



HAL
open science

In Richard Pankhurst's Footsteps. Survey of rock-hewn sites in the Upper Awash Basin

Anaïs Lamesa, Manon Routhiau

► **To cite this version:**

Anaïs Lamesa, Manon Routhiau. In Richard Pankhurst's Footsteps. Survey of rock-hewn sites in the Upper Awash Basin. *Annales d'Éthiopie*, 2022, 34, pp.297-321. 10.3406/ethio.2022.1721 . hal-04328918

HAL Id: hal-04328918

<https://hal.science/hal-04328918v1>

Submitted on 8 Dec 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

In Richard Pankhurst's Footsteps. Survey of rock-hewn sites in the Upper Awash Basin

Anaïs Lamesa, Manon Routhiau

Citer ce document / Cite this document :

Lamesa Anaïs, Routhiau Manon. In Richard Pankhurst's Footsteps. Survey of rock-hewn sites in the Upper Awash Basin. In: Annales d'Ethiopie. Volume 34, année 2022. pp. 297-321;

doi : <https://doi.org/10.3406/ethio.2022.1721>;

https://www.persee.fr/doc/ethio_0066-2127_2022_num_34_1_1721;

Fichier pdf généré le 19/06/2023

Résumé

Menée en novembre 2020, une semaine de prospection dans la région de l'Oromia a été organisée afin de visiter les sites rupestres mentionnés par Richard Pankhurst dans une série d'articles qu'il publia dans les années 1970. Ces prospections nous ont menés sur les bords des rivières Awash et Aqaqi, situées au sud de la capitale d'Addis Abeba. Seule une partie des sites mentionnés par le chercheur a pu être retrouvée. D'autres non mentionnés par lui ont été découverts par les auteures de cet article, dont un site particulièrement intéressant situé non loin de la ville de Melka Kunture. Après un état de la recherche concernant les sites rupestres et leur recensement depuis le milieu du xixe siècle, cet article présente les principaux sites visités. Sont enfin discutés la fonction de ces sites et le phénomène de réappropriation de ces lieux au cours du temps.

Abstract

In November 2020, a one-week survey was carried out in the Oromia region (south of Addis Ababa), in the vicinity of the Awash and Aqaqi rivers. The aim was to visit rock-hewn sites mentioned in a series of articles published in the 1970s by Richard Pankhurst. Few of the sites explored by the scholar were found. However, new ones were discovered, including a site of particular interest which is located not far from the town of Melka Kunture. After a synopsis of the state of research on rock-hewn sites and their inventory since the mid-19th c., this article presents the main visited sites and discusses the function of these sites and their reuse over time.

Anaïs Lamesa*, Manon Routhiau**

In Richard Pankhurst's Footsteps

Survey of rock-hewn sites in the Upper Awash Basin

Abstract

In November 2020, a one-week survey was carried out in the Oromia region (south of Addis Ababa), in the vicinity of the Awash and Aqaqi rivers. The aim was to visit rock-hewn sites mentioned in a series of articles published in the 1970s by Richard Pankhurst. Few of the sites explored by the scholar were found. However, new ones were discovered, including a site of particular interest which is located not far from the town of Melka Kunture. After a synopsis of the state of research on rock-hewn sites and their inventory since the mid-19th c., this article presents the main visited sites and discusses the function of these sites and their reuse over time.

Keywords: Archaeology, Awash, Aqaqi, Rock-hewn Sites, Carving technology, Dwelling, Survey

Résumé

Menée en novembre 2020, une semaine de prospection dans la région de l'Oromia a été organisée afin de visiter les sites rupestres mentionnés par Richard Pankhurst dans une série d'articles qu'il publia dans les années 1970. Ces prospections nous ont menés sur les bords des rivières Awash et Aqaqi, situées au sud de la capitale d'Addis Abeba. Seule une partie des sites mentionnés par le chercheur a pu être retrouvée. D'autres non mentionnés par lui ont été découverts par les auteures de cet article, dont un site particulièrement intéressant situé non loin de la ville de Melka Kunture. Après un état de la recherche concernant les sites rupestres et leur recensement depuis le milieu du XIX^e siècle, cet article présente les principaux sites visités. Sont enfin discutés la fonction de ces sites et le phénomène de réappropriation de ces lieux au cours du temps.

* Pôle archéologie de l'Institut français d'études anatoliennes, Istanbul. Contact: anaïslamesa@yahoo.fr ** Laboratoire TRACES, Université de Toulouse 2, et laboratoire Orient et Méditerranée, Paris. Contact: manon_routhiau@yahoo.fr

Mots-clés : archéologie, Awash, Aqaqi, sites rupestres, technique de creusement, habitat, prospection

Acknowledgements

Fieldwork was conducted thanks to the help of the French Centre for Ethiopian Studies, and the wonderful assistance of its director, Marie Bridonneau. It was made possible through an “Atlas” fieldwork scholarship (from the Fondation de la Maison de l’Homme/CFEE), granted to Anaïs Lamesa in 2020, who was by then, researcher at the UMR Orient et Méditerranée (CNRS), holding a 1 year-fellowship (DIM Matériaux anciens et patrimoniaux/région Île-de-France). In the field, the support of Nasir Ahmed of the Oromia Region Culture Office was crucial in organizing and finding information as was the skill and thoughtfulness of Simeneh Bacha, our driver throughout our mission. We would like to thank Clément Ménard, who gave us Jean Leclant’s unpublished field notes, Marie-Laure Derat for reading the manuscript of Mereno Maryam, and Romain Mensan who shared conclusions on his fieldwork, carried out in 2011. Discussions with Antoine Garric after fieldwork were also really helpful. We would like to thank Marie-Laure Derat and François-Xavier Fauvelle for their comments.

All mistakes are the responsibility of the authors.

Introduction

The authors of this paper conducted a one week survey in the Upper Awash Basin, which is located to the south-west of Addis Ababa. Its aim was to follow the path of Richard Pankhurst who, in the 1960s, discovered several rock-hewn sites and published them in the following decade (Pankhurst, 1973a, b, c, d). In addition, the authors explored some previously unseen sites (Fig. 1).¹

This paper is organized in three sections: first, after providing some topographic and geological information, we provide an up-to-date description of the exploration and the study of the area; second, we describe the main sites; third, we present a discussion, which can also be considered as an invitation for future research. The discussion mainly focuses on rock-hewn settlements. A first note on this project was published on the CFEE blog in January 2021 and a few sites, specifically those located in the vicinity of the Awash, were briefly described in that online publication (Lamesa & Routhiau, 2021). Only the site of Dubattu will be more accurately described in the second part of this paper.

The area of study is located in the Upper Awash Basin on the western margins of the Rift Valley (Taieb, 1974: 10). Here, valleys, gorges, and talwegs

¹ The list of sites with their inventory number, gps points and elevation is given in Appendix 1.

