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The Mamluk Fortifications of Egypt

Introduction

Apart from the Qāyṭbāy citadel in Alexandria, little is known about the Mamluk fortifications in Egypt, and it is our intention that our article will fill this gap by presenting an initial assessment on the subject.¹ Those writers who have in the past studied Mamluk architecture in Egypt did not show much interest in the military architecture itself and even less so if that military architecture was outside Cairo. Doris Behrens-Abouseif, the most eminent specialist, focused on the architecture of Cairo and, in particular, on religious architecture. Michael Meinecke does mention the construction texts found on military buildings, but his main concern wasn't this kind of architecture. In fact, even the focus of the Mamluk fortifications experts themselves has remained on Bilād al-Shām.²

With regards to the etymology and the vocabulary used in the Middle Ages for defining military constructions, the hierarchical importance of certain buildings is not always apparent. For example, in medieval sources no distinction is made between the terms *burj*, *ḥiṣn*, and *qal'ah*.³ The terminology we use includes terms that are more subtle than those used in Arabic literature.⁴ The castle or *ḥiṣn* is a very rarely-used term in Egypt, unlike the term *qaṣr*, which although often used,

¹This study is drawn from a research program supported by the French Institute of Archaeology in Cairo (IFAO) from 2007 to 2012. The author would like to thank for her support the former Director of Arabic Studies at the IFAO, Dr. Sylvie Denoix.

²Benjamin Michaudel, "Les refortifications ayyoubides et mameloukes en Syrie du Nord (fin XIIe-début XIVe siècle)" in *La fortification au temps des Croisades* (Rennes, 2004), 179–88; Kate Raphael, "Mighty Towers and Feeble Walls: Ayyubid and Mamluk Fortifications in the Light of the Decline of Crusader Siege Warfare," *Crusades* 9 (2010): 147–58; *Burgen und Städte der Kreuzzugszeit*, ed. Mathias Piana (Petersberg, 2008); Nicolas Faucherre, "La forteresse de Shawbak (Crac de Montréal): Une des premières forteresses franques sous son corset mamelouk" in *La fortification au temps des Croisades*, ed. Nicolas Faucherre, Jean Mesqui, and Nicolas Prouteau (Rennes, 2004), 43–65; Kate Raphael, *Muslim Fortresses in the Levant: Between Crusaders and Mongols* (New York, 2011), 52–80; Jean Mesqui, *Châteaux d'Orient* (Milan, 2001).

³Two main sources: al-Maqrīzī, *Kitāb al-Sulūk li-Ma'rifat Duwal al-Mulūk*, ed. Muḥammad Muṣṭafā Ziyādah (Cairo, 1942), and idem, "Description Topographique et Historique de l'Égypte," trans. Urbain Bouriant, *Mémoire de la Mission Archéologique Française* 17 (Paris, 1900); Ibn Iyās, *Histoire des Mamelouks Circassiens*, trans. Gaston Wiet (Cairo, 1945).

⁴"Glossary of Muslim military architecture," in Stéphane Pradines, *Guidebook of Muslim fortifications in Egypt*, forthcoming.



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DOI: [10.6082/M1XS5SJQ](https://doi.org/10.6082/M1XS5SJQ). (<https://doi.org/10.6082/M1XS5SJQ>)

DOI of Vol. XIX: [10.6082/M1HH6H5C](https://doi.org/10.6082/M1HH6H5C). See <https://doi.org/10.6082/Y9V3-8H75> to download the full volume or individual articles. This work is made available under a Creative Commons Attribution 4.0 International license (CC-BY). See <http://mamluk.uchicago.edu/msr.html> for more information about copyright and open access.

does not refer to a fortress but rather to the large mansions and palaces of Cairo. In rural settings, particularly in oases, the *qaṣr* designates the old mud-brick city, which is often situated atop a promontory. *Qal'ah* and *burj* are the most commonly used terms in literature on Egypt. The smallest structure in our list of military architecture vocabulary is the fortified tower or the watchtower, followed by the small fort or barrier fort, a stand-alone structure which defends the sole crossing point on a thoroughfare. *Burj* (*burg* in Egyptian Arabic) is used to describe a tower or a small fort as per the Western definition. The fort or stronghold contained a garrison, which is generally situated atop a hillock and can serve as a blockhouse or as a redoubt.

We have gone back to using European terminology,⁵ without, however, restricting the use solely to those terms that relate exclusively to the West, such as “castle” and “donjon” (keep or master tower). In the West, we used the term “castle” more frequently than in the East, where “fortress” was more common. In terms of size, a fortress can be considered as a “big” castle or *qal'ah* (pl. *qal'āt*). The term *qal'ah* was also used for the “citadel,” which is a fortification that overlooks a city and often straddles its city wall. The function of the citadel is not only to protect the city, but also to control it in order to suppress any internal subversion or revolt. The arsenal can be included within either the fort or the citadel, and it is occasionally located in the city, without being afforded any particular protection, because the city itself is protected by either a citadel or a wall. The city walls or *sūr* are the final element in our fortification typology; the curtain wall, flanked by arrow-slit niches and projecting towers, provides protection for the whole city. More specific terms exist to define elements of the fortification; thus *khandaq*, or the ditch in front of the walls; the *bashūrah*⁶ refers to a barbican in front of a door; and *bāb al-sirr* or *bāb al-khalfī*, which refer to the postern gates.

In Greater Syria, the Mamluks no longer built city walls but used a network of forts to defend their borders.⁷ They reused old Muslim fortresses and Crusader castles.⁸ The same phenomenon could be seen in Egypt, with cities no longer being fortified or at least with very little fortification, the Mamluks preferring instead to use forts to defend the borders of the empire and the trade routes. In Egypt, the fortifications spread considerably, both quantitatively and geographically, across the whole territory (Fig. 1). However, unlike in the West, where there

⁵ Jean Mesqui, *Châteaux et enceintes de la France médiévale* (Paris, 1991, 1993).

⁶ The *bashūrah* is also a bent entrance.

⁷ Luz Nimrod, “Tripoli reinvented: a case of Mamluk urbanization,” in *Towns and Material Culture in the Medieval Middle East*, ed. Yaacov Lev (Leiden, 2002), 57.

⁸ Reuven Amitai-Preiss, *Mongols and Mamluks: the Mamluk-Īlkhānid War, 1260–1281* (Cambridge, 1995), 217.



were just as many castles and lords as there were villages,⁹ Egypt was different. The amirs preferred to live in palaces right in the center of the capital city of Cairo. This was the urban elite, who would only leave the city in times of battle, and this was particularly true of *al-mamālik al-sultānīyah*, or the Royal Mamluks. A direct result of this way of life was that the Mamluk fortresses were always constructed by royal patronage rather than individual commissions.¹⁰

Following a presentation of the fortification policies of the Mamluk territories, we will present the different types of Mamluk fortifications in their geographical setting within the Egyptian territory.

1. The Sultans and Fortification Policies of the Territory

1.1 Sultan Builders, Patronage, and War

We can divide the military construction activity of the Mamluk period into three main phases with five sultans. The first phase corresponds to the Crusades and to Sultan al-Zāhir Rukn al-Dīn Baybars (r. 658–76/1260–77), and, subsequently, to Sultan al-Manṣūr Sayf al-Dīn Qalāwūn (r. 678–89/1279–90). The second phase corresponds to the Mediterranean maritime battles with Sultan al-Ashraf Sayf al-Dīn Barsbāy (r. 825–41/1422–38) and Sultan al-Ashraf Qāyṭbāy (r. 872–901/1468–96). Finally, the third phase is defined by Sultan al-Ashraf Qānṣūh al-Ghawrī (r. 906–22/1501–16), who was responsible for the reform of the Mamluk army to face Turkish and Portuguese threats.

Following a victory at Damietta, the Crusaders under King Louis IX of France (“Saint Louis”) were roundly beaten in the Nile Delta in 1250. During the major battle of Fāraskūr, close to Manṣūrah, the Crusaders were defeated by Baybars (who was only an amir at that time). A period of instability ensued and Sultan Aybak was murdered by Sultan al-Muẓaffar Sayf al-Dīn Quṭuz (r. 657–58/1259–60), and he, in turn, was assassinated by Baybars. In addition to being a great warlord, Sultan Baybars was also a great tactician and he would become the first architect of Mamluk military history.¹¹ In 1260, Quṭuz and Baybars defeated the Mongols at the Battle of ‘Ayn Jālūt in Palestine.¹² After these decisive battles, the Mamluks went from stronghold to stronghold with one victory after another, and the little Armenian kingdom of Cilicia was defeated in 1266. The conquest of Antioch followed and then, in 1271, the Crusader castle known as the “Crac des Chevaliers”

⁹ Georges Bischoff, “Histoire et fonctions des châteaux forts,” in *Châteaux forts en France: entre fantasmies et réalités*, Dossiers d’archéologie 349 (Dijon, 2012), 20–29.

¹⁰ David Ayalon, *Gun Powder and Fire Arms in the Mamluk Kingdom* (London, 1956).

¹¹ Stephen Humphreys, “The Emergence of the Mamluk Army,” *Studia Islamica* 45 (1977): 67–99 and 46 (1977): 147–82.

¹² Amitai-Preiss, *Mongols and Mamluks*, 26–48.



was captured.¹³ Baybars re-introduced the horse post, which had become obsolete during the Ayyubid period. Post stations for the horses were set up at intervals of either 17 km or 30 km. Messages were also delivered by carrier pigeons, with large pigeon lofts being installed on the northeast towers of the Cairo Citadel. It was also Sultan Baybars who started the tradition of the caravan for the hajj with the “Procession of the Palanquin,” which sanctified the pilgrimage from Cairo.¹⁴ Forts were built all along the pilgrimage route to Mecca. In fact, Baybars was one of those rare Mamluk sultans who was interested in having a war fleet.¹⁵ He commissioned the building of galleys and sailing ships in Alexandria and Damietta. Baybars also strengthened the defensive and surveillance measures along the Mediterranean coast, as a Crusader invasion of the Nile Delta remained a real threat.

Sultan Qalāwūn was the second Mamluk sultan to have an effective defense policy for the territory. Ever mindful of security, he commissioned the building of fortresses and watchtowers throughout the kingdom. His son Khalīl was to play an important role in Crusader history as he wrested the town of Saint Jean d’Acre from the Crusaders in 1291. This was to prove a decisive victory for Muslims in the Holy Land.

Following a period of relative peace, two events were to traumatize the Mamluks and galvanize the army into increasing its strength through the practice of military exercises or *furūsīyah*. First was the Cypriot raid on Alexandria in 1365, when the city was completely sacked. After this attack, the port defenses were rebuilt.¹⁶ This raid was to have consequences for the organization of Mamluk defense as the Syrian coastal defenses were razed to the ground so as to prevent the enemy from settling in these cities. Only the Egyptian harbors were saved from this policy. Secondly, in 1401, Tamerlane and his army plundered Damascus and one part of the Mamluk kingdom. Egypt narrowly escaped a real catastrophe and the Mamluks reorganized their army at the beginning of the fifteenth century.¹⁷

It is against this backdrop that Sultan Barsbāy wrote the sweetest chapter of Mamluk naval warfare. At this time, the raids from the Catalan and Cypriot pirates were becoming more and more frequent along the Syrian and Egyptian

¹³ Jean Mesqui, “La fortification des Croisés au temps de Saint-Louis au Proche-Orient,” *Bulletin Monumental* 164, no. 1 (2006): 5–29.

¹⁴ Jacques Jomier, “Le Maḥmal et la caravane égyptienne des pèlerins de la Mecque: XIIIe-XXe siècles,” *Recherches d’archéologie, de philologie et d’histoire* 20 (1953).

¹⁵ David Ayalon, *Gun Powder and Fire Arms in the Mamluk Kingdom* (London, 1956).

¹⁶ André Clot, *L’Égypte des mamelouks: L’empire des esclaves (1250–1517)* (Paris, 1996), 125.

¹⁷ Robert Irwin, “Gunpowder and Firearms in the Mamluk Sultanate Reconsidered,” in *The Mamluks in Egyptian and Syrian Politics and Society*, ed. M. Winter and A. Levanoni (Leiden, 2004), 117–39.



coastlines. Barsbāy commissioned the reconstruction of the city wall of Alexandria with all new towers. The fort's garrison comprised between two hundred and three hundred men. Then Barsbāy decided to relaunch the Būlāq arsenal,¹⁸ with new ships being built around 1424. Subsequently, the Mamluks gained control of the sea from Cyprus. After taking Limassol, the entire island was then conquered in 1426. Thereafter, it was the Ottomans that posed the threat by arriving at the gates of the Mamluk Empire in 1467. Sultan Qāyrbāy continued the coastal fortification work by commissioning the construction of a new citadel in Alexandria in 1479 and he reinforced the whole of the Egyptian coast with small forts or towers located at Abukir, Rosetta, and Damietta.

At the start of the sixteenth century, the Mamluk empire was being pressurized on three fronts: first, it was confronted in North Syria by the Ottoman expansion, then in the Mediterranean Sea by the European corsairs, and, finally, in the Red Sea by the Portuguese.

In 1501, Sultan al-Ghawrī emerged as the great reformer of Mamluk warfare. The sultan arranged the repair of the fortresses of Alexandria and Rosetta and commissioned the building of new forts throughout the whole of Egypt. Al-Ghawrī further raised taxes to complete these projects satisfactorily and he also introduced new duties and explored rather clandestine ways of raising revenue in order to cover the military expenses of the projects undertaken.¹⁹ The fortifications put in place by Sultan al-Ghawrī are indicative of a policy of defense and control of the Egyptian territory. Starting in 1508, the sultan built or renovated several forts at Aqaba, in the Sinai at Nakhil, Nuweiba, and Tur, as well as in the Isthmus of Suez at Ajrud and on the Mediterranean coast at Tina.

In 1502, the Portuguese, who discovered the sea route to India, cut off access to the Red Sea by the Bāb al-Mandab Strait. Cairo sent an expeditionary corps in 1505 to confront this threat. The amir Ḥusayn Mushrif al-Kurdī had the city of Jeddah refortified in 1507 because Western forces were threatening the holy cities of Mecca and Medina, as well as the security of the hajj and trade with the Indian Ocean. In 1506, the Mamluks drove the Portuguese back from Jeddah. Following several victories, the Mamluks ventured forth into the Indian Ocean and, in 1509, they suffered a bloody defeat at Diu,²⁰ a strategically placed port in Gujarat. The Mamluks cooperated with the Venetians who viewed this Portuguese presence as

¹⁸ The al-Fuṣṭāṭ shipyard stopped its activities during the reign of al-Nāṣir Muḥammad ibn Qalāwūn; see Stéphane Pradines, "Le Qalat al-Qabsh et les forteresses abbasides d'Égypte," *Journal of Oriental and African Studies* 23 (2015): 86–87.

¹⁹ Carl Petry, "Military innovations of Sultan Qansuh al-Ghawri: Reforms or Expedients?" *Al-Qantara* 14, no. 2 (1993): 447–50.

²⁰ Jean-Louis Bacqué-Grammont and Anne Kroell, *Mamlouks, ottomans et portugais en Mer Rouge: L'affaire de Djedda en 1517* (Cairo, 1988), 1–11.



a threat to the economic monopoly they enjoyed over products imported from the Red Sea, which were re-sold in the Port of Alexandria. The Mamluks built a war fleet in Suez comprised of sailing ships and galleys. Although without cannon at the beginning, the Mamluk ships were later equipped with firearms by the Venetians who also contributed ships that had been assembled in the Suez arsenal. The Venetians provided the Mamluk soldiers with three hundred arquebuses. The Suez fleet was ready for action in 1515. After several battles, the opposing navies remained at a status quo, with the Red Sea remaining under Egyptian control, whilst the Indian Ocean fell under Portuguese control.²¹

However, on land, the Mamluks were not as successful. In 1516, the Ottoman Sultan Selim I won the Battle of Marj Dābiq, to the north of Aleppo. It was after this battle that Sultan al-Ghawrī died. The Mamluk sultan al-Ashraf Ṭūmanbāy (r. 922–23/1516–17) continued his predecessor's policy, authorizing more and more cannon to be cast. Light firearms, arquebuses, and muskets (*bunduq* and *tufek*) were in widespread use. However, it was too late, because in 1517 Sultan Selim I (r. 918–26/1512–20) won the Battle of Raydanīyah, north of Cairo. Sultan Ṭūmanbāy fled but was pursued and finally captured in the Nile Delta, after which he was executed and his head hung at Bāb Zuwaylah.

1.2. Firearms: Cannons and fortifications

According to al-Qalqashandī, the first cannons were used in Cairo in 1365 and in Alexandria in 1376.²² There was widespread use of gunpowder and artillery by the Mamluk army as far back as the reign of Sultan Qāyṭbāy. The arquebuses (*al-bunduq al-raṣāṣ* or *al-bunduqīyah*) were introduced into Egypt around 895/1490. The Mamluk army regarded the use of these firearms to be dishonorable and, for them, it was only the exploits of the cavalry that mattered.²³ Sultan Qāyṭbāy upheld this tradition in that, apart from a few exceptions, the use of firearms was minimal during battle.

²¹ On the Portuguese in the Indian Ocean, see Stéphane Pradines, *Fortifications et urbanisation en Afrique orientale*, Cambridge Monographs in African Archaeology 58 (Oxford, 2004), 60–82.

²² Robert Elgood, *Firearms of the Islamic world in the Tareq Rajab Museum* (London, 1995), 23–29; David Ayalon, *Gunpowder and Fire Arms in the Mamluk Kingdom* (London, 1956); Robert Irwin, “Gunpowder and Firearms in the Mamluk Sultanate Reconsidered,” in *The Mamluks in Egyptian and Syrian Politics and Society*, ed. M. Winter and A. Levanoni (Leiden, 2004), 117–39.

