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Archaeology

Fusṭāṭ Reconsidered: Urban Housing and Domestic Life in a Medieval Islamic City

by

Matthew James Harrison

Thesis for the degree of Doctor of Philosophy

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ABSTRACT

FACULTY OF HUMANITIES

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<u>Doctor of Philosophy</u>

FUSṬĀṬ RECONSIDERED: URBAN HOUSING AND DOMESTIC LIFE IN A MEDIEVAL ISLAMIC CITY

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The domestic architecture of Fusṭāṭ, Egypt's first capital under Muslim rule, has been revealed through various large-scale archaeological excavations over the preceding century. The archaeological remains represent an exceptional resource for understanding urbanism and daily life in one of the foremost cities of the early Islamic world.

This thesis explores the potential use and meaning of domestic space in the excavated houses of Fusṭāṭ. An assessment of previous scholarship on the houses reveals that their form has principally been understood as a style of architecture imported to Egypt by foreign élites. While certain assumptions about life in the houses have been made based on generalised notions of the traditional 'Arab house', there has been little critical consideration of the activities and agency of inhabitants by archaeologists. This study therefore aims to re-interpret the architecture in terms of how inhabitants conceptualised and used the space.

Fusṭāṭ represents a highly problematic dataset due the circumstances of its excavation and recording, its vast size and longevity, and the extensive modern depredation of the archaeological remains. Thus, the potential of a range of archaeological approaches to the social interpretation of architectural space is assessed, considering the limitations of the available data. The analytical approach taken consists of exploratory spatial analysis of archaeological features across two of the excavated areas. These spatial patterns are considered in light of the evidence for daily life and domestic architecture from the Cairo Geniza, the collection of documents from the city's medieval Jewish community.

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Academic Thesis: Declaration Of Authorship

I, Matthew Harrison

declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Fusṭāṭ Reconsidered: Urban Housing and Domestic Life in a Medieval Islamic City

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;

2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

3. Where I have consulted the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

5. I have acknowledged all main sources of help;

6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

7. Either none of this work has been published before submission, or parts of this work have been published as: [please list references below]:

Signed:

Date: 31/05/2016

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I am enormously appreciative of all the guidance and encouragement that Adrian Viens has given me. Last, but by no means least, I am grateful to my family for their love and support.

TERMS AND CONVENTIONS

Transliteration of Arabic and other Languages

Arabic names and terminology will be transliterated following the system employed by the *International Journal of Middle Eastern Studies,* summarised in the table below. However, where a word or name has entered common parlance in English under a different spelling, the more common spelling will be employed. Words from other languages such as Persian and Hebrew and will be transliterated following the conventions of the secondary source or translator. Broken plurals in Arabic are not used; rather, "s" or "es" is added to the singular term to indicate the plural. A glossary is also provided.

Arabic Letter	Transliteration	Arabic Letter	Transliteration
◌َ, ◌ِ, ◌ُ	a, i, u	ش	sh
أَ, إِ, أُ	a, i, u	ص	ṣ
ا, ي, و	ā, ī, ū	ض	ḍ
ء	ʾ	ط	ṭ
ب	b	ظ	ẓ
ت	t	عَ	ʿ
ث	th	غ	gh
ج	j	ف	f
ح	ḥ	ق	q
خ	kh	ك	k
د	d	ل	l
ذ	dh	م	m
ر	r	ن	n
ز	z	ي	y
س	s	ة	a

Medieval Literary Sources

Medieval literary sources will be referenced within the text by referring to the author's most commonly used name (transliterated following the conventions above), and a short title of the work, as well as the page and line number. Full details of the translation and edition used are found on page 321.

Medieval Documentary Sources

Medieval documentary sources will be referenced using an abbreviation of the collection name and manuscript number.

Calendar Dates

Calendar dates will primarily be given with reference to the Gregorian Calendar (AD), especially when referring to large periods of time, but may be supplemented by the equivalent date in the Hijri calendar (AH, beginning 622 AD) when referring to events in Arabic historical sources.

Egyptian Chronology

- Rāshidūn   641–661 AD
- Umayyad   661 -750 AD
- ʿAbbāsid   750 – 868 AD
- Ṭūlūnid   868–905 AD
- Second ʿAbbāsid   905-935 AD
- Ikhshīdid   935-969 AD
- Fāṭimid   969-1174 AD
- Ayyūbid   1174-1250 AD
- Mamlūk   1250–1517 AD
- Ottoman   1517–1867 AD

1 INTRODUCTION

Fusṭāṭ, Egypt's capital following the Muslim conquest of 641/2, was one of the most populous and prosperous cities of the early Islamic world. It is also a city whose domestic architecture and urban society has been revealed to modern scholars through an exceptionally rich corpus of evidence. Despite archaeological scholarship's traditional focus on monumental palaces and religious buildings, excavations at Fusṭāṭ from the early 20th century onwards have revealed large numbers of houses, in some cases forming large, contiguous urban neighbourhoods. Much of the city was abandoned by the 12th century, shrinking to a small urban core along the Nile that was eclipsed by the later foundation of al-Qāhira, Cairo, a few kilometres to the north. The mounds of refuse that covered the ruins of Fusṭāṭ from this time onwards became part of the urban landscape of the growing conurbation of Cairo. The threat posed to these archaeological remains by modern Cairenes who exploited the mounds for nitrogen-rich fertiliser (*sabakh*) and antiquities, instigated a campaign of extensive excavations by the Museum of Arab Art between 1912 and 1924. This was continued in the 1960s when urban development in the rapidly expanding city threatening the remaining unexcavated mounds, prompting large-scale rescue excavations to be conducted by the American Research Center in Egypt.

This abundant archaeological evidence is complemented by the remarkable resource of the Cairo Geniza, discovered in the late 19th century in the Ben Ezra synagogue in "Old Cairo", the central district of Fusṭāṭ that has remained occupied until the present day. The Geniza is a repository of writings of the Jewish community of Fusṭāṭ, written between the 9th and 19th century, consisting of perhaps 300,000 fragments. This collection has preserved not only literary works but also personal and legal documents relating to the everyday lives of the Jewish inhabitants of the medieval city. Examination of these documents to create a picture of the economic, religious, and personal lives of the inhabitants was the life's work of S. D. Goitein, who published his compendious *A Mediterranean Society* in five volumes between 1967 and 1988.

However, the interpretation of the houses by their excavators, for the most part preceding much of Goitein's work, has tended to emphasise issues of chronology and stylistic development, rather than social life in the capital. The houses have traditionally been interpreted as examples of a style of architecture imported to Egypt from the east under a foreign ruler, without much regard to how the spaces themselves were used or understood by their residents.

Introduction

This thesis will, therefore, examine the conceptual and empirical bases for existing interpretations of the houses of Fusṭāṭ, and broaden the theoretical and methodological scope of previous archaeological research to consider the social lives of inhabitants, moving beyond issues of artistic development and the tastes of the political élite. The strength of historical archaeology lies in its ability to explore the lives of ordinary people omitted from the majority of literary accounts, to illuminate the agency of those people in shaping society, as manifested through their interaction with the material world. It is this agency that has yet to be considered in the archaeology of Fusṭāṭ.

Such an endeavour is not without its challenges. The site of Fusṭāṭ, though exceptional in terms of the scale and scope of excavations conducted, also presents a highly problematic dataset for interpretation of this kind. Its limitations are largely the result of the circumstances of its excavation—including shortcomings in early recording techniques and extent of publication—and the particularities of the archaeological record itself, namely the issues of preservation and post-abandonment depredation. This thesis attempts to highlight and test some of these limitations, assessing how far a socially-oriented interpretation of the houses is possible using the archaeological data available at present, and identifying future research agendas.

The analytical approach taken is multi-faceted. I will employ exploratory spatial analysis and statistical methods, utilising geographic information systems to draw together, visualise and interrogate archaeological data. Much of the data considered has only previously been presented piecemeal in excavation reports, largely informally; it is therefore hoped that collation and quantification will lead to new insights. Exploration of archaeological data will be complemented by an assessment of historical evidence for life in the houses of Fusṭāṭ, drawing in particular on Geniza scholarship. Historical insights not only aid (though should not supersede) archaeological interpretation but also highlight its limits, presenting a complementary picture of domestic use and conceptualisation of space that is inaccessible through material evidence alone.

In sum, this thesis aims to explore the following question:

- How were the houses of Fusṭāṭ revealed in archaeological excavations used and conceptualised by their inhabitants?

This will be supported and implemented by addressing the following more focused questions:

a) How robust are the theoretical and empirical foundations of previous interpretations of the houses excavated at Fusṭāṭ?

b) To what extent are social-oriented theoretical and methodological approaches applicable to the archaeological record of Fusṭāṭ, considering its limitations?

c) What can exploratory analysis of the archaeological data, considered together with the scholarship on historical sources, reveal about the use and meaning of particular domestic spaces?

I begin in Chapter 2 by providing historical background for Fusṭāṭ, detailing its development from the Muslim conquest to the end of the Fāṭimid period, the era in which the excavated houses are believed to have been abandoned. I then provide a summary of the major sources that will be used to explore the domestic architecture of the medieval city, highlighting their strengths and limitations.

Chapter 3 assesses the previous interpretations of the excavated houses. I begin by addressing underlying concepts in architectural and archaeological scholarship on the domestic architecture of the Muslim world that have influenced scholarship on Fusṭāṭ, before focussing on the interpretation of the houses themselves. This begins with their place within the housing stock of the city as a whole, followed by their typology, before moving on to discuss the distinctive suite of rooms that dominates both their categorisation and overall interpretation. The dominant explanation that this suite of rooms, and by extension the architecture as a whole, is a foreign cultural import is suggested to be a limited perspective on the past, and a new social-oriented approach is proposed.

The issue of how one may create a social interpretation of Fusṭāṭ's houses is addressed in Chapter 4. It details some of the most common theoretical and methodological approaches employed by archaeologists since the 1960s to understand the use and meaning of domestic spaces, and assesses their compatibility with the evidence available in the case of Fusṭāṭ. Within this chapter, a methodology for moving towards a social interpretation of the houses is detailed, to be implemented in Chapters 5, 6, and 7. The chosen approach is an exploratory spatial analysis of archaeological features within two excavation areas, complemented by an assessment of the historical evidence for domestic space and activity.

The picture of both domestic architecture and social life given by the Geniza documents, and other artistic and textual sources, is detailed in Chapter 5. Evidence for the rooms of the home, the composition of the household, the furnishings, and domestic activities will be considered.

Chapter 6 details what archaeological features may be used for spatial analysis, what data is available regarding their character and location, and how they can be interpreted in terms of their function and meaning. A majority of the preserved features have been related

to the water supply and sanitation system, and considerable discussion is therefore given to how this system may have worked. Further insights into the possible function and categorisation of features are provided by some preliminary statistical and spatial analysis.

In Chapter 7 the results of the spatial analysis of features are presented. The occurrence of various feature types whose function has been explored in the previous chapter will be contextualised within the architectural spaces of two chosen sites.

The social inferences one might make from these patterns are discussed in Chapter 8, which brings together the results of Chapters 5, 6 and 7 to discuss the extent to which the analysis has succeeded in illuminating social life and meaning within the houses of Fusṭāṭ. This will be followed by some brief conclusions about the thesis as a whole, as well as identifying potential future research agendas, in Chapter 9.

2   FUSṬĀṬ: CONTEXT AND SOURCE MATERIAL

"Al-Fusṭāṭ is a metropolis in every sense of the word."

—al-Muqaddasī, *Ahsan al-taqāsim*, 166

This chapter will contextualise Fusṭāṭ's domestic architecture within the historical narrative of the city's foundation and development. I will then discuss the available source material relating to Fusṭāṭ's domestic architecture and social life. The principal limitations of each set of evidence will be discussed in terms of its scope, reliability and relevance. The excavated houses of Fusṭāṭ that are the focus of this thesis are thought to have been built and occupied between the 9th and 12th centuries, with traces of occupation in the area from the 7th century onwards. It is for this reason that the period between Fusṭāṭ's foundation during the Muslim Conquest (642) and the end of the Fāṭimid period (1174) is the focus here.

2.1   THE DEVELOPMENT OF FUSṬĀṬ UP TO THE FĀṬIMID PERIOD

In 639 the Muslim general ʿAmr ibn al-ʿĀṣ, under the orders of the Rāshidūn Caliph ʿUmar, marched an army across Sinai to Byzantine-controlled Egypt. Recent scholarship also highlights evidence for a separate Muslim force, led by ʿAbd Allah ibn Abi Sarh, that invaded Upper Egypt across the Red Sea (Power 2012, 96; Booth 2013). In Lower Egypt, the traditional narrative of the invasion (Kaegi 1998), based on accounts such as Ibn ʿAbd al-Hakam's (d. 871) *Futuḥ miṣr wa akhbārahā,* holds that the stronghold of Pelusium (al-Faramā) in the eastern delta surrendered to ʿAmr's forces. After a subsequent victory over the Byzantine army at Heliopolis (ʿAyn Shams) the Muslim army laid siege to the nearby fortress of Babylon. The fortress fell in April 641, and by the end of the year the Byzantine capital, Alexandria, was under Muslim control. In November 641 a treaty was signed at the fortress of Babylon, which surrendered control of Lower Egypt from Byzantium to the Rāshidūn Caliphate.

Rather than occupying the Byzantine regional capital of Alexandria, ʿAmr founded a new Egyptian capital, Fusṭāṭ, around and incorporating the conquered fortress of Babylon (Arabic: *qaṣr al-shamʿ,* fortress of the candles), reportedly under the orders of Caliph ʿUmar (Ibn ʿAbd al-Ḥakam, *Futuḥ*, 91).
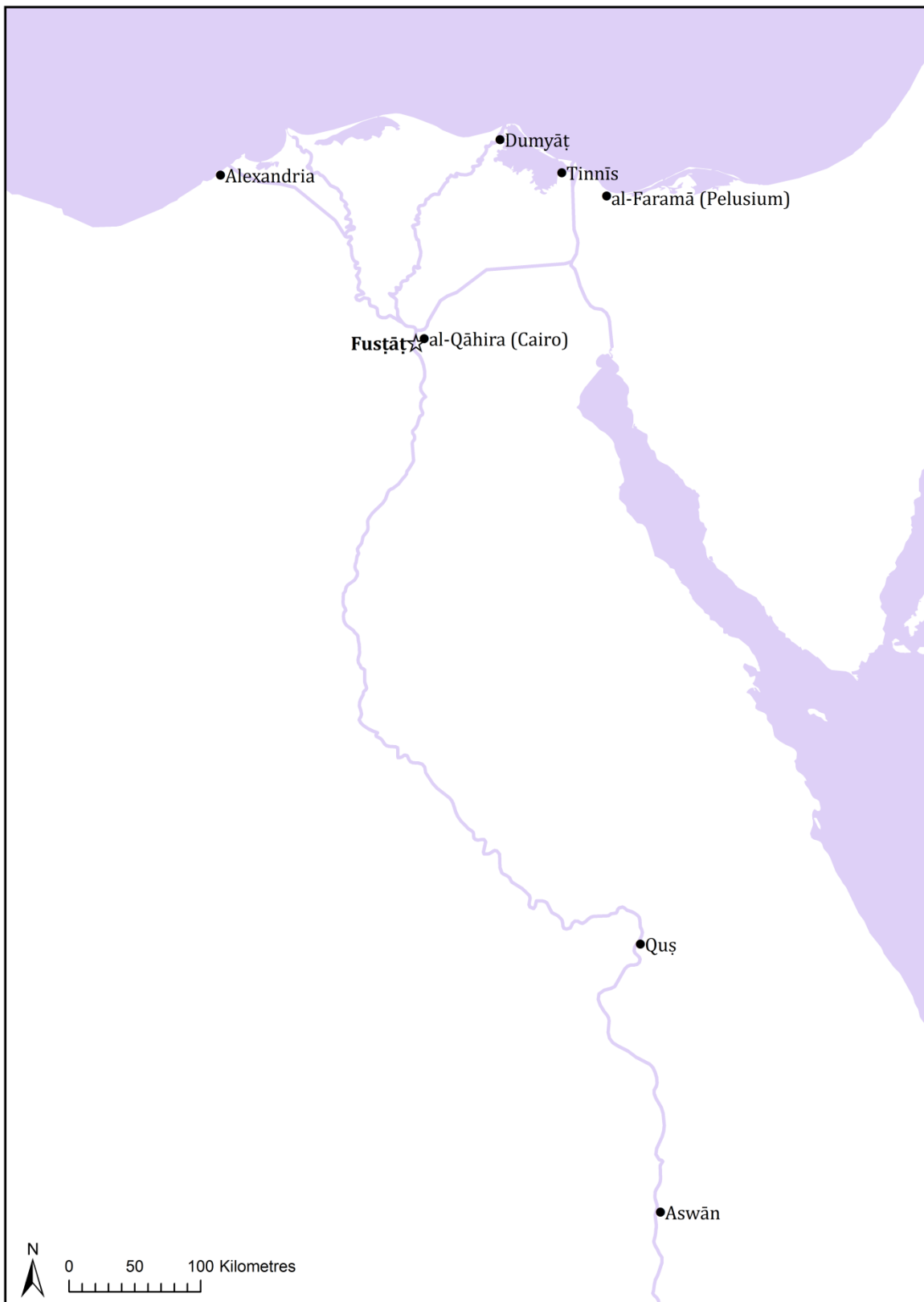
Figure 1 - Location of Fusṭāṭ and al-Qāhira (showing modern hydrology).

The fortress itself covered an area of around 5 hectares on the east bank of the Nile, immediately south of the branching point of the Nile. From at least the early 2nd century

AD the site had been of great strategic and economic importance as the entrance to the *Amnis Traianus*—the Trajanic canal connecting the River Nile with the Red Sea—and it had been provided with a stone harbour in this period[1]. It was not until the reign of Diocletian that this vital trade hub was protected with fortifications (Sheehan 2010, 57; *contra* John of Nikiu), as reconstructed in Figure 2. At the time of the conquest a boat bridge to the island of al-Rawda and onwards to the west bank was most likely in use (Kubiak 1987, 55; Sheehan 2010, n. 49 shown in Figure 3, below). This river crossing, the connection with the Red Sea, and the potential to control all river traffic between Upper and Lower Egypt made this site of huge strategic importance to the caliphate. Parts of the canal had gone out of use perhaps as recently as the late 6th century, but the Muslim armies set about re-excavating it soon after their victory at the behest of Caliph ʿUmar (Cooper 2014, 95–6) to provide a means to transport food to the Hijāz, at this point the heartland of the caliphate. The canal was renamed the Canal of the Commander of the Faithful (*khalij amir al-muʾmunin*), its confluence with the Nile now re-located to the north of the fortress (Figure 3, below).

Historical narratives of the conquest of Egypt have, through the terminology used to refer to the place of the siege, led most 19th to early-20th century scholars to believe that a pre-Islamic town existed outside the walls of the fortress (Butler 1970, 155; Caetani, 550; Herz 1917; Casanova 1913, 60, nos. 1-5). However, references to a *madīna* (al-Balādhurī, *Futuḥ al-Buldān,* 249) or *miṣr[2]* (John of Nikiu, *Chronicle*, 332; 560) and its inhabitants are more likely to be anachronistic additions of later writers and their translators (Kubiak 1987, 51). In the absence of any archaeological indication of an extra-mural pre-Islamic town in excavations in the area, it seems more likely that the fortress itself had a civilian population.

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[1] However ancient sources largely agree that a canal was first built along a similar course early in the Achaemenid occupation, though it is unclear whether this was at the site of Babylon or much further north (Sheehan 2010, 35–40).

[2] This is the name for the urban agglomeration of al-Fusṭāṭ, together with the later settlements of al-ʿAskar and al-Qaṭāʾiʿ, as well as designating a type of urban foundation and the country of Egypt. Discussed further below.
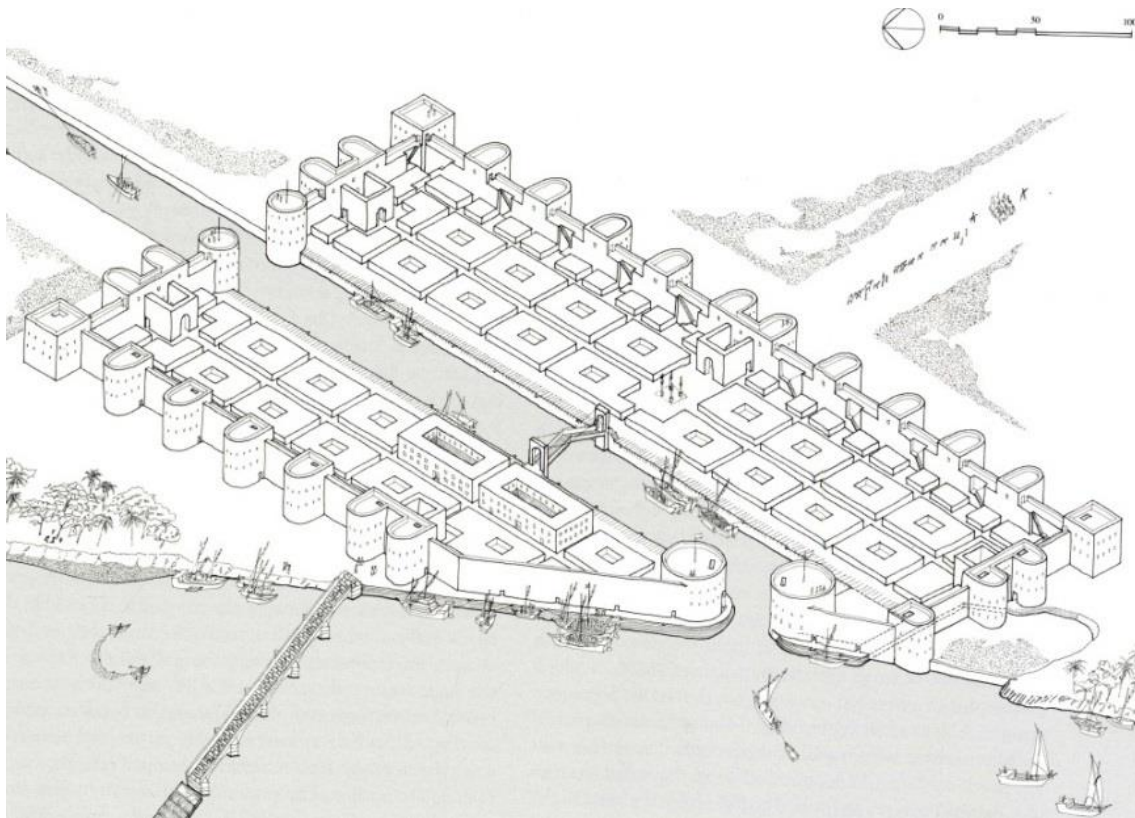
Figure 2 – Reconstruction of Babylon and the *Amnis Traianus* c.300 AD, by Nicholas Warner (Sheehan 2010, fig. 27, 61).

However, if a significant civilian population lived in Babylon prior to the conquest then there is little archaeological evidence for it. Sheehan's synthesis of archaeological evidence from Babylon concluded that the fort "continued to be primarily a strategic military post guarding the confluence of important routes by land and water, and not 'a medium sized fortified town' as has previously been suggested" (Sheehan 2010, 88; quoting Kubiak 1987, 55)*.*

The etymology of the new foundation "al-Fusṭāṭ" is most likely from the Greek *fossaton*, meaning ditch or moat (Kubiak 1987, 11; Denoix 1992, 71), referring to a defensive feature or to the Red Sea canal. This is the etymology given by al-Balādhurī (*Futuḥ al-Buldān*, 214, l.10) and Ibn Duqmāq (*al-Intiṣār*, IV, 2). More recently, this has been confirmed by papyrological studies by Sijpesteijn (2013). The more commonly cited etymology among Arabic sources—that it derives from the Arabic for tent (*fusṭāṭ*) after the legend that a bird nested on ʿAmr's tent after the siege of the fortress—can now be considered erroneous (first appearing in Ibn ʿAbd al-Ḥakam, *Futuḥ Miṣr*, 91).
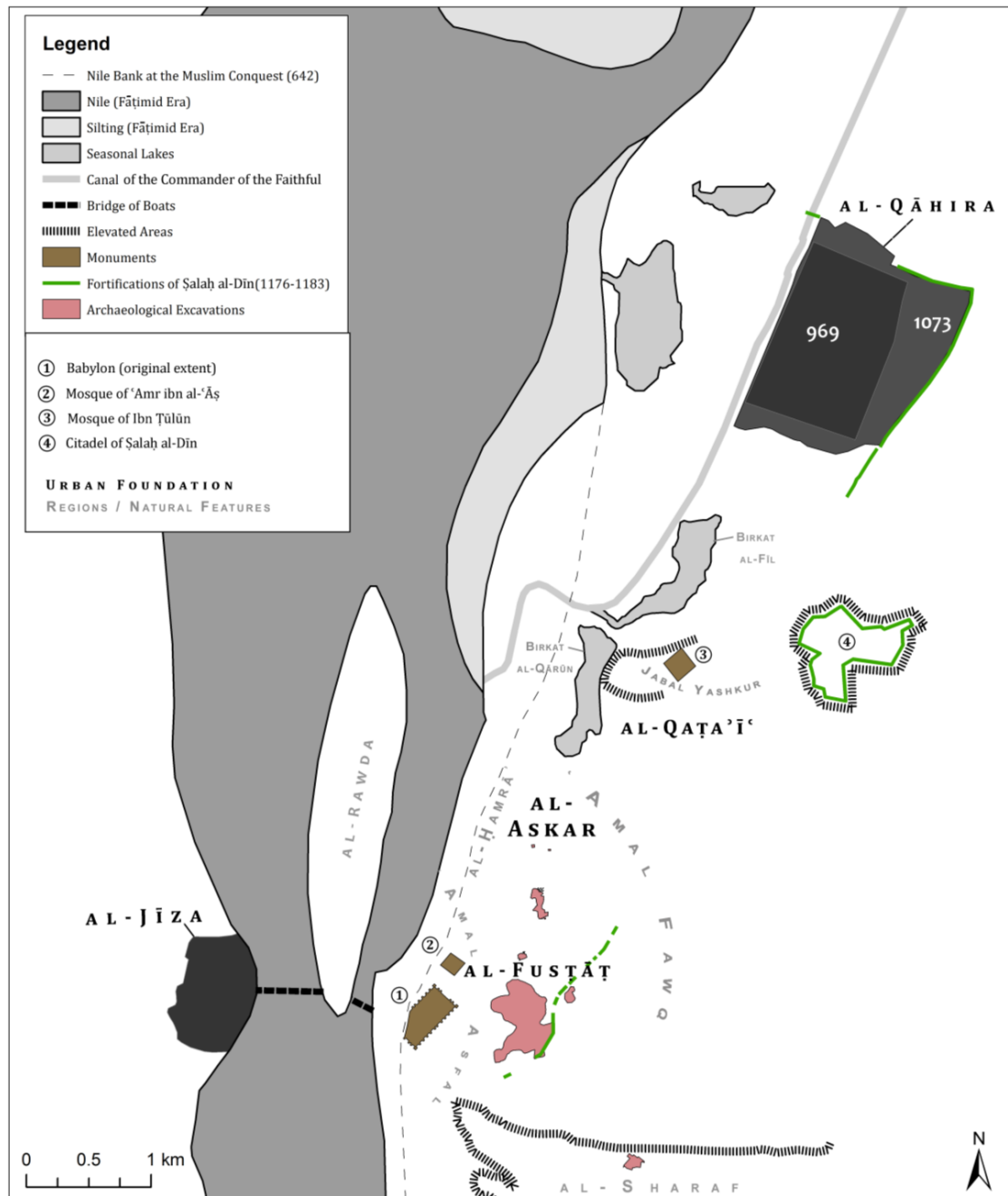
Figure 3 – Landscape of Fusṭāṭ (or Miṣr) up to the Fāṭimid and immediately post-Fāṭimid period (namely, the surviving parts of early-Ayyūbid fortifications), including medieval toponyms and major urban foundations. Archaeological excavations are also highlighted; more detail and sources are given in Figure 5, below. (Topographic Sources: Cooper 2014, fig. 12.2; Pradines 2015, fig. 8)

Following Byzantium's surrender the area around the fortress was given as land concessions to the individual tribes that constituted ʿAmr's army, such tribal concessions being known in Arabic as *khiṭṭa*s. This type of military settlement process had already been used to found other towns in newly conquered territories during the Muslim Conquests, namely Baṣra (founded 636) and Kūfa (founded 637-8) in Iraq (Kennedy 2010). These towns are referred to as *miṣr*s in historical sources, a term frequently translated as

'garrison town'. The *khiṭṭa*s covered the low-lying area around Babylon, referred to as ʿAmal Asfal in later sources, but also much farther (see Figure 3). The settlement extended to the south to the plateau known as al-Sharaf, and to the north along the Nile to the new mouth of the canal, this area would be known as al-Ḥamra, after the tribe assigned this *khiṭṭa*s, for centuries to come. The *khiṭṭa*s also included the rough northern plateau of ʿAmal Fawq (the high land) as far as the slopes of Jabal Yashkur (Kubiak 1987, Plan 4). Some of the more peripheral areas, however, may have been abandoned, re-purposed or lightly populated in the century following the conquest[3]. To the north of Babylon ʿAmr founded the first congregational mosque *(jāmiʿ)* of Egypt, Jāmiʿ ʿAmr ibn al-ʿĀṣ, and a governor's palace (*dār al-ʿimara),* as well as assigning individual parcels of land (*dār*s) in the surrounding district to his retinue and notables. This area was named not after a tribe but dubbed *Ahl al-Raya, "*people of the banner" (Kubiak 1987, 95).

The town developed from a makeshift encampment into an urban centre, while tribal segregation of the original *khiṭṭa*s eroded as land was exchanged between groups (Kubiak 1987, 88). The fortress might have been the centre of a Christian and Jewish population immediately after the conquest, as there is some archaeological and historical evidence for the foundation of churches in the late 7th-century (Sheehan 2010, 89). This need not have been a pre-existing settlement; the population may have migrated to the fortress in order to capitalise on the demand for goods and services created by the settlement of soldiers (Kennedy 2002). In later centuries, certainly, it is clear that the fortress was a focus for Christian and Jewish religious buildings, many of which survive today, and their communities often lived in surrounding areas, though not by legal necessity nor by any means exclusively (Goitein 1988, 308). Non-Muslims were protected subjects under Muslim law (*dhimmi*), although they had to pay poll tax (*jizya*), and most of their legal affairs were self-administered in separate courts. Despite these legal and administrative distinctions, sources from subsequent centuries indicate that the Christian and Jewish communities were deeply entwined culturally and economically with the Muslim residents of Fusṭāṭ (Goitein 1988, 308), though not without bouts of sectarian tension and even persecution under certain dynasties and rulers.

In 750, after Egypt came under the control of the newly founded ʿAbbāsid Caliphate based in Iraq, a new city was founded immediately to the north of Fusṭāṭ. The city of al-ʿAskar (the cantonment, the encampment) was founded by the ʿAbbāsid prefect and, as its name suggests, was built to house ʿAbbāsid troops, as well as to act as a new administrative centre.

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[3] 8th-century abandonment was identified archaeologically at the site of Istabl ʿAntar (Gayraud 1998), discussed later in this chapter.

By 786 it had been given a new *jāmiʿ*, and was also given its own *dār al-ʿimāra* and a palace named Qubbat al-Hawaʾ (dome of the air). In 754-55, the Red Sea canal was reportedly blocked by the ʿAbbāsid authorities as a response to rebellion in the Hijāz, though it still ran some distance from Fusṭāṭ, at least as far as the Wadi Tumaylat (Cooper 2014, 97). It would never be reconnected to the sea, but continued to supply fresh water to its surrounding settlements and act as a communication route during the Nile flood.

The appointment of Turkish general Aḥmad ibn Ṭūlūn as governor of Egypt by the ʿAbbāsids in 868 marks the beginning of the Ṭūlūnid period. Ibn Ṭūlūn swiftly took control of the Egyptian politics in an exceptional fashion, combining fiscal, military and civil authority, as well as centralising administration within Egypt itself, rather than Iraq. This in effect made Egypt—as well as the regions of Greater Syria and the Byzantine frontier that soon came under Ṭūlūnid control—into an autonomous polity. Some scholars emphasise, however, that Ibn Ṭūlūn never directly challenged ʿAbbāsid suzerainty, minting coins in the caliph's name and even occasionally giving tribute (Gordon 2015, 230).

Ibn Ṭūlūn followed the pattern established by the ʿAbbāsids in creating a new settlement outside the existing urban area, founding al-Qaṭāʾiʿ (the quarters, the fiefs) on the north-eastern border of the existing city in 870. Again, the land was divided up to house a garrison of troops loyal to the Ṭūlūnid governorship, and a new *jāmiʿ* (Jāmiʿ Aḥmad ibn Ṭūlūn, completed 879) was built. In addition, a vast palatial complex stretched to the east, on a spur of Jabal Muqaṭṭam where the Citadel of Ṣalaḥ al-Dīn would later stand. It should be noted that the exact limits of al-Qaṭāʾiʿ and al-ʿAskar are not well known; Figure 3 gives only a rough impression. When Ibn Ṭūlūn's son succeeded him without being appointed by the caliph, a clear challenge to his authority, the caliphate soon attempted to regain more effective control of Egypt and Syria by military means, at first unsuccessfully. Caliph al-Muktafī eventually conquered Fusṭāṭ in 905, in the aftermath of disputes within the Ṭūlūnid dynasty that had led to the assassination of Ibn Ṭūlūn's grandson. The troops reportedly razed all but the mosque of al-Qaṭāʾiʿ to the ground (Bianquis 1998, 108).

In the period after the re-establishment ʿAbbāsid control, Egypt suffered through internal strife (notably rebellious soldiers who had not been paid) and external threats (Bianquis 1998, 109). The latter came in the form of nomadic Berber incursions from the west, as well as the attempted invasion of Egypt by the Fāṭimid army, itself principally composed of Berber troops. The Fāṭimids were a dynasty of Ismāʿīlī Shīʿas that had installed themselves

in the Maghreb, with their capital at Mahdiyya, Ifriqīya (modern Tunisia). There they ruled as Shīʿa caliph-*imams*[4], opposing the Sunni caliphate of the ʿAbbāsids.

After a near-successful invasion of Egypt by the Fāṭimids in 935-6, the ʿAbbāsids concluded that only a largely autonomous dynastic series of governors, rather than individual appointees, could protect Egypt. The Ikhshīdid dynasty fulfilled that role, ruling Egypt until 969, though from 946 onwards *de jure* power lay with black eunuch and military officer Abū al-Misk Kāfūr (Bianquis 1998, 115).

The Fāṭimids succeeded in invading Egypt in 969, and founded another settlement to the northeast of al-ʿAskar and al-Qaṭāʾiʿ. This was henceforth the seat of government of their caliphate, called al-Qāhira (the victorious, the conqueror). Distinct from the previous three settlements, al-Qāhira was fortified, though it too was divided amongst the different ethnic or tribal groups that made up the Fāṭimid army.

The former two establishments, al-ʿAskar and al-Qaṭāʾiʿ, shared similar fates. Soon after their establishment they were incorporated into the larger metropolis (Kubiak 1987, 11–12), referred to by its inhabitants as 'Miṣr' or 'Fusṭāṭ-Miṣr', though I will continue to refer to the agglomeration as Fusṭāṭ, in keeping with wider scholarship[5]. The new quarters failed to significantly prosper after the dynasties that created them were no longer in power. Al-Qaṭāʾiʿ seemingly recovered after the destruction of 905, but both it and al-ʿAskar were reportedly left in ruins following the Mustanṣir crisis (discussed below) of the mid-11th century, not being renewed until the early-12th century (Denoix, 1992, p. 53; al-Maqrīzī, *Khitat*, II, 100, l.31). No standing remains in modern Cairo can be attributed to the ʿAbbāsid period of al-ʿAskar[6]. All that remains of Ṭūlūnid al-Qaṭāʾiʿ is the Jāmiʿ Aḥmad ibn Ṭūlūn (still

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[4] Based on their interpretation of the Shīʿa doctrine of *Imama,* the Ismāʿīlī Fāṭimids believed the "Imams" to be the true successors of the Prophet Muḥammad, possessing divine wisdom and authority (*ʿiṣma)* and were part of the family of the Prophet through ʿAli and Faṭima (from whom the Fāṭimid dynasty derives its name).

[5] Miṣr is also the Arabic term for the land of Egypt, as well as the aforementioned phenomenon of the "garrison town". The use of Miṣr to refer to the city rather than province is first evident in Arabic personal letters from the 8th century onwards, and "Fusṭāṭ-Miṣr" appears only in official documents, from the 9th century onwards (Sijpesteijn 2013). By the 11th century the inhabitants of the urban agglomeration of Fusṭāṭ, al-ʿAskar and al-Qaṭāʾiʿ, referred to their city as Miṣr, while al-Qāhira remained conceptually distinct (Goitein and Lassner 1999, 46; contra Kubiak 1987). Despite this, historical and archaeological scholarship has tended to call the city "Fusṭāṭ" or "al-Fusṭāṭ", even where Miṣr is specified in texts being translated. For the sake of consistency with wider scholarship I will refer to the city as Fusṭāṭ, which should be taken to mean the larger agglomeration unless otherwise indicated.

[6] However, Ṭūlūnid remains have been excavated here, as will be discussed later in this chapter.

largely in its original form). Both districts were inhabited to some extent in the Mamlūk and Ottoman periods. Aside from renewal of the Jāmiʿ Aḥmad ibn Ṭūlūn in the Mamlūk period (Creswell 1979a) they received little investment from the political and religious elite.

Al-Qāhira, however, remained a centre for elite religious, residential and commercial investment into the Mamlūk and Ottoman period and beyond. Its name is that from which all European languages derive their name for the modern city of Cairo. In the early decades of its existence al-Qāhira seems to have functioned as a high-status caliphal enclave. There were restrictions on who could own property and reside in the city (repealed in 1072 by Badr al-Jamālī, see below) and in the mid-11th century all shops were owned by the Caliph and rented to residents of Fusṭāṭ (Al-Sayyad 2011). However it appears that these restrictions did not stop a strong commercial element developing in al-Qāhira; already in the 10th century there were named specialised markets such as the market of the roasters, *shaqqaʾin* (Raymond 2001, 54)*.*

One might assume that the success of the new Fāṭimid enclave would mean a downturn for Fusṭāṭ. Not only was Fusṭāṭ no longer the seat of government, the Fāṭimids also created a new river port to the west of al-Qāhira at al-Maqs. However, this did not entirely replace Fusṭāṭ's role as a port (Cooper 2014, 193), with historical sources indicating that duties on any imports were still required to be paid at the old city (Fuʾād Sayyid 1998, 598; Raymond 2001, 60–61). Archaeological evidence, alongside the accounts of geographers and travellers (such as al-Muqaddasī, Nasir-i Khusraw), indicate that, surprisingly, the early Fāṭimid period was perhaps the apogee of Fusṭāṭ. The city supported diverse and intensive industrial activity: ceramic production, dying, metal-working and glass production, as well as many smaller industries (Goitein 1967). While al-Qāhira attracted the wealthy and political elite, their goods were provided principally by Fusṭāṭ or through it, and as such the two seem to have grown symbiotically.

This prosperity was arrested in the 1060s, under the reign of the eighth Fāṭimid caliph al-Mustanṣir, when Fusṭāṭ and the rest of Egypt suffered a series of natural and social disasters (Cortese 2015). A series of low Nile floods resulted in intermittent famine between 1064-71, and consequently fluctuating food prices and epidemics, lasting for over a decade. This was exacerbated by factional fighting between Turkish and African soldiers in the caliphal army which escalated into open warfare. Order was restored by Badr al-Jamālī (governor of Acre, and thereafter vizier of al-Mustanṣir) in 1073, who also encouraged agriculture to recover through alleviating taxes.

According to later sources the crisis left large parts of Fusṭāṭ, and the entirety of the areas of al-ʿAskar and al-Qaṭaʾīʿ, in ruin (al-Maqrīzī, *Khiṭāṭ*, II, 100, l.31). While Badr al-Jamālī did

attempt to foster urban redevelopment, his efforts were directed towards al-Qāhira at the expense of the rest of the urban area. His edict of 1072 allowed people to build houses in the previously restricted walled city with material taken from the ruins (*kharāb*) of Fusṭāṭ (Denoix 1992, 54).

It is not until one of Badr al-Jamalī's successors as vizier, al-Maʾmūn ibn Baṭāʾiḥī, was serving the Caliph al-Āmir (ruled 1101-30) that there was any action taken to restore these ruined districts. Al-Maʾmūn issued an edict in 1121 AD that if no owner was declaring rights to a ruined property, it could be claimed by the one who restored it (Denoix 1992, 54, no.53). During the reign of al-Maʾmūn there had been significant development on the road between al-Qāhira and Fusṭāṭ, including some areas of al-ʿAskar and al-Qaṭāʾīʿ, but still a large part of the latter districts lay in ruin and a wall was supposedly built to shield the caliph's view of these areas from the road (Denoix, 1992, 54, citing al-Maqrīzī, *Khiṭāṭ*, II, 100, l.31-32).

Though Fusṭāṭ may have made some recovery after the Mustanṣir crisis, in 1168 the town was reportedly burned under the orders of the vizier Shawār, according to later sources (al-Maqrīzī, *Khiṭaṭ,* I, p.335). This drastic measure was supposedly taken in order to stop invading Frankish (crusader) and Saljuk armies using the undefended city as a base from which to attack the fortified capital of al-Qāhira. The story is verified in multiple later sources, with some seeing it as the second of the two events (the first being the Mustanṣir crisis) that ensured the ruin and diminishing status of Fusṭāṭ in subsequent periods (al-Maqrīzī, *Khiṭaṭ,* I, 335, l.12). Yet reassessment of these sources, together with a lack of documentary and archaeological evidence for such devastation, has cast doubt on the supposed extent of the fire and its cause (Goitein 1983, 103; Kubiak 1976).

Further evidence for the extent of Fusṭāṭ that survived beyond 1168 is provided by events immediately following the Saljuk and Frankish military threat to Egypt, when Ṣalaḥ al-Dīn (founder of the Ayyūbid dynasty, who took control of Egypt in 1173 AD) constructed a new set of fortifications enclosing both al-Qāhira and Fusṭāṭ. The Ayyūbid wall most likely did not enclose what had been the maximum Fāṭimid extent of occupation Fusṭāṭ, as evinced by archaeological remains beyond the wall (Bahgat and Gabriel 1921) but the fact that a significant area was enclosed shows that even after any supposed fire, there was still considerable occupation and activity in the town.

The prosperity of Fusṭāṭ was certainly diminished in the post-Fāṭimid period, not only because of its need to recover from the calamities of the late 11th and 12th centuries, but also as a result of the development of a port further north at the site of Būlāq in the early-14th century (Cooper 2014, 193), the simultaneous re-alignment of long-distance trade

routes (Denoix 1992, 86), and the development of the area between and within al-Qāhira and the Ayyūbid Citadel (Raymond 2001, 97). Most of the urban area would become a dumping ground for refuse throughout the Mamlūk and Ottoman period, creating a landscape of mounds; only the very central districts along the Nile were occupied by the 19th century (Figure 4).

Figure 4 — Early 19th-century map of Cairo from the *Description de l'Égypte.* Fusṭāṭ's Mosque of ʿAmr and Babylon are marked A and B, rubbish mounds cover most of the city to the east (north is to the left of the image), while a small area is still occupied, dubbed "Vieux Caire" or Old Cairo (Jomard 1823, 32, pl. 13).

These central districts would remain occupied up until the present day. Pottery workshops have long been clustered between this central area and the medieval mounds, though the makeshift workshops have recently (by 2008) been moved into new purpose-built facilities by the Cairo Governate (Van As et al. 2009). The mounds themselves, and the ruins they overlie, have been increasingly threatened by the development of modern Cairo, particularly since the 1960s (discussed below). Much of the site has now been developed, covered with illegal informal housing, become landfill, and is plagued by high ground-water problems. The surviving walls of the fortress of Babylon, now dubbed anachronistically "Old Cairo" (or Miṣr al-Qadīma), are populated by Christian and Jewish monuments. Both these and the

heavily modified Mosque of 'Amr have been restored by the Comité de Conservation des Monuments de l'Art Arabe, as has the Mosque of Ibn Ṭūlūn.

2.2 SOURCE MATERIAL

2.2.1 Literary Sources

There are several scholarly works on the history and geography of Egypt written in the period of Mamlūk rule that provide a framework for understanding the earlier development and topography of Fusṭāṭ. Al-Maqrīzi's (1364-1442) *Khiṭaṭ* includes a history of Fāṭimid, Ayyūbid and Mamūk Egypt, as well as a topographic description of Fusṭāṭ's urban fabric in his own time, though including which streets and quarters are in ruins. Ibn Duqmāq's *Kitāb al-Intiṣār*, written 1394-1401, includes a history and topographic account of the city of Fusṭāṭ.

As these works are primarily concerned with political, military and economic developments, and the large-scale topography of streets and quarters in later centuries, they provide only contextual evidence for this study. More central are the accounts of travellers and scholars who described the architectural fabric and urban life of Fāṭimid Fusṭāṭ first-hand. Three such accounts will be considered: those by Nasir-i Khusraw, Ibn Ḥawqal and al-Muqaddasī.

Nāṣir-i Khusraw was a Persian poet and scholar, born in Khurasan in 1004. He embarked on a series of travels between the years 1046–1052 AD. Though principally a journey of pilgrimage to holy cities such as Mecca, Medina and Jerusalem, he spent a considerable period of time in Egypt, which was then under the rule of the Fāṭimid caliph-imam al-Mustanṣir. Though having served the Sunni Saljuk sultans in Khurasan, in Egypt he was converted to the Ismā'īlī faith, and was appointed as a *dā'ī* (missionary).

The account of his travels, the *Safarnāma,* contains an eyewitness account of the city of Fusṭāṭ (and al-Qāhira) at the height of its prosperity in 1047 AD (P. E. Walker 2002, 143) Unfortunately, Nasir-i Khusraw's passion for the Ismā'īlī faith may have coloured his account of the city, the centre of an Ismā'īlī empire. The hyperbolic nature of his praise is evident in his claims that Fusṭāṭ had 200 caravanserais, 20,000 shops, and houses of up to 14 storeys. However, useful information can still be gleaned from his account.

Abū al-Qāsim ibn Ḥawqal was born in Naṣībīn, Iraq, in the early 10th century AD. He travelled extensively in 947-973. He arrived in Egypt at some point before 973, and provides a description of Fusṭāṭ in his geographic work *al-Masālik wa'l-mamālik* or *Kitāb Ṣūrat al-arḍ.* Like Nāṣir-i Khusraw, it seems that Ibn Ḥawqal was to some extent

sympathetic to the Fāṭimid cause, and may have also been an Ismāʿīlī *dāʿī* (P. E. Walker 2002, 139).

That Ibn Ḥawqal depicts Fusṭāṭ as the 'true' city and al-Qāhira as a palatial compound should be no surprise, considering that his visit to Egypt is only four or fewer years after the Fāṭimid invasion of Egypt and foundation of al-Qāhira. What is perhaps more surprising is that he does detail considerable urban facilities in al-Qāhira such as markets, baths and inns (*Kitāb ṣurat al-arḍ*, 144-145).

The geographer Muḥammad ibn Aḥmad Shams al-Dīn al-Muqaddasī was born c.945 in Jerusalem, and died c.991. His work *Aḥsan al-taqāsīm fī maʿārifat al-aqālīm* (The Best Division for Knowledge of the Regions) is a geographic account of the Islamic world in his own time, reportedly based on his personal observation through many years of travelling. This work contains a description of both Fusṭāṭ and al-Qāhira, which he visited in 985 (Yeomans and Hines 2006). Like Ibn Ḥawqal his description is based on observations made not long after al-Qāhira had been founded, and similarly focusses on Fusṭāṭ as a thriving metropolis in contrast to the new princely enclave of the Fāṭimid city. His description of the city is one of his most lengthy and complimentary in the work as a whole, though it is counter-balanced by a description of its negative qualities, many of which are in direct contradiction to his praise. This is perhaps explained by his efforts to be comprehensive as possible in his description of the world, or to delight the common reader, both of which are emphasised in his introduction to the work (*Aḥsan al-taqāsīm*, 1-2).

2.2.2 Documentary Sources

The chief textual sources used in this study are the documents of the Cairo Geniza. In Hebrew a *geniza* is a repository, in this case one for discarded writings. Such repositories were created due to the Jewish belief that writings bearing the name of God—and by extension anything written in Hebrew, God's language—should be stored until such a time as they can be buried. This practice was also extended to documents written in Hebrew script, regardless of the language in which they were written.

Such a repository was discovered in the 19th century in the Ben Ezra Synagogue in Old Cairo (Babylon), and is referred to as the "Cairo Geniza". In 1864 the chamber was entered by scholars, and from the 1890s manuscripts began to be purchased by private and public collections (Goitein and Lassner 1999, 10). The majority of the documents were acquired in the late 1890s by the University of Cambridge and Dropsie College for Hebrew and Cognate Studies, Philadelphia. In total there are now twenty libraries, as well as numerous private collections, that hold documents from the Geniza, as well as material discovered in the Basātīn cemetery nearby.

Fusṭāṭ: Context and Source Material

The majority of the texts are literary works, though a minority are documentary, consisting of personal correspondence, deeds, contracts, inventories and more. Most documentary fragments are written Middle Arabic using Hebrew script (Judaeo-Arabic), other documents are simply in Hebrew, Arabic, or Aramaic[7]. The documents date from the 9th to the 19th century. They are thought to have been deposited from 1025 onwards[8], with a considerable number of documents dating from the second half of the 10th century, then a sudden increase in quantity from 1120-1266, after which documents become scarce. The 'classical Geniza period' is therefore considered to be the late 10th century until the mid-13th century – the Fāṭimid and Ayyūbid periods.

Initially it was the literary and religious works that first interested scholars, though from1967 to his death in 1985 S. D. Goitein studied the documentary fragments and their relevance to the social life of the Jewish community. His synthesis was published in a five volume set entitled *A Mediterranean Society: the Jewish communities of the Arab world as portrayed in the documents of the Cairo Geniza* (Goitein 1988; Goitein 1983; Goitein 1971; Goitein 1967; Goitein 1978a)*.* Each volume deals with a particular aspect of society: economic foundations, daily life, the community, the family and the individual. An additional volume on the letters relating to the India trade was published posthumously by Goitein's former student, Mordechai Friedman (Goitein and Friedman 2011).

Goitein's work is a pivotal resource for this study. In particular, two categories of documents studied by Goitein are particularly relevant: the house deeds and trousseau lists. The former provide details not only of ownership and price but also the physical characteristics of the house of question, described room by room. The latter detail the goods brought by the wife into the home upon marriage—principally textiles, furniture, clothing, jewellery and utensils—thus giving an impression of the portable elements of the domestic environment. In addition, a large amount of information about urban society of Fusṭāṭ beyond its material culture has been extracted by Goitein. There are, however, limitations to this resource resulting from both the nature of the Geniza documents themselves and to the form of *A Mediterranean Society,* as well as other English-language scholarship on the fragments.

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[7] Preserved because there is Hebrew lettering on the same fragment, or simply deposited along with other papers without being sorted.
[8] In 1012 the Fāṭimid Imam al-Ḥākim ordered the destruction of all Christian and Jewish houses of worship. The synagogue of the Palestinians of Fusṭāṭ was demolished, not being restored until 1025. It is to this restoration that the Geniza chamber must date (Goitein and Lassner 1999, 20).

A Mediterranean Society is primarily an interpretative synthesis, based on a masterly understanding of Judaeo-Arabic and decades of study of a large corpus of texts. Given the scope of the work, fully edited and translated documents are not usually provided. Within discussion, key terms are most often provided in their original language (transliterated), though occasionally observations are presented entirely in English terminology. References to manuscript numbers that support any interpretation are given, but for the non-expert in Arabic language it is sometimes not possible to determine which Arabic term is being used to make a particular inference (if no transliterated term is supplied), and frequently not possible to situate a specified Arabic word or phrase into its context within an entire document (where a term is supplied).

Fortunately, some Geniza documents have been fully edited and translated into English. Those relating to pious foundations, the *qodesh*, have been translated by Moshe Gil (1976). The *qodesh* is an institution in which private property was denoted or bequeathed to the religious community, its revenue used to support pious and charitable acts, such as feeding the poor. The documents of these pious foundations include numerous deeds, and accounts of expenditures and revenues from property held by the religious community. Furthermore, English translations (or lengthy summaries) of 27 documents of the Karaite community have been provided by D. S. Richards (1972). These documents were not found within the Ben Ezra synagogue or nearby cemetery, they relate to a separate Jewish community, but are often considered together with the Geniza fragments as they are comparable in date and content. Both of these are used to supplement, and contrast with, the interpretation provided by Goitein. Beyond this there are a host of edited and translated texts that appear in more focused articles by scholars, which have been consulted where possible. A bibliographic index has been compiled for the documents in Cambridge University Library's collection, which aids in identifying works with partial or full translations of this subset of material (Jefferson et al. 2004).

As discussed, the documents predominantly date to the 10th-13th centuries, giving a significant temporal overlap with the occupation of the houses excavated at Fusṭāṭ (9th-12th centuries). Yet Goitein's synthetic approach aims most often to characterise "Geniza society", meaning this period is often treated as an undifferentiated continuum, though occasionally changes over time are noted. Unravelling more of the temporal limits of certain observations is possible through Goitein's copious endnotes, where relevant manuscript numbers are provided, along with their dates in some cases. Where a date is not provided, it is often possible to find one by cross-referencing manuscript numbers to recently develop digital archives of the fragments that have been at Cambridge University Library, the Bodleian Library, and University of Pennsylvania Libraries.

Fusṭāṭ: Context and Source Material

Those who deposited texts within the Geniza represent a particular subset of Fusṭāṭ's urban population. They belonged to the Rabbinite Jewish community of Fusṭāṭ, more specifically the Palestinian Rabbinites, one of two such communities in the city[10]. The Geniza chamber was part of the Synagogue of the Palestinians, its congregation and community leaders were its contributors. Most must have lived within walking distance of the synagogue— that is, near Babylon—in order to attend services, as riding was forbidden on the Sabbath. They represent, therefore, primarily a traditional core of this religious group, those that had not moved to the new Jewish quarter in al-Qāhira—perhaps in service of the Fāṭimid court—nor abandoned their co-religionists altogether.

The authors and subjects of Geniza documents are often men of relatively high wealth and social standing in the community. Wealthy men were expected to be involved in religious study, and were therefore highly literate. Moreover, they were more likely to be involved in the long-distance trade that produced abundant correspondence, and in business more generally, as well as taking on positions of civic and religious responsibility that are revealed through legal and administrative documents. Yet we also find writings about—as well as written or dictated by—the family members, friends, associates, partners and petitioners of these men. Many of these people may not have called Fusṭāṭ home. The sizeable towns and small villages of the Delta feature prominently, referred to collectively as the Rīf (Goitein 1983, 9), as do cities of the Mediterranean and Indian Ocean with which mercantile activity was conducted, and from which many of the Jewish community came from, or moved to.

The poorest people of the community appear in the documents because their fate was tied to the wealthy protagonists described above. The community was responsible for numerous charitable social services for the poor, financed by short-term donations from the congregation, the charitable foundations (*qodesh*) and slaughterhouses (Goitein 1971, 103). Petitions to the leaders of the community from someone who had fallen on hard times are common (Goitein 1988, 45 ff.)[11]. Women are represented through marriage contracts, divorce petitions, marital disputes and reconciliations, wills, as well as through correspondence with their absent husbands, sons and other relatives. Many well-to-do women could read (Goitein 1988, 180; 218), though few could write, meaning they often dictated to scribes (Goitein 1988, 227).

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[10] The other was the Iraqian Rabbinites, whose synagogue has not survived.
[11] The illiterate poor could still petition if a scribe was used, and it seems that in some cases the scribe performed this service for free (Goitein 1988, 227).

Crucially, as this study proposes to use the Geniza to reconstruct both domestic architecture and the mode of living within across Fusṭāṭ *as a whole*, one must establish whether the evidence therein is applicable beyond the Jewish community. How integrated, geographically and culturally, were the different religious groups of Fusṭāṭ?

Firstly, it is clear that houses owned and occupied by Jews were not formally distinct from others. As discussed above, documents indicate that the community lived in quarters near Babylon, in districts such as "Mahra" and "the Old Spinnery" (S. D Goitein 1983, 13). Though concentrated in these areas, none of these neighbourhoods were exclusively Jewish, as shown by frequent descriptions of Muslim and Christian neighbours (S. D Goitein 1971, 290; S. D Goitein 1983, 21). Moreover, deeds of transfer make it clear that property was exchanged freely between Jews, Muslims and Christians, and houses were held in partnership by members of different religions (Goitein 1971, 292).

It is far more subtle and complex a problem, however, to establish how far modes of activity *within* these houses, and the values that underlies them, may have been shared between different religious groups. Though they were often neighbours, the documents reveal that Jewish authorities and private individuals recommended or insisted that one should avoid the sale or lease of parts of Jewish-owned houses to Muslims (Goitein 1971, 292). This is not apparently related, however, to any antipathy between the groups or preference for separation of their communities, it was a practical and financial concern. The motivation lay in the inconvenience caused by the Muslim practice of segregating women within the household (*purda*), restricting the use of communal space within co-habited houses by Jewish men and women, thereby reducing the attractiveness of the property to other potential non-Muslim co-tenants. While some Jews seem to have sought out solely Jewish houses to occupy for this reason, this was not the case for the majority (Goitein 1983, 21: TS K 27, f.45).

Still, what this suggests is a different mode of life and use of space within the houses. However, it is based on a specific religious proscription rather than a general cultural divide. Goitein stresses that, unlike the European Jewry of the Middle Ages, the Jews of the Islamic world were not confined to particular occupations, nor confined to a ghetto, were largely linguistically assimilated, and their "participation in its cultural life was far-reaching" (Goitein 1988, 308). Muslims and Christians do appear in the documents; they were partners in business, buyers and sellers of property, landlords or tenants, and more rarely guests or acquaintances. Goitein contends that "members of different religions who exercised the same occupation could be more akin to one another than they were to people of their own religion belonging to another class and doing entirely different work" (Goitein

1988, 6). Furthermore, the larger group to which one primarily belonged was one's *wāṭan*—meaning homeland, or more accurately home city—not one's faith (Goitein 1988, 6), and even that "the three religions probably did not very much differ from one another" in terms of their effect on "general standards of behaviour" (Goitein 1988, 206).

Elsewhere, however, Goitein emphasises the profound impact of religion on a personal and social level, stating that religion both "formed the basis of a person's inner life" and "his status as a social being", meaning that beyond one's religious group "everyone else was a stranger" (Goitein 1988, 5; 6). It is easy to see the impact of religious understanding on modes of thought, particularly among the high ranking men for whom religious scholarship was the principal pastime, through the Biblical and Talmudic knowledge that flows through all sorts of documents. This knowledge frames communication, creating a shared idiolect, in which quotations are used to particular ideas and convey one's learning, and religious oaths litter correspondence[12].

Furthermore, religion can be seen to structure the rhythm and content of activity within the city, at least on a public level, through regular congregational worship, pilgrimage, and in the separate juridical systems for the non-Muslim religious groups[13]. These separations in public life no doubt had consequences for the cultural distinctness of the community; keeping co-religionists segregated in their associations and shared experiences. Religion also had a direct impact on rhythms of life within the home, most obviously in the timing and practices surrounding the festivals and the Sabbath. Still, there were numerous shared public experiences: the Christian festivals of the Nawruz (Coptic New Year), Epiphany and Festival of the Cross were celebrated by all three religious groups, as was the Nile Inundation festival (Sanders 1994a, 81).

The overall picture, therefore, is one of tensions in the lives and identities of the people of the Geniza, being in one way culturally integrated into Fusṭāṭ society, but in some ways distinct. Throughout this study, it will be important to consider areas in which differing

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[12] Oaths such as "may his soul be preserved in the bundle of life" appear as abbreviations when referring to respected persons (Goitein 1988, 290). Sentiments are often conveyed through Biblical quotations, the context of which the reader is assumed to understand, such as a business letter which wishes for the reader "Your hand shall prevail over your foes and all your enemies shall be cut down" (Micah 5:8) (Goitein 1988, 297). References to religious texts appear particularly in moralising sentiments in letters and legal disputes, for obvious reasons.

[13] Law was personal and not territorial, therefore non-Muslim communities in Muslim lands had their own judiciaries (Goitein 1967, 66). Ultimately, however one could appeal to the *qadī* (Muslim judge) or caliph. Taking a case to the Muslim court was considered in low esteem, though could be used as a last resort (Goitein 1978a, 83).

religious proscriptions—drinking of wine; segregation of genders; attitudes to sex and marriage; and ritual prayer and purification—fundamentally affected social life within the home, as well as the potential impact of public religious life. Though, of course, the degree to which these proscriptions were upheld in different contexts may vary. Still, domestic activity that is the focus of much of the study is the minutiae of everyday life (family relations, eating, drinking, sleeping, sex, working, relaxing, socialising), that may have far more nuanced relationships to religion. As I will demonstrate, it may be hard to find evidence related to such private actions within the home at all, and even harder to therefore consider how they may have varied between religious groups. However, considering the general cultural integration of Jews, there is no reason to assume that these fundamental aspects of home life would significantly differ between groups, if unrelated to specific proscriptions.

Beyond the Geniza documents, some reference will be made to Muslim documentary sources, primarily *waqf*s. A *waqf* is an endowment of property for charitable or pious purposes, equivalent to the Jewish *qodesh* described above. A central institution for *waqf*s existed in Egypt from the Umayyad period, though the earliest records of specific *waqf*s are from the ʿAbbāsid period, and only preserved as reports in later scholarly works such as Ibn Duqmāq and al-Maqrīzī (Behrens-Abouseif 2002, 64). Several repositories for *waqf* deeds exist in Cairo, principally the Dār al-Waṭāʾiq al-Qawmiyya in the Citadel and the Daftarkhāna of the Ministry of Awqāf. These are predominantly from the Mamlūk period, though a minority are Fāṭimid. As with *qodesh* documents, the endowment is recorded in a deed that includes a description of the property, along with details such as date and donor.

There is no complete study of the Cairo *waqf* archives in terms of the evidence they present for housing and urban life, as there is for the Geniza fragments. Muḥammad Amin and Laila Ibrahim have, however, analysed the architectural terminology for the Mamlūk *awqāf* , published in Arabic (Amin and Ibrahim 1990). Still, numerous studies draw on the *waqf*s heavily for insights into domestic and palatial architecture, though in keeping with the chronological bias of the dataset these are primarily concerned with the Mamlūk period. The most pertinent to this thesis is Ḥazim Sayid's (1987a) study of the changing frequencies of different types of reception rooms in houses between the late Fāṭimid and Mamlūk period recorded in the *waqf*s, as well as deeds from the Geniza and Karaite archive.

A number of written documents dating to the 10th and 11th century were recovered at the site of Fusṭāṭ-C during the excavations directed by G. T. Scanlon, discussed further below (Kubiak and Scanlon 1989). There were 441 fragments, 117 of which were judged preserved well enough to be photographed and catalogued by D. S. Richards, according to

stratigraphic provenance, date, and general content (Kubiak and Scanlon 1989, 65–7). Full translations were provided for just three of the documents.

Figure 5 — Satellite image of modern Cairo showing the location of Fusṭāṭ excavations, extant monuments, and aspects of historical topography (Bahgat and Gabriel 1921, fig. 1; Ostrasz 1977, Plan I; Kubiak 1987, Plan I; Sheehan 2010, fig. 10).

Documents collected privately by Dr Henri Awad, ultimately from illicit quarrying of the Fusṭāṭ mounds by locals, were kindly donated to the Islamic Art Museum. As a medical doctor, Awad was particularly interested in medical prescriptions and as he later trained in Cairo University's Institute of Archaeology, it was he himself who analysed these particular documents in a volume dedicated to his collection (Bacharach 2002). His wider collection has never been published or translated, to my knowledge, and remains in the possession of the Islamic Art Museum.

2.2.3 Archaeological Sources

I will now move on to consider the scope and reliability of the archaeological sources for Fusṭāṭ's domestic architecture. Figure 5 shows the locations of various excavations that have been conducted across the site of Fusṭāṭ from 1914 onwards. It should be stressed that providing a precise location for these excavations is often problematic. Within excavation reports absolute coordinates are never given, and where a location map is provided (which it often is not) few extant landmarks are included[14]. There are numerous summary plans provided in other publications showing the locations of various excavations, though most excavated areas indicated therein are not labelled, meaning it is unclear which relates to which excavation. Furthermore, the locations and shapes of the excavated areas vary greatly between such plans, and are clearly not plotted accurately. Those excavations whose location, size or identification is questionable are therefore distinguished in the figure where possible[15].

A. Bahgat and Gabriel

Between 1912-24[16] a large area of the medieval rubbish mounds of Fusṭāṭ were cleared under the supervision of Ali Bahgat Bey, on behalf of the Museum of Arab Art, now the Museum of Islamic Art, Cairo. A license was granted by the Egyptian authorities to excavate the area for the mining of *sabakh*, the recovery of artefacts for the museum, and archaeological recording of the buried remains. The excavation uncovered an area of around 20ha, beginning 200m due east of the fortress of Babylon. A report of the excavation,

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[14] Excavations are located based on the major mosques, Babylon, and the fertiliser factory near the sites of Fusṭāṭ-A and Fusṭāṭ-B. Though demolished decades ago, the factory appears on the US Army Engineers map of Cairo (1958).

[15] The area marked as Fusṭāṭ-C is unlabelled in Kubiak's plan (1987, Plan 1), but is the only area matching the described location of the site. Ambiguities regarding the location and designation of excavations by Egyptian authorities are discussed below.

[16] The end date for excavation is taken from (Kubiak 1987, 30) but this is after the date of publication of the excavation report.

focussed primarily on the architecture, was published by Bahgat and his architect, Albert Gabriel (1921).

However, the excavations did not record any of the stratigraphy of the site, and all artefacts recovered that were placed in the Museum of Arab Art are now decontextualized. Furthermore, publication of the architectural remains was far from complete; in their publication of 1921 only nine house plans are presented, though the street pattern was planned in its entirety (Figure 7)[17]. Furthermore, the wall built by Ṣalaḥ al-Dīn was revealed, skirting this district on the southeast edge of the concession.

Figure 6 – Aerial photograph showing the area excavated by Bahgat and Gabriel. The Mosque of ʿAmr ibn al-ʿAṣ is visible top right, the pale lines in the centre represent excavated streets, and the mounds outside of the excavated area in the foreground (Bahgat and Gabriel 1921, plate III).

Each of the nine houses was recorded as a *plan actuel* (Figure 8), reflecting its state of preservation, and a *plan restauré* (Figure 9), reflecting the excavators' interpretation of its

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[17] A further three house descriptions appear in a subsequent article (Bahgat 1923), without illustration and too vague to be of use.

original ground plan. As later scholars would subsequently note , however, there is often a gulf between the two plans, and the text is not detailed enough to explain the various decisions made in reconstructing aspects of the architecture (Ostrasz 1977, n. 6, 59). The most notable supposition in the reconstituted plans is the position of doorways, which cannot be established with certainty in all but a handful of cases.
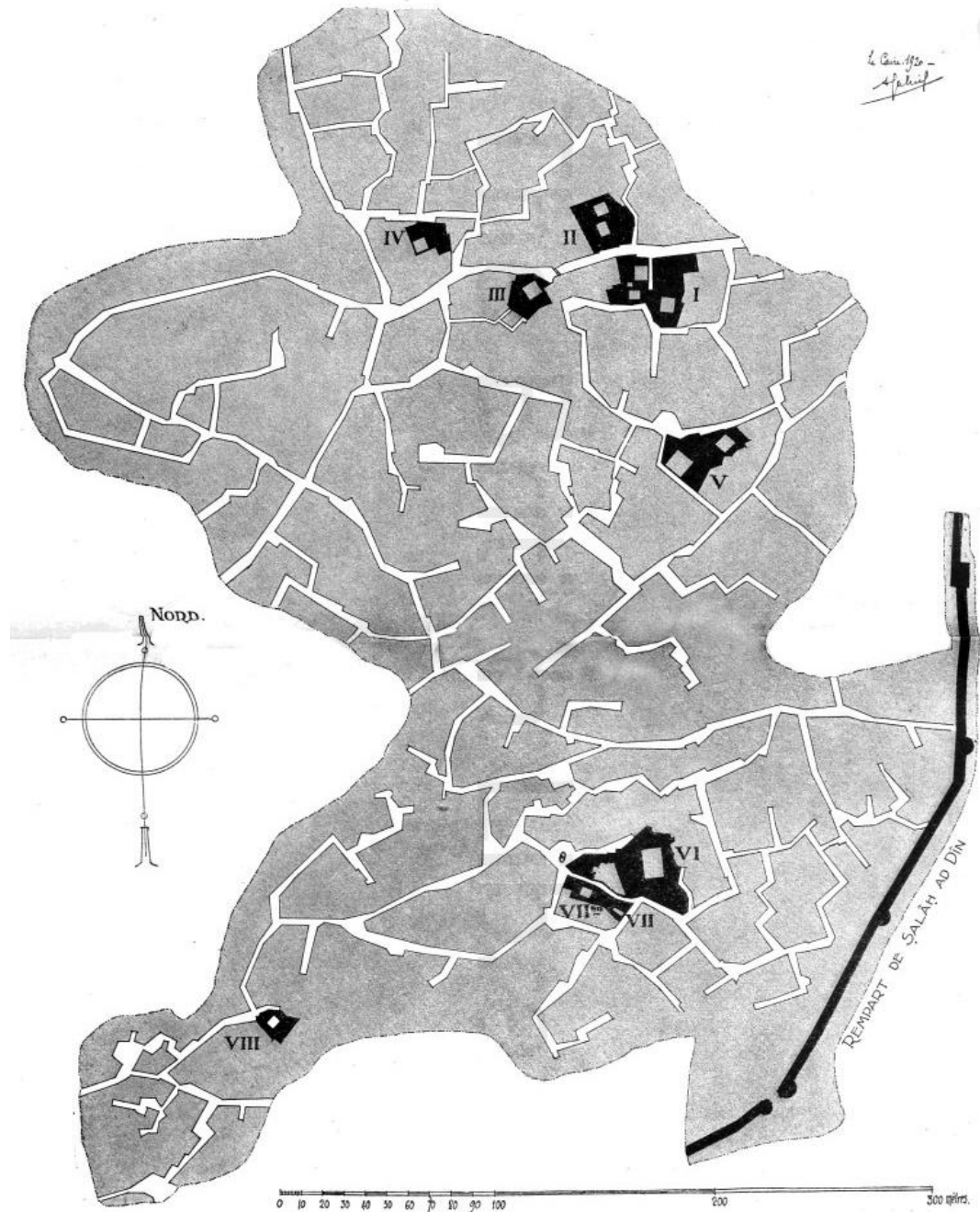
Figure 7 – The area excavated by Bahgat and Gabriel, showing streets, the wall of Ṣalāḥ al-Dīn, and the location of planned houses (Bahgat and Gabriel 1921, fig. 3, 30-31).

The houses described by Bahgat were built of baked brick bonded with lime mortar, and had preserved stone paving. Their plan was centred on an open courtyard with a central fountain or water basin. A common element of their plan was suite of three rooms fronted by a portico, looking onto the central courtyard—an ensemble that would be labelled the *bayt* by subsequent scholars—and rectangular recesses, alcoves or open-fronted rooms on the remaining sides of the courtyard. Examples of these consistent elements and their disposition are shown in Figure 10, in which the central room of the tripartite arrangement is labelled as a "*salle*", the open-fronted rooms or alcoves as "*īwāns*". These were served by a remarkable system of canals and sanitation pits hewn into the limestone bedrock, or *gabal,* as well as water pipes, providing a complex system of water supply and drainage (visible in Figure 8).
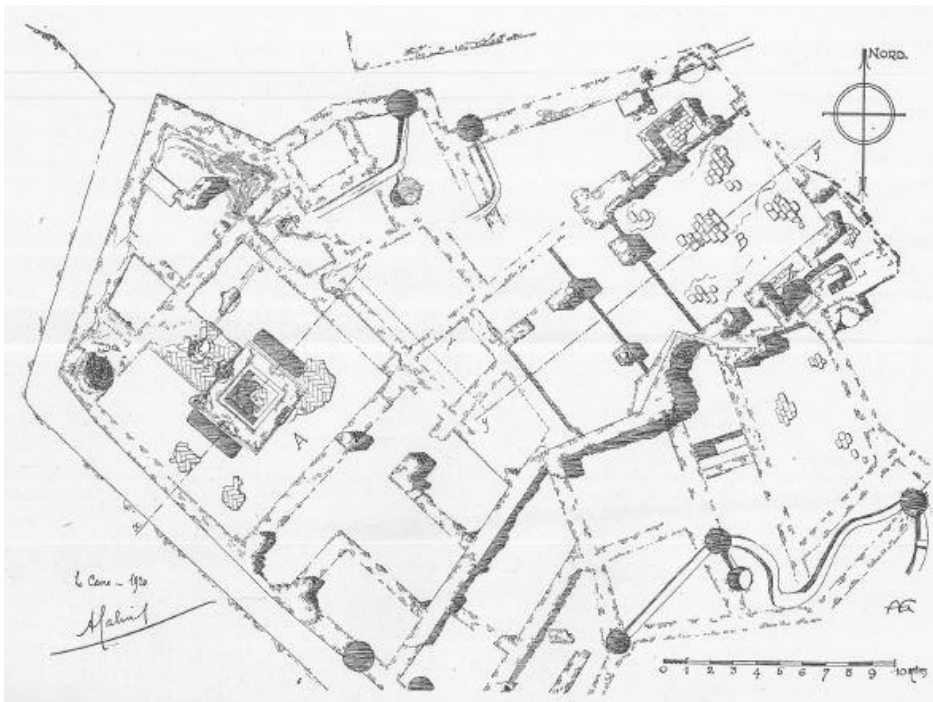
Figure 8 - *Plan actuel* of Maison V (Bahgat and Gabriel 1921, fig. 19, 58).
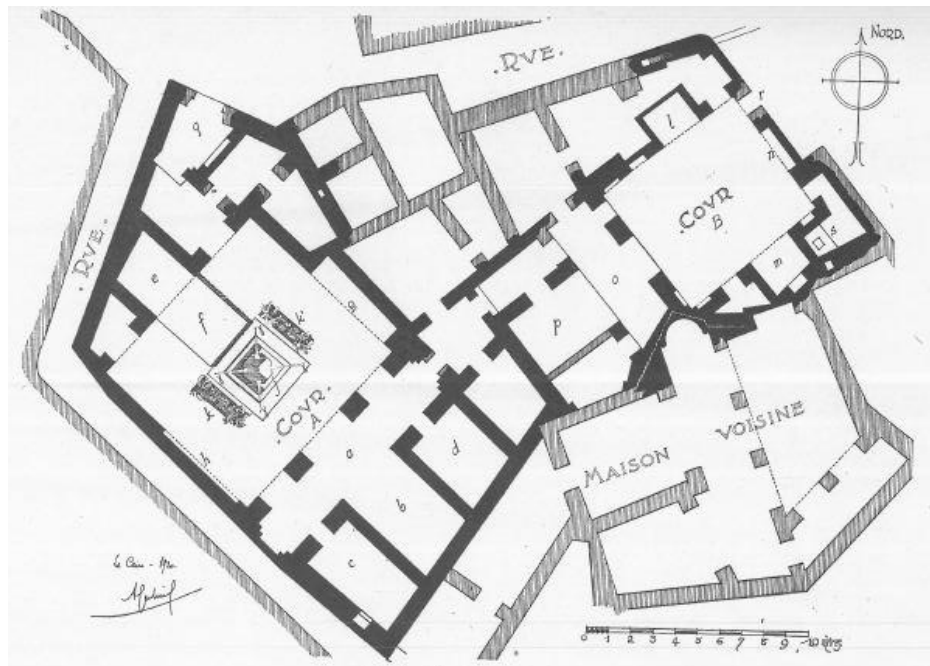
Figure 9 – *Plan restauré* of Maison V (Bahgat and Gabriel 1921, fig. 20, p.59).
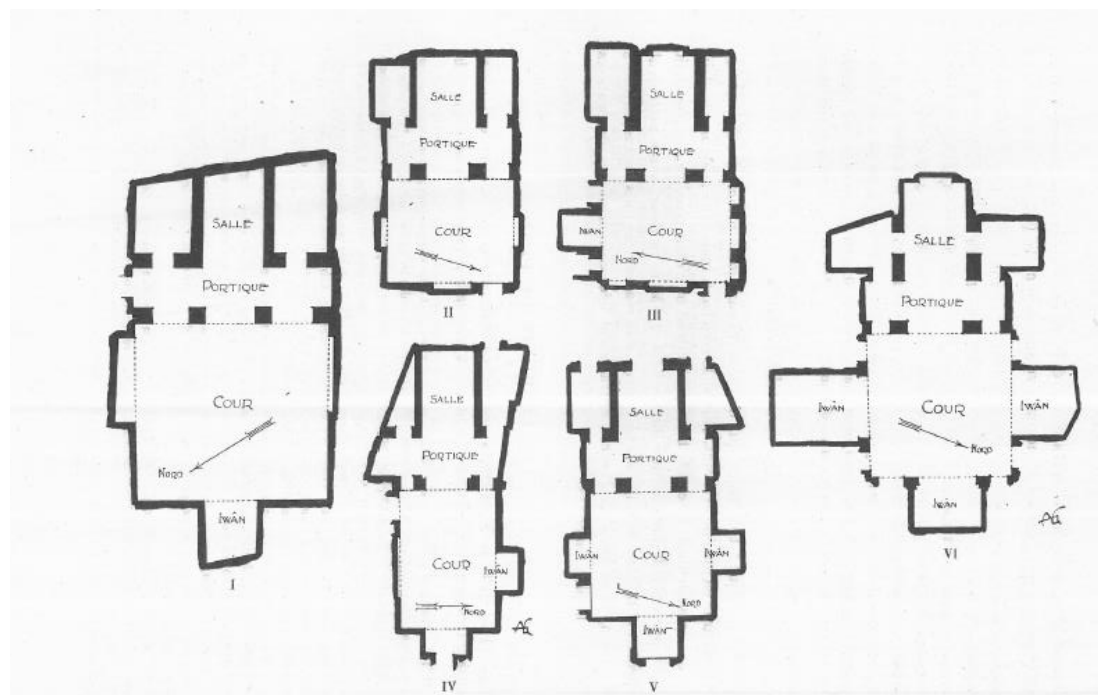
Figure 10 – Plans by Bahgat & Gabriel to demonstrate the consistent disposition of architectural elements in the core of the courtyard houses excavated at Fusṭāṭ (Bahgat and Gabriel 1921, fig. 31, 77).
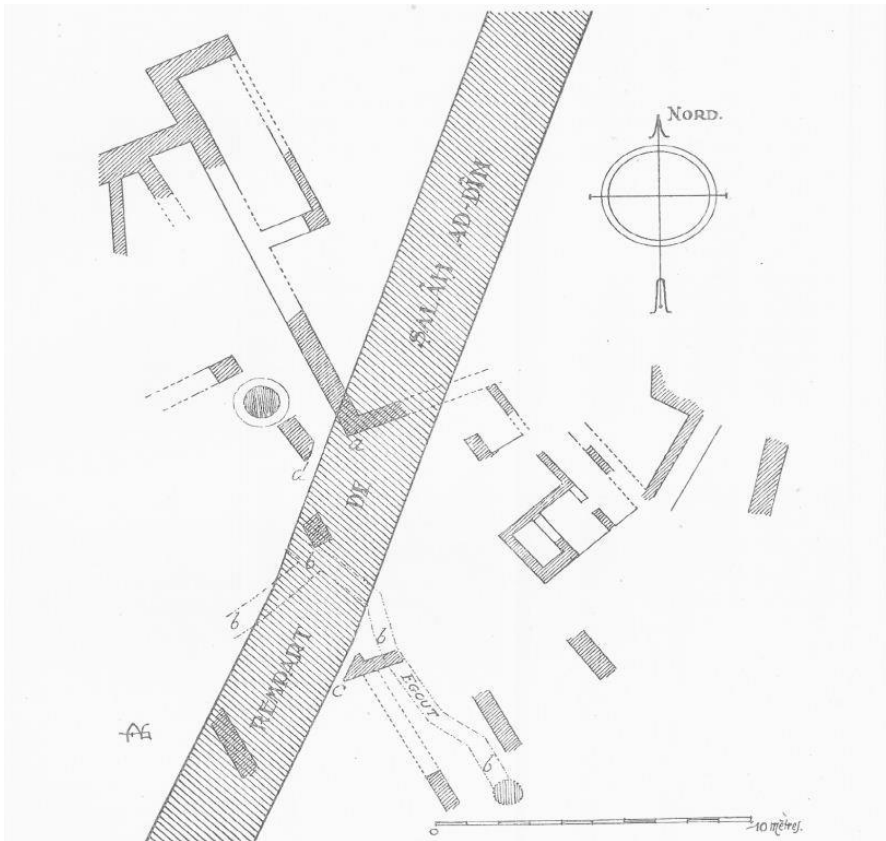
Figure 11 – Plan showing the wall of Ṣalaḥ al-Dīn cutting the remains of houses in Fusṭāṭ. (Bahgat and Gabriel 1921, fig. 69, p.119).