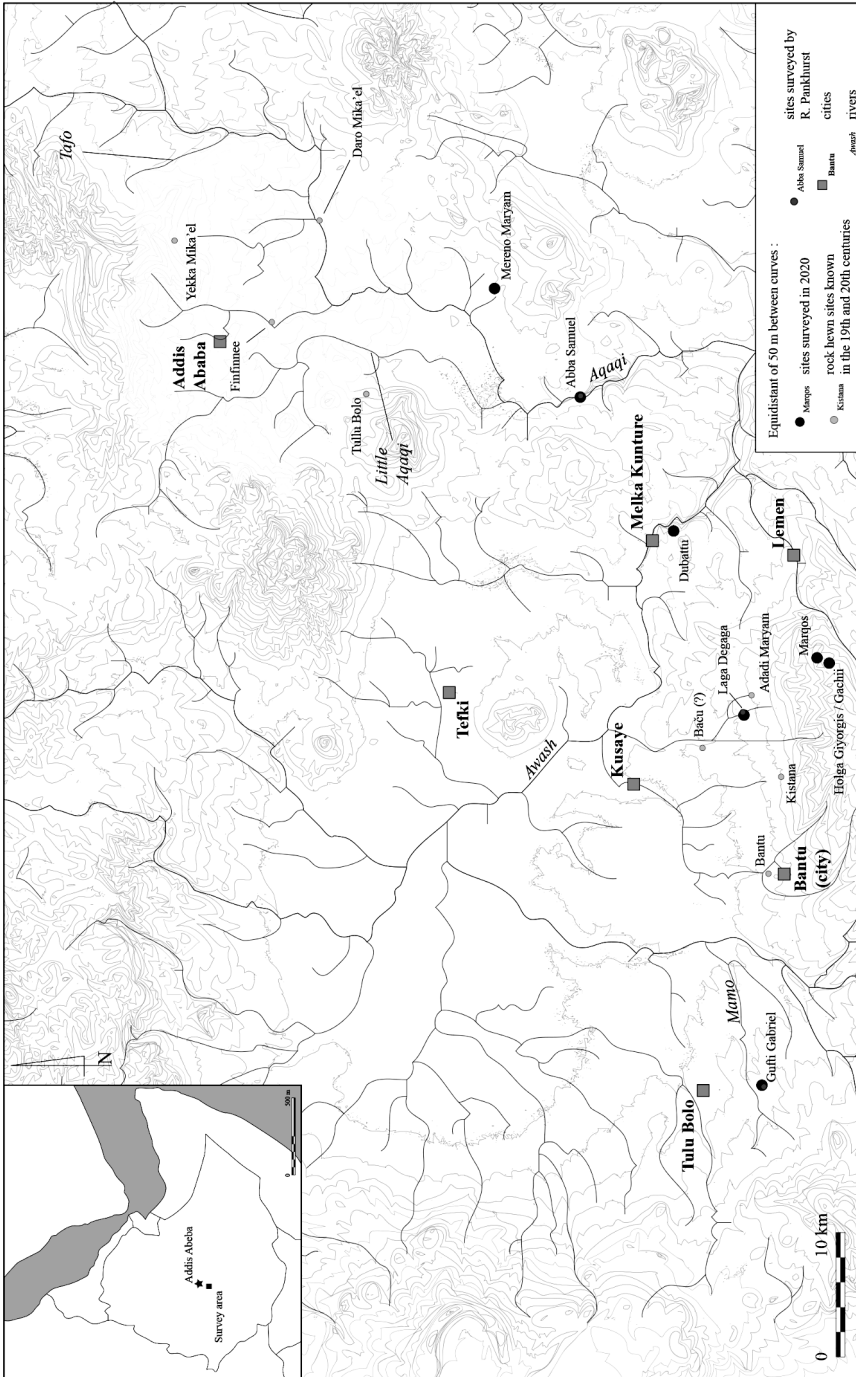


Figure 1. Sites known in the 19th and 20th c. as well as surveyed sites in 2020.

are carved into volcanic stone. The area's main river is the Awash and the other water course is the Aqaqi, which is a tributary of the Awash and located to the east of the latter. Two small streams separate from the Aqaqi main branch at the "Aba-Samuel" hydroelectric reservoir: the first flows to the east and is called the Little Aqaqi while the second flows to the west and is named the Great Aqaqi.

The region illustrates the Ethiopian cosmopolitanism that has been well established since at least the medieval period (Insoll, 2021) and where Christian communities live nearby to Muslim communities.

1. Current State of Research: rock sites south of Addis Ababa

Richard Pankhurst published a list of travellers who visited this landscape in a footnote (Pankhurst, 1973a: 35 n. 56; Anfray, 1985: 13-14), but he did not include all information given by them. However, this set of data is still useful when discussing the function of the rock-hewn structures and the use of this source should be a priority.

The only travelogue that Pankhurst used was the one published by Francisco Alvares in the 1520s. The chaplain, who was ambassador to Ethiopia for King Manuel of Portugal, mentioned for the first-time rock-cut structures to the south of Addis Ababa. While following the court of King Lebnä Dengel (1508-1540) in the vicinity of the Awash, Fr. Alvares wrote an excursus about the people of the Gorages and their custom of living in caves: "[...] in all parts of the river there were innumerable houses in the cliffs, [...] some very high, which had no more than one door no larger than the mouth of a large vat [...]" (Beckingham & Huntingford, 1961: 398; mentioned by Pankhurst, 1973a: 18-19). This single mention in Pankhurst's paper helps us to understand the primary purpose of the surveys carried out by the researcher. Richard Pankhurst wished, in a way, to locate sites or "innumerable houses" described by the Portuguese.

Before 1870, only the northern part of the Awash River had been explored. Charles-Xavier Rochet d'Héricourt (Rochet d'Héricourt, 1846: 212) described two decorated rock-hewn chambers with a cornice near the "Galéna" River as well as a church, which was later identified to be that of Yekka Mika'el (Sauter, 1957: 16). The miniature illustration of the "Ruins at the Gallas Katapho" seems to argue in favour of this attribution (Rochet d'Héricourt, 1846: 212-213). Travelling with Rochet d'Héricourt, Théophile Lefebvre described a church hewn into the rock near the Tafo River and associated with several caves (Lefebvre, 1845: 251-252). However, the illustration published in his Atlas goes against his interpretation (Lefebvre, 1845: pl. 6) as the drawn plan resembles that of a room. Later, the rooms located close to the Galéna River by Rochet d'Héricourt and those found by Lefebvre close to the Tafo River were found to belong to the same site and were identified as those of a

civil structure (Sauter, 1963: 278). After 1870, cavities were mainly mentioned by travellers during their excursions and are located around Finfinnee, the place where the royal camp of Sahle Sellassie, the king of the ancient region of Šäwa, was settled. It was primarily one group of cavities, who were part of a Capuchin concession led by the priest Cahagne Taurin (Cecchi, 1886: I. 492) who caught the attention of travellers (Lande, 1878: 901; Cecchi, 1886: I. 492; Massaja, 1893: miniature 119 and 121; Castro, 1915: 212-213). Taurin established a rock-hewn church called Daro Mika'el (Sauter, 1963: 278, church 105; Leclant, 1957; Anfray, 1985: 22-23) inside one of the cavities. Other testimonies confirm that some caves of the Great Aqaqi were inhabited (Cecchi, 1886: I. 492; Abbadie, 1890: 286-287) until the beginning of the 20th c. (Kulmer, 1910: 144; after Gascon, 2003).

It was only in the first half of the 20th c. that evidence of the rock-cut structures of the Upper Awash were published. Travellers initially focused on the rock-hewn church of Adadi Maryam (Métab, 1922, II: 199; Balicka-Witakowska, 2014: 218a), which was precisely described by Father Azaïs and by Roger Chambard, who identified the church firstly by by Alvares (Azaïs & Chambard, 1931: 166-169). It should be noted that the identification by those two authors of Maryam Guifti (or Gifti) with Yekka Mika'el seems to be an error. Maryam Guifti is a built structure, as Antoine d'Abbadie (Abbadie, 1890: 279, 281) pointed out on various occasions. This mistake in identification was repeated in later publications (Sauter, 1957: 16-17; Sauter, 1963: 245). During the 1950s and 1960s, several scholars, including Jean Leclant, Roger Sauter, and Guy Annequin, carried out surveys in the area. The first inventory focusing on rock-hewn churches in Ethiopia was published by Sauter (1963), but only the church of Adadi Maryam was recorded for the Upper Awash Basin. In 1965, Guy Annequin dismissed the hypothesis of locating the “troglodytic village” of Alvares in the vicinity of Adadi Maryam (Anfray *et al.*, 1965: 15), and instead suggested the area of the royal camp of Sahle Sellassie described by the 19th c. authors, not far from Finfinnee.