²³ This remark may be true for the fourteenth and early fifteenth century, but should be moderated for the fifteenth and early sixteenth century; see Albrecht Fuess, “Les Janissaires, les Mamlouks et les armes à feu: Une comparaison des systèmes militaires ottoman et mamlouk à partir de la moitié du quinzième siècle,” *Turcica* 41 (2009): 216–17.



At the beginning of the sixteenth century, the nature of warfare changed, with both the Ottomans and the Portuguese using firearms extensively,²⁴ compared to the Mamluks who struggled to modernize their army, being trapped in a complex social and military system. Sultan al-Ghawrī introduced major changes in his army by using personal firearms and artillery. He decided that his army should expand the use of firearms and he created new military units that specialized in the use of these firearms. This represented a social and cultural revolution which ran contrary to the *furūsīyah* and against the traditional organization of the army that was the backbone of Mamluk society. Al-Ghawrī ordered the construction of a cannon foundry in southern Cairo.²⁵ The cannon used were bombards made up of two sections soldered together which discharged stone balls. The sultan often visited the foundry and took part in the shooting exercises, sometimes with unfortunate consequences. The cannon, being too heavy and inadequately soldered, often exploded. However, despite these technical problems, production of these artillery pieces continued. In 1516, the sultan supplied Alexandria with two hundred firearms.²⁶ Unlike in Europe, the use of firearms was not going to change the morphology of Mamluk fortifications. The building's central structure still remained rectangular and was flanked by circular towers at the corners. Only a few internal embrasures were modified and enlarged in order to accommodate the cannon. The cannon embrasures were easily recognizable by their portholes through which the cannon muzzle was aimed and the chase jutted out.²⁷

As for the infantry, it was Sultan al-Ghawrī who introduced the widespread usage of the arquebus into his army. The Fifth Corps (*al-ṭabaqāt al-khāmīyah*) of his army was created in January 1511.²⁸ In the beginning, this corps comprised approximately three hundred men, all equipped with arquebuses. These soldiers were not highly regarded and their income was at least half that of the others. The arquebusiers were either black slaves or North African soldiers and this unit met with real hostility from the regular troops who regarded them as inferior and lacking in military training. Nicknames such as “motley” army and “false army”

²⁴ The Ottomans had been using firearms since the Battle of Kosovo in 1389. In Europe, the first mention of cannon being used was during the Battle of Crécy in 1346. The Ottomans used bombards and arquebuses and the role of artillery was to prove decisive in the siege of Constantinople in 1453. The use and production of these firearms were influenced by the contact with Italian, German, and Hungarian artillerymen.

²⁵ Francesca Dotti, personal communication. The exact location of the foundry is undoubtedly on the Istabl Antar plateau, possibly even on the site of the Muḥammad ‘Alī gunpowder factory; see S. Pradines, “Muhammad Ali’s fortifications,” forthcoming.

²⁶ Petry, “Military innovations,” 447–50.

²⁷ Mesqui, *Châteaux et enceintes* (Paris, 1991), 85–87.

²⁸ Ibn Iyās, *Histoire des Mamelouks Circassiens*, trans. Gaston Wiet (Cairo, 1945), 4:200, 260.



were a clear sign of the regular army's disdain for them.²⁹ However, according to Ayalon, the decision of the sultan to provide these new recruits with these new weapons was based not on a fear of breaking with the traditions of the *furūsīyah*, but rather on his fear of being dethroned by his own Mamluks using these powerful weapons. The Mamluks did not wish to modernize their army not just because of the “dishonorable” aspect but also because they were afraid that the use of firearms would destabilize their hierarchical system.

2. Mamluk Fortresses of Egypt

We have chosen to present the Mamluk fortifications from a geographical perspective because these buildings were subject to territorial control policies. Moreover, the same fortification could have had several phases of construction and occupation, which is why we considered it more sensible to take this regional approach. First of all, we will consider the Nile Delta and the Mediterranean coast up to Cairo; then the Isthmus of Suez and the Sinai routes; and finally the forts along the Red Sea coast.

2.1 The Nile Delta and the Mediterranean Coast

Al-ʿUmayd

Even though in his *Muslim Architecture of Egypt* Creswell rarely ventures outside the Cairo city limits, he does happen to mention, rather surprisingly, a Mamluk fort called Qaṣr al-ʿUmayd³⁰ which no longer exists today. The fort was located 72 km to the west of Alexandria and six leagues to the west of Burj al-ʿArab. The site is mentioned for the first time by Granger in 1730 and was the subject of a drawing by Pacho in 1824 (Fig. 2). The inscription above the entrance was recorded in 1847. Qaṣr al-ʿUmayd was destroyed around 1870–80, during the construction of a modern lighthouse. The stones from the fort were reused for the foundations of this lighthouse. The last mention of the fort was in 1885. However, from the descriptions and the engravings that are available, we are able to gain some insight into this building. The fort was erected on the edge of the sea and its square shape was flanked by non-projecting quadrangular towers at each corner. The building comprised two stories and the main gate was built from reused antique pink granite. Over the doorway façade was an in-round sculpture of two lions passant surrounding an inscription in relief over the entrance. The name of Aḥmad al-Tāḥir al-Yasmur appears on the inscription, as it was he who had the castle built for Sultan Baybars (ca. 1260). To conclude, therefore, the style of Qaṣr al-ʿUmayd

²⁹ Clot, *L'Égypte des mamelouks*, 182–85.

³⁰ K. A. C. Creswell, *Muslim Architecture of Egypt* (Oxford, 1959), 2:175–77.



could be compared to the Burj al-Sibāʿ in Lebanon.³¹ This tower, known as the “Tower of the Lions,” was, we believe, built during the reign of Baybars and is a majestic, two-story edifice, built to protect the Port of Tripoli.

Alexandria

The Citadel of Alexandria, like the Citadel of Cairo, is one of the most important medieval fortifications of Egypt. Its imposing presence right in the heart of the city has tended to eclipse other fortifications built in Alexandria.³² Before gaining a better understanding of the military architecture of this city, a grasp of the city’s planning and topography is needed. The walls of this medieval city date back to the Tulunid era, even though the walls that are now visible are more recent, being most certainly from the Fatimid and Ayyubid eras.³³ They follow the original outline which corresponds approximately to the boundaries of the Greco-Roman settlement. The city had two ports, on both sides of an isthmus, which was urbanized during the medieval period. The western port was reserved for the mooring of Muslim ships. It was the military port, linked to the administrative and religious power.³⁴ The eastern port was used for the mooring of foreign ships, of either the *Rūmīs* or the infidels. Confining these ships here served two purposes, one security and the other economic, as the customs office, where duties were paid, was located near the entrance of the harbor. The Mamluk sultans took care of the city walls, as evidenced by Sultan Baybars having these walls reinforced in 1260.³⁵ In 1268, the sultan also had a small fort built to protect the western

³¹ Mathias Piana, “The Mamluk Defence System of the Levantine Coast” in *Ports and Forts of the Muslims: Coastal Military Architecture from the Arab Conquest to the Ottoman Period*, ed. Stéphane Pradines, forthcoming.

³² Other fortified locations are mentioned in Alexandria, such as Qaṣr al-Silāh and Qalʿat Dirghām. Sultan Jaqmaq ordered the construction of a square tower on the western side of the eastern port; see Kathrin Machinek, “Aperçu sur les fortifications médiévales d’Alexandrie,” in *Historiographie de la Guerre dans le Proche Orient médiéval* (Cairo, 2015), 363–94.

³³ Very similar to some parts of the walls of Cairo, especially Burj al-Zafar; see Stéphane Pradines, “Burg al-Zafar, une architecture de passage, des Fatimides aux Ayyoubides,” in *21st Colloquium on the History of Egypt and Syria in the Fatimid, Ayyubid and Mamluk Eras* (Ghent, 2016), 51–119.

³⁴ Doris Behrens-Abouseif, “Topography of medieval Alexandria,” in *AlexMed 2*, ed. C. Décobert (2002), 118–21; Michel Tuchscherer, “Bab al-Bahr ou Porte de la Marine, un quartier commercial en déclin dans Alexandrie intra-muros (1550–1650),” in *Histoire, archéologies, littérature du monde musulman: Mélanges en l’honneur d’André Raymond* (Cairo, 2009), 58.

³⁵ Michael Meinecke, *Die mamlukische Architektur in Ägypten und Syrien Teil II: Chronologische Liste der mamlukischen Baumaßnahmen, Abhandlungen des DAI Kairo* (Glücksstadt, 1992), 6; Muḥammad ibn Qāsim al-Iskandarānī al-Nuwayrī, *Kitāb al-ilmām*, ed. A. S. ‘Aṭīyah (Hyderabad, 1970), 130–79.



harbor.³⁶ In 1302, an earthquake caused the collapse of seventeen of the city wall towers and Sultan al-Manṣūr Nāṣir al-Dīn Muḥammad (r. 762–64/1361–63) rebuilt these walls. Following the Cypriot attack of 1365, Sultan al-Ashraf Zayn al-Dīn Shaʿbān (r. 764–78/1363–77) requested that the city walls be repaired.³⁷ The costs of the repairs were to be covered by the local authorities, the governor, and the city dignitaries,³⁸ but these works were not completed due to a lack of funds. This was quite a rare occurrence, because the vast majority of Egyptian fortifications were royal commissions. Later on, Sultan al-Ghawrī had the city wall pierced with four gateways. The city walls of Alexandria were visible until 1818, before being covered by the modern city. Now there only remain a few sections in public gardens.

Sultan Qāyṭbāy ordered the construction of a citadel on the ruins of the lighthouse of Alexandria.³⁹ The objective of this citadel was twofold, both to protect the city and to ensure the safe passage of the ships in the harbors. The construction manager was Amir Qajmās al-Ishāqī and the master mason was apparently a German from the Mainz region.⁴⁰ The construction work lasted two years, from 882/1477 to 884/1479, and cost more than 100,000 dinars. Ibn Iyās mentions that the financing of these works and the soldiers' salaries came from the *waqfs*.⁴¹

There is a massive square donjon or master tower in the center of the citadel with four circular corner towers, which were small in diameter with a solid base (Fig. 3). Two Qāyṭbāy blazons, dating from 1479, surround the doorway and face southwards.⁴² The entrance comprises a diamond-encrusted, vaulted porch, similar to the one on the Tina fort. The straight entrance is divided into two bent or right-angled passages, one on the right and the other on the left. The main chamber on the ground floor comprised four *īwāns*, with a small mosque which is situated in the center of the building and illuminated by a skylight. It is difficult to provide a description for the brattices or the projecting balcony as these elements were reconstructed by the Comité de Conservation des Monuments Arabes in 1938, using an engraving from *La Description de l'Égypte* as a template. This master tower or keep, a veritable fort in itself and detached from the curtain wall, is also rather special in that it was apparently built atop the ruins of the lighthouse of Alexandria (Fig. 4). The citadel is surrounded by a large curtain wall almost

³⁶ Evliya Çelebi, *D'Alexandrie à Rosette d'après la relation de voyage d'Evliya Çelebi 1672*, trans. J.-L. Bacqué-Grammont in *Alexandrie ottomane 2*, chap. lxxvii, 2.

³⁷ Ibid.

³⁸ Machinek, "Aperçu sur les fortifications médiévales d'Alexandrie," 372–78.

³⁹ Ibn Iyās, *Histoire des Mamelouks*, 3:132, 155, describes the garrison as well as the weapons, cannon, and mangonels. Also see al-Maqrīzī, *Kitāb al-Sulūk*, 445.

⁴⁰ Kathrin Machinek, *Le fort de Qaitbay Alexandria* (2009), 5–6.

⁴¹ Meinecke, *Die mamlukische Architektur*, 411; Ibn Iyās, *Histoire des Mamelouks*, 146–48.

⁴² Kathrin Machinek, *Petit guide du fort Qaytbay à Alexandrie* (Alexandria, 2009), 23–26.



hexagonal in shape and pierced with semi-circular towers quite small in diameter. The main entrance has a south-westerly aspect and faces the isthmus that connects the fortress with the city. The end result is a citadel whose general layout comprises a large central donjon surrounded by a concentric city wall. This is the layout, with some variations, that is also seen in Rosetta and Tina.

At the beginning of the sixteenth century, Sultan Qānṣūh al-Ghawrī organized the restoration of the fort in order to counter the Ottoman threat in the Mediterranean. A decree promulgated by this sultan appears in an inscription which was inserted above a postern gate and dates from 1501.⁴³ According to this decree, the borrowing of arms stored in the citadel was prohibited and the theft of arms was punishable by death. In 950/1514, Sultan al-Ghawrī visited Alexandria with his amirs in order to inspect the works being carried out on the ancient Citadel of Alexandria. The sultan watched some military training with cannon-shooting maneuvers. The Citadel of Alexandria was endowed with a new wall, which surrounded the first one.⁴⁴ This new wall was flanked by large semi-circular towers and a bastion facing towards the harbor in the southeast. The bastion and the large circular tower to the north were very wide structures which could accommodate heavy artillery pieces. Blockhouses with embrasures were positioned along the coast to the northwest and northeast. A new gateway—*chatelet*—was built in the axis of the main door of the first wall. This projecting gateway was very similar to the one built for the Aqaba Fort by Sultan al-Ghawrī.⁴⁵

Finally in the nineteenth century, the citadel was modernized by Muḥammad ʿAlī. Unfortunately, it was to be severely damaged during the Egyptian rebellion led by Aḥmad ʿUrābī, when the British fleet inflicted severe damage on Alexandria during its heavy bombardment on 11 July 1882. Thereafter, the Citadel was no longer used for military purposes. The fortification was restored by the Comité in 1938 with major anastylosis on the higher parts. Other works were also undertaken by the Supreme Council of Egyptian Antiquities between 1980 and 2000.

⁴³ Max van Berchem, *Mémoires publiés par les membres de la Mission Archéologique Française au Caire: Matériaux pour un Corpus Inscriptionum Arabicarum*, ed. M. Chassinat (Paris, 1903), 490–91, n. 321.

⁴⁴ Manuele Fior et al., “La forteresse du sultan Qaitbay à Alexandrie,” in *Alexandrie médiévale* (Cairo, 2008), 313–46; Kathrin Machinek, *Sondages archéologiques au fort Qaytbay à Alexandrie*, 347–67; idem, *Petit guide du fort Qaytbay à Alexandrie*, 8–9.

⁴⁵ Denys Pringle, “The Castles of Ayla (al-ʿAqaba) in the Crusader, Ayyubid and Mamluk Periods” in *Egypt and Syria in the Fatimid, Ayyubid and Mamluk Eras*, vol. 4, ed. U. Vermeulen and J. Van Steenbergen (Louvain, 2005), 333–53.



Rosetta

The first fortification of Rosetta was a watchtower built in 1260–61 on the initiative of Sultan Baybars.⁴⁶ Subsequently, the fort was completely rebuilt by Sultan Qāyṭbāy.⁴⁷ According to Ibn Iyās, the building works on the citadel were completed in 884/1459. The construction manager was the famous Amir Khāyir Bāy al-ʿAlāʾī.⁴⁸ In the sixteenth century, Sultan al-Ghawrī made improvements to the fortifications and they were inspected in 922/1515.

The citadel is located on the western bank, to the north of the modern city of Rosetta. It controlled the city's harbor and, in particular, protected a major estuary of the Nile. The layout of the Mamluk fortification is very simple: a donjon surrounded by a quadrangular wall with four circular towers located in the corners (Fig. 5). Incorporated within the curtain wall is a series of firing vaulted chambers. Two stairs, situated in the northeast and northwest corners, provide access to the curtain wall parapets. The main entrance is located to the south and the decorated porch way is composed of many reused pharaonic elements.

The central keep dates back further than the curtain walls. Its internal layout is patently reminiscent of the Citadel of Cairo towers, which date from 604/1207. These Ayyubid towers, with narrow corridors and multiple firing chambers, are well known in Syria at the citadels of Bosra and Damascus.⁴⁹ This leads us to believe that the central section of the Rosetta fort dates back to Sultan Baybars and is directly connected to an Ayyubid tradition.⁵⁰ The origins of the Rosetta central keep are connected to the military evolution of the Syrian-Ayyubid towers and citadels that, expanding over the curtain walls, became autonomous defensive buildings such as the Tripoli tower in Lebanon⁵¹ or the Qaṣr al-ʿUmayd in Egypt, with its quadrangular corner towers which project slightly from the main building. The curtain wall of Rosetta Fort is more recent and undoubtedly dates back to the time of either Qāyṭbāy or al-Ghawrī. It is associated with the use of powder weapons with large vaulted firing chambers and cannon openings. At the end of the fifteenth century, all the Mamluk fortifications on the Mediterranean coast had become vulnerable due to their high keeps. Each tower was therefore tightly “boxed in” by a wall equipped with chambers for cannon fire. The Rosetta Fort is

⁴⁶ Al-Maqrīzī, *Kitāb al-Sulūk*, 445; Meinecke, *Die mamlukische Architektur*, 9, n. 4/13.

⁴⁷ David Nicolle, *The Mamluks, 1250–1517* (Oxford, 1993), 44.

⁴⁸ Meinecke, *Die mamlukische Architektur*, 464, 469; Naguib Amin, *The Historical Monuments of Egypt, Volume 1: Rosetta* (Cairo, 2008), 190–93.

⁴⁹ Cyril Yovitchitch, *Forteresses du Proche-Orient, l'architecture militaire des Ayyoubides* (Paris, 2011), 190–201.

⁵⁰ David Ayalon, “From Ayyūbids to Mamlūks,” *Revue des études islamiques* 49, no. 1 (1981): 43–57.

⁵¹ Mathias Piana, “The Mamluk Defence System of the Levantine Coast,” in *Ports and Forts*, ed. Pradines.



based on the same architectural design as the Citadel of Alexandria and its layout is reminiscent of the Tina Fort with its central nucleus, and we will return to this layout design in our conclusion.

