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المنازل البرجية

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TOWER HOUSES

المنازل البرجية

Manuela Lehmann

Turmhäuser
Maisons-tours

Egyptian tower houses are a type of dwelling that developed in the Third Intermediate Period. They were extensively used from the Late Period (26th Dynasty) through Roman times and remained in use in Late Antiquity from the Medieval Period onwards. They are still constructed in some parts of the Middle East today. These houses were often square at the base and consisted of several stories, thus giving a tower-like appearance. Many had so-called "casemate foundations." Our sources for tower houses derive from archaeology, house models, pictorial evidence, and texts. Tower houses were used as dwellings within cities, fortresses, and temple enclosures, and also functioned, themselves, as temples and administrative buildings.

منازل الأبراج المصرية هي نوع من المساكن تم تطويرها خلال عصر الانتقال الثالث. استخدمت تلك المنازل على نطاق واسع خلال العصر المتأخر (الأسرة السادسة والعشرون) وحتى العصر الروماني، حيث ظلت مستخدمة منذ أواخر العصور القديمة من العصور الوسطى فصاعدًا. ولا تزال حتى الآن مستخدمة في مناطق متفرقة من الشرق الأوسط. غالبًا ما كانت هذه المنازل مربعة القاعدة وتتكون من عدة طوابق، مما يعطيها مظهرًا شبيهاً بالبرج. العديد منها سمي بـ "ذات الاساسات المحصنة". مصادرها الخاصة بالمنازل البرجية مستمدة من علم الآثار، ونماذج المنازل، والأدلة المصورة والنصوص. تم استخدام المنازل البرجية كمساكن داخل المدن والحصون وفي محيط منطقة المعابد، كما كانت تستخدم أيضًا كمعابد ومباني إدارية.

The tower house in Egypt was a structure used primarily as a dwelling—that is, as a building with a predominantly domestic function. The tower house is first attested in Egypt in the Third Intermediate Period (1086 – 664 BCE). It seems to have derived from the so-called Egyptian “town house” (Davies 1929; Roik 1988), which comprised two or three stories,

known mainly from depictions in New Kingdom tombs, papyri, and from the excavation of settlement sites such as Lisht, Memphis, el-Amarna, and Amara West, among others (Davies 1929; Roik 1988: 13-29; F. Arnold 1996; Spence 2004; N. Spencer 2014a: 481).

Prior to the development of tower houses in Egypt, two other known house-types typically occurred there. The tripartite house (Ricke

1932: 13-20; Helck 1977; F. Arnold 1989; Bietak 1996; von Pilgrim 1996) was configured so that the rooms nearest the entrance, facing the street, were the most public, as this was where visitors would enter, while the areas farther inside the house were increasingly more private and less accessible (van der Bercken 2011; Spence 2004). The second house-type was the courtyard house, where the rooms were arranged around a central courtyard, which functioned as a distribution center. The courtyard house was especially common in the Middle Kingdom and was used less frequently after the New Kingdom (von Pilgrim 1996; F. Arnold 2003: 178).

Tower houses in the Delta were typically built entirely of sun-dried mud brick. In the Fayum and Nile Valley, stone was often employed in the foundations and sometimes in the ground floors. In general, the thickness of the brick walls of Egyptian houses increased considerably at the end of the Third Intermediate Period, from the formerly typical width of a half-brick or single brick, to up to one meter in thickness. These wider walls were able to carry much more weight, and consequently more floors, than could be erected in earlier times.

The former horizontal arrangement displayed in the tripartite house seems to have evolved into a vertical arrangement, exhibited in the multi-storied town house, with the more private rooms on the upper stories (F. Arnold 2003: 134; Lehmann 2021: 314). Although external influences for the development of tower houses are possible in theory, no conclusive evidence for them has been found so far, and an indigenous Egyptian development is most likely (F. Arnold 2003: 187; Lehmann 2021: 98-102).

In the Late Period (664 – c. 332 BCE) these multi-storied houses were often constructed with casemate foundations (A. J. Spencer 1979: 71-79; D. Arnold 1994: 281-282; Goyon et al. 2004: 112). Casemate foundations were essentially compartmentalized platforms constructed of brick-walled cells, or compartments, filled in with sand and rubble. Earlier this architectural feature had occurred in Egypt in ramps, fortresses, and palaces

(Bietak 2010; Lacovara 1997), but was now for the first time employed in the construction of domestic houses. Often the upper stories of these buildings are not preserved, so that only the casemate foundations remain, and in these cases it cannot be said with certainty how high the buildings were originally.

The tower house continued to be built after the Late Period and remained the typical dwelling in Ptolemaic and Roman times in Egypt (F. Arnold 2003: 172), its shape having become much more standardized, and casemate foundations having become a fundamental component of its construction. Tower houses continued in use in the Byzantine and Medieval periods and were recorded by travelers to Egypt as recently as the eighteenth and nineteenth centuries CE. They are still constructed in the Middle East today in Saudi Arabia, Yemen, Oman, and Morocco.