In the early 1970s, Richard Pankhurst carried out the first systematic surveys in the area around Melka Kunture, Little Aqaqi, and Tulu Bolo. He listed rock-hewn complexes with several rooms that were distributed along a major river or tributary and drew attention to the importance of studying these remains in the same way as those located further north. Indeed, at the same time, several research programs were set up to study the rock-hewn churches of the Ethiopian highlands and particularly those of Lalibäla and the eastern part of Təgray (Angelini, 1967; Bosc-Tiessé & Derat, 2019; Lepage, 1973). In his first paper, Pankhurst identified Alvares's site with Dubattu, carved above the Awash River (Pankhurst, 1973a: 18-19). This attribution was discussed later by Francis Anfray. Shortly after the publication of Pankhurst's accounts (Pankhurst, 1973b), Éric Godet published his description of the site of Kistana

and added a group of anthropic rooms located not far from the village of Baçu to documented sites, which overlook a tributary of the Awash River (Godet, 1976: 152). It seems that none of the caves visited by these authors were inhabited at this date. One decade later, with the clear intention of trying to draw attention of scholars to the rock-hewn settlements south of Addis Ababa, Anfray published a synthetic article on the subject in which he listed all the known sites in ancient Šäwa (Anfray, 1985: 15-28). It is the most recently published inventory of the rock-hewn sites located to the south of Addis Ababa. While describing Abba Nebero, Anfray once more accepted the identification proposed by Pankhurst. He seemed to prefer identification with this site rather than with Dubattu. A survey led by Romain Mensan has also attested the presence of “silos” (a term used in its morphological, not functional, sense) in the centre of the village of Bantu, west of Adadi Maryam (Mensan, 2011).

This review highlights a primary research gap: the scholarly lack of interest in the matter of rock-hewn dwellings in favour of churches. From this first gap stems a second one: because most rock-hewn churches are located above Addis Ababa, a clear disparity exists between the studies carried out on historic sites in the north since the 1970s and those in the south. This disparity was already highlighted by Francis Anfray and Alain Gascon, the latter calling the south an ‘Ethiopia without monuments’ (Gascon, 1995: 16). Finally, this second gap in knowledge explains the third: the absence of systematic scientific research on rock-cut structures in the Upper Awash Basin Area.

2. Methods and Limitations

As previously explained, we aimed to find the sites mentioned by Richard Pankhurst with the intention of studying them by proposing new inquiries looking at new problems, such as dwellings and carving techniques. The search for sites was tedious as the toponyms proposed by Pankhurst are no longer in use today amongst the local people. Despite his precise descriptions, we were unfortunately unable to locate several sites, such as the rock-hewn churches of Tulu Bolo or Kistana.

Another barrier to accessing some of the sites, as previously highlighted by Pankhurst, is their inaccessibility. Many of the sites are high up cliffs and to reach them we would need to use materials such as climbing ropes. Finally, it is also necessary that rivers be dry in order to reach most sites. Of the sites we were able to reach, we were often limited by time inside of rooms and were therefore unable to make precise measurements or draw plans. The floors of the rooms were almost always covered with rubble or a muddy layer, which made their study impossible. Likewise, the ground level in the riverbed is very irregular, which made it impossible to measure the height of the sites without a margin of error. Still, we surveyed and photographed each site as well as

composed sketches to indicate their various measurements. We also marked the sites with a GPS. Further, photogrammetry was used to record the facade of Gufti Gabriel.

3. Survey Results

The nature of the rock of the rock-hewn sites plays a major role in their locations. Therefore, it is necessary to describe the geology of the studied area. The area surveyed for this project is surrounded by Quaternary volcanoes: Wochacha and Furi to the north and Guraghé to the south (Taieb, 1974: map). This said, the outcrops of bedrock resulted from significant volcanic activities. The upper parts of the stratum date to the Upper Pliocene (Kazmin, 1975: 12); the substratum is mainly composed of ignimbrites – a welded volcanic tuff – as well as basalt rock (Andarge Itbarek Baye, 2011: 13). This volcanic formation, called the “Addis Ababa Ignimbrites unit” is characterised by ignimbrite and non-welded pyroclasts (ash and non-welded tuff), which are located in its upper section. Naked eye observation of the carved substrate has helped to identify its nature. The carved stone is relatively soft, which is a characteristic confirmed by the tool marks clearly visible on rock faces. Most of the rock-hewn sites carved into the cliffs and overlooking the watercourses have destroyed facades, which demonstrates that the rock is porous. Most of the time, the stone matrix used for carving is well-cemented and only a few hard inclusions were observed. We therefore believe that the rock from which the rocky structures were excavated is ignimbrite (Baye Itbarek Andarge, 2011: 13).

4. Sites of Dubattu on the Awash river

The toponym Dubattu seems to designate several rock-cut complexes that are dug not far from each other on either side of the Awash River. Pankhurst and Anfray used this toponym to identify two different sites (Pankhurst, 1973a: 18-19; Anfray, 1985: 18). A similar situation arose for our stie: our local guide called another site, that neither Pankhurst nor Anfray have identified, “Dubattu.”

4.1. *Dubattu 1 (LR 1)*

The first group (Dubattu 1) is distributed in such a way that two rooms on the south bank were accessible and could therefore be visited. They are located high up and are of circular shape, with an area of about 7 m². They are on the same level as each other and they are connected via a low and curved door. Two shallow niches (one in each room) run along the walls, halfway up, and may be the remains of a shelf. Both rooms seem to have been without fixed locking devices, since the pedestals of the accesses leading to the outside are well preserved over their entire height and do not show any blinds. A perfectly preserved pear-shape “silo” with a flared neck (186 cm depth with

large diameter: 86 cm and narrow diameter 71 cm) is carved in the first room. Its opening on the ground has a protrusion used to support a lid (see Lamesa & Routhiau, 2021: Fig. 7). The tool marks are not easily visible, but one implement may have had a flat edge, which was observed from photographs taken by Nasir Ahmed, an expert working in the Oromia Region Culture Office, who descended into the silo.

4.2. *Dubattu 2 (LR 2)*

Dubattu 2 is a complex site consisting of a network of cavities spread over several levels on either side of the riverbed. The continuous nature of the different groups (south and north) leads us to consider it as a coherent complex that resulted from different phases of occupation.

The first network (group n°1) consists of two rooms located on the floor at the riverbed level. The first room is circular with an area of 12 m². To the east, there is a bed with a pillow carved into the rock (see Lamesa & Routhiau, 2021: Fig. 8). At the level of the pillow, a slight recess in the wall allows for the head to be wedged inside. Marks of two types of tools were observed: the first marks are similar to those of a pick and the second are similar to those of an axe. The latter tool appears to have been damaged because its impacts were irregularly shaped. Accessible by three steps, a second rectangular 9 m² room opens to the south onto a currently obstructed vertical tunnel. This passage is an access to the second and third floors. It is unclear whether this room had a door that opened to the outside as the current opening appears to be the result of destruction. As at Dubattu 1, there are shelf niches at mid-height in each room.

Group n°2 has many cavities that are grouped into units with much larger volumes. It is impossible to determine the height at which these different networks were located because the ground is very uneven due to the collapse of the cliff, which has taken away most of the facades. We reached these rooms by climbing several metres of wall. Three coherent units can be observed on the south bank and the first two seem to be at about the same height. Unit 1 (U.1), the easternmost one, is formed by two rooms that are connected to each other. Next to this unit, several cavities whose articulation with U.1 is impossible to determine, are clearly visible. Room 1 (R.1) of U.1 is very large. It is divided into two spaces with an estimated cumulative length of more than 10 m. A rectangular protuberance on the ceiling indicates this division. These could be the remains of a destroyed pier. A cubic monolithic feature still embedded in the rock is prominent in the first space. It takes the form of a seat, its height is 171 cm, and its estimated width is 140 cm (Fig. 2). This feature, however, which looks like the one observed by Richard Pankhurst at the site of Abba Nebero, is not the same. The one we observed is higher than the one published in Pankhurst's paper (Pankhurst, 1973a: Fig. 2).

