

*Olga Młynarczyk*  
ORCID: 0000-0002-3771-9858

Polska Akademia Nauk  
Instytut Kultur Śródziemnomorskich  
i Orientalnych

Polish Academy of Sciences  
Institute of Mediterranean and Oriental  
Cultures

## HOW TO SURVIVE IN THE DESERT? THE ANALYSIS OF THE MONASTIC SETTLEMENT

### Jak przetrwać na pustyni? Analiza osadnictwa monastycznego

**Key words:** Hermitages, monastic architecture, monasticism, hermits, anachoreticism, Egyptian monasticism, Egyptian monks, Naqlun, Kellia, Esna

**Słowa kluczowe:** Erem, architektura monastyczna, monastycyzm, eremici, anachoretyzm, epipski monastycyzm, egipscy mnisi, Naqlun, Kellia, Esna

#### Abstract

When Egyptian hermits decided to relocate to desert, they were probably aware of the geographical obstacles. Which one of them was the greatest challenge? How did the hermits and the constructors of the hermitages minimize the unfavorable influence of the natural conditions? As the Egyptian desert is characterized by heterogeneous features, depending on the geographical location, the adapting of the eremitic architecture also should be diverse. In this article, the author describes the natural obstacles (and facilities) typical for given regions, where some of the most famous hermitages were discovered. The complexes are compared in terms of the architectural solutions in geographical context.

#### Streszczenie

Eremici egipscy, decydujący się na życie w głębi pustyni, musieli liczyć się z różnymi utrudnieniami wynikającymi z uwarunkowań środowiskowych. Co mogło stanowić największe wyzwanie? W jaki sposób eremici i budowniczowie eremów starali się zniwelować niekorzystny wpływ warunków naturalnych? Dostosowanie architektury eremowej i jej końcowa forma zależały od położenia geograficznego: pustynia egipska, charakteryzująca się różnymi parametrami, wymagała zróżnicowanych rozwiązań architektonicznych. W niniejszym artykule podjęto próbę określenia przeszkód (bądź ułatwień) terenowych typowych dla konkretnych obszarów, na których odkryto pozostałości najbardziej znanych egipskich kompleksów eremowych. Założenia monastyczne zostały porównane pod względem architektonicznym i osadzone w kontekście geograficznym.

Is it possible to live a comfortable and convenient life deep in the desert? That seems to be unlikely at the first glance. However, there are some people, for whom the idea of living in total seclusion was tempting enough to leave the crowded town. Imagine a daily walk, lasting several hours, just to retrieve water for yourself or for your companions. Imagine being exposed to burglars of different kinds, wandering around the desert. Imagine, eventually, being left all alone in your mud-brick residence located far from civilization. Why condemn yourself for that inconvenience?

Let's take a look at the modern African capitals, such as Cairo or Khartoum. Those places are loud, full of people moving in different directions, tiny crowded flats. As we know, the situation only slightly differs from the one known from the Late Antiquity. Nothing striking, that some people were determined to throw everything and build almost self-sufficient domestic complex somewhere in the desert (maybe not even that far away from inhabited areas close to the Nile).

There are plenty of examples of the people that have chosen that kind of life. They are called hermits, from Greek ἐρημος – erēmos – signifying “desert”. The movement is strictly related to Christianity: the solitude was supposed to prevent being tempted to sin as a result of living among the secular people (that is the explanation we can encounter in written sources, even if the real reason was far more pragmatic – such as the overpopulation of the towns for instance). With the growing popularity of the movement, the loners started to form monastic structures, for example by gathering around the legendary hermit (called “Abba”). This phenomenon is considered as the origin of the Christian monasticism. One of the best-known trace of the activity of the hermits is Egyptian Kellia (the name of the site also comes from Greek: “cells” – in the meaning of “hermitages”), the laura with over 1500 hermitages. Those hermitages weren't built at the same time: the community was evolving for about six hundred years (Wipszycka 2009: 212; Brooks-Hedstrom 2017: 263). Another example that is well documented in the archeological reports is Esna, also located in Egypt. It is less smaller, with only fourteen documented hermitages. The time of use of the site is also much shorter, because the hermits from Esna left the site after less than a hundred years (Wipszycka 2009: 171; Brooks-Hedstrom 2017: 263).