The aforementioned lack of clear doorways is due to the general depredation of the remains, with some walls surviving only as traces of mortar on the *gabal,* though others survived to a height of several metres (Bahgat and Gabriel 1921, 31). All of the houses were tentatively dated to the ʿAbbāsid and Ṭūlūnid period, without individual differentiation, thereby seeming to present a synchronic snapshot of the urban fabric.

The basis for the dating of the houses is based on a number of factors. The *terminus ante quem* for Bahgat and Gabriel is the Mustanṣir crisis (see 2.1, above), following Ibn Duqmāq and al-Maqrīzī's accounts that indicate peripheral areas of the city were abandoned in the mid-11th century. In support of this interpretation, it is noted that the wall of Ṣalaḥ al-Dīn cuts through some house remains (Figure 11, above), which is thought to have occurred a considerable time after the abandonment of the houses[18]. Though the excavators are reluctant to place finer dating upon the remains, they suggest that the similarities between these houses and those excavated at Sāmarrāʾ, Iraq (ʿAbbāsid capital 836-892), as well as

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[18] Not based on stratigraphic relationships but on the course of the wall, whose irregularities were thought to be efforts to navigate around already existing mounds of debris (Bahgat and Gabriel 1921, 121).

with the architecture of the Mosque of Ibn Ṭūlūn (built 876-881), make an ʿAbbāsid or Ṭūlūnid date likely. The inferred similarities seem to be between the recovered fragments of decorative wall-plaster (Figure 12, below), and that preserved *in situ* at the Mosque of Ibn Ṭūlūn and the houses of Sāmarrāʾ. The stratigraphic provenance of the plaster fragments is, of course, unknown. The use of artefacts such as ceramics to date the houses was considered to be too problematic by the excavators because those artefacts found within the mounds may have been moved from other areas (Bahgat and Gabriel 1921, 121)[19]. It seems, therefore, that most finds came from the mounds that covered the site, or more widely from deposits that were believed to be post-abandonment debris. The emphasis was on revealing the plan of the houses, rather than delving beneath their floors. In later excavations some of the most artistically and chronologically important finds came from the fills of sanitation channels and pits. These features had often been disturbed by later robbing activities, presumably in the hopes of recovering such antiquities, and it therefore seems most likely that their archaeological potential was well-known to Bahgat. They were therefore probably regularly excavated, though they are discussed only with regard to their form and function, rather than their contents, within the report.

In additon, Bahgat and Gabriel provide an analysis of building techniques, both for the sanitation system and for the houses more widely. This is largely synoptic of techniques found throughout the excavation, and does not extend to a detailed study of the fabric of individual buildings that would allow one to identify different phases of construction.

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[19] The wall plaster fragments were also found in the rubble of the mounds, though due to their size, weight and unity of style are thought to be from the surrounding houses themselves (Bahgat and Gabriel 1921, 105).
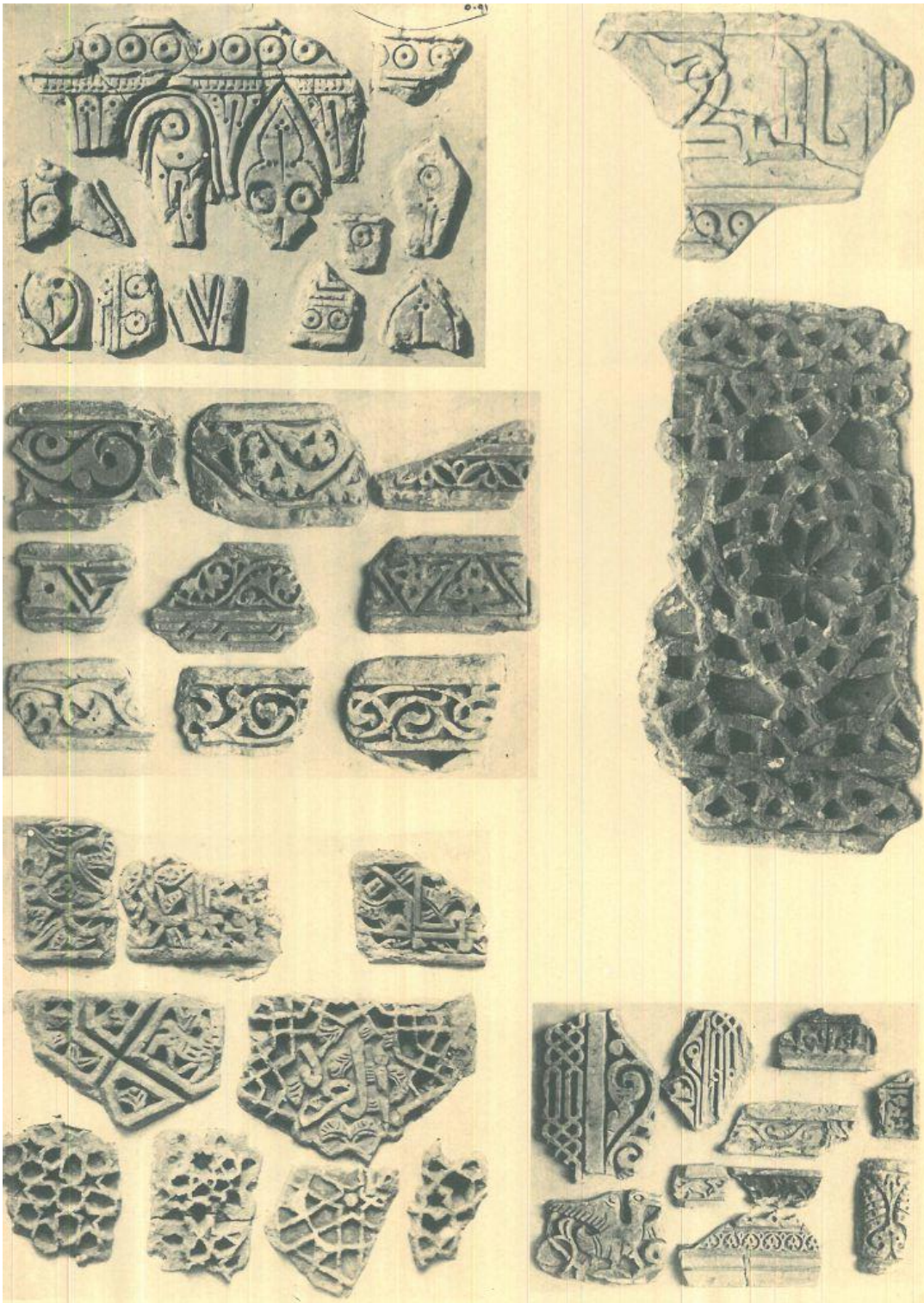
Figure 12 – Wall-plaster fragments recovered by Bahgat and Gabriel (Bahgat and Gabriel 1921, pl. XX).

B. El-Hawary

In the summer of 1932 Hassan el-Hawary, on behalf of the Museum of Arab Art, conducted an excavation between the Mosque of Aḥmad ibn Ṭūlūn and the Mosque of Abū Suʿūd (El-Hawary 1933). This revealed a house with the same formal elements as those identified by Bahgat: a tripartite arrangement of rooms fronted by a portico, facing a courtyard with a

central pool. In this case carved and painted wall-plaster was found *in situ*, decorating its walls. The designs have clear parallels with wall-plaster of Sāmarrāʾ and the early ʿAbbāsid palace of Ukhaiḍir (Iraq), and thus the house was dated to the Ṭūlūnid period. The location of this excavation would likely place it within al-ʿAskar, the ʿAbbāsid foundation of 750 (cf. Figure 3 and Figure 5) (El-Hawary 1933, 79).
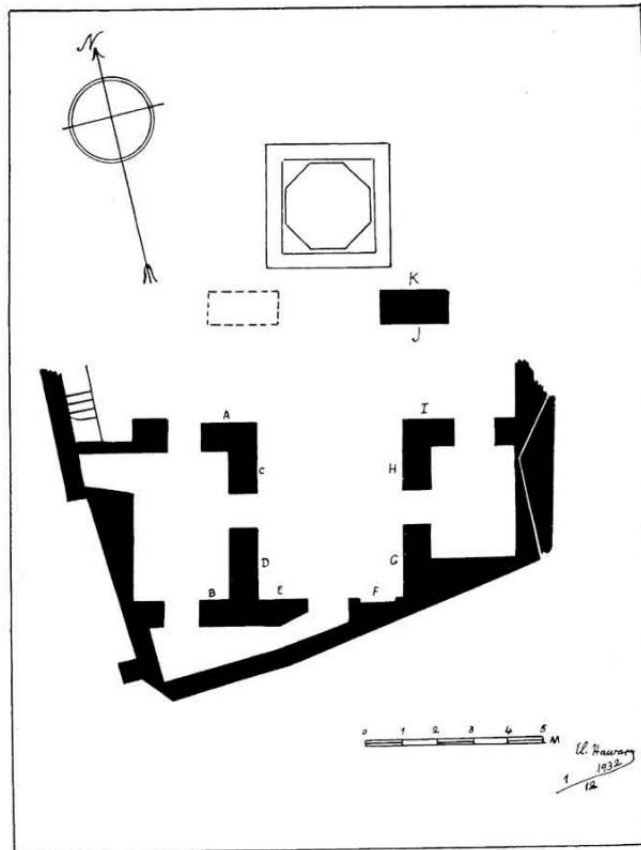
Figure 13 – The house excavated by Hassan el-Hawary in Fusṭāṭ (El-Hawary 1933, Pl. III).

The publication of the site is limited to a short article in *Bulletin de l'Institut D'Egypte*, including a ground plan and photographs of the wall plaster *in situ*. No finds are reported, nor was there any indication that the stratigraphy below the floor level of the house was explored. As with Bahgat and Gabriel's excavation, this expedition seemingly focussed on clearing the mounds of post-abandonment debris and recording the architecture beneath. It is difficult, therefore, to ascertain the chronological extent of occupation, or development of the architecture over time.

Based on the location map provided by El-Hawary, this house would seem to coincide with remains preserved in Cairo today, located within a leather-working district north of Salah Salem Street. The remains have been roofed by the Egyptian authorities, and the wall plaster has seemingly been removed, while the architecture itself is still used by locals for

various purposes[20]. It should also be noted that a house with an entirely different plan is presented as that excavated by El-Hawary by Antoni Ostrasz (1977), as part of a summary of Fusṭāṭ excavations. The location presented for this house by Ostrasz coincides (largely) with that presently discussed, but the plan is far more extensive and no parts of it coincide with the form presented by El-Hawary. No reference for the plan is provided.

C. Mehrez

In 1963 an excavation was conducted by the Egyptian Antiquities Authority, under the direction of Gamāl Mehrez. A short summary was published in English (Mehrez 1972), with an extended report published in Arabic.

The house that was revealed by Mehrez is cited as an example of an architectural style otherwise unknown in Fusṭāṭ (Al-Sayyad 2011, 608). Its uniqueness lies in its two surviving storeys, its purported ground-floor plan consisting of narrow vaulted corridors—though no illustration of the latter has been published[21].

 A plan of the upper storey has been published by Ostrasz (1977), though aspects of the symbology remain obscure (Figure 14). The plan shows many of the same elements as the houses revealed by Bahgat and Gabriel including a courtyard with an elaborate pool, as well as the shrubbery pits alongside this basin that featured in several of Bahgat's houses. There is not, however, a tripartite arrangement of rooms with a portico (though one side of the courtyard did not survive at this level). The lack of published elevations is extremely disappointing, particularly as walls reportedly survived to show the height and size of windows.

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[20] I was unexpectedly shown this site in 2014, though was not equipped with either a camera or El-Hawary's plan for comparison.

[21] Considering the lower storey reportedly consisted of vaulted corridors, it is unclear whether this did actually not consist of some kind of cellar, with a ground floor above. Another possibility is that this represents two ground floor plans, the earlier one backfilled and built over in a subsequent period. Such a situation is reported in the Geniza "people say that beneath [the house] is a *qāʿa* [ground floor/courtyard] and beneath its pillars are other pillars" (Goitein 1983, 23). Furthermore, excavations by Scanlon identified a subterranean room—a cellar or *serdāb* (cool room)—backfilled and built over in a later period (Scanlon 1981b, 67).
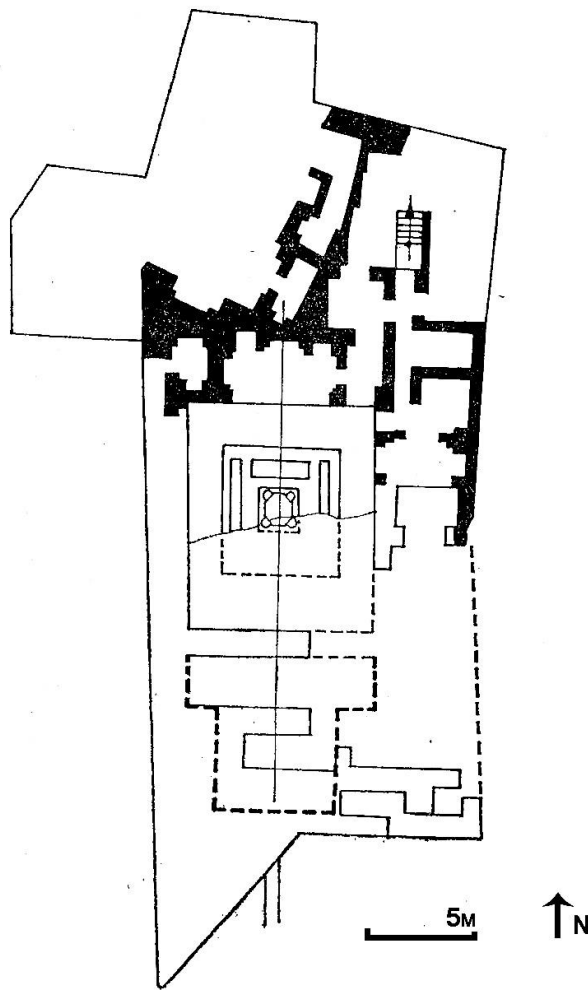
Figure 14 – The house excavated by Gamāl Mehrez in Fusṭāṭ (Ostrasz 1977).

The location of this house as indicated by Ostrasz (1977, Plan I)—south of Salah Salem and east of the Mosque of Abū Sūʿud— seems to coincide with a large-scale excavated area indicated on a later plan by Kubiak (1987, Plan 1). It is possible that the Egyptian authorities extended the excavated area here in the 1970s, under the direction of ʿAbd al-Raḥman.

D. Scanlon and Kubiak

From 1964-1978, in advance of housing developments in the area, a series of excavations were conducted by the American Research Center in Egypt (ARCE), directed by George Scanlon (Kubiak and Scanlon 1989; Scanlon 1965; Scanlon 1966; Scanlon 1967; Scanlon and Kubiak 1973; Scanlon 1974a; Scanlon 1976; Scanlon and Kubiak 1979; Scanlon and Kubiak 1980; Scanlon 1981a; Scanlon 1984). Three areas were excavated, labelled as Fusṭāṭ-A, -B and -C (Figure 5), with work alternating between the sites as changing development plans and groundwater levels altered necessity and opportunity.
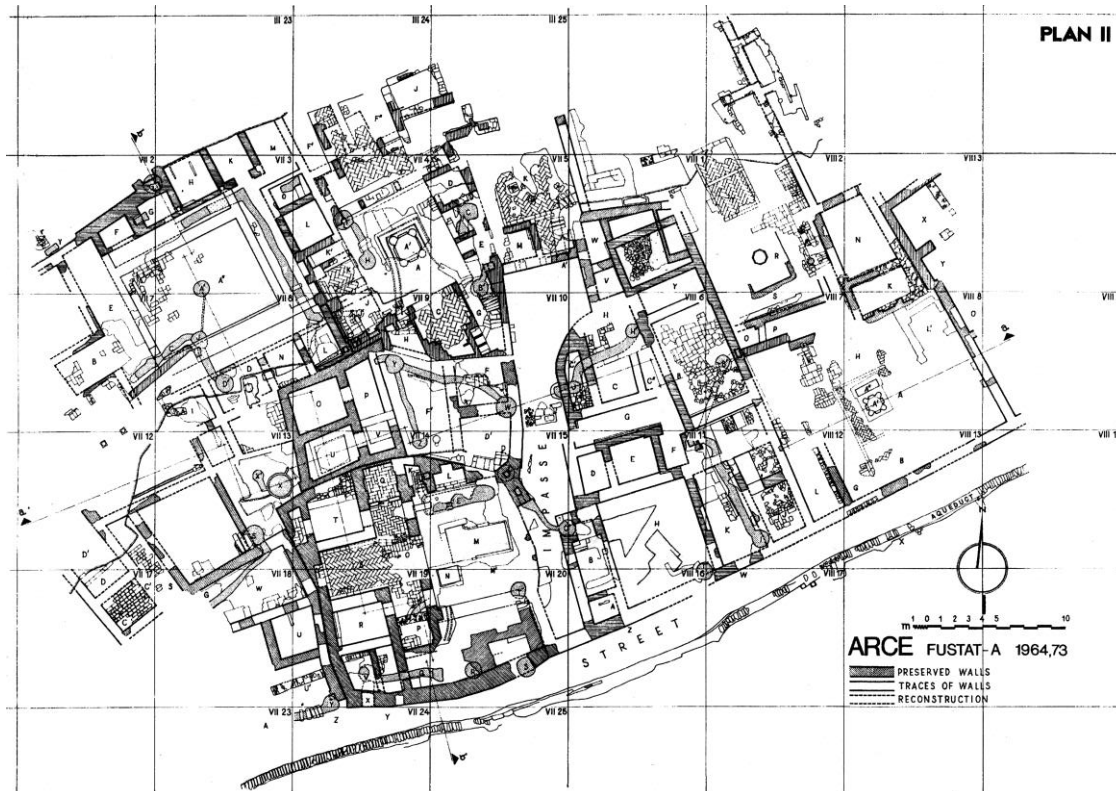
Figure 15 — Plan of "Fusṭāṭ-A" (Scanlon 1981a, Plan II).

As was no doubt the case with Bahgat's concession, the area had already been extensively plundered to recover *sabakh* and antiquities before controlled excavation took place. Scanlon's excavations vastly improved upon the recording strategies of Bahgat and Gabriel and were therefore necessarily over a smaller, though still remarkably expansive, area (c.2ha). The principal improvement was an awareness of stratigraphy, in keeping with developments in archaeological methodologies between the 1920s and 1960s.

Figure 16 – Compiled plan of "Fusṭāṭ-B" (Scanlon 1966, Plan II; Scanlon and Kubiak 1973, Plan III; Scanlon 1974a, Plan I; Scanlon and Kubiak 1979, Plan I and II; Scanlon 1981b, Plan I; Scanlon 1982, Plan III; Scanlon 1984, Plan III and IV)
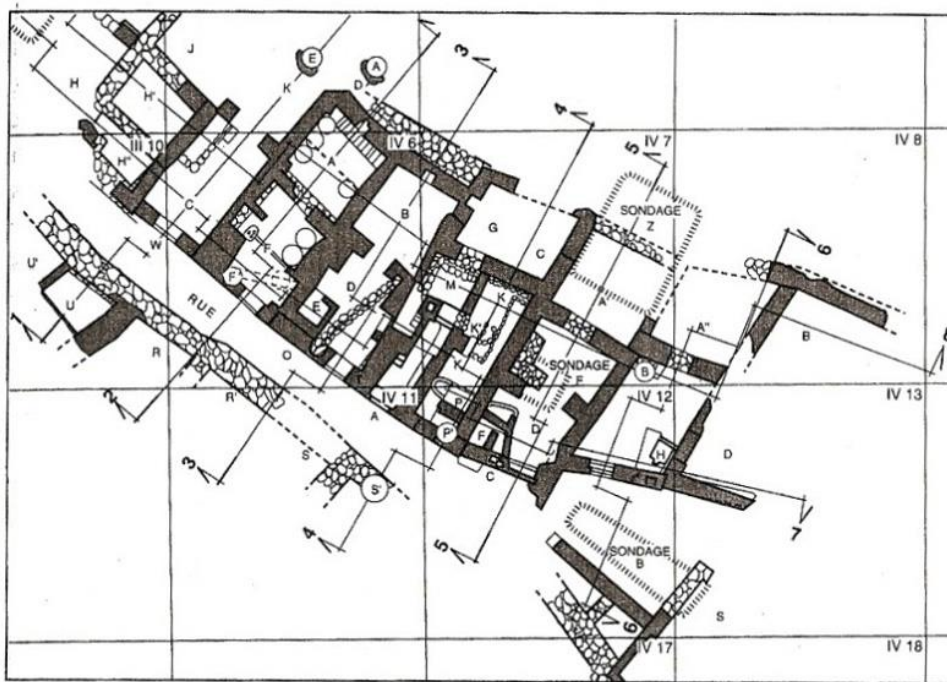
Figure 17 – Plan of "Fusṭāṭ-C" (Kubiak and Scanlon 1989, Plan II).

Crucially, the excavations are largely published as a series of preliminary reports. Only two volumes of the final report were produced; the first is a catalogue of water bottle filters (Scanlon 1986), the second a report on Fusṭāṭ-C (Kubiak and Scanlon 1989). Fusṭāṭ-C was excavated as an urgent rescue effort in 1980 because the area had been allocated as landfill the previous year and was being buried at an alarming rate. As the area could not be re-visited in subsequent seasons, and was comparatively small, it was a manageable and self-contained unit that could summarised relatively easily. The far more expansive and complex areas of Fusṭāṭ-A and -B, excavated and re-assessed over numerous seasons, will never receive a final synthesis, after the sad passing of George Scanlon in 2014, preceded by the loss of assistant director Władysław Kubiak in 1997, and the project architect Antoni Ostrasz in 1996.

The mounds were, from the first season, deemed not have any significant stratification (Scanlon 1965, 11) with the same sherds coming from the highest and lowest level. Predominantly, these were Mamlūk glazed wares of the 13th-15th century. This was later confirmed by a "shard count" from various spits within a mound in Fusṭāṭ-A (Scanlon 1971). The mounds were therefore cleared by workers to provide a flat surface, dubbed the "excavation level", before true excavation could begin. Considering the sheer volume of these deposits, it was considered unfeasible to sieve the spoil to recover finds (Scanlon 1965, 13). In later seasons the clearing of the mounds was achieved with a bulldozer (Scanlon 1984, 2). These strategies, it should be emphasised, were employed in order to

stand the greatest chance of recording the architectural remains and secure stratigraphic contexts before development continued regardless of any damage to the site.

In the initial 1964 season it was discerned that the houses contained two periods of construction, one being placed over the foundations of the other. This was contrary to the observations of Bahgat and Gabriel, who suggested that the houses were always built directly on the *gabal* rather than the foundations of earlier buildings. This apparent discrepancy was suggested to result from a difference of excavation methodology rather than geographic variation.

The ARCE excavations thus represent the first effort to understand the architecture and occupation of Fusṭāṭ as it developed over multiple phases. However, the use of stratigraphic recording was seemingly restricted to controlled "cuts" (sondages) into the streets and floors. Stratigraphic relations are not routinely reported and are unlikely to have been habitually recorded on a site of such scale and complexity, excavated primarily by labourers with expert supervision[22].

Though Scanlon was aware of multiple phases from the outset, these were largely misjudged in the initial season. The primary phase proposed in 1964 (at Fusṭāṭ-A) was considered that of uniform masonry laid in alternating headers and stretchers (Scanlon 1965, 23), which would later be considered an indicator of the last phase of substantial occupation (Fāṭimid) prior to abandonment and "squatter" construction (Scanlon 1966, n. 16). The secondary phase consisted of walls of a slap-dash construction and two types of stone paving—the herringbone pattern familiar from Bahgat's excavations and rectangular slabs of irregular sizes—as well as industrial installations for the making of glazed pottery. This phase would later be revised to be considered as three distinct ones spanning the 9th to 13th century (Scanlon 1981a). While the problems caused by high groundwater in the area certainly must have exacerbated the problems of coming to grips with such a complex site, it seems that the misconceived chronology results from a lack of a comprehensive investigation of the stratigraphic relationships. Specifically, the paving is considered "late" because it is on top of earlier walls, the jerry-built walls are "late" because they are built on top of earlier walls, though it remains unclear if the "earlier walls" in each case are one and the same, or if each "late" structure can be stratigraphically related in any way. Furthermore, the initial dating of these phases (placing the first phase as Fāṭimid and the

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[22] For example, the 1965 season uncovered around 3400m² of remains, with around 3m depth of mounds removed throughout. The staff for the season included (aside from the director, assistant director, and finds specialists), only two architects, two artists, photographer and the *ra'is* (foreman of the labourers) for 120 days work.

later one as Ayyūbid) relied on some finds in inconclusive contexts such as debris surrounding the jerry-built walls, despite the fact that Scanlon was well aware of the problems of a site so heavily robbed and with so much dumped material from various phases of the city.

The area of Fusṭāṭ-A was re-assessed several seasons later in 1973 when the high ground water level was lowered with pumping equipment, allowing access the fills of sanitation pits and channels that prevailed here as in Bahgat's concession (Scanlon 1981a). These allowed more secure dating of the buildings, while removal of the kiln structures revealed Mamlūk-era sherds underneath.

A more reliable chronological schema, consisting of architectural "stylistics" in broad phases, dated by association with artefacts in floor and sanitation fills, was developed in a piecemeal and cumulative fashion over the course of many seasons. These architectural criteria relate to the mode of construction, and also to the layout and form of those common architectural elements already familiar from the publications of Bahgat and El-Hawary. Here I refer to the porticoed, tripartite arrangement of rooms, now dubbed the "*bayt*", and the adjoining central courtyard with its pool or fountain, which continued to appear within the excavated houses. It should be noted that though this style of architecture seemingly dominated Fusṭāṭ-A and B, Fusṭāṭ-C presented a row of entirely different houses each consisting of 2-3 rooms arranged axially. Still, at the other sites discussion is dominated by the courtyard-*bayt* form, though a small number of different housing forms were proposed in later seasons (Scanlon and Kubiak 1979, 107–8; Scanlon 1981b).

Returning to the dating of the houses, the chronological schema developed by Scanlon can be summarised as follows:

A) **Pre-Islamic (?) (?-642)[23]:** Unbaked mudbrick bonded with mud mortar. Found only in one (relatively late) season (Scanlon and Kubiak 1979, 108), and only in small *in situ* traces.

B) **Pre-Ṭūlūnid (642-868):** Baked brick in mud mortar (Scanlon and Kubiak 1979, 108). Only small traces of walls of this construction survive, incorporated into later walls on a different alignment under later floor-fills.

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[23] This was posited to be *possibly* pre-Islamic, though no evidence was provided in support (Scanlon and Kubiak 1979, 108). This is more likely 7th-8th century, particularly as unbaked mudbrick was subsequently proved be in use in this period at Istabl ʿAntar, discussed below.

C) **"Ṭūlūnid"** [24] **(868-969)**: Baked brick in lime mortar, possibly sandy mortar distinctive to this phase (Scanlon and Kubiak 1979, 108); less "suave" construction of walls. (cf. D, below); asymmetrical arrangement of the "*bayt"* and the pool within the courtyard; asymmetrically laid stone paving; simple rectangular pools (Scanlon 1972, 417).

D) **Fāṭimid (969-1169** [25] **):** Baked brick in lime mortar, possible ashy mortar distinctive to this phase, or more specifically the 11th century (Scanlon and Kubiak 1979, 108); "suavity" in masonry, particularly in foundation courses, and use of alternating headers and stretchers (Scanlon and Kubiak 1979, 104; Scanlon 1981b, 64; Scanlon 1966, n. 16); symmetrically laid stone paving, in particular herringbone pattern; octagonal and elaborately shaped basins; symmetrical arrangement of the "*bayt",* the courtyard and its pool; use of marble cladding (Scanlon 1972, 417); possibly the use of recessing in the "*bayt"* (Scanlon 1972, 417).

E) **Industrial Adaptation and Squatter Housing (c.1200-1400?):** Glass kilns, originally considered contemporaneous with surrounding Fāṭimid architecture, later dated as re-use of the ruins in the Mamlūk period (Scanlon 1981b, 61); walls of rough boulders in thick mortar seemingly considered contemporaneous with industrial activity (Scanlon 1984, n. 40, 29).

The "Ṭūlūnid" and Fāṭimid periods are those with substantial housing remains, though the stratigraphy of the streets indicates that these were often in place by 700 . There is an implied progression of architectural-artistic achievement and engineering prior to the abandonment of the houses, which is suggested by Scanlon to have occurred at time in the 11th century during the Mustanṣir crisis (Scanlon 1972, 417), or in 1169 when Fusṭāṭ was abandoned due to the threat of the Crusaders and Saljuks (Scanlon 1981b, 61). However, some houses were ruins, *kharāb*[26], from the 10th century.

That these chronological indicators are developed in a piecemeal fashion is problematic, as it is often difficult to know—in lieu of a final report—how much of the dating from earlier seasons should be revised, and which criteria were considered reliable by the final season. For example, it has already been mentioned that much of the 1964 season's phasing was

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[24] Scanlon seemingly uses "Ṭūlūnid" to mean mid-9th to mid-10th century, which historically includes the end of Ṭūlūnid rule, a return to more direct ʿAbbāsid authority, and the rise of the Ikhshīdid dynastic governorship under ʿAbbāsid control.

[25] The date of the supposed abandonment of large parts of Fusṭāṭ, rather than the beginning of Ayyūbid rule.

[26] *Kharāb*s were bought and sold in the Geniza and were found cheek-by-jowl with well-to-do homes, seemingly not considered detrimental to their neighbours.

re-assessed in 1973, including re-dating the industrial installations as Mamlūk intrusive features. Should the industrial installations found in intervening seasons between 1964-1973 (e.g. Scanlon 1966, 100), often similarly dated as integral Fāṭimid elements, also be re-dated as Mamlūk? Moreover, one must follow chains of inference made between seasons, the reliability of which is problematic. For example, find types previously unknown or undated were assigned dates by Scanlon based on inscribed materials found alongside them in one feature (Scanlon 1966, 105); in subsequent seasons these find types may be used to date architectural remains.

Generally, the architectural "stylistics", once established, take precedence over artefactual, and stratigraphic considerations. Often this is out of necessity, where no secure contexts can be established to date the architecture. In other cases, the established stylistic sequence is used to revise seemingly contradictory artefactual-stratigraphic evidence, which will be discussed further in this thesis. Working within such stylistic sequences was largely in keeping with prevailing modes of scholarship of the time, not least due to Islamic archaeology's origins in art history. That this stylistic and constructional sequence was developed using stratigraphic methods, rather than purely stylistic parallels to artefacts in museum collections, still represented a major step forward in the field. Moreover, the sondages into streets and floors, which often uncovered coins and inscribed glass weights, represent a reliable methodology to provide a general chronological framework, and provide dependable dates for particular houses, or at least particular parts of them. Where these were not conducted, however, the chronological reasoning is far more complex. Crucially, it is through such sondages that Kubiak and Scanlon were able to re-date the houses excavated by Bahgat (Kubiak and Scanlon 1973), by removing the paving and analysing earlier floors fills, proposing that the published examples were all Fāṭimid.

The location of Fuṣṭāṭ-B was considered by Scanlon to be that of Kawm al-Jariḥ (Scanlon and Kubiak 1973, 12), a raised area of Fuṣṭāṭ mentioned by al-Maqrīzi and Ibn Duqmāq and reconstructed in this general location by Casanova (1913). It is also proposed by Scanlon to be the area where Fuṣṭāṭ, al-ʿAskar and al-Qaṭāʾīʿ conjoined (Scanlon and Kubiak 1973, 12). This is based on a revision of the usual placement of al-Qaṭāʾīʿ around its congregational mosque (the Mosque of Ibn Ṭūlūn) to become a largely linear development stretching north-south from this monument to Fuṣṭāṭ-B. The revised topography of this Ṭūlūnid foundation cannot be assessed here. The site is on a gentle southward slope of the *gabal,* its southern extent is on much the same level as Fuṣṭāṭ-A further to the south. This suggests that it is on the border of ʿAmal Fawq (the elevated outer part of the city) and ʿAmal Asfal (the lower central city), with Fuṣṭāṭ-A within the latter (discussed further in 6.2.4, Figure 86).

The finds were not, naturally, published in full within preliminary reports. Rather, finds of particular rarity, those considered to have artistic merit, and those of chronological or economic import were frequently illustrated or photographed. They are therefore almost exclusively ceramic finewares, including Chinese imports; lustrewares; sgraffito; and so-called Fayyumi wares. Glass also features prominently, with appeal to its techniques of production and style for chronological information. Artefacts inscribed with dates or rulers such as coins, glass weights, and certain ceramics also appear. Pits may be simply described as holding nothing of chronological significance, with no further clarification of their contents (e.g. Scanlon 1967, 69), one can therefore assume that ceramic coarsewares, and perhaps quotidian artefacts of metal and bone, were not reported.

E. Gayraud

Since 1985 excavations have taken place at the site of Istabl ʿAntar, under the direction of Roland-Pierre Gayraud of the Institut Français d'Archéologie Orientale (IFAO) (Gayraud 1986; Gayraud 1987; Gayraud 1991; Gayraud 1993; Gayraud 1994; Gayraud 1995; Gayraud and Fuʾād Sayyed 2000). The location of this site, considerably farther south than any others described here, places it on the plateau known as historically as al-Sharaf, on the southern outskirts of the original settlement of Fusṭāṭ (cf. Figure 3 and Figure 5).

The site is unique in revealing structures dating, in Gayraud's estimation, from the Arab conquest (mid-7th century) until the 12th century. There are two phases of substantial domestic construction in unbaked mudbrick: dated to before c.700 and from c.700 to 750 (Figure 18). Preceding these mudbrick houses were a series of stake-holes proposed to represent the original camp settlement of troops (Gayraud 1998, 437).

The termination of these early phases is thought to be the result of a fire, and is dated precisely to 750 through the belief that this fire relates to the deliberate burning of the southern districts of Fusṭāṭ by the last Umayyad to rule Egypt, Marwān II. The fire is evident in all parts of the excavated area and finds and stratigraphy support a mid-8th century date.

Subsequent to the fire there was some sporadic re-building of houses, though the majority of the excavated area revealed a necropolis, built within a decade of the fire. The funerary complex consisted of several mausolea and a mosque, as well as an aqueduct to serve these buildings. The tombs were renewed and expanded in the early Fāṭimid period, being used to rebury prominent persons from Ifriqīya, and developed into an elaborate area of monuments, gardens and fountains, before being destroyed around 1070-80 (Gayraud 1998, 451) .

Figure 18 – Photograph of the domestic structures of the 8th century from Istabl 'Antar, bordered by the aqueduct (Gayraud 1998, cover).

The domestic structures have been published within preliminary reports, as well as an article reflecting on the new insights into the development of the city the excavations have afforded (Gayraud 1998). However, a scale plan of the houses has never, to my knowledge, been published, only the photograph above. Recent publications on the Umayyad ceramics (Gayraud and Tréglia 2014), will hopefully be followed by analysis of their architectural setting.

F.   Sakurai and Kawatoko

A series of excavations were conducted over seven seasons (1978-85) by a team from Waseda University, the Idemitsu Museum of Arts, and the Middle Eastern Culture Center in Japan, directly south-east of the Mosque of 'Amr. The excavations were published in Japanese in two volumes, by Sakurai and Kawatoko (1992). Excavation yielded the greatest chronological range of substantial habitation so far archaeologically preserved on a single site within Fusṭāṭ, covering the period from 700-1400 reflecting its more central location. The excavations are believed to have revealed habitation within the historical Mahra quarter, though considering the proximity to the mosque, it may be the more central Ahl al-Raya quarter (cf. 'Abd al-Rahman and 'Abd al-Tawwab 2002).

Figure 19— Excavations in Fusṭāṭ 1978-85 by Sakurai and Kawatoko (Kawatoko 2005, fig. 2, 846).

Further to these excavations, destruction of the Fusṭāṭ pottery kilns east of the Mosque of ʿAmr and the threat posed by subsequent development of the area, led to a collaborative survey by the Egyptian Antiquities Organisation, Waseda University, and ARCE. These are described as 15m east of the mosque by Kawatoko, firmly within Ahl al-Raya (Kawatoko 2005, 847). This survey included excavation of pre-14th century buildings (Kawatoko 2005, 848), a *sāqīya* (water-lifting machine) and an abundance of artefacts. The publications thus far have focussed on the artefacts collected (Kawatoko 2001a; Kawatoko 2001b; Shindo 2000), and a series of perhaps twenty volumes is planned (Kawatoko 2005, 848).

G. *Ground-Water Lowering Project*

Between 2000 and 2005 an engineering project funded by USAID to lower the groundwater level in Old Cairo (i.e. the area in and around the fortress of Babylon) was monitored by the American Research Center in Egypt / Egyptian Antiquities Project. The project occurred in response to the c.2m rise in groundwater level since the 1970s that had submerged many of the substructures of historical monuments, including the Roman fortifications and Coptic religious buildings.

The works consisted initially of around forty 0.2m wide bore holes, sunk to a depth of 10-25m below modern ground level (more were drilled subsequently), and a series of deep

collector and conveyance shafts of 3m diameter down to 10-15m below ground level. Thirteen shafts were located in the fortress and sixteen were nearby to the north. The works also included manual excavation of 350 metres of perforated drains and manholes to serve them, the latter requiring areas of around 2m by 2m to be excavated. It was in these areas that more detailed archaeological data could be recorded. There was also some excavation within the monuments of Old Cairo, including the church of Abu Serga (Church of SS Sergius and Bacchus), more or less in the centre of the fortress, and Dayr al-Banāt (Convent of St George), and one of the circular towers of the Diocletianic fortress.

Most importantly for this thesis, the excavations within Dayr al-Banāt, which is itself partly a converted Mamlūk residence, revealed the foundations of a Fāṭimid structure—possibly domestic—including sophisticated sanitation elements (Figure 20)[27]. The reports from the excavation works are yet to be published, though have been kindly provided to me by Peter Sheehan (Abu Dhabi Authority for Culture and Heritage) who directed the excavation and monitoring. The recording procedure adopts a single context strategy, and is transparent and understandable. Its only limitations result from the conditions and scale of the excavations themselves. Many of the smaller and deeper interventions could only be observed in terms of what was brought to the surface by machinery, and ground water was of course problematic. Furthermore, much of the work has been synthesised as part of Sheehan's book on the development of Old Cairo (Sheehan 2010), including impressive isonometric illustrations of the monuments with cutaways of the remains beneath, provided by Nicholas Warner.

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[27] These were not the first excavations in Old Cairo. Ugo Monneret de Villard completed archaeological investigations in the earlier 20th century (Patricolo and Munier 1922), excavations centring on the Ben Ezra Synagogue were conducted by Phyllis Lambert (1994), and a joint German-British mission excavated within the fortress in the 1990s (Grossman, Le Quesne, and Sheehan 1994; Grossman et al. 1998). These have focussed primarily on fortifications and religious buildings.
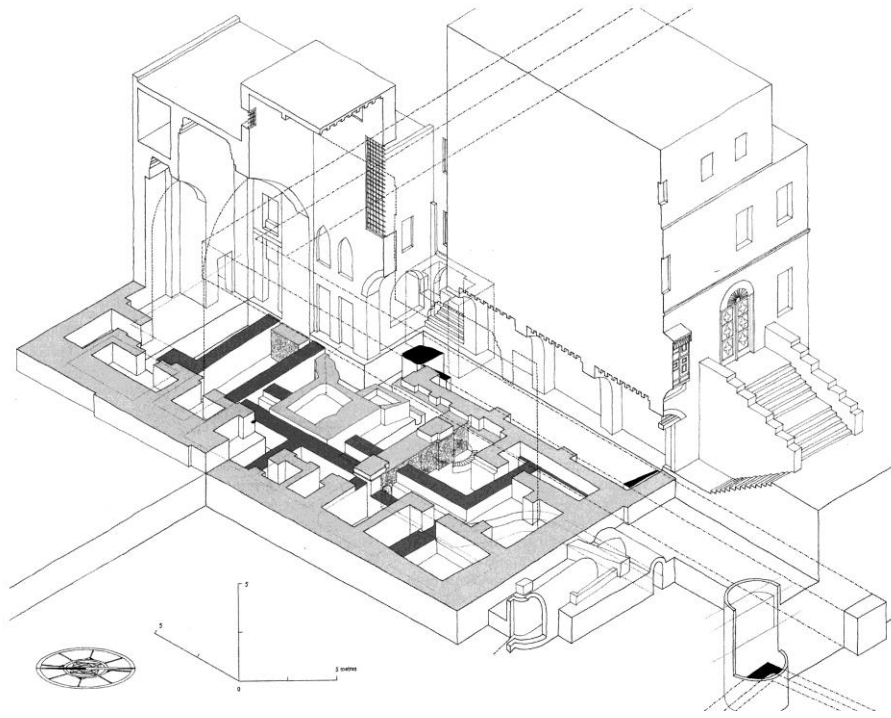
Figure 20 — Cutaway of Dayr al-Banāt (Convent of St George) in Old Cairo, showing Fāṭimid remains (dark grey) beneath the Mamlūk residence (*qāʿa*) incorporated into the later convent (Sheehan 2010, fig. 53, 109).

H. Unpublished Excavations

There have been numerous unpublished excavations conducted by the Museum of Arab/Islamic Art, or the Egyptian Antiquities Organisation (EAO) at Fusṭāṭ, many of which are hard to locate precisely. Ḥussein Rāchid, Muḥammad Mustafām, Aḥmad Fikrym ʿAbd al-ʿAzīz Marzūk and ʿAbd al-Raʾūf Yusuf are all mentioned as having excavated the site between 1930 and 1964 on behalf of the Islamic Art Museum, though it is unclear in which areas this work was conducted (Scanlon 1965, 9).

In the 1960s the site came under the authority of the EAO. The house published by Mehrez, then chief of the Islamic section of EAO, in the early 1960s has already been mentioned. Scanlon also notes excavations between the Mosque of ʿAmr and Bahgat's concession conducted by Mehrez prior to the ARCE project (Scanlon 1965, 9). Excavations led by ʿAbd al-Raḥman ʿAbd al-Tawwāb (EAO) are mentioned by Scanlon throughout later reports, this time to the east of Fusṭāṭ-A and B. Two specific areas are listed by ʿAbd al-Tawwāb himself in a summary of excavations at Fusṭāṭ, said to be east of the Mosque of Abū Sūʿud (the mosque on the western border of ARCE's Fusṭāṭ-B). These seem to be equivalent to two unlabelled excavations areas in Kubiak's summary plan (1987, Plan 1), east of Fusṭāṭ-B, and correspond to two marshy depressions on the site today (shown on Figure 5). Another area on the same plan, directly east of Fusṭāṭ-A, may be an excavation by ʿAbd al-Tawwāb

referred to in the ARCE reports in which a possible continuation of Fusṭāṭ-A's east-west aligned aqueduct was located (shown on Figure 5) (Kubiak and Scanlon 1973, n. 30). The larger excavation area to the east in Figure 5 is that supplied on a map by Ostrasz (1977, Plan 1), marked as that of ʿAbd al-Tawwāb. That such a large excavation would not appear on Kubiak's later plan seems perplexing. As Ostrasz's plan is somewhat minimal and seemingly imprecise, it may be an attempt to indicate the general area of the other three excavations.

ʿAbd al-Tawwab and the now director of the Fusṭāṭ Antiquities Inspectorate, Ibrahim ʿAbd al-Raḥman, have also written of excavations conducted east of the wall of Salaḥ al-Dīn in the 1980s and 1990s ('Abd al-Rahman and 'Abd al-Tawwab 2002, IX; Abdel Rahman 1998). It seems these were directed by ʿAbd al-Raḥman.

I. *Non-Domestic Remains*

I have limited this to areas in which domestic architecture has been revealed, and have not detailed the excavations in the cemetery east of the city. It is worth mentioning briefly, however, a bathhouse (*ḥammām*) discovered west of the house excavated by El-Hawary, which has been published by Laila Ibrahim (1988).

J. *Museum Collections*

As discussed, the finds from the huge area cleared under the directorship of Ali Bahgat were placed in Cairo's Islamic Art Museum, though without recording of their exact stratigraphical or spatial provenance. The exploitation of the mounds by the local inhabitants, primarily for the nitrogen-rich *sabakh* but also for antiquities, meant that a great many finds entered private hands. Large private collections of gold and silver coins were amassed in the period before the 1952 revolution; and ceramics from Fusṭāṭ were also traded in Cairo until the 1980s (Bacharach 2002, 3). Many of these larger private collections are now dispersed, while limited materials have made their way into the collections of the Victoria and Albert Museum (Contadini 1998), the Metropolitan Museum of Art (Grube 1963), the Royal Ontario Museum (Mason and Keall 1990), Medelhavsmuseet in Stockholm (McPhillips 2008), International Museum of Ceramics in Faenza (Bongianino 2014) and Musée du Cinquantenaire in Brussels (Vezzoli 2015). Some of the finds from ARCE excavations are now held by the Oriental Institute of the University of Chicago, and are the subject of a recent exhibition and publication (Vorderstrasse and Treptow 2015).

2.2.4   Limitations and Focus

It is clear that the evidence for domestic architecture and daily life in Fusṭāṭ is plentiful, but highly problematic. The historical and archaeological sources are constrained not only by their intrinsic limitations in terms of preservation and scope, but on the extent of

publication of these sources, and the aims and methodologies of various scholars over the course of a century.

It should be stressed that the present study is primarily a work of archaeological scholarship. It focusses on the analysis and re-interpretation of the excavated houses, though draws extensively on historical research, particularly work on the Geniza, to aid in this process. The following chapter will demonstrate that the archaeology has always been related to—and influenced by—the historical narrative of the city's development, the accounts of medieval travellers, and more recently the documentary sources. Much of the early comparative interpretation has, however, been overly simplistic and potentially misleading. More recent work on the documentary sources—largely post-dating the most extensive and detailed excavations and their initial interpretation—presents a more detailed and nuanced picture of both the architectural fabric and modes of living in Fusṭāṭ, with significant consequences for archaeological interpretation. Moreover, archaeological interpretation has been influenced by long-standing assumptions and paradigms from architectural and art historical scholarship. The potential limitations of previous interpretations of the excavated houses, and avenues to move archaeological interpretation forward will therefore be explored.

3   FRAMING CONCEPTS & EXISTING INTERPRETATIONS

> "From the earliest Islamic times there had been a tendency to arrange the house around a central space"
>
> —Magdi Noor (1986, 61)

This chapter will consider existing interpretations of the excavated houses of Fusṭāṭ, as well as the paradigms underlying such interpretations. I begin by exploring deeply-rooted scholarly concepts of what characterises a house in a pre-modern Muslim society that, as will become apparent, have moulded research on the site. I then consider where scholars have situated the excavated houses with the overall housing stock of Fusṭāt. How typical are those houses revealed in excavations compared to those in the city more widely? This issue must be addressed before drawing comparisons between these houses and those appearing in historical documents. This is followed by a summary of existing typologies of the houses of Fusṭāṭ, which centre on a group of rooms known as the *bayt,* described in the previous chapter. The *bayt* is not only the basis for previous typologies, but through its similarity to architecture outside Egypt, is the basis for explaining the architecture in terms of foreign influence. The conceptual and empirical bases for this explanation are critically examined, and ways forward are proposed.

3.1   CONCEPTS OF THE HOME AND COURTYARD HOUSE

3.1.1   The "Islamic House" or "Arab House"

In architectural scholarship reference may be made to the concept of the "Islamic house" or "traditional Arab House", denoting a collection of design principles in domestic architecture that correspond to one or more of the following:

a)   Teachings of the Quran or Hadiths;

b)   The practices of "traditional" societies that may be Muslim, Arab, or both;

c)   Climatic adaptations to the hot and arid environments that constitute the native land of Arabs or birthplace of Islam, and the core of the Arab-Islamic world.

As Briggs put forward in his 1921 article on "The Saracenic House": "the factors that produced the typical Arab house… are partly climatic, partly social, and partly religious". There is a tendency to conflate religious and cultural factors within such scholarship. That is to say, whether a scholar purports to be discussing the "Islamic house" or "Arab house", they tend to fluctuate between relating principles of architecture to Arab cultural practices

and to Islamic values. Moreover, while one scholar may attribute an architectural principle to an Arab cultural value, another may say that such a value is in fact an Islamic prescription.

The "traditional" societies used to demonstrate behaviours and values are typically rural or remote communities from across the Arab or Islamic world that are thought to have been little affected by globalisation (e.g. al-Shahi 1986). Such comparisons present contemporary societies as living fossils or relics of the past, evoking the idea that "traditional" Muslim society has been unchanging across time and space save for the influence of modern Western culture. Indeed, a stagnation of Muslim architecture and cultural life is explicitly argued for in this body of research. Briggs (1921, 228) opines that the Egypt observed by Lane in the 19th century was "probably more mediaeval than in any country of Europe". Similarly, Hassan Fathy wrote that "the turning point of Arab architecture was marked by the introduction of Western culture" and that in Egypt from the foundation of Fusṭāṭ to the end of Ottoman rule there was "continuity in the development of Arab architecture" (Fathy 1972, 16). The scholarship thus presents an overly simplistic dichotomy between "traditional" and "modern/westernised" culture.

This discourse described is centred on architecture and planning rather than archaeological and historical scholarship (Mortada 2005; Bianca 2000; Shalaby 1986; Al-Hemaidi 2001; Fathy 1972; Fathy 1986). Within this body of work traditional houses are seen to embody cultural and religious ideals and climatic adaptations, and are therefore viewed as socially positive and ecologically sound, in contrast to the Western house that is characterised as a maladapted "social pathology" affecting the Arab world (Shalaby 1986, 73). Scholars therefore typically call for the incorporation of "Arab" or "Muslim" socio-climatic adaptions into contemporary development. This is typified by Fathy's development of New Gourna, a village to re-house a community in Upper Egypt, using "traditional" Egyptian techniques, designs, and observation of their way of life (Fathy 1973). The fact that New Gourna is now in a ruinous state, its inhabitants preferring to live in "Westernised" housing, suggests that values placed on the "traditional Arab house" by architects and intellectuals are not necessarily shared by the Arab population at large.

This reaction against the globalisation of architecture and planning is at a deeper level a reaction against a history of–and ongoing encounters with– Western colonialism. In light of this, it should be no surprise that scholars with Arab and Muslim heritage dominate the debate. At the same time, however, they are in danger of repeating the same mistakes as western Orientalist scholarship, namely conflating disparate eras and peoples into a single, possibly romanticised, concept of a "traditional" Muslim or Arab society.

It is the central courtyard that is frequently presented as the most widespread (Lehrman 1980, 21; Revault and Maury 1975a, 26), ancient (Noor 1986, 61), and important element of the Arab-Islamic house (Noor 1986, 62; Lézine 1972a, 20). The antiquity of this arrangement in Muslim societies is attested by the description of the Prophet Muhammad's house, which was built around a courtyard, the significance of which naturally looms large in the discourse (Gazzard 1986, 16; Mortada 2005, 43; Johns 1999). The courtyard also is proposed to relate to all three aspects of the Arab-Islamic house concept: social, religious and environmental adaptation.

It is for these reasons that a discussion of the courtyard houses of Fusṭāṭ must begin with a brief overview of the architectural principles associated with this concept and their climatic and socio-religious corollaries, with due emphasis on the courtyard itself.

3.1.2 Climatic Adaptations of the Islamic House

A plethora of climatic adaptations are evident within the body of so-called traditional Muslim architecture, a large body of scholarship in engineering, planning, architectural conservation, architectural design and environmental science that identifies, simulates and promotes the application of these adaptations to new developments (Moossavi 2011; Foruzanmehr 2014; Al-musaed et al. 2007; Bagneid 2006).

Figure 21 – *Mashrabiya* **and cantilevered cornicing in a courtyard of Bayt at-Kritiliyya, Cairo (Photo: Author).**

Framing Concepts & Existing Interpretations

The arrangement of domestic spaces around a central courtyard open to the sky is presented as the fundamental adaptation to arid climates in traditional Arab-Islamic domestic architecture. The reliance on a central space to provide light and air to internal rooms is thought to shelter the inhabitants from wind-blown dust and heat. The courtyard acts to ameliorate the temperature by preventing over-exposure to sunlight and utilising air currents, trapping cool air in the evenings (Noor 1986, 62).

The sheltering effect of the courtyard may be augmented with various devices to shield further from direct sunlight. These may include colonnaded porticoes, awnings, balconies, and cantilevered cornices (Figure 21). Light filters may be placed on windows, typically latticework of turned wood called *mashrabiya*s, such as can be found in the historic houses of Baghdad, Jeddah, Damascus and Cairo (Figure 21).

The effect of the courtyard on airflow in the house can be augmented using a wind-catcher: a *badhānj* or *malqaf* in Arabic. These devices consist of a vertical shaft that stands proud of the roof, having one or more sides open to the wind. In the simplest arrangement the open side is angled towards the prevailing wind and carries the breeze down into the house creating constant airflow within. In more complex arrangements it may be used in conjunction with an underground water channel, a *qanāt,* where air is drawn into the channel to be cooled and then back into the house. Though wind-catchers are common in Iran, the Gulf and Pakistan, they are also known to have been used in Ancient Egypt (Lézine 2002, 10).

Pools and fountains are found in courtyards of Muslim religious architecture, mosques and madrasas, as well as in a variety of domestic and palatial contexts. In the former a large part of their function is symbolic, as well as performing an aesthetic role. In domestic contexts there are also considerable symbolic and aesthetic factors at play, perhaps underpinning their status as a quintessentially Islamic feature, but they also perform a cooling function. The inclusion of a pool can amplify the courtyard's cooling effect through evaporation, particularly in combination with the air current brought by the wind-catcher.

Scholars have highlighted a dearth of large items of furniture and decorative paraphernalia in Muslim traditional housing (Al-Shahi 1986, 31; Briggs 1921, 237), with a focus on mattresses and small carpets and occasional small items such as tables, which as I will discuss has been related to cultural and religious underpinnings. This allows furnishings to be moved easily between rooms, which has the consequence that rooms with different climatic conditions can be inhabited at different points of the day and year. Recordings of traditional houses of Baghdad by Fethi and Roaf illustrate the horizontal and vertical climatic gradients within a courtyard house, with a maximum difference of 20 degrees

Celsius between roof and basement, and 7 degrees across the rooms of a single floor depending on orientation (Fethi and Roaf 1986).

3.1.3 Cultural and Religious Adaptations of the Islamic House

There are two overarching social values attached to the concept of the Islamic house: privacy and hospitality. In some cases these opposing forces, one calling for distance of strangers, the other for accommodation of guests, are presented as a tension between religious and cultural values. In other words, the house must reconcile Islamic privacy with Arab hospitality (Noor 1986, 61).

The chief motivator for privacy is perceived to be the protection of women of the family from unrelated men, though there are other facets to consider. Mortada (2005) sets out the Islamic legal principles that he believes have instigated a concern for privacy in Muslim architecture, including the Qu'ranic verses that call for protection of women from the attention of non-kin (Su. 33:59), but also those that emphasise the house as a place of rest and quiet (Su. 16:80).

The central courtyard, and the resultant inward-looking aspect to the house, is believed to be a fundamental manifestation of domestic privacy, protecting inhabitants from the gaze of non-kin. The visual privacy offered by the courtyard is augmented by the use of *mashrabiya*s which are often described as allowing women in particular to look outward to the street without being seen themselves. Furthermore a bent entrance, one which forces a visitor to make one or more turns before entering the central courtyard of the house, prevents onlookers seeing into the house and features in most discussions of Islamic principles of domestic architecture (Ennahid 2002, 121; Noor 1986, 71; Briggs 1921).

More than restricting lines of sight, restricting movement is cited as a key aspect of the Islamic house. Gazzard writes that "[i]n any discussion of the Arab house an emphasis is usually placed upon … the provision of an internal courtyard and the progression from it to the more private and personal space beyond" (1986, 19). The private space in question is above all the *harim*, the apartments for women, forbidden to unrelated men (Gazzard 1986, 20–23). Such segregation is presented as an essential facet of domestic life rooted in Arab social values (al-Shahi 1986, 26), or Islamic teachings (Mortada 2005, 95). The architectural manifestation of the *harim* varies: from a separate courtyard and adjoining apartments, to one or more rooms off the main courtyard, or on another storey.

The restriction of people's movement based on their gender and status can be seen as a system to reconcile the protection of women with an obligation for hospitality, which is often cited as a core Arab cultural value. Al-Shahi writes that "the honour and standing of

the master of the house and the house itself… in part measured by the standard of the hospitality given to guests", a phenomenon reportedly evinced most markedly in the Arabs of the Empty Quarter (al-Shahi 1986, 29)

The first barrier to movement is thought to be guard, *bawwab*, stationed at the entrance of wealthier houses, preventing unwanted guests from entering. A room for entertaining guests, principally for men to entertain male guests, is frequently placed near the entrance while the *harim* is placed near the back of the house, so that male guests do not encounter or see the women of the household (al-Shahi 1986, 30). There is an emphasis on flexibility of space in describing this segregation, with use varying depending on occasion, as discussed previously with regard to climate. Women are described as retiring from the main courtyard to the *harim* when male guests arrive to be entertained in this room, and using the same room as men to entertain their female friends when the men of the household are absent.

3.1.4   Acknowledged Caveats

The preceding discussion has illustrated that a variety of architectural features and modes of use—adaptations to hot climates the conflicting needs of hospitality and privacy—form the core of a conception of the typical Arab-Islamic house, and that the internal courtyard is seen as the primary manifestation of this conception. However, within and without this body of scholarship two caveats are acknowledged. Firstly, not all "traditional" Arab or Muslim housing is based around an internal courtyard (for example the tower-houses of Yemen). Secondly, that the internal courtyard plan is not "the exclusive creation of the Arab psyche" (Gazzard 1986, 19), but is rather present in a range of cultures worldwide. In Muslim lands, including Egypt, the appearance of the courtyard plan precedes Islam by millennia, and was still present under Byzantine rule. Despite this, as will be demonstrated in the following discussion, it seems that the presence of a courtyard, along with other elements of this model, has tended to influence scholars in presenting the houses of Fusṭāṭ through the lens of the Arab-Islamic house.

3.2   THE HOUSING STOCK OF FUSṬĀṬ

3.2.1   The Courtyard House and the Tower House

Bahgat and Gabriel begin their discussion of the houses recorded in Fusṭāṭ between 1912-24 with a caveat: that the type of housing they describe was not the only one present in the medieval city (Bahgat and Gabriel 1921, 39). The remains selected for illustration and description were a group that shared a set of architectural principles: the courtyard, the tripartite arrangement of rooms that would later be called the "*bayt*" (Figure 22), and the

recesses or alcoves on the remaining sides, as described in 2.2.3-A. This arrangement is considered by Bahgat and Gabriel to be one found throughout the modern Muslim world, having first appeared within Islamic architecture at the ʿAbbāsid palaces of Ukhaiḍir and Sāmarrāʾ (Bahgat and Gabriel 1921, 78). The terminology used by scholars to describe this arrangement is variable, as are interpretations of its origins, which will be discussed at length in section 3.4, below. For the sake of clarity I will refer to it as the *bayt* in this chapter, in keeping with the prevailing terminology in recent scholarship, though I will go on to show that this term is both anachronistic and misleading.
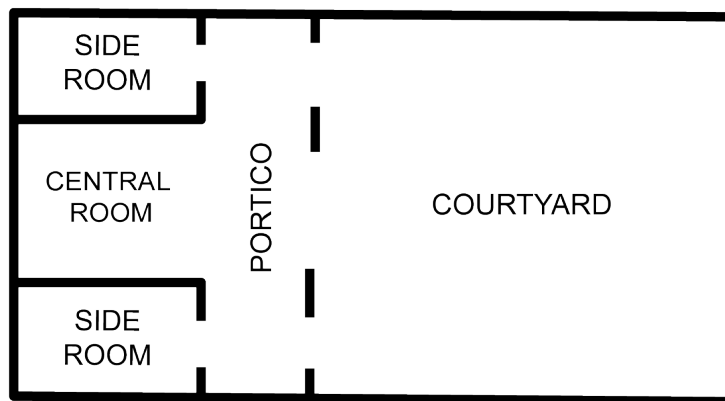
Figure 22 – The "*bayt*" that characterises the courtyard houses of Fusṭāṭ

Bahgat and Gabriel state that in addition to the illustrated courtyard houses there were also multi-storeyed habitations in Fusṭāṭ, comparable to the Roman *insula*; an issue that they intended to explore fully in a subsequent publication (Bahgat 1923, 39, n. 1). It is unclear whether remains of such *insula*-like houses were thought to be present in the excavated area, but for which plans are not provided by the authors. Considering the depredation of this area—more significant than that of Scanlon's concession (Ostrasz 1977, 61)—it seems more likely that the remains chosen for recording were simply those well preserved enough to present coherent plans, while those omitted may not have offered any clear interpretation or apparent typological consistencies.

The identification of *insula*-like houses has eluded subsequent excavators, and as discussed in the previous chapter, Scanlon's excavations to the north of Bahgat's concession revealed a preponderance of houses built around an open courtyard attended by the so-called *bayt*. In 1977 Scanlon's architect, Antoni Ostrasz, published a summary of the archaeological evidence for the domestic architecture of Fusṭāṭ. Similar to Bahgat and Gabriel, Ostrasz notes that his summary (including both Scanlon's, Bahgat's, El-Hawary's and Mehrez's excavations) is for the most part limited to the courtyard houses (Ostrasz 1977, 61, n.9). In

fact, due to the difficulty in establishing the boundaries of individual houses each courtyard and its attendant rooms is taken to be a single example of a house for the purposes of his typology (Ostrasz 1977, 59, n.6). Unlike Bahgat and Gabriel, however, Ostrasz specifies where he could identify housing types beyond the courtyard-*bayt* style, making brief references to what were then recent discoveries by Scanlon of distinct forms at Fusṭāṭ-B (see 2.2.3D, above), but does not incorporate these into his analysis[28]. These forms have therefore been considered outliers to the typical courtyard-*bayt* style, for many synonymous with the "Fusṭāṭ house".

The continued preponderance of courtyard houses in nearby concessions, and the fact that none of the outlying types have ever been suggested to be *insula*-like, leads one to conclude that Bahgat and Gabriel's assertions were based not on unpublished archaeological remains in their concession. Rather, it seems that they result from a reading of historical sources. Three first-hand accounts of the city in the Fāṭimid period (discussed in 2.2.1, above) note the exceptional height of the city's houses.

The most extreme description is that of Nāṣir-i Khusraw:

> "Looking at Old Cairo from a distance, because of the way it is situated, you would think it's a mountain. There are places where the houses are fourteen stories tall and others seven. I heard from a reliable source that one person has on top of a seven story house a garden where he raised a calf. He also has a waterwheel up there turned by this ox to lift water from a well down below. He has orange trees and also bananas and other fruit-bearing trees, flowers and herbs planted on the roof. I was told by a credible merchant that there are many houses in Old Cairo where chambers can be hired. These chambers are thirty cubits square and can hold 350 people*." (*Safarnāma*, 52)

Other accounts are more measured in their assessment of the number of storeys, including al-Muqaddasī, writing in 985 AD:

> "Their buildings are of four storeys or five, just as are lighthouses; the light enters them from a central area. I have heard it said that about two hundred people live in one building." (*Aḥsan al-Taqāsīm,* 167)

A similar estimate is given by Ibn Ḥawqal:

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[28] Another distinct type, that found at Fusṭāṭ-C, had not yet been discovered (Kubiak and Scanlon 1989).

"The houses have five, six, or even seven stories, and as many as two hundred people may live in a building." (*Ṣūrat al-ʿArḍ*, 144; translated in Raymond 2000, 65)

As discussed in the previous chapter, the extremity of Nāṣir-i Khusraw's praise for Fusṭāṭ is not isolated to the passage above. As an Ismāʿīlī *dāʿī* he was no doubt anxious to extoll the virtues of the Fāṭimid caliphate, and its economic power-house at Fusṭāṭ. Lézine (1972a, 4) suggests that the apparent exaggeration may be due to a misinterpretation by the author, that two levels of windows on each storey were mistaken for separate floors, suggesting that we should half his figures to bring them in line with other accounts.

Even if one is to disregard Nāṣir-i Khusraw's account, the consistency of the other two sources suggests that five to seven storey houses did probably exist in Fusṭāṭ. Bahgat, who urged caution in taking Nāṣir-i Khusraw's account at face value, believed that the excavated courtyard houses *may* have held a single upper storey, though any more would not be sustained by the thickness of the walls (Bahgat and Gabriel 1921, 83). Though there are remains of staircases in a minority of the houses in these early excavations, he suggests that these may have led to rooftop terraces (Bahgat and Gabriel 1921, 84).

There are also indications that the *insula*-like houses are assumed to have been occupied in a different manner than courtyard houses, and found in different parts of the city. Bahgat suggests residences for rent (*à loyer*) were more likely to have existed in the commercial centre of Fusṭāṭ, near the Nile, rather than in the easterly extents of the excavation, and one can assume it is the *insula*-like dwellings that are held in mind. In contrast, the excavated courtyard houses are thought to be exclusively for single family groups (Bahgat and Gabriel 1921, 83).

There is an implicit acceptance of Bahgat and Gabriel's proposed spatial and architectural dichotomy in a 1972 paper by Alexandre Lézine, which presents several hypotheses for the origin of the multi-storey houses of Fusṭāṭ, which are implied to represent a distinct tradition unknown in archaeological remains. It is proposed that these houses represent either:

1. A spontaneous development resulting from demographic pressure
2. An imported tradition from southern Arabia
3. A continuation of a pre-Islamic tradition

Lézine places greater weight on explanations of foreign importation or ancient traditions, rather than those that emphasise adaptation or functional necessity. This seems to reflect an acceptance of a strict and highly contrasting dichotomy between these buildings and

others throughout the city; that the historical descriptions of these buildings are so discordant with the archaeological evidence that they must have their own distinct cultural origin. It also seems to diminish the agency of the inhabitants of Fusṭāṭ, who are taken to passively adopt traditions.

The dichotomy of houses proposed by Bahgat is, however, rather speculative. It is composed of three distinctions, in terms of form, function and geographic distribution, which coincide precisely to form two house types. A formal distinction is made between the excavated houses, which are proposed to have lacked any upper storeys, and multi-storey dwellings presumed to exist elsewhere. A functional distinction is made in terms of differing modes of tenure and occupation between these two forms**.** Specifically, the excavated houses are characterised as "réservés à l'usage exclusive d'une famille", in other words they represent the family home, whilst the others are speculated to be "maisons à loyer", rented accommodation (Bahgat and Gabriel 1921, 82). Lastly, the two types with their separate function are proposed to be found in different districts of the city, with multi-storey apartment houses restricted to the centre, presumably the area between the Mosque of ʿAmr and the Nile.

However, the original number of storeys of the excavated houses is difficult to establish, since only the ground-floor elements have survived. That the layout and construction of dwellings in the centre of the city differed from that observed by Bahgat remains speculative, since no large-scale excavations have been conducted to the west of the Mosque of ʿAmr. Physical descriptions of houses from the Geniza are more likely to shed light on the number of stories usually present in different districts, but were unavailable to Bahgat (and Scanlon) when excavations were conducted. Furthermore, the functional dichotomy proposed by Bahgat seems to partly be a product of modern concepts of the family home: suburban, low-rise, owned. In contrast, the multi-storey habitation has similar connotations to the modern apartment block: urban, high-rise, rented, non-familial. Moreover, the courtyard house lends itself to the interpretation of a family home because of the values attached to the courtyard in the model of the traditional Arab-Islamic house. The Geniza evidence can also be illuminating in this regard, revealing patterns of tenure and ownership together with physical description and locations of properties. Thus, the following section seeks to re-assess this dichotomy in light of the Geniza evidence.

3.2.2   The Geniza Evidence

As the Jewish community lived largely in the central districts of Fusṭāṭ, as discussed above (section 2.2.2), one would expect the Geniza to contain references to the multi-storey, multi-occupant houses proposed to be concentrated there. Moreover, one would expect the

Bahgat's proposed dichotomy between family-owned courtyard house and rented apartment-houses to be evident.

Goitein's assessment of the Geniza indeed draws a similar distinction between "the family house, that is one built around a central court, and the apartment house, which usually consisted of three or more stories" (Goitein 1983, 59). However, Goitein does not consider the latter as synonymous with the tower-houses described by travellers. Rather, Goitein sees the multi-storey buildings of the travelogues, particularly Nāṣir-i Khusraw's account, as being represented by a single document, in which a house consists of a ground floor and nine upper stories (Goitein 1983, 58). The term for storey in this case, *ṭabaqa*, could also designate an upper apartment rather than a storey, therefore the storeys themselves may have been fewer. The casual tone of this description leads Goitein to conclude that such multi-storey buildings may have been common (Goitein 1983, 59). This is confirmed for Goitein by an anecdote of historian Ibn Zūlāq (d.996), in which a boy fell from a house's eighth storey, of which four were 'in the open sky'—presumably meaning the others were surrounded by buildings of that height.

Goitein's apartment houses—a class not equivalent to, but perhaps including the multi-storey buildings of the travelogues—are indicated by the use of terms 'middle' and 'upper' floors in house descriptions, showing at least three storeys (Goitein 1983, 59). Furthermore, there are references to less durable constructions on upper storeys, referred to as *ṭārma* and *khuṣṣ*. Goitein provides an example house description in which three apartments were placed over two upper floors, above which one reached the roofs, which were staggered to create terraces (*asṭiḥa*). Two such terraces housed apartments, and in addition there were two *ṭārma*, which seemingly comprised another apartment. Crucially, one of the apartments on the roof is designated as 'newly built'. It the evidence for modification and addition to the houses over time that, as we shall see, serves to blur the supposed dichotomy.

First, it should be emphasised that there are no separate terms for multi-storey houses and courtyard houses in the documents. If any term can be considered the equivalent of the English "house" it is *dār* (more literally "enclosure"), which is applied irrespective of the structure's height or mode of occupation. Buildings may be described as in the *dār*, and therefore the term comprises a bounded land unit in which various open and structural elements are situated, a composite architectural creation. One even finds a *dār* within a *dār*. The term *bayt*, the modern Arabic term for house or home, is only used in the figurative sense, signifying the family or household (Goitein 1983, 57).

Framing Concepts & Existing Interpretations

Geniza deeds of gift, sale and bequest illustrate that a house was divided into twenty-four nominal shares for the purposes of inheritance, as was the case in Islamic law. These shares could then be bought and sold, and family rights of pre-emption were often disregarded when sales took place (Goitein 1978a, 82). This made houses held in partnership with non-family members common (Goitein, 1983, 82). Shares did not intrinsically relate to specific segments of the building, but did gave one rights to a proportion of the rent from tenants, or to inhabit an appropriate portion of the house oneself. Many or most houses were held in some kind of joint ownership (Goitein 1971, 114).

A *dār* was commonly occupied by a number of parties. If two or more joint owners each wanted to occupy the property, or to lease their share to others, division of the structure into separate occupational units and communal rights had to be agreed upon by shareholders (e.g. Goitein 1983, 81). If one's occupational needs exceeded one's ownership share monthly rent could be paid to other shareholders to secure more rooms, or the entire remainder of the property. The commonplace division of a structure into different occupational units is reflected in the frequent differentiation between the *dār* (house compound) and either *sukn* (residence) or *manzil* (dwelling) in the documents, with the latter two terms being used to indicate the rooms occupied by a party or individual (Goitein 1983, 57).

Inheritance was not the only causal factor for transforming a *dār* into separate residences occupied by (potentially unrelated) groups: a document records two sisters selling the ground floor of their house, moving themselves and their husbands to the upper floors and letting the ground floor to another family, presumably for economic reasons.

The proportion of the population that lived in rented accommodation was, in Goitein's estimation "astonishingly large" (Goitein 1983, 91). This partly resulted, he proposed, from the exceptional mobility of the Mediterranean population. Letters asking for a friend to secure an apartment before arrival make it clear that it was the norm to rent an "apartment"[29] as a merchant or traveller, which could mean a stay of months or years. More significantly, as described above, the division of inherited property meant that even if family members intended to stay in the house after the death of the owner, they would have to pay rent to others to occupy the house in its entirety, initially to family members though perhaps ultimately non-kin.

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[29] The term used to indicate "apartment" here would be interesting to know, yet Goitein does not supply it. One can only assume it is *sukn* or *manzil* .