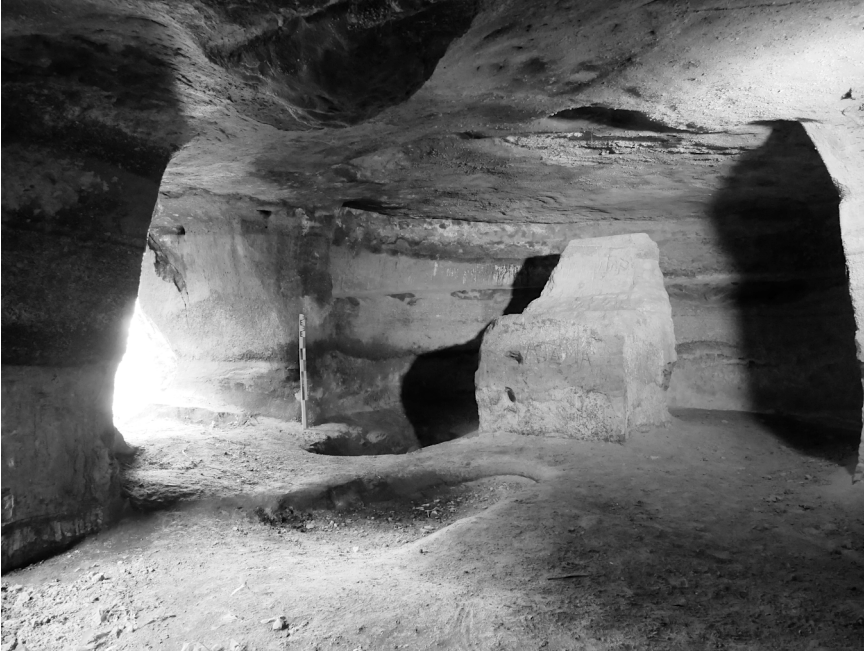


Figure 2. Dubattu G2 U.1, room 1. Monolithic block having a form of seat.

In front and on the west side of this feature, two quadrangular cavities are dug into the ground. An alcove is also visible at the south-eastern end. At the back of the “seat,” a niche for a shelf runs around the wall at mid-height. The second space is marked by the presence of a pilaster in its south wall. We also observed three niches to the west that are carved into the same wall. They are highlighted by vertical recesses that reach to the ceiling. Two quadrangular-shaped cavities (180 or 205 cm long and about 60 cm deep) were dug into the ground of the southeastern sector of the second space (Fig. 3). A large protrusion (22 cm) is present around the perimeter of these two pits. The second room (R.2) was excavated at the same level as R.1. It has a rectangular shape and marked right angles, which is a feature we rarely observed elsewhere during our surveys (e.g. Gufti Maryam, group n^o2). Its northern part is completely destroyed. A circular niche is dug into the south wall.

We reached a second unit (U.2), further to the west, by following the destroyed wall of R.2. This unit consists of three rooms. R.4 is small and very badly preserved. A niche for a shelf is carved into its south wall. It opens onto R.5 via a descending step. Room 5 is irregularly shaped. On the north side, the wall appears to be rectilinear while on the south side it is concave. A niche for

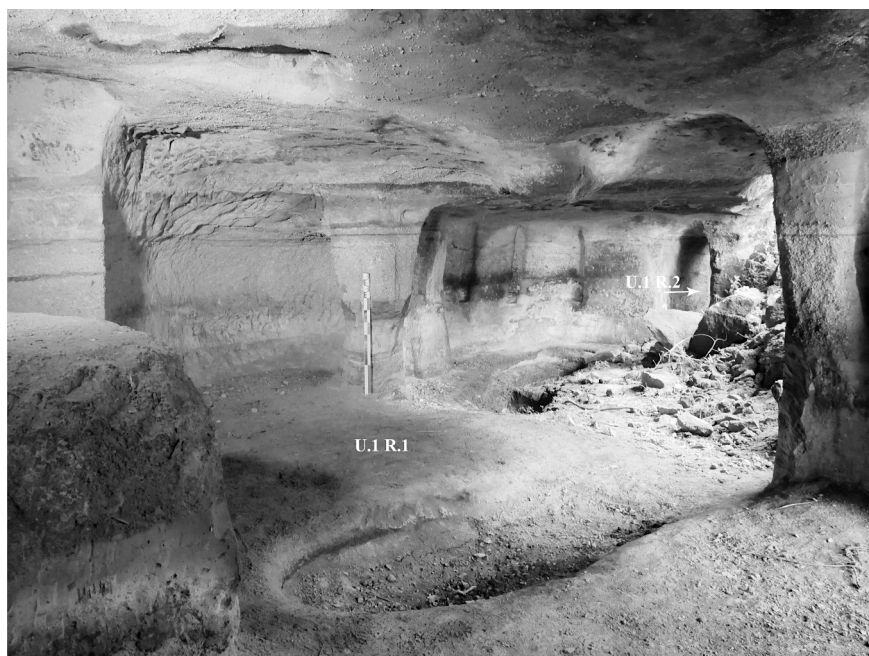


Figure 3. Dubattu G2 U.1, room 1 and access to room 2.

a shelf runs along the south wall and along part of the east wall. Two holes and a rectangular pit are visible in the ground. Finally, an alcove (not really a room) is carved into the west wall of R.5 and is filled with water. It is through a hole in the alcove's ceiling that we could reach the last unit (U.3) of this large group of structures (Fig. 4).

Unit U.3 consists of three rooms forming an L shape. A first oblong room (R.6) – where the access hole is located – opens at the back onto a blind circular room (R.7) of 5 m². The shape of R.7 is very regular and a relatively deep niche for a shelf, carved halfway up of the wall, runs along almost the entire room. To the west, the niche forms a low bench. We noticed five holes in the door's axis that lead to R.6 and are dug into the bottom of the wall. The tool marks are clearly visible; they were made by a tool with a slightly curved flat edge, which can be found in the other rooms of this complex (Fig. 5). R.8 is located in the western extension of R.6. It forms an alcove that opens onto an open-air platform. At this point, the riverbed is extremely narrow. From the platform, it is possible to observe, on the opposite side, the pick tool marks or morphologically similar implements. A silo (44 cm diameter and 84 cm depth) is carved in the middle of R.8 and its opening takes up almost all of the space on the floor (Fig. 6).



Figure 4. Succession of Dubattu G2 U.2, rooms 3, 4 and 5. Picture taken from U.2, room 3.



Figure 5. Dubattu G2 U.3, rooms 6 and 7 and showing tools marks of room 7. Picture taken from U.2, room 8.



Figure 6. Dubattu G2 U.3, room 8. Picture taken from U.2, room 6.

Three elements thus stand out in the case of this group: first, there is a frequent presence of a niche for a shelf, which is a repetitive feature present in almost every room despite being unequal in lengths. Second, a sculpted pilaster in R.1 and right angles in R.2 reflect a search for architectural aesthetics. Third, there is a recurrence of the use of two tools, one similar to a pick and the other to an axe (Bessac, 1986, 15-24 & 39-52; Wootton *et al.* 2013). In addition and opposite this n°2 group, another network of rooms is clearly visible. They were simply visited, but it should be noted that some architectural details such as doors or windows were the subject of particular attention because their frames are highlighted by flat mouldings.