The number of the Egyptian laurae is large; the movement was becoming more and more popular. Some of the communities were prospering well for the long period, some of them collapsed after relatively short time. Although the history of late antique monasticism and hermitism is the core of many scholars' work, the research related to the connections between the environment and the life of those communities are unsatisfactory. For example, the analysis of the architecture still concentrates more on *how* the hermitages were built instead of *why* they were built like that. However, in the past few decades, the subject of the mutual influence of the late antique domestic architecture and the environment has been noticed by some of the archaeologists and historians. The first one to mention is Jean Jacquet, who, in the short article *L'adoption par les ermites d'un milieu naturel et ses conséquences sur leur vie quotidienne* (Jacquet 1986), pointed out how important was the water access in terms of the architectural solutions. As he concentrated on the examples of Esna and Kellia, the broader context remained untouched. The example of Kellia was also the basis of the analysis formed by Denis Weidmann, who shortly described possible reasons (historical and geographical) relevant for choosing the place to settle down and for the later functioning of inhabitants (Weidmann 1986). Ewa Wipszycka was the first one to undertake the topic of the natural conditions' strong influence on the monastic life all over Egypt. In her three monographs devoted to the egyptian monasticism, she widely describes the architectural nuances used by the hermits, in context of geographical conditioning (Wipszycka 2009, 2014, 2018). In his short article, Włodzimierz Godlewski described the architecture of the most famous monastic settlements, taking into account the geographic context (Godlewski 2015). Darlene Brooks-Hedstrom is the last one (but not least) scholar that needs to be mentioned here. With her monumental work she gathered all of the most important monastic sites of Egypt and described them from the architectural and archaeological point of view (Brooks-Hedstrom 2017). She not only did emphasize the importance of the environmental features but also made some comparisons to secular domestic architecture, which is especially valuable for the future studies in this matter. Still, there are some gaps that need to be filled. At present, there are no research devoted specifically to the connections of the geographical conditions and the

construction of the hermitages. We cannot, for example, be sure what were the reasons for leaving certain sites all of the sudden (such as mentioned above Esna) or, on the contrary, why some of them were inhabited for such a long time (Kellia). The most possible explanation is the diversity of the natural conditions specific for a given region. As I would like to prove, the Egyptian desert is heterogeneous and characterized by different features in particular regions. The first step to discover how the inconveniences were overcome, is to determine the nature of those inconveniences *per se*. And that's what I would like to do in the further part of this article. Analysis of the architecture and solutions used by the builders of the hermitages, compiled with settlement barriers characterizing chosen regions, should be helpful while determining how the demonstrated inconveniences were overcome and what kind of the environmental features were considered by the future settlers as the most profitable. As for now, I would like to focus on the aspect of hydrology, geology and geomorphology, leaving the other factors (like, for example, detailed description of the climate) for the future research.

First I will choose some of the sites from different parts of Egypt. The criteria that will be taken under the consideration would be mostly the state of preservation and the accessibility of the sources and documentation. It won't be possible to analyze a large number of sites, but I believe that even a few of them would give me an overview to formulate some conclusions. I would like to focus on three Egyptian laurae.

Then I will describe the natural context specific for the chosen regions, in the terms of the water access (natural sources and periodic rainfalls as well), kind of the geological substratum and the presence of different kinds of natural (rock, caves) and anthropogenic (temples, quarries, pharaonic tombs) structures.

One of the greatest obstacles while living in the desert is access to water. The closeness of the water source – surface waters, groundwaters, the possibility of gathering the rainwater – is a great convenience and surely affects the size and the longevity of the society.

The next factor was the accessibility to building material or the ease with which the geological formation could be adapted to hermits' needs. Soft, sedimentary rock, for example, creates an opportunity of drilling the domestic structure – partially or even as a whole.

Finally, the presence of previously existing formations could be tempting for the potential settlers, being an easy available shelter, likely to adjust by building some extra structures like new walls or annexes. Using already existing structures and turning them into hermitages or drilling the new ones directly in the ground, gave the possibility to reduce the use of water and could be especially tempting in the regions with limited water access.

With this in mind, it will be possible to define the geographical barriers and the facilities appearing in the chosen region. It would be clear, which one of the examined areas were the most livable.

Finally I will compare the sites in terms of the size and the time of use. Then, as I believe, it will be clear if the defined previously obstacles and facilities affected the functioning of the monastic society. Were people, while choosing the place to settle down, aware of the possible difficulties? Maybe, if they were, living under the hard conditions was considered as something glorious? Especially taking into consideration ordinary for the Christian faith respect for martyrdom?