History of Research

In recent years Egyptian tower houses have been increasingly excavated, mainly in the Delta, a result of growing interest in the Late Period, which had long been overlooked by archaeologists in favor of earlier periods. With this changing attitude, tower houses are increasingly being understood as an important feature of Egyptian architecture of the Late Period onward.

One of the first scholars to record the remains of tower houses was William Matthew Flinders Petrie, who excavated several examples at Memphis, Nebesheh, Defenneh, and other sites. Although he did not identify the architectural remains as tower houses, he realized the distinctive platforms were foundations (Petrie 1888, 1909).

The first extensive excavation of tower houses took place in the 1920s and 1930s with the excavation of Ptolemaic and Roman constructions in the Fayum at sites including Philadelphia, Oxyrhynchus, Karanis, and Soknopaiou Nesos (Viereck and Zucker 1926; Bowman et al. eds. 2007; Boak and Peterson 1931; Boak 1935). These projects were often undertaken by historians, philologists, or

classicists searching for papyri (Davoli 1998: 27-28). Tower houses were also excavated in the 1950s and 1960s at sites such as Athribis in the Delta (Leclère 2008: 233-278) and Medinet Habu (Hölscher 1954). An extensive period of recording of tower houses took place in the 1970s and 1980s, when increased excavation in the Delta exposed the foundations of these buildings at sites including Mendes, Tanis, and Tell el-Maskhuta (K. Wilson 1982; Leclère 2008: 393-486; Holladay 1982).

In the 1990s and early years of the new millennium, projects increasingly encountered tower houses in their excavations, again especially in the Delta. The Egypt Exploration Society (EES) Delta Survey by Jeffrey Spencer (A. J. Spencer 2001, 2016)—and especially his work focusing on the mud-brick architecture at sites such as Tell el-Balamun and Defenneh in the Delta, and Ashmunein in the Nile Valley (A. J. Spencer 1979, 1996a, 1999a, 1999b, 2010; Leclère and Spencer 2014)—made it possible to understand the nature of these houses better. Felix Arnold's (2003) publication of tower houses in Elephantine, with its detailed section on houses in Late Antiquity and Medieval times, covered the later usage of this architectural form. An increasing number of studies have since been dedicated to tower houses (e.g., Marchi 2014; Marouard 2012, 2014).

In general, tower houses from the Ptolemaic Period onward, for which there is the most available evidence, are the best understood. More research is needed on the tower houses of earlier periods and on their development from New Kingdom dwellings to the first Saite tower houses.

Typical Elements of an Egyptian Tower House

The typical architectural elements that define an Egyptian tower house do not always all occur in one building, but several of the features are usually present, some of which changed over time. First, as their name suggests, these constructions consist generally of several stories: between two and seven floors are attested. Often, but not always, a casemate foundation was used, although tower houses prior to the Late Period do not yet

feature this type of foundation, suggesting it evolved over time. By the Ptolemaic Period, the casemate seems to have become a standard feature.

While the presence of casemate foundations does not necessarily imply that tower houses were always higher than one or two stories, the enormous effort and cost of building such a massive foundation would likely indicate that most tower houses had several stories. Since the upper stories are not preserved, it cannot be said with certainty how high the buildings were, but what can be calculated is the maximum height that the width of a wall would have been able to support (see F. Arnold 2003: 169, tab. 3).

The outer walls of tower houses were often sloping, the walls widening towards the base. The wall could have a width of over a meter above the foundation. The bricks were often not laid in horizontal courses but in so-called pan-bedded brickwork, meaning the courses rose to the corners of the building and sloped down slightly towards the middle of the walls (Husselman 1979: pls. 12b, 13b). Wooden beams were used in the masonry; often the heads of the beams were visible in the walls (ibid.: pl. 14b).

Our knowledge of windows and roofs is derived from house models and from the better-preserved houses at, for example, Karanis and Tebtynis. Windows were often arranged in rows of three on one side of the building. The entrance could be found either at ground-level or, more often in later times, elevated at the first floor with a staircase leading up to it (F. Arnold 2003: 172); raised entrances with ramps or stairs are known for houses in the New Kingdom (Spence 2004: 146-150, figs. 7-9). The roofs were mostly flat and were often employed as a terrace; sometimes a kiosk was present and occasionally the edges of the roofs were crenelated.

The Function of Tower Houses and other Buildings with Casemate Foundations

Tower houses constitute only one category of buildings constructed with casemate

foundations. These platform foundations were also used for storage in administrative buildings called *šnꜥ-wꜥb* (literally “pure storehouse”) within temple enclosures. Examples of these can be found at Karnak, Medamud, and el-Hibis (Traunecker 1987).