5. The site of Gufti Gabriel (LR 3) near the town of Tulu Bolo

The site is in the Awash region near the Mamo river (a tributary of the Awash) and consists of two groups of cavities about twenty metres apart. Their state of conservation is uneven and they were previously filled with mud. The first one, Gufti Gabriel, seems to have been cleared out in the first half of the 20th century. The second is still half filled with mud. Oral sources place the

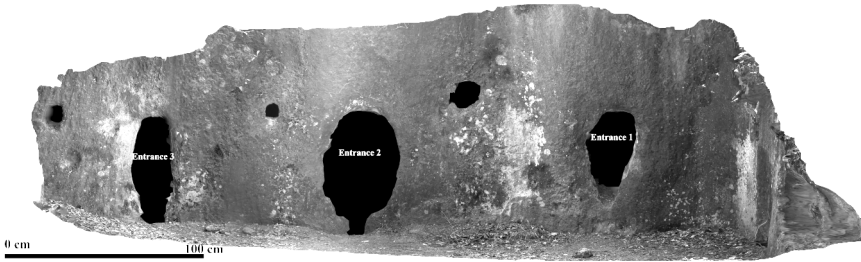


Figure 7. Orthophoto of the facade of Gufti Gabriel. Picture taken from the North.

hewing process of the site within the period of the rock-cut church of Adadi Maryam. The name of Gufti is said to come from that of a shrub growing on the site. The fact that a rock-cut site had adopted the name of a plant was already documented by Azaïs and Chambard in the case of Adadi Maryam, where the *adadi* means “an abundant tree in the region” (Azaïs & Chambard, 1931: 166).

The first complex is enclosed by a fence and opens onto a courtyard carved from an outcrop (Fig. 7). Three openings lead into the complex and their intrados are decorated with two tricoloured crosses. A total of six rooms were recorded. The west entrance, entrance n°1, opens to the first room (R.1), which takes the form of a corridor. A low rocky bench runs along its western wall. R.1 opens onto a second room (R.2) through two openings separated by a pier that is carved into the south wall. A semi-monolithic cube is attached to the western wall of R.2. A tunnelled passage opens in the room's western corner and leads into the site enclosure. An opening was made in the eastern wall of R.2 and opens onto the fourth room (R.4) of the complex. The floor of the third room (R.3), which opens outwards (entrance n°2), is at an elevation lower than the rest of the complex. It is longer than it is wide. Three arches and two piers mark the separation between R.4 and R.3 on the southern side. On the piers there are painted tricoloured crosses and more recent carvings of graffiti. R.4 is oblong with a rectangular cavity dug in its floor (Fig. 8). The fifth room (R.5) opens to the outside (entrance n°3) and is also accessible from R.3. A pier is carved in front of the door, but it stands off-centre in relation to the room. R.5 seems to have undergone various enlargements. One of them is noticeable in the east and is currently used as the Holy of Holies, which houses the *tabot* displayed during the feast of Timkat. A final hall (R.6) is accessible only via R.5 and a tunnelled passage. It is very small and poorly cleared with a thick, muddy layer covering its soil. In its eastern part another tunnelled access is dug into the ground. It is a second tunnel leading to the outside, which is also inside the complex (Fig. 9).



Figure 8. Gufti Gabriel rooms 1 and 3. Picture taken from room 5.

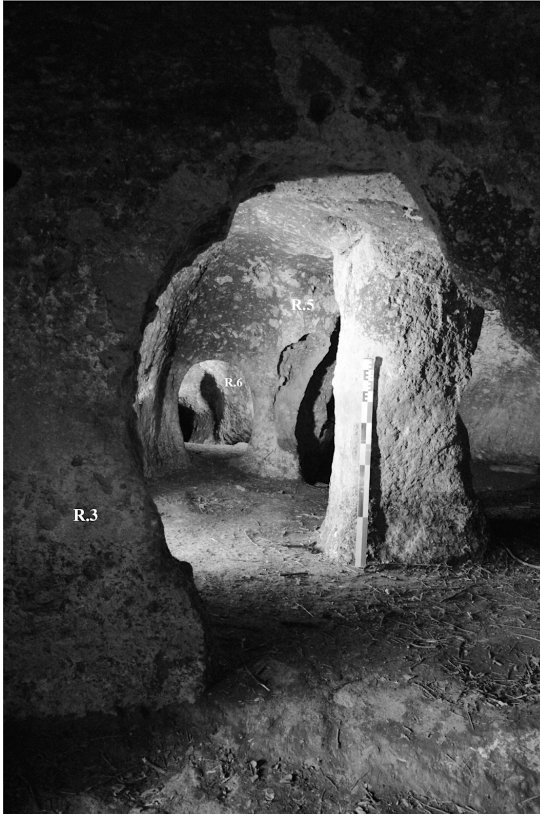


Figure 9. Gufti Gabriel rooms 5 and 6. Picture taken from room 3.

In the title of his paper focusing only on Gufti Gabriel, Richard Pankhurst (1973c) called the site a “church.” This classification merits further discussion. The main reason for this classification provided by the author is the tradition relating to the site’s foundation, which was a church at the time of Adadi Maryam. During our interviews with the area’s inhabitants, we learned that the site was used as a meeting place for the Timkat feast and was in fact never regularly used as a church. The built church of Däbrä Gabriel that dates from the 19th c. is located approximately ten-minutes walking from the site of Gufti Gabriel. There is therefore evidence that the site of Gufti Gabriel cannot have been used as a church, at least since the 19th c. A final point should be added, which invalidates *ad silentio* Richard Pankhurst’s hypothesis: to the best of our knowledge, no church that was in a state of disuse was ever converted at a later date into a place to celebrate Timkat. On the contrary, in Təgray, the spaces where Timkat took place were in fact later chosen as locations to establish churches, such as at Petros Mälähay Zängi (Lamesa, Hailay Atsbaha & Saint-Bézar: in this volume).

Furthermore, the current layout of the rock-hewn site does not fit within the identification of a church. The site possibly underwent several phases of occupation as evidenced by the lowering of the floor, the presence of two tunnelled passages, and the widening of R.5. Moreover, the R.5’s pier does not structure the space coherently and seems to be the result of piercing the doorway leading to the courtyard, which is demonstrated by its off-centring and its perfect alignment with the gate. The distribution of space appears to be associated with its use as a place of celebration for Timkat. The enlargement to the east of R.5, the opening in R.5 and R.4, and the openings between R.4 and R.3 all have a well-defined function during the festival. As previously described, the recess provides shelter for the *tabot*. R.5 is the place meant for priests and R.3 for the choir. Only rooms R.1, 2, and 7 did not have a precise role during the celebration. Finally, it has been shown in other contexts that a U-shaped distribution of rooms around a central courtyard was not confined to churches but rather quite the opposite. In Cappadocia, central courtyards instead seem to indicate the presence of a settlement adjacent to a church (Ousterhout, 2011) or monastery (Rodley, 1985).

Some rooms of the second complex have stand-out corners that demonstrate an attention to detail. Therefore, they display much better craftsmanship than the first complex, as noted by Pankhurst. Oral tradition associated with this second site refers to it as the place where monks lived. Due to the preliminary state of our knowledge, it is impossible to define with certainty the function and meaning of these two sites, but we contend that Gufti Gabriel was not a church.



Figure 10. Mereno Maryam, rock-hewn room 1. A circular opening was dug in the ceiling.

6. Mereno Maryam site (LR 4) in the vicinity of the Little Aqaqi River

The built church of Mereno Maryam is located about 10 kilometres from the Aba Samuel hydroelectric dam on the Little Aqaqi River. The rock-cut rooms are located inside of the church yard. They were unearthed by a construction company in 2011 after the recovery of soil materials. The church itself was built in 2014.

The site's chronology and its status meaning are extremely interesting because they illustrate a Christian community's recent appropriation of space. However, we cannot elaborate on this aspect further in this article as it requires further research, particularly on the religious community associated with the church (an investigation into this matter is planned in the future). We should simply note that the site of Mereno Maryam was consecrated after the discovery of the two rock-hewn spaces, which are the subject of our discussion here.