Still, we need to remember, that these are two different things: the first one is choosing a certain region the second – surviving there. We can imagine a possible situation, when a group of the hermits settles down far away from the human world, away from the water source, just somewhere in the desert, only to experience the solitude and wait for the great revelation. But then – scared and overwhelmed by the reality – they simply leave the place in a hurry, taking only moveable objects with them. We need to keep in mind, that the selection of the place could be, in some cases, rather romantic than pragmatic. That's why it is really important to allow one extra issue, while talking about geographical features: the silhouette of the possible founder of the monastic community. His potential awareness concerning the needs of the inhabitants and capabilities given by the territory could be the clue when it comes to the laurae prosperity.

The answers to the above questions and the conclusions formed at the end of the present article, would make a great foundation for the further research, concerning the methods according to which the hermits were adapting their households to the natural conditioning characterizing the living area.

## **The terrain conditions and how did they affect the building techniques: some preliminary remarks**

The sites chosen for the analysis are Kellia (Cells), Naqlun, and Esna, all of them dated to late antique period. Located in different parts of Egypt, built in various styles and well documented, they are a great comparative material. The comparison covers the aspects of the terrain's relief, geology, occurring structures (natural and anthropogenic) and water access. The data are presented in the table at the end of the article below (table 1).

The laura in Kellia consists of about 1500 hermitages. They are spacious and equipped in a way that provides them self-sufficiency. The first monks appeared in the region probably around V century. The hermitages built at that time were consequently expanded and modified. From VII century, the constructions started to follow particular model, that developed over time (Jacquet 2008: 206; Godlewski 2015: 9).

The complexes, built on a square or rectangular plan (the area varies from 200 to 700 m<sup>2</sup>), were supplied in a number of facilities such as private churches, latrines, cisterns and other outbuildings. Moreover, the most of the hermitages were also provided in gardens, where the monks could cultivate herbs or vegetables (Bonnet 1986: 56; Jacquet 2008: 206; Godlewski 2015: 9; Wipszycka 2018: 302). It was possible because of the presence of groundwaters located close to the surface, as well as periodic rainfalls (mostly during winter) (Jacquet 1986: 22; Weidmann 1986: 18; Wipszycka 2009: 208).

Not only an easy access to the water is the reason of the site's prosperity. The landform and the lack of the rocky hills or steep slopes, enabled the free spread of the hermitages and the whole complex. The area where Kellia is located is practically almost flat. However, there are also some disadvantages of such location.

First, the whole area is completely exposed. Rocky slopes or caves can serve as a natural shelters and protect from atmospheric conditions (primarily the sand coming from the desert), but also from wild animals or nomads. Secondly, the absence of already existing structures forced the builders to construct the dwelling from scratch. That caused a need of using a lot of building material – mudbrick in case of Kellia. The production of mudbrick requires the use of water, which

can be problematic in the desert. But, as it was already mentioned, the water was easily accessible in Kellia and thanks to that even the large-scale production of mudbrick was possible.

The access to the water was also quite unproblematic in case of the monastic complex of Naqlun, which emerged possibly around IV/V century (Lichočka 2010: 245–247; Godlewski 2010: 237). According to the cronics of an-Maqrizi (Abou, Butler, Evetts 1985: 313–314), the water canal An-Manhi run nearby the monastic complex. The hermitages were concentrated in two main groups. The western one, consisting of eight dwelling (discovered so far), was located in proximity of the An-Manhi canal. The inhabitants of the eastern group, with 81 hermitages, had slightly greater distance to overcome. As Ewa Wipszycka proposed, the western hermits could have been responsible for providing the water supply for their neighbours from the eastern group (Wipszycka 1996: 376).

The soft sedimentary substratum (limestone) and the presence of *gebel* with lots of natural caves and hollows, made the area usable for the possible settlers. The hermitages of Naqlun were built with use of the natural, rocky landform. Some of the rooms and facilities were carved directly in the soft rock. The constructions were then completed with the structures build out of mudbrick or stones.

The use of the natural rock formations ensured natural protection and good hiding. Moreover, thanks to that kind of construction, the whole hermitage was more stable. The employment of those structures also reduces the amount of required building material and, hence, the construction costs.