The evidence for modes of ownership and occupation leaves a dichotomy between family homes and apartment houses difficult to support. Homes occupied by families were not necessarily owned, and were more likely to be part-owned and part-rented, or rented in their entirety. Moreover, subdivision of houses into separate residences would appear to be both commonplace and, due to the universal applicability of inheritance law, liable to occur whatever the property. As one reads the numerous documents relating to housing summarised by Goitein in English it is difficult to ascertain which he imagines to be 'apartment houses' and which 'family houses'.

In fact, no sooner had Goitein suggested such a dichotomy than he himself cast doubt on it, posing the question of whether a family house could become an apartment house over time. If the question is whether a home once occupied by a family could become divided into several residences, the answer is clearly yes. If the question relates to whether a house could acquire upper storeys over time, the evidence again shows this was the case. I have already cited the "newly" built apartments on the roof of a multi-storey house. Furthermore, one exceptional 13th-century deed describing a house in al-Qāhira, includes addenda over a period of 64 years detailing each sale of the property and alterations to the structure, including new upper apartments (D. S. Richards 1972, 109–110). While it is unclear whether the house with "newly built" apartments contained an open courtyard (its ground floor is not described), this latter example certainly did. The house also included a stairway in the entry passage leading to a mezzanine (*mustaraqa*) and then higher to two apartments (*ṭabqa*s). This seems all the more significant considering that Goitein reiterates his distinction between family mansions and apartment houses by stating that the former's staircase was placed within the innermost part of the building, while the latter had a staircase in the entrance (Goitein 1983, 74). Documents also illustrate the rights of part-owners of a house to build above the sections they occupy, such as in the three-storey house in al-Maḥalla detailed in TS 16.140 (Goitein 1983, 81).

Despite abundant evidence for the adaptability of houses, both structurally and occupationally, evidence is cited by Goitein suggesting that some houses were built from the outset to be occupied as separate apartments by unrelated groups. The construction by two unrelated men of a *dār* worth the incredible sum of 600 *dinars* is reasonably assumed to be built for multiple occupancy as a commercial enterprise. Elsewhere one can see evidence of the acquisition of entire properties solely to rent out to multiple parties. In a document dated 1032 (TS Arabic Box 5 f. 1) a Muslim leased a Jew a house consisting of seven apartments or residences over three levels (two were on the ground floor), with a right to sublet them. It seems the acquisition was a purely commercial speculation, as

Goitein notes (1983, 92)[30]. This should not seem surprising, as there is plenty of evidence that real estate was important as an investment, rather than as shelter alone, and many relied on ownership of house shares as sources of income. This was particularly the case for women, who lacked the freedom to make money in other ways. The frequent endowment of property shares by family members to women was most likely a means to ensure they could support themselves independently, principally through the return of rent. Within the context of such an economic system, the creation of properties to house numerous small groups in self-contained apartments would seem a rational end.

3.2.3   A Blurred Dichotomy

The Geniza evidence thus suggests that the "family house" was at best an ephemeral and fleeting category, with division in ownership and occupation, as well as expansion, seemingly inevitable over time. The "apartment house" existed only in the sense that some houses may have been purpose-built to contain multiple occupational units to rent out, but modular units of this type were seemingly common regardless. In other words, the *dār* was a composite architectural phenomenon, whether planned as such or through accretion and adaptation. As discussed, *dār*s described as having multiple residences, *manzil*s or *sukn*s, but more importantly individual occupational units are most often defined by words for architectural ensembles or apartments rather than these more abstract terms. I have already mentioned the terms for an upper apartment (*ṭabaqa*), and a light structure on the roof (*khuṣṣ/ṭarma*). The *qāʿa* is the usual ground floor occupational unit, a term meaning an open courtyard, but also implying the courtyard and its surrounding rooms, or by extension the ground floor in its entirety (Goitein 1983, 63). A suspended *qāʿa* may also be found on higher storeys (Goitein 1983, 63; 81). Furthermore, a *qaṣr* (literally palace/castle) was perhaps a self-contained apartment on the ground floor (Goitein 1983, 76). While individual rooms could be rented and occupied alone (Goitein 1983, 75), these ensembles or apartments were often available as potential self-contained residences. One must not imagine a strict division, however, as separate groups of tenants still often had shared rights and access to communal spaces and resources (e.g. wells: Goitein 1983, 68).

This does not mean, however, that such modular *dār*s were designed to hold multiple unrelated groups, since within a family home different *qāʿa*s and *ṭabaqa*s etc. might hold

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[30] This is, one of the few instances in which Goitein specifies he considers this an 'apartment house', though it only has two proper storeys, and above this *akhṣāṣ* (light constructions, plural of *khuṣṣ*).

different parts of the family (Goitein 1978a, 104–5). More might be added to lease and provide income, or to accommodate new family groups.

The "family home" suggested by Goitein is not a total chimera; it does seem to have existed in some measure as a social ideal. Goitein described opposing tensions of Geniza society, caught between the mobile and mercantile population and the traditional and clannish values they strived to uphold. Goitein writes that "[i]deally, and very often actually, various branches of an extended family lived in one house, and frequently adjacent houses were in the possession of relatives…Occasionally, marriages between cousins or other close relatives were concluded in order to reunite properties which had become divided through the process of inheritance" (Goitein 1983, 82). Here we see that the uniting of families within houses and neighbourhoods existed as an ideal, even if it often could not be achieved in practice.

Is there any evidence, considering the conclusions reached thus far, for the four to fourteen storey "tower houses" beyond the travelogues of the 10th and 11th century? We have no details of the house with nine *ṭabaqa*s, and the ambiguity in the term *ṭābaqa* makes its interpretation difficult. Gil's (1976) translations of *qodesh* accounts show there were, at least in properties owned by the community, examples of *dār*s with considerable numbers of rented dwellings. For example, a set of records from the years 1042-1043 describe the property as consisting of two shops and seventeen dwellings of various sizes, from an individual room to a *dār.* However, since the number of occupants represented by each payment is not given explicitly, it is difficult to gauge how similar these situations were to those described in the travelogues. Still, single occupancy is often implied for a number of dwellings (both by the size of the unit, the price, and the fact that it is often women who occupy these smaller units) and one cannot imagine such a property housing anywhere close to 100-250 people.

3.3   EXISTING TYPOLOGIES OF FUSṬĀṬ'S COURTYARD HOUSES

Bahgat and Gabriel did not produce an architectural typology *per se,* they simply discussed the elements defining the style of housing as a whole, and graphically summarised the diverse dispositions of these elements, as illustrated in Figure 10 (section 2.2.3A). Similarly, Scanlon only detailed in a piecemeal fashion a periodisation of the houses, based on both architectural "stylistics" and construction techniques (summarised in 2.2.3D, above). The task of a creating a formal typology was left to the ARCE project's architect, Antoni Ostrasz. In 1977 Ostrasz produced a summary of the archaeological evidence for the Fusṭāṭ courtyard house and produced a new typology based on Scanlon's results, as well as those

of El-Hawary, Mehrez, and Bahgat and Gabriel (Ostrasz 1977). As discussed, this study was restricted to the courtyard-based plans, despite recent discoveries of alternative forms.

Just as in the case of Bahgat and Gabriel, Ostrasz focusses on the courtyard itself and the elements that frequently appear surrounding it: the *bayt*[31] and the alcoves or recesses on the remaining sides. The primary division Ostrasz makes is between courtyards with 1-2 porticoes (type A), and those with 3-4 (type B). The latter, which Ostrasz says are present in Bahgat's and Gabriel's area, are described as "atrium-like", alluding to the *impluvium* of the Roman atrium house. While type A receives illustration and further subcategorization based on the presence and disposition of the aforementioned elements (Figure 23), type B seemingly defies subcategorization. A1 consists of a single *bayt* and portico adjoining the courtyard. A2 has two *bayt*s on opposite sides of the courtyard, though one lacks the portico, with the central room open directly onto the courtyard. A3 has two opposing *bayt*s including porticoes. A4 has a single *bayt* and portico with alcoves or small open rooms on the remaining sides of the courtyard. A5 has large open rooms, comparable in size the central room of the *bayt*, on the remaining sides.

Ostrasz also presents summaries for the date, area, orientation, and presence of various features within the housing assemblage. This includes the presence of water basins, shrubbery pits, "gougings", staircases, pits, flues, and latrines (these features will be discussed in Chapter 6). The dating is based on El-Hawary, Mehrez and Scanlon's reports, and on Scanlon's re-dating of Bahgat's houses (see section 2.2.3D, above). Ostrasz fails to identify any clear relationships between these metrics or features and the architectural types proposed. Moreover, Ostrasz's types did not form any clear chronology, in contrast to Scanlon's approach.

Each "house" studied by Ostrasz is defined as consisting of a *single* courtyard and those rooms that can be thought to be concomitant to it. This precluded the houses though to consist of multiple courtyards, posited in both Bahgat and Scanlon's reports, which were duly subdivided for analysis. Such an approach creates an architectural assemblage consisting of 41 houses, spread between five sites. The division into courtyard-based units was no doubt a methodological necessity, as Ostrasz's stylistic classification is based on the arrangement of the elements around this singular space. Yet considering the preceding discussion of the Geniza it may reflect something ontologically sound, reflecting a social-architectural reality in Fusṭāṭ. This will be explored in subsequent chapters.

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[31] A term used by Scanlon, but not Ostrasz.
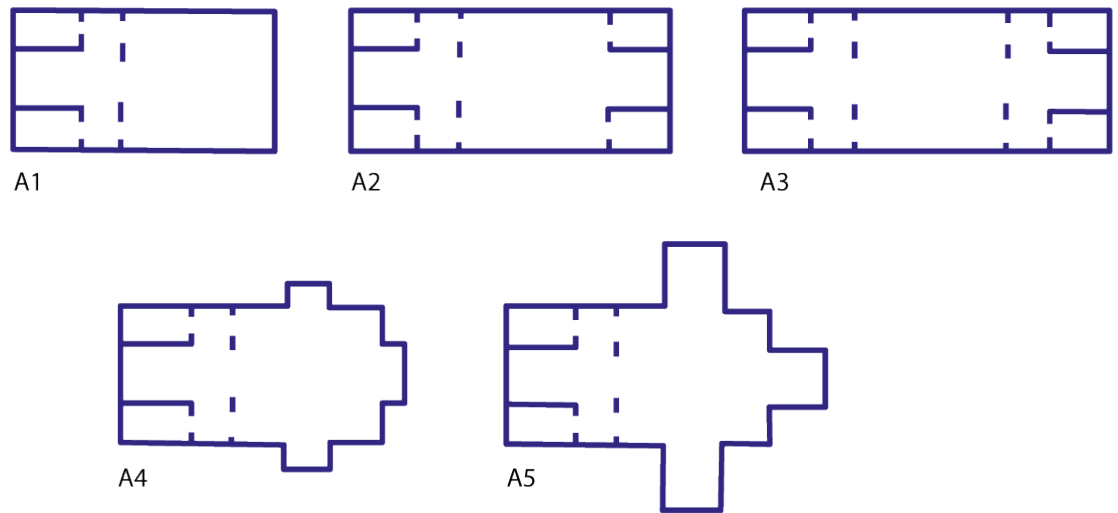
Figure 23 – The typology of Type A courtyard houses of Fusṭāṭ devised by Ostrasz (after Ostrasz 1977, pl. 1).

Only rooms confidently associated with courtyards are therefore placed within the units of analysis. This bypasses the complex task of establishing the precise boundaries of one house and the beginning of another in such fragmentary and multi-phase remains (discussed further in Chapter 6). Courtyards, due to their large size and surviving water features, are relatively easily identified in the highly depredated site. They therefore represent a natural starting point from which to posit a plan, especially considering their potential role in providing access and light to surrounding rooms. Yet this approach means that much architecture is not analysed at all, either because it cannot be established with certainty to which courtyard a particular room belongs or, potentially, because it forms part of a type that is not centred on a courtyard.

Beyond these lacunae, it is clear that—as was partly the case with Scanlon's schema—those remains that were studied were defined in terms of the form and layout of the *bayt.* The lack of subcategorization of the multi-porticoed Type B houses can be largely attributed to the fact that some lack this consistent arrangement, making comparison difficult for Ostrasz. The *bayt*'s role in interpretation therefore requires further scrutiny. As will become apparent, its interpretative role extends beyond typology.

3.4   THE SO-CALLED "BAYT"

3.4.1   Role in Existing Interpretation

Not only does the *bayt* form a key element of Ostrasz's typology, but the identification of the same form elsewhere in the Islamic world has formed the basis not just for classification

but also explanation of the houses, purportedly demonstrating the influence of foreign élites. This is telling not only in terms of the kinds of explanations of domestic architecture that have dominated the discourse thus far, i.e. those centred on origins and transmission of style rather than daily life, but also the conceptualisation of early Islamic Egyptian society at large as a passive agent, a reflection of the political and military historical narrative.

The importance of the *bayt* in terms of classification and explanation are such that, together with the courtyard and its hydraulic appurtenances, it has come to constitute the core of an architectural concept that has simply been referred to as the "Fusṭāṭ house".

Though I have used the term *bayt* thus far, in reality the language used by the various excavators of Fusṭāṭ to describe the tripartite arrangement of rooms varies. The terminology used for both elements and the arrangement as a whole ranges from modern English and French terms with relatively little functional or historical relevance, to words of Arabic or Persian origin with distinct historical, architectural and cultural connotations. As I demonstrate through the course of this chapter, many of these latter terms are anachronistically employed and potentially misleading. Moreover, through examining changing terminology alongside the suggested architectural parallels, I will demonstrate that the two have coincided to form established and largely unquestioned explanations of the arrangement, and therefore of the courtyard house as a whole.

3.4.2   Terminology, Parallels & Interpretations

The central room of this arrangement was labelled by Bahgat and Gabriel as the *salle principale*, the flanking rooms as *salles secondaires* (Figure 24) *.* The court and portico are again referred to in French, the *cour* and *portique* respectively. The *portique* and *salles,* as an ensemble, are identified as similar to those previously excavated by Herzfeld (1907) within houses and palaces at the short-lived ʿAbbāsid capital of Sāmarrāʾ (caliphal capital 836-c.940) as well as the early ʿAbbāsid palace of Ukhaiḍir. This phenomenon had been described by Herzfeld as ⊥-*formiger Saal* or ⊥-*shaped hall*.
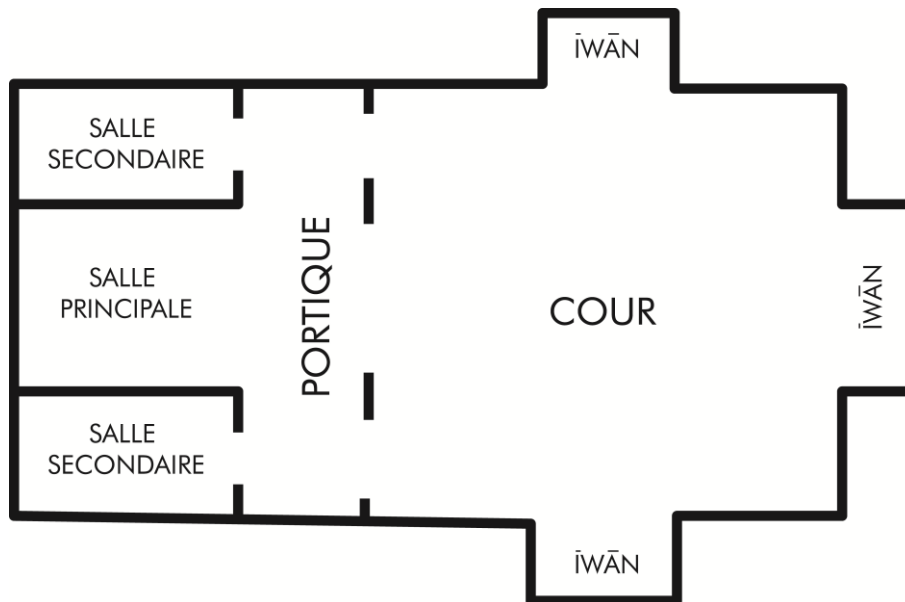
Figure 24 - Terminology for the principal rooms of the courtyard house used by Bahgat (image: author).

Bahgat illustrates that, as at Sāmarrā', the central hall was open to its full width onto the portico, thereby similarly forming a single T-shaped space. It is noted that the arrangement therefore bears some correspondence with the *oikos* and *prostas* of the Hellenistic house, with the *salles secondaires* being comparable to the *thalamos* or *amphithalamos*. Bahgat does not go as far as to suggest that the form has its origins in the Hellenistic world, instead suggesting the form is present in numerous cultures of the Near East: Greek, Roman, and—citing Gertrude Bell's observations (Bell 1914)—Hittite. He therefore felt he could not determine which of these had influenced the houses of Fusṭāṭ. Later examples of similar forms are also noted: the 18th-century houses of Tunisia, and the 19th and early-20th century houses of Iraq.

The open-fronted rooms or alcoves on other sides of the court are referred to as *īwān*s, an Arabic term of Persian origin. There are variable usages of this term within medieval and early modern cultures, as well as usages by art and architectural historians that have developed more specific and perhaps somewhat divergent meanings.

The terms used by Scanlon vary over time. The arrangement is referred to only once in the first season's report as the "Samarra *bayt*-plan" (Scanlon 1965, 22). This is, however, mentioned quite in passing, the resemblance to Bahgat and Gabriel's houses and Sāmarrā' seems to be taken to be self-evident (Scanlon 1966, 92). *Līwān* (a variant of *īwān*) also appears quite early to describe the central room of the arrangement though at first only to describe such a room when not fronted by a portico, such as A in XVI-3/8 (Scanlon 1966, 92); B'-W in XVI-16; (Scanlon 1966, 100). This is in contrast to Bahgat's usage of the term

for the ancillary chambers or niches on the other sides of the courtyard. The central chamber of the more typical porticoed arrangement is later referred to *together* with the portico itself as a "T-shaped *īwān…*-cum-portico" (Scanlon and Kubiak 1973, 23), "T-shaped īwān/portico" (Scanlon 1981a, 413) or simply *īwān* (Scanlon 1981a, 415). At other times the central room is referred to as an *īwān* as if *distinct* from the portico (Scanlon 1974a, 82). By 1968 (Scanlon 1974a) the ensemble is referred to frequently as the "*bayt* " or "Samarra *bayt*" or "T-shaped *bayt*" if porticoed (Scanlon 1974a, 87), or alternatively "T-shaped *īwān* complex" (Scanlon 1974a, 82)[32]. Only once does Scanlon use the term *īwān* to refer to a smaller open-ended room placed ancillary to the main tripartite arrangement, as Bahgat did, qualifying it as a "small *īwān*" (Scanlon 1981a, 413).

It is only in the reports of the 1971 season that one gets an impression of the significance Scanlon attaches to the phrase "Samarra *bayt*". Rather than simply indicating a resemblance to the architecture of Sāmarrāʾ, Scanlon implies that the form was imported from Iraq during the Ṭūlūnid period. Such a hypothesis is first alluded to in explanation of the existence of a mode of housing without a courtyard or *bayt,* the so-called Eastern Complex (Scanlon and Kubiak 1979, 108), which is proposed to be a pre-Islamic Egyptian housing tradition that "gave way rather more slowly than heretofore allowed to the new fashion introduced in the Ṭūlūnid period from Iraq" (Scanlon and Kubiak 1979, 110). This hypothesis is referred to again rather obliquely in consideration of the remains of a house whose fabric was principally bonded with lime mortar. Though the finds associated with the ensemble date to the 8th and 9th century Scanlon argues that "[s]ince nowhere in Fusṭāṭ has it been proven that masonry employing [lime] mortar was the mode before the introduction of the Samarra bayt, we must see what stands of ensemble (c) as being architecturally more 9th than 8th century" (Scanlon and Kubiak 1980, 83). In other words, the date of the introduction of the tripartite arrangement into Fusṭāṭ, the Ṭūlūnid period, is so confidently determined that it can be used to date associated building technologies, which in turn can be used to date houses. The origin of the hypothesis Scanlon accepts with such certainty is seemingly K. A. C. Creswell, though no citation is given. In describing the houses excavated by Bahgat and Gabriel in *The Muslim Architecture of Egypt* (1952)*,* Creswell proposes that the tripartite form of the houses was introduced to Egypt from Iraq, owing to its similarity to the architecture of Ukhaiḍir, Sāmarrāʾ, and Qaṣr-ī Shīrīn (discussed later in this chapter), "probably in Ṭūlūnid times" (Creswell 1952, 128). Creswell's temporal uncertainty has been ignored, and the hypothesis accepted as fact.

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[32] The latter two, in Fusṭāṭ-A, have contiguous flooring between the portico and central room, which seemingly influenced the description.

Figure 25- Congregational Mosque of Aḥmad ibn Ṭūlūn, Cairo (IHC0474 © Aga Khan Trust for Culture / Aga Khan Award for Architecture, courtesy of Gary Otte [photographer])

Aḥmad ibn Ṭūlūn, whose governorship defines the Ṭūlūnid period, served the ʿAbbāsid court in Sāmarrāʾ before governing Egypt. The congregational mosque built under his rule in the newly founded district of al-Qaṭāʾīʿ, which survives in Cairo with many of its original features, shares many characteristics with the great mosque of Sāmarrāʾ. The similarities include the use of *ziyadā*s (walled open spaces) outside the main building, the use of piers rather than columns in the arcades and sanctuary, and an external heliocoidal minaret[33] placed centrally on the anti-*qibla* side of the mosque[34]. It does therefore seems plausible that his reign may have brought with it other Iraqi influences.

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[33] The heliocoidal minaret that survives is, in fact, a Mamlūk addition. However, based on the description of the minaret by al-Muqaddasī (*Aḥsan al-taqāsīm*, 99), and the report of al-Quḍāʿī (d. 1062) cited in Ibn Duqmāq (*al-Intiṣar*, IV,123, ll.3-4), the original form was also heliocoidal (Creswell 1958, 315).

[34] That the mosque was modelled on those in Sāmarrāʾ is cited in historical sources, though Creswell emphasises that aspects of its layout are very different (Creswell 1958, 315–16).

Figure 26 – Great Mosque of Sāmarrāʾ. The remains of the *ziyāda* outer walls can be discerned.

Though the phrase "Samarra *bayt*" is rarely used by other scholars, this general hypothesis of introduction from Iraq is often presented as established fact without citation (Lézine 1972a, 3; Revault and Maury 1975b). Yet in lieu of a final report from Scanlon's excavations there is no weighing up of the total empirical evidence to support such a hypothesis. It naturally relies on the ability to date all examples of the form to the reign of Ibn Ṭūlūn and no earlier, though as demonstrated through later preliminary reports (Scanlon and Kubiak 1980, 83, quoted above), the date of the introduction of the architectural form is used as *a priori* knowledge to deduce dates of structures.

Since the *bayt*, courtyard and subsidiary open-fronted rooms constitute the primary conceptualisation of this architectural style, the association of the *bayt* and courtyard with Sāmarrāʾ can be seen as the prevailing scholarly explanation of the Fusṭāṭ courtyard house itself. Yet how far does this explanation bring us towards an understanding of the form of the domestic architecture of Fusṭāṭ, the actions that took place within, and thereby of the social life of the city? An explanation phrased solely in terms of origin and transmission fails to address the agency of those who built and inhabited the houses. Regardless of whether the form was "imported" or arose in some other way, one must address the reasons underlying its emergence on such a large scale. Was there an active communication of a particular aesthetic or cultural connotation by inhabitants? Was the form related to changes in domestic practices? Did such changes motivate adoption of the form, or were

they unintended consequences? In other words, I wish to address how the form was conceptualised and used by the residents of Fusṭāṭ.

3.4.3 **Origins of the "Bayt" as a Concept**

In modern Arabic *bayt* means "house" or "home", though it has been used by scholars to describe and further subcategorise specific architectural plans that appear in both palatial and quotidian contexts. As I have already discussed, the word *bayt* was not used to describe either a house (*dār*) or home (*sukn*, *manzil*) in the Geniza documents, nor in the travelogues. Its only uses in the Geniza are to describe the household as a collection of people, or architecturally as a term to describe a generic room. How then, has the term come to refer to such specific architectural arrangements? Moreover, what is the significance of labelling them as a "house" or "home", especially considering they are themselves *part* of what we would consider a house, at least in the case of Fusṭāṭ?

The crystallisation of the scholarly meaning, as well as its subsequent prevalence, can be largely attributed to K. A. C. Creswell. In *Early Muslim Architecture,* first published in 1932, Creswell categorised the early Islamic *bayt* into two types: the Syrian *bayt* and the Iraqi-Persian *bayt*. The former consists of four (sometimes more) rooms adjoining a rectangular courtyard or covered hall (Figure 27). It is named as such due to its appearance in the Umayyad palaces (*quṣūr*) of *Bilād al-Shām* (Greater Syria)*,* where each central court or covered hall is often entered from the larger central court of the building. The Iraqi-Persian *bayt* is synonymous with what Scanlon called the Sāmarrāʾ *bayt*, consisting of three rooms, the central room being open-fronted and adjoining, in some cases, a transverse hall or portico, if not the courtyard directly. It should be noted that Creswell's examples of the Iraqi-Persian *bayt* shown in Figure 28 are entirely Sasanian in provenance, except for the early ʿAbbāsid palace of Ukhaiḍir in Iraq, though the same term is used by Creswell in discussion of several other early Islamic structures.
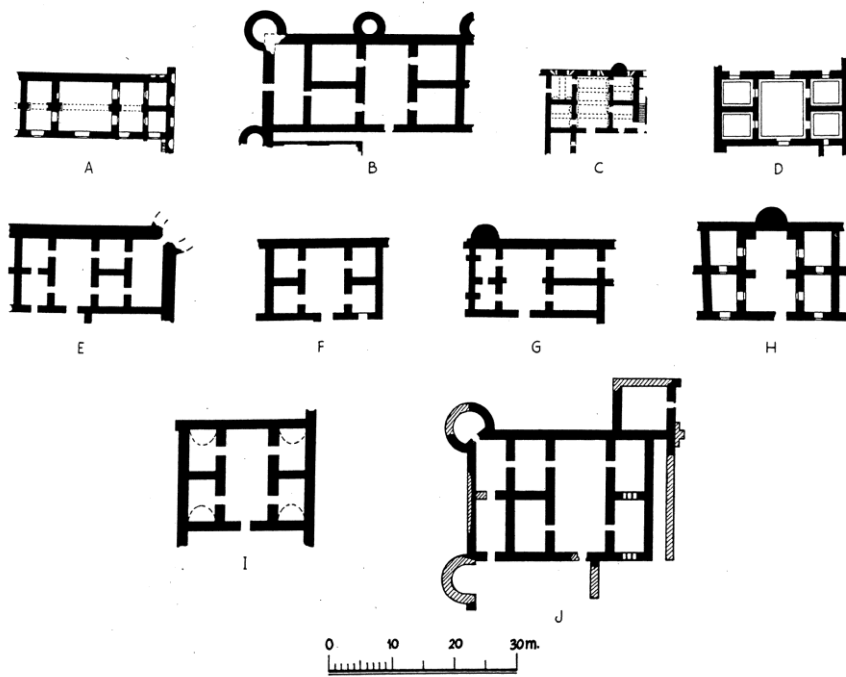
Figure 27 – Examples of the "Syrian *bayt"* given by Creswell (1958, fig. 28, 149)*.* **This ensemble consists of a rectangular hall adjoining a courtyard leading to four or more ancillary chambers. A. Busrā, B. Qastal C. Kharāna, D. Khirbat al-Minya, E. Jabal Says, F.'Anjar, G. Qasr al-Hayr al-Gharbī, H. Khirbat al-Mafjār, I. Mshatta, J. Qasr al-Tūba.**
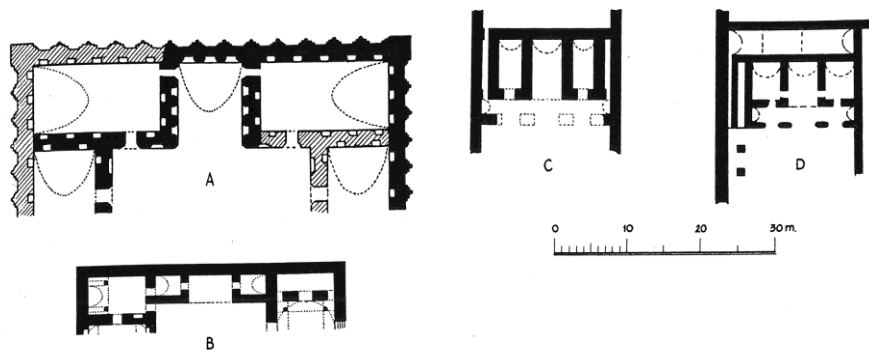
Figure 28 – Examples of the "Iraqi-Persian *bayt"* given by Creswell (1958, fig. 28, 149). A. Fīrūzābād, B. Sarvistān, C. Qasr-i-Shīrīn, D. Ukhaiḍir.

Creswell mentions the *bayt* at several junctures in *Early Muslim Architecture*, the first instance being the Iraqi-Persian *bayt* in the *dār al-'imāra* of Kūfa. In these cases no definition is given and the only references are to a section *infra,* in which Creswell gives a fuller discussion of *bayts* as part of an examination of the Umayyad period *quṣūr*. Yet even here the *bayt* is not introduced as a concept, but rather defined in passing in purely formal terms: "...there is even a *bayt,* i.e. a central hall flanked by a pair of rooms on either side" (Creswell 1979b, 516). Thereafter it is used as a stylistic criterion to elucidate the

development of the *quṣūr.* A brief discussion of Iraqi-Persian *bayt* is tacked on to this section on *quṣūr*, as a point of comparison, with the Sasanian examples and Ukhaiḍir cited (as in Figure 28). To find a definition of the function of a *bayt,* one must consult the "short account" of *Early Muslim Architecture* that appeared in 1958, in which it is described as a "self-contained unit, a habitation in itself" (Creswell 1958, 147).

While Creswell applied the term *bayt* to parts of *quṣūr* and other buildings, there is no indication that the sources he cites for descriptions of the buildings did the same. This is not the case, however, with regard to the palace of Ukhaiḍir, which was described by Gertrude Bell in 1914. Bell is the first scholar, as far as I am aware, to use the term *bayt* not only when discussing tripartite complexes of Ukhaiḍir, along with its apparent Sasanian predecessors, but also the five-part arrangements of the *quṣūr* of *Bilād al-Shām*, proposing that they are regional variations of the same phenomenon. The difference between the *bayts* in *Bilād al-Shām* and those of Mesopotamia and Persia is, in fact, something that Creswell claimed had been hitherto ignored (Creswell 1958, 147).

Bell introduced the term along with an indication of the meaning she intended: "a habitation complete in itself, a *bait* as it is called in Arabic, a house" (Bell 1914, 82). It is the palace of Ukhaiḍir to which she initially applies the term, though she refers not just to the tripartite arrangement adjoining the court, but to the court and all its adjoining rooms (specifically the complexes surrounding courts B, C, H and G, Figure 29), which include opposing tripartite arrangements, as well as a narrow court behind these that Bell considered a kitchen. Yet beginning with Creswell we can see a shift in meaning away from Bell's original conception to define the Iraqi-Persian *bayt* as the open-fronted hall facing the courtyard and two flanking rooms, a misapprehension that continues in Scanlon's work and beyond. In contrast, Bell notes other appearances of an open-fronted hall and flanking chambers, such as that to the south of the "court of honour" in Ukhaiḍir (Figure 29), but never terms these *bayts,* as their clear ceremonial function, integrated as they are among the central rooms of the palace, would be incongruous with a term intended to indicate a self-contained residence.
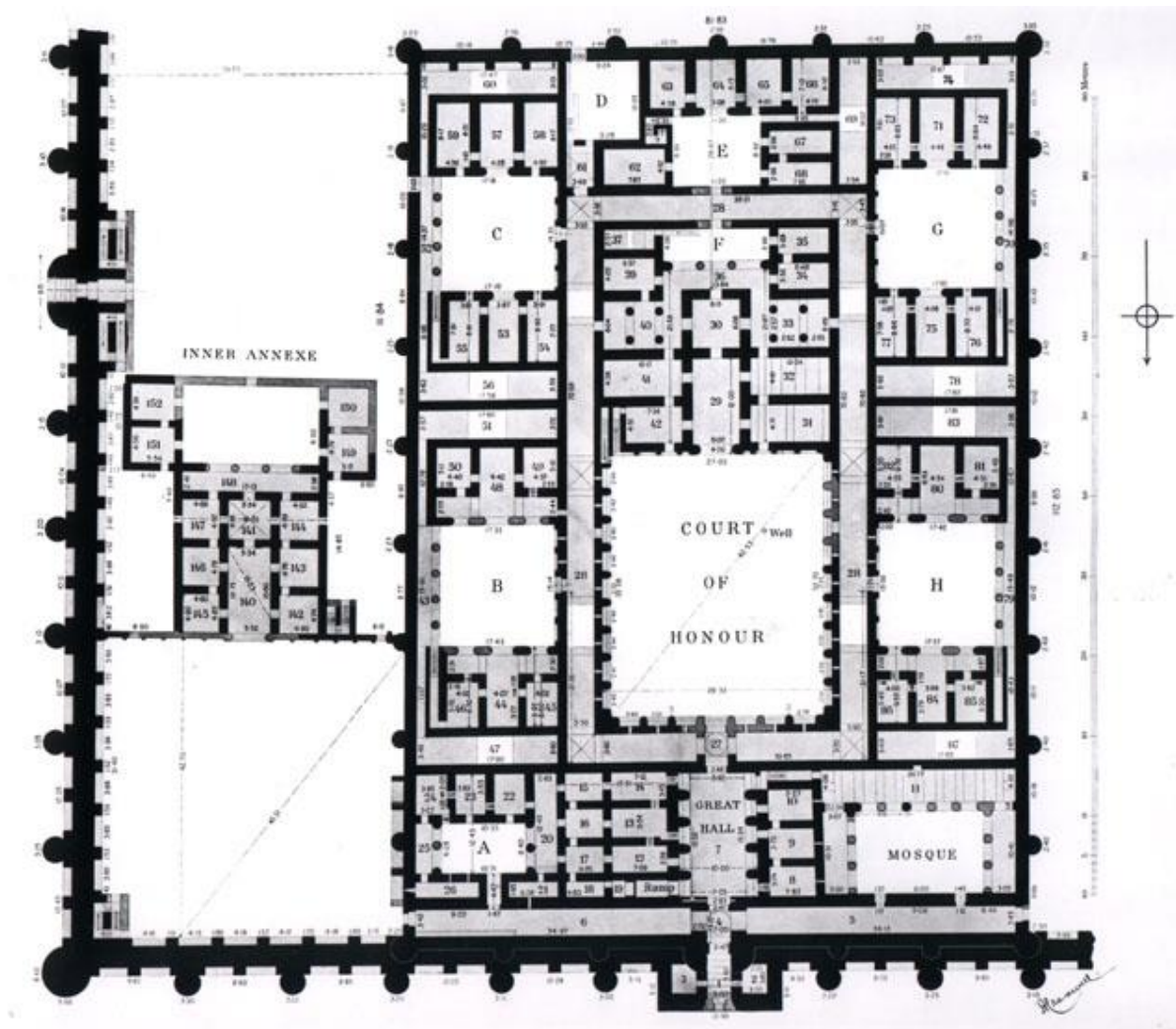
Figure 29- Plan of the ʻAbbāsid palace of Ukhaiḍir, Iraq (Bell 1914, Pl.2).

When considered as an entire complex with opposing triple ranges of rooms, it is easier to see why Bell considered the *bayt*s of Ukhaiḍir to be the same phenomenon as the arrangements in the Syrian *quṣūr*, each having two opposing ranges of rooms with an open space between, though in the Syrian examples it is two rooms rather than three. As Bell proposed they are, in this way, simply "the baits of the Mesopotamian palaces, minus the līwān" (Bell 1914, 104).

3.4.4   The Majlis: Rephrasing the "Bayt" and the Transition to the Cairene House

While the term *bayt* has entered common usage in Islamic archaeology and architecture it is erroneously defined in relation to Bell's original formulation, a change that makes it incongruous with the intended meaning of the word, as well as being anachronistically employed. The term's continued usage is perplexing considering the existence of an oft-quoted medieval Arabic account that describes the form scholars have termed the Iraqi-Persian or Sāmarrāʾ *bayt.* This account includes not only the medieval name for the

ensemble, but also the individual components and its supposed origin and use. The account in question is al-Masʿudī's Meadows of Gold (*Murūj al-dhahab),* written in the 10th century. The passage is quoted in full below:

> "And al-Mutawakkil originated in his days a construction that people had not known. And it is known as the *ḥīrī* with two sleeves and porticoes (*al-ḥīrī bi kummayn wa arwiqa*). And is it that one of his storytellers told him that a Nuʿmānī king of al-Ḥīra from Banī Naṣr introduced a building in his habitat which was al-Ḥīra, in the image of war and its form because of his fascination with it and leaning towards it, so that its memory would not part from him at all times. And so the portico (*riwāq*) had in the seat (*majlis*) of the king, which is the chest (*ṣadr*) with two sleeves (*kummān*) to the left and right. And in the two *bayt*s that are the pair of sleeves would be his close attendants (*khawāṣṣ*), and in the right of the two of them is the clothing closet (*khazānat al-kiswa*) and in the left what is needed of drink. And the space of the portico is taken up/permeated by the chest (*ṣadr*) and the two sleeves, and the three doors are over the portico. And this construction was called to the day "the ḥīrī with two sleeves" in reference to al-Ḥīra. And the people followed al-Mutawakkil's lead in this and it became famous to this end." (*Murūj al-dhahab*, 4, 4-5, translated by Sayed 1987, 32-4)

Thus *ḥīrī* simply means "of al-Ḥīra", the capital of the pre-Islamic Arab kingdom of the Lakhmids in Iraq, which features in the account as the historic origin that inspired the ʿAbbāsid caliph Mutawakkil (reigned 847–861). The central hall is named the chest (*ṣadr*), and the side rooms the sleeves (*kummayn*) (Figure 30). The meaning of the phrase translated as "in the image of war and its form" remains obscure. It was translated by Bell (1914, 58) as "after the model of an army in battle", whereas Herzfeld took it to mean in imitation of a military camp (Herzfeld 1912, 40). The former seems to imply the arrangement of troops in the field, the latter rows of tents.
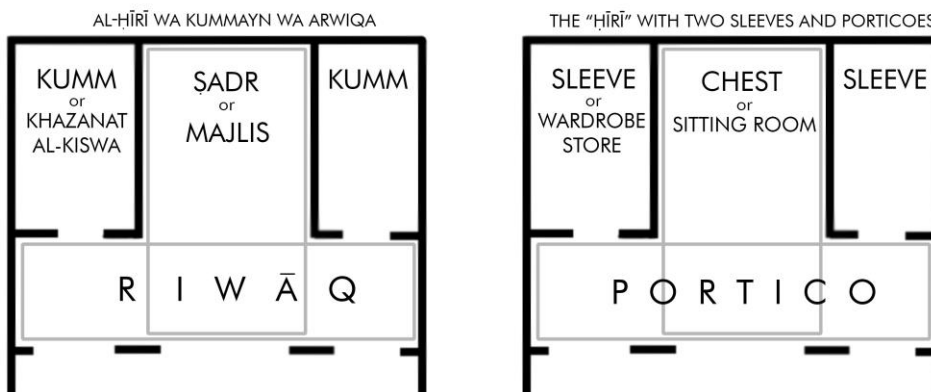
Figure 30 — Summary of al-Masʿudī's account of the *majlis al-ḥīrī bi kummayn.*

The central room is also more pragmatically called the *majlis,* from the root *j-l-s* "to sit", which seems to either imply either the enthronement of the king or the relaxation of residents and entertainment of guests. The two sleeves are called the *khazānat al-kiswa* (wardrobe store) on the right, and on the left a store (*khizana*) for drink. The *riwāq* (portico) is described as encompassing the chest and sleeves, i.e. its length is equal to that of all three rooms, and has three doors into it (from what we can assume is a courtyard). The *majlis* is described as penetrating or being within the *riwāq*, suggesting a conceptual overlap between these spaces.

The correspondence between this description and what has been termed the Iraqi-Persian or Sāmarrāʾ *bayt* has been noted by many scholars (Mathews, Christine, and Mathews 1997; Ibrahim 1984, n. 32; Herzfeld 1912; Bell 1914). Most of these scholars may provide a reference to, or note regarding, al-Masʿudi's account in explanation of the supposed origins of the form, though do not use the medieval terminology provided in the main body of their argument (Ibrahim 1984, n. 32). The only exception is Herzfeld, who used the term "ḥīrī Saal"[35], though others do not seem to have taken up this term more widely, at least in Anglophone scholarship. A true re-phrasing of the *bayt*, rather than a passing reference to al-Masʿudi's account, did occur within more recent documentary scholarship: namely Goitein's (1983) assessment of the Geniza houses and Hazem Sayed's (1987a) study of *waqf* and Geniza house deeds. Goitein does not make reference to al-Masʿudī, but rather independently comes to the conclusion that the most prominent room described in Geniza deeds, the *majlis*, must be the main room of the tripartite arrangement from excavations. His reasoning relies on the two columns which are frequently described in front of the room, relating to the two piers of the portico found in excavations, and the reference in more detailed descriptions to *kummayn* (two sleeves) belonging to the *majlis,* relating to the side rooms (Goitein 1983, 64–5). Presumably in less detailed descriptions the *kummayn* were simply implied.

Sayed's work attempts to illuminate the transition from the plan of the "Fusṭāṭ house"—that described here—to the "Cairene house" of the Mamlūk and Ottoman period, those extant in al-Qāhira. The Cairene house is distinguished by an ensemble of rooms called the *qāʿa* (Figure 31), centred on a small but lofty covered courtyard (*dūr-qāʿa*), sometimes with a fountain or pool, with two opposing open-fronted halls with slightly raised floors and flat ceilings. These halls, known as *īwān*s, each occupy the entire width of the *dūr-qāʿa*. There

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[35] Leisten's (2003) publication of Herzfeld's first campaign uses the term "ḥīrī hall", presumably based on Herzfeld's notes, though without any explanation or reference to al-Masʿudi's account

are also open courtyards (*hawsh*) in these houses, though as Sayed points out these function as a "yard with loosely arranged spaces around it". That the open courtyard and attendant *majlis al-ḥīrī* of the "Fusṭāṭ house" is the antecedent and equivalent of the *īwān*s and *dūr-qāʿa* of the "Cairene house" is affirmed not only by the apparent prestige and prominence of each within the overall plan, but by the common term "*qāʿa*" used to describe each ensemble. I have already established that "*qāʿa*" is the term for the courtyard, and more often the courtyard and its surrounding rooms, in the Geniza deeds. It is within or belonging to the *qāʿa* that one finds the *majlis* described.
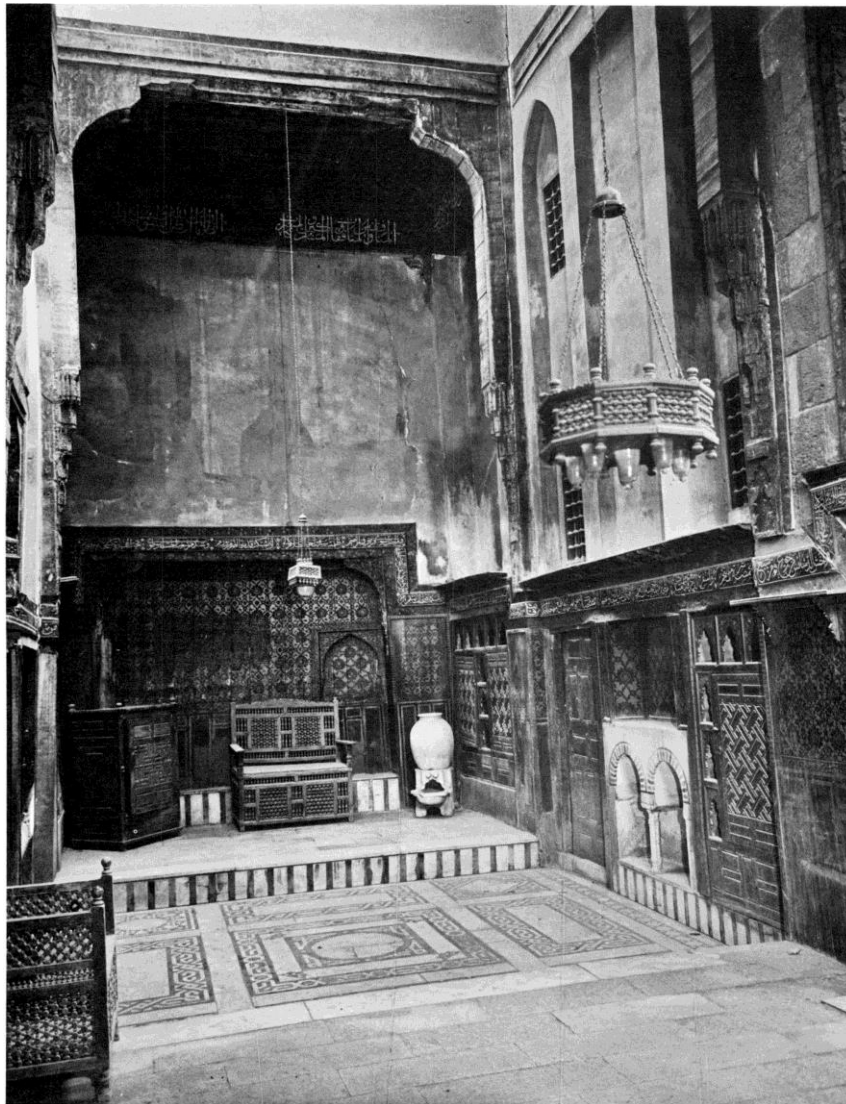
Figure 31 – Qāʿa of Manzil Suhaymī, an Ottoman urban mansion in Cairo. View from one īwān across the lower covered courtyard (dūr-qāʿa) to opposite īwān (Revault and Maury 1977, fig. 72).

Sayed uses a range of archival material, primarily the *waqf* deeds, as well as the Karaite documents and Geniza fragments, in an attempt to compensate for a chronological and

geographic gulf in the archaeological/architectural data. The established chronology of the houses excavated in Fusṭāṭ puts their construction in all cases no later than the Fāṭimid period (1179), and none show any indication of the smaller *dūr-qāʿa* with its full-width *īwān*. The vast majority of standing domestic architecture in al-Qāhira dates to the Mamlūk (1250 onwards) and Ottoman periods, though a possible exception is Qāʿa al-Dardir, which is dated to 1150 by Creswell, though Ibrahim proposes that is late Ayyūbid or early Mamlūk (Ibrahim 1984, 53). Yet even this early example does not clearly display a transitional form between the two plans. The lack of a body of surviving or excavated Ayyūbid dwellings in Fusṭāṭ or al-Qāhira makes understanding any possible transition difficult. It is for this reason that the archival sources are so valuable, and why there continues to be a strong conceptual dichotomy between the "Fusṭāṭ house" and the "Cairene house"[36].

Sayed rightly observes that to chart this transition through archival sources, one needs to establish the contemporaneous terminology for the T-plan or Sāmarrāʾ *bayt*. After reflecting on Goitein's work and the account of al-Masʿudī, Sayed confirms that the use of the term *majlis* in the *waqf* (dating between 1150 and 1400) descriptions is in keeping with its definition as the term for the T-plan. Moreover, he observes that in two *waqf*s (dated 1260 and 1285) the full name *al-majlis al-ḥīrī bi kummayn* (the ḥīrī *majlis* with sleeves) is used, confirming that the story related by al-Masʿudī associating the form with al-Ḥīra and the Lakhmids was well known even up to the late 13th century. As in the Geniza deeds, the term *majlis* had come to be used as shorthand for the *ḥīrī* or *majlis al-ḥīrī,* and seemingly to refer to the entire ensemble with its sleeves. This ellipsis or shift in terminology is evinced, Sayed claims, through the thematic dictionary of Abū Hilāl al-ʿAskarī (d. after 1005). In this work the word *ʿaraqa* is defined as the piece of wood that crosses the door of the *ḥīrī.* An annotation to this made in the 12th-13th century adds "*majlis*" nearby, seemingly to clarify the meaning, which Sayed proposes had therefore become the more commonly understood term for the feature.

Sayed charts the decreasing instances of the *majlis* in deeds between 1150 and 1400, all the while the instances of *īwān* increase. That the two were different terms for the same form is excluded by several instances of a *majlis* in older buildings being converted into an *īwān*, as well as numerous houses described as having both within a single *qāʿa,* in the sense of the courtyard and surrounding rooms. Moreover, the morphological differences are evident in details of their description: Sayed (1987a, 36) and Goitein (1983, 65) both note that doors of the *majlis* (and its sleeves or *kummayn*) are frequently described in deeds,

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[36] Sayed was in fact responding to Creswell's paper of 1953 "Problems in Islamic Architecture", which first highlighted the gap in our knowledge (Creswell 1953).

often as folding doors of carved wood, while the *īwān* is never described as having doors nor sleeves. So while the *majlis* can be identified with the T-plan or Sāmarrāʾ *bayt*, the *īwān* in these sources is seemingly the same open-fronted hall present in so many Mamlūk and Ottoman houses, known by the same name when Lane wrote *Manners and Customs of the Modern Egyptians* in the 19th century.

The decline of the *majlis* and rise of the *īwān* was observed in 917 residential units, across 88 properties. These units are known as *qāʿa*, *manzil*, *ṭabaqa* or *riwāq*. *Qāʿa* in this context refers to a ground floor residence, the other terms all refer to upper floor apartments[37]. The relative frequency of arrangements of one or more *majlis*, *īwān*, or a combination of both is reported as percentages across 50 year periods (except 1150-1250 which is presented as a single 100 year period due to the lack of early documents), with frequencies for ground floor and upper floor units shown separately (Figure 32). The date reflects the date of the document donating the property as *waqf*. Sayed notes that because a house might be donated as *waqf* after many decades of ownership, the data reflects a sample housing stock at the time, rather than what was in fashion and being built. He therefore attempts to estimate the average age of a house at the point of donation and "shift" the data—by 5 years for those houses described as "renewed", 10 years for unspecified, 50 years for those described as "old"—to reflect an approximation of the fashions at the time of building (Figure 33, below). The problems with such an approach are numerous, not least that buildings were remodelled to match fashions as has already been discussed, and Sayed was well aware of the over-simplification his method presented. However his adjustments are conservative in the extreme[38] and the "shifted" data at least brings us closer to a reflection building fashions.

Taking the figures reflecting the housing stock rather than the construction dates, we see that from 1150 to 1250 the *majlis* is the most common room by far, either one or two being present in the vast majority of cases. There is a small minority of *qāʿa*s with one *majlis* and one *īwān*, though never solely the latter. This changes drastically in the period 1250-1300, where single *īwāns* make up the largest proportion of ground floor units, as well as far more substantial number of *majlis-īwān* combinations, though more often in ground floor units.

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[37] The term *riwāq* is thought by Goitein to refer to an arcade, not an upper apartment, in keeping with its use to describe the arcades of mosques and al-Masʿudī's description of the *ḥīrī* (Goitein 1983, 73) . One is even described as within the *majlis*. The use of the term for an apartment is seemingly restricted to the Mamlūk and Ottoman periods. Goitein defines *manzil* as a dwelling or living quarters, not necessarily on the upper floor.
[38] Houses donated 110 and 180 years after construction can be identified from literary sources.

However, single *majlis* units still make up a significant proportion. By 1300-1350 the single majlis has almost completely disappeared, except in upper storeys, whereas *majlis-īwān* units and *īwān* units continue, and double *īwān* units appear. Combined *majlis-īwān* continue to make up a fair proportion of units in ground floors in 1350-1400, whereas the single *majlis* has completely disappeared in upper storeys, the vast majority consisting single *īwān*.
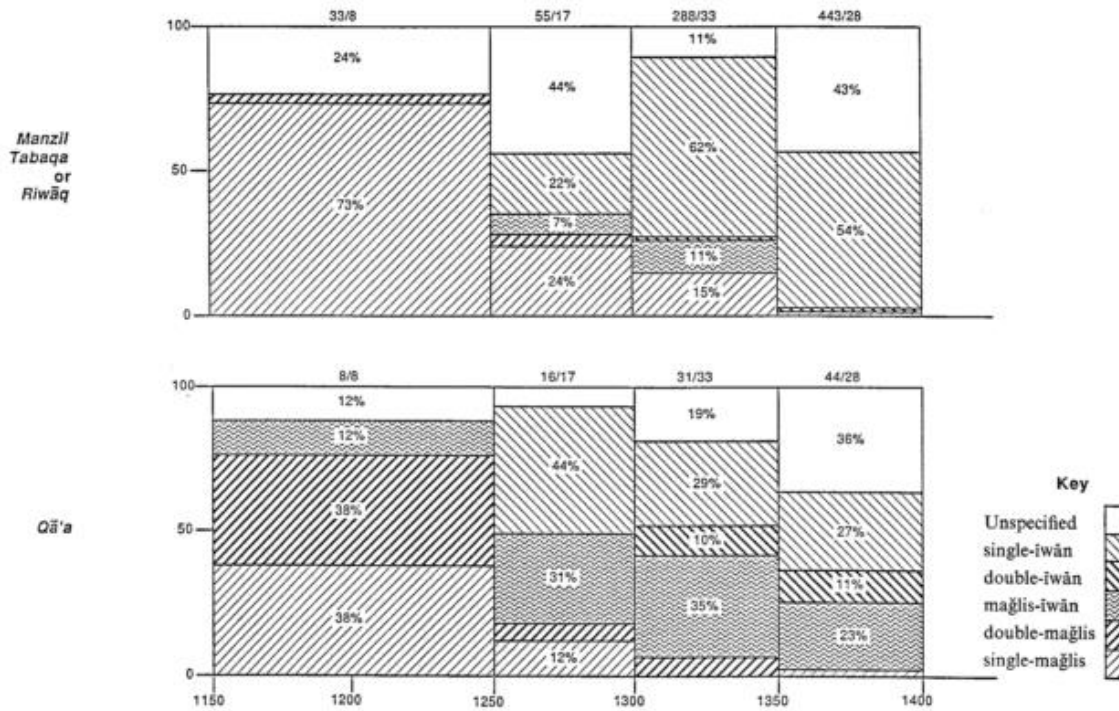
Figure 32 – The relative frequency of the various rooms of the *qāʿa* (courtyard ensemble) in the housing stock of Cairo over time, separated into upper floor residences (manzil, ṭabaqa and riwāq) and ground floor residences (*qāʿa*) (Sayed 1987a, fig. 2).
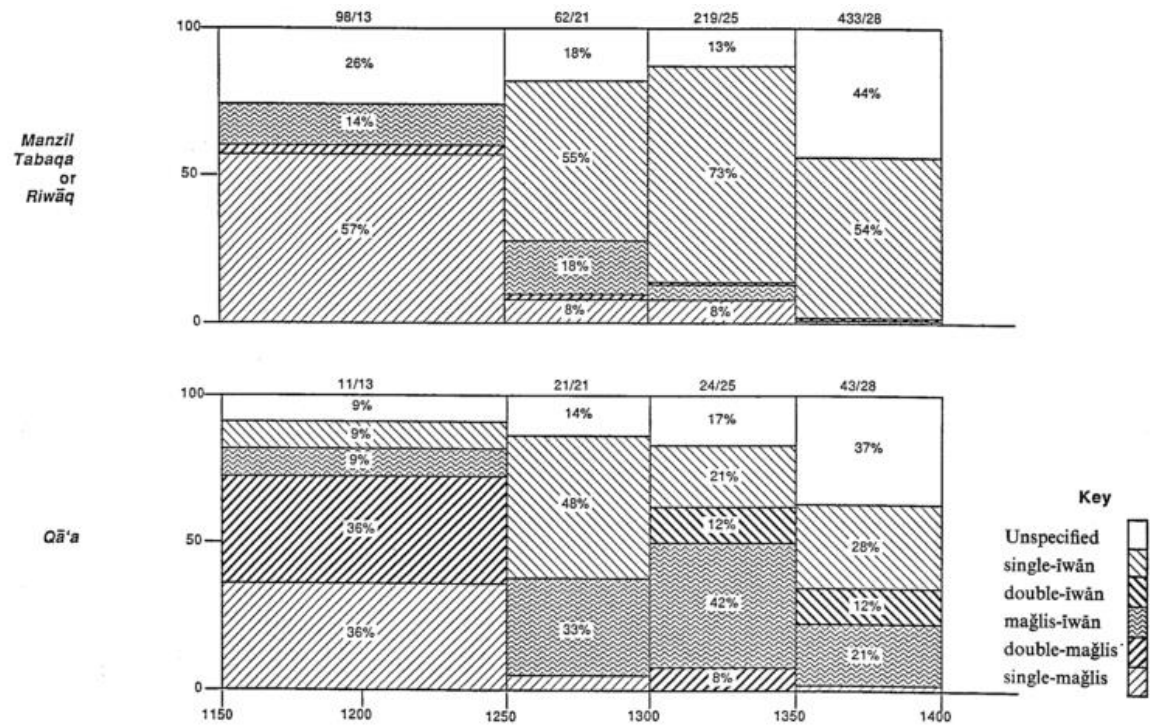
Figure 33 - The estimated relative frequency of the various rooms of the *qāʿa* (courtyard-ensemble) in houses built in al-Qāhira over time, separated into upper floor residences (manzil, ṭabaqa and riwāq) and ground floor residences (*qāʿa*) (Sayed 1987a, fig. 3).

Overall, we see a gradual decline in instances of the *majlis*. As ground floor units tend to have two rooms and upper floors only one (presumably an issue of space) the single *majlis* continues for longer in upper storeys, but is maintained as the part of an *īwān-majlis* combination in lower floors. The latter is maintained as a substantial proportion of ground floor units up to 1400, after single *majlis* units have disappeared from upper floor units. The adjustments made by Sayed to reflect the date of construction do not significantly alter this pattern. The major change appears to be pushing an instance of a *majlis-īwān* on an upper floor into the earliest period, and a single *īwān* into the same period for ground floor units. In conclusion, Sayed sees this as a "gradual change from a *majlis*-based residential unit to an *īwān* based unit" (Sayed 1987a, 8). While I would agree that there is a gradual decline in the instances of *majlis* between 1250 and 1400, at least in upper apartments, the decline between the first two periods – i.e. 1150-1250 and 1250-1300– is sharp, coinciding with an even sharper increase in instances of *īwān*. This is best demonstrated by re-working Sayed's data to show what proportion of domestic units in each period had a *majlis*, or had an *īwān*, regardless of whether they were alone, in pairs, or in a *majlis-īwān* combination (Figure 34 and Figure 35). Since there are increasing numbers of unspecified units in the later deeds, which serves to lessen the proportion of all types for later periods and thereby obfuscate the trend, I have considered only the deeds which specify a

particular room type. I have also used Sayed's estimated construction dates, rather than document dates.
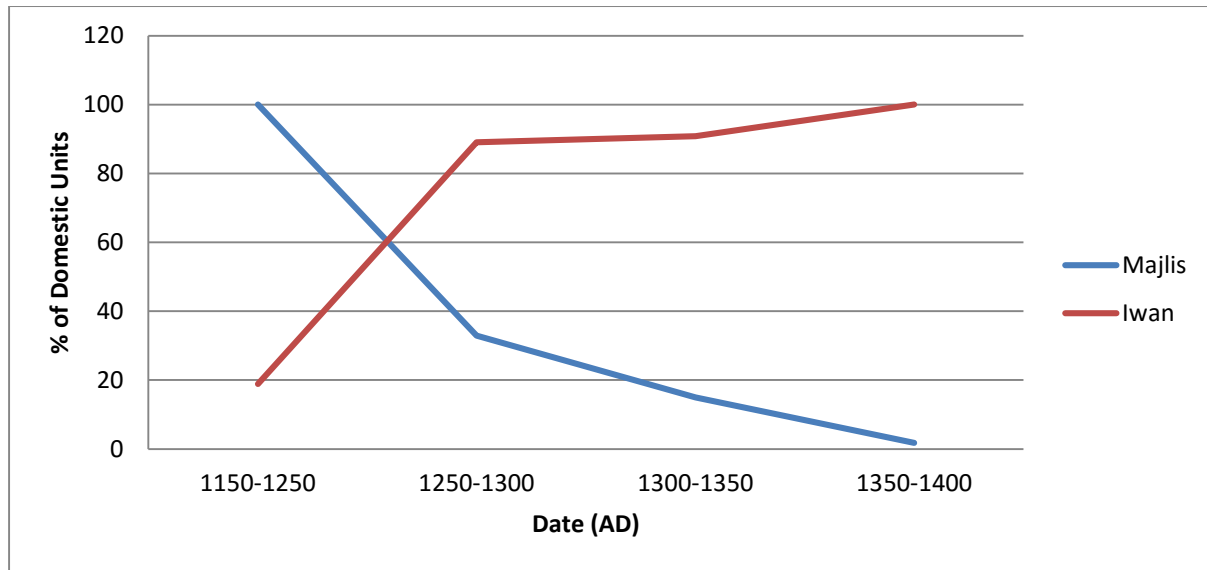
Figure 34 – Percentage of upper floor domestic units in al-Qāhira with specific descriptions including an īwān or majlis between 1150 and 1400, based on documents assessed by Sayed (1987a)
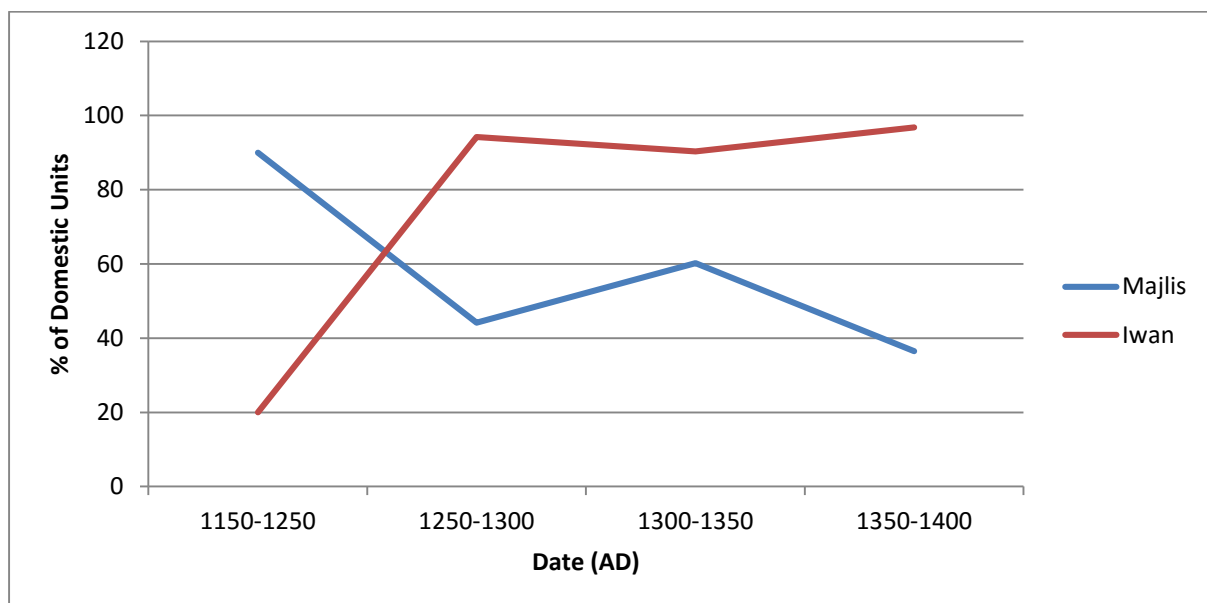
Figure 35- Percentage of ground floor domestic units in al-Qāhira with specific descriptions including an *īwān* or *majlis* between 1150 and 1400, based on documents assessed by Sayed (Sayed 1987a)

Observing this data it seems that the relative number of units containing one room type or the other is relatively constant compared to the change at around 1250. It is tempting to associate this change to Mamlūk rule (1250-1517), though the extremely problematic way of estimating construction dates, as well as the arbitrary chronological groupings, means

that one should be wary of assigning any particular significance to the year 1250. Still, there is certainly a drastic change in domestic architecture sometime between 1150 and 1300, more so than between 1300-1400.

Sayed's second conclusion from the data is that the *majlis-īwān* unit represents a transitional form between the *majlis*-based and *īwān*-based unit. This is partially supported by the data, though only after the adjustment of dates in estimation of time of construction, and only with regard to upper floors. If one examines the proportion of different *qāʿa* arrangements over time for those units in upper floors that include an īwān using estimated dates of construction (Figure 36) one sees that the *majlis-īwān* is the sole manifestation of the *īwān* in 1150-1250, diminishing in later periods as single-*īwān* and double *īwān* become relatively more frequent. However, comparing the ground floor units in the same way the same pattern does not emerge (Figure 37, below). The *majlis-īwān* unit continues up to 1400, actually making up the greatest proportion of *īwān* units in the period 1300-1350. Counter-instinctively, Sayed actually proposes that the upper floors went through "a more immediate change from a single *majlis* to a single *īwān*", which is true in the sense that the change in prevalence of *majlis* and *īwān* is more stark in this context, though wholly untrue in the sense that it is the only context that one can see the *majlis-īwān* functioning as a transitional form.
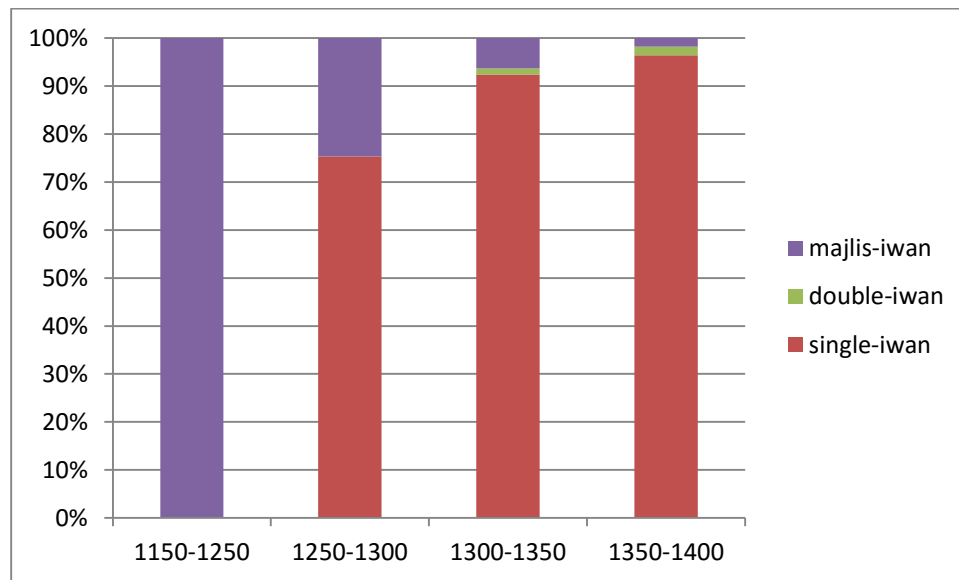
Figure 36 – Proportion of various *qāʿa* arrangements over time for upper floor residential units in al-Qāhira including an *īwān* (Based on Sayed 1987a).
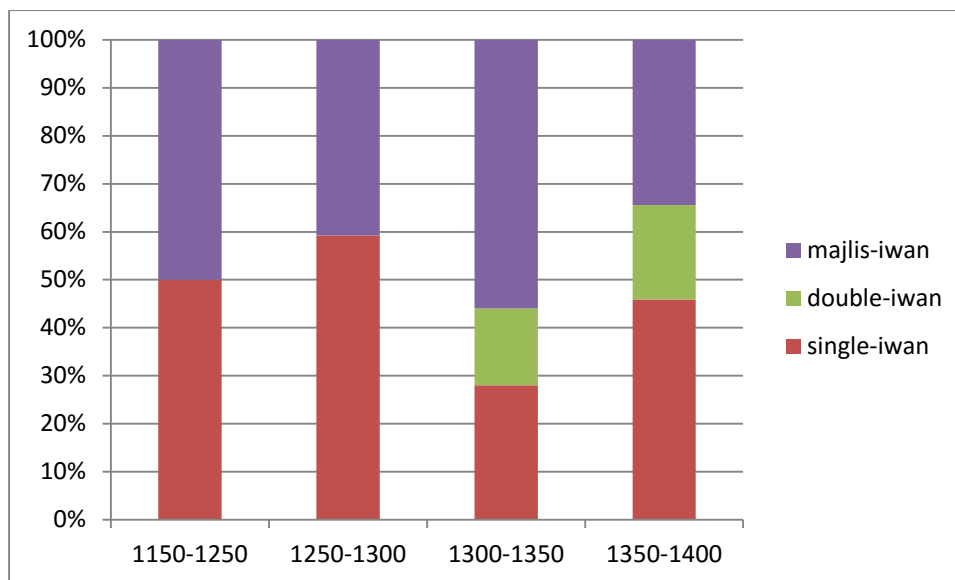
Figure 37 - Proportion of various *qāʿa* arrangements over time for ground floor residential units in al-Qāhira including an *īwān*. (Based on Sayed 1987a).

Nevertheless, Sayed identifies the "transitional" *majlis-īwān qāʿa* in two buildings in Cairo: Dayr al-Banāt (the aforementioned Convent of St George in Babylon, see 2.2.3G and Figure 20, above), and the Mosque of Aḥmad Bey Kohya, both religious institutions incorporating older domestic structures that probably date to the Mamlūk period[39]. Each consist of covered courtyards and an *īwān* one side, with its entire length open to the court, while on the opposite side the *majlis*'s formal components can be seen through the use of the tripartite entrance to a *riwāq* or portico and a central hall behind, forming the characteristic T-shape (Figure 38). In the case of Dayr al-Banāt the central part of the *majlis* facade (i.e. that of the portico) is closed by folding doors (Bloom 2008), such as are often described in the archival sources, and the central hall's ceiling can be seen to "penetrate" the *riwāq*, as alluded to in the account of al-Masʿudī. The *majlis* also has *kummayn.* The central *majlis* in the *qāʿa* of the Mosque of Aḥmad Bey Kohya (dated to 1310[40]), does not have doors in its present state, though evidence that they once existed is preserved. There are no *kummayn*,

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[39] Sayed states that the *qāʿa* of Dayr al-Banāt is probably Ayyūbid, a proposition that can be traced back at least to Laila Ibrahim, who speculates that the architectural fabric of the house represents a late Ayyūbid residence rebuilt on earlier foundations (Ibrahim 1984, 52–53). Clearer evidence of a later date is provided by the elements of decoration revealed in the cleaning of the *majlis* and *īwān* ceilings, possibly 14th century (O'Kane 2000, 184). That the plan is not pre-Ayyūbid was shown by excavations as part of the Old Cairo Groundwater Lowering Project (Sheehan 2010, 95), revealing a Fāṭimid structure beneath of an entirely different plan.

[40] By the *Comité de Préservation des Monuments Arabes* (Sayed 1987b, 46)

and the central hall is shallow, in comparison with the deep portico, altogether a very different set of proportions and style than those excavated at Fusṭāṭ.

That this even qualified as a *majlis* for its inhabitants would seem doubtful, were it not for Sayed's example of the Khanqa of Baybars al-Jāshankīr (Figure 39), the only extant building in Cairo with a *majlis* for which a contemporary description has also survived. The two rooms to the east and west of the main courtyard (there are *īwān*s on the remaining sides) are rectangular halls whose only resemblance to the *majlis*es identified in the houses of Fusṭāṭ are their facades, with tripartite entrances, and the use of doors which relates them to the *majlis*es of the archival sources. However, this façade does not lead to a portico, or a suite of three rooms, rather the façade's entire length is occupied by a single undivided rectangular hall much like an *īwān*. Yet in its foundation deed these rooms are described as *majlis*es. In this way Sayed has highlighted potentially different definitions or developments of the *majlis* over time, illustrating that by the 14th century at least that the tripartite façade and the use of doors dividing it from the courtyard was the defining characteristic of the *majlis* in comparison to the *īwān*, regardless of other formal changes.
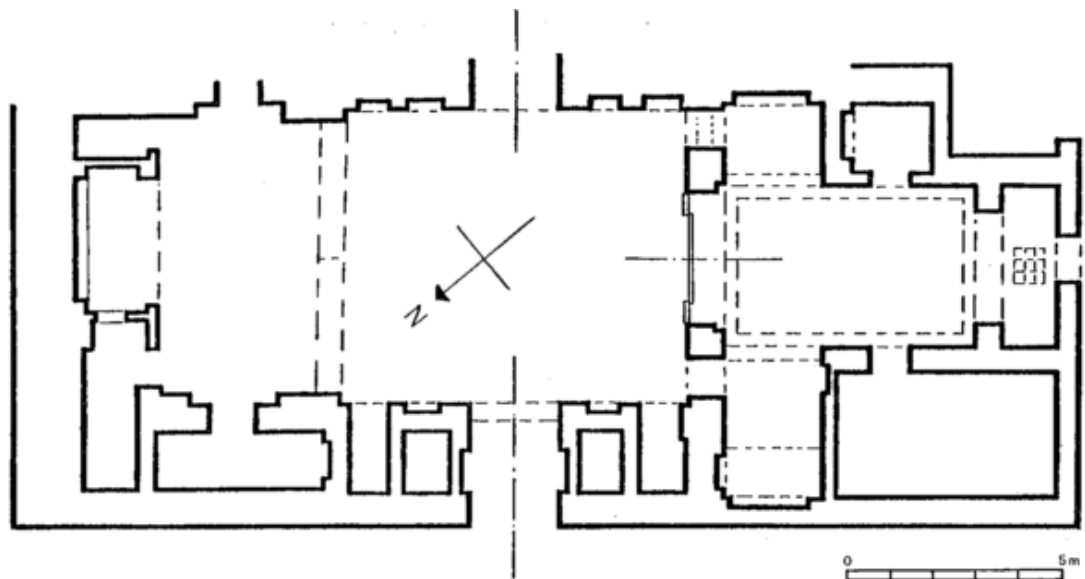
Figure 38 — Plan of the *qāʿa* of Dayr al-Banāt, with a *majlis* (with folding doors) to the south-west, and *īwān* to the north-east (Lézine 1972b, fig. 7, 76).
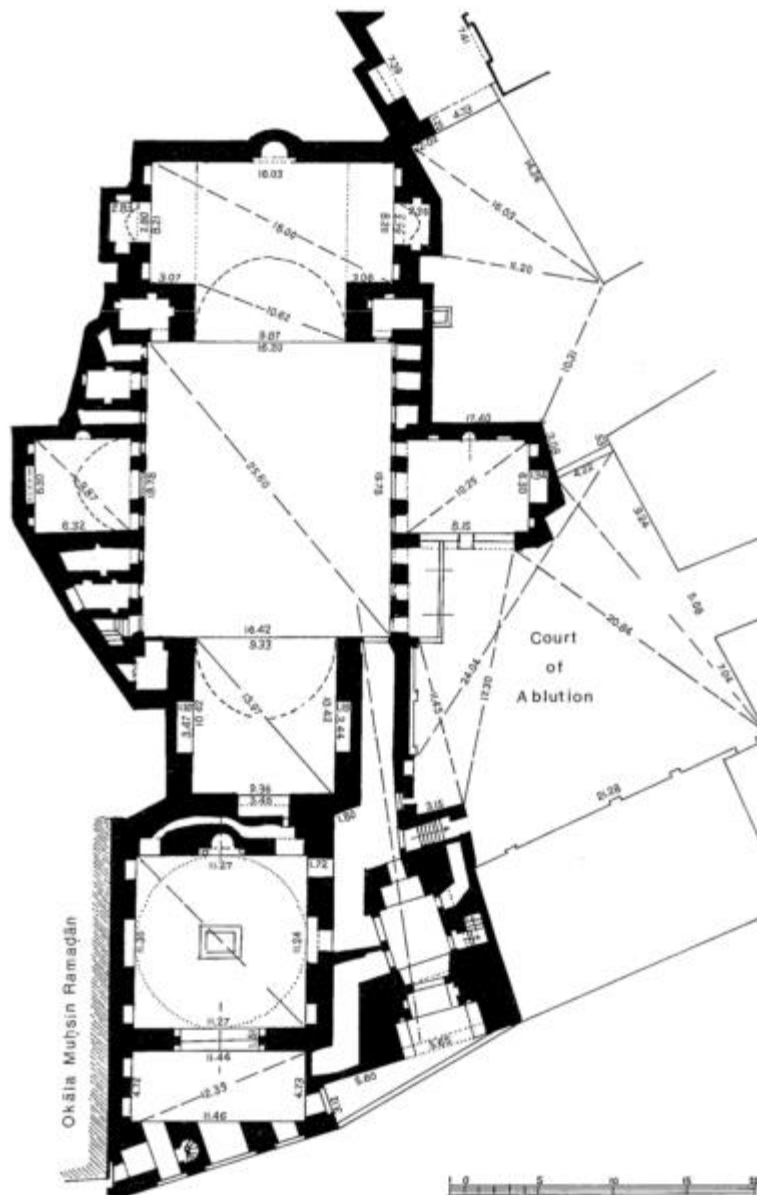
Figure 39 — Khanqa of Baybars al-Jāshankīr (Creswell 1959, fig. 142, 59).