Finally, in 1799, Napoleon's army occupied this building and renamed it Fort Jullien.⁵² To the west, two towers were turned into polygonal bastions using red brick, a typical construction material of this period.⁵³ The arrow-slits and crenels were closed up and pierced with murder-holes to enable firing with muskets. The Rosetta Fort would have warranted a complete archaeological study just for itself, but this has proven difficult because of the rather heavy-handed restorations undertaken by the Egyptian Antiquities in 1985.

Damanhūr

Primary sources also cite other cities along the western delta as having Mamluk fortifications,⁵⁴ which were built either as crossing points or strategically important positions. Thus, in the western delta, Damanhūr had been a provincial capital since the Fatimid era. Apparently this city, which was a stop on the caravan route between Cairo and Alexandria, prospered with the advent of the Mamluk postal service between those two cities. At the beginning of the sixteenth century, Sultan Barqūq rebuilt these fortifications as a defense against attacks from the bedouins in the region.⁵⁵

Damietta

Damietta became the most important trading port in Egypt during the Ayyubid period, that is between the twelfth and thirteenth centuries. Situated on the eastern mouth of the Nile, the Port of Damietta was the destination for all the merchandise coming from the capital, and goods that originated from the Indian Ocean and passed through the Red Sea. Just like Tinnis, Damietta was a production center for textiles and it remained the premier manufacturing center for linen fabric. Many merchants and diplomats from Genoa, Pisa, Florence, and Venice frequented the city. Of course, the prosperity of the port caused envy, and attacks from the Corsairs were not infrequent. Thus it was that the navy of the King of Sicily plundered the Port of Damietta in 1155. Moreover, Damietta was a prime target for the Crusaders, because whoever controlled this city controlled the Nile. The Crusaders attacked the port in 1169 but they were pushed back by Saladin's

⁵² It was during the French fortification works in 1799 that the Rosetta Stone was discovered.

⁵³ Stéphane Pradines, "The French fortifications in Egypt, 1798–1801," *Forts* 42 (2014): 106.

⁵⁴ Al-Maqrīzī, *Kitāb al-Sulūk*, 1:2:372; Ibn Iyās, *Badā'i' al-Zuhūr fī Waqā'i' al-Duhūr*, ed. Muḥammad Muṣṭafā (Wiesbaden, 1972), 3:132, 155.

⁵⁵ Wan Kamal Mujani et al., "The Effects of the Bedouin Marauding on the Mamluk Economy (872–922AH/1468–1517AD)," *Middle-East Journal of Scientific Research* 7 (2011): 71–80.



troops. The Chain Tower, known as the Burj al-Silsilah, blocked access to the Nile, and it was located to the north of the port, outside the medieval agglomeration. In 1218, the Chain Tower was captured, thus opening access for foreign ships. The following year, the port was besieged and occupied by the Crusaders.⁵⁶ Damietta was also the target of the Seventh Crusade, which was led by Louis IX. His fleet arrived in 1249 and captured the city. However, after the battle of Fāraskūr and the capture of Louis IX, the Crusaders were forced to surrender Damietta.⁵⁷

Little is known about the Mamluk fortifications in Damietta. Louis IX apparently modelled the ramparts of Aigues-Mortes on the layout of the ramparts in this Egyptian city, namely an enclosure wall protected with semi-circular towers. The old Damietta city of the Crusader times was located to the northeast of the present-day city. Sultan Baybars was responsible both for relocating Damietta to its current position of several kilometers to the southwest of the old city, and for enhancing its defense by means of much more imposing fortifications.⁵⁸ In the fourteenth century, Sultan Qāyṭbāy embellished the city with new mosques and buildings. It is likely that he restored a section of the fortifications in the same way that he restored other coastal cities which formed part of his coastal protection policy.

Umm Mufarrah

Situated in a creek to the east of the present-day Port Fu'ād is a Mamluk fort, half of which has been destroyed by coastal erosion. Its name is Qal'at Umm Mufarrah and it was built by Barsbāy.⁵⁹ This small fort is more like a tower or a watchtower in a creek, evidence of an old mouth of the Pelusiac branch of the Nile delta.

Tina

Although nowadays it has its administrative center in Sinai, to the northwest of the village of Baluza, the Fort of Tina used to provide defense for the eastern edge of the Nile delta, beside the ancient Pelusiac river mouth and the old city of Pelusium (now called Farama). The Port of Tina was established 3 km to the north of the ancient city, as the coastline had shifted towards the north due to the silting up of the bay and the disappearance of the Pelusiac river mouth.

⁵⁶ For the Crusader capture of the city of Tinnis and the building of a fort on Lake Menzalah, see James de Vitry in David Nicolle, *Crusader castles in the Holy Land* (Oxford, 2008), 210–12.

⁵⁷ Jean Richard, *Histoire des Croisades* (Paris, 1996), 310–18.

⁵⁸ David Ayalon, *Gunpowder and Fire Arms in the Mamluk Kingdom* (London, 1956), 9; M. Reinaud, “Histoires des guerres des croisades sous le règne de Baibars, sultan d’Égypte, d’après les auteurs arabes,” *Journal Asiatique* 11 (1827): 4–5.

⁵⁹ Al-Maqrīzī, *Kitāb al-Sulūk*.



Apparently the Tina agglomeration was established at the beginning of the thirteenth century under al-Kāmil (r. 1218–38). The site extended over two hectares. Around 1424–25, a first watchtower (*burj*) was built on the initiative of Sultan Barsbāy. In 1460–61, he also undertook further fortification works.⁶⁰ In 1508–9, Sultan al-Ghawrī transformed the tower into a real fort (*qal'ah*), to counter the threat of piracy from the Knights of Rhodes and of invasion from the Turks under Sultan Selīm I. From then onwards the Fort of Tina was used under the Ottomans with a garrison ever present right up to the start of the eighteenth century, which goes some way towards explaining why it was in such a good state of conservation compared with the surrounding medieval conurbation, which was totally in ruins.⁶¹ From 1920 until the 1970s, only the central keep was visible, with the rest of the building being silted up by sand.⁶² The Fort of Tina was completely uncovered by the Egyptian Antiquities⁶³ during excavations at the site between 1989 and 1996. The six towers of the curtain wall were uncovered in 1993. One year later, the inspectors of Egyptian Antiquities discovered not only a *hammām* incorporated within one of the towers, but also a large quantity of weapons dating from the Mamluk to the Ottoman periods. Many small stone cannonballs were discovered in the central courtyard of the keep. The balls were made from limestone, pink granite, and white marble reclaimed from the antique site of Pelusium.

The fort is made up of two parts, a central donjon surrounded by an octagonal external wall with towers at each corner (Fig. 6). Incorporated within the curtain walls are niches or firing chambers with the embrasures facing towards the sea. The layout of this star-shaped fortress is very modern and normally seen in artillery forts of the eighteenth century. The curtain wall was flanked by eight semi-circular towers, which jutted out slightly to stave off artillery fire. The entrance is situated to the south, between two towers, turned toward the mainland. A mosque was built *intra muros*, on the west side, against the wall and between two

⁶⁰ Ibn Iyās in Shmuel Tamari, "Qal'at al-Tina in Sinai, an historical-architectural analysis," *Annali Instituto universitario orientale* 16 (1978): 78.

⁶¹ Katia Cytryn-Silverman, "The Settlement in Northern Sinai during the Islamic Period," in *Le Sinai, de la conquête arabe à nos jours*, ed. J. M. Mouton (Cairo, 2001), 15–21.

⁶² The first archaeological reference for Tina can be traced back to Jean Clédat, "Notes sur l'Ithsmes de Suez XIX," *Bulletin de l'Institut français d'archéologie orientale* 22 (1923): 171–79 and plates pp. 2–3. The site formed part of a study by Ben Gurion University in 1974 which was published by Shmuel Tamari (1978) in seventy-eight pages and fifteen plates.

⁶³ Refer to the non-published excavation reports of Rafa'a al-Tahir Ahmad, Ahmad Mahir al-Bazawy, Namir 'Auda Muḥammad, and A'dad al-Sayid Muḥammad. See Sāmī Ṣāliḥ 'Abd al-Mālik, "Les citadelles ayyoubides et mameloukes du Sinai: Etude archéologique et architecturale" in *La Guerre dans le Proche-Orient medieval*, ed. M. Eychenne and A. Zouache (Cairo, 2015), 289–362.



towers. In the center of the enclosure stands the remains of the keep, also with an octagonal plan. The entrance to the south of the donjon has a very beautiful porchway under a diamond-shaped vault supported by stuccoed pendentives. The porchway is surrounded by two small chambers and two stairs providing access to the stories which have now disappeared. The porch of Tina is very similar to the gate of the master tower in Alexandria. The entrance leads to a central and octagonal courtyard, with five large *īwāns* placed all around this central point. It is also quite likely that the central courtyard had a central skylight like in Alexandria.

The whole of this fortified site really has a feeling of great architectural cohesion and it is difficult to separate the donjon from the wall from a chronological perspective, unlike Alexandria and Rosetta (Fig. 7). The layout of this site is unique for Egypt and for all the Near East. Nonetheless, the link between a central donjon and its surrounding wall with casemates is typical of the typology that we established for the coastal Mamluk forts in Egypt. Nowadays, we can mention similar examples in others parts of the world. On the Muslim side, the Castle of Jalāl al-Dīn is located in Khurasan, in the proximity of Jājarm in the north of present-day Iran. The construction of this building dates back to circa 1361–85. It was built following an Anatolian model, as it was the land of origin of the lords' castle.⁶⁴ In actual fact, the layout of the Fort of Tina is more in keeping with that found in the Holy Land than in either Persia or Central Asia. In fact, around 1160, a new generation of Frankish castles was to appear. The Crusaders used a concentric layout with one or several walls protecting a central donjon.⁶⁵ The Fortress of Arsūf, built in 1241, belongs to these concentric citadels and presents some similarities with Tina.⁶⁶ In its size and layout, the Fort of Tina also resembles that of the famous Castel del Monte,⁶⁷ which was built in 1240 by Frederick II. Although situated in Italy this building has links with Egypt by the history of its commissioner. Frederick II led the Crusade in 1228–29 and enjoyed cordial relations with the sultan al-Kāmil. Just like the Castel del Monte, the Fort of Tina is a small marvel, very sophisticated in its design and a true witness to the cultural and technical exchanges between East and West.

⁶⁴ David Nicolle, *Saracen strongholds AD 1100–1500, The Central and Eastern Islamic Lands* (2009), 32 and 41.

⁶⁵ Ronnie Ellenblum, *Crusader Castles and Modern Histories* (Cambridge, 2007), 236.

⁶⁶ Israël Roll and Benjamin Arubas, “Le château d’Arsur: forteresse côtière pentagonale du type concentrique du milieu du XIII^e siècle,” in *L’architecture en Terre sainte au temps de Saint Louis*, *Bulletin monumental* 164:1 (2006): 67–81.

⁶⁷ Heinz Götze, *Castel del Monte: Geometric Marvel of the Middle Ages* (New York, 1998).



2.2 The Citadel of Cairo

Cairo, the capital city of the Mamluk Empire, was also central to the delta and a strategic communication conduit between Lower and Upper Egypt. Except for the short-lived Ayyubid interlude with the Island of Rhoda Fortress, it was in 1250 that the Mamluk sultans reinstated the “mountain” citadel as the permanent seat of their royal power. The Mamluks carried out many modifications inside the citadel including new palaces, a great mosque, aqueducts, and stables to name a few, but the sole focus of our study is its fortifications. It has to be said that since Casanova’s and Rabbat’s research there have been no major studies carried out on the architecture of the Citadel of Cairo during the Mamluk era.⁶⁸

Under Mamluk control, the Citadel of Cairo was not as isolated as it was under the Ayyubids. Then, it was surrounded by desert with only the rocky plateau of Muqaṭṭam and the Qarafah cemetery nearby, whereas under the Mamluks, the citadel had close links with the city. The austere military building had become a leisure and entertainment center. Concerning Mamluk fortifications, two main phases can be identified at the citadel: one at the end of the thirteenth century and the other at the beginning of the sixteenth century.

The ancient Ayyubid gateway of Bāb al-Mudarraġ (the Gate of Steps) retains traces of some of the Mamluk sultans who had renovated the citadel. Three marble plaques with inscriptions were attached to the façade of the curtain wall just in front of the entrance to Bāb al-Mudarraġ: the first one is dedicated to Sultan al-Zāhir Jaqmaq (r. 842–57/1438–53), the second one to Sultan Qāytbāy, and the last one to al-ʿĀdil Sayfī al-Dīn Ṭūmanbāy in 1501. The bent entrance has walls and vaults that are covered with several layers of lime.⁶⁹ Several inscriptions and painted blazons are attributed to al-Nāṣir Muḥammad (r. 698–741/1299–1341) (Figs. 8 and 9). The major works of al-Nāṣir, in the middle of the fourteenth century, however, cannot be classed as fortification undertakings. They had more to do with development and improvement of the residential areas and those areas restricted for use by the ruling class.

⁶⁸Paul Casanova, *Histoire et description de la citadelle du Caire, Mémoires des Membres de la Mission archéologique française du Caire*, Vol. 6 (Paris, 1897), 509–781. Only Creswell’s studies dealt with the Citadel during the Ayyubid era and military architecture. Rabbat published his work on the history of the Citadel during the Mamluk era in which he describes the different buildings. However, this was not a study of military architecture; see Nasser Rabbat, *The Citadel of Cairo: A New Interpretation of Royal Mamluk Architecture* (Leiden, 1995).

⁶⁹Some inscriptions are hidden beneath more recent layers. The walls and the ceiling, having started to crumble, revealed these ancient paintings. It would be very interesting to restore this gate and to clear away some layers in order to discover new inscriptions that would help us to understand the history of the citadel.



It was Sultan Baybars who was responsible for the current appearance of the citadel by dividing it into two main enclosures (Fig 10).⁷⁰ The sultan created a military section on one side and on the other, a section reserved for the palace and administrative center. The northern enclosure was reserved for the garrison and the troops, whilst the southern enclosure housed a palatial complex containing mosques, palaces, a *dīwān* for public audience, and a library.⁷¹ The main palace faced southwest and towards the horse market and Rumaylah Square. There was tight security around the access to the royal enclosure. First of all, visitors entered the northern enclosure by means of the Ayyubid gate of Bāb al-Mudarraġ and then headed in the direction of the southern enclosure by passing by the Bāb al-Qullah (the “Water Jug Gateway”).⁷² This gateway was situated right in the center of the wall that divided the two enclosures. Baybars ordered the construction of a tower known as the Burj al-Qullah. This donjon, which no longer exists today, was situated near the old palace. To the northwest of the present-day museum of the Egyptian police is the tower known as Burj al-Sibā‘ (the Tower of the Lions). Unfortunately, this tower, which was also known as Burj al-Zāwiyah (the Corner Tower),⁷³ was razed to the ground in the nineteenth century. Nonetheless, there is still evidence of a beautiful frieze of lions passant and some facing lions (Fig. 11). This tower was built adjacent to the external façade, which bears the carving of an Ayyubid double-headed eagle. These emblems were pointed towards the city and overlooked the pathway cut through the rock allowing access to the Bāb al-Mudarraġ. These heraldic signs are clear demonstrations of royal power connected to the main access to the citadel.

Sultan Qalāwūn (r. 1279–90) continued to build several palaces. He transformed several Ayyubid flanking towers into barracks for his officers. In 1283, the sultan ordered the construction of a “great tower” known as the Burj al-Manṣūrī, next to the Bāb al-Sirr.⁷⁴ According to Nasser Rabbat, this tower would have been found

⁷⁰ William Lyster, *The Citadel of Cairo: A History and Guide* (Cairo, 1993), 22–23.

⁷¹ Ibid. Lyster talks about the East and West Enclosures, with the East being reserved for the military and corresponding to our Northern Enclosure. Lyster’s Western Enclosure is the Mamluk sultans’ residential area and corresponds to our Southern Enclosure. It is true that the four cardinal directions do not correspond exactly to the locations of the enclosures; however, we prefer to use the terminology “North-South” which was established by K. A. C. Creswell and which is that most commonly used by researchers working on medieval Cairo.

⁷² This Mamluk gate has disappeared and was replaced, during the Ottoman reign, by another known as Bab al-Qullah.

⁷³ There is still some confusion regarding the original name of the “Tower of the Lions.” Was it the Burj al-Zāwiyah (see *L’Art Mamelouk: Splendour et magie des sultans* [2001], 78), the Burj al-Ruknah, or the Burj al-Shakḥṣ (as was proposed by Rabbat, *Citadel of Cairo*, 123–25)?

⁷⁴ Bāb al-Wuṣṭanī during the Ottoman period.



under the current Burj al-Wuṣṭanī;⁷⁵ we think that this tower should be placed therefore more to the north, according to the map of *Description de l’Égypte*, where a massive circular tower is reported but no longer exists.⁷⁶ Thereafter, the conqueror of Acre of the Crusades, Sultan al-Ashraf Khalīl (r. 689–93/1290–93), built a remarkable building, known as the Burj al-Rafrāf (the Canopy Tower), which overlooked Rumaylah Square. This tower served mainly as an observation point, a belvedere, or a leisure pavilion offering panoramic views of the city.⁷⁷

Sultan al-Nāṣir Muḥammad was reinstalled on the throne and reigned for the third time from 1310 to 1341. Throughout this lengthy period, this sultan proved himself to be a great builder.⁷⁸ His improvements to the palaces, the public baths, the gardens, and the fountains all needed a great deal of water, which was cruelly lacking in this area, and so, beginning in 1311, the sultan commissioned the construction of a large aqueduct to carry water from the Nile to the citadel. On its north-south edge, the aqueduct leans against the old Ayyubid city wall. To the north of Fustat, the aqueduct forks out towards the west, towards the mouth of the canal and opposite the Island of Rhoda. Inside the southern enclosure of the citadel, the sultan commissioned the construction of several palaces, the most notable of which was the Qaṣr al-Ablaq (the Striped Palace), which was built between 1313 and 1315. This building comprises a monumental façade with large *īwāns*⁷⁹ and a multi-colored facing, with black and white courses. This section was reserved for administrative and political functions held by the sultan, and it contained a throne room and the Dār al-ʿAdl, the Palace of Justice.⁸⁰ The viewing platform of the Burj al-Rafrāf shows a second stage of construction, which is very clearly visible on the exterior facing of the citadel. A stone stairwell, added in 1314 onto the western façade, provided access to the enclosure below and to the stables for the sultan and his court. The sultan then added another enclosure at the foot of the citadel and to the west. This enclosure overlooks Rumaylah Square, with access from the Bāb al-Silsilah (the Gate of the Chain).⁸¹ This enclosure mainly housed the royal stables and granaries. In 1335, the sultan also built a new great mosque, which was opposite Bāb al-Qullah, and sited on the old Ayyubid mosque

⁷⁵ Rabbat, *Citadel of Cairo*, 141–43.