Hermitages in Esna were definitely more complex and spacious, although they were also almost completely carved in the substratum. They were cut out in plateau, in the slope of terrain which makes them, according to Serge Sauneron, “entièrement troglodytiques” (Sauneron, Jacquet 1972: 105). The monastic settlement in this area is dated to 550–630 AD (Wipszycka 2009: 171; Brooks-Hedstrom 2017: 263).

The amount of water required during the construction of such facilities was reduced. That is especially valuable, having in mind difficult water access featured this site. The only water source located nearby was probably the well, located kilometers from the settlement. Periodic rainfalls, although they did happen, were much less frequent than in Kellia (Jacquet 1986: 22; Wipszycka 2009: 69; 2018: 309).

Also, locating hermitages underground could advantageously affect the temperature inside. As the structure wasn't directly exposed to the sun, the amplitude of temperature could have been lower.

Tab. 1. Conditioning of the sites

| Natural conditioning                 | Kellia  | Naqlun  | Esna                                      |
|--------------------------------------|---|---|---|
| Relief                               | Flat terrain  | Plateau, <i>gebel</i> , rocky slopes, valley at the foothills | Rocky slopes of the plateau               |
| Geology                              | Nile deposits   | Limestone   | Shale, limestone                          |
| Natural and anthropogenic structures | None  | Natural caves and holes                                       | None                                      |
| Water access                         | Water easily accessible: periodical rains and subcutaneous waters | Water canal running nearby                                    | Well located few kilometers from the site |

Source: self-reported data.

## Adapting the domestic space

Having described general conditions prevailing in the chosen locations and briefly discussed their impact on the building technics, one may go to the analysis of the hermitages' interior and functionality. The hermitage is a specific example of the domestic architecture. As the typical secular house, it should provide the basic needs of its inhabitant. It should be a safe space, supplied in structures related to sleeping, preparing the food, storage of water and alimentation (or gathering the water), etc. Due to the location of hermitages in the desert, in relatively difficult conditions, some of the solutions had to be more complex.

The hermitages from the chosen sites are equipped with residential annexes. Usually they consist of two or three rooms. In case of Kellia, Naqlun and Esna, where the hermitages were planned as the whole complexes from the beginning, those living spaces could have been ar-



ranged without restraint, often becoming spacious and comfortable residences.

What seems to be more challenging, is providing the food and water supply. The basis of the monks' alimentation was bread. It was baked by the monks themselves, using the bread ovens, that were sometimes located in the courtyards of the monastic dwellings on the open air – like in few hermitages in Naqlun (Godlewski 1998: 89; 2008: 203; 2010: 235–236) or Esna (Brooks-Hedstrom 2017: 201). In Kellia, the bread ovens were a part of the equipment of the kitchens. To avoid overheating, those structures were covered with a light roof or with nothing at all. The kitchens of Naqlun and Esna, very similar to each other, were opened directly to the courtyards, which also assured maintaining of the right temperature.

Where to store food and water? The structures like the silos or pit holes cut in the floor level were found in Naqlun (Godlewski 2007: 235; 2016: 282) and Kellia (Coquin 1982: 162). In Kellia and Esna the special storage rooms were located next to the kitchens (Bonnet 1986: 62; Boutros 2010: 185; Sauneron, Jacquet 1972: 18).

Water was often stored in particular pots, characterized by the porous surface; thanks to the water filling the pores, the contents remained cold for a longer time (Bonnet 1986: 60).

Very interesting structures were found in Esna: each hermitage was supplied with a room, that probably were some kind of the water reservoir (Sauneron, Jacquet 1972: 26). They were separated in a half by the low dividing wall, which evidently was exposed to the water. A big number of the ceramics were found at those rooms. The presence of those kind of structures allowed to store even a lots of water.

## **Comparison and conclusion**

The above considerations are preliminary and should be extended in the future. As for now, one could assume, that the architectural diversity of the Egyptian hermitages is large. It is specifically connected to the region, where monastic dwellings are located. The hermitage, being most of all the domestic space, should provide the basic needs of the monks. Thanks to the comparison of the solutions applied in different sites it became visible, that they are quite similar. Equipping hermitages with spacious living annexes, if it was possible, was a common

practice. The set of the different functionalities, like kitchens, storage rooms or some kind of water reservoirs, seems to be constant, independently from the geographical differences.