Similarly, what seem to be Ptolemaic and Roman priests’ dwellings with casemate foundations occur at Tuna el-Gebel (Flossmann-Schütze 2011, 2014; Fassbinder et al. 2015), and earlier examples with probably several stories are attested at Karnak (Masson 2007, 2014). Buildings of a similar nature within a temple enclosure appear to be represented in the magnetometry survey of Tell el-Balamun (A. J. Spencer 1996a). Some temple buildings themselves were built with casemate foundations, with examples at Tell el-Dabaa, Tell el-Hebwa, and Tell el-Herr, and in the Fayum at Soknopaiou Nesos and Bacchias (Lehmann 2021: 184-188; Abd el-Maksoud and Valbelle 2005: 3; Valbelle and Abd el-Maksoud 2007: 80-103; Davoli 2008: 60-61; Pernigotti and Capasso 1998: 8; Pernigotti 2010: 302). Casemate foundations were also used in palatial buildings from the Second Intermediate Period (1640 BCE) onward, as for example at Tell el-Dabaa, Deir el-Ballas, Memphis (Apries Palace) (Petrie 1909; Kemp 1977), and Tell el-Herr (Defernez et al. 2017), and in buildings within fortresses such as those at Tell el-Herr, Tell el-Ghaba, and Tell el-Kedwa (Valbelle and Abd el-Maksoud 2007; Marchi 2014b; Fuscaldo and Lupo 2007; Oren 1984), which were probably used for administrative purposes and as accommodations for soldiers. These examples thus illustrate that casemate foundations were employed for buildings of varying form and function.

Sources for Egyptian Tower Houses

In addition to the remains of excavated tower houses, a number of pictorial sources for the houses are known—mainly three-dimensional models, and two-dimensional depictions on glazed tiles and in mosaics and paintings. There is also a possible ground plan of a tower house drawn on papyrus. Some written source material is known as well, mainly from the

Ptolemaic and Roman Periods. These depictions and texts help us to understand the excavated structures, which are often poorly preserved so that in most cases only the foundations survive.

House models

Three-dimensional models of tower houses are difficult to date; they probably start in the Late Period and are more common from the Ptolemaic Period onward. While a few house models are solid, most are hollow; some still show traces of an oil-lamp set inside, suggesting a function in the *Ljchnokaie*, a light festival mentioned by Herodotus (II.62.1-2; trans. Godley 1920).

Tower-house models occur in stone or terracotta and vary in height between 5 cm and 78 cm. At least 25 tower-house models, or fragments thereof, are known, providing important details of this type of architecture, showing such features as multiple stories, sloping walls, pan-bedded brickwork, wooden beams in the masonry, and elevated entrances on the first floor with staircases leading up to them. The ground floor usually contains only small windows placed high on the wall directly under the ceiling, as was known from the New Kingdom (Spence 2004: 131), while the other floors generally have two or three windows on each side of the house (Lehmann 2021: 66-74; Marouard 2014: 118-120). The number of stories varies between one and six. Five examples show one or two stories; four examples show three stories; three examples show four stories; three examples show five stories; and two examples show six stories. Most of the models have a square ground-floor, although some are rectangular and one example is L-shaped. The same shapes are found in excavated Egyptian tower-houses and in modern examples in Shibam, Yemen (Leiermann 2009: 52). Four of the models show a frontal staircase and three of them have a lateral staircase leading up to the entrance in the first floor.

Depictions of tower houses

With one exception, depictions of tower houses are known only after the Late Period,

appearing mainly outside Egypt in mosaics and drawings of Egyptian landscapes in Roman houses and places of worship. Prior to this, depictions of tower houses were mostly known from tomb scenes within Egypt. Following are the known sources depicting tower houses: glazed tiles from Nimrud, Assyria (N2067+N2069), c. 668 BCE; the Ptolemaic Nile mosaic of Palestrina, Italy, c. 110 – 120 BCE; Roman mosaics and paintings from Herculaneum and Pompeii, Italy, 79 CE; and the Roman Papyrus Oxyrhynchus XXIV 2406, 100 – 200 CE.

The oldest known depiction of a tower house was found at the site of the city of Nimrud, on a group of glazed tiles illustrating an Assyrian military campaign in Egypt c. 668 BCE (Lehmann et al. 2019). Two tile fragments from this group show structures that are possibly Egyptian tower houses. The better-preserved tile, N2067 (fig. 1), shows a tower house with sloping walls, consisting of four floors, including the ground floor, which is not elevated but at ground-level and which features a rectangular door. The stories are shown separated one from the other by a horizontal yellow band, in contrast to the white coloration (presumably representing white plaster) used for the rest of the building. Two square windows next to each other can be detected on the fourth floor. The roof is not preserved, but most other examples of this period show flat roofs, sometimes with a small kiosk on top. The house depicted on tile N2067 abuts a slightly lower wall with triangular crenellations that seems to link it, on the right, with a building with sloping walls, shown in a brown color.

A second tile, N2069b, shows parts of another tower house in the context of the same military campaign, but is only in small part preserved. Visible are a rectangular door, yellow bands dividing the stories, and white coloration used to represent the house's (plastered) walls. Not enough is preserved to be able to number the stories, but the house does seem to have a different arrangement of floors than that of the tower house shown on tile N2067. The best parallel for such a depiction is the Nile mosaic of Palestrina (fig.