⁷⁶ *Description de l’Égypte, Etat moderne*, vol. 1, Carte du Caire, pl. 26.

⁷⁷ Nicholas Warner, *The Monuments of Historic Cairo: A Map and Descriptive catalogue* (Cairo, 2005), 185.

⁷⁸ Doris Abouseif, *Cairo of the Mamluks* (Cairo, 2007), 149–90.

⁷⁹ This survived right up until the time of the French expedition, when its monumental granite columns were depicted in an engraving in *La Description de l’Égypte, Etat moderne*, vol.1, Le Diwan de Joseph, pl. 70.

⁸⁰ Lyster, *The Citadel of Cairo*, 25–32, 91.

⁸¹ Bāb al-ʿAzab during the Ottoman period.



known as al-Kāmil. This great mosque was built in two stages, one in 1318 and the other in 1335.⁸² At the southern edge of the citadel, the sultan created a large residential area known as the *hawsh*, with several residences and harems for the royal family.

There is one building that was constructed just after the reign of Sultan al-Nāṣir Muḥammad which piqued our curiosity. That building was the *khānqāh* of Nizām al-Dīn, dating from 757/1356. This *khānqāh* was built on rocky foothills to the north of the citadel. This building is located in an isolated and extremely defensive location. According to Nicholas Warner, the building was apparently modified under French occupation and murder holes were added on the top of the wall.⁸³ We cannot be certain about when the murder holes were added, but we can say that the French did occupy the place known as the Martinet Fort.⁸⁴ The map of Cairo published in the *Description de l’Égypte* clearly shows an Ottoman wall that connected this *khānqāh* to Bāb al-Wazīr and to the citadel. Thanks to its position, this building has always therefore had a defensive purpose.

Other minor re-fortification modifications were undertaken during the fifteenth century, the only traces of which are two inscriptions on marble plaques attached to the facing of the curtain wall in front of the Bāb al-Mudarraǰ. The two inscriptions describe the building works of the two sultans Jaqmaq (1438) and Qāyrbāy.

At the beginning of the sixteenth century, Sultan al-Ashraf Janbalāt (1500–1) fortified the citadel, and his main focus was the northern enclosure. Janbalāt reinforced the curtain walls for protection against artillery fire, with the addition of a buffer zone extending from the Burj al-Saḥrā to the Burj al-Aḥmar. He ordered the building of an artillery platform in the middle of the northern front, which replaced the old Saladin tower. To the northwest, a tower was built atop the Bāb al-Mudarraǰ.⁸⁵ Many posterns and gateways were closed up as protection against a Turkish attack. The postern gates at Burj al-Maṭār and Burj al-Imām were blocked. To the north of Burj al-Muballaṭ, a small postern was closed up by a turret attached to the base of the facing of the curtain wall of the citadel and the rocky plateau.⁸⁶ The final works undertaken by the Mamluks on the citadel can be attributed to Sultan al-Ghawrī and his successor Sultan Ṭumanbāy. In 1508,

⁸² Doris Behrens-Abouseif, “The Citadel of Cairo: Stage for Mamluk ceremonial,” *Annales* 24 (1988): 51–59.

⁸³ Warner, *Monuments of Historic Cairo*, 113.

⁸⁴ Stéphane Pradines, “The French fortifications,” 102, 109.

⁸⁵ Lyster, *The Citadel of Cairo*, 38, 44–45.

⁸⁶ According to Warner, this tower was an Ottoman one; see *Monuments of Historic Cairo*, 180. A study will be undertaken on this building which, from all accounts, seems to date from the late fifteenth or the early sixteenth century.



al-Ghawrī ordered the construction of a new palace to the south of the residential enclosure and created a new hippodrome for military parades and troop training. The aqueduct of al-Nāṣir Muḥammad was restored and modernized by adding a large hexagonal tower at the mouth of the canal (*fumm al-khalīj*). The tower contained huge waterwheels (*saqīyah*), which were used to supply the citadel with water from the Nile. As successor to al-Ghawrī, Sultan Ṭumanbāy was responsible for several minor fortification works that were commemorated on the plaque at the entrance to Bāb al-Mudarraǰ.⁸⁷ These works, which took place in 1516, were simply the continuation and termination of the defense program set in motion by Sultan Janbalāṭ. Despite all these efforts, however, the Ottomans managed to conquer Egypt without carrying out any great siege at the citadel.

2.3 Isthmus of Suez and Sinai Peninsula

Suez

In the Middle Ages,⁸⁸ the Port of Qulzum (Clysma) controlled the upper reaches of the Gulf of Suez, and was built on the ruins of the ancient Greek city of Clysma. In 1154, al-Idrīsī explained that there were two cities called Qulzum, one inland and the other a port, known respectively as *Qulzum castrum* and *Qulzum portus*.⁸⁹ The Port of Qulzum was linked to the Mediterranean Sea by a north-south route which led to Farama (Pelusium).⁹⁰ Qulzum was also linked to Cairo by a caravan route. Following the construction of the Lesseps canal, the plans of 1855–56 show quite clearly the position of Tell Qulzum, to the north of the present-day city of Suez.⁹¹ This tell or *kawm* was already identified on the map drawn up by the French expedition in 1799 (Fig. 12).

In the Middle Ages, Suez was a lifeless city, and its brackish water meant that the caravan stage between Cairo and Damascus was most unpleasant. It was a

⁸⁷ *L'Art Mamelouk*, 70.

⁸⁸ The Port of Qulzum is mentioned by Ibn Khurradādhbih in the ninth century.

⁸⁹ Al-Idrīsī, *La première géographie de l'Occident*, trans. Chevalier Jaubert (Paris, 1999), 331.

⁹⁰ Bernard Bruyère, *Fouilles de Clysma-Qolzoum (Suez) 1930–1932* (Cairo, 1966), 30–35. Other examples exist in Islamic lands of a port and a city separated; in Arabia, for example the port of Yanbu' al-Baḥr had a land-based city, Yanbu' al-Nakhl, situated on the pilgrimage routes; see 'Alī al-Ghabbān, *Les deux routes syriennes et égyptiennes de pèlerinage au nord-ouest de l'Arabie Saoudite* (Cairo, 2011), 197–201. Al-Mas'ūdī mentions a bridge to the north of Qulzum in 956, which straddled a canal and provided passage to Sinai. Nowadays a place situated in the region still bears the name “Kobri” and could correspond to this place; however, because of agriculture and the creation of the Suez Canal, archaeological interpretation has been rendered difficult for us.

⁹¹ The archaeological sites are also visible on the map of the Isthmus of Suez drawn up by Linant de Bellefonds, in his *Mémoires sur les principaux travaux d'utilité publique exécutés en Égypte, depuis la plus haute Antiquité jusqu'à nos jours* (Paris, 1873).



ghostly cesspool right in the middle of the desert. It had also fallen into decay because of the difficulty that the ships had in navigating the Gulf of Suez upstream because of the strong headwinds. Navigators preferred to use the ports of Aydhab and Quseir. Although the city of Suez was just a minor staging point, it nonetheless provided entry to the Red Sea and was in a strategic location. This is why Saladin ordered the building of a small fort (or tower)⁹² in 1181, just at the time of his clashes with Renaud de Châtillon, the Lord of Kérak. The small fort of Suez was restored under Sultan Baybars.⁹³ In the thirteenth century, following their military successes, the Mamluks re-established the North Sinai route, known as the *Via Maris*, all along the coast.⁹⁴ Under the reign of Baybars, the pilgrims would all gather together and follow the Sinai route. The processional caravan, known as the *maḥmal*, which was initiated by Sultans Shajarat al-Durr and Baybars, used the pilgrims' route through central Sinai⁹⁵ from 1268. In 1513, the Mamluks, as the Ayyubids before them had done, transported the component parts of ships across the desert for assembly in the Port of Suez. The Portuguese threat in the Red Sea was no idle threat, and therefore Sultan al-Ghawri deemed it necessary to reinforce the ports and the caravan routes, by ordering the construction of a tower in Suez and a fort in Ajrud.⁹⁶

Ajrud

The Ajrud or Agrud fort (*Manāhil Ajrūd*) is located 20 km to the northwest of Suez⁹⁷ and it was a large stopover before Sinai and the Nakhl Fort. The site is on barren land to the north of the mountains and the eastern desert. The Ajrud Fort was not built by chance; it was specifically positioned on an old site containing an important well and on the caravan route between Suez/Qulzum and Cairo.⁹⁸ Ajrud is situated at the intersection of Cairo, Bilbeis, and Moses's Springs

⁹² Al-Maqrīzī, *Kitāb al-Sulūk*, 1:1:72.

⁹³ Al-Yūnīnī, *Mir'āt al-Zamān* (1992), 257; Ibn Taghribirdī, *Al-Nujūm al-Zāhiraḥ fī Mulūk Miṣr wa-al-Qāhiraḥ* (Cairo, 1929), 5:192; Ibn al-Furāt, *Tārīkh* (1942), 7:72. Texts quoted in Jean-Michel Mouton, "Qolzoum-Suez du commerce au pèlerinage," in *Suez: Histoire et architecture* (Cairo, 2011), 15–44.

⁹⁴ Jean-Michel Mouton, "Autour des inscriptions de la forteresse de Ṣadr (Qal'at al Guindi) au Sinai," *Annales Islamologiques* 28 (1994): 31.

⁹⁵ The central Sinai route shifted up fifty kilometers to the north of Sadr, which facilitated traveling with the creation, by Sultan Baybars, of a station at Tugrat Hāmid; see Jean-Michel Mouton, *Sadr, une forteresse de Saladin au Sinai*, Mémoires de l'Académie des Inscriptions et Belles Lettres 43 (Paris, 2010), 43–44, and idem, "Qolzoum-Suez du commerce au pèlerinage," 32–36.

⁹⁶ Ibn Iyās, *Badā'ī' al-Zuhūr*, 4:366.

⁹⁷ Jomier, "Le Maḥmal," 180–81.

⁹⁸ Bir Suez and Bir Gismel (possibly one and the same wells) were situated five kilometers to the west of the city of Suez. Jean Clédat, "Notes sur l'Ithsmes de Suez XII–XV," *BIFAO* 18 (1921): 185; Bruyère, *Fouilles de Clysmā Qolzoum*, 30.



on the Sinai side. The site is the sole crossing point and its strategic importance was even recognized by Napoleon, who decided to station a garrison there and restore its fortifications.⁹⁹ In the nineteenth century, the explorer Richard Burton also mentioned a garrison of about a dozen men there.¹⁰⁰ In 1884, the demise of Ajrud as a stopover on the caravan route was brought about because the pilgrims could use the railway line that was created in 1858 and that linked Cairo and Suez. Nowadays, what is remarkable is that the ruins of the fort are still visible, and we discovered them wedged between an industrial zone, the railway line, and the Suez motorway. To date, no excavation has been undertaken on this site and the most comprehensive archaeological data that we have is that contained in Jomier's article from 1950. The topography of the site can be divided into three parts, a cemetery, a small fort, and a caravanserai (Fig. 13).

The small fort comprises a rectangular enclosure, which is quite narrow (37 m x 15 m) and has two huge towers located in diagonally opposite corners.¹⁰¹ The center of the southwest façade is surmounted by a square domed tower.¹⁰² This tower does not project out from the wall. The curtain walls were indeed made of limestone. The facing comprised tiles and headers with an infill of rubble stone and mortar. The main entrance is located to the southeast and it looks out onto the courtyard that housed the well; there is an inscription dedicated to Sultan al-Ghawri above the entrance.¹⁰³ This inscription confirmed what we had learned from the writings, namely the construction works of the sultan in Ajrud between 1509 and 1510. Apparently this work was supervised by his favorite master builder, Amir Khāyir Bāy.¹⁰⁴

What is unique about the small fort of Ajrud is, undoubtedly, the fact that there is a well contained in its walls. This well is very deep, in fact originally 70 m deep. It is circular in shape with a diameter of 3.6 m. The well has a slabbed surround on which the beasts of burden circulated in order to carry the buckets of water from the well. The well is extremely sophisticated with its waterwheel (*saqīyah*) standing on two supporting arches. This *saqīyah* was used to raise the water from the depths of the well. Mention was made of the Ajrud Well as early as the ninth century by al-Ya'qūbī¹⁰⁵ as well as by all the travelers who visited this stopover. The Ajrud Well is often described as being very old and very deep. Few wells bear

⁹⁹ Stéphane Pradines, "The French fortifications," 107.

¹⁰⁰ Jacques Jomier, "Ageroud: Un caravansérail sur la route des pèlerins de la Mekke," *Bulletin de la société d'études historiques et géographiques de l'Isthme de Suez* 3 (1950): 55.

¹⁰¹ Clédat, "Notes sur l'Isthme de Suez XII-XV," 186.

¹⁰² At the time of Jomier, "Ageroud," 33–56.

¹⁰³ J. Moritz, "Inscription à Ageroud," *Bulletin de l'institut égyptien* 4 (Alexandria, 1910): 100–1.

¹⁰⁴ Jomier, "Ageroud," 51.

¹⁰⁵ *Ibid.*, 42.



comparison with the Ajrud Well except perhaps Joseph's Well (Bir Yūsuf) in the Citadel of Cairo, which is 87 m deep.¹⁰⁶ The Ajrud site apparently had three or four large cisterns but nowadays only one is visible and this measures 20 m long, 13 m wide, and 3 m deep; this is located between the fort and the caravanserai.

There is an impressive caravanserai, situated 150 m from the fort, which is a fortified building of nearly 60 m on each side (Fig. 14).¹⁰⁷ Although unfortunately now in ruins, this structure must have been majestic with its four circular corner towers measuring 4.5 m in diameter. The entrance is on the southwest façade, and flanked by two semi-circular towers. The central courtyard measures 36 m on each side, with buildings, storerooms, and dwellings built up against the internal façades of the building. These structures were approximately 12 m wide. The plans of this building closely resemble those of the Mamluk post office studied by Sauvaget.¹⁰⁸ Many of these buildings were to be reoccupied or even emulated by the Ottomans all along the pilgrim route.¹⁰⁹

The plan of the Ajrud Fort is almost identical to that of the Bir Gismel published by Clédat several years beforehand (Fig. 15).¹¹⁰ The building comprises a narrow rectangular area with two towers situated in diagonally-opposite corners and it is only the main entrance that is in a different position than the one in the Ajrud Fort. The Bir Gismel Fort protected two wells, not just one as in the Ajrud Fort. Bir Gismel is identified as Bir Clysmā and thus relates to the Suez Well situated approximately 5 km to the northwest of the city,¹¹¹ at the halfway point of the route leading to Ajrud. We have identified the location of the Ajrud Fort and so we should have been able to identify the Bir Gismel Fort; in fact, there is some confusion about the Ajrud and Bir Gismel forts. The presence of two forts of such similar construction is extremely interesting because it indicates a willingness to standardize the military works along the caravan route.¹¹² Now we come to

¹⁰⁶In fact, Joseph's Well is credited as pre-dating the Citadel of Cairo. These claims are impossible to verify without conducting an advanced architectural study of this work. However, it is worth noting that there is a strange similarity between the Well of Joseph and the Ajrud Well.

¹⁰⁷Jomier, "Ageroud," 50.

¹⁰⁸Jean Sauvaget, *La poste aux chevaux dans l'Empire des Mamelouks* (Paris, 1941), 64–65.

¹⁰⁹Al-Ghabbān, *Les deux routes*; Andrew Petersen, "Ottoman Hajj forts," in *Muslim Military Architecture in Greater Syria, from the coming of Islam to the Ottoman Period*, ed. Hugh Kennedy (Leiden, 2006), 307–17.

¹¹⁰Clédat, "Notes sur l'Ithsmes de Suez XIX," 185–86.

¹¹¹Jomier, "Ageroud," 51.

¹¹²Sāmī Ṣāliḥ 'Abd al-Mālik, "The khans of the Egyptian Hajj route in the Mamluk and Ottoman periods," in *The Hajj: collected essays*, ed. V. Porter and L. Saif (London, 2013), 62.



the question of the dating¹¹³ of these works; the inscription published by Moritz¹¹⁴ leaves us in no doubt about the works commissioned by al-Ghawrī on this site, but was it the small fort or the caravanserai? Could it be possible that the plan of the forts with round towers situated in diagonally-opposite corners dates back to the time of Sultan Baybars?