The rock from which the two spaces were excavated is very friable. It is a large grained rock that is red in colour and has many inclusions, some of which are metric. Due to the nature of the rock, tool marks were not preserved. This type of rock must have had an impact on the excavation of the structures. Its friability and the presence of inclusions are generally considered obstacles for hewing and carving of this kind of construction (Asfawossen Asrat, 2003: 661). Moreover, no other sites visited during the survey were found to have been excavated from this soft substrate.

The first rock-hewn room is located to the south-west of the enclosure. A feature is built in front of its entrance. The complex is not consecrated and thus priests allowed us to go inside. After the squarely built room, we entered the rock-cut chamber through an opening in its south wall (Fig. 10). The room is oblong and has a circular opening in its ceiling, which must have been the original access. The door through which we entered is the result of a late penetration of the wall and seems to have been made in 2011, which was also explained by our local guide. To the north of the room, a hole in the ground opens into a tunnel, but we were not permitted to study this tunnel.

In 2011, several objects are said to have been discovered in the structure: the manuscript of a prayer book addressed to Maryam, Mika'el, and Giyorgis, ceramics, a bell, and bones – possibly from a corpse that has since been reburied.

The second room is located at the back of the cirque at nearly the same level as the first. It was designated as a *maqdas* by priests, but after discussion we were allowed to enter the room. It demonstrates the same morphology as the first chamber: a primitive access through the ceiling, an oblong shape, and a recent opening made in one of the walls, which is now closed by a door. There is also a recess in the wall. Halfway up, a small inlaid wooden cross was cut into the rock. According to the priest who accompanied us, this cross appears to have been the result of an “exorcism” from when the room was discovered.

7. Discussion

The surveys carried out around the Awash and Aqaqi rivers provide us with additional information on previously-known rock-hewn sites and add documentation of new sites to the existing records.

From this research, some patterns can be identified, such as the choice of location and organization of these complexes. The environment plays an essential role. The structures are located on slopes, cliffs, or escarpments. The environments are similar to other structures in the vicinity of Lalibāla (Bosc-Tiessé *et al.*, 2014: 152), Anjou (France) (Frayse, 1964: 35), and Cappadocia (Yamaç, 2017). Within the framework of Ethiopian studies, the issue of the landscape of the rock-hewn settlements at Lalibāla and its surroundings is currently the subject of an ongoing PhD research (Routhiau, forthcoming). Hydrography is also a significant factor. Three of the four sites presented in

this paper are located in the immediate vicinity of a seasonal watercourse (dried up during our visit) or stream. The other surveyed sites described elsewhere fit into this pattern (Laga Degaga, Holga Giyorgis / Gachii,) (Lamesa & Routhiau, 2021). Likewise, travellers in the 19th and 20th c. testified to the existence of man-made structures dug into the rock near rivers (Rochet d'Héricourt, 1846: 212; Lefebvre, 1846, II: 252).

In the vast majority of cases, we recorded a complex layout made up of several grouped and stepped cavities that were developed both vertically (vertical shafts to reach the upper level) and horizontally (row of rooms). Access to the sites is sometimes complicated and is marked by variety: the structures are accessible through a system of steps and passageways (Laga Degaga) or through a door opening onto an esplanade (Gufti Gabriel). Internal travel ways generally include a staircase but tunnelled passages are also very common. Similar organisations are also well known in Cappadocia (De Pascal *et al.*, 2012: 191-205).

Functional architectural elements are dug into the rock-hewn rooms. These take the shapes of niches for shelves, recesses, alcoves of various sizes, silos, benches, or, exceptionally, a bed and its pillow. Similar elements are known in France, particularly in Touraine, and were previously used to identify sites as domestic settlements (Scheffer, 2009). It should be noted that the niche used as a shelf is only elsewhere recorded at Dubattu and appears in both of the two distinct groups. Might this be a sign of the same period of occupation or the same function?

These sites sometimes sheltered animals, as evidenced by the tether rings, and as also seen in Touraine and Cappadocia. In the Upper Ariège valley of the Pyrenees, examples of hierarchically laid out groups of caves dating from the medieval period follow the same pattern: “a main porch that could be used for housing and others – located in the surrounding area – for activities such as storage or butchery.” (Guillot, 2011: 127).

Generally, sites are located where the rock can be dug out, but this needs to be further discussed. The pendulum motion mentioned by Tim Ingold (2013: 55-56) has prompted us to question the intention of the people excavating the hypogeum: “For it was in the very course of ‘taking care’ – in the intelligence of skilled craftsmanship – that medieval buildings were designed. Of the masons who built them, we can say that they both designed as they drew, and drew as they designed. But their designing, like their drawing, was a process of work, not a project of the mind.” (Ingold, 2013: 56).

Only the structures of Mereno Maryam were dug into a rock apparently unsuitable for hollowing out rooms, since the substrate cannot be worked to reproduce architectural elements or obtain vertical walls, etc. This leads us to wonder whether this structure was intended for use in daily life. Indeed, the morphology of the two rock-hewn spaces is reminiscent of those of tombs

observed in other contexts in Ethiopia, notably at Ijabolé (dated by ceramics to the 8th-14th c.) (Jousseume, 2014: 170-172) or at Ketetiya in Wällo, which was dated by C¹⁴ (taken from inside the pots) to the 13th-14th c. (Fauvelle-Aymar & Poissonnier, 2012: 135-139). One can also surmise that several tombs were destroyed during the work of the construction team, since the preserved structures were raised above the current floor of the cirque. A third room was also mentioned by the priest but was not visited. In this context, legitimate question can be raised: did the workers have been intended to reproduce/imitate an architectural form, such as the case of Lycian, Hellenistic or Roman tombs? Did the container (i.e. the room itself) have a function other than burial chamber?

The great majority of rock-hewn sites were not particularly well carved in that the worker(s) did not pay much attention to the reproduction of a built space (with well-defined right angles or sculpted decorations) or to its finish, with the notable exception of the site of Dubattu. Room 7 in Unit 3 of Group 2 at Dubattu, the bed in the room of Group 1, the rooms to the north of the Awash River, and one of the rooms in Group 2 at Gufti Gabriel all demonstrate a certain expertise from stoneworkers, as demonstrated by sharp right angles or sculptures. The survey of tool marks also reveals a restricted toolbox: a tool morphologically close to the pick and another close to the cutter were the main tools used.² These two types of implements could be agricultural rather than specific to stoneworkers or quarrymen: one of them could be a pickaxe and the other a spade of sorts. The curvature of tool traces tends to confirm this identification. The finishing stage was limited to a rough smoothing of the walls with an axe after the room was excavated with a pick. Here again, the intention is apparent. By cross-matching this set of data with the level of expertise shown by workers who cut the stone,³ one can see that these structures were made with a functional purpose and by people without the skills specific to stone working.

With the exception of Mereno Maryam, we therefore believe that these sites fulfilled a function related to everyday life, such as elsewhere in the Mediterranean region (Crescenzi *et al.*, 2012). However, it is hard to precisely define their function as civil or monastic dwellings, agricultural structure, etc. Above all, these sites are extremely difficult to date, which raises a crucial point. The most in-depth studies of rock-hewn structures located in the southern part of Ethiopia have tended to identify these sites as dwellings (Pankhurst, 1973a: 18-19; Anfray, 1985: 30-34). This idea seems to come from Alvares' comments, which are also expounded by Fr. Anfray (Anfray, 1985: 30-34).

² To make the following description easier, we will use the terms "pick" and "axe." ³ By workers, the authors mean those who work, without any judgement on their professionalism.