2), which shows a temple enclosure-wall incorporating several tower houses. This mosaic, also known as the *Mosaic Barberini de Praeneste*, was discovered in the sanctuary of the Roman goddess Fortuna Primigenia in the town of Palestrina in central Italy (Meyboom 1995: 9). It can be dated to 110 – 120 BCE, based on details in the architecture, clothing, and weapons shown; its dating corresponds well with Ptolemaic tower houses excavated in Egypt. In its current state the mosaic measures 5.85×4.31 meters but, before being moved to Palestrina's Barberini Palace, it was originally about one meter larger (Meyboom 1995: 4). The arrangement of the parts as reconstructed by Whitehouse has been accepted by most scholars (Whitehouse 1976; Meyboom 1995, fn. 22, 198).

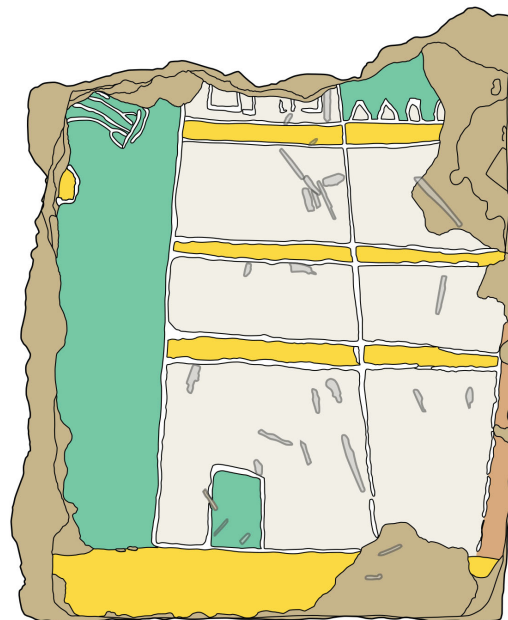


Figure 1. Drawing of glazed tile N2067 from Nimrud, now in the British Museum.



Figure 2. Detail of the Nile mosaic of Palestrina showing tower houses, some of them incorporated in the temenos wall of a temple. The mosaic is now in the Museo Nazionale Prenestino in Palazzo Barberini, Palestrina, Italy.

The mosaic shows a Nile landscape with eight free-standing tower houses and six tower houses incorporated into a temple enclosure wall. Scholars have discussed whether a specific temple in Egypt can be identified here; a comparison of the different identifications posited is given by Carrez-Maratray (2014). In general, the appearance of the houses in the mosaic is very similar to that of many Egyptian house models, showing pan-bedded brickwork, wooden beams in the masonry, and narrow, rectangular windows. The roofs are usually flat and rise towards the corners of the house. Houses within, or in close proximity to, temple enclosure walls are known from Egyptian texts (Thiers 1995: 495-501) and from excavations at Medinet Habu, Buto, Tell el-Balamun, Tell el-Dabaa, and Elephantine (Hölscher 1934, 1954; Ballet et al. 2011; A. J. Spencer 2004, 2010; Lehmann 2021; F. Arnold 2003).

Depictions of Egyptian tower houses amid Nilotic landscapes are also known from paintings and from other mosaics, for example in the Vigna Maccarani, or in the Casa dei Pigmei and Tempio di Iside in Pompeii (Versluys 2002: nos. 19, 61, 62), and in several of the landscapes catalogued by Versluys (2002). Sometimes two tower houses are depicted with a bridge between them. Such bridges are not preserved archaeologically but modern parallels can still be found in Yemen and occasionally in Egypt today (Lehmann 2013: 14, fig. 27).

A ground plan of a possible tower house is known from Papyrus Oxyrhynchus XXIV 2406 (fig. 3), dated to the second century AD. The drawing shows a small building with courtyard; though not certainly a tower house, it does have the typical staircase with pillar (F. Arnold 2003: 182-185).

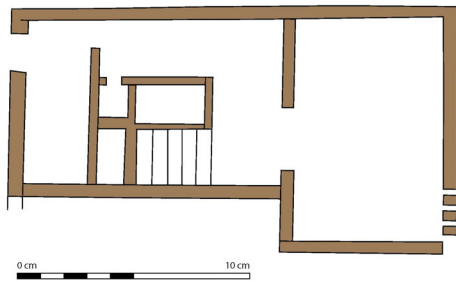


Figure 3. Drawing of the ground plan of a possible tower house, based on a representation in Papyrus Oxyrhynchus XXIV 2406, second century CE.

In what is now Ethiopia, a series of third-century CE monolithic tomb-stelae (sometimes referred to as obelisks) from the civilization of Axum were excavated (Krencker 1913; Weber 1914: 254; Leiermann 2009: 27). Although tower houses themselves have not been excavated in the region (but in neighboring Eritrea, see F. Arnold 2003: 176), the front faces of these large stelae look surprisingly similar to the facades of Egyptian tower houses. The excavators interpreted the representations on the stelae as the facades of palaces (Krencker 1913). The largest stelae stand 25 to 33 meters in height and show up to nine stories above the ground floor, remarkably similar to the tallest preserved tower houses at Karanis and to modern tower houses in Yemen. Most stelae show other typical details of tower houses as well, such as wooden beams in the masonry, sloping walls that widen at the base, and a general absence of windows in the ground floor except directly under the ceiling. These stelae were perhaps influenced by early Yemeni tower houses, as discussed below.