Khān al-Khowinat

Heading in the direction of al-Arish, in the present-day region of Zaraniq, there is a large lake with salt marshes, known as Baldwin Lake (*Sabkhat al-Bardawīl*).¹¹⁵ Tradition has it that it was on the edge of this lake that King Baldwin I died of dysentery on his return from Egypt in 1118. This area has always been a thoroughfare between Palestine and the Nile delta. An Arabian fort was recognized by Clédat in 1914 to the west of the Byzantine city of Ostracine.¹¹⁶ The Supreme Council of Antiquities has recently found and excavated a fortified caravanserai associated with a small village. The caravanserai is square in shape and 50 m on each side (Fig. 16). It has just one entrance to the north, which overlooks a large central courtyard surrounded by porticos. A small mosque was located opposite the entrance (Fig. 17). However, the building is not in a good enough state of conservation for us to be able to confirm whether it was a storied building, even though that is a strong possibility given that the thickness of the walls is more than 1.5 m. The ceramics that we saw make it possible for us to date it to the Mamluk era. We believe that it could be the site of either the city of al-Suwadeh or Uwaradah, which were pillaged and destroyed in the thirteenth century by the Franks.¹¹⁷ This caravan stopover would have been situated between the cities of Farama and al-Arish.¹¹⁸ Moreover, we know that around 1440, the Mamluks commissioned the construction of a series of fortified caravanserais on the trading routes, as far as Galilee.¹¹⁹ To identify the site is quite difficult at this stage in the research process, so for now, it is necessary to mention the presence of an impor-

¹¹³ With regard to the problems of dating the site itself, Ajrud does appear in Arabic sources of the ninth century, but the site is undoubtedly older than that; see Jomier, "Ageroud," 33, 41. Was there a pharaonic occupation? Or could the site appear on the itinerary of the Exodus? These are questions that can only be answered by archaeological excavations.

¹¹⁴ Moritz, "Inscription à Ageroud," 100–1.

¹¹⁵ The ancient Sirbonis Lake.

¹¹⁶ Clédat, "Notes sur l'Ithsmes de Suez VIII–XI," *BIFAO* 17 (1920): 110–11; Jean Clédat, "Fouilles à Khirbet El-Flousiyeh," *Annales du service des antiquités de l'Égypte* 16 (1921): 6–32.

¹¹⁷ Sāmī Ṣāliḥ 'Abd al-Mālik, "Farama," *Mishkāh* 2 (2007): 109–89.

¹¹⁸ Clédat, "Notes sur l'Ithsmes de Suez XIX," 140, 166; al-Idrīsī, "La première géographie de l'Occident," 340; al-Maqrīzī, *Kitāb al-Sulūk*, trans. Bouriant, 669.

¹¹⁹ Nicolle, *The Mamluks*, 42–43.



tant fortified Mamluk caravanserai known as Khān al-Khowinat which was built on the banks of Baldwin Lake.¹²⁰

Nakhl

In the Islamic period, Nakhl was inhabited starting from the Umayyad era,¹²¹ but the site seems to be that of a much older construction, situated at the intersection of the north-south and east-west routes heading towards Sinai, from the old Phara in the Wādī al-ʿArīsh, right up to the Gulf of Suez and towards Ayla in the Gulf of Aqaba. The site retains traces of the Roman occupation and was certainly inhabited as far back as the pharaonic period.¹²²

The fort at Nakhl, which is visible today, was built at the request of Sultan al-Ghawrī (Fig. 18).¹²³ Evidence of this foundation is confirmed by the presence of blazons and an inscription. The fort is sited atop a small archaeological tell, which is now the site of a cemetery and surrounded by several large cisterns. The building is square in shape, measuring approximately 30 m on each side, with four circular corner towers, small in diameter (Figs. 18 and 19). An extra semi-circular tower was added on the eastern façade of the fort. The main entrance of the building is situated in the southeast corner and overlooks a central courtyard that is surrounded by rooms; there is no doubt that these were covered. The eastern section, which is wider and more complex, suggests that it comprised two to three stories and was possibly a type of dwelling abutting the curtain wall and the tower on the eastern side. Like all the other forts commissioned by Sultan al-Ghawrī, the building had a dual purpose, first as a caravan stopover and second as a stopover for the pilgrims heading to Mecca.¹²⁴ It is highly likely that the construction manager of the Nakhl fort was again Amir Khāyir Bāy, since Ibn Iyās mentions “several fortifications” undertaken by Sultan al-Ghawrī dated from 914/1508—a “tower” built at Ajrud, one at Nakhl, and one at Aqaba.¹²⁵

¹²⁰ Around 1440 the Mamluks built a series of caravanserais on the trade routes to Galilee; see Katia Cytryn-Silverman, *The Road Inns (Khāns) of Bilād al-Shām* (Oxford, 2010).

¹²¹ Sāmī Šāliḥ ʿAbd al-Mālik, “The fort of al-Guwri Nakhl in the Sināi,” *Mishkāh* 2 (2007): 145–205.

¹²² Jean Clédat, “Notes sur l’Ithsm de Suez XIX and XX,” *BIFAO* 23 (1924): 29–30.

¹²³ The fort was subsequently restored by the sultan Suleiman in 1552.

¹²⁴ Another beautiful example of the military architecture of al-Ghawrī can be seen on the pilgrim route leading to Mecca, in what is now Saudi territory; see ʿAlī al-Ghabbān, *Les deux routes*, 189–97. The al-Aznan Fort is a square-shaped building measuring 40 m on each side with corner towers. The faceted or polygonal towers are used on two levels, with a domed chamber on the ground floor that opens onto three arrow-slits, and on the first story is a terrace with three murder holes for cannon fire. The building is also protected by two small machicolations.

¹²⁵ Ibn Iyās, *Badāʾiʿ al-Zuhūr*, vol. 3.



Abyār

The Suez route (Qulzum) to Aqaba (Ayla) passed through the center of Sinai and the Tih Plateau. It was an important route, both for trade relations and for the pilgrimage to the holy places of Islam. Dotted along this hazardous route, which was right in the middle of the desert, were caravan stopovers of which Nakhl, which we mentioned earlier, was the most important one. However, other stopovers did exist with wells and cisterns to supply men and animals with water. The most important stopovers were fortified and information about these stopovers was known only by the texts¹²⁶ and very few architectural remains.

Only Sāmī ‘Abd al-Mālik has been able to identify and discover a Mamluk fort in the center of Sinai, located in the al-Qureis region between Nakhl and Aqaba.¹²⁷ The site of Abyār (Bir al-‘Alā’i) comprises a dam, a well, and a mosque with an inscription dedicated to the Mamluk sultan Kitbughā al-Manṣūrī (694–96/1294–96). A small fort, square in shape with circular towers in the opposite corners, controls the wadi where the site is located.

Another site is located at the side of the present-day motorway between Nakhl and Taba. The site of Ath-Thamad has a monumental inscription on a narrowing of a wadi, and this is carved in natural-cut stone. This inscription bears the name of Sultan al-Ghawrī, and its location right in the middle of the desert is not all that strange. Above the inscription we have identified the base of a watch tower built on the rocky plateau which overlooks the valley. The Mamluk sultan wanted to put his stamp on an important route and thus commemorate the whole of the defensive system that he had put in place both in the Sinai and the Red Sea.

2.4 The Red Sea

We refer to the forts of Aqaba, Nuweiba, and Tūr as “the Mamluk shield of the Red Sea.” In fact, in addition to their role as maritime caravanserais, these forts also ensured safe passage of ships in the Gulfs of Aqaba and Suez.

¹²⁶ Jean-Michel Mouton, *Le Sināi médiéval: Un espace stratégique de l’islam* (Paris, 2000); Sāmī Ṣāliḥ ‘Abd al-Mālik and Jean-Michel Mouton, “Autour des inscriptions de la forteresse de Ṣadr,” *Annales islamologiques* 30 (1996).

¹²⁷ Sāmī Ṣāliḥ ‘Abd al-Mālik, “Abyār al-‘Alā’i ‘alā darb al-ḥājj al-miṣrī fi Sinā’: Dirāsah tārikhiyah-athāriyah mi‘māriyah jadidah ‘alā ḍū’ al-ḥafā’ir al-athāriyah,” *Annales islamologiques* 41 (2007): 1–44, and idem, “Les citadelles ayyoubides et mameloukes du Sināi: Etude archéologique et architecturale,” in *La Guerre dans le Proche-Orient médiéval* (Cairo, 2015), 289–362.



Aqaba

Located today in Jordan, the Mamluk fort of Aqaba is situated 1 km to the south of the old Ayla.¹²⁸ It has a monumental inscription bearing the name of al-Ghawrī, which dates from 920/1514. The building measures 56 m from north to south and 58 m from east to west, and has polygonal corner towers (Figs. 20 and 21). There is a door opening in the middle of the north wall, flanked by round towers which are slightly projecting. The porch (*īwān*) is protected by a murder hole in front of it. Inside the fort, there are storerooms built against the curtain walls. A mosque was also built inside against the southern curtain wall. The supervisor of these works was Amir Khāyir Bāy al-ʿAlāʿī, who was responsible for building the Aqaba Fort on the foundations of the old fortifications of Sultan Baybars.¹²⁹

Nuweiba

At Nuweiba, on the shore of the Sinai, al-Ghawrī ordered the building of another fort in the small village of Tarabin¹³⁰ in 920/1514. This Mamluk fort was reoccupied and modified by the Egyptian government in 1893. The fort still retained its military function and was used by the Egyptian mounted police (camel drivers). The corner towers were incorporated within the new curtain walls and new dwellings and stables were built in the fort enclosure. Several years ago the building was totally restored by Egyptian Antiquities and therefore it is very difficult to distinguish the original sections of the Mamluk building.¹³¹ Nonetheless, the fort appears to have a square-shaped enclosure, 30 m on each side, with four small circular corner towers (Figs. 22 and 23). The main entrance, facing towards the southeast, and the towers are made out of standard coral limestone masonry.

Tur

The Port of Tur has been an important site since ancient times and is inextricably linked to Saint Catherine's Monastery. During the Fatimid period, the site of

¹²⁸ Donald Whitcomb, "The walls of early Islamic Ayla: defense or symbol?," in *Muslim Military Architecture in Greater Syria*, ed. Kennedy, 61; ʿAbd al-Mālik, "The khans of the Egyptian Hajj," 52–64.

¹²⁹ Denys Pringle, "Aqaba Castle in the Ottoman Period, 1517–1917," in *The Frontiers of the Ottoman World*, ed. A. Peacock (Oxford, 2009), 95–112; Reem Al-Shqour, *Aqaba Castle, origin, development and evolution of Khans in Jordan: An Archaeological Approach* (Ghent, 2015), 128–37, 248–53, 341–60.

¹³⁰ Nuweiba Tarabin, the old Nuweiba, also known as the "Nuweiba of the Bedouins," as opposed to the Nuweiba of the tourists and the present-day port.

¹³¹ That raises the thorny subject of the conservation work on the Islamic monuments in Egypt. Over the last few years, certain restoration work has ruined, rather than conserved, the monuments. There are plenty of examples, like the fortress of Gezirat al-Pharaoun, the city walls of Cairo at the Bāb al-Naṣr, and the Rosetta Fort.



Tur-Raya was already a fortified port with a caravanserai.¹³² In the turn of the fifteenth to sixteenth century, the Bay of Raya became silted up and was unusable, so a new port was built farther north,¹³³ replacing the old site of Tur-Raya. Eight kilometers separate the Fatimid site from the Mamluk and Ottoman agglomeration. Although the most important traded products were transhipped in the Port of al-Quseir and then transported by way of the Nile up to Alexandria via Cairo, Tur was a very important crossing point at the end of the fourteenth century. Despite the reestablishment of the activities of the Port of Suez at the end of the Mamluk period, Tur still retained its strategic importance as is evidenced by the construction of a fort during the reign of al-Ghawrī.¹³⁴ Unfortunately, today, there are no remains of the fort, but a plan was drawn up by Linnant de Belfont in the nineteenth century.¹³⁵ It shows that the building was square-shaped, 30 m on each side (Fig. 24). The four corners were protected by huge circular towers measuring 8 m in diameter. The towers were almost completely detached from the building, unlike in Nuweiba and Nakhḷ, where the little towers projected slightly from the curtain wall façades. Each tower had a circular vaulted chamber that housed three arrow-slit niches. The curtain walls, on both the east and west, were each protected by two arrow-slit niches. The southern curtain wall was heavily defended with six or seven arrow-slit niches. The fort gate was facing the north towards the city. The gate was positioned in the center of the north façade and had a bent entrance. A mosque was built inside the fort between the northwest tower and the entrance.

Conclusion

This article presents Mamluk fortifications built on Egyptian territory and recognizes a general evolutionary pattern of this military architecture. It is now necessary to return to the general features of Mamluk military architecture. First, the Mamluks used large quadrangular master towers. This architectural shape is credited to the Ayyubids in the early thirteenth century with the citadels of

¹³² Mutsuo Kawatoko and Yoko Shindo, "Archaeological survey of the Râya/al-Tûr area on the Sinai peninsula, Egypt 2003," in *Mishkâh* 1 (2006): 21–80.

¹³³ The same urban relocation pattern at Tur was seen by Whitcomb at Quseir and Aqaba; see Donald Whitcomb, "Quseir al-Qadim and the location of Myos Hormos," *Topoi* 6 (1996): 747–72; idem, "The Town and Name of Aqaba: an inquiry into the settlement history from an archaeological perspective," in *Studies in the history and archaeology of Jordan* 4 (1997): 359–63. It was also seen by us in Farama/Tina.

¹³⁴ Al-Maqrīzī, *Kitâb al-Sulūk*, 1:1:171, 176, 187, 204.

¹³⁵ Linant de Bellefonds wrote one chapter on the fortress of Tur, where he relates that this fortress was similar to those of Aqaba and Nakhḷ; see Bellefonds in Léon de Laborde and Louis Maurice Adolphe Linant de Bellefonds, *Voyage de l'Arabie Pétrée* (Paris, 1830).



Damascus and Cairo. From 1207, al-ʿĀdil oversaw the reconstruction of the citadel of Damascus. In Cairo, he entrusted the renovation of the citadel to his son al-Kāmil, who was appointed governor of Egypt.¹³⁶ The 1207–8 works are marked by a new style of defense, represented by massive quadrangular towers like Damascus, Bosra, or the Crusader castles.¹³⁷ These main towers are 20 m to 30 m aside and almost 25 m high. These towers there were organized on three levels and included a bossage facing. Overtime, the towers got wider both to better withstand fire from trebuchets and because these towers serve as shooting platforms. The increase in the size of the towers was primarily an adaptation to the progress of the art of siege in the early thirteenth century and the widespread use of counterweight trebuchets.¹³⁸ Five towers of this type were built in Cairo.¹³⁹ The use of covered walkways inside the curtain walls and towers is also an Ayyubid invention that started with the walls of Cairo built in 1177–1200.¹⁴⁰

Continuous stone battlements crowning the curtain walls and towers are assigned to the Mamluk period in the last third of the thirteenth century. The first case, dated between 1270 and 1285, is the Crac des Chevaliers, after its conquest by the Mamluks.¹⁴¹ There was no equivalent system in Europe, where they used an ongoing hoarding wood on stone cornices. In Tripoli, Burj al-Sibāʿ (Tower of the Lions) was supposedly built under Barqūq (r. 1382–99), but we believe that this tower should be attributed to the reign of Baybars. This tower has a façade with antique column header “boutisses,” elements that are also found on the lower parts of the citadels of Alexandria and Rosetta. Another characteristic element of Mamluk military architecture is the use of a cruciform plan, or “Iwan.” The Iwan plan, of Eastern origin, consists of a square central hall or courtyard flanked by four quadrangular vaulted rooms. In the case of the fortifications, the vaulted rooms are often used as firing chambers. Finally, glacis and sloping citadels were developed in the thirteenth century—the most typical case being Aleppo. The Citadel of Aleppo was fortified in the fifteenth century after the Mongol invasion

¹³⁶ Sometimes depending on the scholars, the works at the citadel are attributed to al-Kāmil or al-ʿĀdil. In reality, it is more accurate to follow the analysis of Creswell, who explained that al-ʿĀdil sponsored the work and should be, as such, credited for these accomplishments, even if it was his son, al-Kāmil, and Qaraqūsh who were the master builders of these new fortifications.

¹³⁷ Hugh Kennedy, *Crusader Castles* (Cambridge, 1994), 180–85; Yovitchitch, *Fortresses du Proche-Orient*, 329.

¹³⁸ Paul Chevedden, *The Invention of the Counterweight Trebuchet: A Study in Cultural Diffusion* (Washington, 2000), 71–116.

¹³⁹ Lyster, *The Citadel of Cairo*, 44–45.

¹⁴⁰ Stéphane Pradines, Benjamin Michaudel, and Julie Monchamp, “La muraille ayyoubide du Caire: les fouilles archéologiques de Bāb al-Barqiyya et Bāb al-Maḥrūq,” *Annales islamologiques* 36 (2002).

¹⁴¹ Mesqui, *Châteaux d’Orient*, 179.



and consists of advanced towers built in the glacis. A south tower has beautiful circular openings for cannons and is attributed to Sultan al-Ghawrī.¹⁴²

It has been our intention to survey Egyptian fortified sites in a compelling way, and not to fall into the trap of just presenting a dry list with detailed descriptions, as is often the case in archaeological publications. We draw new models to describe the evolution of Mamluk fortifications. These models are based on our Egyptian experience but they can be used to understand Mamluk fortification in Greater Syria, as up to now no such evolution has been proposed.¹⁴³

The first type of Mamluk fortification corresponds to the Crusades and the reign of Sultan Baybars (1260–77). These fortifications were inspired by the master towers developed by the Ayyubids at the beginning of the thirteenth century. These huge and massive quadrangular towers were built over the walls in the citadels of Cairo and Damascus, for example. Baybars reused this concept, not to flank a curtain wall but as a fort by itself. This independent tower was reinforced in the angles with counterforts. This kind of tower-fort was used mainly to protect the coast; unfortunately, most of them were destroyed by later Mamluk sultans to create more ambitious projects. Qaşr al-ʿUmayd, close to Alexandria, Rosetta in the Delta, and Burj al-Sibāʿ in Lebanon all belong to this model.

The second phase is the link between the Mediterranean maritime conflicts and the works of two sultans, Barsbāy (r. 1422–38) and Qāyrbāy (r. 1468–96). These sultans developed a new kind of Mamluk coastal fortification. Alexandria, Rosetta, and Tina are three examples of this type. These fortresses are composed of a central keep with a concentric curtain wall, which can be circular, square, or octagonal. The walled enclosure is equipped with chambers for artillery. These concentric citadels were very much inspired by the West and Christian fortifications.¹⁴⁴

Finally, the last phase is represented by the works of Sultan al-Ghawrī (r. 1501–16). On the coast, this sultan continued to use the concentric system and reinforced the artillery belts around the central keeps. In the mainland, he created a new network of small forts, with a simple plan: a quadrangular enclosure protected by two opposite or four circular corner towers. The fort protects a central courtyard with storerooms built all around. These forts are quite similar to caravanserais as they had the same functions: to protect merchants, pilgrims, and travelers. Later, these fortifications were reused and copied by the Ottomans.¹⁴⁵

¹⁴² Ibid., 177.