3.4.5   Impact of a Revised Architectural Lexicon

The preceding discussion has begun to illustrate how Goitein's, and particularly Sayed's, ability to link the architectural forms from excavated and standing buildings with the terminology used in medieval documentary sources provides a crucial step towards a better understanding of the architecture. Sayed's work not only confirms the identification of the *majlis* with the Sāmarrāʾ *bayt* of Fusṭāṭ's excavated houses, but also illuminates further what would have been the defining characteristics of the *majlis* for medieval Egyptians, identifies a few of its changing manifestations over time and provides some understanding of its spatial context within houses. Furthermore, the chronological

framework provided by Sayed based on the archival sources of the diminishing use of the *majlis* in favour of the *īwān*, together with their formal definitions, provides a basis from which to consider how changing forms may have related to wider social changes and potentially to different modes of dwelling and use. Such a movement towards a functional understanding of the *majlis* could be further explored through finding references the *majlis* and its use within historical sources, a task that again is only possible thanks to the "rephrasing" into contemporaneous terminology.

Sayed was aware of these potentials, and begins within the limited scope of his article to explore some of these avenues of research as well as to point the way forward to others, though he was primarily interested in understanding the introduction of the *īwān* rather than the use of the *majlis per se*. He proposes two explanations:

1) That the contrasting modes of court ceremonial between the Fāṭimids, Ayyūbid and Mamlūks resulted in contrasting forms of their palaces, which were emulated by the wider population.
2) Land pressure being the ultimate cause, resulting in reduced size of courtyards, and therefore ability to roof them. This left the *majlis* as climatically redundant (the doors were no longer needed to keep out wind and dust due to the introduction of the roofed courtyard), and spatially restricted (subdivision into three providing smaller spaces than the *īwān*).

The first proposition is reminiscent of the prevailing explanation of the introduction of the *majlis* to Egypt, in that the introduction of a form by the élite—whether through innovation or foreign import—is assumed to be emulated by the wider population. Sayed, however, was more explicit about this process of emulation than Scanlon was with in his Sāmarrāʾ hypothesis. Moreover, Sayed also questions the validity of such "top down" explanations and their inherent assumptions about the significance of architectural similarities, the relationship between those in power and the general populace, the symbolic and functional aspects of buildings. It is these problems that lead Sayed to consider hypothesis 2, though this too is not without its theoretical baggage, as should be clear from the preceding discussion of the climatic adaptation of the "Arab house".

3.4.6   Limitations of Existing Interpretations

I have illustrated that there are numerous limitations to the existing interpretations of the houses excavated at Fusṭāṭ. Firstly, that the houses are interpreted in light of a perceived division between "apartment houses" and "courtyard houses", the evidence for which is highly equivocal, that can further be related to assumptions about family life and the "Islamic house". Moreover, the interpretation of courtyard houses is further skewed towards the so-called *bayt* or T-plan, while the wider organization of space is largely

ignored. Lastly, I have demonstrated problems with the interpretation of the *bayt* itself. The terminology used to describe the form is anachronistic and misconstrued from earlier scholarship. Moreover, the prevailing explanation of the form's appearances in Fusṭāṭ's houses—that it is an Iraqi import—is problematic.

The hypothesis that the *majlis al-ḥīrī,* what scholars have dubbed the *"bayt",* was introduced to Egypt during the reign of Aḥmad ibn Ṭūlūn appears in archaeological scholarship obliquely and indirectly, thereafter transformed into *a priori* knowledge upon which further claims are supported. It is never, therefore, presented as an explicit and detailed hypothesis to be considered critically. The explanation is underdeveloped; it lacks *explicit processes* accounting for the adoption of the *majlis*, and fails to consider any social consequences of the introduction of new architectural forms. One is compelled to ask: what does it mean to say that the ruler of Egypt "introduced" a style of domestic architecture, or a suite of rooms, to a large section of the urban population? How did the ideas and tastes of one powerful man become a quintessential part the architectural vocabulary of those who built and inhabited the excavated districts of Fusṭāṭ? Why was it included by those who built the houses? How was it used on a daily basis? Considering these lacunae, the hypothesis seems to obscure more understanding of the past than it provides. It reads, in effect, like a narrative of the origin and transmission of material culture more congruent with early 20th century "diffusionist" archaeological scholarship, than 21st century thinking. It takes no account of the agency, behaviour or social relations of the people who built and inhabited the houses, and considers the architecture itself as an entirely passive sign of overarching political and (élite) cultural changes. It fails to explicitly theorise the relationship between the élite and wider population, assuming that the mechanisms that relate changes in the former to material consequences for the latter are somehow self-evident.

I propose, therefore, that the scope of scholarship should be expanded to consider the residents of the houses as active agents. Thus, I aim to clarify how the rooms of the *majlis al-ḥīrī* were used and conceptualised by inhabitants. Moreover, one must move beyond this ensemble to consider the other rooms of the houses in the same way, particularly as these have often been diminished in typological studies. The closest one gets to a social or functional or social explanation of the architecture by archaeologists is in the implicit assumption that courtyard was the centre of the "family home", and the explicit hypothesis by both Bahgat and Scanlon that where two courtyards appear in a single house, they must represent the men's a women's apartments, the *selamlik* and *haremlik* (Scanlon 1967, 73; Bahgat and Gabriel 1921, 65). These are seemingly assumptions taken from the conceptual paradigm of the "Arab-Islamic house", and have not be adequately explored empiraclly.

In sum, I propose to move towards a socially-focussed interpretation of the houses of Fusṭāṭ. Yet what theoretical and methodological approaches can move one towards such an interpretation, especially considering the highly problematic nature of the available data? The following chapter will explore possible approaches, and their applicability to the archaeology of Fusṭāṭ.

4 A SOCIAL APPROACH TO FUSṬĀṬ'S HOUSES

"For any meaningful discussion of architectural form, social practices must occupy a
central position."

—Colin Richards (1990, 113)

What kind of theoretical and methodological approach can be employed to achieve a social
interpretation of the excavated houses of Fusṭāṭ? This chapter examines how
archaeologists have approached social interpretations of domestic space, and assesses
whether such approaches may be applicable to the archaeological evidence from Fusṭāṭ.
The archaeological record of Fusṭāṭ is problematic in the extreme, owing to its size,
complexity, and depredation. This is only compounded by the circumstances of its
excavation. While rescue excavations of the 1960s onwards vastly improved upon earlier
standards of recording, their publication only as preliminary reports means that much of
the information remains inaccessible. It remains to be determined, therefore, what kind of
socially oriented approach is achievable for the archaeological record available.

4.1 SOCIAL ARCHAEOLOGY OF DOMESTIC ARCHITECTURE

In the early 1990s an archaeology of housing emerged that was theoretically engaged with
the relationship between domestic space and the social and cultural past (key texts include:
Samson 1990; Kent 1990; Johnson 1993; Parker Pearson and Richards 1994). For historical
archaeology, this was largely a move away from architectural history, which had
maintained a largely descriptive, materially and aesthetically focused approach (Lawrence
1983). For prehistoric archaeology, this was a break with technological, adaptive,
demographic and economic accounts of housing associated with processualism. Attention
turned towards the relationship between architectural space and social structures, activity,
meaning, experience, and ideology. Much of this work was theoretically inspired by
preceding and concurrent developments in cultural geography (A. Rapoport 1969),
vernacular-architecture studies (Lawrence 1983), folklore studies (Glassie 1975),
architecture and design (Hillier and Hanson 1988), sociology (Giddens 1984) and social
anthropology (Bourdieu 1977; Bourdieu 1990).

Running through these approaches is a common thread: the acknowledgement of a
reflexive relationship between spatial structures and social structures, between space and
culture, or between architecture and its inhabitants. Scholars have voiced significant
disagreement with regard to the precise character of this relationship, what aspects of
social and cultural life should be emphasised, what scale and mode analysis should take,
and what are the mechanisms that link the cognitive, behavioural and architectural worlds.

I do not intend to give here an exhaustive analysis of the differences in the theoretical approaches taken up by archaeologists since the 1990s, but will rather focus on broad approaches and their applicability to the archaeological record of medieval Fusṭāṭ. It will be of particular importance, therefore, to focus on how these theoretical considerations—that, it should be noted, have been drawn from disciplines with access to directly observable social behaviour, or at least significantly more extant material evidence—have been operationalised to interpret the archaeological remains.

Here approaches will be discussed in two broad categories, divided based on their evidentiary basis. Namely, those that have made social interferences based primarily on architectural remains, and those that have taken artefacts recovered with the home as an indication of social life.

4.2 FROM ARCHITECTURE TO SOCIAL LIFE

4.2.1 Structuralist Approaches

The influence of structuralism on social approaches to architectural space in archaeology—both the structural linguistics of Saussure (1949) and Chomsky(1956), and more directly the structural anthropology of Lévi-Strauss (1972)—has been profound. Structuralism's central premise is that an understanding of human culture is best achieved through study of its underlying structures, the interrelation of its constituent elements. This central premise manifested in archaeological approaches to architecture in an emphasis on order, pattern, or "grammar" of spaces. This order is then taken as a reflection, or is seen as constitutive of, a particular world view and social life.

In some cases one detects the direct influence of the structural anthropology of Lévi-Strauss, in which the form and organisation of domestic space was related to high-level conceptual systems—cosmologies or ideologies—typically formed of binary oppositions: male and female, raw and cooked, public and private, etc. (Hingley 1990; C. Richards 1990). Beyond making inferences through these binary concepts, the order of architectural space may be related to more intricate aspects of social relations, identity, economy, power and ideology, drawing on wider social theory.

Where spatial patterns are more complex—certainly the case in the architecture of Fusṭāṭ—many have sought a means to both formalise and describe the characteristics of spatial order as a basis for interpretation. This takes two main forms. The first method is use of rule-based systems, inspired by Chomsky's transformational "phrase structure grammars" (Chomsky 1956). Chomsky proposed that a complex cultural phenomenon exhibiting structural commonalities, in this case a linguistic phrase, could be understood as

the result of a set of simple generative rules. Chomsky's grammars underlie Glassie's (1975) analysis of the folk housing of Virginia, and a more informal approach along similar lines was taken by Johnson in his seminal study of medieval English houses (Johnson 1993). In each case a set of generative rules forming an order or "grammar" is used to express the spatial principles underlying the layout or form of a particular domestic architectural style. Parallel to this, within art and design, Stiny and Gips's developed shape grammars (Stiny and Gips 1972), a set of generative (sometimes computational) rules operating on largely the same principles (Figure 40, below)[41]. Initially, only a few isolated applications of shape grammars appeared in archaeological scholarship, though mainly applied to art, not architecture (Hodder 1982, 174–81). This changed somewhat with proliferation of 3D digital modelling systems based on shape grammars, which have been used to create numerous archaeological reconstructive visualisations of architecture. However, these applications rarely emphasise the use of grammars as an interpretative tool but rather as a labour-saving device, allowing one to generate numerous variations on a style within a digital visualisation in an automated way, typically for the creation of urban visualisations[42] (Harrison, Earl, and Keay 2013).

The second means of formalising and characterising spatial order by archaeologists is through the tools of "space syntax", a school of theoretical approaches, analytical methodologies and digital tools developed by architects Hillier and Hanson (1988). Hillier and Hanson sought to move architectural discourse away from discussions of architecture's appearance and style, towards understanding architectural space as having a direct connection to social relations. This space-society relationship was approached using an essentially structuralist premise; namely, that the ordering of space—patterns within its constituent parts—could be related to social patterns. Principally, the focus is on patterns of communication, either through pedestrian movement or inter-visibility, within architectural space, which can be related to factors such as social interaction, privacy, and control of access.

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[41] The crucial difference lies in the fact that shape grammars operate on shapes themselves, rather than strings of symbols that represent other phenomena (i.e. phrase elements or architectural elements). This produces the phenomenon of "emergence" where new shapes are created through the confluence of adjoining transformations.

[42] A grammar rule-set can be parameterised, controlling aspects of the architectural form such as dimensions, colour, etc. This parameterisation is used to express the variations possible within the particular style. Altering these parameters within a 3D modelling grammar, or having them determined randomly, creates instant variations upon the final form instantly.
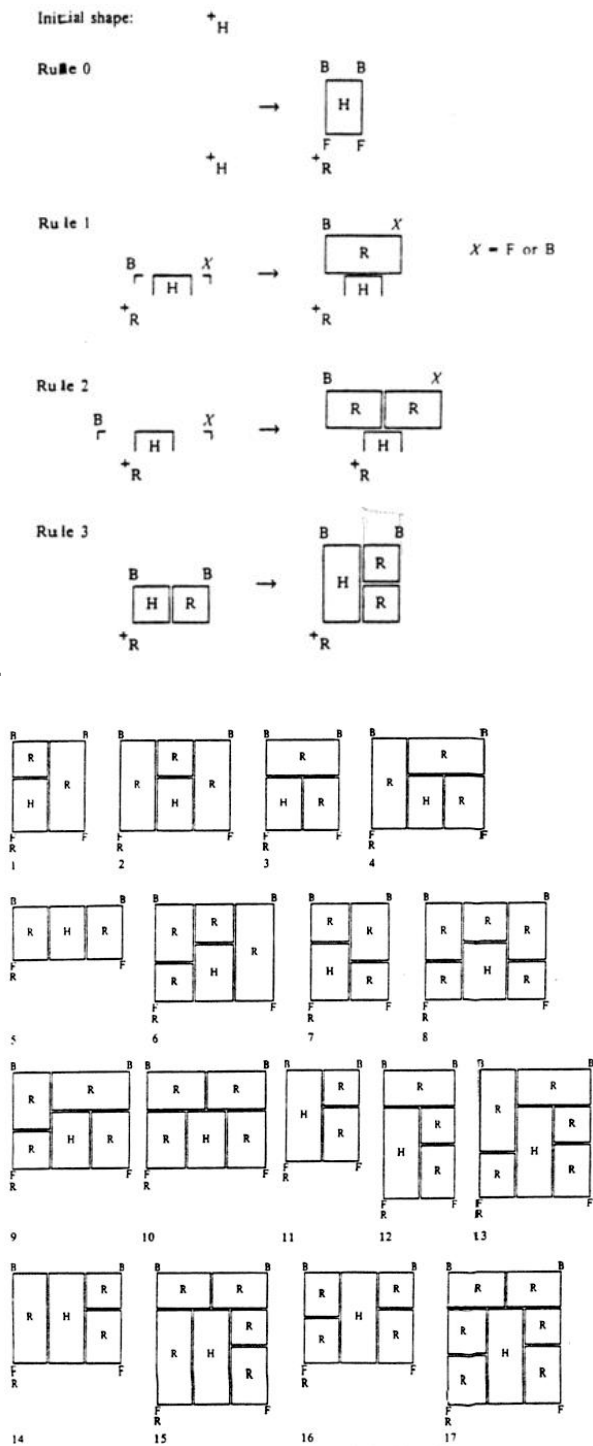
Figure 40 – Example of part of a shape grammar for generating/describing Queen Anne houses. Four rules for generating ground floor layouts are shown, and 17 results of their implementation (Flemming 1987, fig. 4; 5).

Space syntax offers a means of describing, comparing and analysing spatial properties of the built environment independent of aesthetics, location or distance. Its distinction from grammatical approaches is not altogether clear in theory, being firstly inspired by "syntactic generators" that were largely similar to grammar-based approaches. In practice,

however, space syntax has offered a more inductive approach, in which tools allow one to describe and analyse the spatial properties of observed individual buildings or settlements using set methods, and thereafter potentially making generalisations between cases (whether buildings share a broad spatial genotype), as well as inferring the social characteristics of one or many examples. This is, therefore, in contrast to the largely deductive approach of grammars, in which a generalising conceptual model of spatial patterns is constructed and compared to the empirical observations of an architectural corpus, until such time as the grammar can account for its similarities and differences.

One of the principal ways in which this is achieved is through "convex analysis", the most common mode of analysis taken up by archaeologists employing space syntax (who mainly refer to it as "access analysis"). In this method, the building is divided into convex spaces, an area in which all points are inter-visible, and the communicative links between these spaces are identified (Figure 41). The convex spaces (usually equivalent to rooms) and their connections (doorways or stairs) are mapped as a graph. This might initially be mapped onto the plan of the building, but ultimately as a justified graph, in which location, shape and distance are disregarded and the graph is oriented around the entrance. The justified graph is a purely topological representation, allowing comparison of spatial configurations between buildings or settlements regardless of morphological idiosyncrasies and scale. It is strictly the network of spatial relations, rather than the layout or form itself, that is being evaluated. Grammars, on the other hand, may express the relations between elements in terms of both layout/morphology *and* access (only the former is considered in Figure 40, but later rules may express door and stair placement).
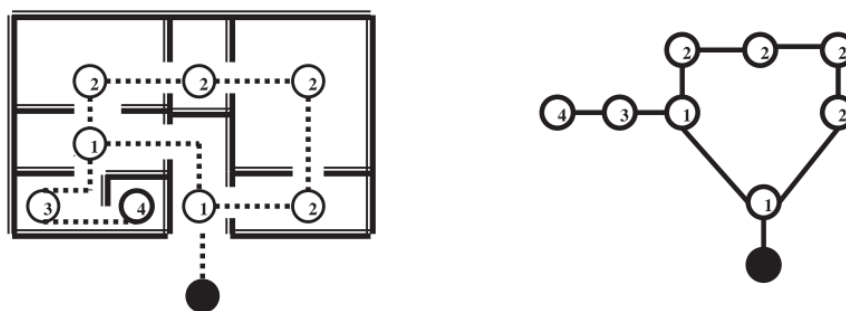
Figure 41 – Example of convex analysis, spaces within a building are conceptualised based on their connections (left), and represented in a purely topological manner through an justified convex graph (right) (Cutting 2003, fig. 1).

The process of inferring social life or relations takes two major modes. The first is through several analytical metrics of the spatial network. For example, "integration" values are calculated for spaces to indicate which spaces are most crucial for connectivity within the

network, whereas "depth" values are calculated to summarise the extent of separation between a space and the outside, which could be used to infer patterns of communication and privacy respectively. However, social inferences, as well as the detection of similarities between different examples of an architectural style amounting to a "spatial genotype", can also be achieved entirely informally. Cutting (2003) has in particular drawn attention to the fact that many archaeologists do not draw strict social inferences from quantitative metrics of convex analysis, but rather use the aligned convex graph as a tool to think with, drawing their own inferences from patterns and similarities, alongside wider consideration of social context.

4.2.2 Applicability of Structuralist Approaches

The central premise of structuralist approaches—to study the interrelations of components that form a systemic whole—proves highly problematic for the study of the houses of Fusṭāṭ, due to a confluence of limiting factors. Firstly, the limits of individual houses are unclear within the archaeological record. Conducting one's study at the level of a single house, it is uncertain which architectural elements should be considered. Taken at the level of the neighbourhood some of the most fundamental relations between elements are unknown, namely whether two spaces are part of the same spatial system or design. In settlement archaeology, one might expect any one of the following to indicate the boundaries between houses:

a) Self-containment in terms of access, being accessible from public spaces but not from neighbouring domestic units.
b) Directly detectable property boundaries between units, in the form of public/open spaces, or the physical abutment of contiguous structures.
c) Indirect indications of property boundaries through layout (consistent geometric divisions, changes in alignment)
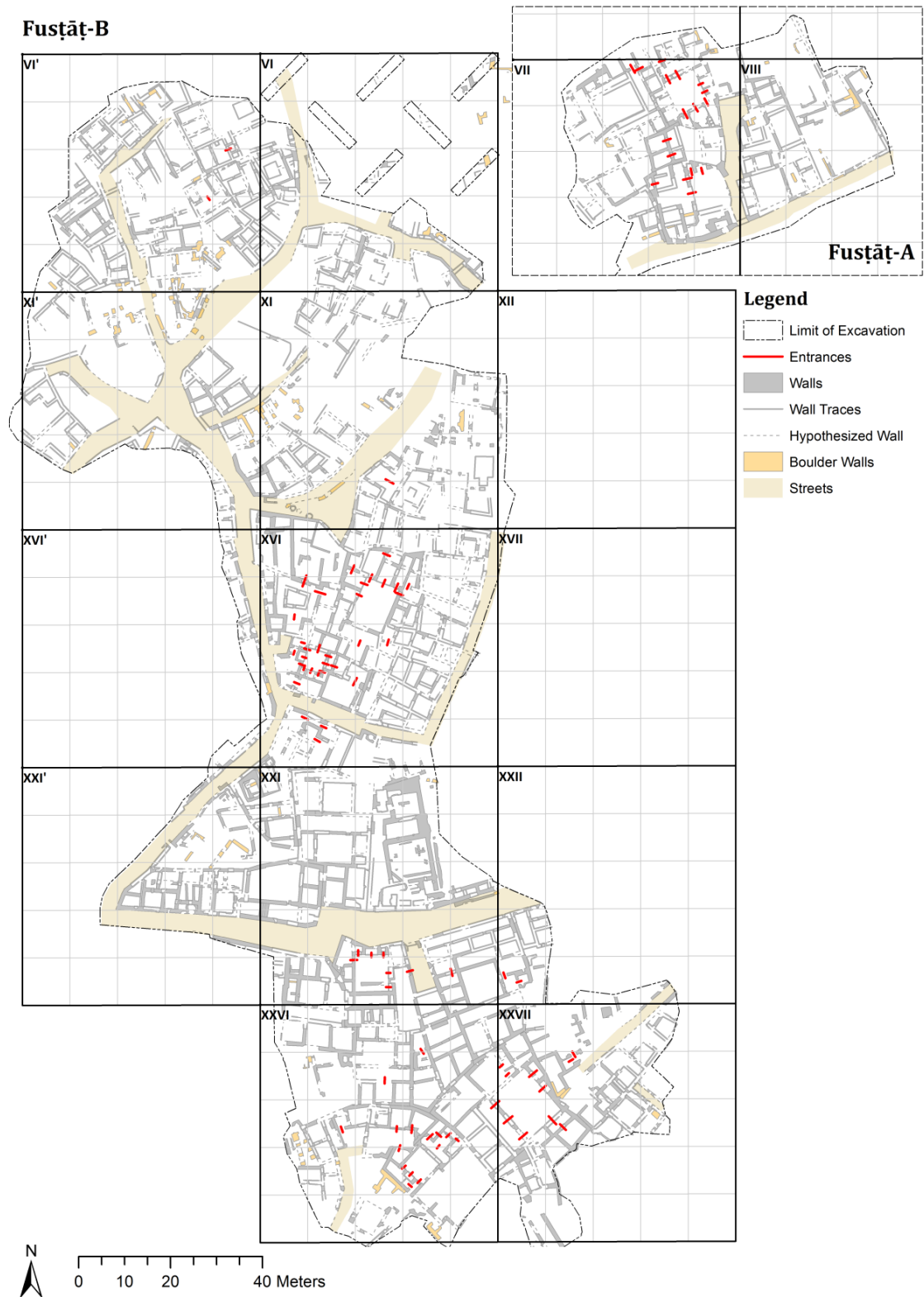
Figure 42 – Plan of Fusṭāṭ-A and Fusṭāṭ-B showing identifiable entrances.

A Social Approach to Fusṭāṭ's Houses

In the case of Fusṭāṭ, however, these indicators are either highly problematic or non-existent. The only open spaces separating buildings are the thoroughfares; within an *insula* houses are built cheek-by-jowl, and their access routes are unclear. While thresholds indicating doorways between rooms and onto the street are present on the various *plans restaurés* drawn by Gabriel, when compared to the *plans actuels* these are apparently most often supposition (as noted by Ostrasz 1977). Within Scanlon's excavations, 88 entrances can be identified—either through the survival of thresholds, door jambs, or the absence of foundations indicating an open-fronted room (Figure 42, above). When one considers that up to 552 rooms[43] may have been revealed, each having at least one entrance; this number is at the most 15% of what once existed, probably much less.

Scanlon devotes much discussion in preliminary reports to the issue of house boundaries. In lieu of widespread evidence for entrances, attention was turned to the phenomenon of parallel abutting walls, which would seem to indicate two houses built on either side of a property boundary. However, this "double walling" seems very rarely to have been adhered to consistently; at some point along the presumed boundary walls are simply shared between neighbours. By extension, some boundaries may be completely invisible using this indicator alone. A second indicator is also considered: the sewerage systems, consisting of networks channels and pits hewn in to the *gabal* beneath houses. These systems are sizeable—the largest consisting of 90.39m of contiguous channels—but self-contained, seemingly emptied by hand. Their construction—hewn into the *gabal* and running beneath the house's structures—suggests they were built before the house itself. Scanlon therefore considers that a household might have undertaken the sewer system's construction when the house was first built, and the occupants paid for its maintenance and emptying, or that rarely households may cooperate and share a system (Scanlon and Kubiak 1973, 17). The limits of a channel system, therefore, are used as an indication of house extent. Lastly, as has been made clear in preceding chapters (3.2), courtyards are often thought to form the core of a house, or at least form a typical unit that may be repeated within a single property.

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[43] How spaces might be defined will be discussed in Chapter 7.
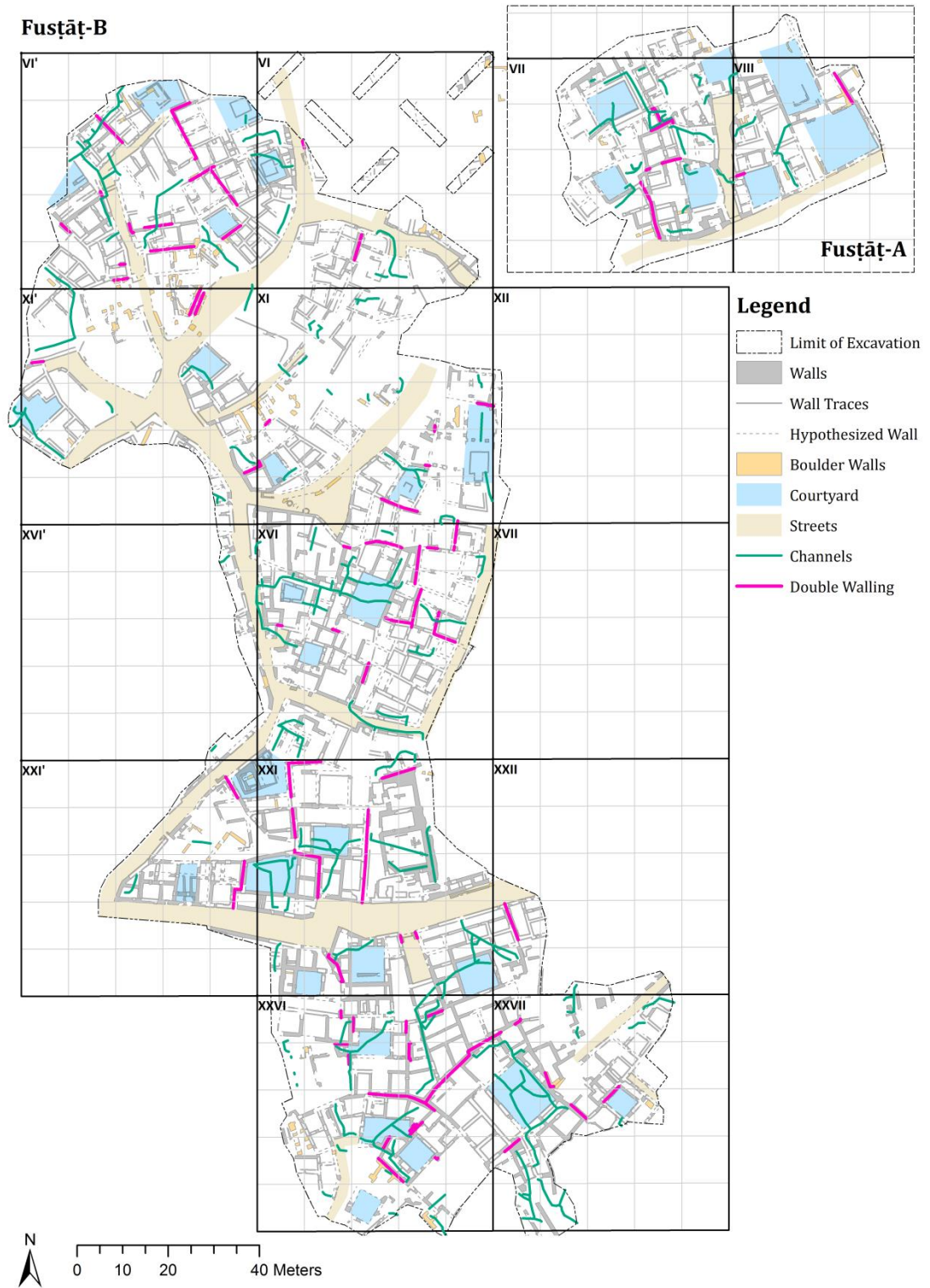
Figure 43 — Possible indicators of house boundaries in Fusṭāṭ-A and Fusṭāṭ-B

The distribution of these three types of evidence—double walling, sewer channel systems, and courtyards—is shown in Figure 43, above. In some areas they coincide to form a seemingly coherent picture of boundaries (particularly grid XXI of Fusṭāṭ-B), but elsewhere

the picture is more complex. In grid VI' (Fusṭāṭ-B), for example, channels not only traverse double-walling boundaries, but they also traverse the thoroughfare. In this case Scanlon proposes therefore, that the multiple compounds, separated by double walling and the impasse, centring on at least two courtyards, are possibly parts of a single house (Scanlon 1974a, 88). Furthermore, Scanlon has also proposed that in several cases separate houses were amalgamated into a single domicile in a later phase, a process he entitles "enthronging". Even if house boundaries may be suggested by features such as double walling, this boundary could be disregarded in a later phase when houses were amalgamated, at which point any number of architectural reconfigurations could have been made to both properties. Examples of such "enthronging" are the three courtyards in XVI, and the adjacent courtyards in XXVI. In the former case, there is little evidence of previous double-walling, if it existed in the earlier phase, while in the latter double walling clearly separates the two courtyards and their adjoining rooms. What is puzzling about both of these cases is that the courtyards and their surrounding rooms are joined by channel systems, which have been suggested as an element planned and constructed before houses were built. Clearly, if the "enthronging" process occurred, when these significant building works were underway extending or joining systems was possible.

Much of this accords with the dynamic impression of housing from the documentary sources (see 3.2.3, above), in which a single *dār* may contain many occupational units. This is attested in cases of families trying reunite through purchase what was once a unified larger *dār*, though perhaps equally occurred simply for the sake of expansion (Goitein 1983, 82). The need for reunification, as discussed, was often separation through inheritance and subsequent sale, yet no process of segregation ("de-enthronging"?) has been proposed as visible in the archaeological record.

Considering the effects of the process of "enthronging", the already inconsistent double walling is an uncertain indicator of house limits, while channel systems represent our best opportunity for detecting house limits at the point of abandonment. It remains problematic, however, that such channels do not occupy every room of houses; only 28% of rooms can be associated with a channel. Moreover, if house division did occur systems would likely end up being shared between the newly separated units. Most importantly, the idea of a system being a household-level responsibility is only a supposition, and it is frequently considered that some systems may represent collaboration between parties (Scanlon 1974a, 88). Certainly, the segregation of houses would mean that joint responsibility for sewerage between unrelated groups would become a reality in later phases, even if not planned initially.

Problems in identifying the complete range of spatial elements that constitute each house is, in reality, twofold; not only are horizontal limits unclear, upper storeys are entirely absent. The number of storeys that existed in these houses is a matter of some debate, but the presence of wall-flues[44], staircases and supporting columns indicate at least one upper storey existed in many houses, potentially many more. Cutting (2003, 18) highlights that archaeological applications of access analysis will find their inferences undermined by the absence of upper-storey evidence, but only where quantitative measures are used to make inferences about the spaces; the additional spaces will alter such measures significantly. The more informal use of access analysis as a "tool to think with" need not find the omission particularly problematic, different ground floor plans can still be compared and patterns detected. Still, the impression given of Fusṭāṭ's architecture from the archaeological remains is that it is highly adaptable to spatial constraints, making use of all available space, and one might imagine that rooms that cannot be fitted within a limited horizontal plan may be added on upper storeys. If so, the lack of upper-storey data would obfuscate patterns.

The most profound problem is that the lack of identifiable entrances for most rooms makes access analysis, and other forms of space syntax approach impossible. Indeed, any structuralism-influenced approach, whether implemented via a grammar or space syntax, is rooted in knowledge of the relations between elements. Relations of communication are of a crucially different character to those of adjacency—particularly when it is unclear whether adjacent rooms are part of the same household—yet these relationships most often remain indistinguishable archaeologically.

One might, of course, attempt to posit relations of communication through use of a grammar, limited only by what is possible through the relations of adjacency. In other words, one might test a hypothetical spatial structure, including communicative relations, against the skeleton of adjacent rooms and their features present in the archaeological record, each relation of adjacency being a possible communicative connection. Two problems present themselves with such an approach. One is the problem of *equifinality*, that many different models may produce the same result, and therefore that there is no way to distinguish which of many hypothetical grammars is a true representation of the architectural system. Secondly, an exploratory grammar approach such as this could not operate in a self-contained fashion. If one were to posit a particular configuration of spatial relations, and assess its veracity against the archaeological record, one could not consider

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[44] These are seemingly for the removal of sewage and waste-water from upper storeys into *gabal*-hewn channels and pits, discussed in 6.1.2.

only a single house, but how the proposed grammar of space would influence surrounding grammars, as part of an urban whole.

Of course, what is being proposed here is much like what excavators have done instinctively when assessing the archaeological remains: spotting possible patterns between spaces that might be indicative of "typical" house plans, coinciding with possible house boundaries. This is how the *majlis al-ḥīrī* (or *bayt)* was recognised. It is just that a formalisation of this process for consideration of the house as a whole is problematic when so many levels of uncertainty exist in the wider architectural system being described; too many possibilities exist that would have to be accounted for in the formal spatial description. As discussed this uncertainty exists at the level of the system boundaries, the invisibility of upper storey spaces, and unknown relationships between spaces.

A more profound problem is the uncertainty regarding the characteristics of the spaces themselves. Any structuralist approaches in archaeology, regardless of the mode of formalising spatial description, rarely make inferences from purely topological patterns (houses are composed of a linear or ring-like arrangement of spaces, etc.) or purely morphological patterns (houses are composed of large square rooms each with four or three rooms on each side). Rather they consider topological or morphological patterns with reference to the nature of the spaces that constitute those patterns; noting, for example, that kitchens are separated by intermediate spaces from entrance halls, or that large rooms with windows are flanked by rows of small rooms with hearths, etc. The elements of the spatial structure, the spaces, are considered not only in terms of their relations to each other in topology or arrangement but their characteristics *per se.* In some cases pure morphology is enough to characterise a space, such as is arguably the case with the *majlis al-ḥīrī* and courtyard ensemble, but the presence of architectural elements and archaeological features (paving, fountains, marble cladding) has served to confirm the distinctive nature of these spaces, even if their precise use remains poorly defined. In other cases the presence of artefacts in certain rooms reveals their function and social meaning, if the artefacts have been deposited through actions specific to the use of that space. These indicators can, in historical examples, be tied to historical terminology, further elucidating the characteristics of the space as understood in the culture in question, resulting in more meaningful inferences from the patterns. Johnson's study of English houses (1993), for example, begins with an understanding of the architectural indicators of a "hall" (open hearth, clear height, roof opening, etc.), as well as the social use of the hall (its role in hospitality, and more widely the feudal system), as was the case for other spaces (buttery, pantry, solar). It is from this basis that the grammar of the house as a whole can be contextualised to make meaningful inferences. In the case of Fusṭāṭ, however, beyond the

identification of the *majlis al-ḥīrī*, and courtyard, clear characterisations of rooms are not forthcoming.

If a structuralist approach is to be fruitful, therefore, the characteristics of particular spaces, their social use and meaning, must first be determined through other means. Such a process not only provides interpretative context to any pattern of spatial relations, but allows patterns or rules to be identified beyond pure morphology, which is unlikely to be fruitful in itself considering the high degree of adaptability and eccentricity of the houses' form. What follows, therefore, is an assessment of archaeological approaches for identifying the use and meaning of space through material indicators.

4.3 THE POTENTIAL OF ARTEFACTS

4.3.1 Artefactual Household Activity Studies

Archaeologists may not have the opportunity to directly observe social life within the domestic sphere as do sociologists and anthropologists, yet they need not base their interpretation of domestic space upon the architectural remains alone. Since the widespread adoption of stratigraphic recording methods, and in particular since the processual theoretical movement of the mid 1960s, archaeologists have looked to the differences in artefact assemblage between different rooms or areas within houses as an indication of how these spaces were used (Jorgensen 1975; Hill 1968).

Such artefactual studies proposed that objects recovered from floor deposits allow inferences to be made about activities within the home. The premise was simple: that while other depositional contexts such as in middens contain artefacts that have been deliberately removed from the spatial context of their use, artefacts from floor deposits represent the discard, abandonment or loss of artefacts in their context of use. The differences in artefact assemblages between rooms were therefore considered to map the the daily activities within the home. However, as LaMotta and Schiffer (1999) later commented, early studies took a rather naïve view of floor formation processes. LaMotta and Schiffer propose three stages that account for house floor assemblage makeup—habitation, abandonment and post-abandonment—within each of which are various processes of accretion and depletion[45] of artefacts.

During habitation the artefact accretion processes are *primary deposition* (the accidental or deliberate deposition of artefacts as refuse in their place of use) and *provisional deposition*

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[45] This includes factors that prevent deposition within the archaeological record, as well as removal from it.

(the deliberate deposition of artefacts to await relocation or re-use). Early activity studies assumed that *primary deposition* was prevalent enough to make simple inferences from household assemblages, yet ethnographic studies show *primary deposition* is the ultimate fate of only a tiny minority of total household objects (LaMotta and Schiffer 1999, 21). The best chances for survival are for very small artefacts or fragments, particularly with floors that have a penetrable matrix such as clay. During habitation the removal of refuse, or *secondary deposition,* to an external location (e.g. a midden) acts as a depletion process for the household assemblage; ethnography illustrates this is how most household objects end up being deposited.

During abandonment accretion of objects occurs through *de facto deposition:* the deposition of still usable objects within the home. Its corresponding depletion process is *curate behaviour*, in which objects are taken to the new home of the occupants. The factors affecting which objects are subject to which process is naturally contingent on their size, weight and value, reflecting the relative practicability of transporting them or replacing them, though the circumstances of abandonment can shift the threshold for this calculation massively.

During the post-abandonment phase, the processes of artefactual accumulation are essentially those already listed, though unrelated to the original occupants' activities. The house may become the site of further activity, habitation or otherwise, resulting in more primary deposition. It may also serve as a place of secondary deposition, this time as an accumulation process, whereby the house fills with the refuse removed from other households. Post-abandonment processes of depletion are the scavenging of the materials left there by others, as well as natural processes of decay and bio-turbation.

4.3.2   Applicability of Artefactual Household Activity Studies

The prospect of using artefacts recovered from Fusṭāṭ to reveal activities in the area of their provenance is therefore dependent on the formation processes of the deposits in question. How far can primary deposition be identified in the archaeological record of Fusṭāṭ?

The vast majority of finds reported by Scanlon and Kubiak are those recovered from pits and canals hewn into the *gabal*. Many of these pits, are connected to channels, and (as will be discussed in detail in section 6.1) clearly represent a sewerage system. The formation processes of the fills are given some consideration in early reports. It is noted that the contents are homogenous in all but a few exceptional cases, and though recovered in spits, no distinctions could be made between stratigraphic units. It is noted that fragments of one vessel may be found separated by some distance within the pits. For Scanlon this indicates the semi-liquid state of the contents, water presumably being used as a vector to move solid

waste through the system. For Scanlon, then, the fill represents secondary refuse deposition—or perhaps a variant of provisional deposition, as the contents would have been eventually emptied—in which broken household objects are conveniently disposed of in the sewer system, to be emptied along with the human waste. In many cases, the upper parts of pits are thought to be disturbed by post-abandonment robbing activities; this is indicated not by changes in the consistency of the deposits themselves, but the date of the finds. If the largely indistinguishable fill contains Mamlūk sherds, it is thought to represent a void left by robbers refilled from the surrounding mounds of material dumped in the Mamlūk period.

The problem with this schema lies in the premise that a pit or channel is often proposed to be "undisturbed throughout its entire depth"; that is, it contained Fāṭimid and earlier material and can thus be used to date the occupation of the house. As these features are almost never completely sealed—though brick and stone covers sometimes survive in part, most are almost entirely "open" upon discovery—and large mounds of post-abandonment refuse covering the site had to be removed before they were identified, their "entire depth" presumably means the fill from the top of the cut in the *gabal* to their base. Considering the proposed function of these systems, relying on the movement of solid material over long distances with water, they could not have been filled with solid matter significantly beyond the level of the base of the channels without being rendered non-functional. That a sewer system that was completely filled to the brim with solid waste represents deposition that took place during its use therefore seems completely implausible. Indeed, in two rare cases where a pit was completely sealed or only a narrow opening was found, the reports indicate that they were filled with groundwater, not solid fill, in their upper extents (discussed in section 6.1.4). The significance of these two finds in helping to determine the formation processes of the fills was not fully realised, and neither was excavated due to the problem posed by the water.

It seems, therefore, that much of the upper fills of pits, at least those connected to channels, must be the result of deposition after the sanitation system went out of use Not only do functional considerations point to such a conclusion, the fact that the Mamlūk mound deposits remain all but indistinguishable from the fills of the pits aside from the date of the finds, logically implies that post-abandonment deposition would be completely indistinguishable from occupational refuse deposits.

This is likely to have occurred at some point after the structural covers of pits and channels were removed or destroyed, yet the fills are often not significantly later in date than makeup layers beneath floors in these houses (discussed below). It is thus possible that the

fills represent redeposited material— either surrounding makeup layers beneath floors, or refuse accumulating over them immediately after abandonment—that only later filled pits and channels, at the point that robbers destroyed their covers (much as is proposed for the Mamlūk deposits within cuts). Alternatively, if materials were stripped from the houses closely after abandonment—as is implied by the decree of Badr al-Jamalī in 1072 (see section 2.1)—including stone slabs covering sewer channels, fill might represent material dumped directly into pits soon after abandonment from surrounding areas.

That deposits representing secondary refuse deposition mixed with sewage—those relating to the occupation of the household—remain indistinguishable in consistency from the post-abandonment dumping from surrounding areas means that not only can artefacts from sanitation features not be associated with specific spaces within the household but cannot even be definitively associated with activities within a particular household. Moreover, if this interpretation of the formation processes of cut features is correct, it undermines the premise of dating the occupation of these houses based on finds in the sanitation system.

The second major source of artefacts from Scanlon's excavations is floor fills. These represent made-ground or preparation between the limestone *gabal* and floor surfaces, typically stone paving as well as mortar surfaces. As Scanlon describes: "all foundations, whether original or reincorporated, rested on the *gebel*, and the surface of the *gebel* was but rarely smoothed to achieve even foundations" (Scanlon 1974b, 61). This fill, therefore brought the floor level above the foundation courses and provided an even surface for paving. In some cases it may be excavated after removal of paving, sometimes revealing earlier paving with its own preparatory fill below. Indeed, Bahgat's reluctance to delve below paving was remarked upon by Scanlon; such explorations provided the clearest and most secure evidence for the dating of the houses in Scalon's area, as well as providing the means for him to re-date those uncovered by Bahgat. In other cases floor fills were identified though no traces of paving survived. This is described often as *dakka*, packed earth, perhaps indicating that it is distinguished from overlying mound deposits by its compaction. The fills therefore represent construction activities, the source of the earth for the filling is unclear, and it is not listed as an expense in building accounts in the Geniza[46], though one need not assume that the material came from the home itself.

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[46] Purchase of clay (*ṭīn*) is one of the most common items listed in accounts of building expenses of the *qodesh*, along with its sieving. Presumably clay is used as part of a wall

One is presented with a situation, therefore, where the vast majority of finds are the result of occupational secondary deposition, post-abandonment secondary deposition, or construction activities. If one were to expect primary deposition of objects to occur, it would be over floor surfaces. Since the majority of reported floor surfaces are stone paving[47], these were likely swept regularly, and are not permeable enough to trap small fragments of objects. Moreover, the circumstances and scale of excavation would make recovery of such fine detailed data unlikely. That *de facto* deposition, representing objects discarded in their occupational context when the house was abandoned, might have accounted for some of the total finds seems more likely. However, little indication is given the process of moving from the "excavation level" after the mounds were levelled, or reduced enough to identify structures, and revealing the floor surfaces. Considering the scale and speed of the excavations, owing to the threat of development, it is perhaps unlikely that care was taken to expose small objects that may have been discarded directly onto the surface itself. Moreover, while the circumstances of the houses' abandonment are a matter of debate, no sign of the conflagration of 1168 is apparent, nor any other sign of violent destruction. One might assume, therefore, that abandonment was slow, and perhaps residents moved into nearby urban areas of Fusṭāṭ, al-Qāhira, al-Jazīra and al-Jīza, in which case, even bulky and low-cost items were easily moved.

Lastly, only artefacts of significant artistic, technological, or chronological significance are reported by Scanlon. The only object type that has received a catalogue published is the ceramic vessel filters, and the materials recovered are now spread between a number of institutions. As such, a very incomplete picture is given of the finds in general, regardless of their depositional provenance, skewed towards imports and decorative objects.

It seems, therefore, that the potential of recovered artefacts to illuminate specific room uses and meanings is limited in the extreme, and so attention should be turned to fixed archaeological features.

4.4 THE POTENTIAL OF ARCHAEOLOGICAL FEATURES

4.4.1 Archaeological Potential

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render; water for mixing with it is also often listed, alongside the lime or gypsum used for covering walls. Occasionally, however, earth is listed (*turāb*), though Gil considers that clay is the intended meaning (ENA 2808, f. 63 A169: trans. Gil 1976, 188–89).

[47] As will be discussed in chapter 7, a larger number of mortar floors probably existed than are actively discussed

A Social Approach to Fusṭāṭ's Houses

The range of archaeological features identified across the site, encompassing structural elements of the houses and features cut into the *gabal* beneath them, do not suffer from the same problem as artefacts; they are fixed in their location, which greatly increases their value for social interpretation of domestic spaces.

The vast majority of features discussed in Scanlon's reports are those related to the sanitation and water supply system. This includes the *gabal*-hewn pits and channels forming a sewerage network described above, but also water pipelines, pools, fountains, and possible wells or cisterns. These systems are not only common, they perhaps offer the clearest potential to illuminate the meaning and use of domestic spaces. The expulsion of bodily waste, washing of the body, cleaning of household objects, cooking, drinking, and the watering of animals are all household activities that are contingent on either the supply of clean water, disposal of waste-water, and the removal of sewage, or some combination thereof. Furthermore, the climatic management and beautification of spaces through pools and the cultivation of trees and shrubs also relies on such a system of water supply and drainage. At a more abstract level, areas of supply versus those of waste collection and egress may also reflect more conceptual distinctions within the house between clean and dirty, or reception and service areas.

Beyond sanitation and water features, there is a range of architectural elements such as types of floor surface, niches and stairways that might indicate the accommodation of particular activities, objects, or routes of movement, or at the least might indicate aesthetic considerations that point towards areas of prestige or high status.

Why have these features not previously been used to distinguish the particular uses and meanings of rooms beyond the *majlis al-ḥīrī*, or to elucidate more clearly the functions of the rooms within the *majlis al-ḥīrī*? One might expect that the appearance of certain features in particular spaces of the houses would have resulted in a functional or conceptual categorisation of spaces, whether or not this could be related to the historical terminology of the Geniza. One reason that no such categorisation has been proposed is that the precise function of many features was initially unclear. Commonalities of form and context between examples of broad feature types, such as pits, emerged over time, suggesting functionally distinct sets of features. Even after twelve seasons of excavations, however, the proposed function of some groups of features, or even their proposed grouping, is largely uncertain. The proposed function of *gabal*-hewn pits that are not connected to sewer channels, for example, remains uncertain; it is unclear whether they relate to water and sanitation or some other function, as will be discussed subsequently.

The second reason that a categorisation of rooms has not evolved in this way is that the ability of the excavator to detect patterns in feature distribution over numerous sites—particularly those excavated in a piecemeal fashion over the course of decades—is limited, at least without substantial summative analysis. At a basic level, the site plans for Fusṭāṭ-B that detail the locations of such features, have never—to my knowledge—been collated and joined in any previous publication. The closest one gets to a collative analysis is Ostrasz's article on the archaeological evidence for housing, in which individual (somewhat reconstructed) plans of house units across the various sites are discussed, though the entirety of the remains from Fusṭāṭ-A and -B are not presented[48]. As an architect, it is natural that most of the analysis focusses on the layout and structural form of the houses. Though many of the features such as sanitation elements are discussed, there is little scope for in-depth analysis of their function[49], even less for analysis of their distributions within the architectural spaces. A short discussion is given of whether main entrances, staircases and latrines are placed consistently within houses in the final two pages of the article. Only the former is proposed to have any spatial pattern, tending on the opposite side of the courtyard form the *majlis*, though in most cases the particular room is not known.

Moreover, the mode of assessment by excavators and by Ostrasz has been largely informal. Any comprehensive analysis of feature distribution within architectural spaces must, however, go beyond informal pattern detection within plans and reports, since the scale and detail involved is simply too great. There are hundreds of features of various types, distributed across architectural spaces, spread across multiple sites. Furthermore, using those features to infer spatial categories is dependent on how they themselves are functionally categorised and interpreted. As discussed, possible functional typologies of features types have emerged through the course of the excavations, proposing criteria that might, for example, distinguish those pits that are water-holds from those that are cesspits, or those that are drinking-water holds from those that are for cleaning water. One must be able not only to easily summarise the distribution of particular feature types, but to summarise them based on their associated attributes (dimensions, materials, etc.) that may be indicative of distinct functions. What is called for, therefore, is a geographic information system, allowing for the manipulation, and visualisation and analysis of spatial information.

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[48] For the reasons that the final season of excavation had not been published, that Ostrasz limits his analysis to houses with courtyards, and that not all spaces were assigned to one of the house units under discussion and shown in plan.

[49] The only case where Ostrasz moves forward, or disagrees with Scanlon's running interpretation of features, is with regard to the "gougings" in the *gabal*, discussed in chapter 7.

4.4.2   A Quantitative Spatial Approach

Creating a geodatabase for the comprehensive digitisation of feature locations (including all architectural remains) from the various site plans, as well as their associated attributes that are described in the text of preliminary reports, offers an opportunity to visualise and interrogate this disparate data collectively. This is approached with the ultimate aim of detecting patterns in feature distribution across architectural space; that is, to examine whether particular features—or subsets of features based on their attributes—occur in certain spaces, thereby suggesting distinctions in the use and meaning of spaces. At a more fundamental level, tabulation and quantification of this data allows one to interrogate the functional categorisation of features themselves, whether through spatial visualisation, graphs and charts, or statistical summaries. One can examine how unconsidered attributes interact with the proposed categorisation, perhaps creating alternative categories, or refining functional categories. Such an approach can offer a better understanding of the features' functions, as well as using these functions to infer the meaning and use of distinct spaces within the houses.

A GIS-centred approach not only allows visual and statistical exploration of the data, both at the level of feature interpretation and the categorisation of spaces, but provides a platform to use statistical tests to assess the significance of any patterns that such exploration may illuminate. It offers a robust, comprehensive, and detailed approach to detecting patterns in feature distribution that might illuminate the use and meaning of space.

4.4.3   Caveats to Feature-based Approach

While features are not divorced from their spatial context of use by being physically transported in the manner of artefacts, the relationship between a feature and its spatial context is not constant, it is complicated by time. While Bahgat and Gabriel, in lieu of any kind of stratigraphic framework, presented the houses as a single phase, Scanlon described a complex archaeological sequence including distinct architectural phases, periods of use and disuse of the sanitation systems, and the build-up of the streets. Some pits, for example, are reported go out of use while the house above continues to be occupied. The spaces above may be reconfigured over time, the pit remaining below. Should a pit, therefore, necessarily be considered as definitively associated with the architectural space that can be discerned surrounding it? Furthermore, what if multiple phases of walls are found in the vicinity, but no stratigraphic relationship between the pit and the surrounding walls can be ascertained?

Ideally one would aim at presenting a chronological snapshot, representing the association of spaces and features at a particular point in time. However, this is problematic given that no comprehensive phasing of the remains exists. Dating is a key concern in the ARCE reports, but a chronological framework develops *ad hoc* throughout the excavations. The apparent structural coherence of a group of architectural remains and cut features is often the starting point for dating that, it should be noted, can sometimes be based on specious reasoning such as the similarity in height between nearby floors. The artefacts recovered from certain deposits within the proposed unit, primarily pit and channel fills, are used to date all constituent remains. Stratigraphic relationships are very rarely reported for adjoining structural elements or deposits that are evident in plan; they are primarily a concern only when "cuts" are made into street and floor sequences. Stratigraphy is in this way a complementary investigative tool for dating, conducted as an isolated test, to be combined with more intuitive associations between structures, deposits and their dating materials. It is perhaps for this reason that the kilns, clay deposits, glass ingots, and other evidence of industrial activity in Fusṭāṭ-A was first thought to be contemporaneous with the houses in which they were found. It was only in 1973, when kilns were partially dismantled and clay stockpiles removed that artefacts from underlying deposits were used to date these elements to the post-abandonment period. In other words, revision occurred only after material with direct stratigraphic relation to the elements being dated was consulted, previously the apparent spatial coherence of these features with surrounding structures was sufficient to apply dating materials of one to another. This kind of revision, the result of later re-investigation of the area first excavated in the initial season, leaves one in the position that is unclear whether other industrial installations excavated between 1964-73 should also be re-dated to the later period. More generally, it is possible that similar mis-dating could have occurred when direct stratigraphic relationships are secondary to more intuitive grouping of architectural ensembles and features. In the absence of records of direct relationships on an element by element basis, not to mention access to or reporting of all finds, no comprehensive *post hoc* phasing of elements across the site is possible. Even at a more basic level, it is often unclear which walls are abutting or cut by others, and therefore which is earlier and which is later.

All of this is compounded by problems using architectural "stylistics" from ensembles dated in this manner as the sole dating criterion for future examples, rather than as a working model that should be confirmed or revised based on stratigraphic and artefactual evidence from the case at hand. The proposed "estoppage" or disuse of cut features might rely on assumptions about the date of the surrounding structure based on stylistics, or on contents

retrieved from its upper fill compared to others in the vicinity, which as discussed is not necessarily significant considering the formation process of such fills.

In this way, establishing the definitive association between features and spaces is impossible. If a chronological snapshot were approached, the easiest to reconstruct would be the point before abandonment of the houses. This is not the same as considering only Fāṭimid period features and houses, it would include earlier houses still being occupied, as well as those considered to be a *kharab*, unoccupied, in that period. All that would be attempted is the exclusion of remnants of earlier features that were never associated with the later house plans, and earlier structures that were never associated with Fāṭimid features. This would, considering the caveats outlined above, require a high degree of subjective assessment based on excavation reports. However, considering the far more profound conceptual problems with structuralist analysis and artefact studies discussed previously, it seems that analysis of feature distribution through quantitative spatial exploration and analysis offers the best way forward, despite these caveats.

4.5   THE ROLE OF TEXTUAL AND ARTISTIC SOURCES

In attempting to reconstruct the kinds of activities and conceptual spaces that occurred in the houses of Fuṣṭāṭ based on such fragmentary and problematic evidence, it would be remiss not to consider this in light of historical evidence for domestic activity. It has already been highlighted that the Geniza is an illuminating source in this regard, and it is not the only source that can be consulted.

A summary of the evidence for activities within houses is elucidating in two regards. Firstly it might suggest the presence of features, spatial categories or activities that are identifiable in the archaeological record. That is not to say that archaeological evidence should necessarily be consistently interpreted through the lens of what is discerned from textual sources, but that the overall impression given from archaeological investigation can be compared to the historical evidence to provide possible correlations. Secondly, it is useful precisely because it will present a picture of activities unlikely to give any archaeological trace. In this way it will contextualise any impression given from archaeological analysis, giving some impression of how much of the typical the use of space is archaeologically identifiable. The two kinds of source might thus be seen as complementary, their particular insights giving an overall impression of domestic spaces that is fuller than any one alone.

4.6   MOVING FORWARD AND LIMITING SCOPE

Though a structuralist analysis of spatial organisation forms a theoretically-rich way to study the social use and meaning of domestic spaces, the implementation of such an approach is too problematic considering the multiple levels of uncertainty in the

interpretation of the archaeological remains. There is scope to diminish one aspect of this uncertainty, however, through archaeological analysis. A meaningful understanding of the organisation of space within the house cannot rely wholly on identifying relations between elements on a purely morphological and topological level but must consider the characteristics of constituent spaces, how they were used and how they were conceptualised by inhabitants. It is clear that analysis of artefacts and their spatial provenance cannot be used to elucidate use and meaning of spaces, owing to their place of deposition being unrelated to the original context of use, but that fixed features—both architectural and cut features—are promising in this regard, despite some caveats.

In order to pursue this line of analysis a geographic information system (ArcGIS 10.2) was used to digitise the archaeological features of Fusṭāṭ-A and Fusṭāṭ-B; it was the resultant geodatabase that was used to produce the maps in this chapter. The reason that the analysis should be limited to these two sites is twofold. Firstly, there is insufficient detail on the particular cut features such as sanitation elements in the earlier reports of Bahgat, Mehrez and El-Hawary. Furthermore, insufficient consideration of phasing in these early excavations means the association between features and architecture is highly uncertain, a problem that is only partly improved in the ARCE excavations. The greater detail and chronological emphasis of Scanlon and Kubiak therefore make the ARCE excavations a more suitable dataset for such a task. Fusṭāṭ-C is not considered partly because of the limited scope of this study and the time required for digitisation. I also consider that there is more to be gained from collating the reports of Fusṭāṭ-A and B, which were excavated over many seasons and have yet to be synthesised, rather than Fusṭāṭ-C which was excavated in one season and has a final report published.

Details of the feature categories that were recorded, what attributes could be gleaned from reports, and how these features are proposed to function will be provided in chapter 6, before moving on to placing these features in their spatial context in chapter 7. The next chapter, however, provides a summary of textual evidence for domestic activity and spatial categories, which will serve to contextualise and provide a wider picture than can be gleaned from these features alone.

5   DOMESTIC ACTIVITIES AND SPACES IN TEXTUAL SOURCES

This chapter examines the historical evidence for the use and meaning of space in the houses of Fusṭāṭ. I begin by qualifying which sources can be considered in this study, before moving on to identify the principal rooms listed in documentary descriptions, their form, location and features. As the precise function and meaning of these spaces is often unclear from descriptions alone, I will expand the discussion in two ways. Firstly, I will discuss the furnishings that could have been used to equip and transform different spaces within the house, emphasising that structural evidence alone is insufficient to provide a full picture of spatial practice. Secondly, I consider the evidence for domestic activity in general terms, for which precise spatial contexts may be unclear, but which indicate the kinds of affordances the structure as a whole would have provided.

5.1   SCOPE OF SOURCES CONSIDERED

This study's limited scope necessitates a focus on the most revealing and directly relevant historical sources, namely Geniza scholarship. There are, however, other sources from the Islamic world that could be used to illuminate daily life, though scholarship on these sources will be used only sparingly. While it is true that Western scholarship has focussed on the political, intellectual, religious and military history of the medieval Islamic world, there are some studies of its social history and daily life (Ahsan 1979; Guthrie 1995; Ashtor 1976; Shatzmiller 1994), illustrating that this is not due to a lack of sources from which to write such a history.

Firstly, there are reflections on élite behaviour (and by way of contrast that of the lower classes) within non-narrative literature, particularly the genre of *adab* literature, in its narrower sense of manuals on manners, customs and vocational skills. Another genre is that of *ḥisba* manuals, guides for a city's *muḥtasib*, a "market inspector" with wide ranging civic authority. These manuals, written from the late-9th century have been extensively studied in Maya Shatzmiller's (1994) study *Labour in the Medieval Islamic World.*

Secondly, a curiosity in the lower classes and everyday life combined with the popularisation of narrative prose literature from the ʿAbbāsid period onwards, has left us with several narrative works with prosaic social settings. The less fantastical of these prose works are represented by the *maqāmāt* (assemblies) collection of anecdotes written in rhymed prose (*sajʿ*) featuring a central anti-hero, a rogue and story-teller. Often considered the progenitor of the genre is Badīʿ al-Zamān al-Hamadhānī (968-1007), a Persian writer (Brockelmann 1991). A later and better-studied work is that by Abū Muḥammad al-Qāsim

ibn ʿAlī ibn Muḥammad ibn ʿUthmān al-Ḥarīrī (c.1054–c.1122), from Baṣra. The two works are simply known as the *Maqāmāt al-Hamadhānī* and *Maqāmāt al-Ḥarīrī*. Surviving manuscripts of the latter work are instructive not only because of the content of the stories, but the miniature paintings that accompany the narrative. These illustrated manuscripts date from the 13th century and were produced in Irāq and Syria. Shirley Guthrie's 1995 volume entitled *Arab Social Life in the Middle Ages*: *an Illustrated Study* is in fact, despite its seemingly compendious title, a study entirely focused on the illustrations of 13th century manuscripts of the *Maqāmāt al-Ḥarīrī* and what they indicate about social life at the time they were painted.

The more fantastical literary genre is represented by two anthologies of prose tales, *Alf layla wa layla* (A Thousand and One Nights) and *al-Hikayat al-ʿajiba waʾl-akhbar al-ghariba* (Tales of the Marvellous and News of the Strange). This genre, which features elements of folklore and marvels is one that is completely disregarded by Ahsan in his analysis of ʿAbbāsid social life, for the reason that "the collections of *Thousand and One Nights* are fictitious, and contain very little historical authenticity" (Ahsan 1979, 12). They do, however, alongside stories of exaggeratedly grand palaces and courts, *jinn*s and curses, feature incidental details of ordinary characters' lives. Such incidentals have the potential to betray fundamental concepts of domestic life in the mind of the author. However, using these anthologies as sources is problematic due to the unknown geographic or temporal provenance of each tale, as the collection of *Alf layla wa layla* evolved over many centuries (Irwin 1995).

These represent avenues of future research for understanding life in the Fusṭāṭ house, particularly anthologies of prose tales whose worth has been minimised by historians. However, they cannot be explored in detail here.

5.2   THE COMPOSITION OF THE HOUSEHOLD

I have already discussed in Chapter 3, the complexities of the dār and its division among numerous groups, both related and unrelated. This can be detailed a little further here. Firstly, the general practice among Jews and Muslims was patrilocalism; women moved to their husband's home upon marriage (Marmer 2000; Goitein 1983, 92; Goitein 1988, 141). As this often created tensions between the wife and the resident mother- and sisters-in-law, resulting disputes document the practice of allocating different parts of the family different apartments in the *dār* to avoid such conflict (Marmer 2000). Though the extended family of the "house of the father" (Goitein 1978a, 1), was a traditional household, there was a wide range of living situations that differed from this ideal. Young married couples often preferred to find accommodation alone (Goitein 1983, 92). Re-marriage after

widowerhood and divorce was remarkably common—around a third of women's marriages were not their first (Goitein 1978a, 274)—potentially creating households of multiple nuclear families[50]. Jews were morally obliged to maintain their elderly relatives, but one finds the elderly making their own arrangements in the Geniza, bequeathing property to non-family members in exchange for being maintained by them (Goitein 1988, 120–1). Women did not inherit from their husbands, but maintained the dowry brought by them into the marriage and the second (delayed) instalment of their marriage gift. The result is that a widow would not be guaranteed to be able to stay in her home after her husband's death. If she was childless, she was the moral obligation of her father or brothers, and may move back to her father's house (Goitein 1978a, 23). If she had sons she might be maintained in what was now their home (they would each take shares). None of these were legal rights for the widow, and not only are other situations such as accommodation with of a widow with her daughter encountered (Goitein 1978a, 227), but the Geniza is replete with petitions from widows to the community for help to maintain themselves (Goitein 1978a, 250 ff.). Wealthy men provided their daughters with (shares of) property as part of their dowry or as a gift, so that they could maintain financial independence and a place to live, come what may.

Female domestic slaves, or maidservants, were included within some households. They were common among the well-to-do or middle class (Goitein 1967, 134; Marmer 2000). Maidservants would be co-resident with a family (Goitein 1967, 134) and were greeted in letters along with members of the family (Goitein 1967, 143). It is difficult to establish how common owning a male slave (*ghulām*) was among the families of the Geniza. Deeds of sale, gift or bequest for male slaves, as well as deeds of manumission, are extremely rare; yet male slaves do appear in personal correspondence as business agents and personal retainers, and freedmen are referred to frequently in a range of documents (Goitein 1967, 134). Though absent from greetings in correspondence this does not mean that they were not also resident in their owner's home; Goitein interprets this absence as a lesser degree of emotional attachment between the family and *ghulām*s (Goitein 1967, 143).

What is conveyed here is that there was no universal make-up of the household in the Geniza. There were some clear ideals or traditions, but legal and financial circumstances and personal relations created a diverse range of situations. Moreover, within a varied household, division of space among different groups was thus seemingly dynamic and

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[50] Polygyny was permitted by law but not culturally practiced among Jews (Goitein 1978a, 205).

adaptable to circumstance. One should not expect, therefore, to be able to directly relate modules in the architectural remains to "typical" divisions within the household.

5.3   THE ROOMS OF THE HOUSE

The house deeds and accounts of building maintenance of the Geniza list particular spaces of the *dār*, revealing the conceptual categories of domestic architectural spaces for inhabitants. The descriptions are abstract, without dimensions and often unclear physical relationships and morphology, which is why relating to them archaeological record would be so revealing. The uses of particular spaces are not detailed in such circumstances, though the etymology of their names is often revealing in itself. Similarly, details of form and occasional references to activities within these contexts, build a picture of social use and meaning of the spaces. If these formal details, or internal features relating to particular functions or meanings, can be identified archaeologically one can move towards a social interpretation of the excavated houses, and simultaneously see how the descriptions of the Geniza were manifested in physical space.

The *qāʿa*, as discussed in Chapter 3, is the term for a courtyard alone, as well as the courtyard and the rooms surrounding it. That at least some of the *qāʿa*s were open to the sky in the Fāṭimid period is only clear from some chance details, it is not regularly reported in house descriptions. A document written c.1100 (T-S Arabic 30 f. 53) reveals a man planted six trees in a garden in his *qāʿa* (Goitein 1983, 63). Furthermore, a husband admonishes his wife in a letter (T-S 13 J 20 f. 3) for allowing their child to play in the *qāʿa* where he will be affected by bad weather (Goitein 1988, 102). Considering the size of those courtyards identified archaeologically, these were most likely open. The regular appearance of a water pool or fountain (*fisqiya)* in the *qāʿa* is likely a reference to the courtyard itself, though a minority are specifically described as in the *majlis.* Goitein also notes that a well often appears in the *qāʿa*, and it seems he considers this to be meant in the narrower sense (Goitein 1983, 68).

Beyond the child playing in the *qāʿa* (courtyard)—which would perhaps be acceptable if not for poor weather—there is only one reference to an activity within the space. One document (ENA 4020 f. 6) details a festive occasion in which 400 persons were gathered in the *majlis*, and "in the *qāʿa* even more" (Goitein 1983, 65).

The *majlis* is most often the first room mentioned in the description of the *qāʿa* (courtyard-ensemble). As discussed in Chapter 3, its folding wooden doors are mentioned, and the two columns at its entrance. The doors were most often decoratively carved, plain doors are mentioned as an exception. A *majlis* is sometimes equipped with a wind catcher, (*bād-hanj)* opposite the entrance, and both it and the *majlis* are sometimes clad in marble. The ceiling

of the *majlis* may be described as painted "in the Syrian fashion", most likely implying horizontal wooden beams with painted decoration[51]. All of these features are present in a lavish mansion in Fusṭāṭ described in 1190 (TS K 25 f.251) (Goitein 1983, 79). The term *majlis* refers to the central room alone, though the flanking *kummayn* are also seemingly implied by use of the term, only being mentioned if particular details necessitate so. The term *ṣadr*—used by al-Masʿudī as an alternative name for the central room—does appear, though is translated by Goitein (1983, 65) as indicating the *back wall* of the central room, its most prestigious wall.

Returning to the *bād-hanj*, these appear in descriptions of the early Ayyūbid period or later (TS K 25 f.251 [c. 1190]; Richards Karaite Doc. 5 [1260 AD]; Doc. 24 [1368 AD]; Doc. 10 [1551 AD]), as the houses were likely of some age when described, it seems reasonable that such a device was in use in the Fāṭimid period. That they were relatively commonplace in the 10th and 11th century is confirmed by the account of the astronomer Ibn Yūnus (d. 1009), as well as ʿAbd al-Latīf al-Baghdādī (1162-1231) who claims there was hardly a house in Cairo without one (Rosenthal 1971, 1).

The *majlis* is described by Goitein (1983, 64) as where "the social life of the family, with or without its guests or customers, took place". However, little evidence is presented for this to be the case. Still, festivities in the *majlis* cited above, mentioned by Goitein with regard to the estimated size of the room rather than its function, do support the idea that it is a reception room. One thing is abundantly clear, that the *majlis* was prestigious, both from its decoration and prominence in house description. Moreover, that it was equipped with a wind-catcher implies that inhabitants must have spent considerable time here.

The *ṣuffa* is a common feature of the *qāʿa*. The term was first used to mean a covered bench or bower outside a house, and Goitein infers that these were internal features with the same function (Goitein 1983, 68). One finds one, two or four *ṣuffa*s in a *qāʿa*, and some cases they are said to face each other (D. S. Richards 1972, 109). These are equated by Sayed (1987a, 34–5) with the small open-fronted rooms, alcoves or "īwāns" found on the remaining sides of the courtyards in the excavations. Their form is amenable to the function of the *ṣuffa* proposed by Goitein, a seating area sheltered from the sun but open to the breeze, they often face each other, and are prominent within the *qāʿa*. This therefore seems a logical inference. Another type of seating fixture was the *sidillā*. This is thought to be a slightly raised stone platform, sometimes in a recess, for cushions to be placed on. However, this

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[51] The tripartite rooms at the 8th century palace Ukhaiḍir, which can now most likely be identified as *majlis*es, were barrel vaulted.

precise interpretation seems entirely based on modern usage of the word (Goitein 1983, 69).

The *riwāq*, which clearly relates to the portico in the archaeological "*bayt*" in al-Masʿudī's account, is not very prominent in the Geniza, at least in this usage. As Sayed's study shows, in the Mamlūk and Ottoman period it is used to mean a type of upper apartment, and is present in numerous documents. There are only two instances in which one finds a *riwāq* that might be an arcade or portico. In one instance it faces the street, in another it is within a *majlis* (Goitein 1983, 73). The lack of more cases of the latter can either be explained by the fact that, like the *kummayn*, the *riwāq* is simply implied in most references to the *majlis*. The columns noted would support this. The second is that as some *majlis*es without *riwāqs* are found in the archaeological remains, that the use of this feature was falling out of fashion by the 12th century, and so appears in few Geniza documents.

Beyond being mentioned as belonging to, or being beside, the *majlis*, the *kummayn* (two sleeves, sing. *kumm*) are not described further in terms of their form or function. That they were distinct from other "accessory chambers", namely the common *khizāna*, is made clear from a complaint that one house had neither one nor the other (Goitein 1983, 66). This is distinct from al-Masʿudī's account where the two terms overlap in meaning. *Khizāna*, translated by Goitein as "closet", is from the root meaning to lock or store. One such room is described as a sleeping place, though others may have been for storage, as in al-Masʿudī's description. They are found on the upper and lower floors, in no specific location. From the same root as *khizāna,* one derives *makhzan*, storeroom or storage place. Goitein judges that m*akhzan*s must have in some cases been substantial rooms, as they were occupied by tenants of *qodesh* houses (Goitein 1983, 75). In other cases a *makhzan* appears within a room, perhaps indicating some kind of storage compartment. The *maṭmūra*—translated as "the buried, underground room" (Goitein 1983, 74)—was perhaps its subterranean counterpart. Though not appearing in house descriptions, goods are sometimes mentioned as found within a *maṭmūra* in documents, and considering the range in quantity —from over a hundred jugs of wine to a collection of smaller valuable items— it would seem this could refer to either subterranean room or small compartment.

A *dihlīz* is usually the first room one found when entering a house, and is translated as corridor or hallway based on this location (Goitein 1983, 62–3). As these sometimes appear in the plural, Goitein infers some kind of bent entrance, to stop strangers peering into the *qāʿa*—a feature of the "Arab house" model. This room might have *maṣṭaba*s (benches), a place for water jugs and was a possible location for the staircase.

A kitchen (*maṭbakh*) is regularly found within the houses (Goitein 1983, 69). Their location is often not very specific, but is attested on both on the ground and upper floors (D. S. Richards 1972), sometimes within a passage (*majāz*) or simply within the *qāʿa*. There are no specific facilities or structures listed as within the kitchen in descriptions. What one might expect to find will be discussed later in this chapter.

There are numerous terms for toilet used in the house descriptions, translating literally as washroom, water closet, bathroom, restroom and convenience

*Mustaraqa*s, translated as loggias, which often overlook the *qāʿa* (courtyard) or the street, were extremely common in house descriptions (Goitein 1983, 73). These often belong to a qāʿa, meaning they were considered part of the ground-floor ensemble, and were rented out along with it, but were also added to upper storeys. The staircase to access the *mustaraqa*, and upper apartments, might appear within the *qāʿa* (in which sense is unclear), but also in the *dihlīz*.

5.4 FURNISHINGS

Furnishings of the home are primarily revealed through trousseau lists, detailing the goods brought upon marriage by the wife. As Goitein writes: "[t]he husband provided a home, the wife its furnishings" (Goitein 1983, 105). As this dowry remained the property of the wife upon her husband's death or divorce, these goods had to be durable. For this reason ceramics, glass, and other breakable or ephemeral goods were not included. The trousseau did not consist of large items of wooden furniture such as tables, chairs and beds, but rather soft furnishings: cushions, mattresses, hangings, carpets, covers. Smaller durable items such as trunks, trays, lighting apparatus, metal utensils, incense burners, and metal tableware also featured.

The lists do not detail which room these furnishings and objects were placed within—though Goitein does attempt some speculative placement based on sizes and quantities provided—and so cannot be used to directly reveal the use of some of the poorly understood rooms above. What they do reflect is the flexibility of space, how boundaries, seating, bedding, lighting, and so on could be changed easily within a room. They give a sense of architectural possibilities and general modes of living within the house. They are thus much needed context for this study.

5.4.1   Mattresses and Cushions

A *martaba* (literally "where one steps up") was a kind of mattress, and was clearly substantial as it is described as being made of 2-6 pieces (*qiṭaʿ*) (Goitein 1983, 108–9). Alongside these pieces one may find a support, *misnad,* most likely indicating this was for

sitting. A *majlis* (where one sits, like the room of the same name) seems to have been a particular lavish seating made of Ṭabarī silk, found only in 11ᵗʰ-century documents. Typically a middle-class trousseau included one or more *martaba*s, and at least one *firāsh* (Goitein 1983, 108). The *firāsh* (from the root "to spread out") was, in contrast, most likely for reclining and sleeping. A similar distinction can be drawn between a cushion (*mikhadda*) and a pillow (*mikhadda lil-khadda*)[52]. Less expensive furnishings may have, in contrast, fulfilled multiple purposes, such as the *maṭraḥ*, which seems to have functioned as bedding or seating, replacing either the *martaba* or both the *martaba* and *firāsh* (Goitein 1983, 109–10). Similarly, a *ṭarrāha*, translated by Goitein as "daybed" was seemingly a thin mattresses for reclining or sleeping.

The *martaba* is suggested by Goitein to be a furnishing specifically for the *majlis* (the room), due to the quantities and accompanying prices that appear in the lists (Goitein 1983, 110). Because both rich and less well-to-do brides frequently had one relatively expensive *martaba*, and two others of a significantly lower price (as much as half), Goitein proposes that these were for the prestigious ṣadr wall and the two lateral walls of the *majlis*.

If this can be accepted, it suggests that some larger seating had a permanent location in the home, whereas other lighter furnishings (*maṭraḥ*s, *firāsh*es, and *ṭarrāḥa*s) may have been moved between rooms depending on where one wanted to sleep or sit. Goitein emphasises this flexibility a great deal (Goitein 1983, 107), but it is worth noting that the bedstead (*sarīr*) was still[53] common in the 11ᵗʰ century trousseaus (Goitein 1983, 113), and so a permanent "bedroom" may have been in place within the excavated houses.