Written sources

Pre-Ptolemaic written sources for tower houses are difficult to identify as tower houses do not seem to have been distinguished from houses in general (termed *pr* or *ῥ*), although high, tower-like buildings are mentioned in the Ptolemaic first story of Setne (Goldbrunner 2006: 21-22, pl. 5) and in the Late Period story of Petesis (Vittmann 1998: 133). Only from the

early Ptolemaic Period is the word *πύργος* (*pyrgos*) documented in papyri in specific reference to tower houses, a term used until Byzantine times (Luckhard 1914: 71-73; Weber 1914: 252).

Classical authors such as Herodotus and Diodorus mention tower houses in their descriptions of their travels. Herodotus reports in *The Histories* (II.95; trans. Godley 1920), in the fifth century BCE, that in Egypt the inhabitants of tower houses slept on the roofs to escape the mosquitoes. That people used the roofs for sleeping is confirmed in Papyrus Giessen 67 from the first half of the second century CE (Nowicka 1970: 60). Diodorus Siculus, writing in the first century BCE, mentions Egyptian houses of four and five stories in Diospolis Magna (i.e., Thebes) (*Bibliotheca historica* I.45; trans. Murphy 1985). A seven-story building (*οἰκία ἑπτὰ σντεγός*) at Hermopolis is mentioned in Papyrus Oxyrhynchus 34, 2719, of the third century CE (Bowman 1986: 146). Otherwise, legal documents occasionally mention different rooms of houses and their functions (F. Arnold 2003: 134-138).

Archaeology and chronological development

A large number of Late Period, Ptolemaic, and Roman tower houses have been excavated, especially in the Nile Delta and Fayum, although some are also known from the Nile Valley. Particularly in the Delta, levels above the foundations or ground floors are rarely preserved due to the actions of the *sebakhin* (those who dig up ancient mud brick for use as fertilizer), who removed massive amounts of earth, for use as fertilizer, from archaeological sites in the nineteenth and early twentieth centuries (Bailey 1999: 211-213). The ground plans of the excavated structures are square, rectangular, or L-shaped, paralleling shapes already seen in the house models and which are still seen in tower houses in Yemen today (F. Arnold 2003: 183, fig. 113).

Archaeology helps elucidate the development of the Egyptian tower house over time. The earliest excavated examples of Egyptian tower houses date to the end of the Third Intermediate Period at el-Ashmunein,

where the shift towards houses with much wider walls can be seen in the archaeological stratigraphy (across excavation levels 3 and 1b, Spencer 1996b: 216, 219). Similar changes can be found at Elephantine (Krekeler 1996: 109; F. Arnold 2015: 160, fig. 7.5) and Karnak (Lauffray 1995; Masson 2007, 2014). It seems that the next step in their architectural development was a foundation divided into three rectangular compartments, as found in buildings of probably Persian date (ca. 525 – 404 BCE) from Tell el-Dabaa (Lehmann 2021: 313-314). Thereafter, these rectangular spaces were subdivided into smaller square or rectangular compartments, and the typical casemate foundation evolved (fig. 4). This brought advantages in terms of the conservation of labor and materials, as the compartments were filled with soil or rubble

instead of solid brick. Earlier houses were often built standing separately, while later they more often abutted other buildings.

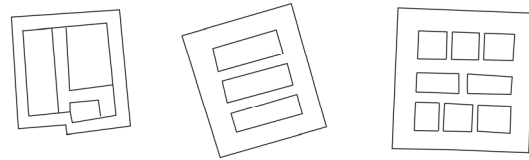


Figure 4. Chronological development of the casemate foundation in Egypt: earliest at left, more recent at right.

Excavated examples of casemates deriving from different building types from Late Period levels are known mainly in the Delta (Table 1).

Table 1. Sites of known Late Period tower houses, or their foundations.

Site	Source
Kom Firin	N. Spencer (2014b)
Naukratis	A. J. Spencer (2011); Thomas and Villing (2013); Thomas et al. (2013); Thomas (2015)
Buto	Hartung et al. (2003); Hartung et al. (2007); Hartung et al. (2009); Ballet et al. (2011); Marouard (2014)
Sais	P. Wilson (2006, 2011)
Tell el-Muqdam	Redmount and Friedman (1993, 1997)
Kom el-Ahmar	Kenawi ed. (2019)
Tell el-Balamun	A. J. Spencer (1996a, 1999a, 2004); Spencer and Herbich (2006)
Tell Tebilla	Mumford (2002, 2013)
Mendes	K. Wilson (1982); Redford (2005, 2010)
Tanis	Leclère (2008: 447-449); Montet (1933, 1942); Brissaud and Zivie-Coche (1998, 2000)
Tell Iswid	Midant-Reynes and Buchez (2014)
Nebesheh	Petrie (1888)
Defenneh	Petrie (1888); Leclère and Spencer (2014)
Tell el-Dabaa	Lehmann (2021)
Bubastis	Lange (2011); Lange-Athinodorou (fc.)
Tukh el-Qaramus	Snape (1986: 17-27)
Tell Retaba	Rzepka et al. (2011); Rzepka et al. (2015); Rzepka et al. (2017)
Tell el-Maskhuta	Holladay (1982, 2004); Paice et al. (1996)
Tell Ghaba	Fuscaldo and Lupo (2007); Herbich (2013); Lupo ed. (2016)
Tell el-Herr	Valbelle and Abd el-Maksoud (2007); Marchi (2014a, 2014b); Defernez et al. (2017)