¹⁴³ Kate Raphael's book *Muslim Fortresses in the Levant: Between Crusaders and Mongols* (London, 2011) did not bring such clear evidence to understand Mamluk fortifications.

¹⁴⁴ Ronnie Ellenblum, *Crusader Castles and Modern Histories* (Cambridge, 2007), 236.

¹⁴⁵ In the Arabian Peninsula and until the nineteenth century in Oman; see Stéphane Pradines, *Fortifications et urbanisation en Afrique orientale* (Oxford, 2004), 83–109.



Our aim was to showcase the Mamluk sites in both their geographical and historical contexts. We have noticed that the sites of these Mamluk fortifications are all grouped together in very strategic regions, whether it be on the Mediterranean coast, the Nile delta, the Sinai routes, or the banks of the Red Sea. The main functions of these fortifications were: (1) to protect the economic interests of the Mamluks; (2) to protect the pilgrim routes against the Bedouin *razias*; (3) to protect the coastal cities against Italian or Cypriot pirates; and (4) to counter the threats of invasion from the Ottomans and Portuguese. Coastal, maritime, and river fortifications served to protect ships, merchants, and travelers during stopovers. They also protected ports against hackers who coveted—such as Bedouins in the desert—the goods and wealth concentrated in these cosmopolitan ports.¹⁴⁶ But the fortifications were not only confined to coastal areas. In a desert country like Egypt, and more generally in the Middle East, water was a scarce and vital commodity. Control and ownership of water was extremely important to supply the caravans of merchants or pilgrims crossing a naturally hostile territory. Therefore, wells are often associated with forts or fortified caravanserais—the distinction between the two types of buildings being very porous.

Our study of Mamluk fortifications in Egypt demonstrates that they were constructed in connection with the conflicts both on the borders and inside the kingdom, within territories and cities. Urban violence is addressed through the citadel building that protects, but also controls a city. The citadels of Cairo and Alexandria were built by the Ayyubids and Mamluks to defend the population and quell insurrections. Urban fortifications, walls, and fortresses are first of all elements that demonstrate power and possession of a territory. This is an extremely important aspect of the fortifications: the symbolic aspect is even more important than the effective and functional aspect. To conclude, the Mamluk fortifications are obviously architectural witnesses of conflicts and crisis, but also witnesses of cultural values and influences. We hope that our article will motivate our colleagues to carry out detailed and monographic studies on each fortification that we have briefly described above.

¹⁴⁶ *Ports and Forts in the Muslim World: Coastal military architecture from the Arab Conquest to the Ottoman Period*, ed. Stéphane Pradines (Cairo, forthcoming).



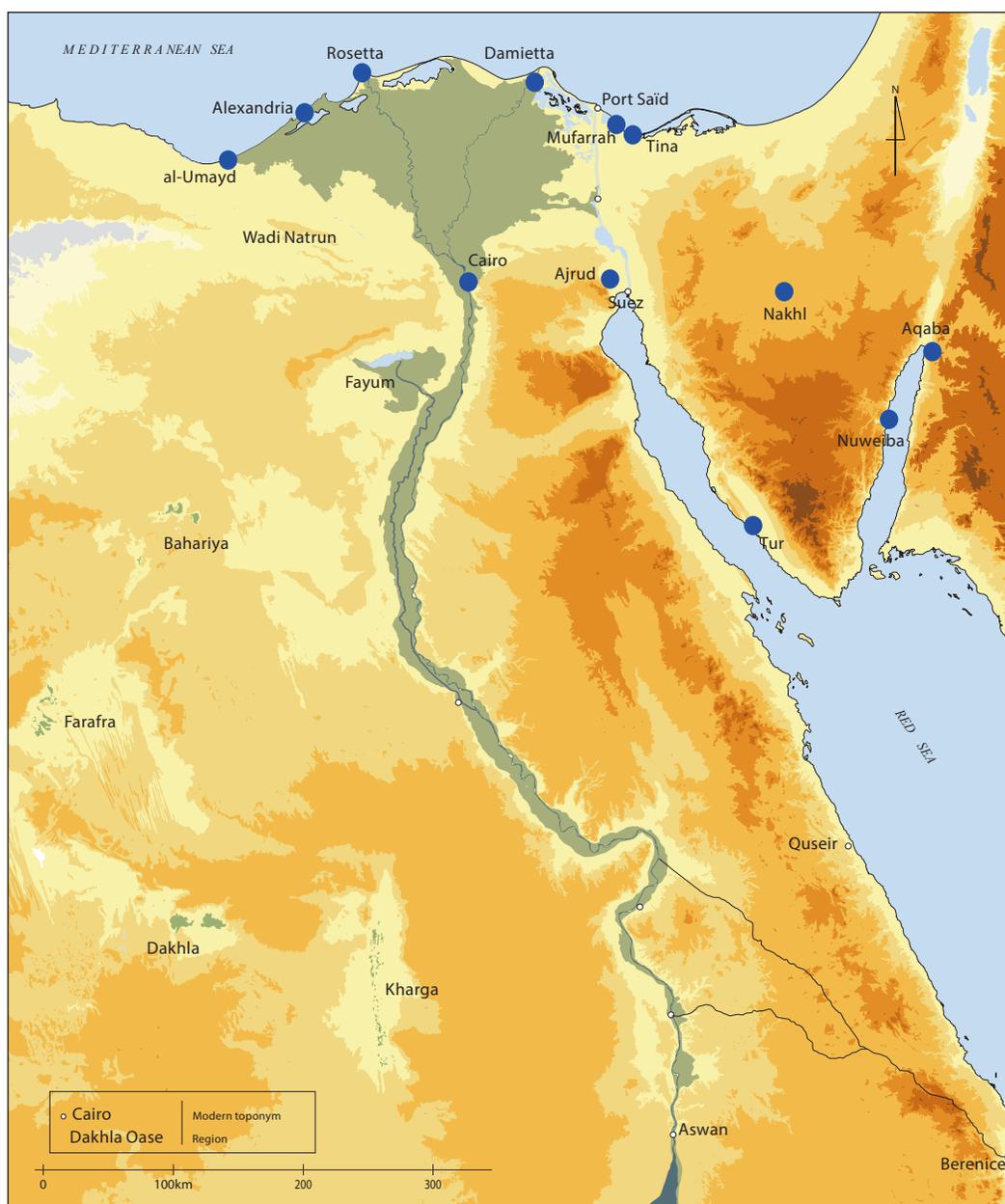


Figure 1: Map of the Mamluk fortifications in Egypt. (Map by the author.)



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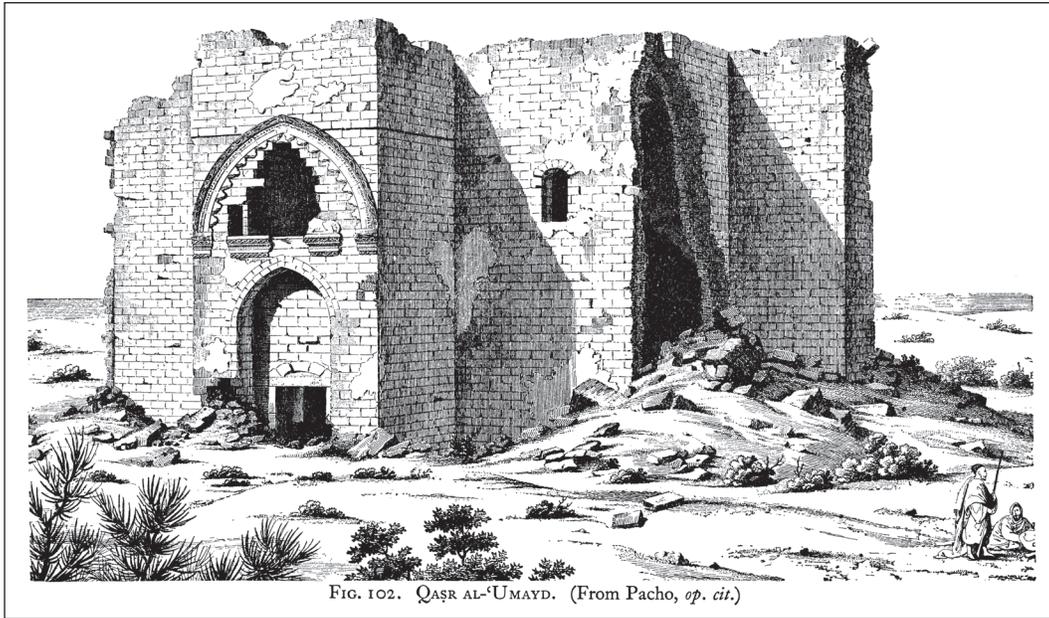


FIG. 102. QAṢR AL-ʿUMAYD. (From Pacho, *op. cit.*)

Figure 2: Engraving of the Qaṣr al-ʿUmayd fort. (From Pacho, *Voyage dans la Marmarique, la Cyrénaïque et les oasis d’Audjelah et Maradèh*, 1827.)



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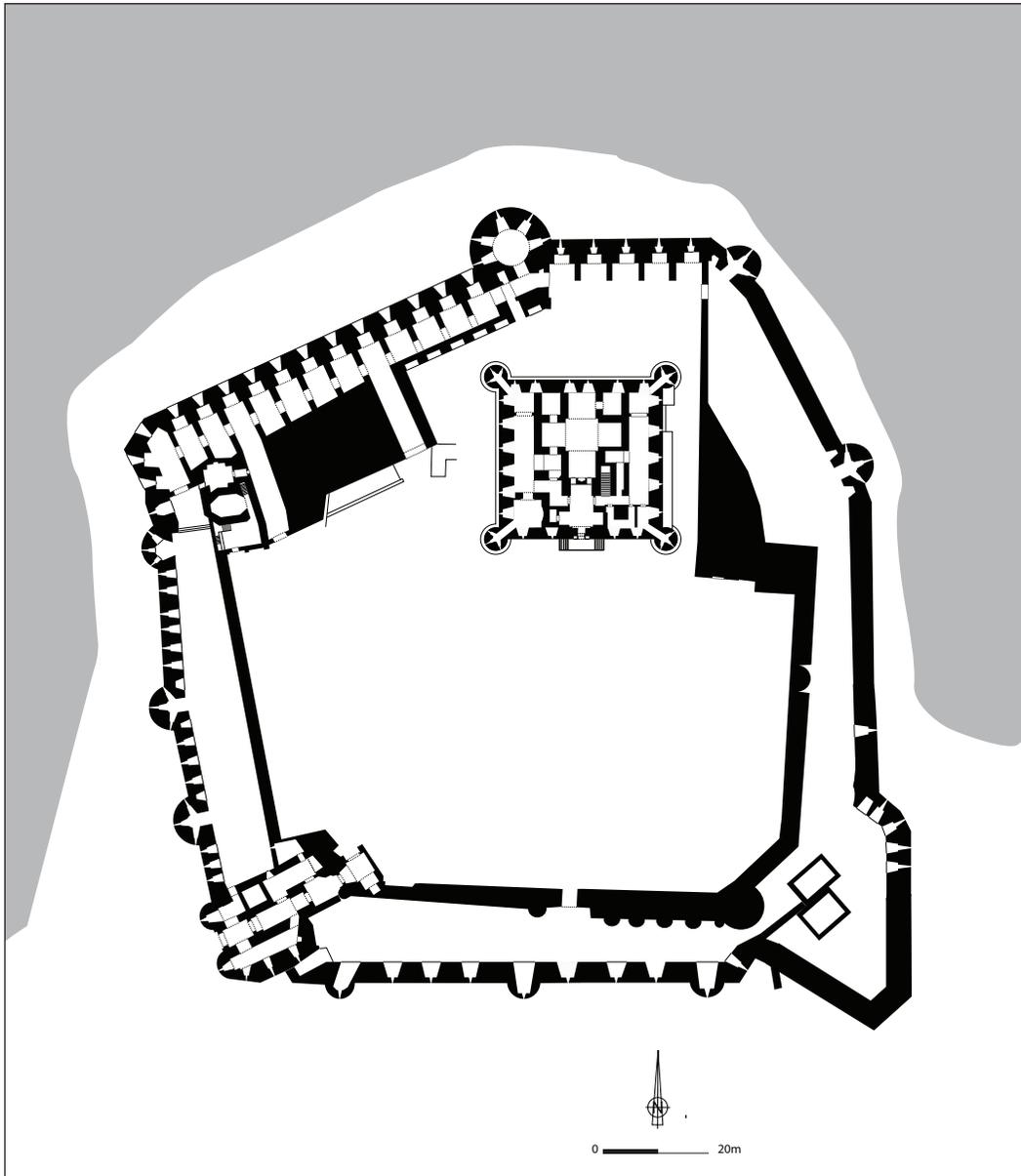


Figure 3: Map of the citadel of Alexandria. (Plan by the author based on *Description de l’Egypte, Etat moderne vol. II*, PL 87, 1809-1829 and Comité de Conservation des Monuments Arabes, 1909.)



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Figure 4: Photograph of the master tower of the citadel of Alexandria. (Photograph by the author.)



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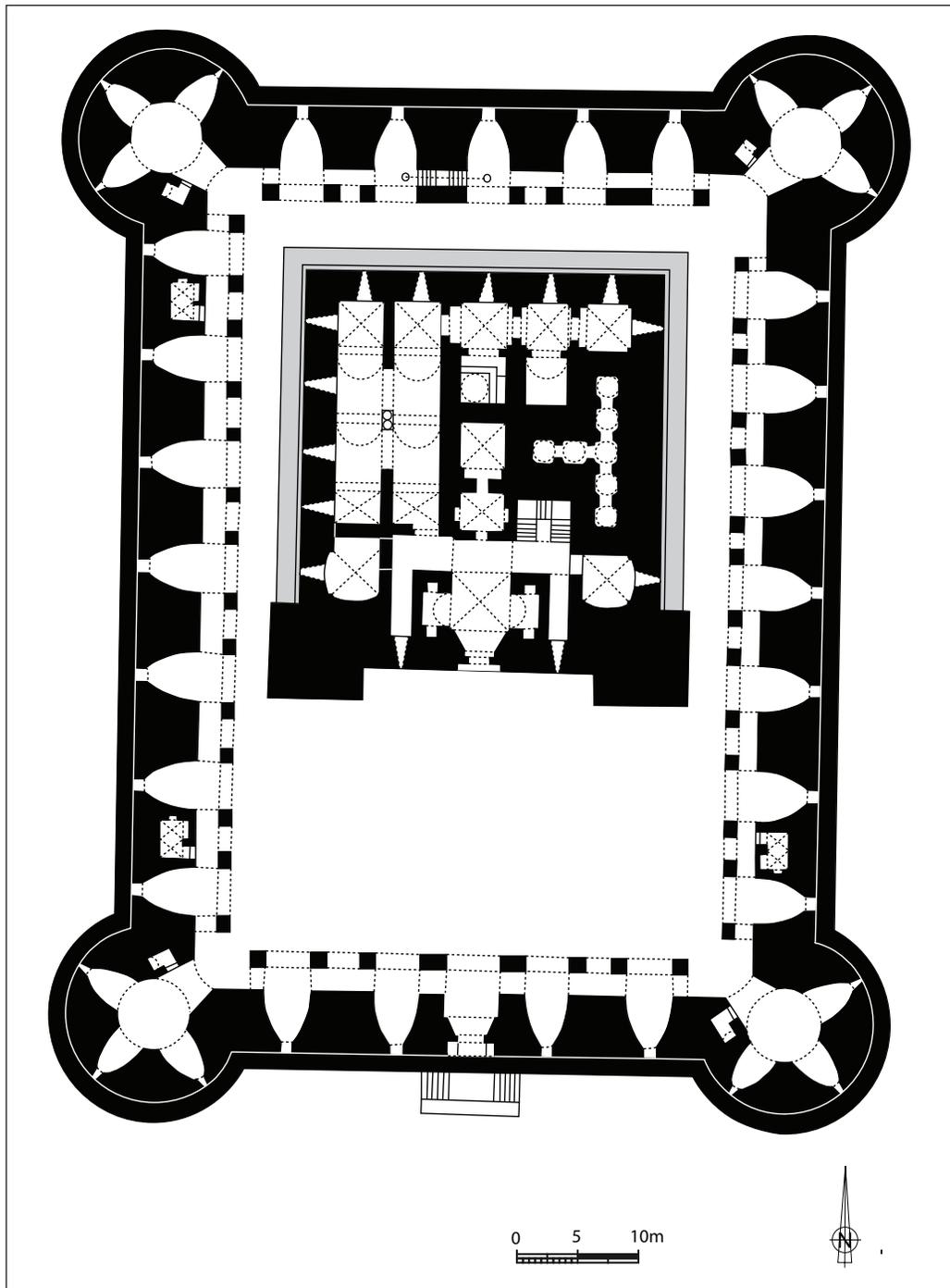


Figure 5: Plan of the Rosetta fortress. (Plan by the author based on Comité de Conservation des Monuments Arabes and Darwish, 1991.)