Still, each of the site presented above represent a completely different architectural type and is located in area characterized by different natural features. The tables 2 and 3 present the information about the number, size and time of use of the sites.

As it is shown, the hermitages from Kellia are beyond comparison bigger than the rest (table 2). Together with their equipment and self-sufficiency, they seem to be rather small monasteries than hermitages. Maybe they were the hermitages at the initial phase, transforming into the monasteries later, along with the subsequent modifications. The time of use, number of the hermitages and their sizes definitely draws the attention: Kellia surely was the most popular monastic site out of the other presented in this article. As was mentioned above, the living conditions was quite favorable. Unlimited spaces allowing the construction of spacious and comfortable dwelling, an easy access to the water, which enabled even the cultivation of the private gardens that all creates an image of a tempting place to settle down. Building such an hermitage surely wasn't a cheap project, but one can imagine a situation, when an elder monk lives with a group of disciples or simply passes it on to someone else.

Tab. 2. Estimated number of the hermitages within each site and their estimated size

| Number and sizes                                   | Kellia   | Naqlun                             | Esna                                  |
|--|--|------------------------------------|---------------------------------------|
| Estimated number of hermitages                     | <b>1500</b><br>(Wipszycka 2009: 212;<br>Brooks-Hedstrom 2017: 257) | <b>90</b><br>(Godlewski 2010: 230) | <b>12</b><br>(Sauneron 1969: 104–111) |
| Estimated size of the hermitages (m <sup>2</sup> ) | <b>200–700</b><br>(Jacquet 2008: 206)                              | <b>100–200</b> <sup>1</sup>        | <b>100</b><br>(Sauneron 1969: 106)    |

Source: self-reported data.

<sup>1</sup> Data based on the plans of the hermitages; some of them were destroyed (hermitage 6) or not fully excavated (hermitage 85). Data included here concern fully preserved and excavated complexes; based on plans published in archaeological reports: Godlewski, Herbich, Wipszycka 1990: 191–194; Godlewski 1990: 31; 1991: 49; Godlewski, Parandowska 1997: 78; Godlewski 2007: 232.

Naqlun hermitages, smaller but still convenient, also were in use for comparable period. Fayoum oasis, where Naqlun is located, is a region favorable to settlement, thanks to the presence of the water sources, being quite populous area. That could be the cause of the laura's longevity. It was not that numerous as Kellia, but the reason for that could be completely different (more about it in the last paragraph).

Without a doubt, the building of the Esna hermitages required a lot of work. Even if the use of water was diminished at most, still the whole constructions needed to be cut directly in the rocky slope. Bearing in mind their size of around 100 m<sup>2</sup>, the precision with which they were built makes quite an impression. But, almost anhydrous and plantless area apparently was too much of a challenge for the inhabitants. The site was abandoned after relatively short period of less than a hundred years. No traces of any artifacts left behind or significant damages pointing some disaster suggest, that Esna wasn't abandoned abruptly. Probably it was decision of the hermits – based on what kind of premises, one can only guess. Perhaps the reason was especially rough living conditions.

To conclude: apart from different building techniques, which are related to the geographic context and material opportunities, the hermitages' builders were trying to furnish the constructions with the same elements, ensuring the survival.

Tab. 3. The time of use of the sites

| <b>Kellia</b>   | <b>Naqlun</b>                                   | <b>Esna</b>  |
|---|---|--|
| <b>V–XI</b><br>(Wipszycka 2009: 212; Brooks-Hedstrom 2017: 257) | <b>V–XII</b> (Godlewski, Parandowska 1997: 125) | <b>550–630</b><br>(Wipszycka 2009: 171; Brooks-Hedstrom 2017: 263) |

Source: self-reported data.

The living conditions could affect the longevity and abundance of the complex and might be the reason of its abandonment as well. Another factors could affect the center's popularity, like the presence of the charismatic leader, some kind of a sacred space, or connection to Christian tale. Those elements surely attracted the pilgrims and future

monks. Whether the legend was associated with a center or not, the living conditions played a huge part in terms of the site's functioning. They should be well analyzed and understood, to allow the description of the architectural solutions and differences between diverse locations. Every example of the domestic architecture is just a sort of a protective barrier, ensuring survival. Therefore, to fully understand solutions applied by specific group of people, one have to identify the issues, they were dealing with. Only then, thanks to treating the problem holistically, achieving satisfactory results will be possible.

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