In the Ptolemaic Period the increase in population led to the foundation of new cities in the Fayum and the repopulation of abandoned settlements in the Delta (Lehmann 2021: 43-47). At this time casemate structures

were often built with vaulted basements that were used as cellars. Entrances of the houses were therefore mainly erected in the first floor, with staircases leading up to them. This remained the case in the Roman Period.

Ptolemaic tower houses were often built with surrounding annexes, not found in earlier times, containing silos, ovens, or stables (Boak and Peterson 1931; Krekeler 1996; Fassbinder, Kühne, and Flossmann-Schütze 2015). Some of the best-preserved examples of tower houses derive from the Ptolemaic Period and still have upper stories preserved at sites such as Karanis (Boak and Peterson 1931) and Tebtunis (Gallazi and Hadji-Minaglou 2000; Rondot 2004; Hadji-Minaglou 2007).

Most of the Late Period settlements listed above continued to be inhabited in the Ptolemaic Period, thus preserving tower houses from the Late Period. Resettled sites with Ptolemaic tower houses can be found in the Delta at, for example, Kom el-Gir and Mit Ya'ish. In the Fayum, better preserved examples can be found, and some tower houses are known from the Nile Valley (see Table 2). Roman Period examples are known from Palestine.

Table 2. Sites of known Ptolemaic and Roman Period tower houses, or their foundations.

Site	Source
Kom el-Gir	Schiestl and Herbich (2013); Schiestl (2013)
Mit Ya'ish	Farid (1966)
Qasr Qarun	Davoli (1998: 301-323)
Soknopaiou Nesos	Boak (1935)
Karanis	Boak and Peterson (1931); Davoli (1998: 73-116)
Tebtunis	Gallazi and Hadji-Minaglou (2000); Rondot (2004); Hadji-Minaglou (2007)
Bacchias	Piacentini (1996); Davoli (1998: 117-137)
Philadelphia	Viereck and Zucker (1926); Viereck (1928); Nowicka (1969); Davoli (1998: 139-148)
Kom Medinet Ghoran	Davoli (1998: 217-222)
Oxyrhynchus	Petrie (1925); F. Arnold (2003: 174)
Memphis	Petrie (1909: pl. XXVII); Belova (2012); Belova and Ivanov (2016)
Tuna el-Gebel	Flossmann-Schütze (2011, 2014); Fassbinder, Kühne, and Flossmann-Schütze (2015)
Luxor	Abdul-Qader (1968); Grossmann (1973)
Medinet Habu	Hölscher (1934; 1954: 38-39)
Edfu	Alliot (1933: 12-14; 1935); Bruyère et al. (1937); Michałowski et al. (1938); Michałowski et al. (1950)
Elephantine	Krekeler (1996); F. Arnold (2003)
Syene	Müller (2012)
Philae	Haeny (1985: 214-215)
Tafah	Weigall (1907: 64, pl. XXIII.1)
Palestine	Hirschfeld (1998); F. Arnold (2003: 174)

In Late Antiquity and the Medieval Period, changes occurred in the development of tower houses in Egypt and Sudan (described in detail, and with further literature, by F. Arnold 2003: 174-175). Pan-bedded brickwork fell out of use, the outer walls were built straight rather than sloping, and the basements were not employed as cellars so that the entrances were

once again found at street level. The tower house was now often integrated into monasteries or hermitages. While the Islamic courtyard-house slowly superseded the tower house (F. Arnold 2003: 190), scattered examples could still be found in later times, for example at Rosetta and Dakhla, and in Suakin (Sudan), where examples dating from the

sixteenth to the nineteenth centuries were documented (Lézine and Abdul Tawab 1972; Greenlaw 1995; F. Arnold 2003: 176; Schijns 2008).

Many travelers to Egypt in the eighteenth and nineteenth centuries saw not only

contemporary tower houses but also ancient examples that had not yet been leveled, at sites such as Esna, visited by Denon in 1802 (fig. 5; Denon 1802), and Bubastis, recorded by Naville in the 1880s (fig. 6; Naville 1891).