5.4.2 Draperies and Carpets

*Sitr*s, translated as "curtains" by Goitein are extremely common in trousseaus (Goitein 1983, 117–20). They are assumed to have covered entrances and divided rooms rather than have covered windows, for which there is ample support. A curtain covering the door of the audience hall played an important role in caliphal ceremonies in the ʿAbbāsid and Fāṭimid period (Sanders 1994b, 36), and entrance curtains can be seen in many of the *Maqamāt* painting when depicting both audiences with prominent men (Figure 44), and more social domestic settings (Figure 45). That doors are specified in certain Geniza room descriptions makes it likely that others were closed with curtains. This may allow one to infer something about the value or privacy of that within.

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[52] These literally mean a "a place for one's cheek" and "cheek-place for the cheek".
[53] These are considered a Roman/Byzantine tradition.

Figure 44 — 13th century painting of 37th *maqama* of al-Harīrī, an audience with the Qādī (Ettinghausen 1977, 107).

Goitein also infers that *sitr*s were used as wall hangings. The appearance of *ṣadr* (centre or front) pieces is thought to indicate a hanging for the prestigious "front" wall (*ṣadr*) of the majlis, or dividing the room somehow in front of this wall. Within trousseaus an expensive *ṣadr* curtain is often accompanied by less expensive "side pieces". Like the *martaba*s described above, Goitein (1983, 120) proposes that the three pieces were placed on the far wall and two side walls of the *majlis* respectively. Another unconsidered possibility is that they are these are for the entrances to the *majlis* and *kummayn*.

There was no clear division between wall hangings and carpets *ṭunfusa*s, the latter explicitly described as for hanging (Goitein 1983, 23–4). Again, Goitein proposes that a central carpet was placed on the floor in front of the *ṣadr* wall of the *majlis* and flanked by smaller carpets either side. This is based partly on an analogy with accounts of the 'Abbāsid caliphal audiences, in which a ṣadr carpet was centrally placed in the audience hall and

flanked by "prayer carpets" (*muṣallā*s). *Muṣallā*s appear in pairs in the documents, and some *ṣadr* pieces are taken to be carpets by Goitein (though it is unclear whether these are called *ṭunfusa* or *ṣitr* or simply called *ṣadr* alone). An *ʿataba*, literally a threshold, is interpreted as a carpet laid over the central piece at the entrance to the room (Goitein 1983, 126).

Figure 45 — 13th century painting of 13th *maqama* of al-Harīrī, a wedding banquet (Ettinghausen 1977, 113).

5.5 THE ACTIVITIES WITHIN THE HOUSEHOLD

The preceding discussion has focussed on the evidence for spatial contexts within the home, their features, furnishings and implied meaning or function. It is clear there are many uncertainties in this regard. Yet the Geniza, and other sources, do give an impression of domestic life, its principal activities and who performed them, without a precise spatial context. It is therefore worth reviewing evidence for household activities at a general level, and their possible relation to spatial contexts previously identified.

5.5.1 Women's Labour, Interactions and Movement

How far were women restricted to the home, and restricted in their movements within it? Certainly, a Jewish wife was expected to do housework, even if slaves and servants were within the family's financial means, as well as being responsible for the care of her children. Married women were not, however, uncommonly engaged in some kind of remunerative work, most often textile production: spinning and embroidery (Goitein 1967, 128). Much of this was conducted individually at home, either for home consumption or to sell (Shatzmiller 1994, 352). Expressions of distress at women leaving the home to conduct this work appear in the 12th century in the Geniza, though probably refer to work conducted in other private homes rather than workshops (Shatzmiller 1994, 358). While anxieties towards women's textile work arose if it brought her into contact with men beyond the household (Shatzmiller 1994, 351), spinning and embroidery within the home seems to have been more than an acceptable practice for well-to-do wives, it was archetypal. A 10th-11th century agreement between husband and wife from the Fayyum stipulated that the wife should "never sit idle in the house, but either occupy herself with work on flax or wool, or the household…" (PER H 82 trans. Goitein 1978a, 215). In an illustration of the 5th *maqāmāt* of al-Harīrī, in which the protagonist arrives at a house, one that he soon realises is that of the wife and son he once abandoned, his wife sits spinning on a dais (a *martaba*?) in the centre of the scene (Figure 46). A rural village scene depicting *maqāma* 43 in the same manuscript also shows a woman spinning outside her home (Figure 47).

Figure 46 – Illustration of 5th *maqama* of al-Harīrī, showing a deserted wife spinning, and her son, BN Arabe 5847(Guthrie 1995, 153, fig. 15).

Well-to-do Jewish women had a certain amount of economic agency; they bought and sold houses, and the property (both real estate, and portable goods) brought into the marriage as their dowry remained theirs, to be returned upon termination of the marriage. However, whilst married the *earnings* from any of this property were the husband's by right (Goitein 1978a, 180). Thus married Jewish women did not have their own purse to invest as they saw fit. In Muslim marriages, though similar outfits were provided for brides, no such right of usufruct existed for the husband (Y. Rapoport 2005, 16), which would have made entrepreneurial activities significantly easier for wealthy Muslim wives to finance. A 12th century *fatwa* concerns a woman buying wheat in Sicily in order to sell it in Mahdiyya, a venture she financed by selling her jewellery (Shatzmiller 1994, 349). For Jews, truly independent entrepreneurship was only possible as a divorcée, widow or spinster, a fact perfectly illustrated by the exceptional character of Wuḥsha, an 11th century divorcée who became a successful businesswoman (Goitein 1978a, 347 ff).

Economic agency did not, however, necessarily translate into freedom of movement, as we have already seen with regard to women's craft production. The woman purchasing grain in Sicily used a male agent who took a share of the profit. Use of male agents was not

restricted to business abroad; male relatives acted as agents when a Jewish wife was to sell her jewellery in her home town. In other cases, however, it is clear that a married woman had face-to-face business dealings with men, though within the home. A 12th century woman named Jayyida, as we learn from a witness statement, discussed interest on a loan she had taken by inviting the creditor to her house and sitting alone with him (Bodl. MS Heb e 94, f. 25: trans. Goitein 1988, 329).   In Goitein's estimation the Geniza documents reveal a situation in which "it is taken for granted that a male unrelated to the family could come into a home and discuss matters with the woman of the house in the absence of her husband" (Goitein 1988, 311). It is also reported that she could act on behalf of her husband in his affairs while he was conducting business abroad or was ill (Goitein 1978a, 132), presumably on a similar basis.

Figure 47 – Illustration of 3rd *maqama* of al-Harīrī, a village scene with woman spinning top right, BN arabe 5847 (Guthrie 1995, 140, fig. 13).

Fāṭimid caliph al-Ḥakim made a number of infamous decrees curtailing the freedoms of women: a ban on women going out in the evening (1000-1); a ban on unveiling and crying at tombs and funerals (1003-4); a ban on adorning themselves and a restriction on going to the *ḥammām* without being completely covered, or showing their face at funerals (1004-5); a ban on the installation of screens for women in cemeteries (1008-9); a ban on frequenting the *ḥammām* altogether (1010-11); a ban on attending the evening prayer, frequenting the cemetery and the shores of the Nile and getting in boats with men; ban on singing and on sitting in the street (1012); finally banning all women to go out at all (1013)(Cortese and Calderini 2006, 192).

Cortese and Calderini, in their assessment of the impact of al-Ḥakim's anti-women decrees, suggest that they had little impact on the rich as "[a]ristocratic, high-class and middle-class women" would rarely venture outside of the home regardless, as it was not appropriate for women of their status (Cortese and Calderini 2006, 194). It was unsupported women (certain widows, divorcées and spinsters), labourers and slaves (including those acting on behalf of wealthier women) that must have made up the majority of the female crowds on the street that the caliph targeted; these groups travelled the street by economic necessity, and indeed some poorer groups were given exceptions to the decree against appearing in public, along with women undertaking pilgrimages and trips to court (Cortese and Calderini 2006, 194). Certainly, women of the middle and upper classes conducted their affairs through their husbands, male relatives, slaves and servants from home, but they still left the home for purposes of leisure and socialising, including visits to the *hammam*, shrines, family and neighbours, as will be elucidated in the following section. The poor were not affected by the ban on external movement in terms of their livelihood, though their ability to freely congregate and socialise was clearly under threat.

Was a separate apartment for womenfolk the norm for either Jewish or Muslim households? Within the Geniza, Goitein (1983, 64) notes only two occurrences of a *qāʿa ḥurmiyya*, which he translates as "women's *qāʾa*", and these are in reference to a house in Alexandria. As Nasser Rabbat (1995, 116–18) notes, however, the meaning of *ḥurmiyya* is unclear, and as the form never appears in al-Qāḥira or Fusṭāṭ, but in Alexandria and cities of *Bilād al-Shām,* it may be a form that has another name in the Egyptian capital. Rabbat suggests it is the *dūr-qāʿa*, the narrow covered courtyard.

As discussed in section 2.2.2 , there are clear indications from the Jewish documents that Muslim households practiced the segregation of women. How might have this worked within architectural space? I have already cited a situation in which a Jewish wife was given a separate apartment in order to reconcile tensions in the family home (5.2). This, however,

was not to segregate her from men, but rather to protect her from her female in-laws. The court record of this dispute between a wife and her mother-in-law was translated by Marmer (2000), along with another similar dispute of a poorer family. In their less spacious house, a separate apartment was not an option, but an agreement was simply made not to intrude upon the wife. This seems to imply she was assigned her own room or rooms, or even part of a room separated by curtains. Thus, in lieu of any specific architectural designation of women's rooms or apartments, one might assume that segregation was done on an *ad hoc* basis, especially since it was only practiced by one of three religious groups of the city. The possibility of women eating separately from men is discussed in the section on dining.

In sum, a wealthy home was to a large extent the realm of wives and mothers, who were expected to be at home and often conducted business through proxies. Economic necessity, however, meant that poorer and independent women were engaged in public life. There is a certain amount of anxiety about wealthy women coming into contact with the public (i.e. unrelated men) through their craft production, but women receiving men in their home for business reasons was common, especially if their husband was abroad. One should be wary, therefore, of seeing the Fusṭāṭ house as designed with the privacy of its womenfolk in mind as is usually assumed in discussion of the "Arab house". Though gender segregation occurred in Muslim households, it did not have a defined architectural manifestation, houses were not built (despite Scanlon and Bahgat's assumptions, see section 3.4.6) with a *haremlik* or women's *qāʿa*.

5.5.2 Food Storage and Cooking

Goitein notes that a woman was never praised as a good cook; in general she was praised as tidy and efficient, and as a hostess she was lauded as charitable and pious (Goitein 1983, 228). Still, a Jewish wife was supposed to cook for her family by law, and the trousseau lists of well-to-do women typically contained cooking equipment.

Bread made from wheat was the staple of Fusṭāṭ, accompanied by a range of meat and vegetable dishes (Goitein 1983, 230). Countless documents referring to the price and availability of wheat reflect the constant concern about the supply of this staple, which was subject to the effects of the unreliable Nile flood, and political and economic instability. Wheat was bought at harvest time and stored for the year, at least for those who had the means to do so. In some cases it was put into earthenware *zīr*s (jars) and stored on the *mashraqa* on the sunny side of the house to keep it dry (Goitein 1983, 435 no. 70). In other cases, or more likely in addition to long-term storage in earthenware, it was put into a large stone jar (*zīr ḥajarī*) with a smaller stone vessel to take measures from it (*kaylaja)* (Goitein

1983, 390, no. 18). There may have been a preference for keeping wheat, at least when in earthenware, on the uppermost floor (Goitein 1983, 435 no. 70), presumably to maximise the drying effect of the sun in a secure location; an 11th century letter reports of wheat being stolen from the *mashraqa* during a famine, an account that reveals that each jar held one *wayba*[54] of wheat (ULC Or 1080 J 71: Goitein 1983, 435 no. 70). A stone *zīr* for wheat might contain 7 ½ waybas, and as many as two might be kept, reportedly in the interior of the house, though where is unclear. While the aforementioned letter reports the loss of just two *wayba*s, another letter from a provincial town reports seventy *irdabb*s of wheat stolen from a house (or 420 *wayba*s), weighing around four tons (TS G 1 f.1: Goitein 1983, 239). It seems that house was storing far more than its household needed, perhaps as a commercial venture, as 12 *irdabb*s of wheat was enough to sustain a middle-class family for a year (Goitein 1983, 235).

A year's supply for the family could therefore be stored in 72 *wayba*-capacity earthenware jars, or around 10 stone *zīr*s. This is a considerable volume to store, and one might imagine that such a volume was hard to accommodate in smaller houses of the less well-to-do. That would not be the only barrier to such a venture; the price of two dinars per *irdabb* in times of scarcity would mean a 24 dinar investment, at a time of over-supply it could be as low as 6 dinars, though even this is a considerable sum as a middle class home could be rented for around 6 dinars per year (Goitein 1983, 94–5). A modest house in Fusṭāṭ (Goitein 1983, 86) or a slave girl could be purchased for 24 dinars, and this level of capital was beyond the vast majority of the population.

If the majority could not afford to stockpile an entire year's supply of wheat at harvest time, other options were available. It is clear that bread could be bought at the market directly (Goitein 1983, 238), and flour was commonly bought in order to prepare dough at home (Goitein 1983, 243) as wooden troughs (*jafna*) for this task were found in dowries (Goitein 1983, 142); this presumably resulted in higher overall costs. Milling might be performed at home by the poor, though in general wheat was sent to the miller (Goitein 1983, 142).

European visitors to Cairo in the 13th-19th centuries reported on the proliferation of street-food available in the city, and usually report that nobody, or only the rich, prepared and ate food at home (Lewicka 2011, 89). The practice of buying hot food at the markets and taking it home is clearly demonstrated in the Geniza through the appearance of a meal carrier (*ḥāmil*) in numerous trousseaus throughout the Geniza period (Goitein 1983, 141).

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[54] Wheat was measured in *irdabb*s (c. 70 kg, 90 litres), each *irdabb* could be divided into six *wayba*s (c. 11.6 kg, 15 litres)

Al-Maqrīzī remarks that in his own time (15th century) food was not stored at home, rather the inhabitants of Cairo-Fusṭāṭ were said to "get their foodstuffs from the market every day, and they do this in the morning and the evening" (trans. Lewicka 2011, 90). This account is borne out by the Geniza evidence, in which shopping lists are made in quantities for individual meals. In some cases the same product listed twice, once for each dish it is needed for; presumably two measures were taken from the market in different containers. Such containers would have been brought from home. It seems, therefore, that the wheat was clearly an exception in terms of storage; the various accompaniments to bread that formed the usual meal were kept in small quantities and bought regularly (Goitein 1983, 143). There is one mention of a *mustakhdam,* translated as pantry by Goitein (1983, 71), but considering its rarity one might imagine that small quantities could usually be kept in the kitchen itself.

Goitein presents some degree of ambiguity in his assessment of the nature and prevalence of kitchens in the Geniza, as Paulina Lewicka has noted (Lewicka 2011, 78). Though Goitein states that kitchens were an almost universal fixture in Fusṭāṭ homes (Goitein 1978b), elsewhere a nuanced picture is alluded to. Further comments imply that kitchens were used for heating, rather than cooking, food (Goitein 1978b, 10), suggesting reliance on food preparation from commercial vendors, something mentioned numerous times as common practice (Goitein 1983, 141). His statement that "[a] kitchen was equipped with an oven for baking, frying and cooking" (Goitein 1983, 142) appears to refer to the type of oven known as a *tannūr,* as the presence of copper utensils for operating said appliance (*safāfid lil-tannūr*) is cited in support of this statement (Goitein 1983, 391, no 24). The *tannūr,* a cylindrical, open-topped oven made of ceramic or mud plaster, was in use in Egypt up until at least the 18th century, used principally to bake bread by sticking the dough to the sides, as well as for the roasting of meat (Lane and Poole 1973, p)[55]*.* However, it would seem unlikely that such an appliance would be common in the home considering the norm of sending dough to a commercial bakery, and indeed the fact that the inventory in question (ENA 1822, f. 46, l.20) is that of an 11th of 12th century coppersmith, showing a complex mix of personal and commercial belongings, casts doubt on its significance (Goitein 1988, 172). The only other cited appearance of such tools is in a Sicilian trousseau list from the 15th century (Goitein and Bresc 1970).

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[55] This was in use in Egypt during the New Kingdom, and though present in parts of modern North Africa and the Middle East, is no longer used in Egypt.

Domestic Activities and Spaces in Textual Sources

Copper cooking pots (*qaṣār* or *sifl*[56]), as well as stone and iron pans (*ṭājin* in Greek, *miqlā* in Arabic), are mentioned in trousseau lists, but not altogether that frequently (Goitein 1978a, 143). Cauldrons (*qidrs*) and vats (*ṭanjaras*) appear to refer to industrial-size apparatus in Goitein's estimation, though the diminutive *qidra/qudayra* appear to imply use in a domestic kitchen (Goitein 1983, 391, no 32)[57]. The infrequency of cooking apparatus in trousseau lists may, however, be more the result of the materials these were often made from than the absence of cooking within the home. Ceramics and glass do not appear in dowries, as discussed, due to their fragility. One inclusion of a *zawj birām*, a pair of earthenware pots in a dowry (TS 20.116v) is a rare exception, and hints at what may have been extensive home-cooking apparatus. In fact, Ahsan states that in the 'Abbāsid period "cooking-pots made of stone were considered to be the best and those of baked clay the second best", whereas copper was used sparingly (Ahsan 1979, 120).

It seems, therefore, that a combination of home-cooking as well as the heating of foods bought from the market took place in the home, presumably in kitchens (*maṭbakh*) listed in house deeds. The braziers (*kānūns*) in the trousseau lists may have been used to warm food. However, considering the preponderance of these items in dowries from the more temperate areas of Syria, and possibly Byzantium, it would seem that these were at least in part for heating the home rather than cooking (Goitein 1983, 136).

A single reference to a *mawqida*, which Goitein translates as "stove", appears in a letter regarding mourning of a relative, in which ashes are taken from the house's *kānūns* and *mawqidas* to put on the bereaved' s head (Goitein 1983, 136). The term *mawqida* is used in rural communities of Jordan to indicate a portable earthenware stove (Lutfiyya 1966, 192), though its precise meaning in the Geniza is unclear. A depiction of a clay or stone portable stove appears in a painting illustrating the 44th *maqāma* of al-Harīrī, in which Bedouins prepare a meal for their guests (Figure 48, below), stoked by a male youth. In this case the stove is placed outside, though this may be a reflection of the Bedouin setting.

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[56] Translated as "bowl" at one point, listed under copper in ULC Add. 3430 (trans. 1983, 314–15) as noted by 101

[57] No manuscripts are cited.

Figure 48- Illustration of 44th *maqama* of al-Harīrī, Bedouin hosts slaughter a camel for their guests (BN arabe 5847: Guthrie 1995, 160, fig. 20).

One cannot preclude the possibility that the kitchen was used for food preparation only, while cooking was done in an open courtyard, rooftop, or elsewhere. Lewicka (2011, 93) proposes that such hearthless kitchens may have existed in medieval al-Qāhira and Fusṭāṭ, a proposition made by way of analogy with Hanna's (1990) observations on Ottoman houses, where small food-preparation niches or recesses are found on the upper floors of Ottoman mansions, such units functioning as the only kitchen in more modest houses and apartment buildings (*rabʿ*).

Whether or not the kitchen had an oven or hearth, it could certainly be used to store vessels for food storage and dining, if not for cooking equipment. The existence of hooks for the kitchen (*khaṭaṭīf… al-maṭbakh)* within an 11th-12th century inventory (ENA 1822 f.46 ll. 28-9) indicates that the kitchen was used to store utensils in this period; spikes for cups (*shawkat kīzān*) and hangers (*ʿalāqa*) might have similarly been for the kitchen (HUC Geniza no 15 col. I, l.3). Furthermore, a metal drying or storage rack (*kabaka*) appears in two documents (TS 10 J 11, f.15; TS 13 J 17, f. 14v, l.17), suggesting storage of vessels out of the way in a room in use for other activities, as Goitein implies (Goitein 1983, 144).

Drinking water was brought from the Nile by porters and kept in large earthenware jars (*zīr*), which were kept in or near the kitchen according to Goitein (1983, 142), though no direct evidence for their placement is provided. The bronze covers (*ghaṭā zīr*) and cups *kūz*

zīr) for large earthenware jars (*zīrs*) appear regularly as part of bridal outfits (Goitein 1983, 142); that these were for certainly for water storage is explicit in at least one description[58]. These porous jars act to cool the water, and are still used extensively under the same name in Egypt today. In modern contexts these are typically stored where they receive both shade and a breeze, either sheltered outside or in doorways and windows[59].

5.5.3   Dining

Goitein's assessment of the Geniza shows that two meals were taken a day: a light morning meal, *ghadāʾ* and a substantial evening meal *ʿashāʾ* (Goitein 1983, 229). The first was taken at work, as employers appear to have provided funds for this meal for some of their employees (Goitein 1983, 230). Meals were spoken of as "at a table", and eating at the table together was a symbol for the household. The table, *māʾida*, was a large tray placed on a stool or stand, *kursī* (Goitein 1983, 144). It does not appear very often in trousseaus and inventories, though where it does it appears among highly varied social classes, and made of veined hardwood *khalanj;* more common was *ṣīniyya*, a round copper or brass tray used in a similar way, usually appearing in trousseau lists in the singular.
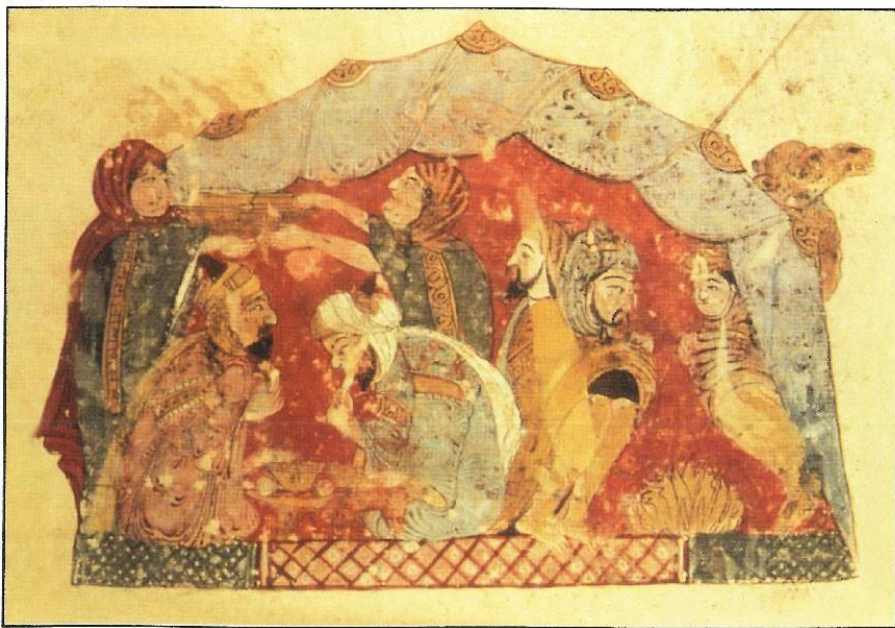
Figure 49 – Travellers receive the hospitality of Bedouins, Maqāma 49 of al-Harīrī, BN *arabe* 5847 (Guthrie 1995, Pl. 9).

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[58] "*Ghaṭā lil-zīr wa-zīrayn lil mā*" (Dropsie 402 ll. 11-13: Goitein 1983, 391, no. 26). Indeed, *zīr* is still used as a term for a water jar in Arabic.

[59] The etymology of *mashrabiya* implies these wooden window grilles were first used to cool water jars

It seems safe to assume by the use of the phrase "eating at one table" to indicate the household, that Jewish families ate together, including both male and female relations. Would the same be true of Muslim households? Mealtime segregation, in terms of both time and space, is attested in many modern Muslim societies, including Egypt. Unfortunately, many of the depictions of meals in Muslim sources are of court banquets, in which men are unsurprisingly the sole element. Maqāma 44 of al-Harīrī depicts Bedouin hospitality, in which visitors are received in a Bedouin tent. It is not, therefore, strictly a family meal, and moreover though the guests are urbanites their hosts are from a different social milieu entirely. Still it is interesting to note that in the two illustrations of this story by al-Wasīṭī women are depicted serving but not eating with their guests (Figure 49). This may, however, be a distinction between a meal when receiving guests and otherwise, gender segregation among both religious groups underpinned by a want to restrict the socialisation between unrelated people of opposite gender. A letter from a Jewish family in Jerusalem relates a story in which unexpected guests on the Sabbath (on which no further food could be made) reports that the women were trembling afterwards – presumably from a combination of hard work entertaining and, Goitein adds, from lack of food (Goitein 1988, 37). That the women were the ones to go hungry suggests that they may have eaten after the men and guests, initially only serving them.

5.5.4   Cleaning and Washing

The well regularly mentioned in the *qāʿa* is presumed by Goitein to be for washing-water (Goitein 1983, 68). Washing of clothes at home is implied by the purchasing of soap—the body was washed with *ushnān*, the ashes of alkaloid plants (Goitein 1983, 140)—and starch in one household account, and an agreement between two co-tenants allowing one to dry their laundry on the roof of the house (Goitein 1983, 81; 183). Goitein infers that the agreement to dry laundry is the result of the house having no courtyard for this activity (its *qāʿa* meaning only "the ground floor"). It seems more logical that the roof was the normal place for this activity, as the direct sun and breeze on the roof makes it a better place to dry laundry, and less obstructive to daily movement in the central *qāʿa*.

A basin and ewer (*ṭāst* and *ibrīq*) are frequently listed together in trousseau lists (Goitein 1983, 139). These are seemingly for washing one's hands, as they are mentioned in a document as something fetched before nightly prayer (before which Jews washed their hands). A wash basin (*maghsal*) also appears in trousseaus, and is assumed to be for washing the face and body. However, washing of the body is thought to have occurred solely at the *hammam* (Goitein 1983, 141)*.*

5.5.5   Socialisation and Hospitality

"The individual encountered in the Geniza", Goitein writes, "was eminently sociable" (Goitein 1988, 5). Holidays and festivals were opportunities for different branches of the family and friends to come together, with one household having the honour of being the host (Goitein 1988, 15). The Sabbath too, was an opportunity for family and friends to come together, and people travelled to and from the *rīf* to spend it with others. In addition, social calls and events of various kinds were commonplace between neighbours, friends and family in the city. Calls (*iftiqād:* literally "inquiring"), visits (*ziyāra*), congratulations (*hanāʾ*) and condolences (*ʿazā*) were moral obligations for all, and the Rabbinical court in Fusṭāṭ ruled that wives could not be restricted from leaving the house to engage in these activities (Goitein 1988, 25). The location of such socialisation and festivities is not often clear, the reference to a celebration within the *majlis* and *qāʿa*, cited above, is the only specified setting I am aware of. Still, it seems plausible that the lavishly decorated *majlis* was a reception room of some sort, even if its use on a daily basis is unclear.

Hospitality was, according to Goitein, a religious duty for Jews. For this reason he was surprised to find that the ideal was for the host to find a separate house or apartment for the visitor to provide him privacy, rather than accommodate a guest within one's own home (Goitein 1988, 31). The examples given, however, are of scholars, notables and merchants visiting from other regions of the Muslim world (and even here there are two examples of someone being put up in someone else's house), not friends and family on the Sabbath or Holidays. The latter were probably put up within the home, no doubt a financial necessity for the less well-to-do in all cases.

5.5.6   Sleeping

As discussed, wooden bedsteads (*sarīr*) were mentioned in the 11th and 12th century in Geniza documents, but were waning in popularity (Goitein 1983, 113). Mattresses (*firāsh, ṭarrāha, maṭraḥ*) and pillows (*mikhaddas lil-khadda)* provided flexibility in terms of where one slept in the house, and this appears to have varied particularly dependent on the season. According to Goitein (1983, 48): "in winter one slept in a small closet, which could be easily warmed by a brazier; in summer one sought relief from the heat in the spacious living room", i.e. the *majlis,* "with its ventilation shaft".

The evidence for sleeping within the *bad-hānj* in Geniza documents, that is to say in the space under its shaft, is not explicitly cited by Goitein. A 14th century Arabic poem warns against sleeping within this space, for the reason that it makes one sick; though this perhaps demonstrates that the appeal of sleeping here on a hot summer night must have been acted upon by some at least (Sadr-ad-dīn Ibn ʿAbd al-Ḥaqq [d. c.1378], trans. Rosenthal 1971, 19). It is clear from the Geniza that the rooms known as *khizāna*s, were

used for sleeping, though not exclusively. An 11ᵗʰ century letter mentions a *khizāna* in which the author used to sleep (ULC Or 1080 J 170, l. 13: Goitein 1983, 366, no. 103), and one is rented alone within a house. The term could also indicate an office (Goitein 1983, 66).

It is not entirely clear with whom one slept in such a room. A letter from Damascus about a boy left with relatives reports that all the children of the house, including the new addition, sleep on one mattress (TS J 24 f.1: Goitein 1978a, 234). The letter from a merchant abroad mentioned above (TS 16.278) relays, as part of a description of his loneliness and concern for his wife, that he lies awake at night alone (trans. Goitein 1978a, 221–3). Of course, this is no surprise as he is perhaps travelling alone, but his explicit description evokes a norm of the married couple sleeping together.

5.5.7 Commercial Activity

The *qāʿa*, indicating the courtyard of the house and its adjoining rooms, appears to have served as a space for a range of commercial activities. Renting of the *qāʿa* by foreign merchants for storage and/or sale of goods is implied where the phrase "returning of the *qāʿas"* is used in reference to the end of the business season, where foreign merchants have left the city for home (Goitein 1983, 69)[60]. Goitein proposes that household accounts in which "for the *qāʿa*" is listed under income indicates storage fees or rent from another party, though only a single example of such a phrase is given (TS J 5 f.16, l.4). *Qāʿas* were also rented as domestic units, however, so this could be the source of income.

5.6 ARCHAEOLOGICAL POTENTIAL

This evidence alone is enough to question some of the assumptions made about the use of space within the excavated houses, such as the proposed division between male and female courtyards or apartments.

The identification of the *majlis*, *kumm*, *riwāq* and *qāʿa* with the "*bayt*" and courtyard of the excavated houses has already been established. Beyond this there is a highly likely equivalence between the *ṣuffa* of documentary sources and the courtyard-adjacent alcoves found in excavations. In many of these cases, however, the use of these spaces is less than clear from the documents, and simply matching these terms to plans does little to improve our understanding of domestic life. One must investigate the archaeological remains for further indications of their use and meaning.

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[60] Only one use of this phrase is cited by Goitein, in ULC Or 1081 J 25

Domestic Activities and Spaces in Textual Sources

The documents reveal spaces with clear functions, features and general locations, such as the entrance hall (*dihlīz*), which have yet to be identified archaeologically. There are also a range of other spaces which have no clear locational or morphological characteristics in textual descriptions, but for which implicit functional features may be present in the archaeological record, such as kitchens, latrines and storage rooms/compartments. In other cases, however, spatial categories may have no clear structural corollaries, particularly seemingly multi-purpose chambers such as the *khizāna.*

In explanation of the latter, one must bear in mind that space was highly adaptable through textiles and furnishings. These furnishings illustrate that activities such as sleeping and dining might have occurred in various rooms, using impermanent apparatus, and so are unlikely to be archaeologically identifiable. Other activities, such as washing and laundry, however, may have an archaeologically identifiable component, considering the prominence of sanitation equipment in the remains.

The following chapter will, therefore, explore the identifiable features of the ARCE excavations and their proposed functions, which may both elucidate the use and meaning of already identified spaces, as well as identify further spatial categories.

6 ARCHAEOLOGICAL FEATURES EXAMINED

"Because of the sheer size of the site and the exigencies of squatters, scavengers, and seekers of nitrogenous refuse (*sebakh*), it is well-nigh impossible to be clever in excavating Fusṭāṭ."

> —George T. Scanlon (1974b, 61)

This chapter examines in detail those features revealed in the excavations of Fusṭāṭ that may be used to infer use and meaning of the architectural spaces in which they appear. Interpreting the function of these features is by no means unproblematic, owing to the partial nature of the evidence and incomplete reporting of their form. Thus, before exploring how these elements are distributed within architectural space (Chapter 7), it is necessary to establish how far meaningful inferences can be drawn from their presence. The emphasis here is on the features as described in the excavations reports of Fusṭāṭ-A and Fusṭāṭ–B, those that will be analysed subsequently, though because Bahgat's excavated house revealed the same sorts of features, though often better preserved, reference is made to these to clarify their interpretation.

References to individual features are given as a number in brackets, relating to its ID number in this study's geodatabase. A table on the accompanying CD gives the equivalent identification given by Scanlon (if one was given), and a reference to the report in which it is described. A larger plan of the sites in high resolution in also provided therein.

6.1 WATER AND SANITATION FEATURES

The ARCE excavations have revealed abundant pits, channels and pipelines that appear to constitute systems of sewerage and water supply, of a similar construction and complexity as those excavated by Bahgat. In total Fusṭāṭ-A and -B contained 263 pits and 1522m of conduits. An indication of the number and distribution of these features is given in Figure 50.

6.1.1 *Fisqiya*s and Shrubbery Trenches

*Fisqiya*s, pools or fountains used to ornament and cool a building, are one of the most clearly identifiable features in the excavated houses (Figure 51). They are frequently (though not exclusively) found within courtyards, consisting of rectangular brick structures with central basins in various shapes, often stepped inward at the mid-point of their depth.

Fusṭāṭ-B

Fusṭāṭ-A

Legend

- ● Pits
- ■ Flues
- ▲ Possible Latrines
- ----- Pipelines
- —— Channels
- —— Aqueduct
- ■ Fisqiya
- ■ Shrubbery
- ■ Walls
- —— Wall Traces
- ---- Hypothesized Wall
- ▨ Boulder Walls
- ▨ Streets
- ⬚ Limit of Excavation

N

0   10   20   40 Meters
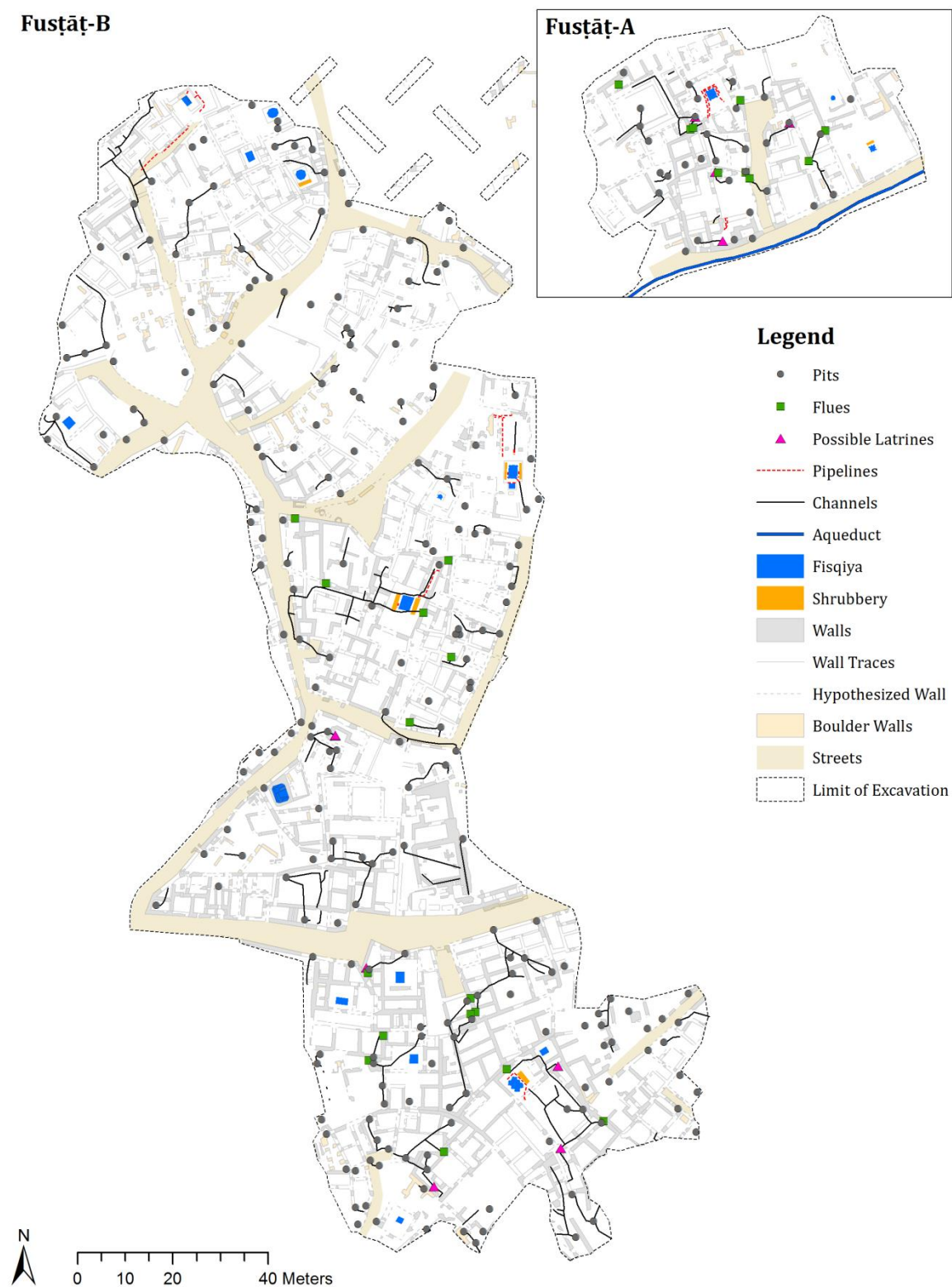
Figure 50 – Features from Fusṭāṭ-A and –B that have been associated with the water supply and sanitation system.
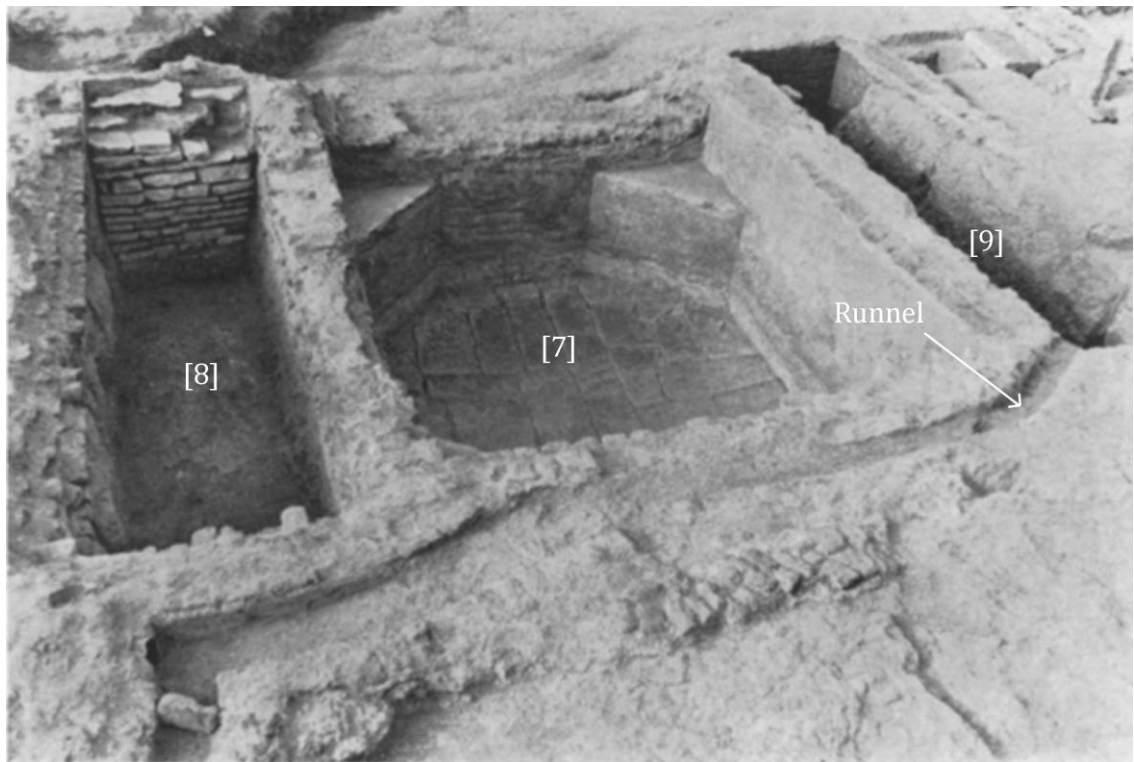
Figure 51 — Photograph of *fisqiya* [7] within a courtyard, with attendant shrubbery trenches [8] and [9]; a shallow runnel runs to one of the latter in the foreground (Scanlon 1966, Plate XXXI, fig. 10).

A relatively commonplace form descends as a rectangular shaft before becoming octagonal in its lower extent, thereby creating triangular shelves in the corners (as in Figure 51). A reconstruction of two *fisqiya*s of this style from Bahgat's Maison III is given in Figure 52 and a section of their excavated extent is shown Figure 53. Another typical form descends as an octagonal shaft, sometimes with apsidal and rectangular recesses on its sides, thereafter narrowing to become a smaller octagon in its lower extent. An example is reconstructed in Figure 54, and two sections of its remains shown in Figure 56.

The basins are sunken below the floor level of the courtyard, often facilitated by constructing the feature within a cut in the *gabal* (as in Figure 53), though where the floor level is raised significantly beyond the level of *gabal* by fill such a cut is not necessary (as in Figure 55). The top of the structure stands flush with the surrounding flooring, though cases in which both survive contiguously are rare.

Basins often have stone paving at the base, as well as possibly on the shelves or "seats". In lieu of stone lining, mortar could be used to cover the brickwork, including on the base (e.g. [34]: Scanlon 1966, fig. 8, 94). Bahgat (1921, 103) indicates that lime mortar mixed with ash or *ḥumra* (crushed brick, for water-resistance) was used for this purpose. Scanlon is less specific, noting only the presence of "plaster".

Archaeological Features Examined

Numerous examples include subsidiary basins in the form of simple rectangular, L-shaped, or U-shaped shafts (as in Figure 51; Figure 54). Where the masonry of these survives, along with any mortar lining, it is found only on the sides but not the base, suggesting that these did not hold water. It is for this reason, along with the recovery of topsoil within one such feature, that Bahgat suggested that they were for the planting of trees and shrubs (Bahgat and Gabriel 1921, 42), an interpretation which Scanlon accepted (Scanlon 1965, 16; Scanlon 1966, 92).
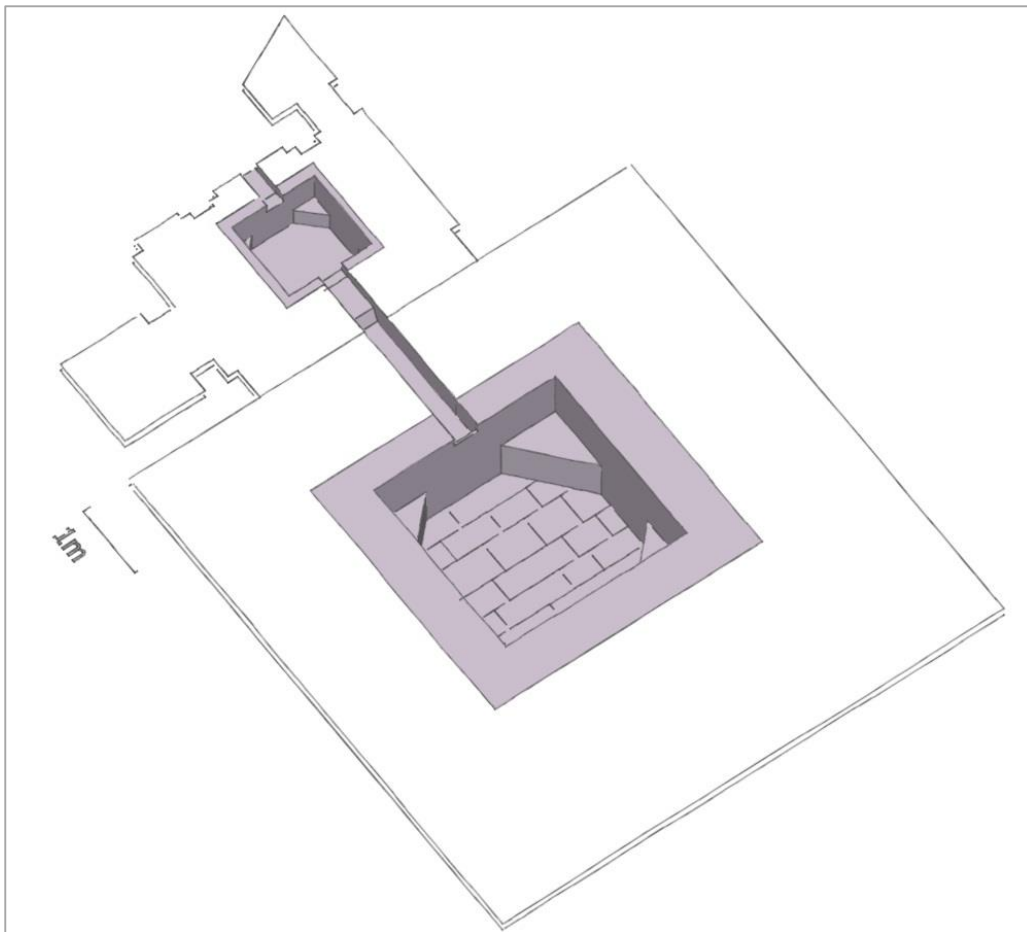
Figure 52 — Reconstructive illustration of the *fisqiya* of Bahgat's Maison III (sources: Bahgat and Gabriel 1921).
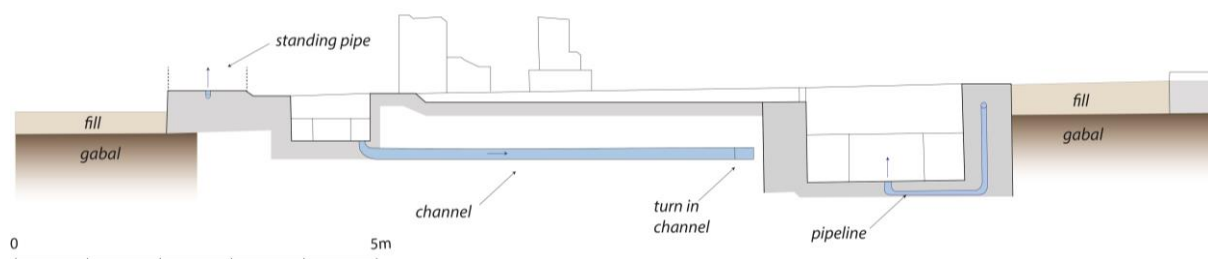
Figure 53 — North-west-facing section of *fisqiya*s of Maison III (after Bahgat and Gabriel 1921, fig. 15).
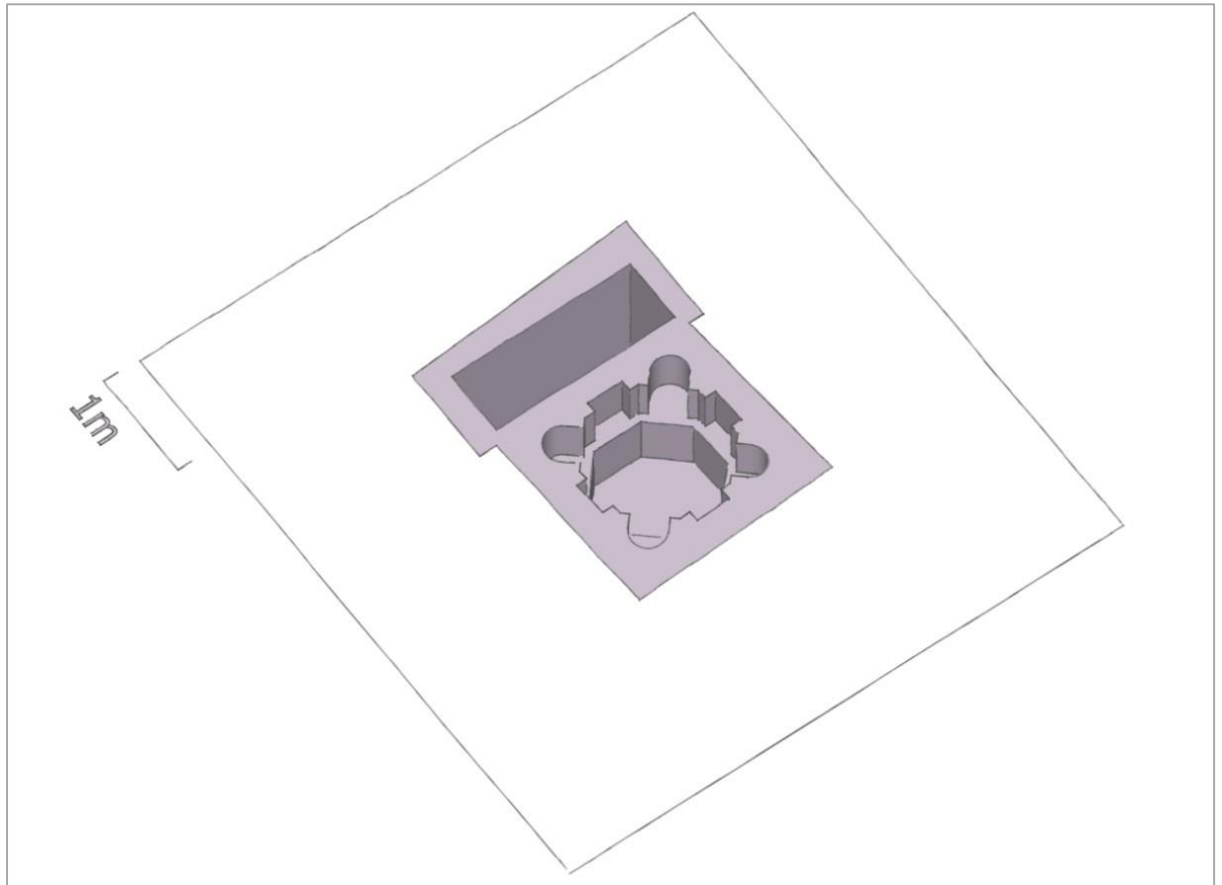
Figure 54 — Reconstructive illustration of *fisqiya* [603], including rectangular shrubbery trench. True extent of courtyard is uncertain, possibly larger than shown (sources: Scanlon 1981a, fig. 1, 409 ; section "a–a", plan III; plan II).
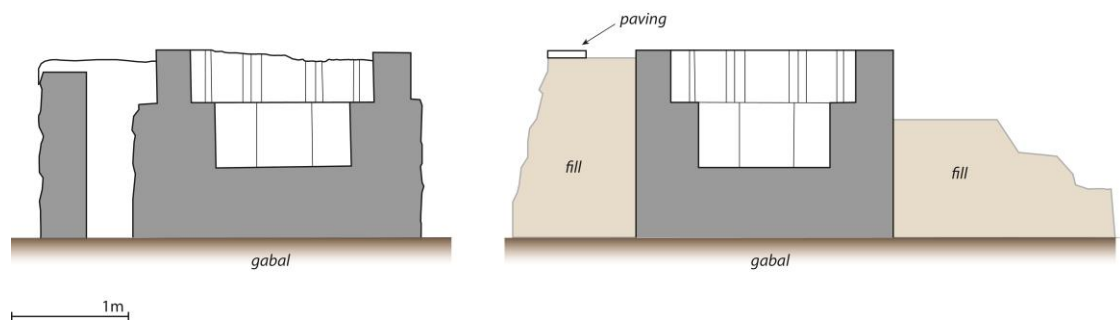
Figure 55 — West-facing (left) and North-facing (right) section of remains of *fisqiya* [603] (Fusṭāṭ-A, VIII-8, A-A') (after Scanlon 1981a, fig. 1, 409 and section "a–a", plan III)[61].

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[61] The base of the structure and height of *gabal* are shown at different heights in Scanlon's report on fig. 1 and plan III, preference is given to the former.

Archaeological Features Examined

As Figure 52 and Figure 53 demonstrate, multiple *fisqiya*s may be linked by runnels as part of a larger system. In such cases, at least one of the sources of water feeding the system appears to be located at the back wall of an open-fronted room adjoining the courtyard (note the vertical pipe in Figure 53) identifying these as examples of the *salsabil*. The *salsabil* is a device known from several palaces of the 11th century onwards, in which a wall-mounted waterspout feeds a linear arrangement of floor-level runnels and basins (Tabbaa 1986). In the example from La Ziza, a 12th Norman palace in Palermo, the water spout is placed in the back wall of a hall within a *muqaranas*-vaulted recess, pouring water over a device known as a *shadīrwān*—an angled slab of stone carved with a raised chevron design to agitate the water—descending into an open channel that runs down the centre of the hall to feed two pools (Figure 56).

One clear example of such a system is described by Scanlon—that centring on *fisqiya* [34] (Scanlon 1967, 66–7) placed in a large courtyard in north-eastern extent of Fusṭāṭ-B. Two further examples on a more modest scale are possibly suggested by remains shown in site plans: [140] and [141]. Bahgat recovered lion-head stone water spouts which may have been used within such devices, and a *shadīrwān* was recovered *in situ* within the *salsabil* of Maison VI (Bahgat & Gabriel 1921, fig. 21, 62).

Details of the water conduits that serve these features will be discussed in the following section.

6.1.2 Conduits

The vast majority of water conduits are rock-cut channels, usually between 0.4-0.7 metres wide and hewn up to 3 metres into *gabal*, though neither depth nor incline are systematically reported by Scanlon. Where the survival of remains above the level of the *gabal* prevails, one can discern that these channels were covered in various ways. Most common in Scanlon's excavations is the laying of stone slabs, boulders or halved colonnettes over the channel, sealed with mortar (Figure 57a). Bahgat illustrated a variation on this technique where slabs are placed into a rebate cut into the *gabal* (shown in Figure 58); while such a technique is not described by Scanlon it is suggested in some section drawings[62]. In other cases the channel is covered by brick vaulting, though this is appears relatively rarely in Scanlon's excavations, most likely due to robbing. More detailed illustration of the vaulting techniques used is given by Bahgat and Gabriel (a single example

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[62] One such runnel is that reproduced in Figure 68, below, connecting pits [169] and [168].

is reproduced in Figure 58). Alternatively, the conduits may be tunnelled through the *gabal*, rather than cut into it (Figure 57c; Figure 58).

Figure 56 — *Salsabil* **with marble** *shadīrwān* **in La Ziza palace, Palermo (Photo by Barbara Cipriani and Valentina Fazio / Courtesy of the Aga Khan Documentation Center at MIT)**
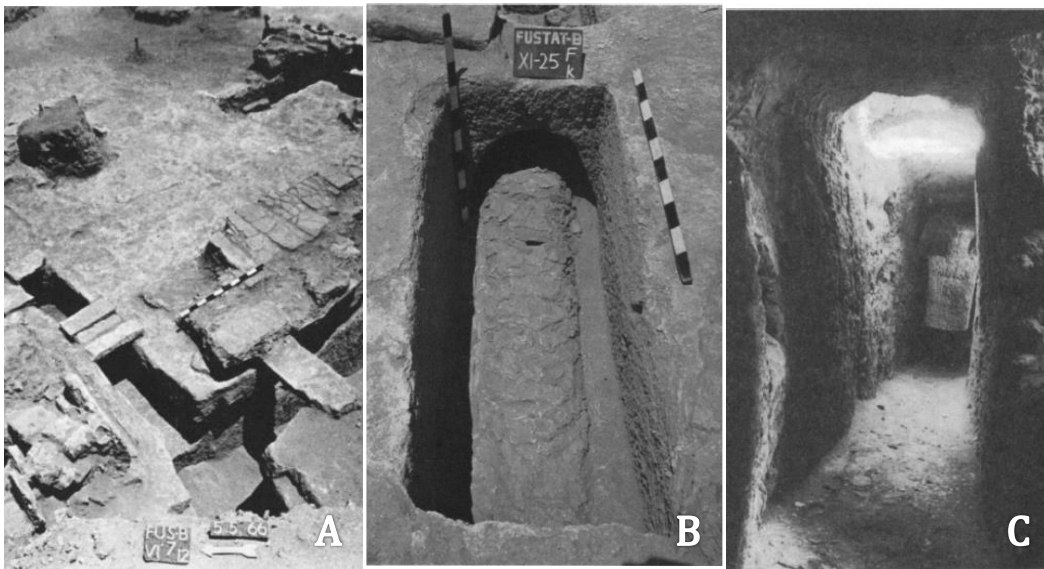
Figure 57 — Photographs illustrating techniques of constructing rock-cut channels. (A) Hewn into *gabal* **with mortared stone slab cover (Scanlon and Kubiak 1973, Plate Va) (B) Hewn into** *gabal* **with brick vaulting cover (Scanlon 1967, Plate Ia) (C) tunnelled through** *gabal* **(Scanlon 1982, Plate XVI c).**

At their smallest these channels consist of shallow runnels as little as 10cm wide, though features of this size are a minority. Small runnels might similarly be covered in with mortared stones, though one finds no examples of a brick covering on this scale.
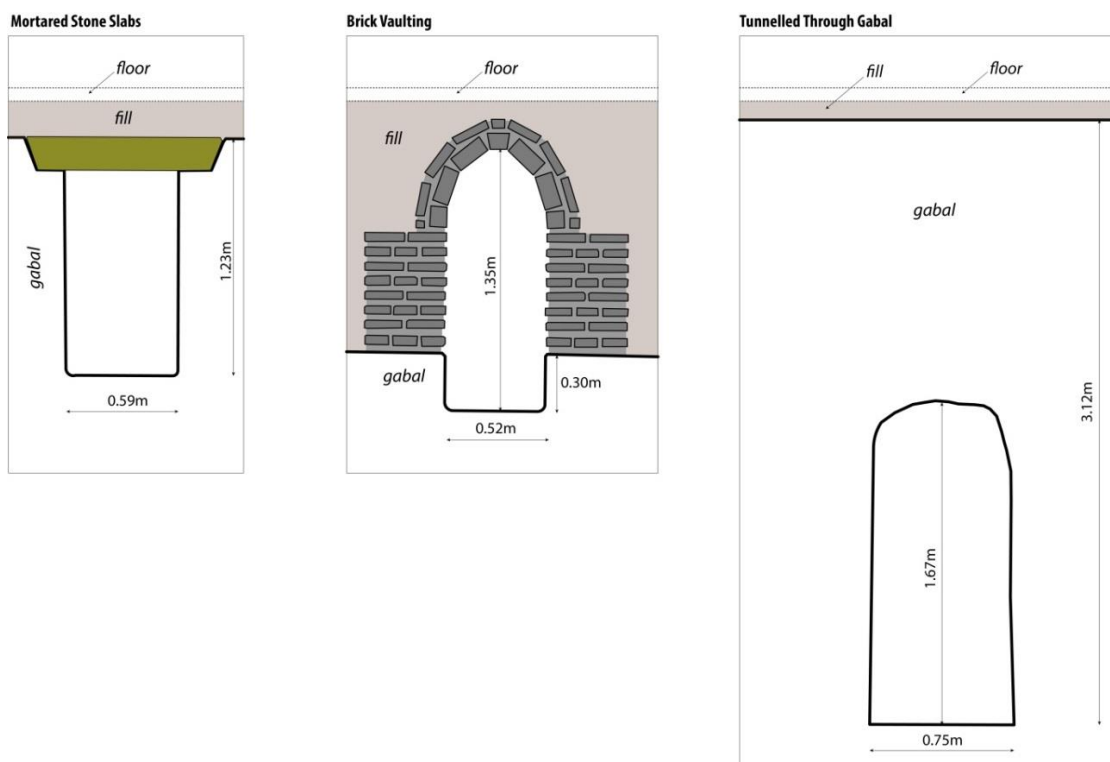
Figure 58 — Illustration of techniques for the construction of rock-cut channels (after Bahgat and Gabriel 1921, fig. 41 and 44; ; Scanlon and Kubiak 1980, fig. 7). Hypothetical fill and floor levels added for illustrative purposes only.

In virtually all cases at least one terminal of a channel connects to a pit or another channel, and in some cases provided a connection between two pits. Channels may also terminate under a wall in which a flue has been constructed. Wall-flues consist of vertical rectangular shafts within the masonry around 0.2-0.5m wide. Where walls survive to a significant height within Bahgat's concession, it is clear that these ascend at least one storey. The flues were considered by Bahgat to be for the evacuation of sewage from upper storeys, indicating the presence of first-floor latrines. While Bahgat considered that some flues may have served to evacuate rainwater from the roof, it is unlikely this was their sole purpose[63]. The channels into which these flues emptied in some cases also have intakes on the ground floor that appear to be for latrines. Of course, the implication here is that the channels, like the flues, are parts of a sewer system. No doubt running waste-water (and, rarely, rainwater) into this system would both facilitate the movement of sewage through conduits as well as dispose of these liquids. The channels and associated pits often form a small network—one or more seemingly serving a single home[64]—which terminates at a pit near the facade-wall of a house. This pit, as we shall see in the following section, was in some cases clearly equipped to be emptied by hand from the thoroughfare, confirming that this is a self-contained domestic system.

Figure 59 — Two wall-flues, emptying into different channels/pits, preserved in a wall in Fusṭāṭ-A (unspecified) (Scanlon 1965 Plate VI, fig.16).

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[63] Cairo receives only around 20mm of rain annually, but downpours can be heavy and cause damage to buildings that are not built with water-resistance in mind. Therefore, evacuating rain water into these flues from the roof would seem prudent.

[64] The use of sewerage systems to define housing units will be discussed below.

In addition, pipelines have been discovered, though these are far rarer than rock-cut channels. These consist of modular interlocking fired-clay pipe sections (Figure 60, below) joined by mortar that is—according to Bahgat (Bahgat and Gabriel 1921, 102)—made of lime mixed with either ash or *ḥumra*, giving the mixture water-resistance. Within Scanlon's excavations pipelines are almost exclusively found in conjunction with remains of *fiqsiya*, with some sections preserved that appear to run towards these features (Figure 61), as well as preserved *within* their masonry (Figure 62, below). The pipes often run within one or more sides of the *fiqsiya* near the top of the structure, indicating that here they are for supply rather than drainage, though no inlets appear to survive in Scanlon's excavations. Better preserved examples in Bahgat's excavation clarify the situation, showing pipes may run into the pool at the mid-point of one of its four sides, or in multiple corners. In the former case this appears to be through horizontal pipes, in the latter through vertical openings. In the example illustrated by Bahgat (shown in Figure 63) the vertically-aligned corner apertures also had surviving copper nozzles to direct jets into the centre (Bahgat and Gabriel 1921, 103). A variation is shown in the example from Maison III illustrated above (Figure 53) , in which the pipeline descends at the mid-point of one of the sides, turning horizontally to run within its base, finally turning upwards to fill the basin from its centre.
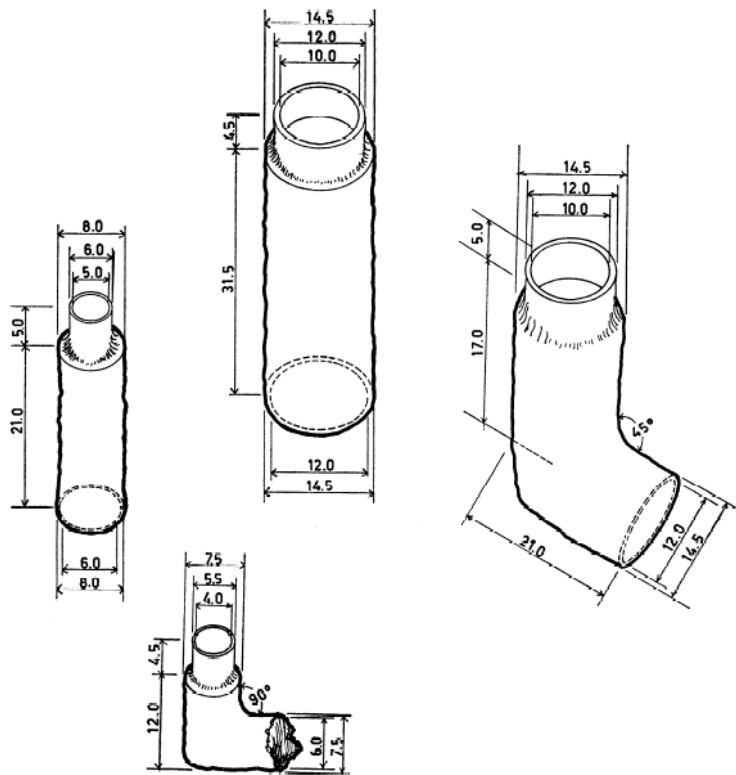
Figure 60- Examples of ceramic pipes, dimensions in centimetres (Scanlon 1966, fig. 10, 96)**.**
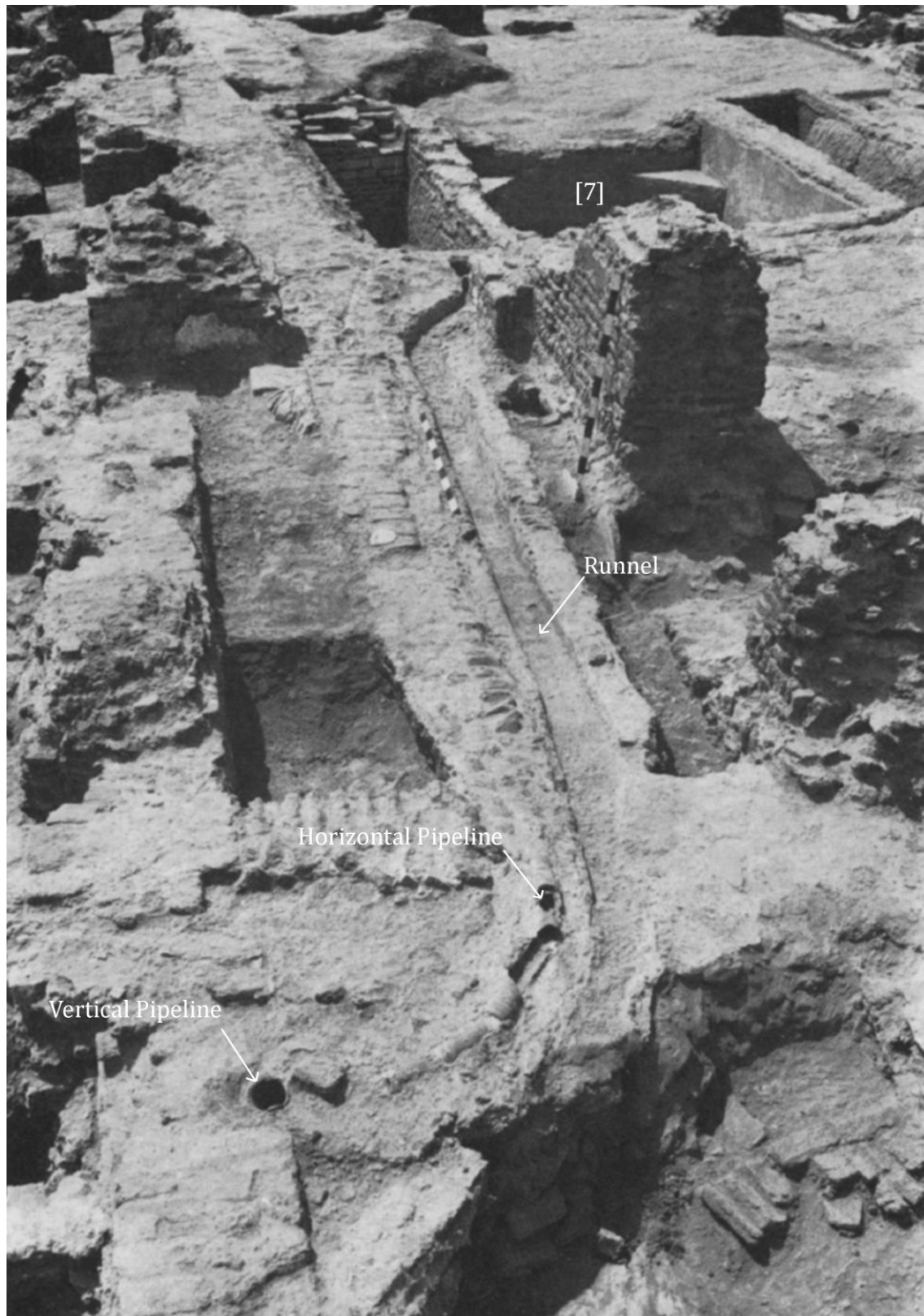
Figure 61 – Photograph of pipeline running towards *fisqiya* [7], with vertically-aligned pipe embedded in wall in foreground and parallel shallow runnel visible to right (Scanlon 1966, Plate XXXII, fig. 11).
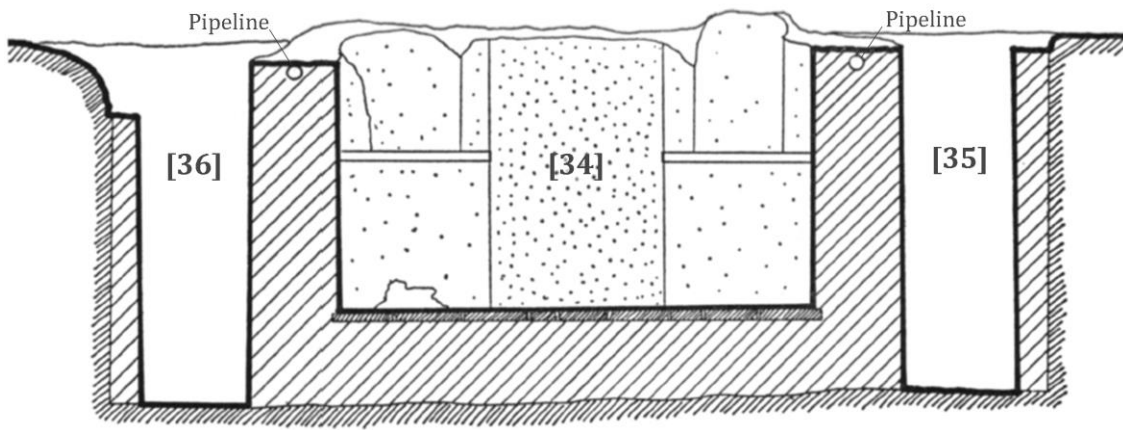
Figure 62 - Section through *fisqiya* [34], associated trenches [35] and [36], and pipeline(s) running through brick masonry on both sides of central basin. Roughly hashed area is *gabal*, dotted area mortar lining (Scanlon 1967, fig. 1b, 66).
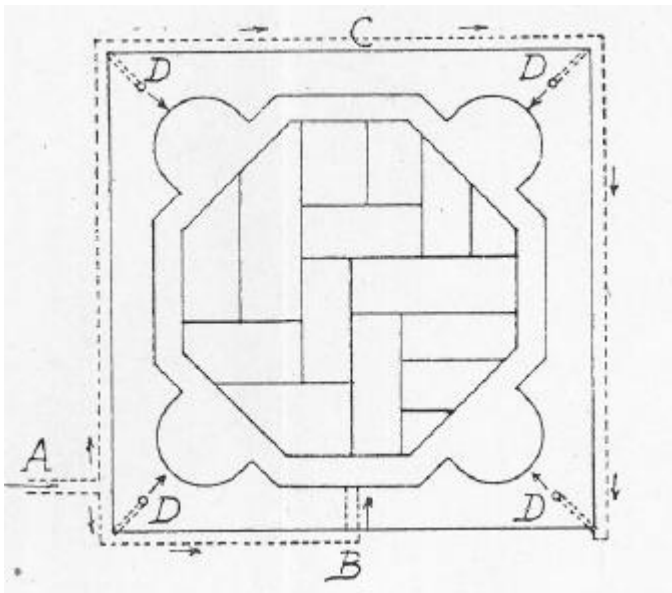
Figure 63 – Plan of *fisqiya* with surviving pipe outlets. Copper nozzles were recovered from the corner apertures (Bahgat and Gabriel 1921, fig. 22, 103).

The ultimate source of the pipelines' water is unclear, though where preservation is adequate the pipes can be traced across the courtyard, and potentially other adjoining rooms, thereafter running through the walls of the house. In several cases such pipelines immediately, or after running some length embedded within the walls, turn upwards, indicating that their source is at a higher level. This can be seen in two examples from Scanlon's excavations—one of the pipelines associated with the *salsabil* centring on [34] and that running towards *fisqiya* [7]—the latter is shown in Figure 61. Within Bahgat's Maison III and VI multiple pipelines are evident that come together at a single location

within the masonry, ascending adjacent to each other, presumably drawing on a single water source above (Bahgat and Gabriel 1921, fig. 22).

Clear examples of pipes used for drainage of water from *fisqiya*s are exceedingly rare. Only in Bahgat's Maison VIII and Scanlon's [34] is a pipe outlet present. The example in Maison VIII (Bahgat and Gabriel 1921, fig. 14; 22) has two outlet pipes: one at base level for complete emptying of the pool and another at a higher level, presumably acting as an overflow drain. The two waste pipes join, thereafter running for some distance before emptying directly into a pit. In the latter case the pipe, which opens from the base of the pool to allow it to be completely drained, runs only through the masonry and thence feeds into a vaulted channel that runs from the pool to a large pit (Scanlon 1967, 66). Within Bahgat's Maison III a unique arrangement occurs in which a channel appears to receive water directly from the base of the *fisqiya*[65], as shown in Figure 53, above (Bahgat and Gabriel 1921, 54). A proximal channel for [187] suggests it might have been drained in one of these two ways, though in general most *fisqiya*s in Scanlon's excavation show no evidence of drainage measures, suggesting either that this was conducted via pipelines that do not survive, or that water was filled periodically and simply evaporated away. Considering the almost complete preservation of the masonry of *fisqiya* [603] (Figure 54 and Figure 55), in which no drainage or supply pipes are evident, it seems likely that some were certainly filled by hand and evacuated only by evaporation.

Evidence of the use of pipes for the supply or drainage of features other than ornamental pools is scant, but not absent. There are four horizontal pipes cutting through a wall alongside brick-vaulted pit in Fusṭāṭ-A, removed from any *fisqiya*, the significance of which will be discussed below. Furthermore, a pipeline drains into a rock-cut channel from a room of unknown function in Bahgat's Maison IV (Bahgat 1923, 57).

The last kind of water conduit to be discussed is the aqueduct that was found running alongside a street in Fusṭāṭ-A: a low-lying brick structure with a stone-slab topping, carrying a ceramic pipeline composed of segments 37.5cm long and 18.0cm in diameter (Figure 64). A length of the aqueduct was dismantled in 1970 and a section of its construction drawn (Figure 65). The recovery of finds below the construction level indicated that it was built around 1000 (Kubiak and Scanlon 1973, 143). Despite the fact that, by Scanlon and Kubiak's estimates, the aqueduct was built around the same time at least one of the houses excavated on the opposite side of the street, it does not have any

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[65] The construction of this channel, and how it was plugged when the pool was filled, is unclear.

outlets indicating it supplied these buildings. In fact, no outlets appeared whatsoever when 170m of its length was revealed through pursuing its course to the south-west, heading towards the Mosque of 'Amr and Babylon. Its level relative to the houses is not recorded in any sections, though a rough estimate can be given by photographs, indicating the pipe may be up to 1m higher than floor level in the houses. Excavations east of Fusṭāṭ-B by the Egyptian Antiquities Organisation reportedly located what may be a continuation of this aqueduct, leading to a public fountain (*sabil*), though the remains have not, to my knowledge, been published (Kubiak and Scanlon 1973, n. 30).

Figure 64 – Aqueduct in Fusṭāṭ-A, facing east (Scanlon 1965 Plate V, fig.12).
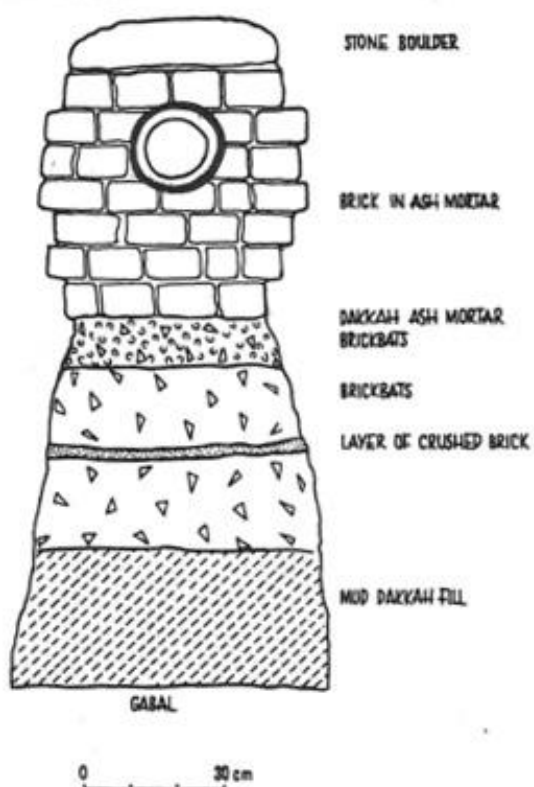
Figure 65- Section through the aqueduct in Fusṭāṭ-A (Kubiak and Scanlon 1973, fig. 5, 145).