19th c. travellers also interpreted these sites as dwellings in several texts: Cecchi, when speaking of the Aqaqi, attests to their use as housing for a poor population (Cecchi, 1886: I. 492). Others have supported his interpretation or have referred to him: Abbadie mentions the caves on the riverbanks of the Aqaqi as “still partly inhabited” (Abbadie, 1890: 286; Kulmer 1910: 144). Similarly, E. Mérab speaks of them when describing the mountainous foothills surrounding Däbrä Libanos, which could be the Däbra Libanos of Rochet d’Héricourt (Mérab, 1922: II. 199). Indeed, he says “there is an entire village housed in natural caves; generations have grown up there and spread out into the surrounding countryside.” One may wonder about the reasons for these descriptions, which have contributed to spreading a particular view of the local population. What emerges from the testimonies of these travellers, beyond the function of these rock-hewn areas, is the fundamental notion of re-appropriation (in the chronological sense of the term, and not, as many have claimed before, in the symbolic or political sense).⁴ At these locations, the inhabitants took advantage of the nature of the rock to extend the space already available, and at others, a Catholic priest created a church in one of the “caves” of the Aqaqi River. One is therefore able to acquire a partial but serviceable chronology over an extended period of time as well as of phases of occupation from when the function of the rock-hewn structure changed. Studies of Gufti Gabriel and Mereno Maryam have provided many new answers to scholarship on this matter. As for the site of Gufti Gabriel, Richard Pankhurst identified the first cavity – based on the statements of the people living in the area – as a church used to host Timkat celebrations (Pankhurst, 1973c). However, the architectural configuration described above does not seem to correspond to a rock-hewn church with its traditional tripartite or round organisation. Furthermore, the alcove which is used to shelter the tabot is clearly a later digging. The site of Mereno Maryam is an example of the re-appropriation of rock-hewn space for religious purposes. Fortuitously discovered, these cavities may have initially been tombs, since bones were discovered by Christian people living nearby. The structures were modified at a later date to become a shrine. The phenomenon of appropriation of Mereno Maryam echoes the example of Lalibäla in medieval times (Fauvelle *et al.* 2010; Fauvelle & Mensan, 2019; Derat *et al.* 2021). The team led by M.-L. Derat has highlighted earlier occupation at the complex in the form of a primitive phase described as troglodytic. The example of Mereno Maryam thus needs to be studied further with a bearing in mind a possible analogy with the process of Christianisation taking place since the Middle Ages. Although the appropriation of this one

⁴ The origin of rock-cutting in Ethiopia has been discussed by several scholars. We will not elaborate further here as the article does not deal specifically with this relatively broad historiographical issue.

site was for religion purposes, others may have been reused for opportunistic or political matters. These aspects are still to be addressed.

Conclusion

The results of the survey and the review of the state of art highlighted that in-depth analysis of sites are burgeoning and more is still required. Several sites show multiple occupation phases that deserve further research so as to be more clearly defined. We will carry out in-depth work on the site of Mereno Maryam, in collaboration with a contemporary historian, to fully grasp all issues that explain the process of Christianisation. This site can be used as a comparison point for analogies with more ancient phenomena. It should be recalled that the study of Christianization in the medieval period is one of the contemporary research themes in Ethiopian studies. It is currently being studied in the northern part of Ethiopia (Lasta and Təgray) in the framework of an ANR directed by Marie-Laure Derat (EthioChris Process).

Appendix 1

The coordinates are in UTM-WGS 84 in DMS

Name	Number	Latitude/N	Longitude/E	Altitude	Approximate Location	Description
Dubattu 1	LR 1	8° 41' 14.715699	38° 37' 3.126137	2105 m	In the Awash riverbed level, to the east	Set of two rooms separated by three. A bench is visible in space 1 while a vertical tunnel with notches visible in space 2, allows to reach an upper level.
Dubattu 2	LR 2	8° 41' 16.378937	38° 37' 4.083585	2126 m	In the Awash riverbed, further east and upper than Dubattu 1	Network of galleries and rooms.
Gufti Gabriel	LR 3	8° 37' 22.306881	38° 12' 46.105071	2292 m	Near the Mamo river (a tributary of the Awash)	Two groups of cavities about 30 m apart.
Mereno Maryam	LR 4	8° 49' 4.864929	38° 47' 37.56838	2234 m	About 10 km from the Aba Samuel hydroelectric dam on the Little Aqaqi River	Set of two rock-hewn spaces, close to the built churches of Mereno Maryam.

Bibliography

- Abbadie A., 1890, *Géographie de l'Éthiopie, ce que j'ai entendu faisant suite à ce que j'ai vu*, vol. I, Paris, Gustave Mesnil éditeur.
- Andarge Itbarek Baye, 2011, *Hydrogeological and hydrochemical framework of complex volcanic system in the Upper Awash River basin, Central Ethiopia with special emphasis on inter-basins groundwater transfer between Blue Nile and Awash rivers*, thèse de doctorat, Université de Poitiers.
- Anfray F., Annequin G., Bailloud G. & Schneider R., 1965, Chronique Archéologique (1960-1964), *Annales d'Éthiopie*, 6, 3-48.
- Anfray F., 1985, Des églises et des grottes rupestres, *Annales d'Éthiopie*, 13, 7-34.
- Angelini S., 1967, *Lalibela Project. I Fase: tapporto finale sommario. Unpublished report*, Fondo Etiopia di Sandro Angelini. Biblioteca Civica 'A. Mai' di Bergamo, Italy.
- Asfawossen Asrat, 2002, The Rock-hewn Churches of Tigray, Northern Ethiopia: A Geological Perspective, *Geoarchaeology: An International Journal*, 17 (7), 649-663.
- Azaïs R.P. & Chambard R., 1931, *Cinq années de recherches archéologiques en Éthiopie : province du Harar et Éthiopie méridionale*, Paris, E. Geuthner.
- Bardin G., Raynal J.-P. & Kieffer G., 2004, Drainage pattern and regional morphostructure at Melka Kunture (Upper Awash, Ethiopia), in Chavaillon J. & Piperno M. (eds), *Studies on the Early Paleolithic site of Melka Kunture, Ethiopia*, Florence, Istituto italiano di preistoria e protostoria, 83-92.
- Balicka-Witakowska E., 2014, Adadi Maryam, in Bausi A., Uhlig S. & Baye Yimam (eds.), *Encyclopaedia Aethiopia*, vol. 5, Wiesbaden, Harrassowitz Verlag, 216b-218a.
- Beckingham C.F. & Huntingford G.W.B., 1961, *The Prester John of the Indies: a true relation of the lands of the Prester John, being the narrative of the Portuguese Embassy to Ethiopia in 1520 written by Father Francisco Alvares*, Cambridge, Hakluyt Society at the University Press.
- Bessac J.-C., 1986, *L'outillage traditionnel du tailleur de pierre : de l'Antiquité à nos jours*, Paris, Édition du CNRS.
- Bosc-Tiessé C., Derat M.-L., Bruxelles L., Fauvelle F.-X., Gleize Y. & Mensan R., 2014, The Lalibela Rock Hewn Site and its Landscape (Ethiopia): An Archaeological Analysis, *Journal of African Archaeology*, 12 (2), 141-164.
- Bosc-Tiessé C. & Derat M.-L., 2019, *Lalibela site rupestre chrétien d'Éthiopie*, Toulouse, Presses universitaires du Midi.
- Castro L. de, 1915, *Nella terra dei negus, pagine raccolte in Abissinia*, Milano, Fratelli Treves.
- Cecchi A., 1886, *Da Zeila alle frontiere del Caffa*, vol. 1, Rome, E. Loescher.
- Crescenzi C. & Caprara R., 2012, *The rupestrian settlements in the circum-mediterranean area*, Florence, Tipografia il David.