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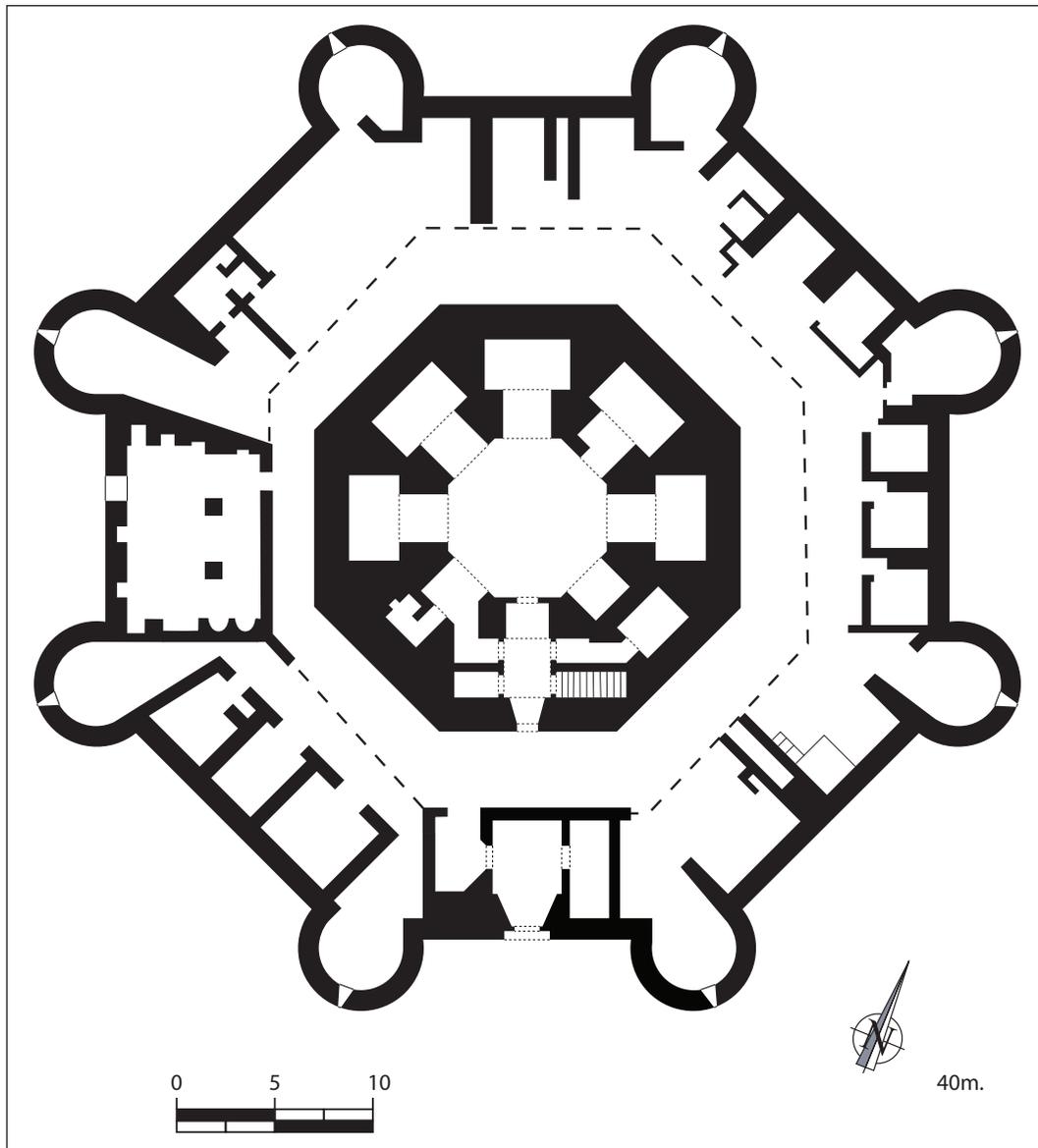


Figure 6: Plan of the Tina Fort. (Plan by the author based on Tamari, 1978 and Abdel Malik, 2011.)



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Figure 7: Photograph of the Tina Fort. (Photograph by the author.)



Figure 8: Photograph of the inscriptions at Bāb al-Mudarraġ. (Photograph by the author.)





Figure 9: Photograph of painted blazons of al-Nāşir Muḥammad. (Photograph by the author.)



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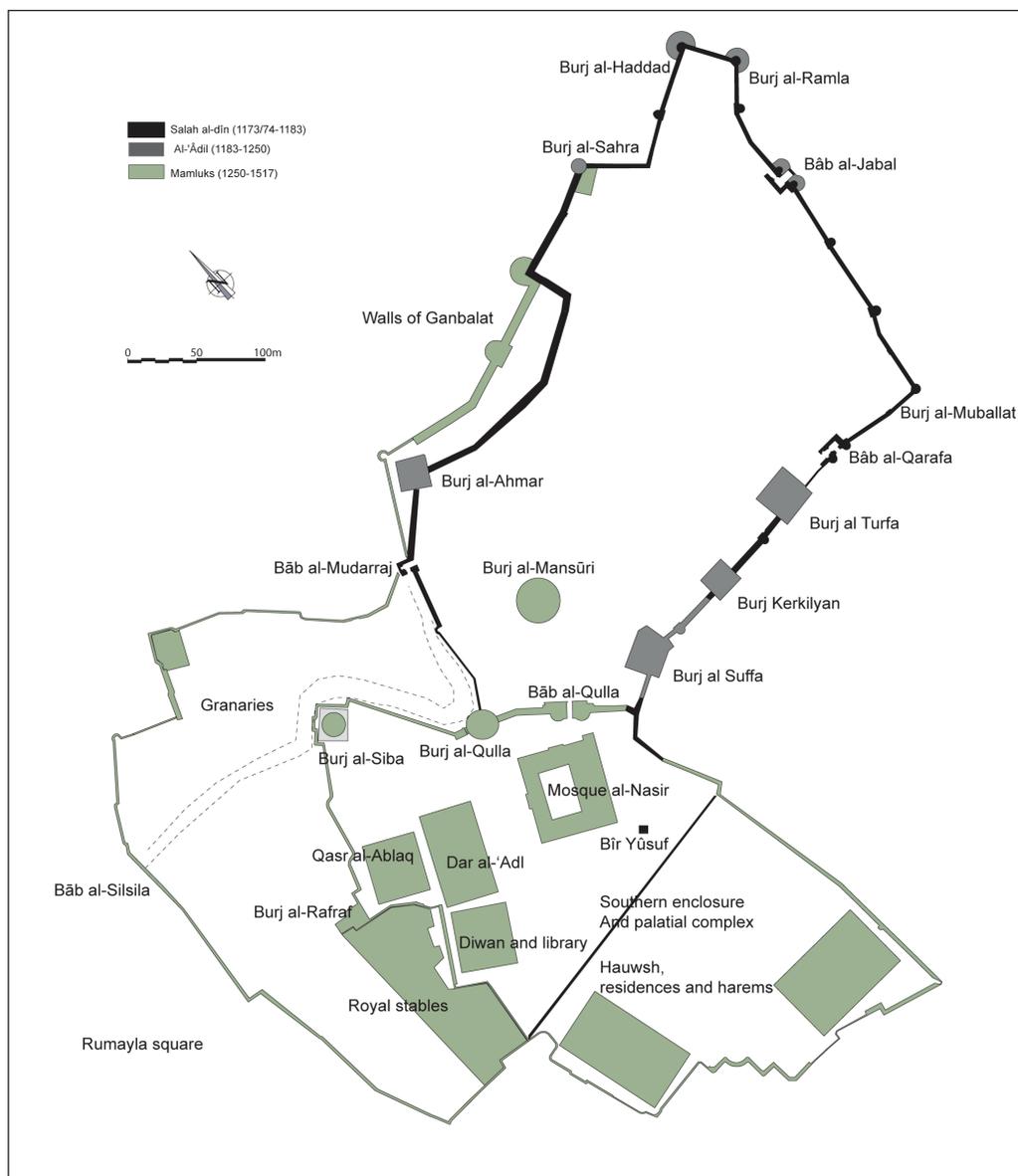


Figure 10: Plan of the citadel of Cairo. (Plan by the author based on Creswell, 1921 and Lyster, 1993.)



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Figures 11a (opposite, top), 11b (opposite, bottom), and 11c: Photographs of the Lions' Tower, citadel of Cairo. (Photographs by the author.)



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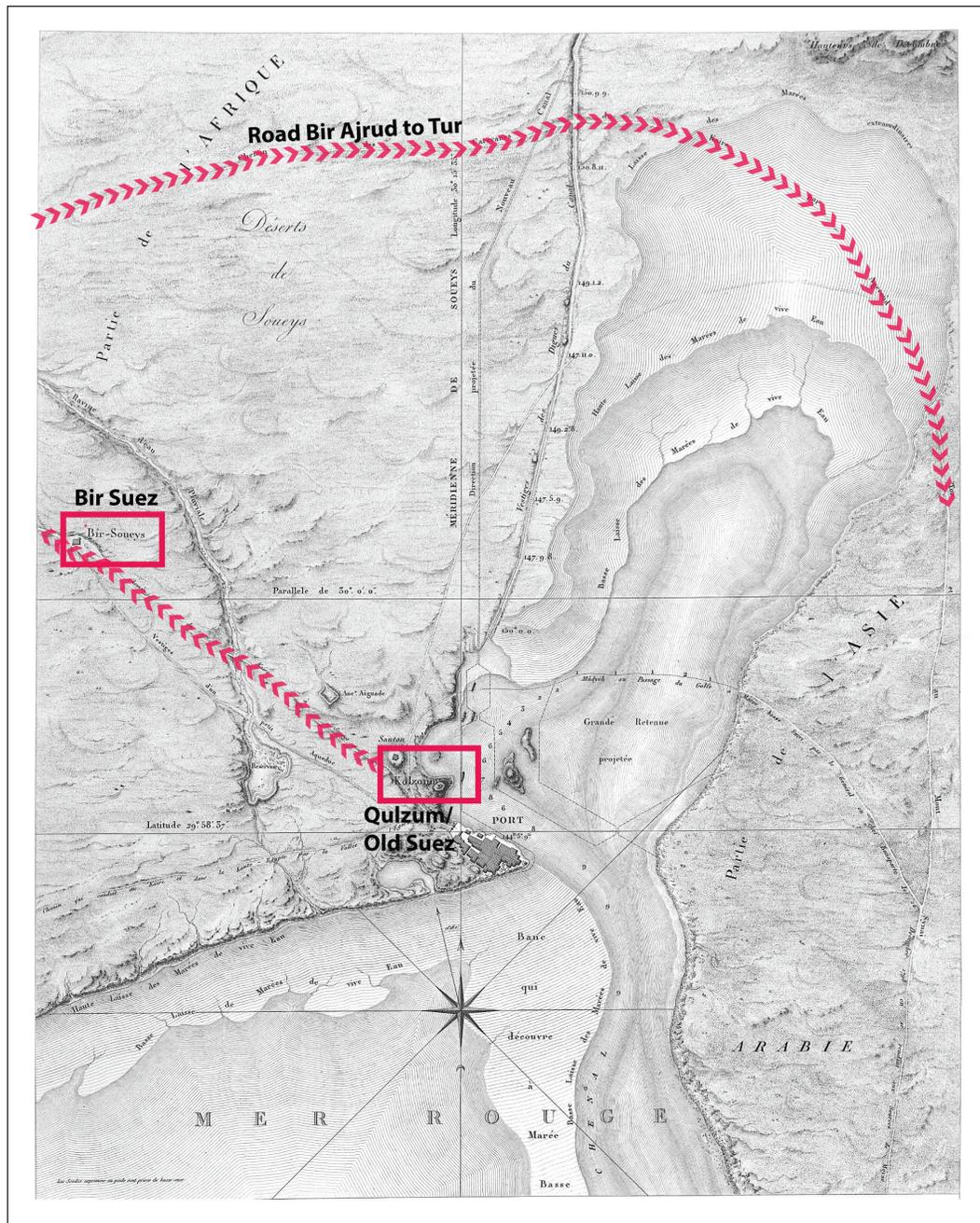


Figure 12: Map of Suez isthmus. (Map updated by the author from *Description de l’Egypte, Etat moderne vol. I, PL II, 1809-1829.*)



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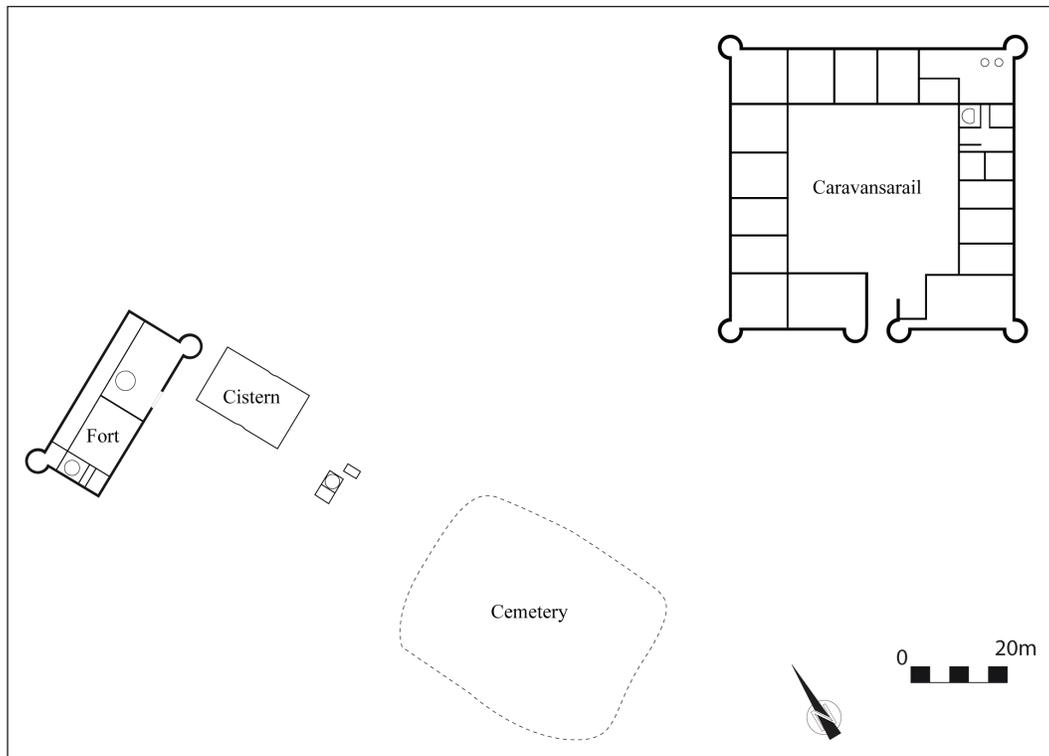


Figure 13: Plan of the fort and caravanserai of Ajrud (Suez). (Plan by the author based on Clédat, 1921 and Jomier, 1953.)



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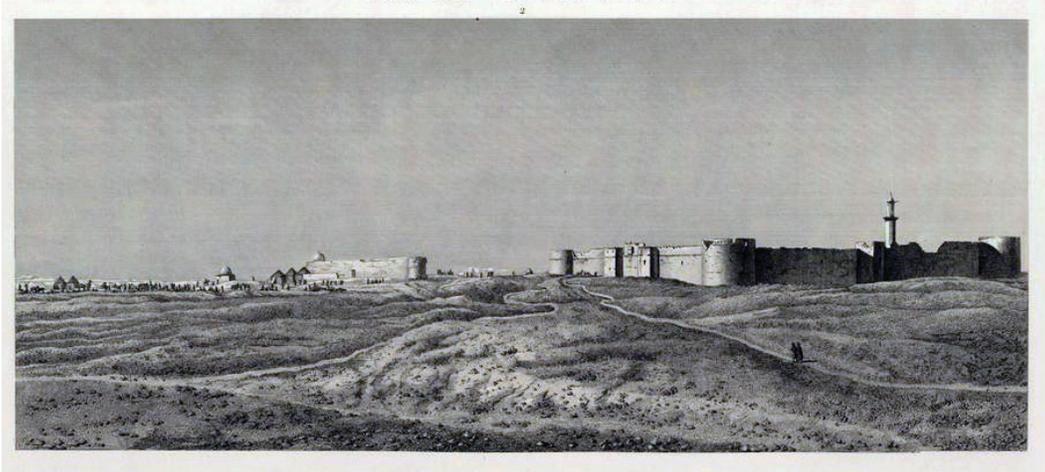


Figure 14: Fort of Ajrud (Suez). (*Description de l’Egypte, Etat moderne vol. I*, PL XII, 1809-1829.)



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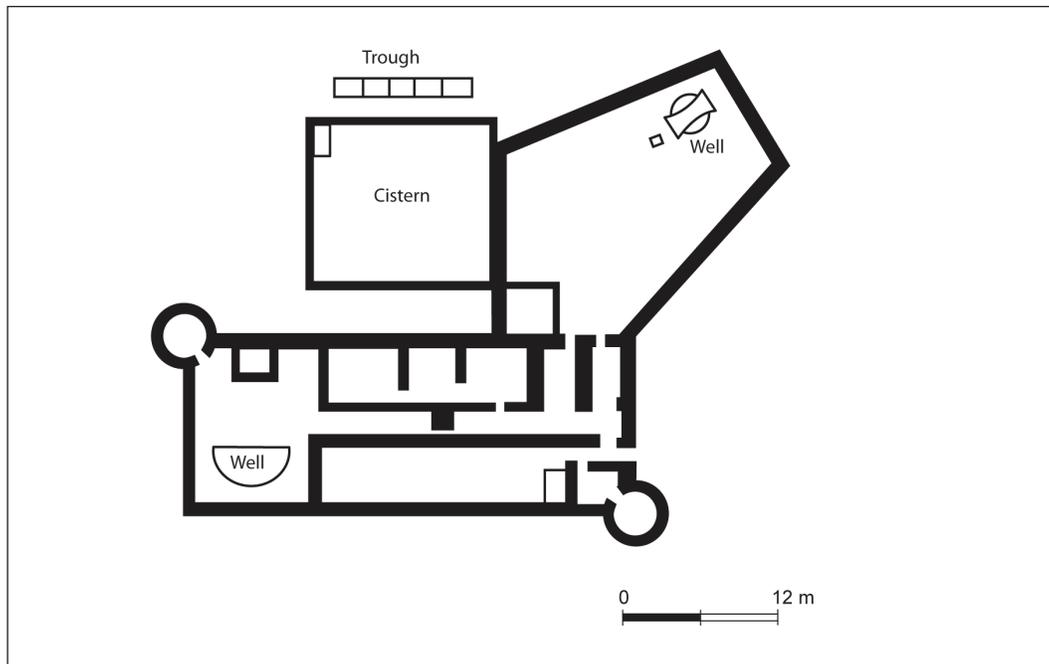


Figure 15: Plan of the fort of Bir Gismel/Bir Suez. (Plan by the author based on Clédat, 1921 and Jomier, 1953.)