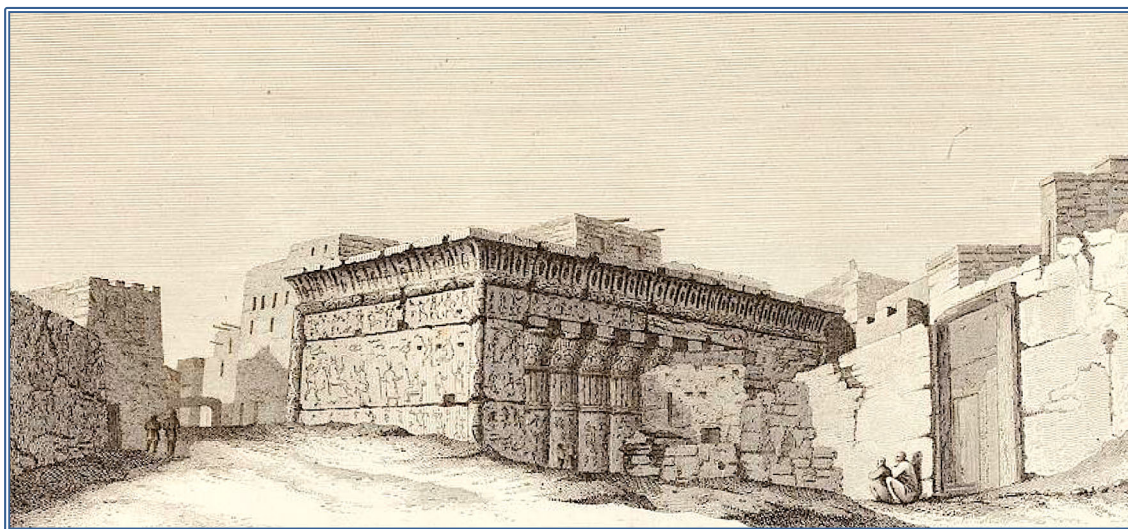


Figure 5. Tower houses in the background of the Esna Temple, drawn by Denon in 1802.



Figure 6. Remains of tower houses in Bubastis in 1880.

Modern parallels and trade links

The distribution of known tower houses, plotted on a map, shows their spread across the Nile Delta and Valley, the southern Arabian Peninsula, in what is today Saudi Arabia, Yemen, and Oman, and in Ethiopia, with the above-mentioned representations on Axumite stelae. It becomes clear that these places were all linked anciently through the incense trade route across the Red Sea and through the Nile Valley (Groom 1981; Singer 2007; Willeitner 2013).

The oldest confirmed traces of tower houses in the Arabian Peninsula date to around 800 BCE (F. Arnold 2003: 176-177; Leiermann 2009: 24-26). Tower houses are still built today in many countries of the Middle East such as Yemen, Oman, Saudi Arabia, and Morocco, either with mud bricks or with rammed earth (*jalus*) (see Table 3, which sorts known tower houses by time period). Numerous variants and

local styles are apparent (Lehmann 2013: 19-24). Some of the modern tower houses are still remarkably similar in some respects to the tower houses of ancient Egypt. This is especially the case in southwestern Saudi Arabia, particular Najran and the region of the Hadramaut in Yemen, where the tower houses of Shibam, Sanaa, and Tarim are located. A detailed comparison has to take into account that the modern Islamic societies of Yemen and Saudi Arabia are of course fundamentally different from those of Pharaonic Egypt. Nevertheless study, especially of the upper stories and the arrangement of the roofs, can give interesting insights into features no longer preserved in the ancient houses (Lehmann 2013; 2021: 605-615). In addition, the ways in which people use, and interact with, architecture, as well as technical details of building methods and materials, can be explored.

Table 3. Sources of known tower houses by time period.

Tower House Sources	Third Intermediate Period	Late Period	Ptolemaic Period	Roman Period	Late Antiquity	Medieval Period	1800 – 1900 CE	Modern
Depictions	Nimrud tile	House models	House models, Nile mosaic of Palestrina	Herculaneum, Pompeii, Papyrus Oxyrhynchus XXIV 2406			Denon (1802)	
Texts			Herodotus, Diodorus	Papyrus Oxyrhynchus XXXIV 2719				
Architectural remains excavated in Egypt and Nubia	Ashmunein, Lisht, Karnak	Throughout the Delta	Delta, Fayum, Nile Valley	Delta, Fayum, Nile Valley	Medinat Habu, Edfu, Philae	Akoris, Edfu, Thebes, Esna, Nubia	Esna, Thebes, Rosetta	
Architectural remains and functional architecture in Arabia and Eritrea	Shabwa, Raybun, Tamna, and Hajar Bin Humeid in Yemen and Saudi Arabia	Saudi Arabia and Yemen	Saudi Arabia and Yemen	Axum, Eritrea, Saudi Arabia, and Yemen	Saudi Arabia and Yemen	Saudi Arabia and Yemen	Saudi Arabia and Yemen	Saudi Arabia, Yemen, Oman, Morocco

Why Tower Houses Developed

Various explanations for the appearance of tower houses in Egypt have been offered. One common explanation is that the inundation of the Nile was higher in the Late Period, which resulted in the placement of buildings on a higher platform as protection against the flood and moisture (Nowicka 1969: 52; Szafranski 2003; Małecka-Drozd 2012: 81-82). This reasoning weakens, however, when one considers that historically settlements tended to be built in areas where a normal inundation would not reach the dwellings. Mud brick as a construction material is not water-resistant without further coating. A mud-brick building would not be able to withstand lengthy exposure to water, and the damage to the foundation would result in the building's collapse. The tower houses in the Nile Valley and the Fayum were not as adversely affected by the floods as were those in the Delta, and yet they had similar massive foundations.