Figure 66 – Aqueduct in Fusṭāṭ-A (in background) showing height relative to house foundations and flooring (foreground) (Scanlon 1965 Plate III, 6).

6.1.3   Latrines

Well preserved examples of latrine structures, feeding into the rock-cut channels or directly into pits were found within Bahgat's concession. An example is provided in Figure 67. Here a tall wall-niche terminates in stone-topped seat with a central slit, continuing on its outer face. This slit is above a *gabal*-hewn pit, which the adjacent wall-flue also empties into. Within Scanlon's excavations, latrines are suggested to exist not infrequently, but survive only as ingresses into channels or pits with minimal structural evidence. Most often, a channel terminal under a wall that has an apsidal void in its masonry at this point, rather than an enclosed flue, is taken to be a latrine. However, it is usually unclear which of the edges of this void represent finished masonry, rather than cut or worn edges. Considering the poor survival of masonry generally, that some of these were not originally flues cannot be known with certainty.

Figure 67- Latrine with adjacent wall-flue (Bahgat and Gabriel 1921, fig. Plate XVII, 2).

6.1.4   Pits

Pits most often appear as roughly circular openings in the *gabal*—though rectangular and irregular openings are not uncommon—either descending as a simple vertical shaft, widening to form a trapezoidal profile, or bulging after some depth to create a bottle-shaped profile (e.g. Figure 68 and Figure 69). Plans indicate that openings are an average of 1.55m wide, with a minimum of 0.45m and a maximum of 5.19m. Depths are not systematically reported, though for a minority indications are given—either in-text or through section drawings—suggesting a range of between 1.5m and 13m. The pits were often excavated as far as was practicable, not least because of their utility in providing artefacts that might be used to date the associated structures. However, in several areas groundwater filling these features made complete excavation impossible. This was particularly true of the southern extent of Fusṭāṭ-B and all of Fusṭāṭ-A, which were reportedly 4m lower in elevation than the northern area of Fusṭāṭ-B (Scanlon 1966, 86), though again no absolute heights are provided.

While the variety in depth and profile shape of pits would seem to suggest possible functional distinctions, as these characteristics are not consistently reported—or could not be established due to groundwater problems—they cannot be used a guide to pit function across the site. More importantly, correspondence between these characteristics and the other most logical indicator of function—their relationship to channel systems—is by no means clear. As discussed above, pits are often connected to *gabal*-hewn channels and flues, and therefore appear to form part of the domestic sewerage systems. Examples of these pits are provided in Figure 68. A great number of pits, however, show no connection to either pipelines or rock-hewn channels, making their function more elusive; examples of these are shown in Figure 69. Reference to just these few examples, selected from among those with published sections, illustrate the variety in depth and shape for pits with similar relationships to the channel systems, and, conversely, similarities between pits with entirely different relationships to these systems. Figure 68 shows that pits placed at the points of ingress and junctions within channel networks may have trapezoidal [168] as well as somewhat bottle-shaped profiles [169], though simple shafts survive elsewhere (e.g. [121]: Scanlon and Kubiak 1980, fig. 7, 92). Terminal pits seem to sometimes be distinguished by their large volume —such as [076] and [039]—though this is entirely contingent on the size of the system they serve; smaller examples have also been identified, such as [109]. They may also be either simple shafts or present wider profiles, resting somewhere on a spectrum between bottle-shaped and trapezoidal. The examples given of isolated pits in Figure 69 might initially give one the impression that such pits are generally

shallower than those associated with channels, and tend to be trapezoidal in profile. However reports indicate that several of the deepest pits are also isolated, such as [33], [44] and [131]. These are apparently in the form of simple shafts, as in the shallower pit [093].

Notches carved into the *gabal* at regular intervals of around 1m within some pits have been suggested by Bahgat to have either housed for wooden struts, or were foot- and hand-holds—in either case to aid the movement of people into and out of the pit (Bahgat and Gabriel 1921, 101). Again, these occur in both the terminal pits of channel networks, such as [109], as well as entirely isolated pits, such as [092] (illustrated in Figure 68 and Figure 69). As Bahgat remarked, these could be for the emptying of pits, but also for any maintenance or cleaning work, or even relate to their construction process. As such, they do not relate to any specific function of the pit.

Masonry superstructures survive in some cases, though only one of the pits has a masonry lining within its *gabal*-hewn extent (discussed below). Several well-preserved examples of brick domes covering pits survive, such as that over pit [169] (Fusṭāṭ-B, XXI-7, V), placed at the junction of three channels within a courtyard, illustrated in Figure 68. This dome covers a little less than three quadrants of the circular pit entrance, and seems to have once completely sealed the top of the pit. The only clear example of a complete surviving dome is that of pit [75]. Based on the photograph of this "low dome" (Figure 70), it appears that it sprang from below the lip of the *gabal* and sealed the pit off from the adjacent channel; it only indicates this pit was disused. This was the only completely sealed pit, protecting it from post-abandonment dumping and robbing of the mounds, though it was never excavated due to the problem posed by groundwater in the area.

As discussed, channel and pit networks often terminate at a pit near or under the facade of a house. This pattern is so dominant that where preservation of both street deposits and masonry is poor the existence of thoroughfares is hypothesised by Scanlon based on the presence of such terminal pits. Where masonry
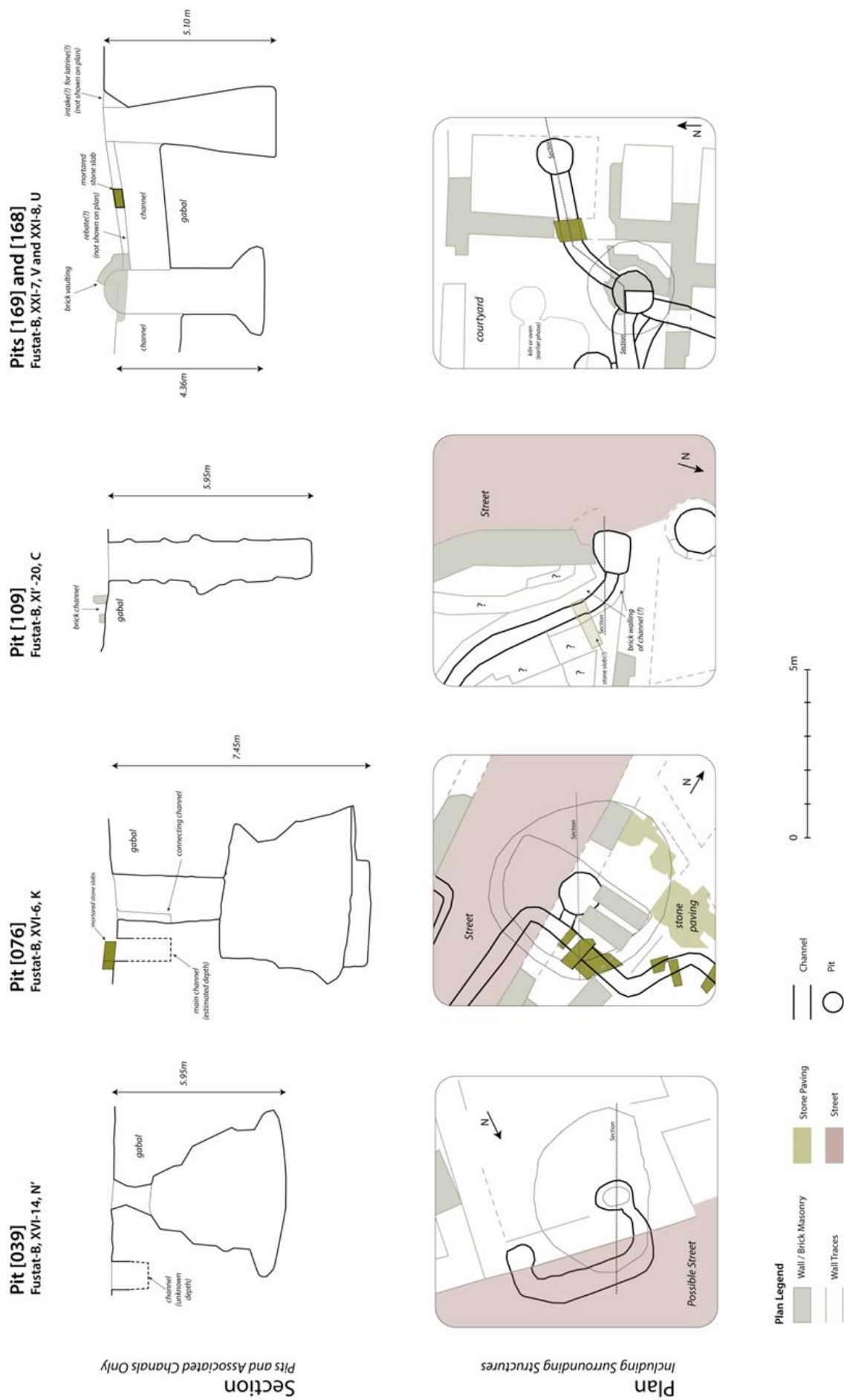
Figure 68 Examples of pits connected to channels

Pits [093] and [092]
Fustat-B, XI'4, D and F

2.44m

3.31m

gabal

street

Pit [163]
Fustat-B, XI'-6, A

3.67m

gabal

impasse

impasse?

5m

0

Pit [153]
Fustat-B, VI'-8, A

3.09m

gabal

pipeline

limit of impasse fill?

impasse

Pit [130]
Fustat-B, XI'-12, G

3.04m

gabal

intrusive wall

street

cuts in gabal

section

Section
Pits and Associated Chanals Only

Plan
Including Surrounding Structures

Plan Legend

Wall / Brick Masonry	Stone Paving	Boulder Walls
Wall Traces	Thoroughfare	Pipeline
Hypothesized Wall	Stone Slabs	Channel

Pit

Figure 69 Examples of pits not connected to channels

survives above such pits, it forms a superstructure designed to allow access to the terminal pit from the thoroughfare, doubtless for the pit's foul contents to be emptied from the street rather than from inside the home, and perhaps to access and maintain the system more generally. An example of such a superstructure, contiguous with the masonry of the facade wall, is illustrated by Bahgat and Gabriel (reproduced in Figure 71). This pit is fed by a flue and a channel, and the access is provided by a brick arch from the street. Bahgat also reports an alternative form: half of the pit extends beyond the line of the wall, and a semi-domed niche terminating in an arch covers the internal half, the external half covered by a stone slab or separate block of masonry that can be removed or demolished easily (Figure 72). An example of an entrance of the half-dome form is found below an internal wall of Maison II, leading Bahgat to the conclusion it could only have held waste-water, not sewage (Bahgat and Gabriel 1921, 53). Where the terminal pit is some distance from the facade wall, a simple arch may be extended as a *gabal*-hewn and brick-vaulted tunnel through the wall and under the floor of the house (Figure 73). Pits are often located only on the scant trances of walls, or on walls whose location can only be hypothesized based on surrounding fragments, in either case arched and domed structures may have once existed.

Figure 70 - Pit [75] (Fusṭāṭ-B, XXVI-14, A) sealed by low brick dome, canal covered with stone slabs
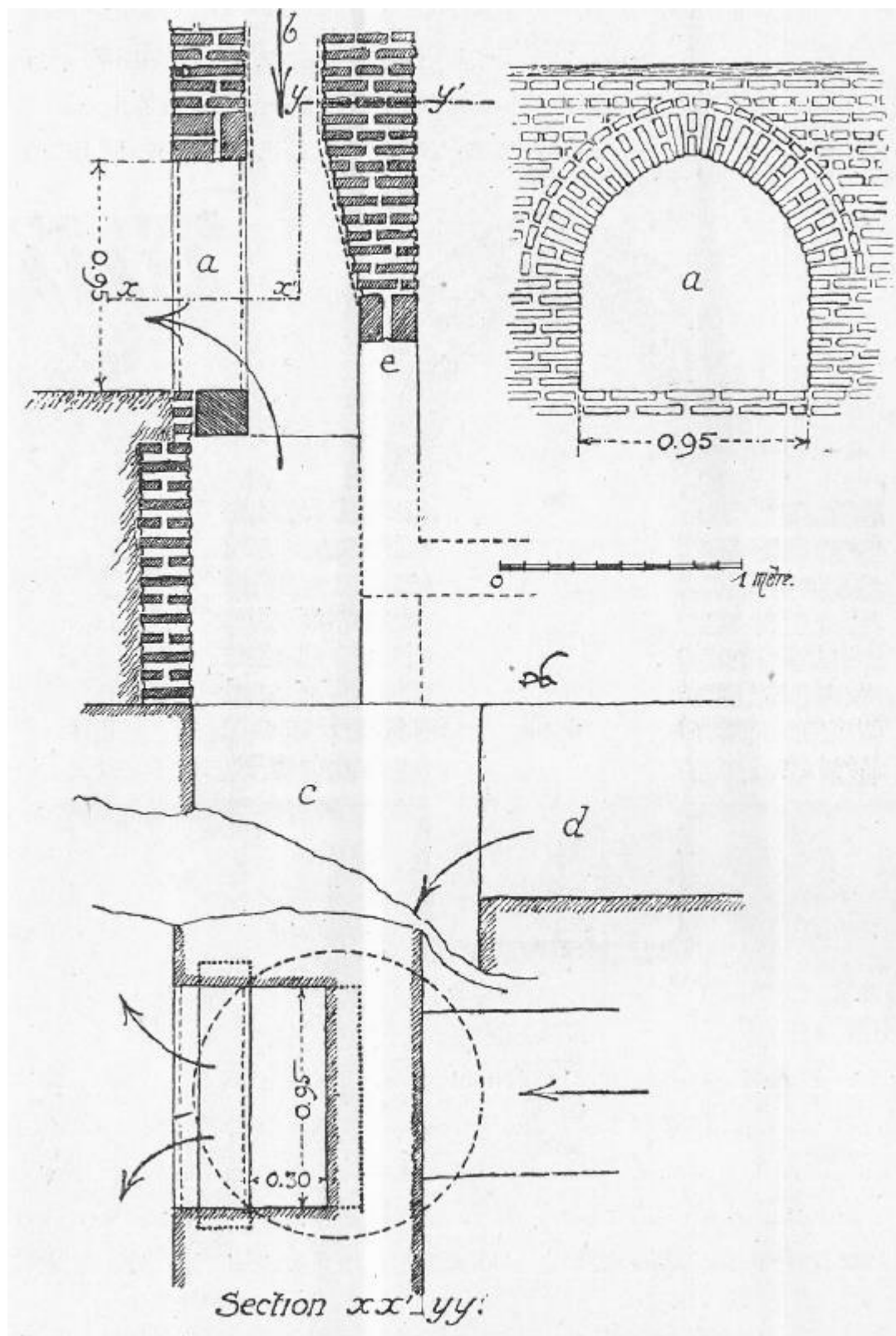
Figure 71 – Arch for accessing a pit from the street (Bahgat and Gabriel 1921, fig. 45, 103).
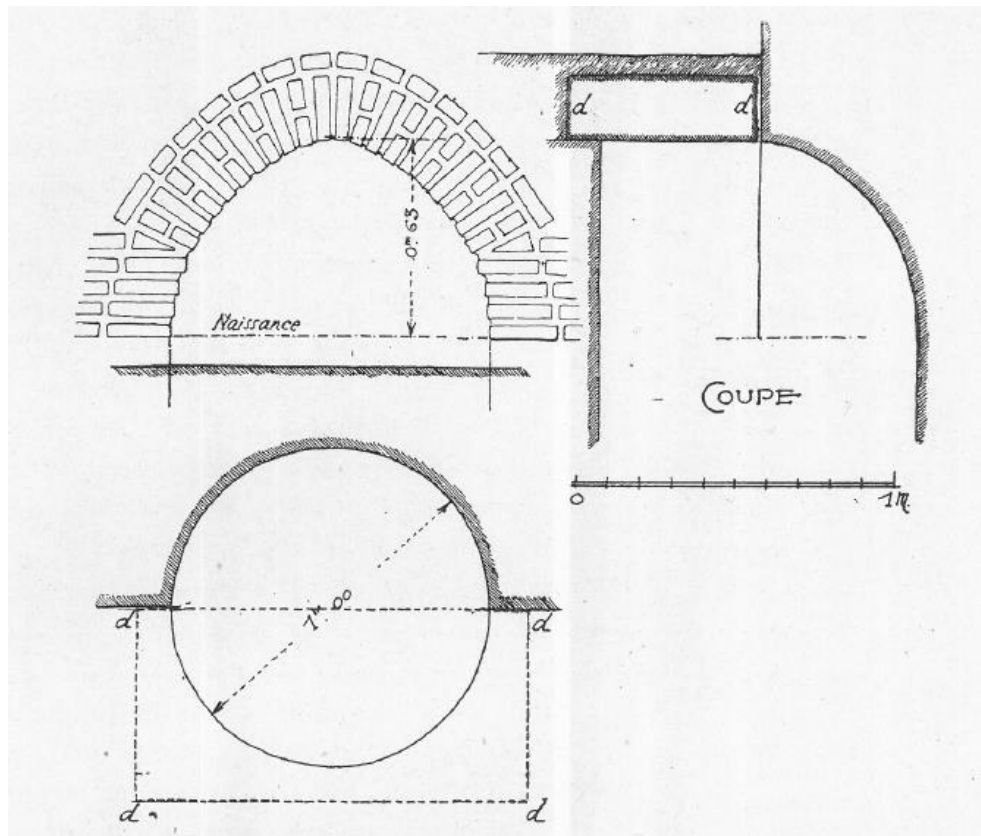
Figure 72 – Semi-dome for accessing pit from the street (Bahgat and Gabriel 1921, fig. 46, 99).
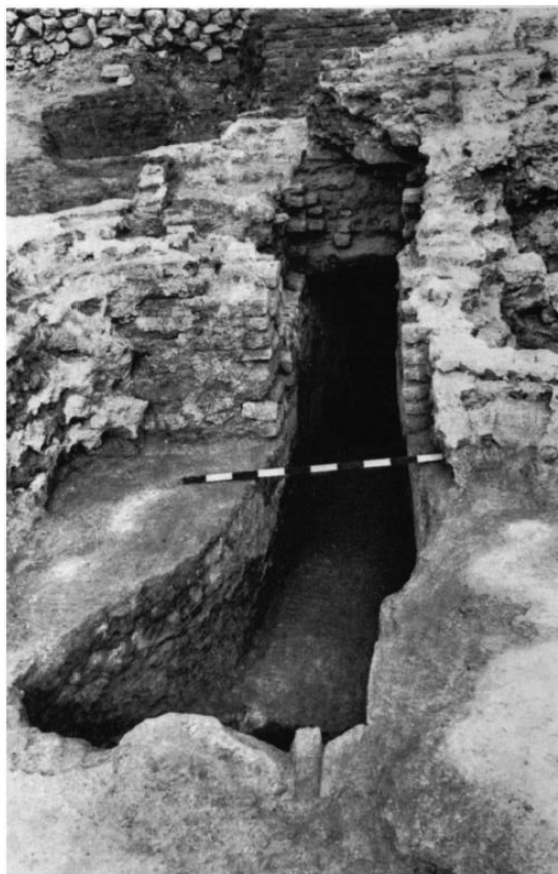
Figure 73 - *Gabal***-hewn tunnel with remains of vaulting, connecting arched entrance at street to pit [606] (in foreground) (Scanlon 1965 Plate VIII, 19).**

Scanlon describes examples of non-vaulted superstructures in which bricks (Figure 74) or roughly dressed stones (Figure 76) were used create an encircling wall to raise the profile of the pit beyond the level of the *gabal*. In the first example, granite slabs were found nearby that may have covered the top (Scanlon and Kubiak 1973, 100). As discussed in section 4.3.2, above, fill was laid over the *gabal* to create an even surface for floor construction that was clear of the foundation courses of walls, as well as channel and pit vaulting, in addition to its use over earlier floor surfaces as part of redevelopment. Therefore, if any pit was intended to be open and accessible from the floor level such a structure would be necessary to raise it through the depth of fill and up to, or above, the level of the floor. That this was the case in the preceding cases is undeniable as these, like many other pits, are not connected to channels, and so their functioning and maintenance must rely on some form of access from above (their proposed function is discussed below). While the aforementioned granite slabs suggest that some openings may have been as wide as the pit itself and only impermanently covered, one cannot preclude the possibility that these superstructures once narrowed[67], terminated in domes or half-domes, in their upper extent.

A unique stone superstructure allowing access to an unconnected pit [605] from floor level of a courtyard is shown in Figure 77. This structure overlies the pit to create a narrow opening, 40cm diameter aperture for a 100cm diameter pit, though its precise construction is unclear.

How instructive pit superstructures can be in interpreting the function of pits in general is limited. The preceding examples are photographed and described by Scanlon owing to their exceptional preservation. While Scanlon reports that in Fusṭāṭ-A "not one of these

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[67] An example of such corbelling inwards to narrow the shaft is given by Bahgat, and discussed below.

Figure 74 – Photograph of Pit [16] (Scanlon 1966 Plate XXXIII, 15).

Figure 75 – Photograph of Pit [44], on left, showing brick superstructure lined with plaster (Scanlon 1967, Pl.IVb).

Figure 76 – Sandstone superstructure with "foot and hand holds" of pit [165] (Scanlon 1974a, Pl. XXVIIIc)
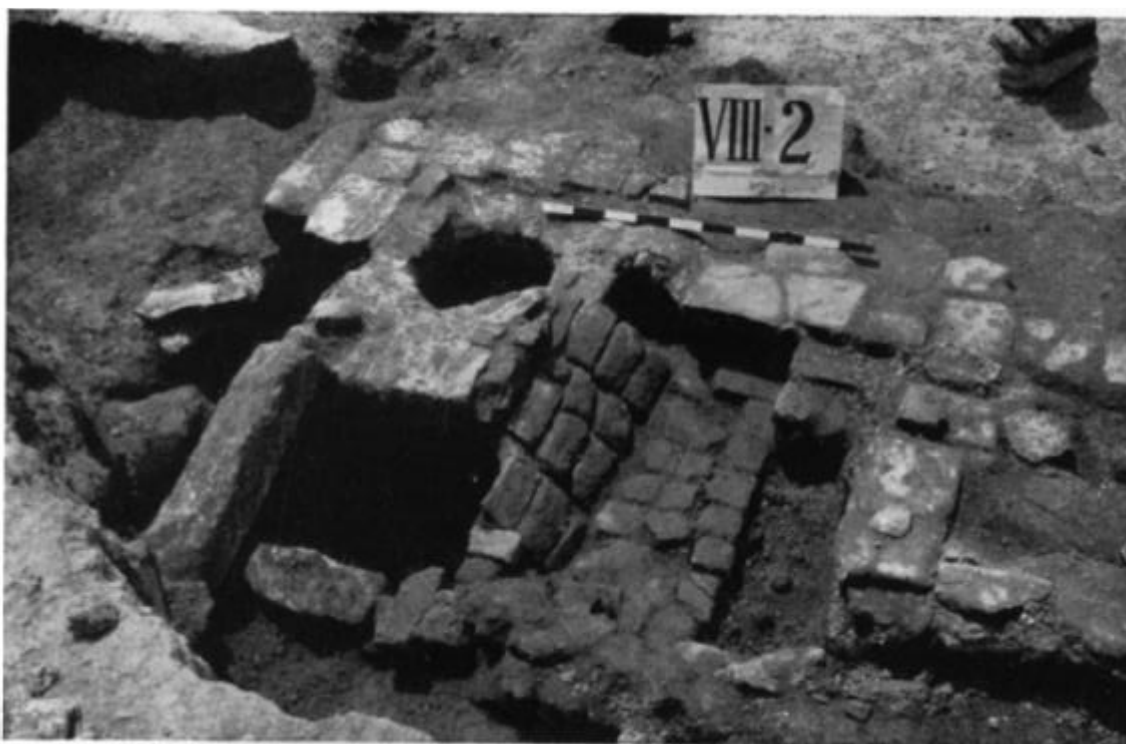
Figure 77 – Narrow pit [605] with stone covering (Scanlon 1965 Plate III, 5).

sanitation elements [channels and pits] was uncovered" (Scanlon 1965, 17), it is unclear whether this is a supposition based on a few examples or whether all had some kind of structural evidence present[68]. As such structures are not routinely described, sections and plans provide the clearest evidence of what kind of structure might be present, though sections are only available for a minority of pits and many lack detail on this scale. Plans sometimes indicate a ring around the pit, which may be a rebate in the *gabal* or surviving masonry, though the majority have no indication of any structure. Even where masonry can be identified, whether it is for the springing of a dome or for vertical walls is most unclear.

As discussed, pits without any evident connection to channels are common, though their interpreted function is more tentative. Scanlon summarised in his article *The Pits of Fusṭāṭ* a functional typology for the pits, in which distinctions are made between these sanitation systems and other proposed functions for isolated features (Scanlon 1974b, 63). Here, as expected, it is proposed that any potentially street-accessible pit linked to channels and/or a flue from above is proposed to be a "part of the sanitation system" that is periodically cleaned from the thoroughfare. In other words, it is a cess pit. Scanlon then proposes that pits "provenly beneath paving, servicing flues from above, and *en système* through canalization with a pit periodically cleaned from the street" are also part of the sanitation system. These criteria are actually too narrow, as the given examples of this category do not meet them[69]. Rather, Scanlon's intended meaning appears to be that if any pits are linked by a network of channels to a street-accessible cess-pit, but are not themselves street-accessible, including those that receive waste directly from overhead wall-flues and latrines, they are part of the sanitation system. To be more specific, I would surmise that such pits placed at terminals and junctions within the system *and sunk below the level of the connecting channels*, represent sumps to collect solid waste and therefore avoid blockage at these likely obstruction points (as in [169] and [168] in Figure 68, above). If

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[68] I presume that Scanlon uses "covered" to mean having a superstructure, including open structures that could be sealed with temporary covers such as stone slabs, rather than completely sealed from above by vaults.

[69] Pits K-J-V-U in XXI-6,7,8 are given as examples. Scanlon's criteria indicate that the pit must serve a flue from above ("and" not "or" is used in the list of criteria). There are no wall-flues preserved in these examples, and if Scanlon meant "flues" in the wider sense (including latrine outlets) these might be hypothesized to exist at U and K , but this is by no means certain. Moreover, pit V, placed at the intersection of three canals, was apparently sealed by a vault and therefore didn't receive any material from above. What is meant by "provenly beneath paving" is entirely unclear; all pits are cut below paving level. It may refer to being sealed below paving level by a vault, rather than having an open mouth at floor level or above (as implied by vertical encasing walls discussed previously) though indications of vaults are infrequently preserved, and almost never preserved in their entirety. More importantly, if pits service flues in the wider sense, at least some opening at floor level was present, a complete sealing below the pavement is impossible.

they do not descend below the channel level, one may surmise that they were acted only as openings for the ingress for waste (perhaps waste-water only if blockage was not deemed a potential problem) or man-holes, functions that the sumps may have additionally performed.

Regarding the function of unconnected pits, Scanlon proposes the following:

a) If the pit is brick-lined and/or plastered, it can be considered a "cache for drinking water".

b) If the pit is not bricked or plastered and is within the household and inaccessible from the thoroughfare, it is a "water-hold related to cooking, cleaning, toilets etc."

c) If the pit is not bricked or plastered and is within the household and accessible from the thoroughfare, but does not service a flue, it is a "general water hold for the domicile serviced from the street".

Firstly, it should be noted that (c) presents criteria that are not archaeologically identifiable. An unlined, street-accessible pit—that is one near or under a facade wall—that services a wall-flue from above it is deemed a cess pit, the same form without a wall-flue above is a water hold. The poor preservation of masonry throughout Fusṭāṭ-A and -B means that the existence of a wall-flue can most often not be determined with any certainty.

There are two far larger problems with Scanlon's categorisation of isolated pits. The first is that there very few examples of pits lined with either masonry or plaster. Three examples provided alongside these criteria in Scanlon's typology. The first two are neighbouring features discovered in 1964 in Fusṭāṭ-A (Scanlon 1965, 18). They are both rectangular in plan, descending into the *gabal* as vertical shafts. The smaller feature [607] measures 1.2m by 1.0m, while [608] measures 2.6m by 2.0m. In the initial report it is said that "both were faced with smooth brick and plastered", the larger [608] also having fragments of low brick barrel-vault covering it. However, reference to the section drawn when the site was revisited in 1973 shows that while the smaller feature [607] was brick lined, the other [608] simply has a brick superstructure resting *upon* the *gabal*. Whether

Figure 78 – Photograph of proposed water-holds [607] (foreground) and [608] (background)(Scanlon 1965 Plate IX, fig. 22).

Figure 79- Photograph of proposed water-hold [608]. showing four horizontal pipes above vaulting level in adjacent wall (Scanlon 1965 Plate VIII, fig. 20).

Scanlon meant that the plaster lined its hewn extent, laid upon the *gabal*, or simply that the brick superstructure was plastered is entirely unclear. The two could not be fully excavated in 1964 to determine the construction of their base due to groundwater filling the features, and this was still the case when their section was drawn in 1973 (see Figure 80, below). However, a solid line identifies the base of [607] in this section, though no mention is made of further excavation, indicating perhaps that probing identified its extent.

Scanlon's third example, Pit [44], has already been described above with regard to its brick superstructure. Here the photograph of the pit (Figure 75, above) shows plaster lining the inside of this brick superstructure, but again any description of plaster within its hewn extent is not given. In sum, the only feature can be said definitively to have a

Plan

Section

reconstructed
height of vault

brick vaulting

[608]

uneven rebate
in gabal for
vault springing?

groundwater level
1973

gabal

[607]

0

2m

Plan Legend

Wall / Brick Masonry

Wall Traces

Hypothesized Wall

Stone Paving

Channel

Pit

Pipeline (reconstructed from photograph)

Masonry (reconstructed from photograph)

Masonry
(shown in
photo)

[607]

Doorway

Masonry
(shown in
photo)

Doorway

Masonry
(shown in photo)

[608]

Brick
Vaulting

Step down
(shown in
photo)

Pipes, at level
above vaulting
(shown in
photo)

Section

N

Figure 80 – Plan and section of proposed water-holds [607] and [608]. Based on site plan and section (Scanlon 1981a Plan II and III), with added detail based on photographs (Figure 78 and Figure 79)

lining in its hewn extent, out of 239 identified pits, and even then the base has not been explored.

The most fundamental unaddressed issue with Scanlon's schema, however, is the physical characteristics of the pits' geology. The filling of the pits by groundwater during excavations in Fusṭāṭ-A and -B demonstrates that the limestone *gabal* is porous, yet how this apparent lack of water-resistance played out in antiquity is not considered. This presents a potentially large problem for the interpretation of at least two of the three proposed water holds for drinking water, but more crucially casts doubt on Scanlon's category of water holds for non-drinking-water, described in categories B and C, above. While the drinking-water hold category (A) does only seem to have three members, 109 pits are eligible for the latter categories (see Figure 81). Perhaps Scanlon assumes that the stone's porosity is so minimal as to suffer only negligible absorption of the contents, and that a lining is only necessary to protect the contents from the absorption of unwanted elements *into* the contents. Such unwanted elements could be the calcium and salts present in the limestone—or potentially sewage from surrounding sewers—making drinking water unpalatable or unhealthy.

Could the unlined pits have sufficiently retained water to function as water-holds? The recovery of waterproof mortar in relation to the pipelines and *fisqiya*s strongly suggests that such a lining was considered a sensible and not prohibitively costly measure for sealing fresh-water containers, though admittedly these are different structural and functional circumstances. Is it possible that water-resistant mortar linings once existed in all of these pits, but simply have not survived? The sheer number of these pits, combined with recovery of such mortar elsewhere seems to suggest this is unlikely. Or did the pits serve another function, whether as part of the water and sanitation system (soakaways, wells or further cess pits) or beyond (refuse disposal, grain storage)?

Fusṭāṭ-B

Fusṭāṭ-A

Legend

Pits

○   Connected

●   Isolated, Reported as Lined

●   Isolated, No Lining Reported

– – –   Pipelines

———   Channels

———   Aqueduct

     Walls

———   Wall Traces

- - - -   Hypothesized Wall

     Boulder Walls

     Streets

·–·–·   Limit of Excavation

N

0   10   20   40 Meters
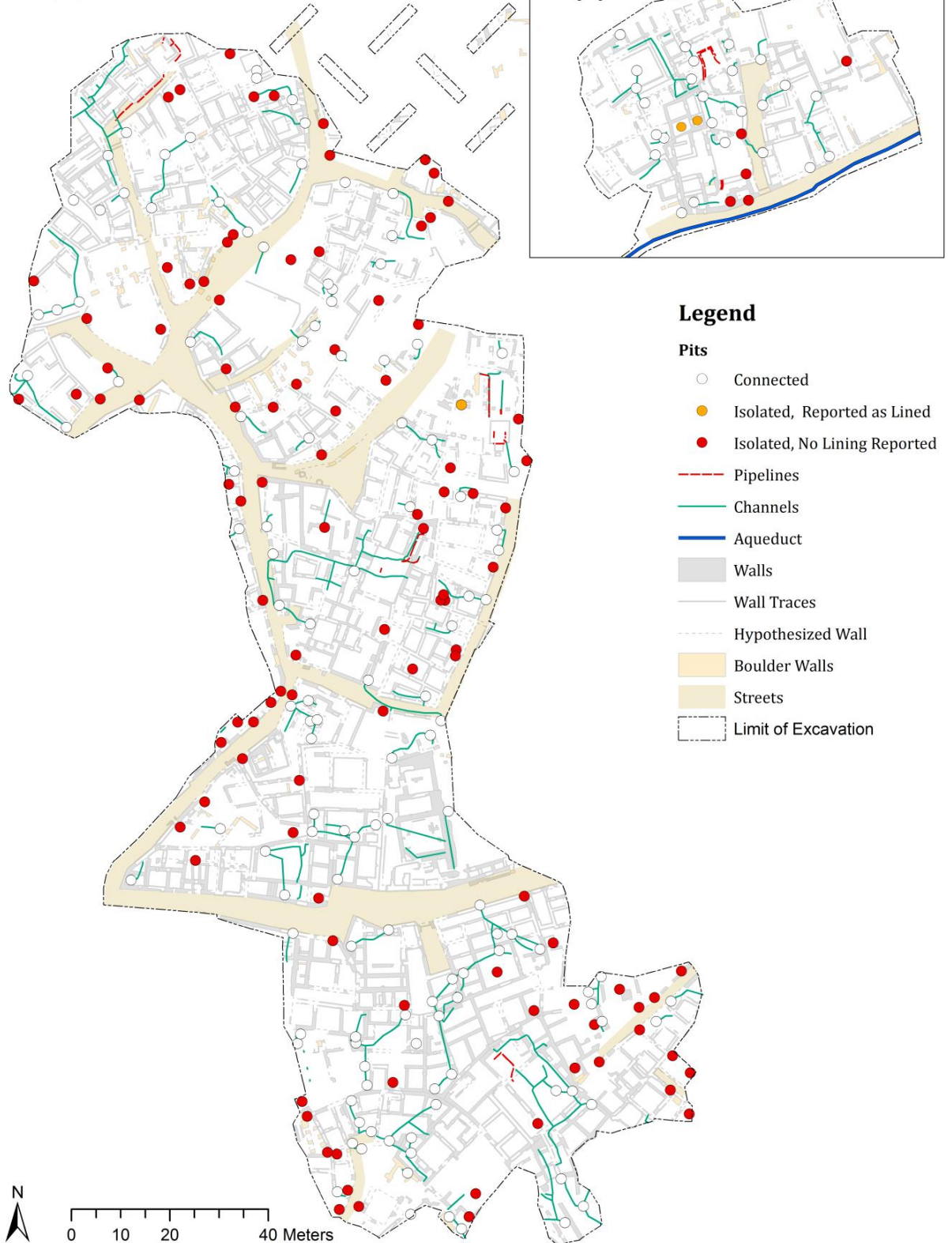
Figure 81 — Distribution of pits that are connect to the channel systems, and those that are not, highlighting those that Scanlon proposes are lined to hold drinking water.

Archaeological Features Examined

Discussion of whether some of the isolated pits may represent wells is conspicuously absent from *The Pits of Fustat* (1974b), considering the substantial depth of some of these features. If the pit was hewn to a level below the height of the ancient water table (which, it should be a stressed, need not correspond to the level encountered during excavations, as will be discussed below) the porous limestone would allow it to collect groundwater. Several of these isolated pits (including [106] and [605], shown in Figure 75 and Figure 77, above) were, in fact, interpreted as wells by Scanlon in early reports, though they were re-phrased as water-holds in later publications without any explicit justification. Moreover, some of the pits were identified as wells by Bahgat (1921, 101). The disappearance of wells from the discourse as a possible interpretation coincides with the publication of the article on "Housing and Sanitation" in 1970, in which a fuller interpretation of the water and sanitation system as a whole is outlined. This interpretation, which seems to be influenced by historical accounts of the city, provides Scanlon's wider justification for the interpretation of these pits as water-holds. It is therefore necessary to consider the system as whole as proposed by Scanlon, in light of historical as well as archaeological evidence.

6.2   THE WATER AND SANITATION SYSTEM

6.2.1   Scanlon's Proposed Water and Sanitation System

Scanlon's 1970 article *Housing and Sanitation* proposes that the following system of water provision in Fusṭāṭ, —placing the pits and channels into a wider functional context:

> "With a bed rock foundation and a river barely under control, the early settlers eschewed any canalizing from the Nile. Rather they used the *gabal* shelf and pack animals to solve their problems. At strategic points along the edges of the sprawling city, huge, roughly hewn pits were dug out of the bed-rock... Pack animals with skins of water would keep these reservoirs filled, moving day and night from the Nile to the pits. From thence water-carriers using donkeys or their own backs would move to and fro fulfilling the needs of houses, shops, ateliers, baths, mosques, and public fountains." (Scanlon 1970, 188–92)

It is proposed that such communal reservoirs have been excavated in Fusṭāṭ-B. They are pits [31] and [32] (C and M in XI-25[70] and XII-21) located on the eastern edge of the excavated area, directly adjacent to the elaborate *salsabil* placed in a narrow courtyard. The reasoning presented for such an interpretation of these features is their "huge" size—[31]

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[70] This is referred to as C in IX-25 in the article in question, erroneously.

has a 2.5m wide opening, reaching 4.4m wide at its base; M is 3.5m wide at its opening, and no indication is given that it widens in its lower extent—and the absence of any housing remains in the immediate vicinity and further east, supposedly indicating an open area for communal water collection and deposition to take place.

There are a number of reasons to doubt this interpretation. Firstly, the absence of any housing remains seems to be explained more easily by what was described as a "sharp break" in the *gabal* (Scanlon 1966, n. 5), sloping down to the east, its edge running north-south. No masonry is found east of this break seemingly indicating post-abandonment quarrying of the *gabal*—this interpretation is in fact put forward in the initial report (Scanlon 1967, 65). This hypothesis would also explain the relatively large size of the pit openings; if the *gabal* is quarried, these would simply represent the lower extent of pits with bottle-shaped profiles, their narrow openings having been truncated. If one discounts their wide openings, their size is not significantly different from other pits. A rough estimate of Pit [31]'s volume (based on extrapolating one side of its surviving profile in 360 degrees) shows it might hold 19.18m^3; this is not much more than an average isolated, bottle-shaped or trapezoidal pit such as [130] (Figure 69, above), estimated at 17.73m^3, and dwarfed by cess-pit [076] (Figure 68, above), estimated at 61.73m^3. Another issue is that pit [31] has a drainage channel running into it, that which drains from the base of the central fountain of the courtyard *salsabil*. While the possibility that the fountain water was re-used cannot be excluded, if the reservoir is for non-drinking water, that such a channel is never mentioned in the discussion of this proposed system is troubling.

Elaborating on the second stage of water provision, in which water is moved into domiciles Scanlon writes:

> "In time the internal hydraulic system became quite ingenious, and the water would be pumped by simple pressure to flow down into fountains and basins in court-yards. Within the domestic complex, distinction would be made between water for cleaning and cooking and that for drinking. The former would simply be put into a straight hewing into the gabal, bricked round and brought up to floor level; the latter into holds meticulously cut into the rock, smoothed, plastered and in some cases covered by vaulting." (Scanlon 1970, 192)

The proposition that isolated pits represent two different classes of domestic water-holds has already been discussed above, reiterated by Scanlon in the subsequent paper *The Pits of Fustat* (1974b). Considered in light of the system as a whole, further problems are evident. If distinction is made in the storage for drinking and non-drinking water in the domestic water-holds, then presumably similar methods would be used in the communal

reservoirs, otherwise the precautions made in sealing drinking-water in the former would be redundant. No such distinction is evident. Another sizable problem is highlighted within the passage itself, the need for the domestic water holds to be at a high-level in order to feed the *fisqiya* systems by gravity-flow, impossible in the case of these *gabal*-hewn pits.

Such a system also requires numerous trips to the Nile to function. A conservative estimate suggests that a communal reservoir [31], would require at least 214 trips by donkey to fill, encompassing 372 kilometres travelled, taking a team of twelve donkeys a day to complete[71]. The filling of a domestic water hold such as [130] from the communal reservoir on foot would take 887 trips, 160 kilometres travelled[72]. I do not mean to suggest that such labour is in itself implausible, only that by contrast a water-well, after the initial labour of construction, would provide the same situation—that is, a body of water below ground-level within the household—at no cost.

That Scanlon proposes such a system despite its relatively high cost, disregarding possible water-wells, must be explained by other factors. Most likely his hypothesis springs from a reading of historical sources, particularly descriptions of the city from Fāṭimid-era scholars [73], which indicate the Nile was the preferred source of water for Fusṭāṭ's inhabitants and that water-carriers moved it through the city. Though these are not referred to directly by Scanlon, commonly cited elements of these accounts clearly underlie other arguments in the paper[74]. It is therefore necessary to examine these sources, assess their reliability and what they suggest about the functioning of the water and sanitation systems.

6.2.2 Literary Accounts of the Water and Sanitation System

Nāṣir-i Khusraw describes the water provision of the Fusṭāṭ during the 11th century, in his book of travels (S*afarnāma*), thus:

> "The city of Old Cairo is situated laterally along the Nile and has many kiosks and
> belvederes so that the people could draw water in buckets directly from the river;

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[71] Pit [31] has an estimated volume of 19.18m^3. A donkey is assumed to carry 90kg maximum load, equal at most to 90 litres of water (omitting vessel weight). The minimum distance from the pit to the estimated course of the Fāṭimid Nile bank (i.e. measured *as the crow flies)* is 870m.

[72] Assuming no more than 20 litres can be carried, using the distance between this pit and [31].

[73] Goitein's synthesis on *Daily Life* in the Geniza had not yet been published.

[74] For example, Scanlon states that a single house contained a maximum of 100 tenants.

however, all water for the city is handled by water carriers, some by camel and some on their backs. I saw brass pitchers, each of which held three *maunds*[75] of water, and one would think they were made of gold. I was told there is a woman who leases out no less than five thousand of these pitchers for one *dirham* a month each." (*Safarnama*, 54)

Though the administration of the water supply is unclear here—whether one collects one's water personally or hires a water-carrier—the account apparently indicates that all water is drawn from the Nile and transported to homes by foot or pack animal. Still, no evidence of communal reservoirs is forthcoming.

Al-Muqaddasī's 10th century description of the city says of the Nile[76]: "from it the people draw their drinking water" (*Aḥsan al-taqāsīm*, 198). Al-Muqaddasī also comments that the town's water is palatable (*Aḥsan al-taqāsīm*, 198) and later opines that Nile water is, in general, the sweetest he has ever tasted (*Aḥsan al-taqasīm*, 198). It can be assumed that the same would not be said of the groundwater from those parts Fusṭāṭ set back from the banks of the Nile, which owing to the Eocene limestone of the *gabal* would be quite saline (Fitzner, Heinrichs, and La Bouchardiere 2002, 220).

This serves to confirm that the Nile was the source of drinking water for Fusṭāṭ, its distribution achieved by water-carriers, perhaps prompting Scanlon's interpretation of the archaeological evidence. Yet there is more to this picture; while Nāṣir-i Khusraw is vague on this matter, al-Muqaddasī is certainly referring to *drinking water* only. Both also make reference to the existence of wells. Al-Muqaddasi mentions, in a list of the city's shortcomings, that the city's water is "muddy" and the wells are "filthy" (*Aḥsan al-taqāsīm*, 200). Nāṣir-i Khusraw (*Safarnama*, 52) mentions that a well is used to water a roof garden, lifted seven storeys by means of an ox-powered water-wheel (*sāqīya*). While the latter is somewhat doubtful in its specificities, both seem to imply the use of well-water for non-drinking purposes.

Neither of these sources has a description of water and sanitation as their primary concern. Much can be clarified, therefore, through reference to "On the Prevention of Bodily Ills in

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[75] A *maund* is around 3kg.
[76] Actually, al-Muqaddasī is referring to the Canal of the Commander of the Faithful, though he erroneously considers the stream of the Nile separating the island of Rawda from the east bank to be part of this canal. He is thus simply referring to the Nile bank of Fusṭāṭ to be the source of the water.

Egypt" *(Risālah fī dafʿ maḍārr al-abdān bi-arḍ Miṣr)* by ʿAlī Ibn Riḍwān, an 11ᵗʰ-century Egyptian scholar, which devotes a chapter to the "peculiarity of the capital of Egypt concerning its air and all its conditions". Earlier in this work it is noted that most Egyptians drink from the Nile, and in his description of the capital it is soon mentioned obliquely that the inhabitants of Fusṭāṭ do so as well, as he admonishes them for disposing of animal droppings, carrion and sewage into the same river from which they drink[77].

While these initial comments are general, Ibn Riḍwān also differentiates among districts of the capital, noting particular conditions and habits. He describes how the majority of the city is within a low-lying depression (called ʿAmal Asfal by others), surrounded by the southern plateau of al-Sharaf and northern upland of ʿAmal Fawq. The latter is further subdivided into al-Mawqif, al-ʿAskar and the area of the Mosque Ibn Ṭūlūn (i.e. al-Qaṭāʾī'). Where to place the sites of Fusṭāṭ-A and –B in this scheme is by no means definitive, though as suggested in section 2.2.3-D the southward slope of Fusṭāṭ-B might place on the border of ʿAmal Fawq and ʿAmal Asfal. Fusṭāṭ-A and Bahgat's area are therefore part of the latter, but still somewhat peripheral. Ibn Riḍwān also describes al-Jazīra, Giza, al-Qarafa, and al-Qāhira. It is noted that the drinking water of al-Sharaf (*Risālah fī dafʿ maḍārr al-abdān*, (22a) and Giza (23a) is of high quality because it is drawn from upstream of the city's waste. In al-Qāhira, however, the inhabitants drink mostly well-water (*Risālah fī dafʿ maḍārr al-abdān*, 22a). Ibn Riḍwān expresses concern that "the proximity of the well water of Cairo to the surface of the earth, combined with the thinness of the soil, makes it inevitable that some of the waste from the latrines reaches the underground water by secretion" (*Risālah fī dafʿ maḍārr al-abdān,* 22b). Still, it is reported that the inhabitants of the new did city drink some Nile water, particularly in the months following the inundation, when the nearby Canal of the Commander of the Faithful was filled with water. The flood waters were also stored in temporary lakes (Birkat Qārūn and Birkat al-Fīl) between al-Qāhira and Fusṭāṭ, some of which would have served as convenient water sources for northern districts of Fusṭāṭ. However, Ibn Riḍwān's account indicates this water is "ruined" by its salinity, stagnancy and the fact that sewers from al-Qāhira run into it (*Risālah fī dafʿ maḍārr al-abdān,* 22b).

Ibn Riḍwān's initial general comments seemingly refer to the low-lying, central part of the city. No specific account of water provision in ʿAmal Fawq is given, leading one to assume that it followed the same pattern as that specified generally. However, the fact that Ibn

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[77] That this refers to direct emptying through a sluice, rather than the eventual dumping of hand-emptied contents into the river is confirmed by reference to documentary sources, discussed below.

Riḍwān's general comments state that "the sewers from their latrines also empty into the Nile" (*Risālah fī dafʿ maḍārr al-abdān*, 21) casts doubt on such an assumption. The archaeological evidence from Fusṭāṭ-A, B and Bahgat's area indicate that sewers here were emptied by hand via the streets. This suggests that the author generalised based on the area immediately around the Mosque of ʿAmr, and up to the Nile—an area which, at one point, he explicitly delimits as particularly unhealthy—but that in ʿAmal Fawq and even outer parts of ʿAmal Asfal[78] other arrangements may have existed. While this presents the possibility for use of well-water for drinking, through comparison with al-Qāhira, a home in the latter is two or three times more distant from the Fāṭimid-era Nile bank (when the canal is not flooded) than the excavated areas. The only circumstance under which drinking the more saline well water would seem desirable in the excavated areas is when the Nile was at its lowest, in late spring, when, Ibn Riḍwān reports "an abominable smell arises from it" (*Risālah fī dafʿ maḍārr al-abdān*, 24a), providing that the water table was still accessible at such a time.

Yet nothing is said here of use of well water for other purposes (watering animals, washing clothes, filling pools, etc.). Such activities are not as important within Ibn Riḍwān's understanding of the causes of disease. Use of water in pools and fountains to cool the house features in his advice for preventing disease, as a means to avoid unnatural imbalances of temperature, though the source of this water is not worth regarding for him.

Overall, these literary sources suggest that Nile water was the preferred drinking water for the districts of the capital that were sufficiently close to its banks, or, during the inundation, close to temporary bodies of water. What might be considered sufficiently close is unclear, and a tendency to generalise based on the area around the Mosque of ʿAmr and westward obfuscates things somewhat. As a guide, the reliance on well-water for drinking is only mentioned for al-Qahira, some 2-3km from the Nile waters outside of the inundation, and there is no reason to suppose that this was the case in the excavated areas, 1km or less from the banks. Still, Ibn Riḍwān's account of the relative ease of accessing groundwater in al-Qahira, further from the Nile and more elevated than the excavated areas, together with the descriptions of wells in other accounts, strongly suggests that these would be used for non-drinking water.

6.2.3   Documentary Accounts of the Water and Sanitation System

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[78] Indeed, the area of al-Ḥamra, running along the Nile bank further to the north of the Mosque of ʿAmr, running up to the west and north-west of ʿAmal-Fawq, is grouped together with ʿAmal Fawq for its higher quality air.

Archaeological Features Examined

As has already been noted, Goitein's assessment of the Geniza indicates that the Nile provided drinking water while well-water was used for other purposes (see 5.5.2). In house descriptions the *qāʿa* regularly had a well (Goitein 1983, 68), and upper storey tenants had to obtain rights to access this well, suggesting that such tenants would not consider collecting Nile water for all of their domestic needs, only drinking. This would seem to settle the matter, were not for the geographic variability indicated by Ibn Riḍwān. The Geniza houses were likely to be more central than those in excavations, so can the same model be applied?

Evidence for sewerage indicates the Geniza houses differed in their infrastructure. While expenditure relating to the construction and cleaning of sewers (referred to as *qanāt*s)[79] appear in at least one document from the Fāṭimid period—TS Box K 21, f. 98[80]—regular payments for the emptying of cess pits do not. This is perhaps accounted for by the fact that one sewer in this document is described as emptying into directly into the Nile [81], confirming Ibn Riḍwān's observations.

In contrast, regular payments for "dust" (*turāb*) removal—referring to refuse (Goitein 1983, 35)—are encountered in accounts of the *qodesh*. Where this refuse had accumulated before disposed of is crucial, if one wishes to discount the possibilities that these payments pertain to either cesspits in which refuse is also dumped, or that some of the excavated pits are specifically for refuse. An account including "dust" removal for the synagogue refers to the refuse as by the door/gate of the building (TS Box J 1, f.32 A46 [c.1200 AD]: trans. Gil 1976, 396). This description, along with the identification of disposal units (brick bins), as well as simple unbound midden deposits, running between a central strip of street surface and the walls of houses in Fusṭāṭ-B (Scanlon and Kubiak 1973, 19) suggest that refuse accumulated in streets before removal. Presumably its removal was to an extra-urban location or disused urban land, as indicated by the post-abandonment accumulation of mounds in Fusṭāṭ.

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[79] Gil and Goitein both translate this as "pipe" for wastewater and sewerage, though considering the Persian origin of this word to describe underground rock-cut channels for fresh-water supply, hewn channels are more likely.

[80] "Cleaning of the pipe [qanāh] of Dār al-Ḥaffār. 8 dirhems", written c.1037 AD (Gil 1976, 156).

[81] "For the work at the construction of the drain pipe of Dār Quṭayṭ and its outlet at the Nile, 18 dirhems" (Gil 1976, 156).

A cesspit-cleaner also does not appear among the hundreds of occupations listed for Jews in the Geniza, causing Goitein to suggest that this work was undertaken by the government through private contractors. Bahgat notes that cess pit cleaners do appear in *ḥisba* manuals, indicating at least oversight by the government through the *muḥtasib*. Bahgat quotes a manual (the exact reference is not given), which states:

> "The emptiers must have the initiative to take their work honestly and must not throw bricks and ashes in the pits to pretend that the work is complete. They must quote a price for their labour *before opening the pit* because once this opening is made, the customer would be forced to yield to their demands." (Bahgat and Gabriel 1921, 98, no. 1, my translation from French)

Cisterns (*maṣāniʿ*, sing. *maṣnaʿa*) are apparently mentioned in Geniza documents only in descriptions of houses in Alexandria (Goitein 1983, 63). This accords with literary sources—al-Muqaddasī (*Aḥsan al-taqāsīm*, 197; 201), Nāṣir-i Khusraw (*Safarnama*, 39) and al-Masʿudī (*Murūj al-dhahab*, 2.364, cited by Cooper 2014)—where the use of cisterns for storing drinking water is regularly reported and discussed for two towns of the delta: Alexandria and Tinnīs. In both cities communal cisterns were filled during the Nile flood. In Alexandria it was only then that the canal linking the Nile to the city was filled, while in the case of Tinnīs it was the only time that the water of surrounding Lake Manzala was not too brackish too drink (Cooper 2014, 218). Goitein indicates that in Alexandria this communal store was complemented by domestic cisterns, which existed in even the most modest house. Whether these were for storage of rainwater—Alexandria having 189mm average annual rainfall, compared to Cairo's 20mm—or for personal storage to protect from the exigencies of the communal cistern supply is unclear.

6.2.4 Isolated Pits Reconsidered

The preceding assessment casts doubt on certain aspects of Scanlon's proposed water provision system, yet it does not discount the possibility that some of the isolated pits may represent water-storage devices. While there is insufficient evidence to support the proposed communal water-holds, the provision of drinking water from the Nile to households via water carriers is clearly well attested historically. However, though historical sources emphasise a reliance on the Nile for drinking water and the use of water carriers in the city, one cannot necessarily extend this to water provision in general, as Scanlon has proposed. The sources also demonstrate local variation and seasonal flexibility in water and sanitation strategies in the greater urban area, including exploitation of groundwater and temporary lakes. These provided poorer quality water, but even groundwater might be used for drinking purposes if the Nile was some distance away.

Archaeological Features Examined

Moreover, documentary sources fail to mention domestic cisterns for either drinking or non-drinking water in Fusṭāṭ as proposed by Scanlon, rather suggesting short-term storage of Nile water in vessels for drinking, and simultaneously emphasise the importance and prevalence of wells. This does not prove the existence of wells in the excavated areas—the local variation in strategies and geographic bias of the Geniza must be considered—nor does it prove that no pits could have functioned as water-holds. Disproving the water-hold hypothesis remains impossible as long as the porosity of the limestone and extent of the recovered linings remain unknown quantities. Moreover, that cisterns existed somewhere, despite their absence from documentary descriptions, is implied by the pipelines feeding *fisqiya*s, whose spouts must have been fed by a gravity-flow system.

It is clear, however, that other possible functions must be considered. Not least, the evidence gives a strong basis to suggest that some of the pits may have been wells. The natural way to test such a hypothesis would be to compare the depth of the unlined pits to the ancient water table. Such a course of action, however, is highly problematic. The water table of Greater Cairo has changed drastically since construction of the Aswan High Dam (1960-70). The rising groundwater in the city became a serious problem, and remains so today, both for modern developments and ancient monuments. This has prompted a large body of research on the changing water table and measures to mitigate its rise, monumental conservation efforts and archaeological prospection as part of mitigation works. This work has including modelling of the contours of the water table height across Cairo based on data from numerous observation wells. One cannot, however, simply subtract the rise caused by the construction of the High Dam to return this model to a "natural" water table from antiquity. The rise was caused by the changes to the river, but also to the leaking of large amounts of waste-water from Cairo's inadequate sewerage system—around 10% of this waste-water is thought to enter the water-table. Furthermore, modern pumping stations across Cairo remove enormous quantities of groundwater from their surroundings. All of these anthropogenic factors have altered any natural pattern beyond recognition. One must also consider that anthropogenic factors must have contributed to the medieval water table. The excavated sewerage systems of Fusṭāṭ were unlined; a constant supply of waste water was therefore absorbed slowly by the *gabal* through channels and pits across the site.

Any reconstruction of the water table would be highly tentative. Before considering such a prospect, can one determine anything based on the pit depths *per se*? The impression given by Ibn Riḍwān of al-Qāhira's groundwater extraction and sewerage systems is that due to the exceptionally high water table there, combined with the thinness (porosity?) of the soil (land?) meant that sewerage would be absorbed through the limestone into surrounding

well-water. This suggests that the norm, as one might expect, would be for the sewerage to be at a higher level and the wells at a lower level. This would reflect an economy of labour, only expending effort on deep mining where the groundwater depth necessitates, if not an explicit concern for such contamination. The bulging profiles of cess pits suggest that if volume in sewerage systems was needed, undercutting to gain width was often preferred, perhaps not least because of the difficulties in descending and working within deep and narrow spaces when emptying these pits.

Assessing whether the isolated pits, whether in general or a particular subset of them, are distinctly deeper than those pits definitively associated with waste systems is problematic. As discussed, only a minority of pits (*n*=37, 14%) have their depth reported or discernible from sections, of this number 17 are connected and 20 are isolated. Indications from this small sample, however, do suggest some differences in depth between the two groups. Table 1 and Figure 82 illustrate that while both samples have similar means, the distribution for isolated pits is far more dispersed—showing greater variance and range—and skewed, with a low median and a long tail of deeper pits. A histogram (Figure 83) illustrates in greater detail that the isolated sample shows a high number of pits below 4m in depth (*n*=14 or 70%, relative to *n*=8, 47% for connected pits), as well as a greater number between 6-12m in depth (*n*=6 or 30%, relative to *n*=2, 12%), but none between 4-6m (these account for 41% of connected pits). The deepest connected pit is 7.45m, while four isolated pits surpass this depth reaching a maximum of 12.5m. Shapiro-Wilk tests confirm that while the connected sample is normally distributed (*p*=0.299), the isolated sample is not (*p*<0.001). The distribution of isolated pit depths is suggestive of a bimodal distribution—consisting of two groupings, one slightly shallower than the mean depth of connected, and one considerably deeper—though considering the small sample size it is unclear whether this pattern is significant.

Figure 86 shows the known depths of isolated and connected pits across the sites. Particularly deep pits, those that make up the long tail of the distribution, are found principally in the northern part of Fusṭāṭ-B. This is entirely unsurprising, as groundwater farther south put a halt to complete excavation of all but shallow pits.

Table 1 – Descriptive statistics of depth for isolated and connected pits.

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Isolated	17	5.39	2.06	7.45	4.25	1.66	2.771
Connected	20	11.11	1.39	12.5	4.45	3.58	12.842

Archaeological Features Examined

Could the deeper "tail" of isolated pits, have functioned as wells? Without knowing the height of the water table across the sites in the medieval period, as well as the absolute height (above mean sea level, MSL) of the *gabal* at each pit's location, one cannot know. One could take, however, as a crude measure, the height of the Nile (measured at the Nilometer on Rawda from the 7th century) as the minimum water table height. Height of the *gabal* across the site can also be crudely estimated. Topographic information for the site before much of it was urbanised, was published as part of a map of Cairo produced by the US Army Engineers in 1958. Contours (5m resolution) of the Fusṭāṭ area from this map were georeferenced, and an elevation map interpolated (IDK algorithm, using ArcMap 10.2.1). The interpolated topography is shown in Figure 86, relative to the excavated areas, and historical landscape. This confirms the slope of Fusṭāṭ-B towards the south. Fusṭāṭ-A is firmly in the relatively flat depression of around 25m above MSL, slightly lower than the south of Fusṭāṭ-B. The level derived from this topographic survey represents the level before excavation, presumably on top of the mounds. Scanlon does not consistently report the depths of the mounds, but indications are occasionally given, indicating that mounds were between 2-4 metres in height before and "excavation level" was reached. Sections indicate that a metre or more may separate the highest undisturbed elements from the *gabal*. Estimated *gabal* height was therefore calculated as the height the 1958 topographic height, minus 4m. Taking the relative height of the pits away from this estimated *gabal* level produced the depths as shown in Figure 85. Here, only a single pit descends below the high level of the river Nile for 1050 (17.62m above MSL), descending to at least 13.8m above MSL. However, using this benchmark, any pit with a modest 3.44m depth in Fusṭāṭ-A would fill with water during the inundation.

Here, at least, one pit can be shown definitively to have filled with groundwater in the medieval period for part of the year. However, this extremely simple model, assuming a planar water table equal to the river level despite changes in elevation across the site, is intended to represent *only a minimum* water table level. Two considerations mean that it is likely that the water table was far higher in more elevated areas of the city. Firstly, there is Ibn Riḍwān's account of al-Qāhira, noting how close the water table was the surface there. Al-Qāhira was built at the base of the Muqattam Mountain, around 10m higher in elevation than Fusṭāṭ-B, and using the current model the water table here would be 20-30m below the surface even during Nile flood—a time when, Ibn Riḍwān notes, the residents drank water from the canal rather than well-water. Secondly there is the geology of the site. The Eocene limestones of the Greater Cairo area are thought to be more susceptible to secondary porosity than primary porosity, meaning they convey water mainly through fractures in the rock, including from the Nubian sand aquifer below. The geological map of

Cairo shown in Figure illustrates the many major fractures in these limestones, running generally NE-SW, including in the Muqattam formation upon which Fusṭāṭ-A and B are built. Such a major fracture is responsible for the creation of the spring ʿAin al-Sira at a similar elevation to Fusṭāṭ-B, 1.5km to the east.

The result is that the function of isolated pits still remains unclear, they may have been wells, particularly those that seem exceptionally deeper than sewerage features, but also may have been water-holds for non-drinking water. The source of this water remains unclear, however (communal wells elsewhere?). Considering the indications of garbage removal from the street, they are unlikely to represent middens. One interpretation that has not been considered here is that of grain storage. However, preceding discussion of the Geniza has already established that grain was only stored for the year by the wealthy, and if so on an upper loggia in earthenware jars, or in stone jars 5.5.2, above).
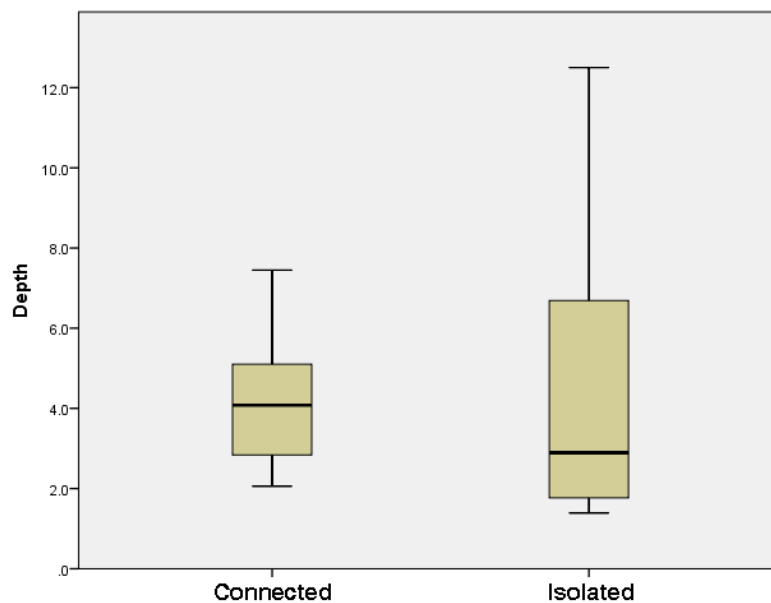
Figure 82 – Box plot of depth for connected and isolated pits
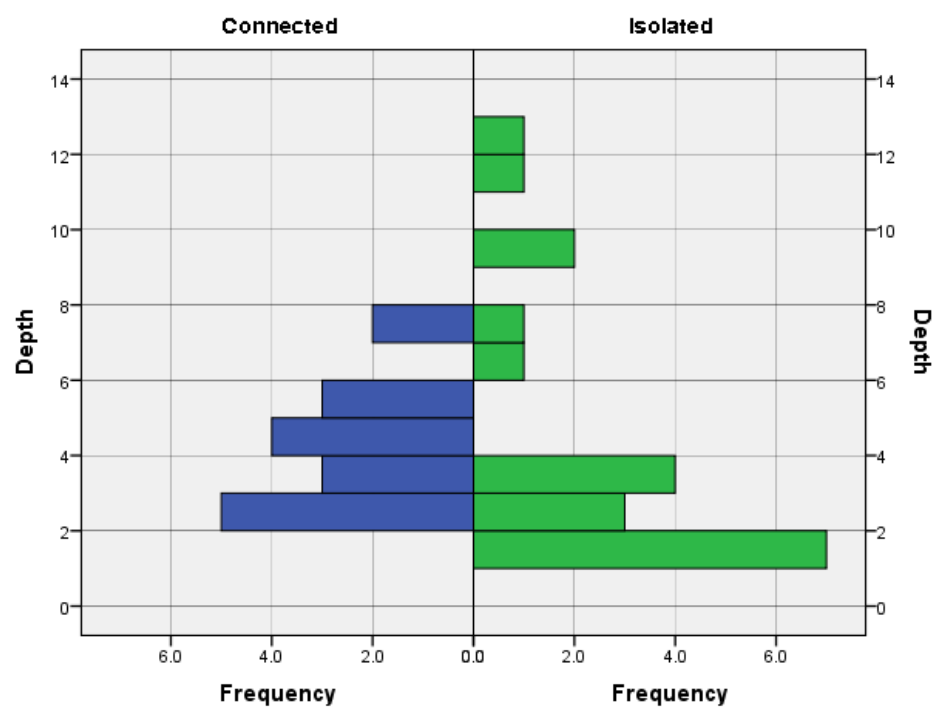
Figure 83 – Histogram showing depth of connected and isolated pits.
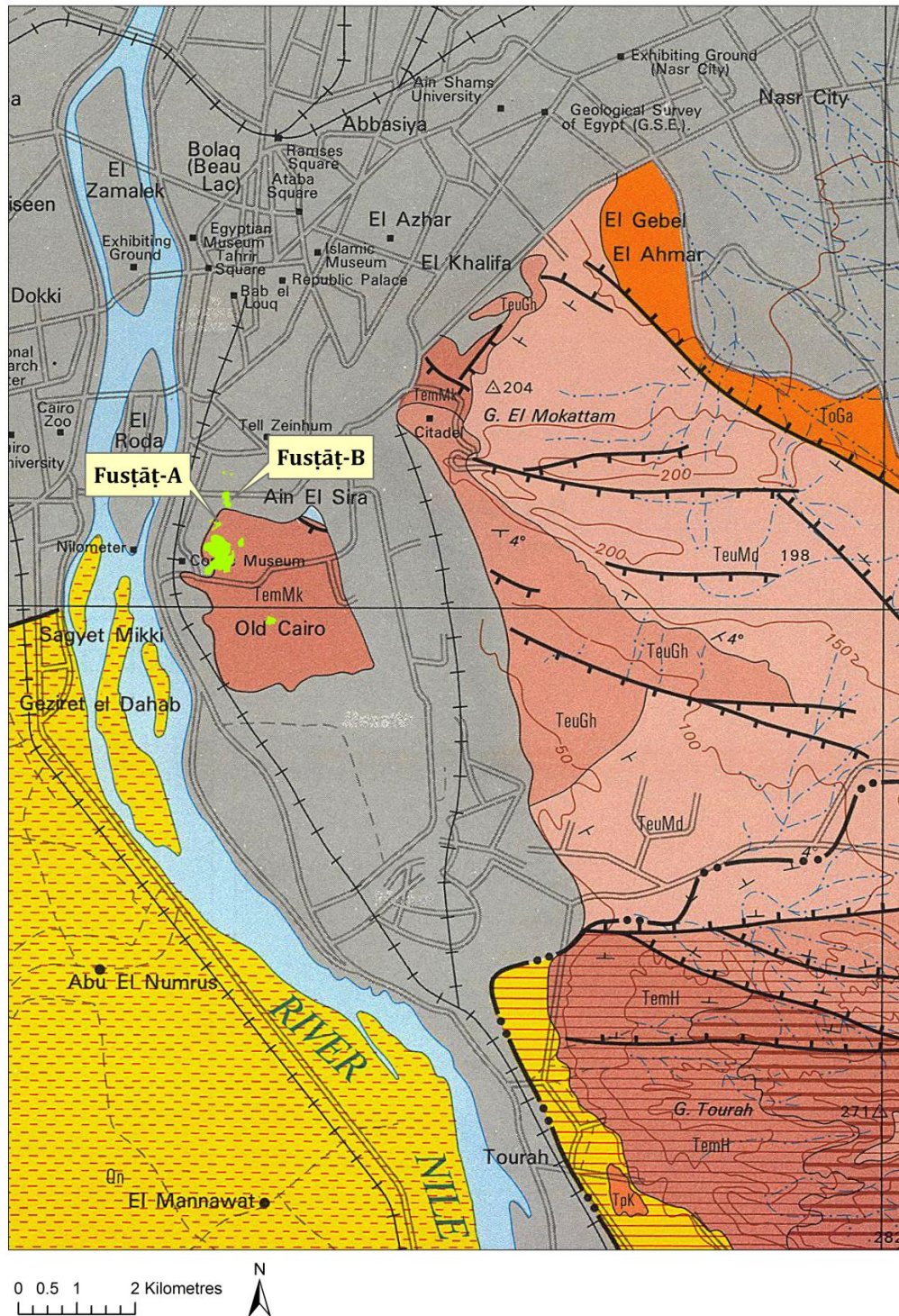
Figure 84 – Detail of Geological Map of Greater Cairo (1983), Geological Survey of Egypt, overlaid with locations of excavations in Fusṭāṭ. Yellow dashed area is Lower Miocene sands and gravels; Orange Tertiary sands and gravels. Reds: TemMK =Yellowish white limestone (Mokattam Formation), TeuGh= White limestone
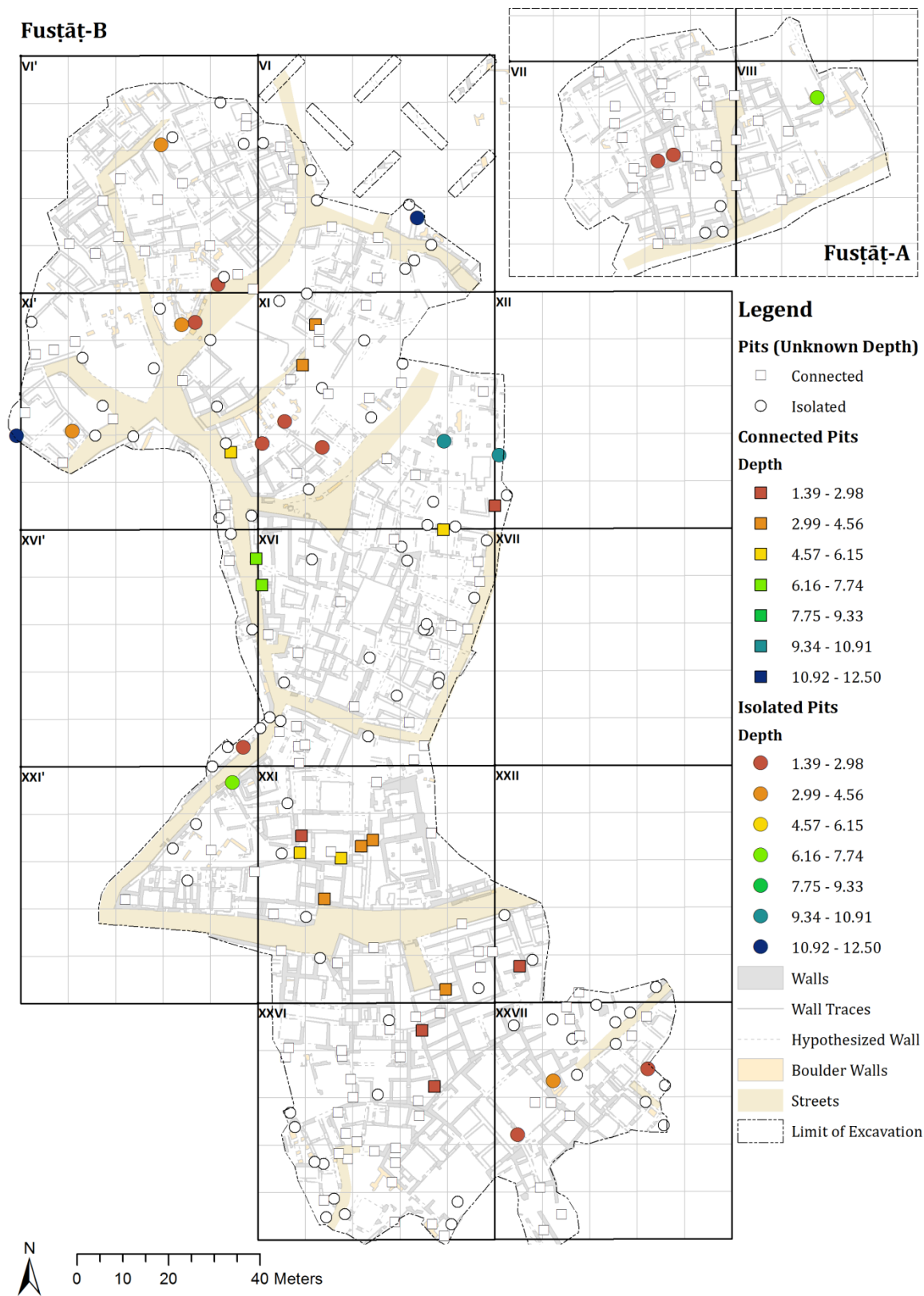
Figure 85 – Depths of pits (relative to the *gabal*) in Fusṭāṭ-A and B
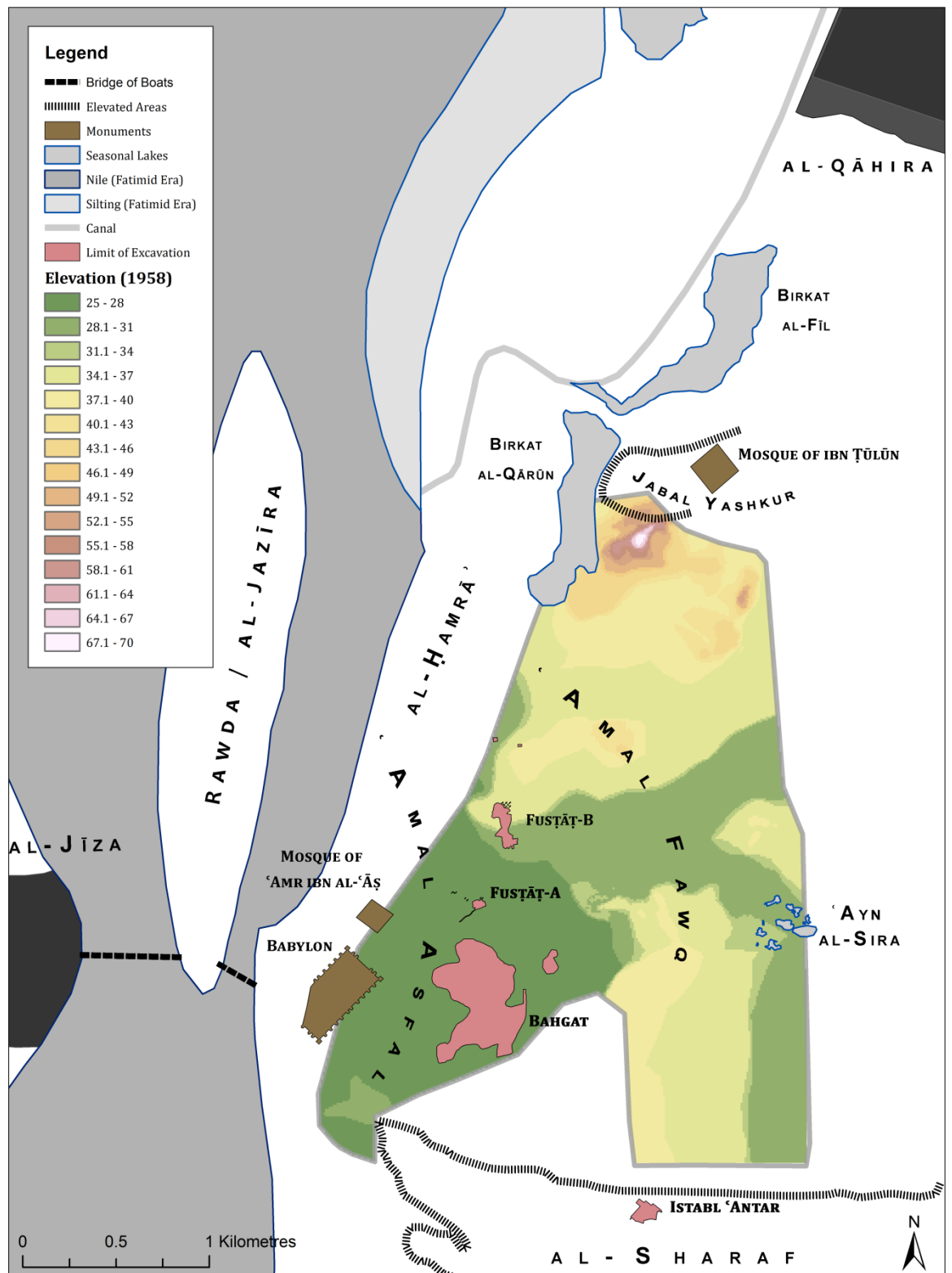
Figure 86 — Interpolated topographic information extracted from US Army Engineers 1958 map of Cairo, shown against historical topography and excavation sites (elevation in metres above mean sea level)
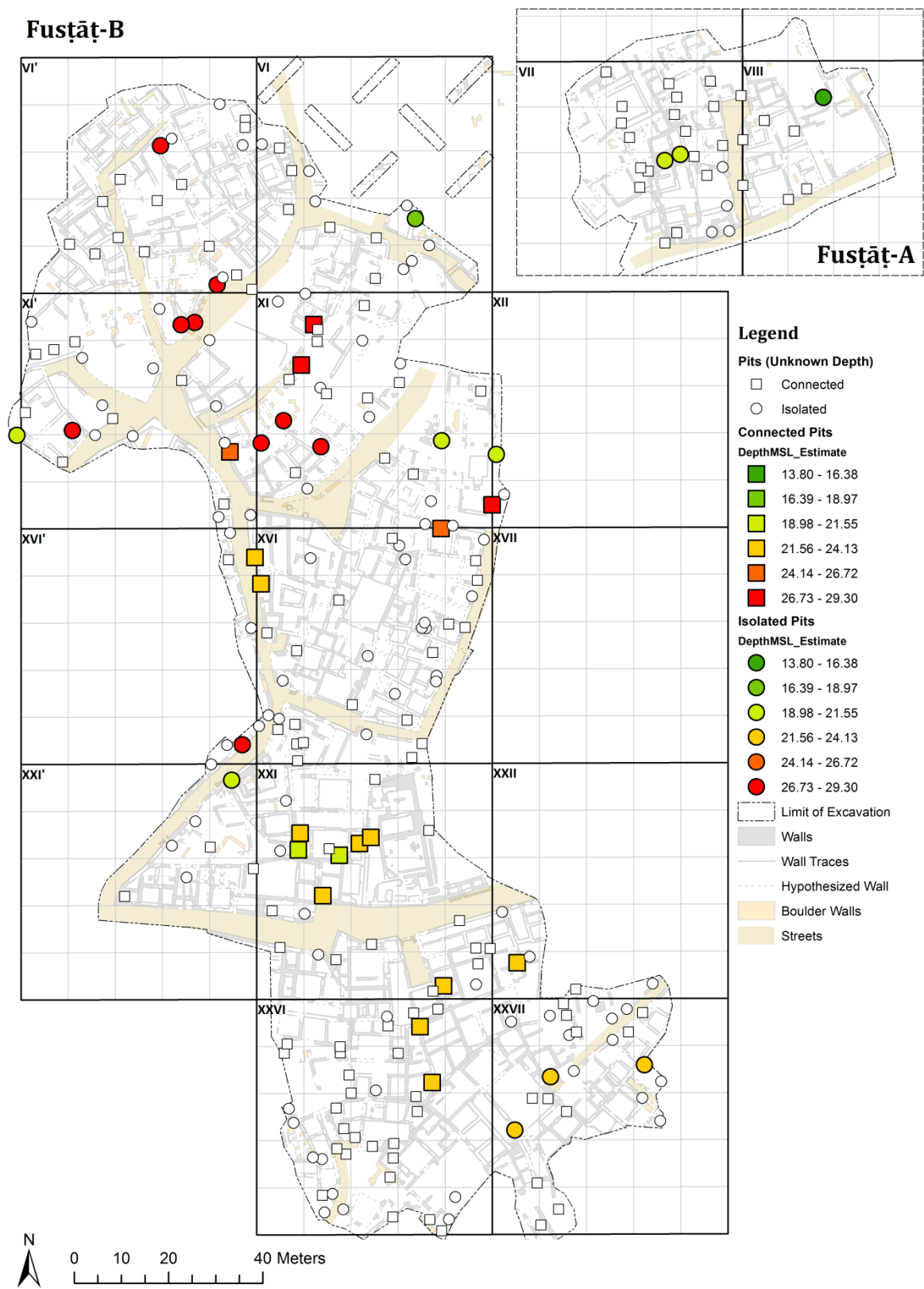
Figure 87 — Estimated depth of base of pits in Fusṭāṭ-A and B, in metres above mean seal level.