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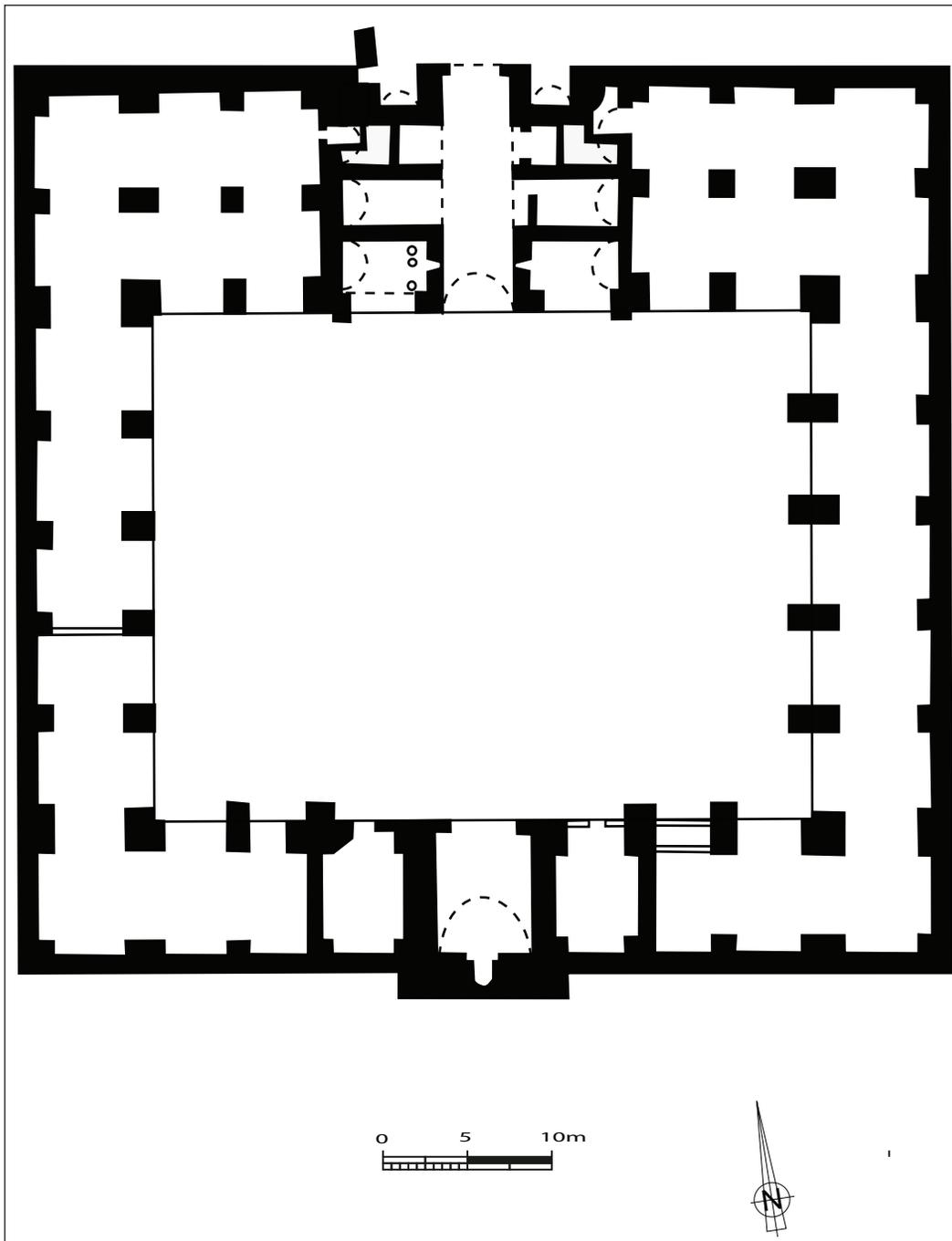


Figure 16: Plan of Khān al-Khowinat. (Plan by the author based on Abdel Malik, 2009.)



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Figure 17: Photograph of Khān al-Khowinat. (Photograph by the author.)



Figure 18: Photograph of the Nakhl fort. (Photograph by the author.)



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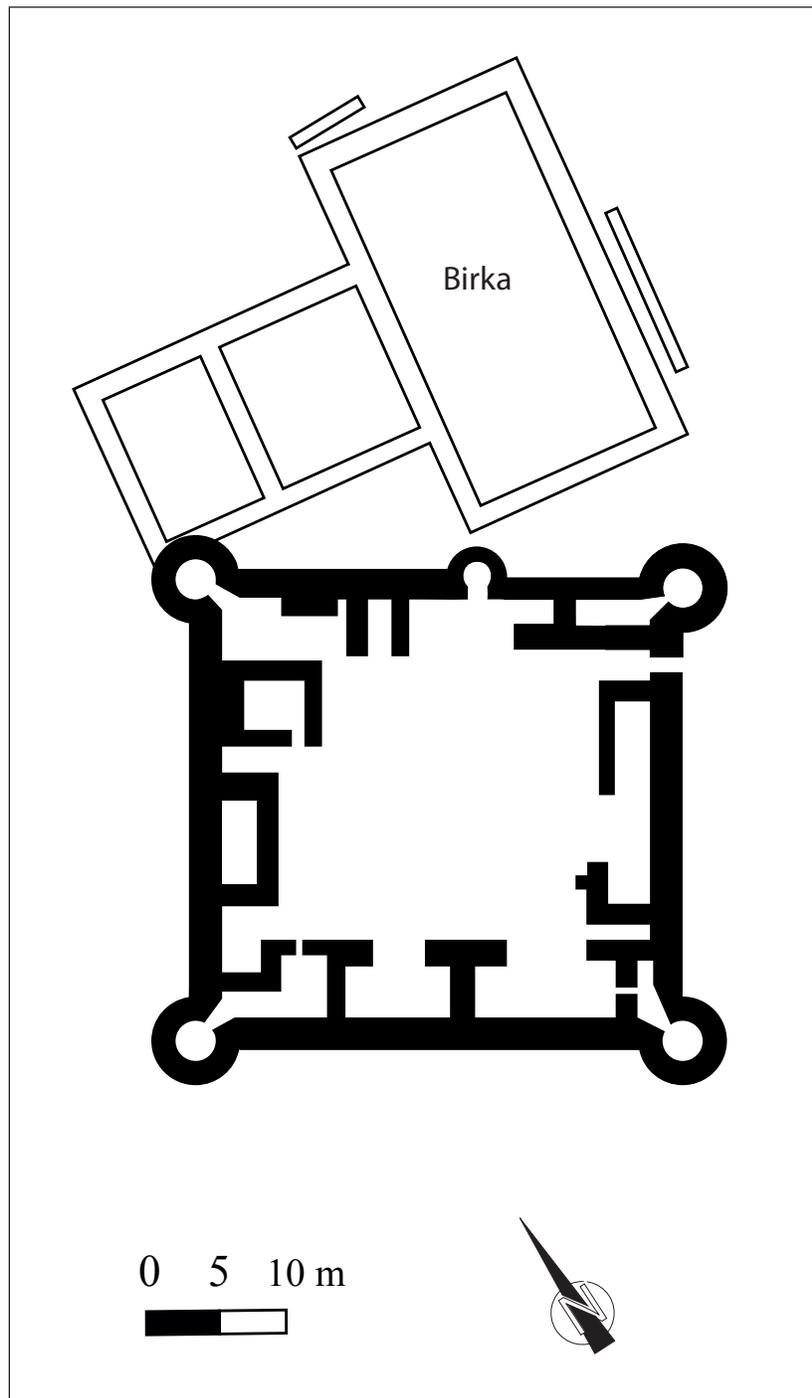


Figure 19: Plan of the Nakhl fort. (Plan by the author based on Abdel Malik, 2007.)



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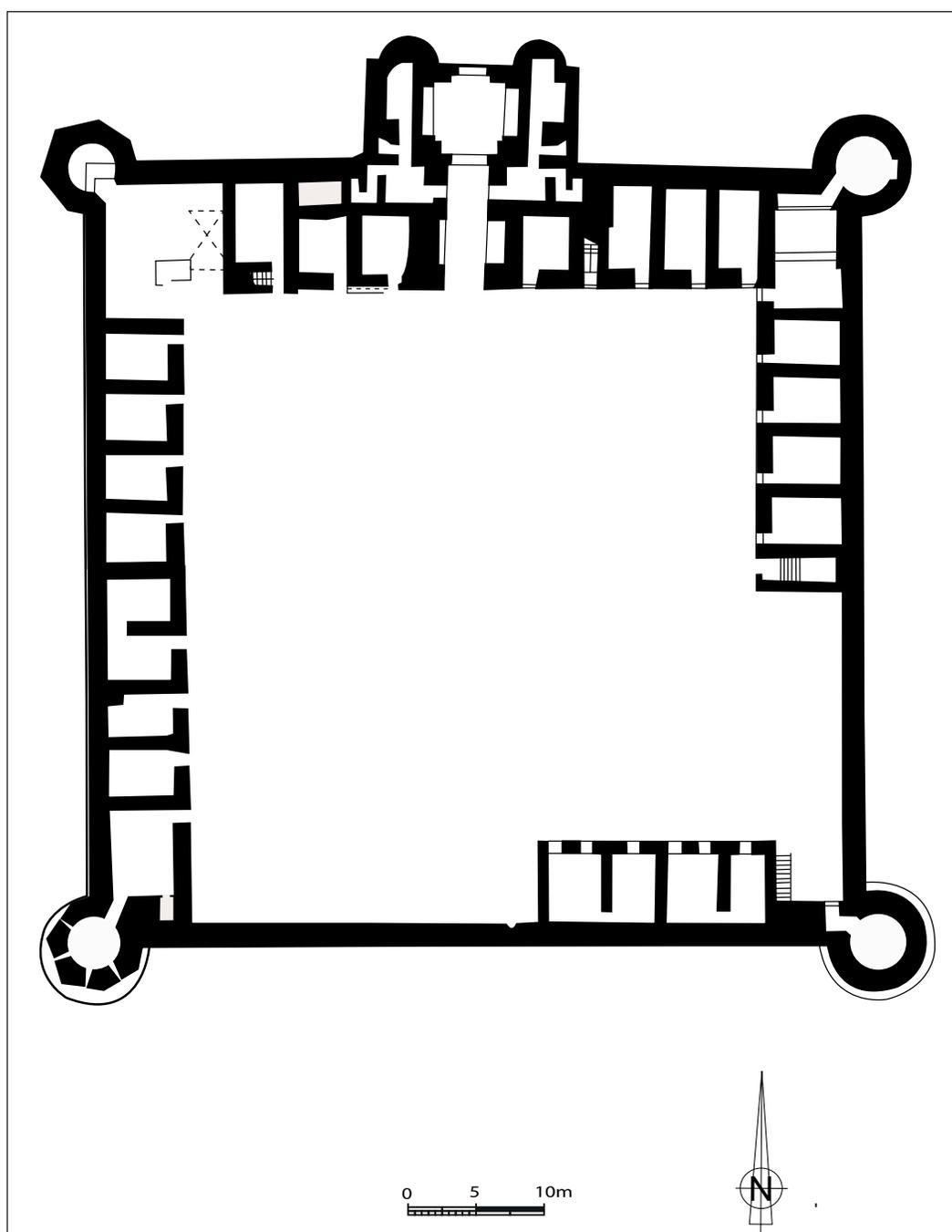


Figure 20: Plan of the Aqaba fort. (Plan by the author based on Pringle, 2009.)



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Figure 21: Engraving of the Aqaba fort. (From Linant de Bellefonds, *Mémoires sur les principaux travaux d'utilité publique*, 1873.)



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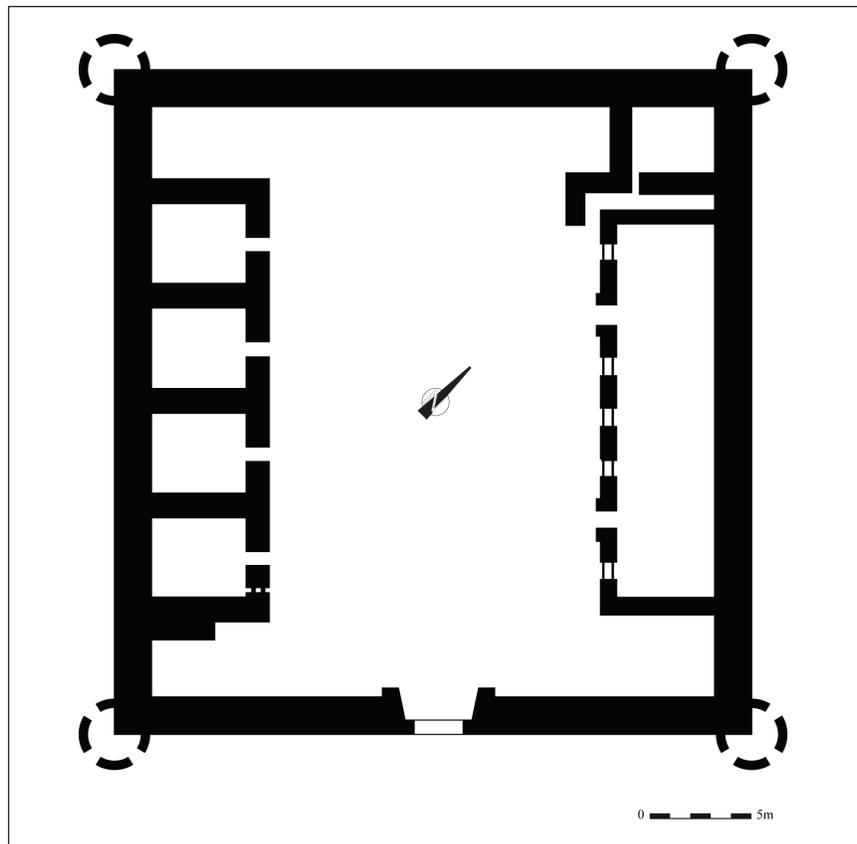


Figure 22: Plan of the Nuweiba fort. (Plan by the author.)



Figure 23: Photograph of the Nuweiba fort. (Photograph by the author.)



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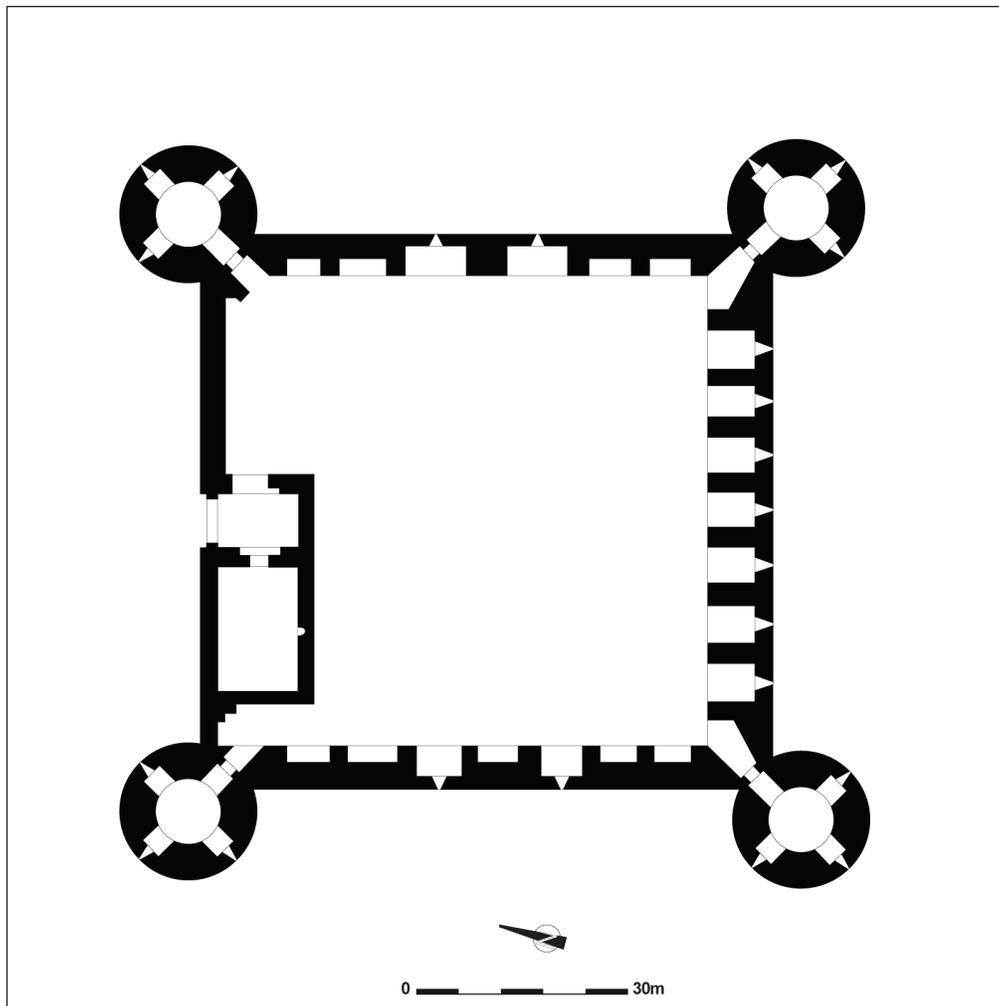


Figure 24: Plan of the Tur fort. (Plan by the author based on Linant de Bellefonds, 1873.)



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