- De Pascal A., Bixio R. & Caloi V., 2012, Rupestrian cultures of Turkey: reflections on the analysis and classification of a fragile heritage, in Crescenzi C. & Caprara R. (eds.), *The rupestrian settlements in the circum-mediterranean area*, Florence, Tipografia il David, 191-205.
- Derat M.-L., Bosc-Tiessé C., Garric A., Mensan R., Fauvelle F.-X., Gleize Y. & Goujon A.-L., 2021, The rock-cut churches of Lalibela and the cave church of Washa Mika'el: troglodytism and the Christianisation of the Ethiopian Highlands, *Antiquity*, 95 (380), 1-20.
- Fauvelle-Aymar F.-X., Bruxelles L., Mensan R., Bosc-Tiessé C., Derat M.-L. & Fritsch E., 2010, Rock-cut stratigraphy: sequencing the Lalibela churches, *Antiquity*, 84 (326), 1135-1150.
- Fauvelle-Aymar F.-X. & Poissonnier B., 2012, *La culture Shay d'Éthiopie (X^e - XIV^e siècles). Recherches archéologiques et historiques sur une élite païenne*, Paris, De Boccard/CFEE.
- Fauvelle F.-X. & Mensan R., 2019, Stratigraphie rupestre : le phasage des églises de Lalibela, in Bosc-Tiessé C. & Derat M.-L. (dir.), *Lalibela, site rupestre chrétien d'Éthiopie*, Toulouse, Presses universitaires du Midi, 48-56.
- Ficquet E., 2003, Cahagne, Taurin, in Uhlig S., Baye Yimam et Crummey D. (dir.), *Encyclopaedia Aethiopica*, vol. 1, Wiesbaden, Harrassowitz Verlag, 664b-665b.
- Fraysse J. & C., 1963, *Les troglodytes en Anjou à travers les âges. Habitat permanent - Monuments religieux. Contribution à l'histoire de l'habitation humaine*, vol. 1, Cholet, Imprimerie Farre & Fils.
- Gascon A., 1995, *La grande Éthiopie, une utopie africaine Éthiopie ou Oromie, l'intégration des hautes terres du Sud*, Paris, Édition du CNRS.
- Gascon A., 2003, Aqaqi, in Uhlig S., Baye Yimam & Crummey D. (dir.), *Encyclopaedia Aethiopica*, vol. 1, Wiesbaden, Harrassowitz Verlag, 289a-289b.
- Godet E., 1976, L'Église et les habitations rupestres du vallon de Kistâna, *Annales d'Éthiopie*, 10, 145-156.
- Guillot F., 2011, Vestiges et traces troglodytiques médiévaux autour de Tarascon-sur-Ariège, *Archéologie du Midi Médiéval*, 29, 123-147.
- Ingold T., 2013, *Making: anthropology, archaeology, art and architecture*, Londres, Routledge.
- Insoll T., 2021, The archaeology of complexity and cosmopolitanism in medieval Ethiopia: an introduction, *Antiquity*, 95 (380), 450-466.
- Joussaume R., 2014, *Mégalithisme dans le Chercher en Éthiopie*, Addis-Abeba, De Boccard, Centre Français des Études Éthiopiennes.
- Kazmin V., 1975, *Explanation of the Geological Map of Ethiopia (1:2 000 000)*, Addis-Abeba, Geological Survey of Ethiopia.
- Kulmer F., 1910, *Im Reiche kaiser Menelik's tagebuch einer abessinischen Reise*, Leipzig, Klinkhardt & Biermann.

- Lamesa A. & Routhiau M., 2021, Sur les pas de Richard Pankhurst : prospections dans les environs de l'Awash, *Un Œil sur la Corne / An Eye on the Horn*, <https://cfee.hypotheses.org/7650>.
- Lamesa A., Hailay Atsbha & Saint-Bézar B., Églises rupestres du Təgray oriental et central. Résultats de prospections et hypothèses techniques et socio-économiques, *Annales d'Éthiopie*, 34, 245-296.
- Landes L., 1878, Un voyageur français dans l'Éthiopie méridionale, *Revue des deux Mondes*, 30/4, 877-903.
- Leclant J., 1957, *Rapport de prospections dans le sud d'Addis Ababa*, Addis Ababa, inédit.
- Lefebvre T., 1845, *Voyage en Abyssinie exécuté pendant les années 1839, 1840, 1841, 1842, 1843*, tome 2 et Atlas, Paris, A. Bertrand.
- Lepage C., 1973, Recherches sur l'art chrétien d'Éthiopie du X^e au XV^e siècle. Résultats et perspectives, *Travaux de la recherche coopérative sur programme 230. Documents pour servir à l'histoire des civilisations éthiopiennes*, 4, 39-55.
- Massaja G., 1885, *I miei trenta cinque anni di missione nell' alta Etiopia*, tome 11, Roma, Milano, tip. pontif. S. Giuseppe.
- Mensan R., 2011, *Mission archéologique dans l'Ouest Shoa (Éthiopie-région Oromo), canton de Tole, village de Bantu effectuée du 18 au 28 avril 2011*, Addis-Abeba, compte rendu de mission inédit.
- Mérib E., 1922, *Impressions d'Éthiopie (l'Abyssinie sous Ménélik II)*, tome 2, Paris, Leroux.
- Ousterhout, R. G., 2011, *A Byzantine settlement in Cappadocia (Revised paper edition)*, Washington, D.C., Dumbarton Oaks Research Library and Collection.
- Pankhurst R., 1973a, Caves in Ethiopian History. With a survey of cave sites in the environs of Addis Ababa, *Ethiopia Observer*, XVI/1, 15-35.
- Pankhurst R., 1973b, A Cave Church at Kistana, South of the River Awash, *Ethiopia Observer*, XVI/3, 216-219.
- Pankhurst R., 1973c, The Rock-hewn Church of Gufti Gabriel, South of Tulu Bolo, *Ethiopia Observer*, XVI/4, 222-225.
- Pankhurst R., 1973d, The Rock Church of Tulu Leman near Adadi, south of the Awash, *Ethiopia Observer*, XVI/4, 226-227.
- Rochet d'Héricourt C. X., 1846, *Second voyage sur les deux rives de la mer Rouge dans le pays des Adels, et le royaume de Choa*, Paris, A. Bertrand.
- Rodley L., 1985, *Cave monasteries of Byzantine Cappadocia*, Cambridge, London, New York, Cambridge University Press.
- Routhiau M., forthcoming, Premières approches méthodologique architecturale des structures rupestres (hors église) dans le paysage de Lalibela (Éthiopie), *Actes du 18ème congrès international de spéléologie UIS 2021, Le Bourget-du-Lac, 25 juillet-1^{er} août 2021*.
- Sauter R., 1957, L'Église monolithe de Yekka-Mikaël, *Annales d'Éthiopie*, 2, 15-36.

- Sauter R., 1963, Où en est notre connaissance des églises rupestres d'Éthiopie, *Annales d'Éthiopie*, 5, 235-292.
- Scheffer M.-E., 2009, Habitat troglodytique et souterrains aménagés, in Zadora-Rio E., *Atlas archéologique de Touraine*, 53^e supplément, Revue Archéologique du Centre de la France, 137-139.
- Taieb M., 1974, *Évolution quaternaire du bassin de l'Awash (Rift éthiopien et Afar)*, thèse de doctorat, Université Paris VI.
- Wootton W., Russell B. & Rockwell P., 2013, Stoneworking tools and toolmarks, *The Art of Making in Antiquity: Stoneworking in the Roman World*, online <http://www.artofmaking.ac.uk/content/essays/2-stoneworking-tools-and-toolmarks-w-wootton-b-russell-p-rockwell/>.
- Yamaç A., 2017, Cave Dwellings of Euphrates River (Southeast Turkey), in Parise M., Galeazzi C., Bixio R., Yamaç A., *Hypogea 2017 - Proceedings of international congress of speleology in artificial cavities, Cappadocia, March 6-8 2017*, 298-301.