6.3.1 Flooring

Whilst there are no explicit descriptions of floor types associated with particular room functions in house descriptions in the Geniza, floor types may indicate general levels of prestige based on the expense, aesthetic and functional affordance of the material. Identifying flooring from excavation reports is problematic for the same reasons as features mentioned above: poor preservation and incomplete or ambiguous reporting.

Limestone paving, mined from the *gabal*, is the most prominent floor covering in the excavations reports. The mode of laying this paving is considered a chronological indicator by Scanlon (see section 2.2.3-D), and it is partly for this reason its presence figures prominently in discussion within reports, as well as being drawn stone-by-stone on plans. Scanlon associated herringbone paving with Fāṭimid construction, while simpler rectangular slabs were associated with Ṭūlūnid construction. While herringbone patterns are fairly standardised in execution, consisting of rectangular slabs of uniform length laid alternately perpendicular directions as shown in Figure 88, below, the term rectangular may encompass a range of paving forms. A simple form is rectangular slabs, of equal or varying length, laid lengthwise in parallel lines of a single direction, their short edges unaligned (I, Figure 88). A variation entails the same technique, but with two perpendicular alignments, meeting at a staggered 45-degree join (II, Figure 88). Slabs may also be laid in alternating perpendicular directions, but without the regularity in size and direction in the manner of herringbone patterns (III in Figure 88). Lastly, paving slabs of irregular shapes and non-orthogonal angles may also be used (labelled "polygonal" in Figure 88).
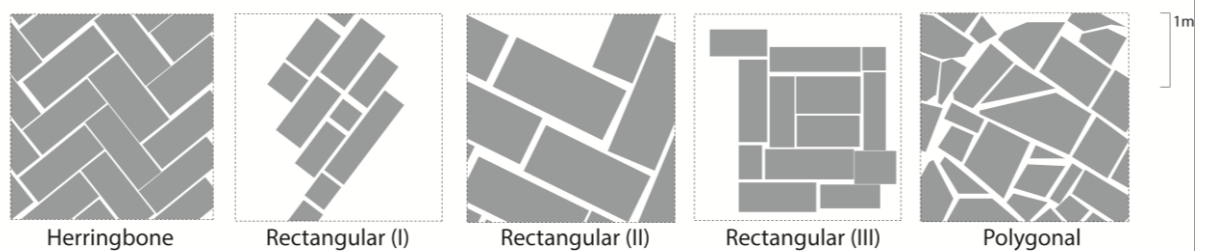
Figure 88 – Examples of stone paving.

Fusṭāṭ-B

Fusṭāṭ-A

Legend

	Streets
	Limit of Excavation
	Walls
	Wall Traces
	Hypothesized Wall
	Boulder Walls

Stone Paving

Type

	Herringbone
	Polygonal
	Rectangular
	Cobbles

extent unknown

extent unknown

extent unknown

N

0   10   20   40 Meters
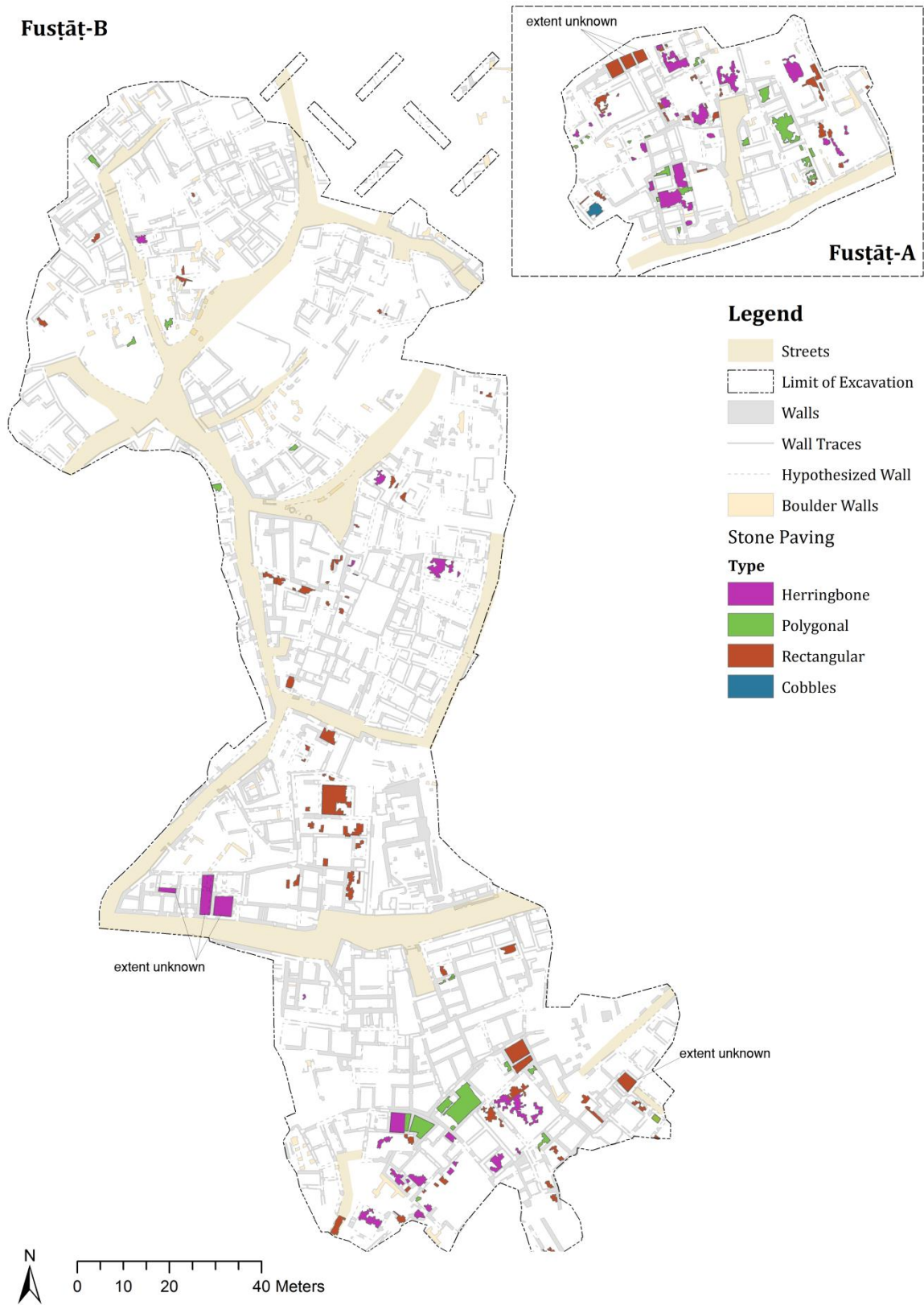
Figure 89 – Summary of the distribution of stone paving types across Fusṭāṭ-A and Fusṭāṭ-B.

Stone paving identified through site plans may often survive in small areas, and differentiating the paving forms is often difficult. No attempt can be made to differentiate the different types of rectangular techniques in the majority of cases, though three or more slabs is often enough to be *suggestive* of herringbone technique, particularly if aligned at 45 degrees to the surrounding walls, as is usually the case in well preserved examples. Overall, stone flooring survives only in large areas in the southern parts of Fusṭāṭ-B and in Fusṭāṭ-A.
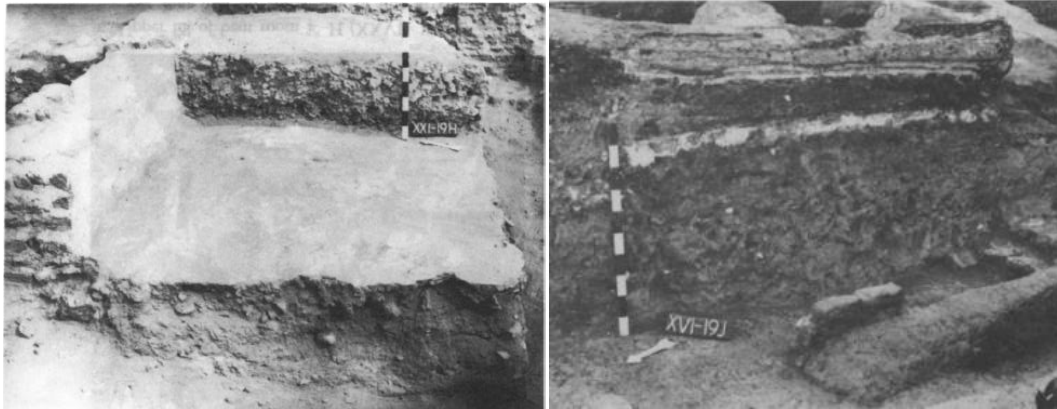
Figure 90 – Photographs of preserved flooring sequences. (A) thin mortar floors separated by fill in room H, XXI-19, Fusṭāṭ-B (Scanlon and Kubiak 1980 Plate XXIV a) (B) multiple flooring sequence in section, bricks in mortar shown at around 90cm on scale, mortar floorings higher in sequence, Room J in XVI-19, Fusṭāṭ-B (Scanlon and Kubiak 1979 Plate XV, 2).

Mortar floorings (Figure 90) are occasionally mentioned by Scanlon, though it is difficult to assess how consistently they might have been reported. They are not clearly defined on site plans; solid lines with irregular courses might represent the boundaries of such floorings, but equally may represent fills underneath floors, or cut features. Dashed or hashed areas bounded by solid lines appear in some plans[82] though are entirely lacking in others[83]. In some cases these certainly represent flooring surfaces as well as fills, with different patterns distinguishing particular layers—though no legend is ever provided. In one such case, Plan I of the 1971 season (illustrating the eastern part of Fusṭāṭ-B excavated that season) the excavated area lacked much surviving masonry, but exhibited exceptional preservation of flooring sequences, consisting of multiple fills and surfaces, both mortar and brick, the absence of which indicated robbed walling (Figure 90, B, above). That these were illustrated on the site plan seems to be a choice related to particular circumstances of

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[82] 1968, Part I, Plan II; 1971 Plan II.

[83] 1964 Plan II; 1965 Part I Plan II; 1971 Part 2, Plan I; 1972, Part I, Plan I; 1973, Plan II; 1978 Plan III.

that area—shown due to their exceptional interpretative value and to illustrate the plan of the surrounding buildings — the lack of such hashed areas on other plans does not necessarily reflect absence of such floorings.

This supposition is confirmed by occasions in which floors are reported within the text, yet no indication of presence or extent is given on the plan. This is occasionally true of some fragments of stone paving. One might assume this is only the case where such floorings are minimal in extent, perhaps small traces running along walls. Though this is a reasonable supposition for stone paving it seems that even large areas of mortar flooring may not be planned. For example, the two mortar floorings shown in Figure 90A, above, are not indicated in that season's plan. More problematically, some mortar flooring may not be mentioned in the text as well as omitted from the plan, as in the well-defined rooms in Fusṭāṭ-A M, K, H (VII-3) and L (VII-4) in the 1964 season report. It is reported that the fill of these rooms was excavated revealing that complete upturned pots were placed within it. Photographs of the pots being excavated (Figure 91) shows an extensive layer of mortar above the fill, which according to the figure caption is the bedding mortar for stone paving, though no imprints of slabs can be seen. Had not the unusual technique of floor preparation (discussed below) been located here, no indication of this flooring would be reported in text or plan. Numerous other photographs of features are suggestive of either mortar bedding or mortar flooring in the vicinity, though this cannot be established with necessary certainty for consideration in this analysis.

Figure 91 – Pots placed within the fill of room L Fusṭāṭ-A, VII-4. (Scanlon 1965 Plate XII, fig. 30).

The function of these upturned pots within the fill of certain rooms in Fusṭāṭ-A is a phenomenon not encountered by Bahgat, and one which Scanlon could not settle definitively. It is suggested that the voids within the fill may capture moisture, or provide a pocket of cool air, measures to keep the room dry and cool (Scanlon 1965, 20). Scanlon suggests that the reason that such measures were taken in these particular rooms is that they were for storing pottery. This interpretation results from the fact that Scanlon first believed these buildings to be a pottery complex, before it was realised that the stockpile of clay here, and associated kilns, were a post-abandonment adaptation of the houses.

A distinctly hard and thick kind of mortar surface is found only in association with evidence of industrial activities, such as kilns. These kilns are most likely to reflect post-abandonment adaptations of the domestic architecture. As such, these will not be considered as part of this analysis.

Brick flooring is seemingly rare. It occurs at an intermediate point of many of the well preserved stratigraphic sequences of flooring excavated in 1971 (described above and shown in Figure 90B). Two further examples are reported, one is not illustrated in any way (Scanlon 1981b, 62), though the other is remarkably complete, and laid in a neat X-pattern (Scanlon 1981b, 63).

The Arabic word *dakka*, meaning packed earth, is reported as a flooring *surface* extremely rarely (Scanlon 1966, 101; 102), though it used to describe floor *fills* regularly. Whether those reported as flooring surfaces differed significantly in consistency is unclear.

Lastly, undressed limestone boulders may be bonded with mortar to form a rough floor surface. While the haphazard nature of this construction method, along with its use of undressed boulders, serves to potentially associate it with post-abandonment squatter activity, there is insufficient evidence to date the examples given (Scanlon and Kubiak 1980, 83; Scanlon 1984, 29) to the post-Fāṭimid period, and they are not found in association with boulder-made walls or industrial activities.

The known locations (but not extent, owing to the prevailing uncertainty of the latter) of floorings other than stone paving are shown in Figure 92. That this does not match the usual distribution of surviving masonry and paving—namely, concentrated in the southern part of Fusṭāṭ-B and Fusṭāṭ-A—advocates for there being a significant deficit of reporting, rather than preservation of these features.
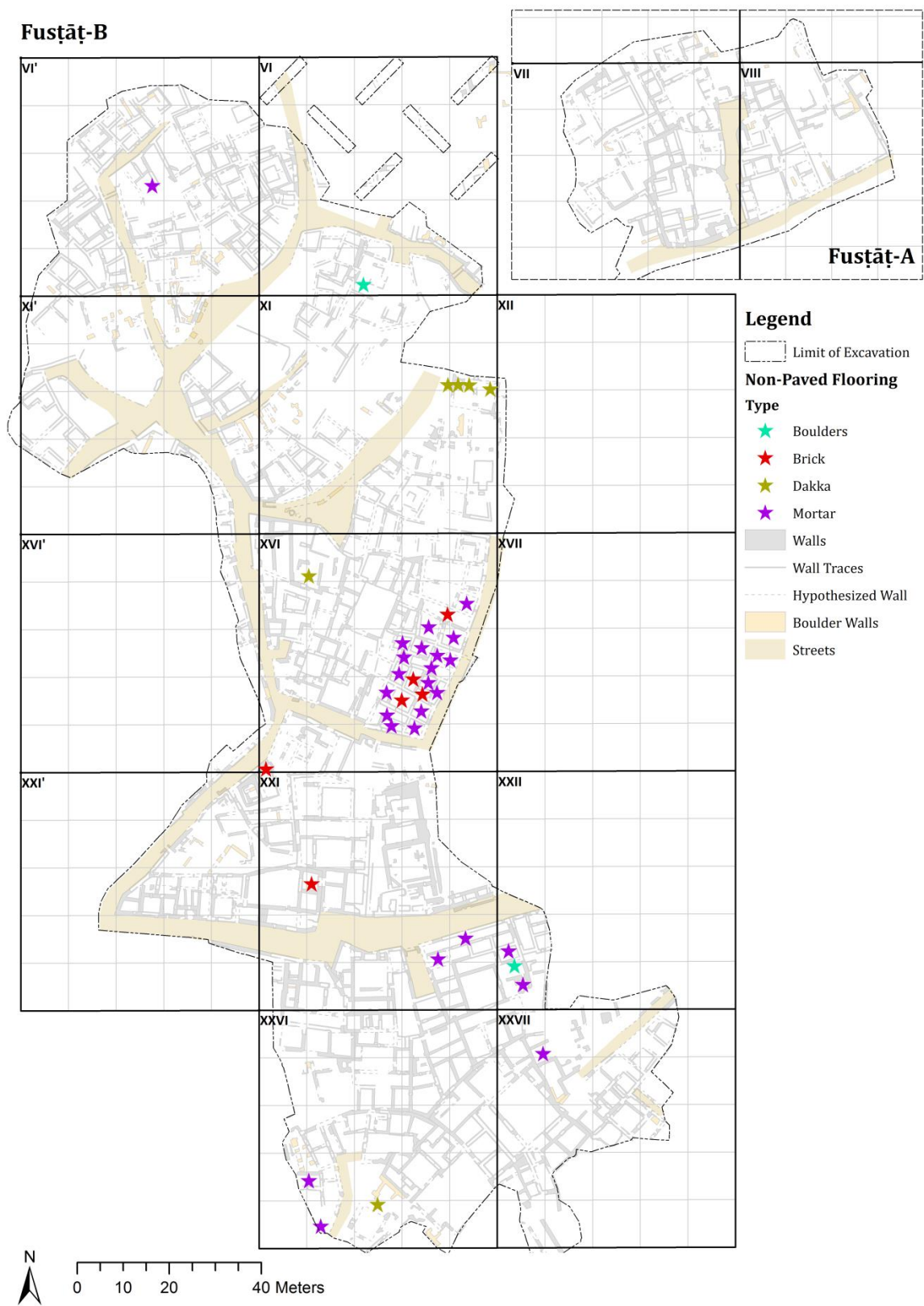
Figure 92 – Plan showing *known* locations of non-paved floor surfaces, extent often unknown.

6.3.2   Basins

As discussed above, *fisqiya*s and their associated shrubbery trenches are easily identified, through their distinctive masonry and association with pipelines and channels. Even where the masonry has been completely robbed they can often be recognized based on the characteristics of the construction cut in *gabal* and its location (central within a courtyard). Additionally, there many more cuts in the *gabal* across the sites whose function is unclear. Some have masonry and stone linings, others have masonry superstructures, all apparently built as containers of some sort. They are, in their construction and broadest function, similar to the *fisqiya*s and shrubbery trenches—indeed, similar functions have been proposed for some of these features—and so I will group these together under the broad category of "basins" (Figure 93). As *fisqiya*s and their associated trenches have already been discussed with regard to the water and sanitation system, here I will focus on those features of uncertain function.

Firstly, it should be noted that while some of these features receive considerable attention from Scanlon, principally the irregular *gabal* cuts he dubs "gougings", many more receive only a passing mention or none at all. As with non-paved floorings, there is some ambiguity in the plans making identification difficult. Where a description can be compared with the site plan, it is clear that cuts are represented by a solid outline. As solid lines are also used to represent floors, fills and miscellaneous bits of masonry, one cannot determine which is implied. Increasing the total number of such cuts identified has been achieved by reference to Ostrasz's (1977) house plans, which clearly identify cuts in the *gabal,* presumably through consultation with Scanlon. However, Ostrasz's house units do not cover all of the architectural remains of the two sites (discussed in following chapter); therefore many features may remain unidentified.

The aforementioned "gougings" were identified as small (0.5-1m) cuts into the *gabal*, appearing in groups, forming somewhat regular arrangements, usually in courtyards and adjoining rooms. They are often roughly rectangular, but show significant irregularities, and while no depths are noted by Scanlon, Ostrasz suggests that they were no more than 15cm deep. Examples of typical "gougings" can be seen in plan in Figure 94, below—specifically within the portico in XXVI 2, the portico in XXI 23, the courtyard in XXVI8, and within a roughly square room in VI'21-22. Photographs of the latter, as well as an additional group within a courtyard are shown in Figure 95 and Figure 96.
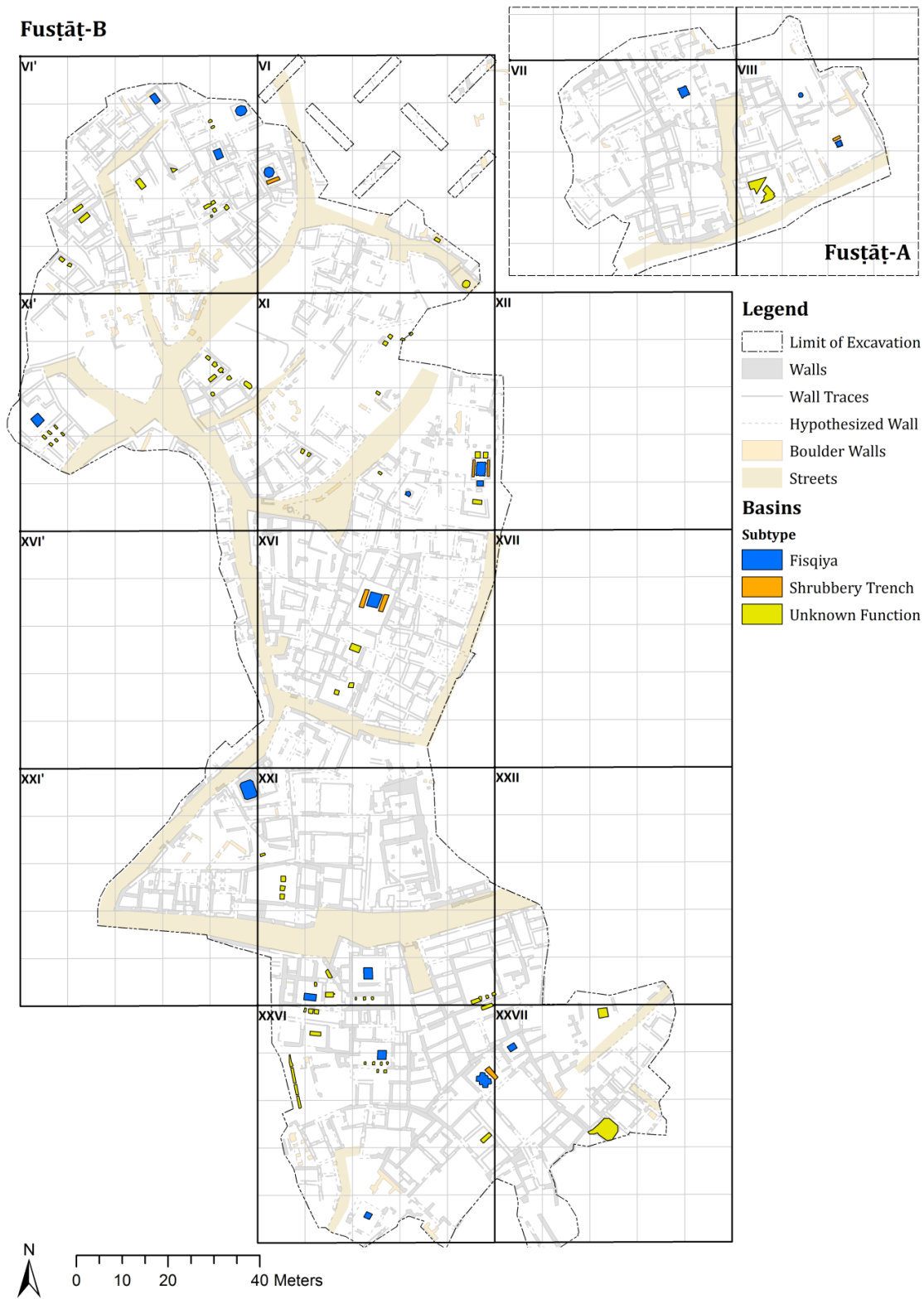
Figure 93 – Plan of Fusṭāṭ-A and Fusṭāṭ-B showing location of basins

When first encountered in the 1966 season, they were first suggested to be bases for pillars, or to hold water-vessels (Scanlon and Kubiak 1973, 21–22). They were also immediately considered as a possible Ṭūlūnid phasing criterion due to the date of the associated remains, confirmed in subsequent seasons[84]. The category of "gouging" is expanded in later reports (Scanlon 1982, 121) to include wider rectangular cuts in the *gabal*—including that in the *majlis* in XXVI-2 [356], that east of the courtyard in XXI-22 [716] (Figure 94, below). Cuts of similar width and shape, as well as in the same location as the former example, are referred to earlier reports using different terminology, namely the two "trenches" [137] and [138] in the *majlis* and portico in VI-17 (Figure 94, below), which were hewn 90cm and 40cm into the *gabal* respectively (Scanlon 1974a, 86). These examples had been built-up with brick encasing walls that were plastered, using a mixture that included crushed *gabal*. Considered either water basins or shrubbery trenches, they were remarked upon for therefore being unique in their placement, differing from the usual central courtyard location. Though no explicit parallel is drawn, that some of the larger "gougings" described in later reports, as well as the undescribed rectangular cuts appearing on earlier and later site plans (again, sometimes in equivalent locations), might have once had similar structures and similar functions seems entirely possible. If one were to speculate as to why certain rectangular cut features were not grouped together by Scanlon (aside from the lack of surviving brick structure), it may be because of difference in depth; the "gougings" are frequently referred to as shallow, whereas these lined cuts are clearly substantially deep. Yet this need not mean that the original structures were of different depths, when one considers the variety in depths of floor fill separating the *gabal* from paving across the site (c.f. the description of varieties of *fisqiya* construction techniques, above).

The interpretation of smaller "gougings" as bases of pillars is somewhat problematic, owing to their location. When aligned along a courtyard wall (10-20cm from the wall) one can understand that such pillars might be to support an overhanging structure above. However, when the cuts are placed within the internal space of the portico, but misaligned with its walls, it would make little structural sense. Ostrasz points out that the slight asymmetries in their layout, and slight variations in size and shape, casts doubt on such a hypothesis (Ostrasz 1977, 85). Ostrasz favours the idea that the gougings represent shrubbery trenches, the shallow cut retaining water and keeping the earth above humid, though it is unclear whether some sort of brick structure above the *gabal* is envisaged. This seems to be applicable to both large and small features for Ostrasz. In support of this theory, it is

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[84] The initial discovery of these features was within an ensemble whose pits showed no later than 10th century artefacts, as well as an asymmetrical layout that had often been associated with such early dates.

observed that these gougings are often in areas of partial shade and partial sun exposure, such as along the wall of a courtyard, or within porticoes.
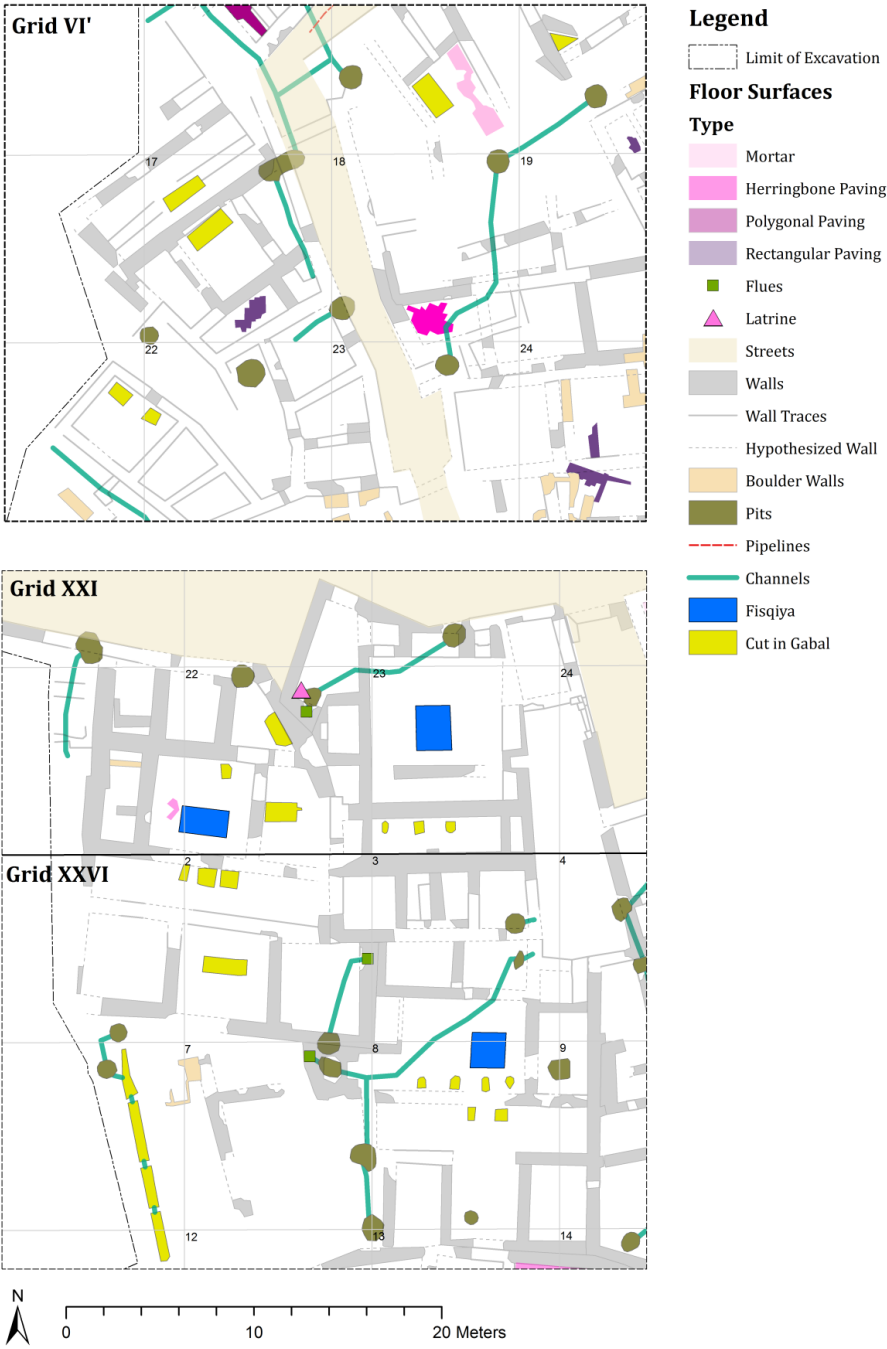
Figure 94 – Areas of Fusṭāṭ-B with numerous cuts in the gabal, some phrased as "gougings" by Scanlon.
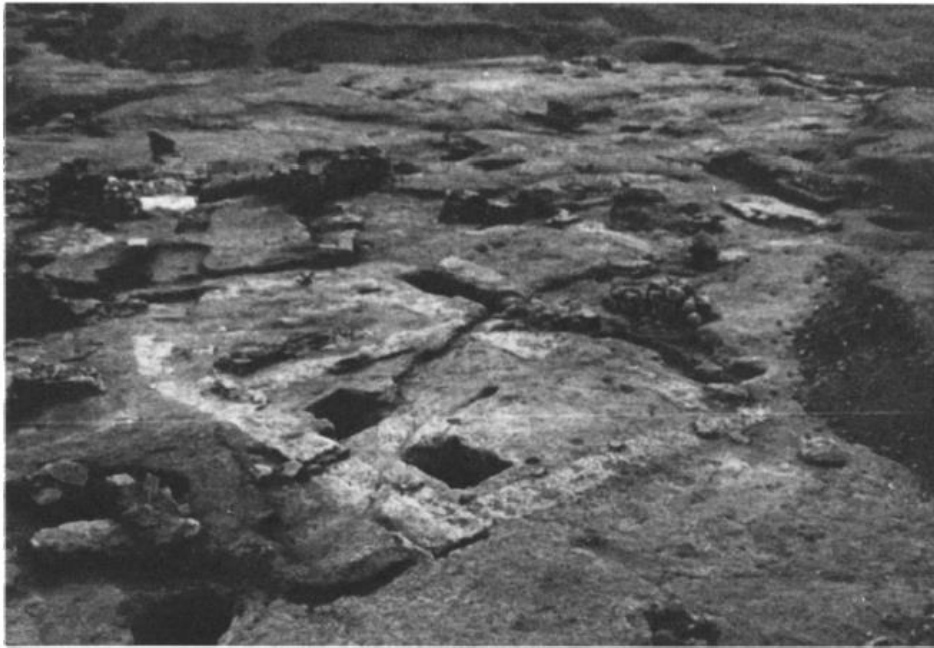
Figure 95 – "Gougings" in *gabal* [506] and [507] within poorly preserved room (Fusṭāṭ-B VI'-21, room A) (Scanlon 1974a Plate XVIa).

Figure 96- "Gougings" in *gabal* [106], [105], [104] and [488] (from foreground to background) aligned on the left of the photograph. The former three are within a courtyard whose bounding wall is on the left, with larger cut [103] on the right (near a channel) also within this courtyard.   [488] is within a portico adjoining the courtyard (Fusṭāṭ-B, XI'-9-10) (Scanlon and Kubiak 1973 Plate VIIa).

Still, further possible functions are suggested elsewhere. In 1965 a rectangular cut of a size typical of the smaller "gougings" (45 x 79cm) was identified, [48], lined with stone slabs

(Scanlon 1967, 72). The lining, survival of which was likely ensured by the fact that the cut was paved over in a later period, had an ink inscription[85] upon one of the stones (Figure 97, below). Scanlon suggests that this was a place to store *zīr*s, presumably to keep water cool, ostensibly due to the fact the inscription and lack of soil sealed within indicates that it was neither lined nor planted during its use. The possibility that brick or stone linings existed for other cuts has already been suggested.

Figure 97 – Inscription on stone slab lining of cut [48] (Scanlon 1967, Pl. VIa).

A small number of other examples of lined cuts in the *gabal* were present, though these were not labelled "gougings" by Scanlon. The first, [308], was within what may be an open area in Fusṭāṭ-B (Scanlon 1981b, 66), consisting of a shallow cut in the *gabal*, lined and built up beyond the *gabal* with brick and lined with plaster, forming a rounded oblong tub (Figure 98). What this may have held is not speculated upon, though the lining suggests it was either a cistern or trough for water, or was involved in some kind of industrial process.

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[85] A translation of the inscription has not, to my knowledge, been published.

A second, [504], is a wide (4.1m x 3.9m) but relatively shallow (c.1m) asymmetrical octagonal cut in the *gabal*, with surviving traces of a low brick vault (Figure 99, below). One corner of the cut extends outwards to form what is perhaps an entrance to the structure. This is suggested to be a "cold storage" unit by Scanlon (Scanlon 1984, 19).

Further to the two aforementioned cuts [137] and [138] with plastered brick superstructures identified in 1968, those found within a *majlis* and portico, another of the same construction and size was excavated to the east (Scanlon 1974a, 88–9). This cut [155] is visible within VI'-13 in Figure 94, above, and Figure 100. The architectural context is somewhat unclear.

Lastly, what was perhaps a natural triangular fissure in the *gabal* [158], located at the junction of two walls and approximately 3m deep, was lined with masonry on two sides, as shown in Figure 101, below (Scanlon 1974a, 89). This feature, visible again in Figure 94 (above, in VI' 14), has no clear purpose , though considering the lack of mortar lining one might suppose dry storage of some kind.
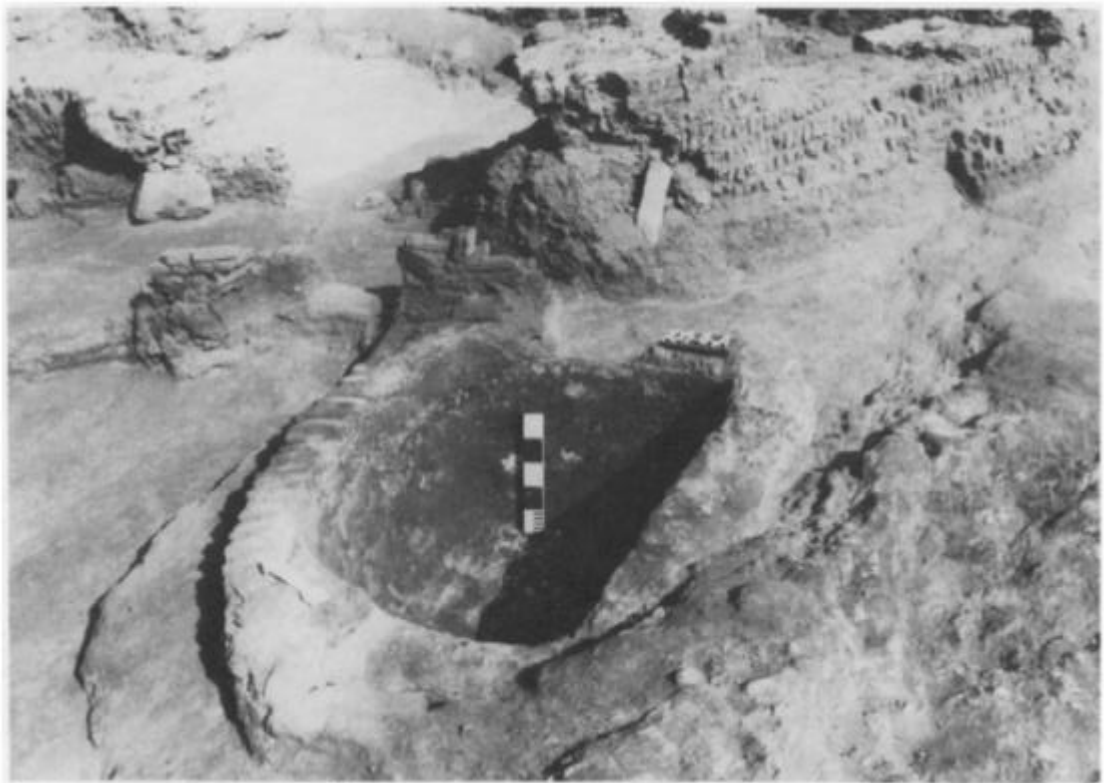
Figure 98- Brick-lined and plastered "tub" hewn into gabal [308] (Scanlon 1981b Plate XIIIb).

Figure 99 – Stone lined and brick-vaulted "cold storage" unit cut into gabal [504] (Scanlon 1984, fig. 31, 21).

Figure 100- Gabal-hewn trench with plastered brick superstructure [155] (Scanlon 1974a Plate XXVb).
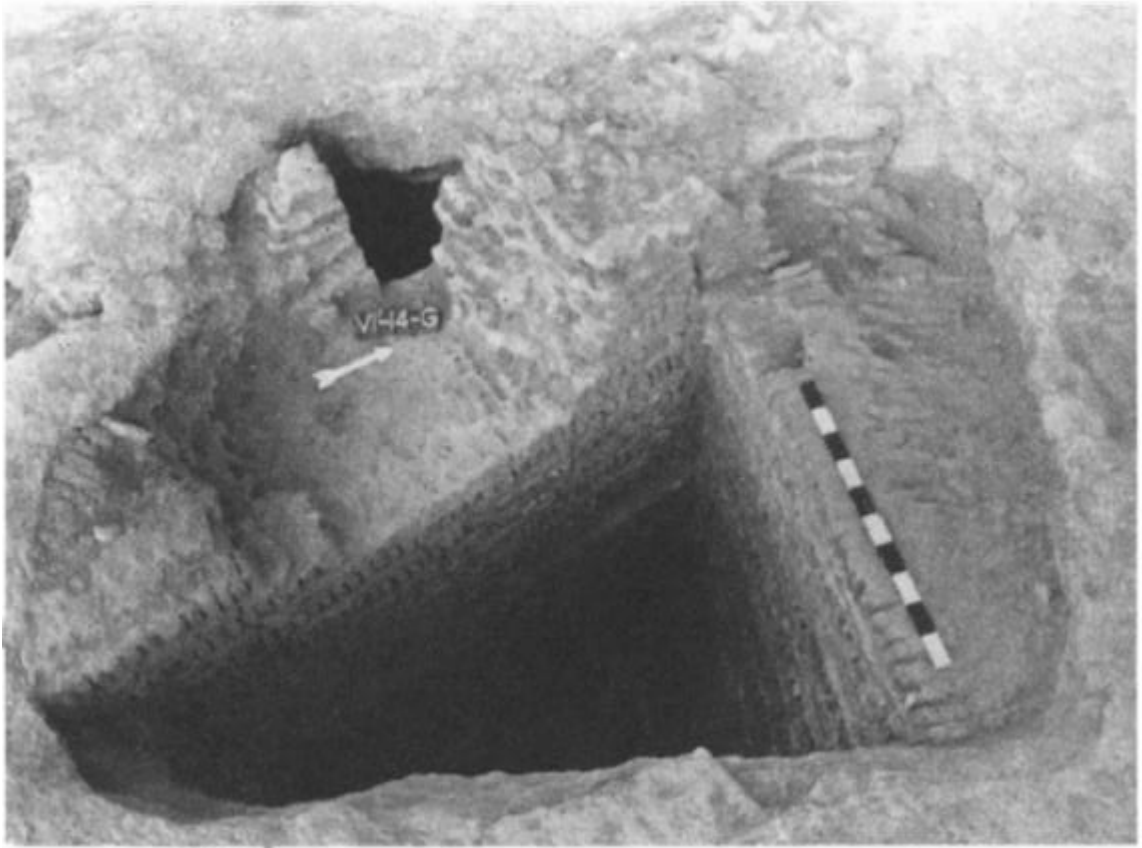
Figure 101 – Brick-lined fissure [157] (Scanlon 1974a, PL.XXVIb).

6.3.3   Niches and Recesses

Walls sometimes display shallow (10-25cm) recesses from foundation level upwards, either covering the majority of a wall and leaving narrow sections standing proud either side, or forming regular sunken panels across it. In many cases two recesses may be nested together. This is considered as a possible Fāṭimid feature by Scanlon, not least because it appeared in all of Bahgat's houses (Scanlon 1972, 419), though it should be noted that in some cases it is reconstructed in the *plan restauré* without obvious evidence in the *plan actuel*. Within Bahgat's houses, it quite often observed in the short terminal walls of porticoes, and within the *majlis*, but appears in variety of other rooms and along courtyard walls where no rooms are adjoining. In this sense they act as blind entries to maintain symmetrical facades on all walls of the courtyard, typically forming all or part of a tripartite arrangement. Scanlon revealed far fewer examples; two of the best preserved are within the portico at Fusṭāṭ-B, XXVI-19 (Figure 102) and within the *majlis* at Fusṭāṭ-A VII-10 (Figure 103).

Did such shallow recesses house shelves or cupboards? The word *khizāna* appears in the Geniza documents, and while also used in the sense of a storage room, or small or portable cupboard, it may also have been used to designate recessed shelves in the late Fāṭimid and

Ayyūbid period (Goitein 1983, 66). A more precise term is *khūristān*, denoting exactly such a shelf, which Goitein notes appears in one documents in the 12th century.

However, as noted, their appearance within courtyards is suggestive of an aesthetic role, particularly as shelves in such an exposed location may be problematic. A decorative function is supported by the complex arrangement of recesses in the *majlis* pictured in Figure 103 and Figure 104. At first seeming to present a baffling array of multi-stepped recessing in an irregular format, I would propose that it is best conceptualised as three main spaces—the second and third being very small accessory chambers amounting to little greater than niches themselves—with only single-level recesses (as illustrated in Figure 104). The main space has recesses on all three sides, the recess on the back wall perforated by a narrower entrance to the second space, which again has a recess perforated by a slightly narrower entrance to the third space. Here, the recessing around entrances clearly adds to the variegated aesthetic of the space, though could not have housed shelves. It seems likely, therefore, that recesses played both decorative and storage roles.

Figure 102 – Recessing in portico (Fusṭāṭ-B, XXVI-19, I) (Scanlon 1966 Plate Xc).

Figure 103 – Multiple recesses within a *majlis* (Fusṭāṭ-A, VII-10, C) (Scanlon 1965, Pl. 32).
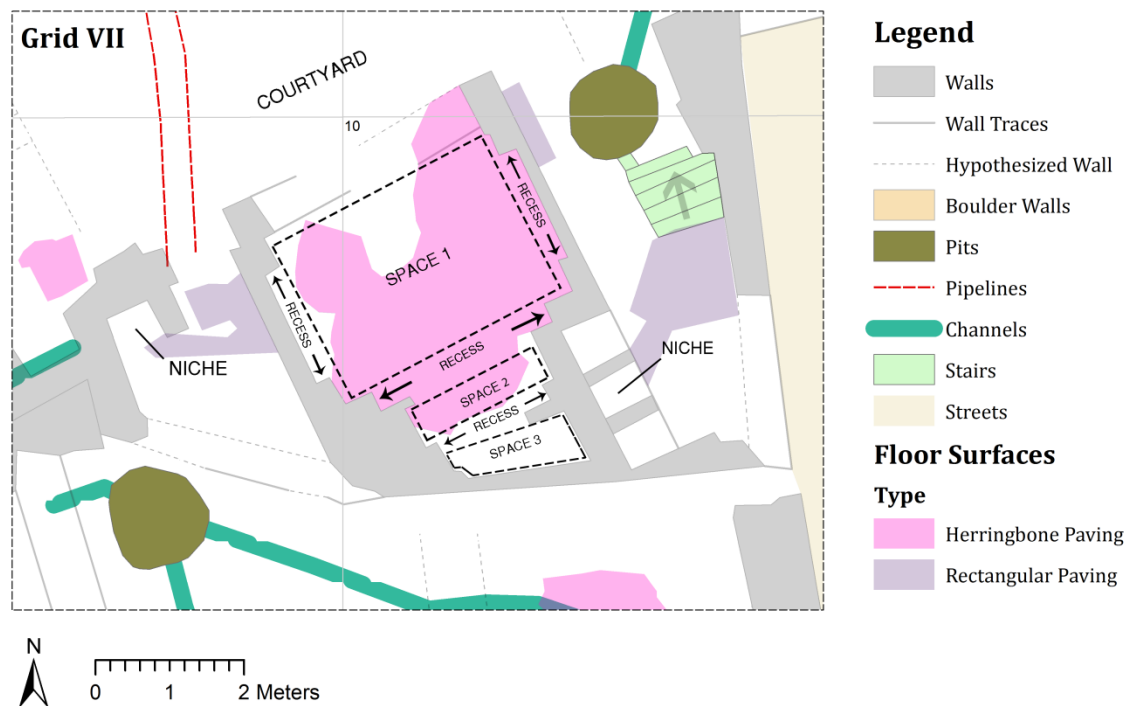
Figure 104- Plan of *majlis* with multiple recesses (Fusṭāṭ-A, VII-10, C), and niches in surrounding rooms.

Deeper and narrower niches are also present in several walls. Some have an indication in plan of a base raised upon the wall foundation, though where the height can be determined

from section drawings, it seems this was only built upwards slightly (c. 15cm), in the same manner as a threshold (Scanlon 1966, Plan III). In other cases, such as the niche to the west of the *majlis* in Figure 104, above, foundations do not appear within its volume. Niches usually survive only in their lower extent within walls, and it is unclear whether they terminated in arches or lintels. One completely intact niche was found in the room to the east of the *majlis*, Figure 104, which was arched. This had no discernible base, and seemed to spring directly from the *gabal*.

Though niches are generally rectangular in plan, two examples of apsidal niches were identified by Scanlon (Scanlon 1984, 12; Scanlon and Kubiak 1980, 80). As they are orientated towards the south-east it was considered possible that they may be *mihrab*s, indicating domestic prayer rooms. The first, placed in a room adjacent to a courtyard in Fusṭāṭ-B, is orientated at 162 degrees and the other, in a poorly defined architectural context and a shallow curve rather than semi-circular, is at 155 degrees. While this is not an altogether prohibitive deviation from true *qibla* direction (136 degrees), apsidal niches in Bahgat's houses are oriented both south and north (Maison II and Maison V's neighbouring house: Bahgat and Gabriel 1921, fig. 10 and 19), so Scanlon's two matching orientations may be coincidental.

Figure 105 – High-level niches in the *kumm* of Maison II (Bahgat and Gabriel 1921 Plate X-2).

While all the above examples began at around floor level, the greater height of preserved walls in Bahgat's area demonstrates that higher-level niches also probably existed. These niches, reminiscent of those covered with elaborate stucco in the houses of Samarra, were found within a *kumm* of Maison II, shown in Figure 105, above (Bahgat and Gabriel 1921, 48). While these might have served as platforms for lamps, censors, utensils or any number of other items, those that are visible in Scanlon's excavations must have been for large objects, or again housed shelves. A possible use would be to store water *zīr*s, placed on stands. The use of niches for this purpose is well attested in sites such as the Coptic town of Jeme (Wilfong 2002, 11).

7   ARCHAEOLOGICAL FEATURES IN SPATIAL CONTEXT

"A house is a machine for living in." — Le Corbusier (1923)

This chapter explores whether the incidence of those features—the function of which has been discussed in the previous chapter—within certain spatial contexts within the home may reveal the use and meaning of those spaces. Do particular kinds of space within the houses display a significantly different frequency of certain features than others? If so, what does this reveal about the way in which particular spatial contexts were conceptualised and used by inhabitants? The aim is not only to refine our knowledge of the spaces already identified through a combination of archaeological and historical research—principally the rooms of the *majlis al-ḥīrī* and courtyard —in terms of their use and meaning, but to suggest further spatial categories in the wider plan of the houses.

7.1   GEODATABASE

To explore this hypothesis a geographic information system (GIS)[86] was used to represent and analyse the remains of Fusṭāṭ-A and Fusṭāṭ-B. The resultant geodatabase allows one to visualise, query and explore the features in terms of their characteristics and location, providing a platform for statistical analysis of any spatial patterns. The data was extracted from preliminary reports; the individual plans were scanned, georeferenced and digitised to provide an overall map of the sites, along with information about each feature gleaned from the reports' text.

The walls were digitised following Scanlon's distinctions between walls (surviving masonry), wall traces (mortar traces on the *gabal*), and hypothesized walls ("completions" extrapolated from surrounding remains). Walls drawn with the outlines of the individual masonry were added, in all cases seemingly consisting of uneven boulders. When described these were identified as the result of post-abandonment squatting, which one must assume

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[86] Esri ArcGIS 10.2.2

is the case throughout, despite the fact that similar techniques were used for some earlier foundations. Streets and impasses were added based on both individual season plans and summary figures (Kubiak 1979, 13). In some cases those appearing in summary figures were excluded, namely the central impasse-antechambers of Type D houses (discussed below, 7.3.1). The locations of several possible streets were added where suggested by Scanlon within the text (Scanlon 1967, 68; Scanlon and Kubiak 1980, 79; 85), based upon necessity of access to terminal cesspits. Another was added based on my own judgement, though using the same rationale (that in XXI/XXVI, discussed regarding House 13 within Appendix 1). The resulting plan of structures and streets is shown as Figure 106.

The features identified as most instructive for this study—pits, floors, and basins—were digitised as distinct classes, and attributes crucial to their function were recorded. For pits, their connection to sewer channels, accessibility from the street, and depth were recorded. For basins, the presence of brick, plaster lining, stone facing, or boulder construction was recorded, as well as the basin's shape (rectangular, sub-rectangular, octagonal, elliptical, or geometric). The only attribute recorded for flooring was its construction: *dakka*, mortar, brick, and stone paving (defined as either rectangular, polygonal or herringbone). Each of these features was given a unique three-digit identifier, alongside any designation it was given by Scanlon, defined by grid-square, sub-grid, and letter. The particular publication, and page number, in which the attributes of the feature are described were also recorded. A table of these features and their attributes is provided in an accompanying CD.

There is also a range of feature types for which no specific attributes were recorded. These consist of wall-flues, possible latrines or drains, kilns, rock-cut channels, pipelines, and niches. These have not been assigned a unique feature number. All recorded features are shown in Figure 107.

7.2 DEFINING SPATIAL CONTEXT

First one must define the spatial units to be analysed, and to categorise them meaningfully to allow comparison of "kinds" of spaces across the site. Such a task is ontologically complex, and requires careful consideration.
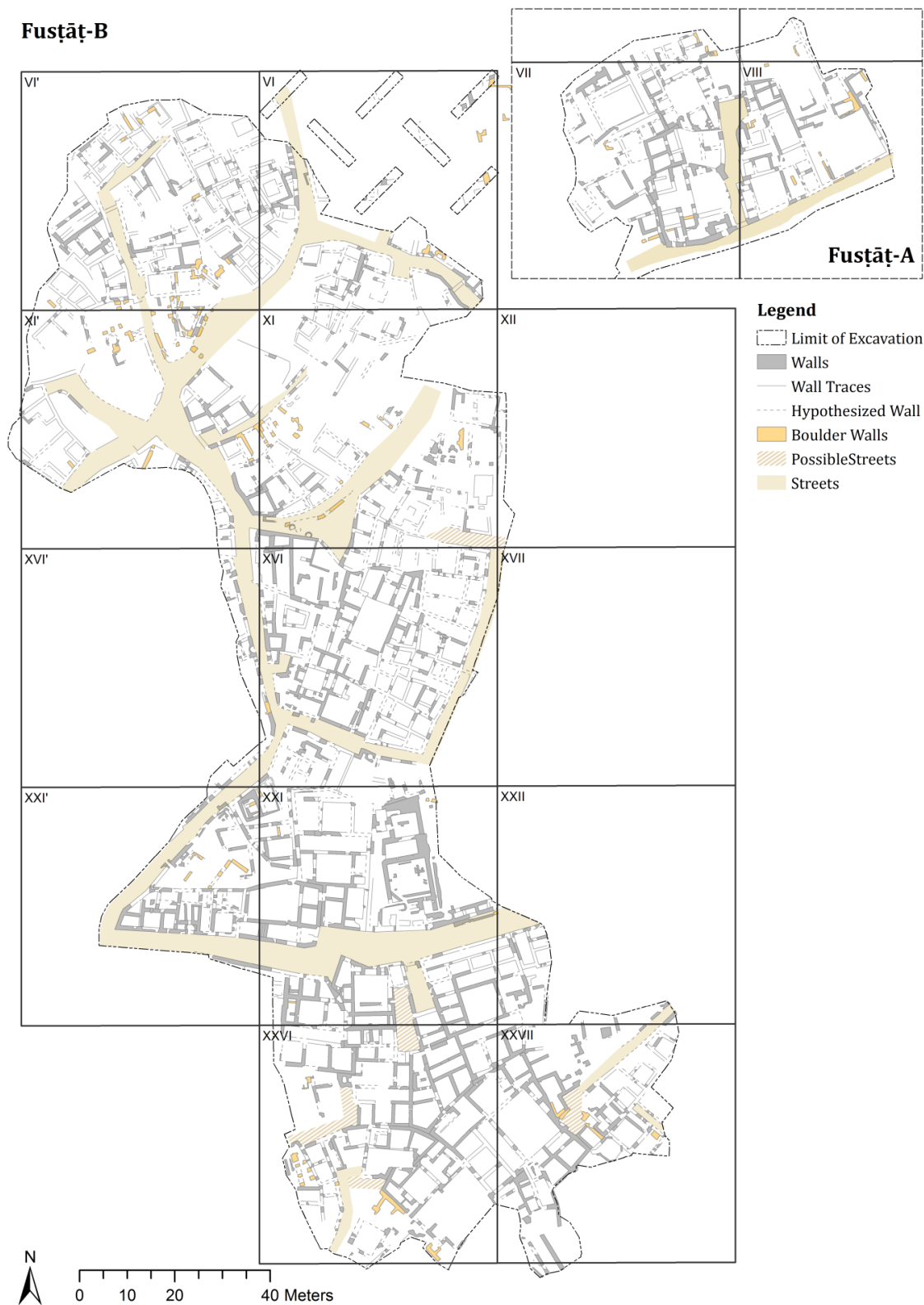
Figure 106 — Walls and streets of Fusṭāṭ-A and Fusṭāṭ-B,
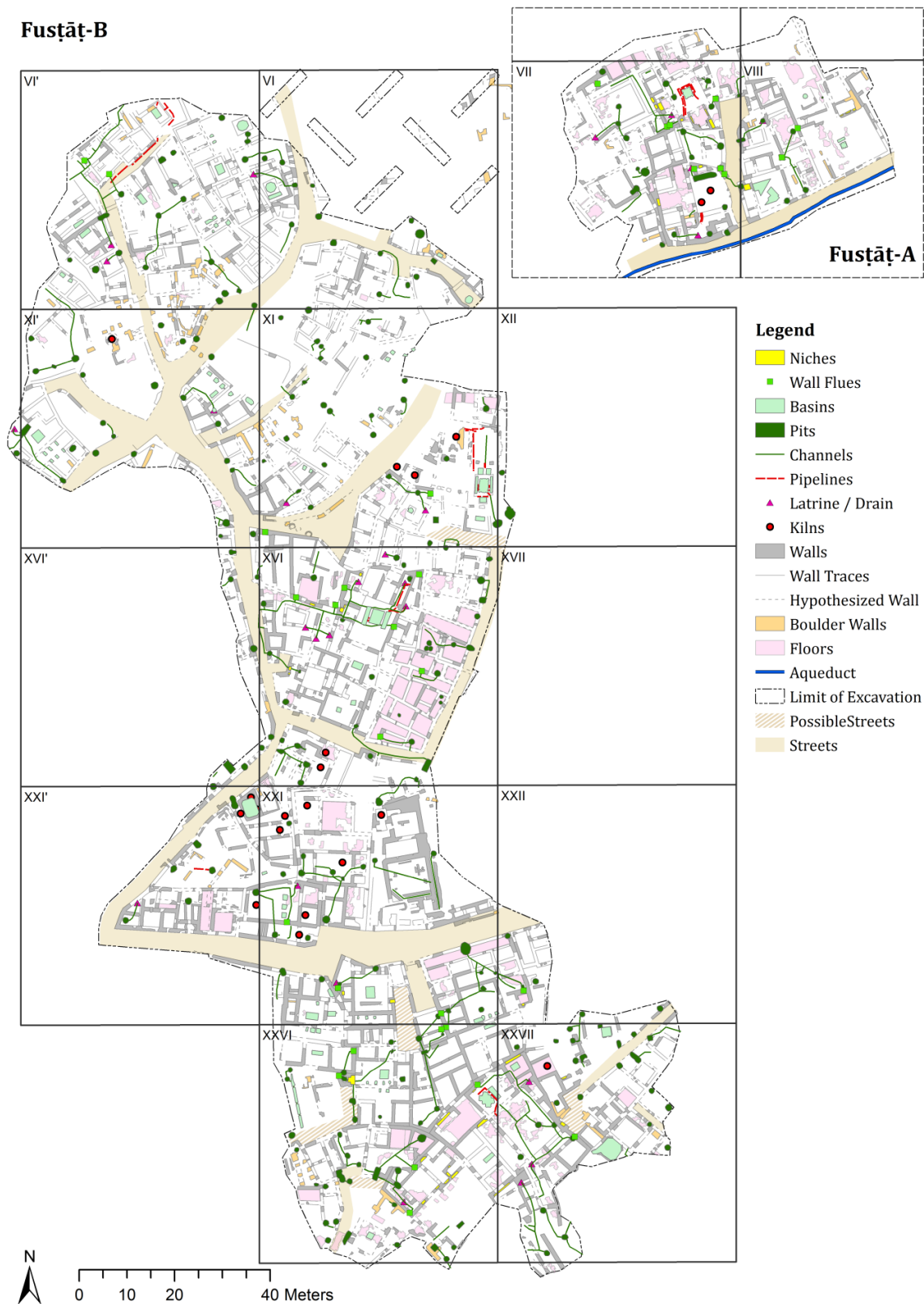
Fusṭāṭ-B

Figure 107 — Summary of digitised structures and features in Fusṭāṭ-A and Fusṭāṭ-B

7.3   SPATIAL UNITS

Archaeologists habitually classify buildings into rooms, either during excavation or during the process of architectural interpretation. This is a subjective process, one that that runs the risk of perpetuating assumptions about what defined spaces for past inhabitants. A room is commonly defined as bounded by walls and perforated by clear entryways. Still, more subtle boundaries may have been formed by columns, changes in the angle, narrowing or widening of spaces, changes in floor level, materials, or roof construction. While these may have signified different spaces for the original inhabitants, they may not be considered so by the excavator. Moreover, movable objects such as wooden screens and textiles could also have been used to create boundaries. A room could be divided into smaller units through use of furnishings and other objects kept there, or even simply through conceptualisation and behaviour (e.g. high-end versus low-end of a room).

Much of the evidence for these more subtle boundaries is not accessible archaeologically. The importance of textiles, including curtains and wall hangings, within the houses of Fusṭāṭ is clear from their prominence in trousseau lists of the Geniza, yet these have not survived archaeologically. Evidence for flooring and roofing is at best inconsistent, and at worst non-existent. The skeleton of the walls is all that one has to determine where spatial boundaries may have been, and even these are uncertain.

Within convex analysis, the approach to topology of space within space syntax (see section 4.2.1, above), individual "convex spaces" that constitute a building are defined as spaces where all points are inter-visible. This definition is constructed, however with an analysis of connectivity and privacy in mind. That a room separated from the main entrance by an L-shaped corridor should be considered more separate or private than one separated by an I-shaped corridor seems apposite. Yet to consider an L-shaped room, or a slightly kinked room, as two distinct conceptual and social spaces seems incongruous. The architecture of Fusṭāṭ is highly irregular, adapting to curving and non-orthogonal streets and house boundaries, so crooks and kinks are unlikely to reflect intentional separation of spaces; they are the result of adaptation to environmental constraints. As such, spaces must be defined in a more subjective fashion. The primary divisions used here are simply the (partially reconstructed) bounding walls, but likely changes in roofing are also considered. Therefore the *riwāq* is separated from the *majlis/ṣadr* even where no foundation is evident across this threshold, just as the courtyard is separated from any open-fronted room lacking such a foundation. Where multiple porticoes seem to form a continuous arcade around a courtyard, these are considered a single space, unless there are foundations separating them which might indicate an arch or separating wall.

Further subjectivity in the definition of spaces concerns which walls are considered appropriate boundaries. I have attempted to define the spaces as they existed just before abandonment of the houses, and so earlier wall remnants that were not part of the final plan must be disregarded, as must post-abandonment squatting and industry. There are no phased plans of the sites, and the tentative sequences proposed within preliminary reports are used as the principal guide for this. Where no indication is given within texts, the apparent relationships of walls as shown in plan are speculated upon, as well as utilising Ostrasz's (1977) house plans, in which certain walls were omitted, presumably through consultation with Scanlon.

Figure 108 shows the spaces defined for the analysis. Not all remains across the sites have been considered. This is because the question explored here—whether particular kinds of space within the houses display a different frequency of certain features than others—relies on being able to characterise the spaces being analysed in some way. As will be discussed further below (7.3.2), only a minority of spaces can be given a clear historical spatial category (through their relation to a wider building plan), the rest being unidentified. It was therefore necessary to propose the boundaries of possible houses, and focus solely on those spaces that can be contextualised within them.

7.3.1   House Units and House Types

Figure 109 presents the proposed house units that define the bounds of this analysis. A house unit should not be taken as strictly synonymous with a single residence, nor a single property. With the complexities of residential patterns identified in the Geniza kept in mind (sections 3.2.2 and 5.2, above), a single unit is defined as a group of rooms that show a degree of common planning and construction to include shared access, lighting, and infrastructure such as sewerage and water supply. As access and lighting was frequently provided through large open courtyards, it is these that tend to define the core of such units, though not exclusively, as will be discussed below. Common canalisation and unity in construction of walls helps define a wider unit, with potential boundaries suggested by abutting and truncated walls, but most clearly by parallel walling, as detailed in section 4.2. In some cases, it would seem that a unit was entirely self-contained and may have potentially functioned (at least at ground-floor level) as a single residence, and may have been owned *at one time* by a single individual or group, though potentially divided in ownership and even residence later. In other cases, there is evidence of continuous construction or shared sewerage between these units, indicating that they were either planned as sub-components of a single property, or were once separate dwellings united by subsequent development. These larger groups I will refer to as "compounds".
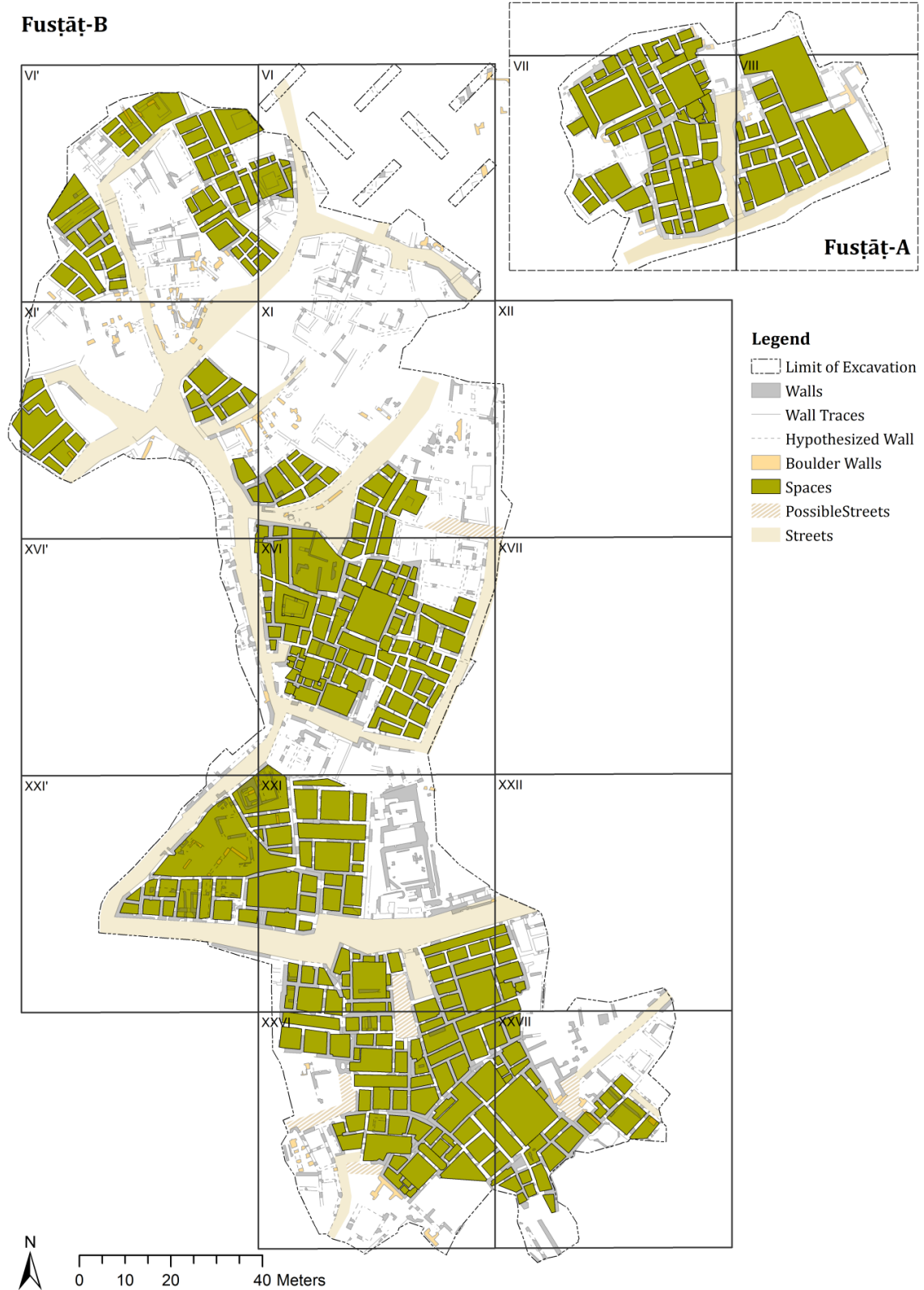
Figure 108 — Spaces within Fusṭāṭ-A and Fusṭāṭ-B, as defined for analysis

The process of defining all 36 units, and their relations to compounds, is based on a careful reading of all preliminary reports and plans. The individual rationale for defining each unit,

using the criteria outlined above, is complex and cannot be detailed within the text. As such, an appendix (Appendix 1) is provided with a description of the evidence for each house, focussing on their boundaries and phasing.

As demonstrated above, consistent arrangement of rooms around central courtyards, namely the *majlis al-ḥīrī*, suggests that these do indeed form comparable domestic units one or more of which may be found within a house. Moreover it is clear from the Geniza evidence (3.2.2, above), that one house or compound (*dār*) may be divided into further smaller units (*dār, qāʿa, tabaqa, qasr, manzil*). As such this classification seems ontologically sound.

As illustrated in section 3.4 (above), there has been a tendency to conflate the wider domestic module, anachronistically termed the "*bayt*", with its most identifiable and consistent components, the *majlis al-ḥīrī*. Here, it should be stressed, units not only extend well beyond the *majlis al-ḥīrī* itself, but this ensemble is not present in many of the units proposed. While Ostrasz took a similar approach to that proposed here in defining his "houses"—choosing to put aside the phenomenon of multi-unit compounds to define each "house" as centring on a single courtyard (Ostrasz 1977, n. 59)—he omitted most remains without a *majlis al-ḥīrī*. He proposed 23 units within Fusṭāṭ-A and Fusṭāṭ-B, only one of which had this ensemble. I have reproduced these units—labelled 1-20 for comparability— though I have revised some of the boundaries based on my own assessment of the evidence. In addition, however, I propose a further 14 house units that can be surmised from the excavation reports, all but one of which have no *majlis al-ḥīrī*, labelled MH-1 to MH-14. Some of these were omitted by Ostrasz due to being unpublished at the time of his article; MH-1, MH-2, MH-3 and MH-5 are noted as recent discoveries of new types of housing that are excluded for this reason. MH-4 was also unpublished, and MH-9 and MH-14 were as yet unexcavated. MH-6 in Fusṭāṭ-A had been mostly revealed and planned by 1964, though it was re-cleaned and re-planned in 1973, and the revised plans were still unpublished at the time of Ostrasz's study. MH-7 and MH-8 were also largely revealed in this 1973 re-cleaning.

Figure 109 — Proposed House Units and Compounds in Fusṭāṭ-A and Fusṭāṭ-B

Still, some of these omissions are perhaps the result of Scanlon's reluctance to identify courtyards without a *majlis al-ḥīrī* as the centre of houses. This is exemplified by MH-6,

which despite being well defined by double-walling on most boundaries and having a courtyard, was invariably considered an adjunct to other more conventional units to the north or south by Scanlon (1981a, 414; 1965, 18). MH-12 is also notable in this respect. At first considered a separate "ensemble" by Scanlon (1976, 75) due to a sewerage system with its own cleaning-point, upon discovery of the large *majlis*-based House 16 to the east it was considered an ancillary set of rooms of the latter, despite the fact that its sewerage is largely[87] independent (Scanlon and Kubiak 1980, 80). Ostrasz identified most of this proposed unit as part of House 16. MH-13 was omitted from Ostrasz's study despite being a clear example of the *majlis al-ḥīrī* presumably because Scanlon did not make mention of any of the remains or features in preliminary reports.

In all cases the typical indicators of internal unity and external separation—continuous masonry, the extent of sewerage, double-walling boundaries, and possible joined access and lighting—were used to propose the units. Within these units two clear commonalities in plan become apparent, as do some more anomalous buildings.

The first evidence of common planning is identified in Houses MH-4, MH-5, MH-6, MH-7 and MH-12, in which one finds evidence of a courtyard (A), leading to a portico (B) and two adjoining rooms of roughly equal width (C) (Figure 110). In MH-4 and MH-5 courtyards were proposed by Scanlon (1981b, 63; 68), the former being indicated by the typical "gougings" found there, while the latter is more speculative; it is simply the largest room in this unit, which was clearly delineated by double-walling and adjoining streets. The courtyard in MH-4 is adjoined by two equally sized rooms (C), and that in MH-5 by a narrow room occupying its full width, suggesting a portico (B), followed again by two rooms. In the case of MH-4 there are two stub-walls in the courtyard suggestive of a portico in the same position, though not identified by Scanlon, making the two more consistent. No courtyard was explicitly identified in MH-6 (Scanlon 1981a, 413–14), but one can be posited based on the size of the space and need to provide light to the rooms to the west. This is adjoined by a portico and two rooms, though some of the portico may have been blocked at a later point, judging from the independently constructed short wall to the south (perhaps related to the water-hold?). As in MH-5, this building continues its bipartite division on the opposite side of the courtyard. MH-7's large courtyard was identified by Scanlon, but was assumed to relate to three rooms to the north, a supposed *majlis al-ḥīrī* with a portico on the side

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[87] A short and narrow tunnelled channel near the top of one pit, the function of which is entirely unclear, connected it to another pit in House 16. The latter's system was emptied from the major thoroughfare to the north, rather than the impasse which served the system of MH-12.

farthest from the courtyard (Scanlon 1981a, 410). His strange interpretation was apparently disregarded by Ostrasz, as this supposed unit is omitted. I propose that these three rooms are related to another plan to the north (see below), whereas the large courtyard relates to the wide room to the east, what would be a rather deep portico, and two rooms adjoining it. The last example is MH-12, considered part of House 16 by Scanlon and Ostrasz. No courtyard was proposed here, but the largest room is also adjoined by a narrow room occupying its full width, a possible portico, leading to two rooms of equal width. These latter rooms would certainly have had to be lit by a courtyard, as they are hemmed in by other house units on their remaining sides. In both MH-7 and MH-12 a further linear arrangement of rooms is present, in MH-7 being perpendicular to the main axis, and in MH-12 parallel. In each case it seems possible that one of these four rooms (or possibly three in MH-12, the significance of the stub-walls being unclear) was a secondary courtyard, but this remains uncertain.