An alternative explanation for the presence of tower houses takes into account the increase in population in the later periods of Egyptian history, especially in the cities, the lack of space perhaps forcing people to build taller houses (Butzer 1976: 81-98; Kraus 2004: 233; Müfid 1932: 1-3; Ricke 1932: 4). This argument rests on three main assumptions: that the tower house was mainly a "city" form; that there was a lack of available space for building; and that land was more expensive in cities. Scholars have often considered buildings with several stories to have been mainly a city phenomenon, with houses in villages being larger and consisting of just one or two stories (Badawy 1968: 15-35; Nowicka 1969: 105-139; Roik 1988: 51; D. Arnold 1994: 100; Busch-Sperveslage 1999: 13). This differentiation is difficult to test, however, as complete settlements in Egypt are rarely excavated and upper stories are often not preserved; therefore reconstruction of house and inhabitant numbers are merely speculative. From the Late Period onward it can be shown that tower houses were built in larger and smaller settlements alike (Nowicka 1970: 56). Similarly, in modern Yemen tower houses are built in both cities and villages (Leiermann 2005: 4).

Lack of space might indeed have been a factor in some places such as the island of Elephantine. It cannot, though, have been the only factor, as tower houses were built in areas where there seems to have been minimal restriction of space, for example at Syene and Buto, and also Tell el-Dabaa, where a large area of a formerly abandoned settlement was reoccupied using tower houses. That a higher population led to an increase in prices of land, with some texts indeed showing that the prices in cities were higher than in the countryside, would conceivably have made houses with more stories a popular choice (Luckhard 1914: 40; Maehler 1983: 120-121).

A further explanation for the development of the tower house in Egypt relates to its potentially defensive nature. From the end of the New Kingdom onward, more and more cities began to have perimeter walls, and dwellings were more often built inside temple enclosures, suggesting a growing need for defence at a time when foreign powers were increasingly conquering Egypt (F. Arnold 2003: 177, 190; Nowicka 1970: 57; Assmann 1996: 435; Leiermann 2009: 4). The compact and massive character of the tower house, combined with the lack of windows in the basement, suggests it was more easily defensible than the tripartite or courtyard house of earlier times. Tower houses were also advantageous for storing larger volumes of goods (F. Arnold 2003: 177). It is noteworthy, too, that the defensive aspect of tower houses seems to have played a role in their functionality in modern Yemen (Leiermann 2009: 4).

Climatic conditions may constitute an additional potential factor in the development of Egyptian tower houses, as the high rooms are conducive to a more pleasant room-temperature (as paralleled, for example, in modern Yemen: Leiermann 2009: 91), although dramatic climatic change is not attested in the period in which the houses become popular.

Finally, it can be posited that the tower house was a natural outcome of gradual technological advances that may have allowed for the vertical growth of dwellings over time.

Already in the Middle Kingdom, and especially in the New Kingdom, examples of two- and sometimes three-story houses are known (Spence 2004). Unfortunately, the poor preservation of upper stories impedes the study of these buildings, but the step from buildings with two or three floors in the New Kingdom to four or five in the Late Period would not be so big.

In general, it can be said that no one reason alone is likely to have influenced the evolution of the tower house, but that it was rather the result of a combination of factors. Increasing population and the ability to build taller buildings, along with the need for better defence, seem generally to be the most convincing factors.

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- Figure 1. Drawing of glazed tile N2067 from Nimrud, now in the British Museum. (Drawing and copyright by the author.)
- Figure 2. Detail of the Nile mosaic of Palestrina showing tower houses, some of them incorporated in the temenos wall of a temple. The mosaic is now in the Museo Nazionale Prenestino in Palazzo Barberini, Palestrina, Italy; (Public domain via Wikimedia Commons: <https://commons.wikimedia.org/wiki/File:NileMosaicOfPalestrina.jpg>)
- Figure 3. Drawing of the ground plan of a possible tower house, based on a representation in Papyrus Oxyrhynchus XXIV 2406, second century CE. (Drawing by the author, after: <http://163.1.169.40/cgi-bin/library?e=d-000-00---0POxy--00-0-0--0prompt-10---4-----0-11--1-en-50---20-help---00031-001-1-0utf-00&a=d&c=POxy&cl=CL3.4&d=HASH2c7454ba6d7f9104daa235>)
- Figure 4. Chronological development of the casemate foundation in Egypt: earliest at left, more recent at right. (Drawing and copyright by the author.)
- Figure 5. Tower houses in the background of the Esna Temple, drawn by Dominique Vivant Denon in 1802. (Denon 1802, Vol. 3: pl. XXXI, no. 1.)
- Figure 6. Remains of tower houses in Bubastis in 1880. (Naville 1891: pl. II.)