḥayto prehistory ranges between 100 and 700 AD, a time frame that totally dismisses the pre-urban cultural history of Qoḥayto Plateau. Similarly, the fieldwork carried out by the German Archaeological mission to Eritrea (1996) documented more than 900 archaeological sites in a 56 hectare survey area. Later, Wenig and Curtis, the researchers who undertook the archaeological project, acknowledged that the main focus of their project was the podium structures and pillar buildings of Qoḥayto (Wenig and Curtis 2008). Earlier, the Qoḥayto plateau had been visited by a few rock art researchers, who

[5] It is worth mentioning that there is an extensive body of literature on cave-hewn churches in Northern Ethiopia, which sometimes refers Qoḥayto. For a recent summary see Gervers (2014).
[6] Cultural Assets Rehabilitation Project.

again were exclusively interested in the rock drawings and comparison of this rock art with that of other sites around the region.

Consequently, settlement pattern studies incorporating variant approaches bears a significant load in the reconstruction of the cultural history of Qoḥayto and its surroundings. And the best approach to address the issue is through the framework focusing on the perspective of vernacular dwelling, because "the single most important artifact for reconstructing past society [is] the house in which people dwell" (Samsom 1990: 1). The house as a built environment of the inhabitants reflects a great deal of the people's needs, capabilities, organization, and adaptive elements and so on, and acts as a wholesale memory of the dwellers, especially in cases of caves, which have a proven tendency for efficient post-depositional preservation.

This article has aimed at examining the cave dwelling patterns among the Saho agropastoral inhabitants of Qoḥayto, and documents an archaeological survey in the cave sites in order to delimit the spatial units of cave dwelling and their social unit correlates. The article has looked at the internal layout of rock shelters, artifact and ecofact types, and the patterns of artifact distribution in the residential units of caves in the study area, has designated the spatial units of the dwellings and their functions, and has suggested taxonomic categories for the social units associated with specific kind of spatial units. The domestic space organization of cave dwelling by the Saho agro-pastoral societies in the area and the social units (nuclear family or extended family, and/or corporate units) who occupy a particular dwelling will be carefully outlined using a morphological analysis of cave dwelling. The article has also examined the domestic space organization of cave dwelling and the social units with each type of cave use, including nuclear or extended families and corporate units.

The ultimate significance of this article is to characterize cave study in Qoḥayto as a central entity of archaeological and anthropological research rather than a peripheral one tangentially attached to other research projects. Situating speleological study would rather contribute to understanding the emergence and development of complex societies, and coexistence of societies with different modes of livelihood on the Qoḥayto Plateau from a diachronic perspective.

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