Figure 110 – Plans of houses with bipartite plans, Type C. The walls are partially reconstructed, where only traces survive. A=Courtyard, B=Portico, C=Dual Rooms.

That this can be considered a distinct building plan—which will be referred to as Type C (following Ostrasz's types A and B)—is reinforced by the excavation plan of the Japanese mission in Fusṭāṭ (Figure 111, below). Here, though no reconstruction, labelling, or

differentiation of feature types is presented, what appears to be three identical units of this type are apparent[88].

Figure 111 — Excavation plan of area of Fusṭāṭ excavated by Kawatoko and Sakurai, with added highlighting to illustrate the apparent repetition of Type C house units.

A consistent form of ensemble, differing significantly from Type C, was noted by Kubiak and Scanlon when excavating the area east of House 10A/B/C in 1971, what they called the "Eastern Complex" (Scanlon and Kubiak 1979, 107–109). Linear ranges of relatively small rooms—in rows of two, three or four—cluster around long, narrow spaces that adjoin the street on one of their shorter sides, no doubt providing access to the smaller spaces. These long spaces, probably unroofed in order to provide light to those spaces distant from the street, were called "antechambers". Three such spaces were present in this area, with smaller rooms on either side, suggesting three contiguous buildings accessed independently: MH-1, MH-2 and MH-3. What is slightly puzzling is the apparent unity of

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[88] It should be stressed that as the excavation report is in Japanese, this is purely based on visual assessment of the plan.

these three, showing no double-walling boundaries and the same general sequence of flooring throughout. Still, each has separate access, lighting, and each was provided with a sewerage system.

Figure 112 — Plans of houses with linear plans, Type D. The walls are partially reconstructed, where only traces survive. A=Narrow, probably roofless, antechamber.

These three units, despite being identified as a distinct type, were acknowledged but omitted by Ostrasz because they were not published. Given the consistent plan of these three examples, this type of unit can be detected in other excavated areas. There are two likely examples. The first is MH-11, which was considered by Scanlon as perhaps a separate house, or an extension of House 2 (Scanlon 1974a, 85). It consists of an irregular long room flanked by a row of three rooms on either side. There is no double walling between these rooms and the latter *majlis*-based house, but equally no continuous masonry either (little masonry survives at all). The presence of a separate sewer system here, so close to but unconnected with that of House 2, suggests it was functionally independent. Whether a street was found at one or both ends of the narrow antechamber is unclear, as little survived here. The second is MH-8, whose proposed antechamber was thought by Scanlon to be a portico found on the "wrong" side of the three rooms to the south (Scanlon 1981a, 410), relative to a southern courtyard that I have argued is actually part of a separate unit (MH-7). Such a strange explanation is rectified if one considers this an open antechamber (indeed the misaligned jambs at the street entrance suggest it was not roofed) to access the three rooms, mirrored by a further three rooms to the north. Such a proposed unit would have its own sewerage system, serviced from an impasse. This plan is referred to as "Type D".

7.3.2 Spatial Categories

To be able to test the proposed hypothesis—that different kinds of space within these houses had different frequencies of features within them—one must be able to generalise about the kinds of spatial context within the houses, to offer some comparable characterisation of individual spaces across different houses. There are certain spatial units whose categorisation, their distinct use and meaning for inhabitants, is clear from a comparison of the morphology of the forms to historical description. These are the rooms of the *majlis al-ḥīrī* (*ṣadr, kumm, riwāq*), the central courtyard (*qāʿa*), and the *ṣuffa*s. These provide a starting point for a categorization of spatial units, illustrated in Figure 113, below. Note that the English "courtyard" is used to avoid confusion with other meanings of the term *qāʿa*. *Ṣadr* is used instead of *majlis*, the latter used only to refer to the wider ensemble rather than the central room.

The definition of house units has revealed consistent plans (Type C and Type D), suggesting further categories. In the case of Type C, the courtyard and adjacent portico would seem directly analogous to the central courtyard and *riwāq* of the *majlis*-based plan, and so are categorized as such. The two further rooms adjoining the portico, may be a *ṣadr* and single *kumm*, or were perhaps conceptualized entirely differently. Even if the former could be assumed, it is unclear which would be the *ṣadr* and which the *kumm*, as such they are given their own category "dual room". This category is not, like the others, one whose societal veracity is verified through historical sources; rather, it is based on morphology and relations to the wider plan of the house unit. No documentary comparator can be supplied, rather the analysis itself provides an opportunity to assess the significance, or otherwise, of the proposed category by examining whether placement of features indicates a different use and meaning of these spaces. Yet, the inexactness of this relationally-defined category proves somewhat problematic. If each of the two rooms had distinct functions, any correlation with particular features may be masked through being combined with the complementary room. In lieu of a meaningful way to distinguish which characteristics may separate the two, no more exact categorization can be supplied. This problem is discussed further below.
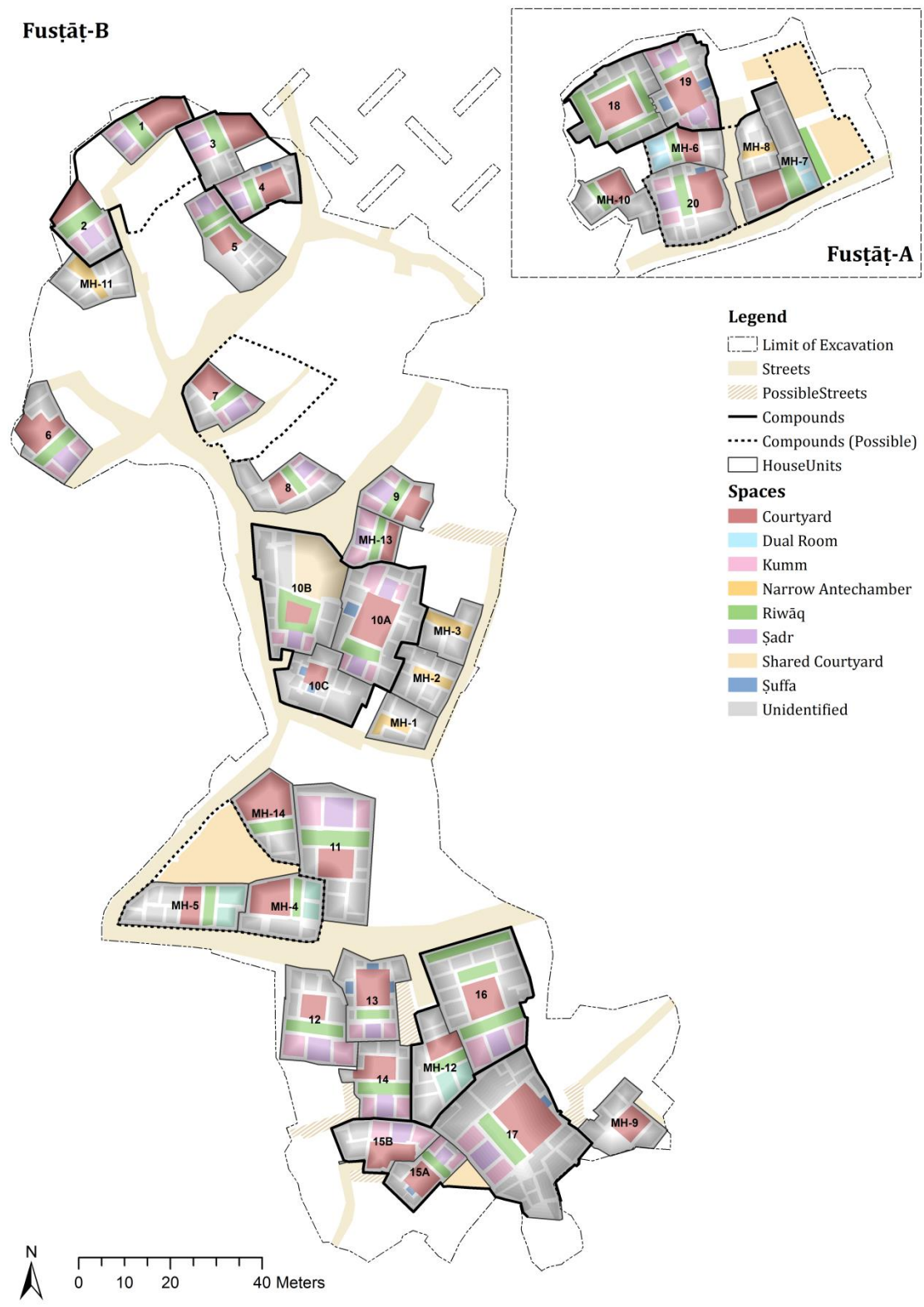
Figure 113 — Categorisation of spaces

Archaeological Features in Spatial Context

Within Type D, the narrow central space around which the plan is clustered can be considered a spatial category. Again this is defined through its distinct morphology, relation to the house-unit plan, and in this case through its inferred function: to provide access and light to the remaining rooms. Following Scanlon's terminology, this is called a "narrow antechamber", though it could also be considered a narrow courtyard or private impasse.

One further category of spaces is proposed, that of "shared courtyards". There are several examples of large open areas, sometimes paved and occasionally with a *fisqiya*, which do not seem to function in the same manner as the central courtyard or *qāʿa*. Not only are these often much larger than the typical central courtyard, there is little sense that they provide light and access to surrounding rooms. Rather, they often border thoroughfares, rooms already facing smaller central courtyards, or even the smaller courtyards themselves. That north of MH-5 and MH-4 may have served both units, as neither has any clear boundary with it (Scanlon 1981b, 67). Similarly, the courtyard identified between 15A and 17 has no double walling separating it from the *majlis al-ḥīrī* of either unit, which through the existence of continuous masonry appear to be part of the same larger compound. Another is defined as within unit 10B, due to a clear entryway from this unit to the courtyard, but as this unit was united with 10A and 10C within a larger compound it is likely to have been a shared space. The two courtyards in Fusṭāṭ-A may be related to unit MH-7, but also to other poorly defined remains further east and north (Scanlon 1981a, 411).

All other spaces are categorized as "unidentified". It is my intention not only to clarify the meaning and use of identified spaces but to suggest further categories within unidentified spaces. Yet without any evident relational consistencies within these spatial units, how can they be categorized to test the proposed hypothesis? One might use characteristics such as size, position (relative or cardinal), or shape, but that would pre-suppose that one of these must correspond to conceptual or functional categories, whereas it may be the case that none do. Still, in categorizing all unidentified spaces together any correlation of features within a subset of these spaces will be masked by absence elsewhere. This is the same problem mentioned with regard to the "dual rooms", but far more profound, as unidentified spaces make up 57.4% of the total studied (see Table 2, below). To understand the significance of this problem, the precise mode of analysis must be explained.

Table 2 — Frequency of spatial categories

Space Type	Frequency	Percent
Courtyard	32	7.9
Dual Room	10	2.5
Kumm	48	11.9
Narrow Antechamber	5	1.2
Riwāq	36	8.9
Ṣadr	24	5.9
Shared Courtyard	5	1.2
Ṣuffa	12	3.0
Unidentified	232	57.4
Total	**404**	**100.0**

7.3.3 Statistical Analysis and Spatial Exploration

To test the hypothesis above, one must disprove the following null hypothesis: *certain spatial categories do not significantly differ from each other in terms of the presence of feature x.* I proposed to test the null hypothesis by first querying the presence or absence of feature types within each spatial unit, and summarizing this according to spatial categories. The difference in frequencies of presence/absence of a feature between spatial categories will then be assessed using a Chi-squared test. This test determines the expected frequency of presence/absence for each category. This can be calculated as the ratio of presence to absence within the overall sample (all categories) multiplied by the number of spaces within that category. In other words, the expected frequency is what one would see if the data reflects the overall rate of presence within all spaces in the Fusṭāṭ houses, that this rate did not vary by spatial category, and one examined the number of spaces in question. The Chi-squared test assesses how likely it is that the difference between the expected and observed frequencies in the sample as a whole is the result of chance—that the sample studied could have come from a larger population in which rates of presence are the same between spatial categories. If the resultant *p*-value is less than 0.05—a deviation from expected values that would occur 1/20 times in a random sample drawn from a population in which spatial category and feature presence were unrelated—the null hypothesis is rejected.

For each feature type, the extent to which individual categories show a higher or lower than expected rate of presence will be summarized using the Standardized Residual – the observed minus expected frequency, divided by the square root of the expected frequency. While the *p*-value indicates the significance of the overall pattern of presence and absence,

the Standardized Residuals indicate which particular categories within a significant pattern differed considerably from the expected value. Positive residuals indicate higher than expected frequency, negative residuals indicate lower than expected frequency. Since standardization accounts for sample size, the measure is comparable between categories, and between different tests. For a given test, the Standardized Residuals will have a mean of 0 and standard deviation of 1. Conventionally, any residuals beyond +/-2 are considered significantly large, indicating categories which have markedly deviated from what would be expected were variables unrelated.

Detecting prevalence of features within the unidentified spces will not always be problematic. If there are a high number of features within a small subset of unidentified spaces, this will be visible in the results as long as it brings the overall rate of presence within the category considerably above the mean rates of prevalence in the other known spatial categories. More importantly, however, in the analysis the precise locations of the feature in question will be visualized within the house units alongside the category-based statistical summary. This provides opportunities to pose further questions:

- Where more features than expected occur within a category, is there consistency in placement?
- Within which of multiple examples of this spatial category it is placed?
- How often does the feature occur within a single house unit?
- What proportion of house units have one of these features?

Crucially, even if there is not a higher than expected presence of a feature within the overall unidentified category, one can examine whether there is any consistency in the kinds of unidentified spaces within which the feature is placed. This might suggest a subset of rooms that have been ignored by the categorical summary.

7.4   TEMPORALITY

As highlighted regarding masonry, individual features were not assigned comprehensively to particular phases by Scanlon; only *ad hoc* assessments were made. Therefore, in simply querying which spaces coincide with which features, one is in danger of comparing features of one phase and architecture of another. It is beyond the scope of this study to attempt a completely phased plan of the site, but some chronological indications can be gleaned from preliminary reports in order to mitigate this problem; I have thus excluded features which are divorced from their original architectural context. These are features whose functioning has clearly been prohibited by the structural elements of the house (blocking

of channels and sealing of pits as part of remodeling), or
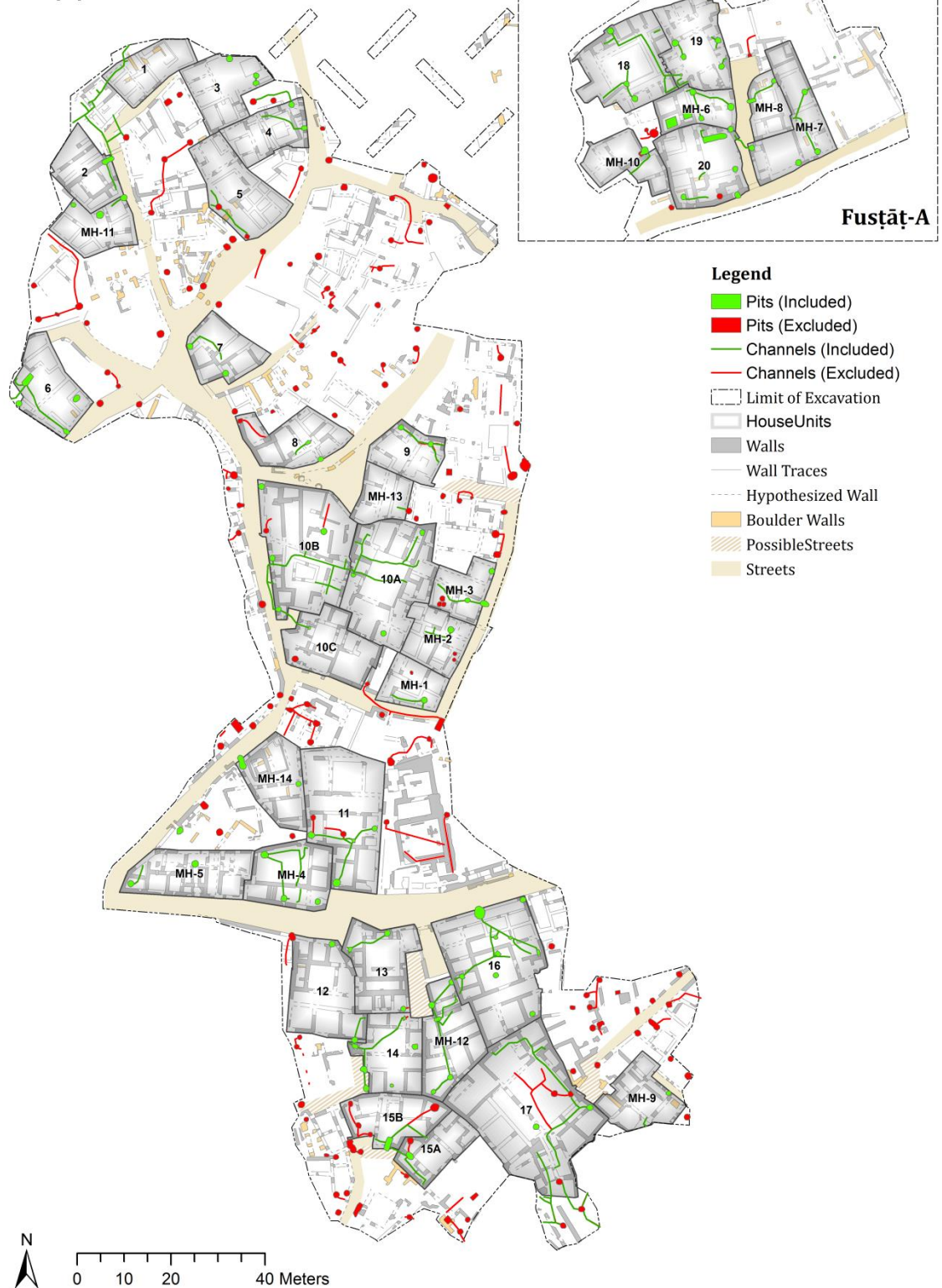
Figure 114 — Pits and channels excluded from analysis due to a lack of defined spatial context

backfilled with artefacts entirely earlier than the deduced date of construction or remodeling of the house in question. However, where the architectural elements

surrounding the feature have been surmised to pre-date the backfilling, having been retained during remodeling, the features are not excluded. In some cases features are considered by Scanlon to be part of an earlier plan purely based on their circumstances and a tentative interpretation of their function (e.g. this must be a cesspit; cesspits are always emptied from the street; without a street here it must be a remnant of another house); this is not taken into consideration in the present study without artefactual support.

Most often the excluded features are elements of the sanitation system; due to their permanence in the *gabal* they survive remodeling. A summary of those pits and channels excluded, either because they are beyond the house units, or have been deemed early remnants is shown in Figure 114, above. As the individual rationale for exclusion in each case cannot be presented here, the phasing of each house and its features is considered in Appendix 1.

7.5 RESULTS

7.5.1 Pits, Channels and Intakes

As discussed in the previous chapter, a functional typology of pits is proposed based on their relation to the *gabal*-hewn channels and thoroughfares. Four classes of pit can be proposed as follows:

1. Pits connected to conduits and potentially accessible from the street (terminal cesspits)
2. Pits connected to conduits but not accessible from the street (sumps or soakaways)[89]
3. Pits isolated from conduits and accessible from the street (potential terminal cesspits, water-holds, or wells)
4. Pits isolated from conduits and not accessible from the street (potential water-holds, wells, wastewater soakaways)

The spatial distribution of these four classes is shown in Figure 115, below.

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[89] Certain exceptions were made with connected pits that were street-adjacent but where a more likely cleaning point was clear from the construction of the system (volume of pit, direction of flow of channels).
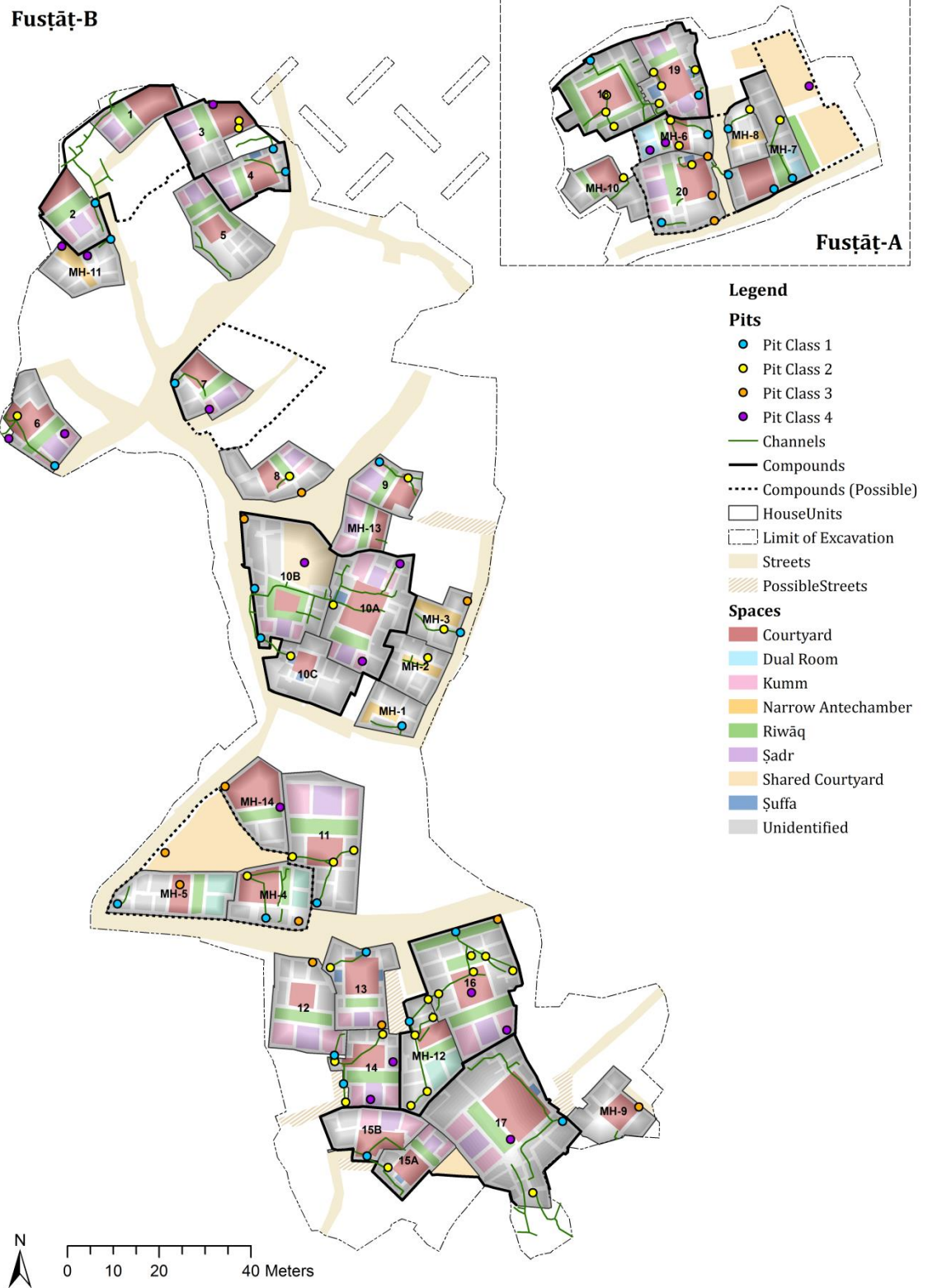
Figure 115 — Distribution of pit classes 1-4 in Fusṭāṭ-A and B

Table 3 shows the rates of presence and absence of pit class 1 within the different spatial categories. The difference between observed and expected frequencies of feature presence

is summarised in Figure 116, below. No residuals exceed +/- 2, and the Chi-squared[90] test confirms that the pattern here is not statistically significant (*p*=0.886). The most substantial deviation from expected frequency is apparent within *ṣadr*s (-1.3). This category has a complete absence of these features, as do dual rooms and narrow antechambers, though frequencies are not high enough in other categories to indicate that this is not coincidental. There are slightly more *kumm*s with these features than expected, and to a lesser extent unidentified spaces and *ṣuffa*s.

Table 3 — Presence and absence of class 1 pits within space types

					Space Type						
		Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	Total
Pit Class 1 Presence	0	Count	30	10	43	5	34	24	5	11	214	376
		Expected Count	29.8	9.3	44.7	4.7	33.5	22.3	4.7	11.2	215.9	376.0
		% within Space Type	93.8%	100.0%	89.6%	100.0%	94.4%	100.0%	100.0%	91.7%	92.2%	93.1%
		Std. Residual	.0	.2	-.3	.2	.1	.4	.2	-.1	-.1	
	1	Count	2	0	5	0	2	0	0	1	18	28
		Expected Count	2.2	.7	3.3	.3	2.5	1.7	.3	.8	16.1	28.0
		% within Space Type	6.3%	0.0%	10.4%	0.0%	5.6%	0.0%	0.0%	8.3%	7.8%	6.9%
		Std. Residual	-.1	-.8	.9	-.6	-.3	-1.3	-.6	.2	.5	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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[90] Specifically, Fisher's Exact Test is used, as this is more accurate when the expected counts are less than five. Unless otherwise stated, this is the form of Chi-squared test referred to hereafter.
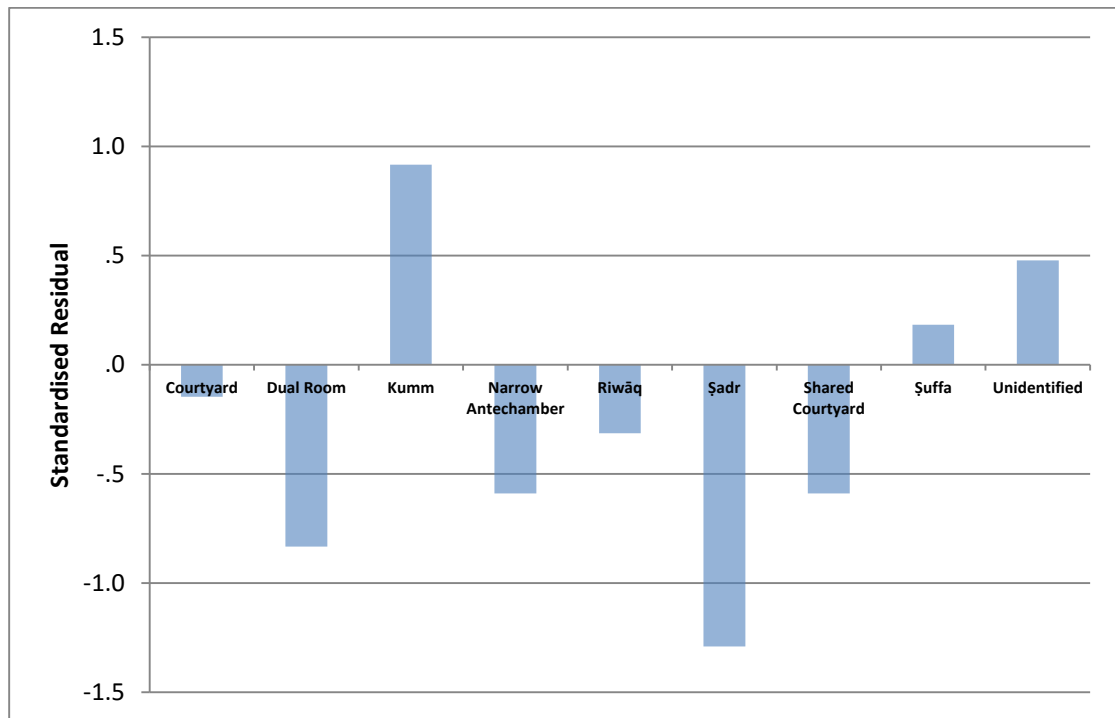
Figure 116 — Difference between observed and expected presence of pit class 1 within space types.

Considering that patterns within the unidentified category may not be apparent based on this summary, spaces of this type containing class 1 pits are highlighted in Figure 117. These features would have been sealed beneath the flooring of the house, and only accessible from the street; they are therefore unlikely to signal a specific activity within the room. Their presence is thus only instructive in that they may signal a conceptual division in the house between clean and dirty areas.

The locations of the particular unidentified rooms with class 1 pits show a certain consistency. Within *majlis*-based units the terminal cesspit is usually on the side of the building opposite the *majlis*, either in a room directly off the central courtyard (Houses 4, 7, 10B and 17), or separated from the courtyard by intermittent rooms (Houses 11 and 16). The pit in House 16's street-side *riwāq* and House 13's *ṣuffa* are also the furthest point from the *majlis*. The other unidentified rooms with this feature are those that are adjacent to the *kumm* (20, 10B), which also shows a higher than expected frequency as a category (Houses 2, 6, 9, 19). Within Type C plans there is a similar pattern, MH-5, MH-6, MH-7 and MH-12 all having a terminal cesspit on the opposite side of the courtyard from the dual rooms, though MH-7 also has one within the *riwāq*. In Type D plans there is no clear pattern; the pit can be within any of the rooms off the central antechamber.
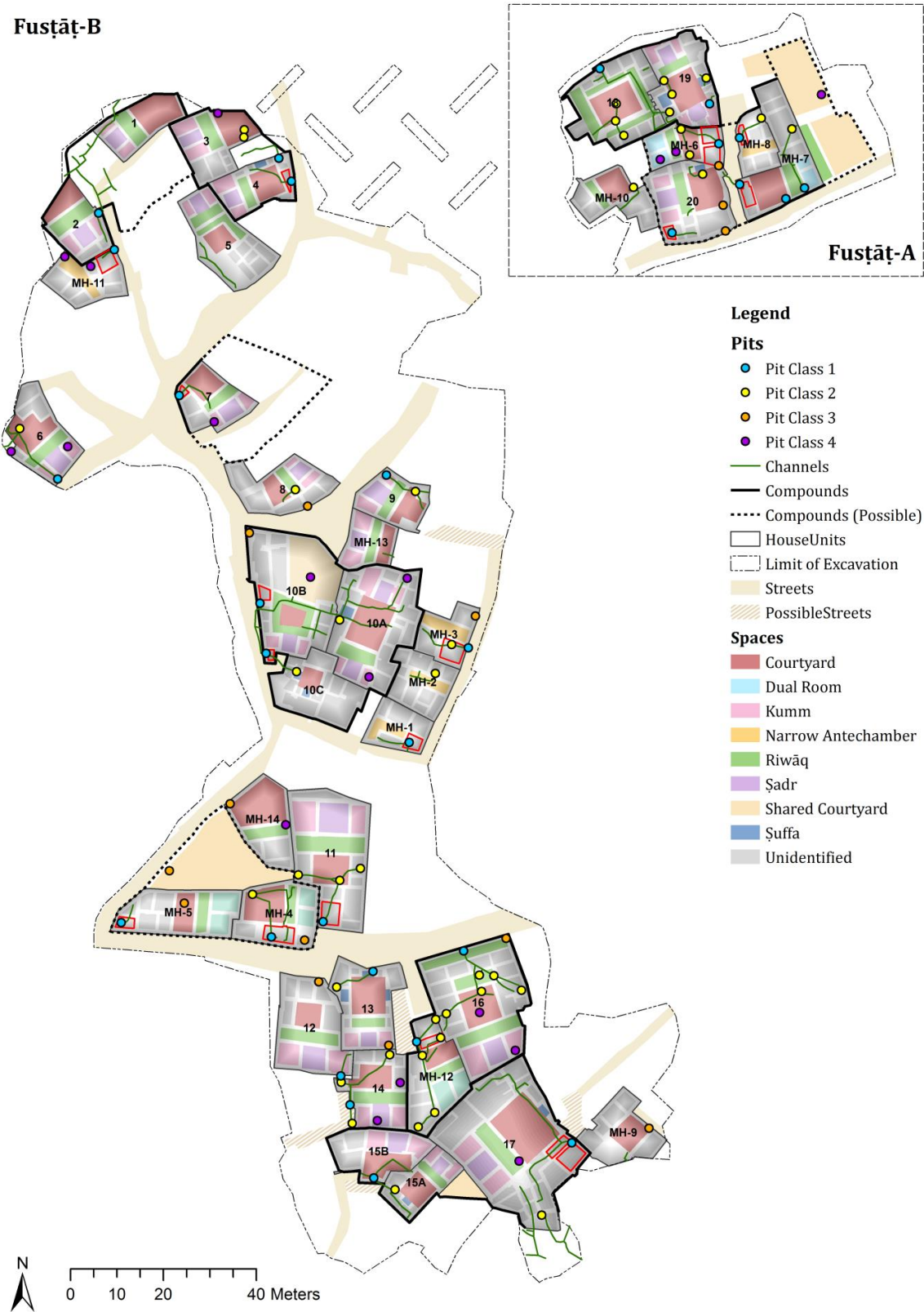
Figure 117 — Distribution of pit classes 1-4 in Fusṭāṭ-A and B, unidentified rooms with pit class 1 beneath highlighted.

An examination of the specific locations suggests a tendency to direct sewerage towards the street, which is most often at the side of the unit opposite the *majlis* or dual rooms, but to no consistent location specifically. Where the *majlis* was bordering the street, the terminus was seemingly placed in the *kumm*, rather than the *ṣadr*. It seems, intuitively, to be a strict and intentional avoidance of placing sewerage in the *ṣadr*. Still, despite the complete absence of these features within the *ṣadr*—and the dual rooms, which may have included a *ṣadr* or equivalent room— there are not high enough frequencies within other categories to rule that this absence is not simply the result of happenstance.

Yet if one expands the analysis to consider other features associated with sewerage, class 2 pits and sewer channels, support for a deliberate avoidance of sewage features in the *ṣadr* is forthcoming. Table 4, shows presence of *gabal*-hewn channels within space types, and the difference between observed and expected values is summarised in Figure 118. A Chi-squared test leaves little doubt as to the significance of the overall pattern (p=0.002). Again, there is a complete absence of channels in the *ṣadr*, resulting in the largest negative residual. That dual rooms once more follow the same pattern as the *ṣadr*, complete absence*,* lends weight to the theory that one or both of these were conceptualised in a similar way. The presence of channels is lower than expected within the *kumm*, which seems somewhat contrary to informal pattern observed with regard to class 1 pits. Yet, examining the location of channels across the houses, it seems that channels only traverse a *kumm* in order to connect to a terminal cesspit within the *kumm* itself. The exception is that in 10A, but here the channel is an exceptionally narrow and shallow runnel connecting to the shrubbery pits, and therefore most likely not for sewage (see Figure 61, section 6.1.2). In this way, the pattern supports the notion that sewerage tended not to be directed through the *ṣadr* or its attendant *kumm*s, but where it had to traverse this area to create a terminus on the street, the *kumm* was used. This does not explain, however, why in House 6 and possibly in House 9, alternative thoroughfares were not used as the terminus of the system. Perhaps this is the result of the adaptation of pre-existing systems to new architectural layouts, or further considerations for constructing the *majlis* such as the direction of sun and wind.

Table 4 — Presence and absence of channels within space types

			Space Type									Total
			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	
Channel Presence	0	Count	10	10	41	4	21	24	5	7	166	288
		Expected Count	22.8	7.1	34.2	3.6	25.7	17.1	3.6	8.6	165.4	288.0
		% within Space Type	31.3%	100.0%	85.4%	80.0%	58.3%	100.0%	100.0%	58.3%	71.6%	71.3%
		Std. Residual	-2.7	1.1	1.2	.2	-.9	1.7	.8	-.5	.0	
	1	Count	22	0	7	1	15	0	0	5	66	116
		Expected Count	9.2	2.9	13.8	1.4	10.3	6.9	1.4	3.4	66.6	116.0
		% within Space Type	68.8%	0.0%	14.6%	20.0%	41.7%	0.0%	0.0%	41.7%	28.4%	28.7%
		Std. Residual	4.2	-1.7	-1.8	-0.4	1.5	-2.6	-1.2	.8	-0.1	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
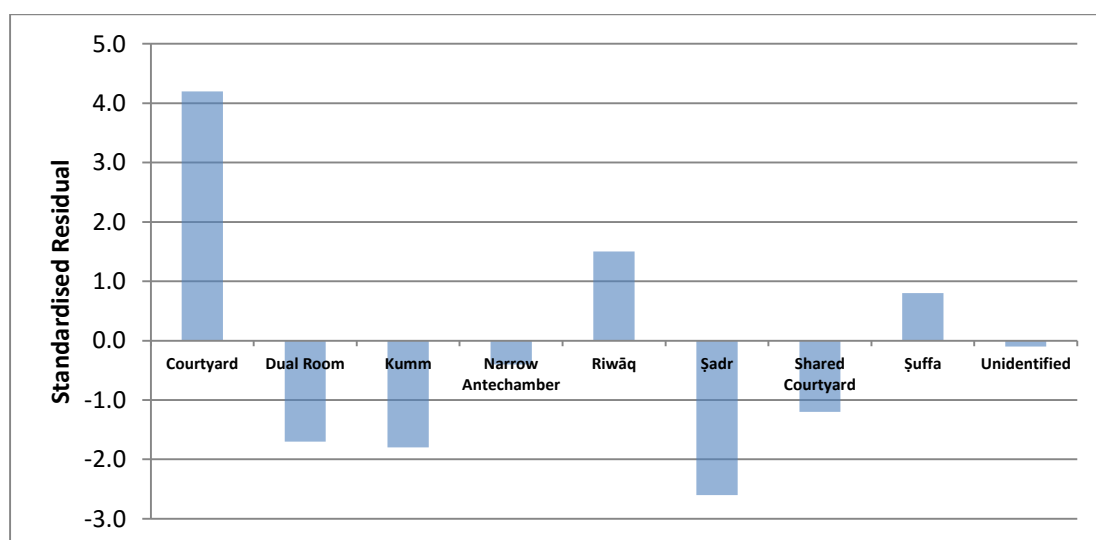
Figure 118 — Difference between observed and expected presence of channels within space types.

The far higher than expected frequency within courtyards could be explained by the relatively large area and central location of this space, making it most likely to be traversed

when intakes and cesspits in different parts of the house were connected. The same might be argued for the less pronounced association with *riwāqs*, which are wide and centrally located (investigated further below). It would seem that the evident reluctance towards placing sewerage within the three other chambers of the *majlis* did not extend to the semi-open space of the *riwāq*, which was treated much like the courtyard. However, three of those containing channels are within the atrium-like plan of House 18, which contains no clear *majlis*. Similarly, in House 10B and 16 these are on the sides of the courtyard opposite the *majlis*. Still, a large number are those fronting *majlis*es or dual rooms (7, 8, 9, 20, MH-4, MH-7), and not only to meet a terminus within the street-side *kumm*.

Table 5 — Presence and absence of class 2 pits within space types

			Space Type									Total
			Courtyard	Dual Room	Kumm	Narrow Antechamber	*Riwāq*	*Şadr*	Shared Courtyard	*Şuffa*	Unidentified	
Pit Class 2 Presence	0	Count	20	10	48	5	34	24	5	10	214	370
		Expected Count	29.3	9.2	44.0	4.6	33.0	22.0	4.6	11.0	212.5	370.0
		% within Space Type	62.5%	100.0%	100.0%	100.0%	94.4%	100.0%	100.0%	83.3%	92.2%	91.6%
		Std. Residual	-1.7	.3	.6	.2	.2	.4	.2	-.3	.1	
	1	Count	12	0	0	0	2	0	0	2	18	34
		Expected Count	2.7	.8	4.0	.4	3.0	2.0	.4	1.0	19.5	34.0
		% within Space Type	37.5%	0.0%	0.0%	0.0%	5.6%	0.0%	0.0%	16.7%	7.8%	8.4%
		Std. Residual	5.7	-.9	-2.0	-.6	-.6	-1.4	-.6	1.0	-.3	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
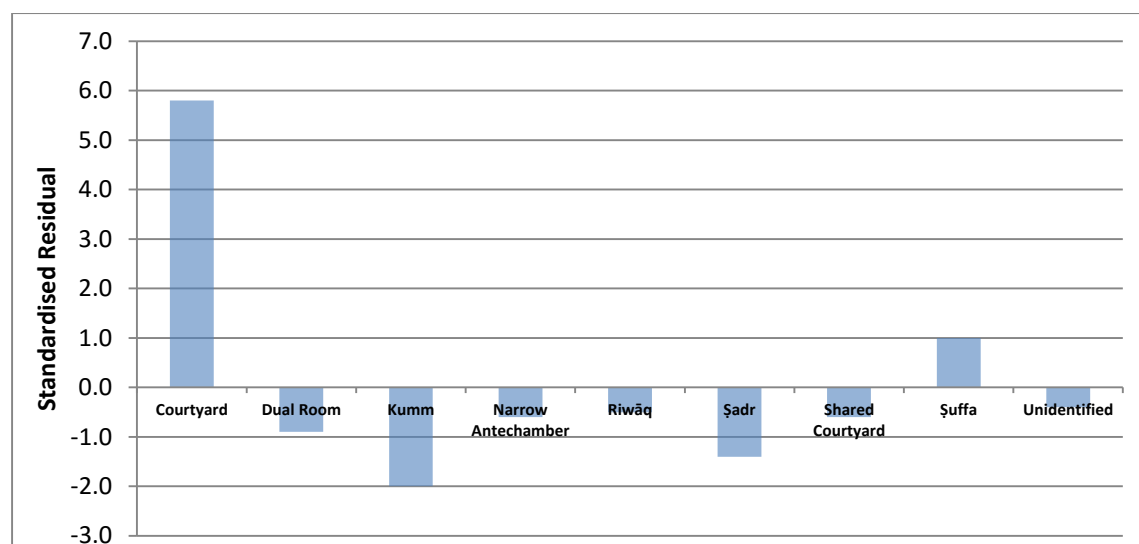
Figure 119 — Difference between observed and expected presence of pit class 2 within space types.

Class 2 pits, connected to the sewerage channels but not functioning as street-accessible cleaning points, can be understood as sumps. The rates of presence of these features are shown in Table 5, and the Standardised Residuals summarised in Figure 119. As these are placed at junctions, corners and terminals of sewer channels, it should be no surprise that the pattern is much the same as that noted for the latter. Again, the prominence of the courtyard may be due to its size and central location, a likely place for junctions. A Chi-squared test could not be run due to the memory required in this sample, and so a Monte Carlo simulation was used to the same effect, showing significance of the differences ($p<0.001$). Again there is a complete absence within the *ṣadr* and dual rooms, though the overall significance of the pattern is mostly due to the strong association of class 2 pits with courtyards, rather than a dearth within the *ṣadr* and dual rooms specifically. The absence within the *kumm* is a significant departure from the expected frequency, reinforcing what was suggested above, that sewerage was only placed here where a street-side terminal by this room was required.

Further insight can be given by subcategorising these pits. While the association with courtyards seems reasonable if these pits functioned as sumps or manholes at the intersections and corners of channels, this is not their only possible function. Those at the terminals of channels are presumably placed at the points of ingress into the system and must indicate sumps for drains, latrines or wall-flues. In other cases class 2 pits are part of networks that have no apparent street-side cleaning point, potentially representing internal terminal cesspits—though often which pit within these networks is the endpoint

is unclear—or perhaps disused systems from an earlier plan[91]. The pits were therefore subcategorised based on their relation to the channel network and surrounding masonry as follows:

A. Pits placed at junctions and corners of channels as sumps

B. Pits placed at terminals of channels terminating within a room, seemingly sumps to service a latrine or drain.

C. Pits placed at terminals of channels terminating under a wall, seemingly to service a wall-flue.

D. Pits that appear to be the end-point of a network, a terminal cesspit, despite not being serviceable from a street or impasse.

E. Pits that, like D, are part of a network that is not serviceable from the street, but where it is not clear which pits within the network are end-points and which are intermediate sumps.

This categorisation is at times highly subjective, not least because a single pit may serve several functions, servicing both a wall-flue and a drain or latrine, at a junction. Furthermore, a latrine may be built as an alcove in the wall and thus resemble a wall-flue structurally, as illustrated in the previous chapter, with the exception that the shaft extends into the internal face of the wall. Since it is the location of latrines and drains (subclass B) from which inferences about use of space on the ground floor are most likely to be drawn, I have erred on the side of alternate categories in case of ambiguity. It should be noted that several pits, particularly those in House 16, that though placed in the vicinity of junctions are actually located to one side and joined to the confluence point by a short channel. While these may be man-holes, they may also be drains, or function as both. I have categorised these as subclass B.

Presence of subclasses A-E within space types is shown in Table 6, Table 7, Table 8, Table 9, and Table 10, below. The standardised residuals of all five are summarised in Figure 120, below. Chi-squared tests indicate no statistically significant deviation from expected values for classes 2B (p=0.422), 2C (p=0.99) or 2D (p=0.344). This is largely expected in C, as their placement relates to upper-storey use of space, not the ground-floor plan, though it is perhaps surprising for B, as these should relate to specific ground-floor activities (waste disposal). Significant results for class 2A (p=0.011), sumps placed at junctions, are the result of an association with courtyards. This is also the case for class 2E (p=0.022), which

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[91] These were not excluded where there was no artefactual evidence to support a theory of disuse.

also shows significantly high correlation with *ṣuffa*s, though this is based on a single example. It is probable that 2E pits are the remnants of earlier building plans; most are in Fusṭāṭ-A where groundwater prevented their lower fills from being excavated to confirm their earlier date. As such their association with courtyards may simply relate to the large area occupied by these spaces, and little can be inferred from the pattern. The correlation between class 2A and courtyards indicates that it is the junction-sumps that are mostly responsible for the same correlation in class 2 more generally, as had been assumed.

Table 6 — Presence and absence of class 2A pits within space types

			Space Type									Total
			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	
Pit Class 2A Presence	0	Count	26	10	48	5	36	24	5	12	227	393
		Expected Count	31.1	9.7	46.7	4.9	35.0	23.3	4.9	11.7	225.7	393.0
		% within Space Type	81.3%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	97.8%	97.3%
		Std. Residual	-.9	.1	.2	.1	.2	.1	.1	.1	.1	
	1	Count	6	0	0	0	0	0	0	0	5	11
		Expected Count	.9	.3	1.3	.1	1.0	.7	.1	.3	6.3	11.0
		% within Space Type	18.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.2%	2.7%
		Std. Residual	5.5	-.5	-1.1	-.4	-1.0	-.8	-.4	-.6	-.5	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 7 — Presence and absence of class 2B pits within space types

			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	Total
Pit Class 2B Presence	0	Count	29	10	48	5	35	24	5	11	223	390
		Expected Count	30.9	9.7	46.3	4.8	34.8	23.2	4.8	11.6	224.0	390.0
		% within Space Type	90.6%	100.0%	100.0%	100.0%	97.2%	100.0%	100.0%	91.7%	96.1%	96.5%
		Std. Residual	-.3	.1	.2	.1	.0	.2	.1	-.2	-.1	
	1	Count	3	0	0	0	1	0	0	1	9	14
		Expected Count	1.1	.3	1.7	.2	1.2	.8	.2	.4	8.0	14.0
		% within Space Type	9.4%	0.0%	0.0%	0.0%	2.8%	0.0%	0.0%	8.3%	3.9%	3.5%
		Std. Residual	1.8	-.6	-1.3	-.4	-.2	-.9	-.4	.9	.3	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 8 — Presence and absence of class 2C pits within space types

			Courtyard	Dual Room	Kumm	Narrow Antechamber	Riwāq	Ṣadr	Shared Courtyard	Ṣuffa	Unidentified	Total
Pit Class 2C Presence	0	Count	32	10	48	5	36	24	5	12	229	401
		Expected Count	31.8	9.9	47.6	5.0	35.7	23.8	5.0	11.9	230.3	401.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	98.7%	99.3%
		Std. Residual	.0	.0	.1	.0	.0	.0	.0	.0	-.1	
	1	Count	0	0	0	0	0	0	0	0	3	3
		Expected Count	.2	.1	.4	.0	.3	.2	.0	.1	1.7	3.0
		% within Space Type	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	.7%
		Std. Residual	-.5	-.3	-.6	-.2	-.5	-.4	-.2	-.3	1.0	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space_Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 9 — Presence and absence of class 2D pits within space types

			Space Type									Total
			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	
Pit Class 2D Presence	0	Count	31	10	48	5	35	24	5	12	231	401
		Expected Count	31.8	9.9	47.6	5.0	35.7	23.8	5.0	11.9	230.3	401.0
		% within Space_Type	96.9%	100.0%	100.0%	100.0%	97.2%	100.0%	100.0%	100.0%	99.6%	99.3%
		Std. Residual	-.1	.0	.1	.0	-.1	.0	.0	.0	.0	
	1	Count	1	0	0	0	1	0	0	0	1	3
		Expected Count	.2	.1	.4	.0	.3	.2	.0	.1	1.7	3.0
		% within Space_Type	3.1%	0.0%	0.0%	0.0%	2.8%	0.0%	0.0%	0.0%	.4%	.7%
		Std. Residual	1.6	-.3	-.6	-.2	1.4	-.4	-.2	-.3	-.6	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space_Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 10 — Presence and absence of class 2E pits within space types

			Space Type									Total
			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	
Pit Class 2E Presence	0	Count	29	10	48	5	36	24	5	11	231	399
		Expected Count	31.6	9.9	47.4	4.9	35.6	23.7	4.9	11.9	229.1	399.0
		% within Space Type	90.6%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	91.7%	99.6%	98.8%
		Std. Residual	-.5	.0	.1	.0	.1	.1	.0	-.2	.1	
	1	Count	3	0	0	0	0	0	0	1	1	5
		Expected Count	.4	.1	.6	.1	.4	.3	.1	.1	2.9	5.0
		% within Space Type	9.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	.4%	1.2%
		Std. Residual	4.1	-.4	-.8	-.2	-.7	-.5	-.2	2.2	-1.1	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
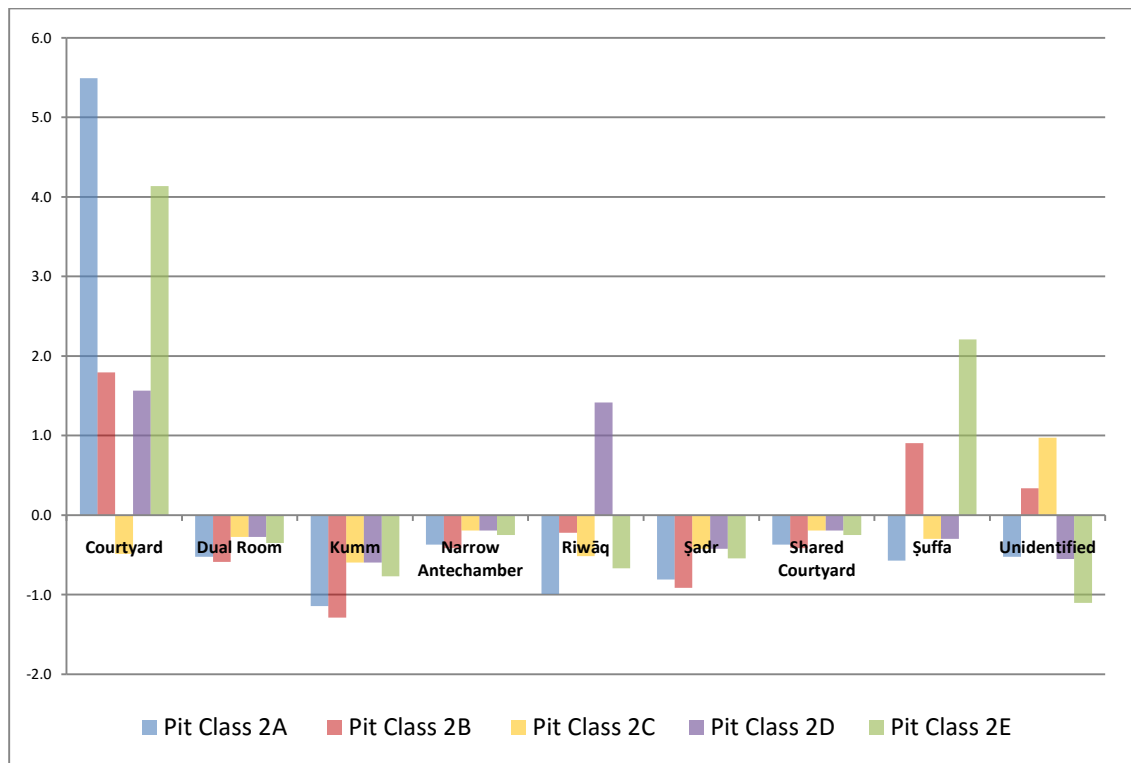
Figure 120 — Difference between observed and expected presence of pit class 2 sub-classes within space types.

The lack of a significant pattern in the presence of class 2B pits, possible drain and latrine sumps, is particularly disappointing, as identifying areas of waste disposal would be most illuminating, potentially indicating the location of latrines, washing facilities, possibly kitchens, or simply waste-disposal areas more generally. However, this is not the only means of identifying waste-disposal areas. In many cases a sump-pit may not have been placed directly under intakes of this sort, rather a flue within the floor may have led directly to a channel. Intakes of some sort can be assumed to exist on the basis of a clear channel terminus, or evidence of a flue within the floor or *gabal* (in the case of tunnelled channels). These features were combined and analysed as a single phenomenon: intakes. The distribution of intakes is shown in Figure 121. The rates of presence and absence of these features within spatial categories is shown in Table 11.
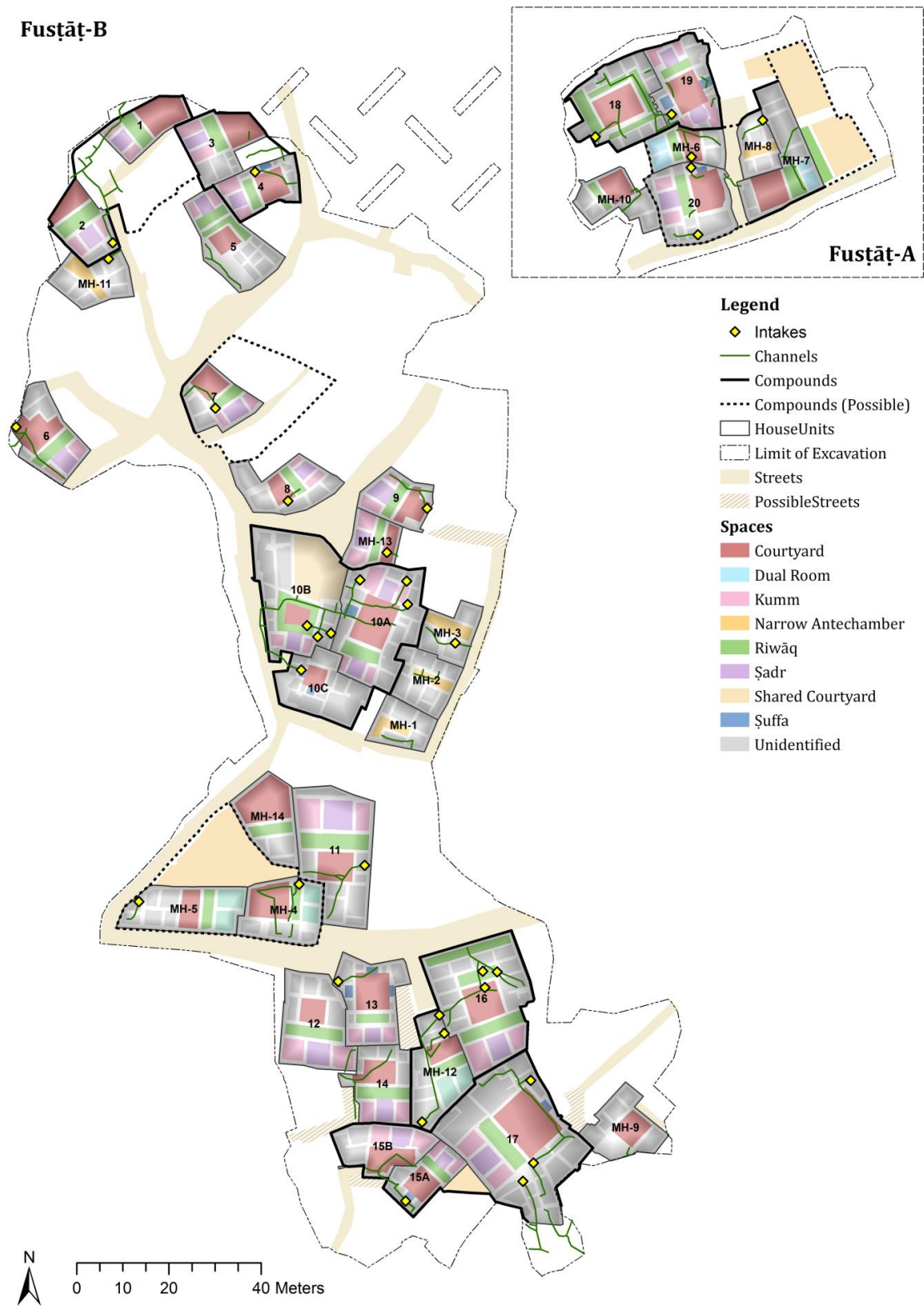
Figure 121 — Distribution of possible intakes into the sewer systems of Fusṭāṭ-A and B

Table 11 — Presence and absence of sewer intakes within space types

						Space Type					
			Courtyard	Dual Room	Kumm	Narrow Antechamber	Riwāq	Ṣadr	Shared Courtyard	Ṣuffa	Unidentified	Total
Sewer Intake Presence	0	Count	26	10	48	5	31	24	5	11	212	372
		Expected Count	29.5	9.2	44.2	4.6	33.1	22.1	4.6	11.0	213.6	372.0
		% within Space Type	81.3%	100.0%	100.0%	100.0%	86.1%	100.0%	100.0%	91.7%	91.4%	92.1%
		Std. Residual	-.6	.3	.6	.2	-.4	.4	.2	.0	-.1	
	1	Count	6	0	0	0	5	0	0	1	20	32
		Expected Count	2.5	.8	3.8	.4	2.9	1.9	.4	1.0	18.4	32.0
		% within Space Type	18.8%	0.0%	0.0%	0.0%	13.9%	0.0%	0.0%	8.3%	8.6%	7.9%
		Std. Residual	2.2	-.9	-1.9	-.6	1.3	-1.4	-.6	.1	.4	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
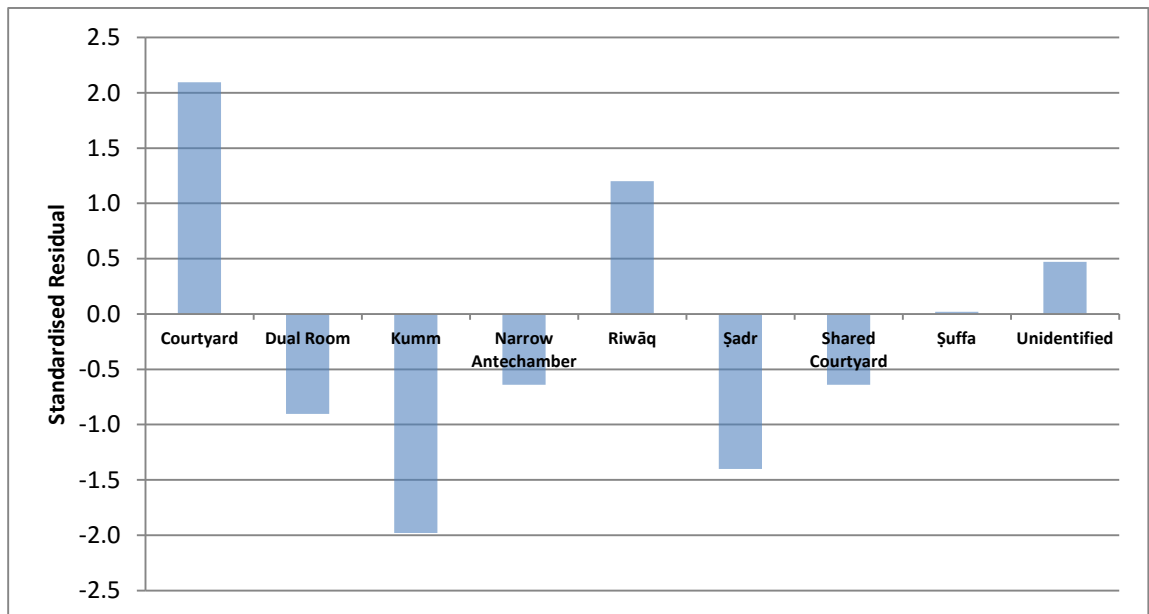
Figure 122 — Difference between observed and expected presence of possible sewer intakes within space types.

Archaeological Features in Spatial Context

The deviation from expected presence of intakes generally mirrors that of channels in general, showing significantly higher frequency within courtyards, and to a lesser extent within *riwāq*s. In contrast, however, there are slightly higher rates of presence in unidentified spaces than expected. The pattern is shown to be on the very border of statistical significance (p=0.051); considering that correlation with unidentified spaces may be underestimated due to their conflation as a single category, I consider this a meaningful pattern[92]. While a complete absence is observed in all other categories save *ṣuffa*s (with one intake present), only in the case of *kumm*s and *ṣadr*s can this be inferred to be, potentially, more than a coincidental omission, due to their overall frequency across the site.

The association of intakes with courtyards suggests that the previously noted association of sewer channels with these spaces is not merely a function of being large central spaces within which intakes and end-points elsewhere in the house were linked. Rather, the channels here often serve what are no doubt drains for disposal of waste water (as latrines within open spaces seem somewhat farfetched). While the association with *riwāq*s is not greatly beyond the expected frequency (Standardised Residual of 1.3), considering that these spaces not neighbour each other and likely had a largely open boundary, it is tempting to consider that these drains were placed throughout this general area, including the porticoes.

A slightly higher than expected frequency within unidentified spaces requires further investigation. It seems highly probable that at least some of these unidentified rooms were ground-floor latrines; is there any consistency in their placement? Those unidentified rooms with intakes are shown in Figure 123, below. Many are in courtyard-adjacent rooms (Houses 4, 10B, 11, 13, 15A, 17, 19 and MH-12), whereas some are not (House 2, 10A[93], 20, MH-5, MH-12). In the former cases, there is no consistency of placement in terms of the relation to the *majlis* or dual rooms. Intakes may be placed at the near side and on the right[94] of the *majlis* (Houses 4, 11), at the near side on the left (10B, 17), and the far side on the right (13, 15A). The southern room with an intake within MH-12 is likely a courtyard with a drain, rather than a latrine.

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[92] Moreover, a Monte Carlo simulation would show this to be a significant pattern (p=0.045).
[93] The two eastern examples in 10A are unlikely to be latrines, as they are the ends of very shallow runnels.
[94] When facing the *majlis*.
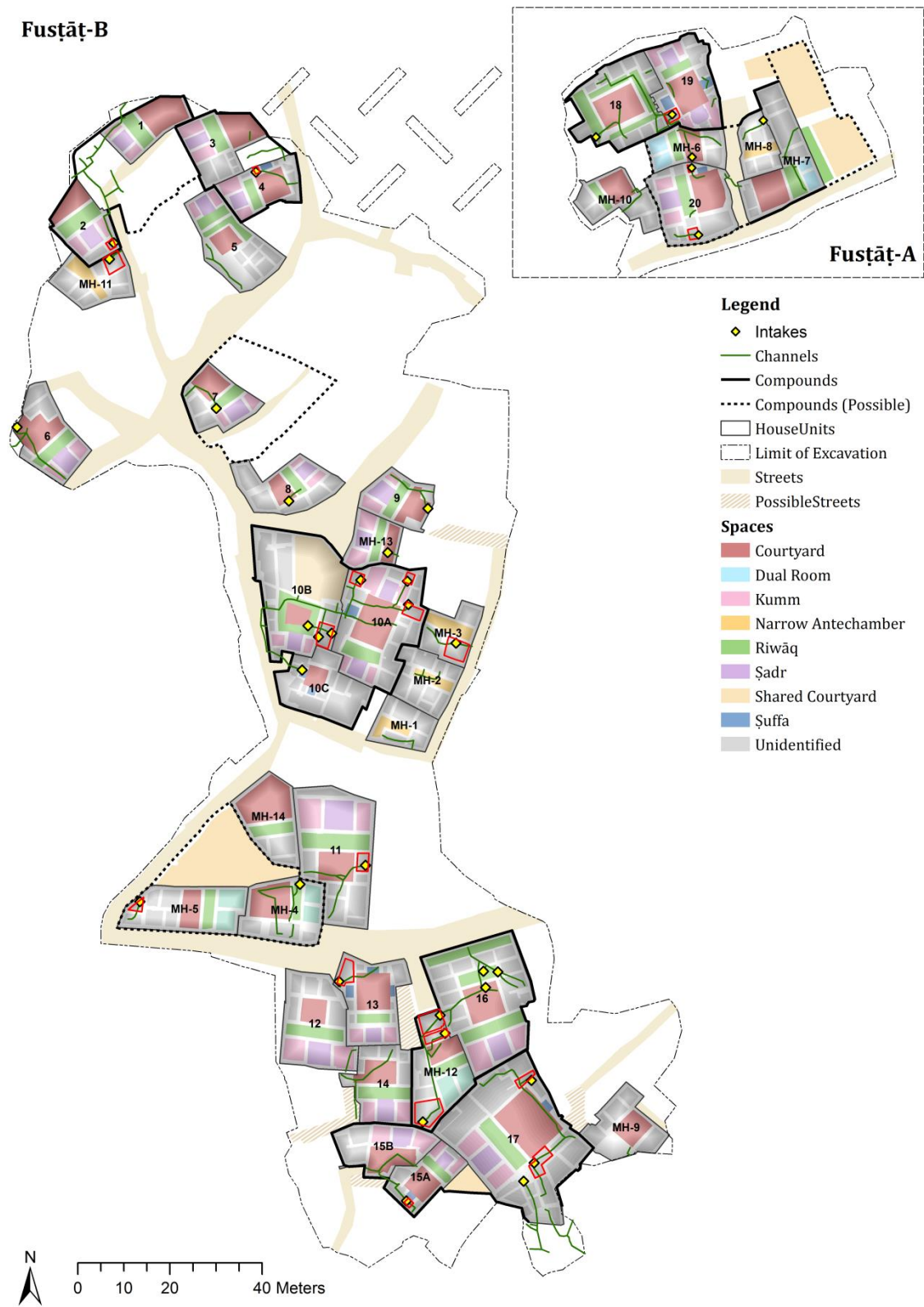
Figure 123 — Distribution of intakes within Fusṭāṭ-A and B, unidentified rooms with intakes highlighted in red.

Table 12 — Presence and absence of class 3 pits within space types

| | | | Space Type | | | | | | | | | |
			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	Total
Pit Class 3 Presence	0	Count	28	10	47	5	35	24	4	12	227	392
		Expected Count	31.0	9.7	46.6	4.9	34.9	23.3	4.9	11.6	225.1	392.0
		% within Space Type	87.5%	100.0%	97.9%	100.0%	97.2%	100.0%	80.0%	100.0%	97.8%	97.0%
		Std. Residual	-.5	.1	.1	.1	.0	.1	-.4	.1	.1	
	1	Count	4	0	1	0	1	0	1	0	5	12
		Expected Count	1.0	.3	1.4	.1	1.1	.7	.1	.4	6.9	12.0
		% within Space Type	12.5%	0.0%	2.1%	0.0%	2.8%	0.0%	20.0%	0.0%	2.2%	3.0%
		Std. Residual	3.1	-.5	-.4	-.4	-.1	-.8	2.2	-.6	-.7	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
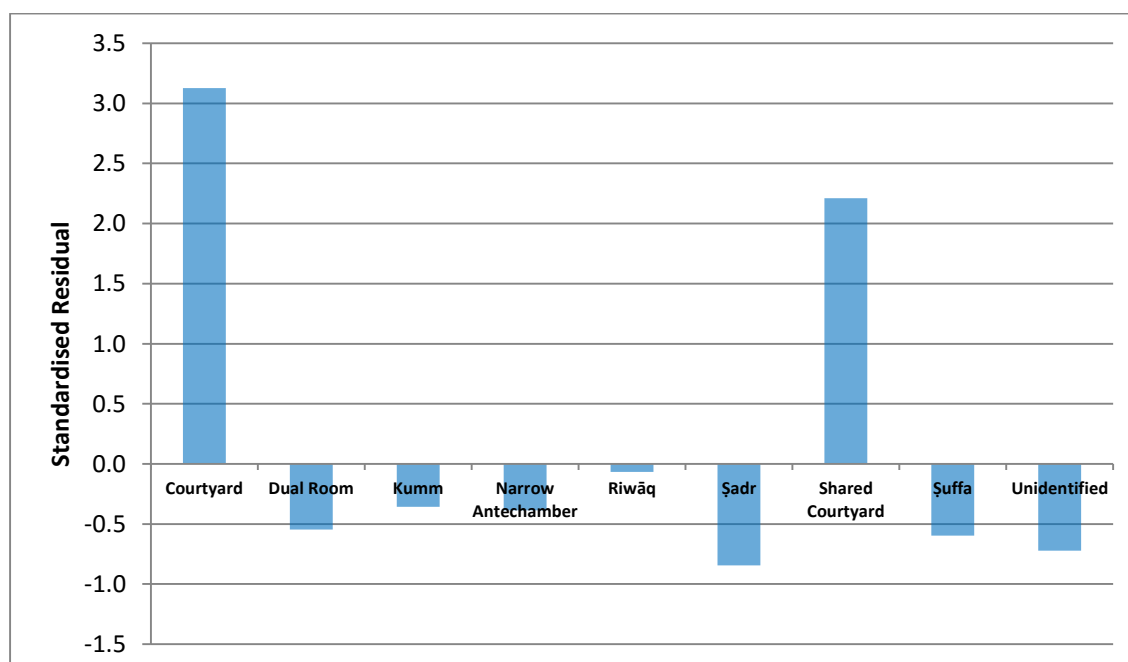
Figure 124 — Difference between observed and expected presence of class 3 pits within space types.

Rates of presence and absence within spatial categories of class 3 pits, those not connected to channels but possibly accessible from streets, are shown in Table 12, above. The Standardised Residuals are summarised in Figure 124. Despite substantial residual values indicating a much higher than expected presence within courtyards and shared courtyards, and slightly less than expected elsewhere, overall this pattern is not statistically significant, as indicated by a Chi-squared test (p=0.082). This is perhaps because class 3 pits may represent two distinct functions: those that once had flues above are terminal cesspits; others are wells and water-holds. As such, any opposing spatial correlations between these functional categories may mask each other.

In contrast, pit class 4—isolated pits that could not have been emptied from the street—shows a clearly significant pattern (p=0.002). As it is possible that these features represent water provision, either as water-holds or wells, their predisposition towards certain spatial contexts is crucial for understanding daily activity within the home. The presence and absence rates for this class are shown in Table 13 and residuals visualised in Figure 125. Considerably more class 4 pits are within shared courtyards than expected—two of the five shared courtyards have one—with slightly more than expected in narrow antechambers, courtyards, *kumm*s and *riwāq*s. If used for water provision, the placement of these features within areas shared between house units of a wider compound may be to allow each to access this vital resource. Alternatively, it may relate to activities conducted here, such as watering animals—buildings east of the shared courtyard in 10A are posited to be stables by Scanlon (1966, 100)—or to fill *fisqiya*s that have no access to piping (as in the southern courtyard of Fusṭāṭ-A).

The weak correlation with the *kumm* and *riwāq* and courtyard, to the exclusion of unidentified spaces (-1.8 Standardised Residual), seems more significant when one examines the precise location of these features (Figure 115, above). Of these spatial contexts, the *kumm* is that with the highest number of these features. When the pit is within the *riwāq,* it is found in front of the *kumm* (Houses 17 and MH-6) or in an equivalent position (to one side) where no *kumm* is evident (House MH-14). When within the courtyard it is also found in front of the *kumm* (House 3), though in another case is centrally placed (House 16). One pit in an unidentified space—that within House 10A—is in a room directly behind the *kumm*, which may be considered a subsidiary addition to this space. The pit in one of the dual rooms of MH-6 supports the idea that one of these spaces was equivalent to the *kumm*. Reinforcing this apparent pattern, a Chi-squared test in which both narrow antechambers and shared courtyards are excluded still shows significant prevalence within the *kumm, riwāq* and dual rooms (p=0.045).

Table 13— Presence and absence of class 4 pits within space types

			Space Type									Total
			Courtyard	Dual Room	Kumm	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	
Pit Class 4 Presence	0	Count	30	9	44	4	33	23	3	12	228	386
		Expected Count	30.6	9.6	45.9	4.8	34.4	22.9	4.8	11.5	221.7	386.0
		% within Space Type	93.8%	90.0%	91.7%	80.0%	91.7%	95.8%	60.0%	100.0%	98.3%	95.5%
		Std. Residual	-.1	-.2	-.3	-.4	-.2	.0	-.8	.2	.4	
	1	Count	2	1	4	1	3	1	2	0	4	18
		Expected Count	1.4	.4	2.1	.2	1.6	1.1	.2	.5	10.3	18.0
		% within Space Type	6.3%	10.0%	8.3%	20.0%	8.3%	4.2%	40.0%	0.0%	1.7%	4.5%
		Std. Residual	.5	.8	1.3	1.6	1.1	-.1	3.8	-.7	-2.0	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The class 4 pit within the *ṣadr* of House 14 is entirely anomalous, the only pit of any type in this location. The other unidentified spaces with this feature are, in the case of houses 6 and 14, rooms off the courtyard that lie in front of the *kumm*. Whether these are part of the wider trend for placing these features on the axis of the *kumm* is not clear. Considering that House 6 has another class 4 pit in the *kumm* on the opposite side makes this seem less plausible. The only other such feature in an unidentified room is that in MH-11, in a room that may be a small portico, or antechamber, but is poorly defined.
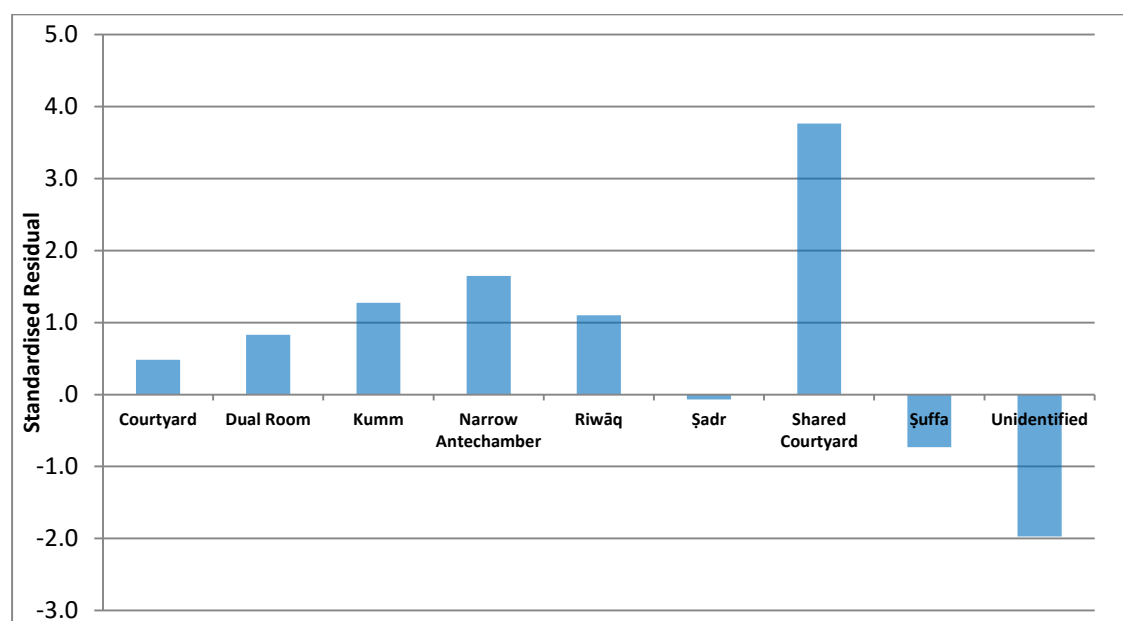
Figure 125 — Difference between observed and expected presence of class 4 pits within space types.
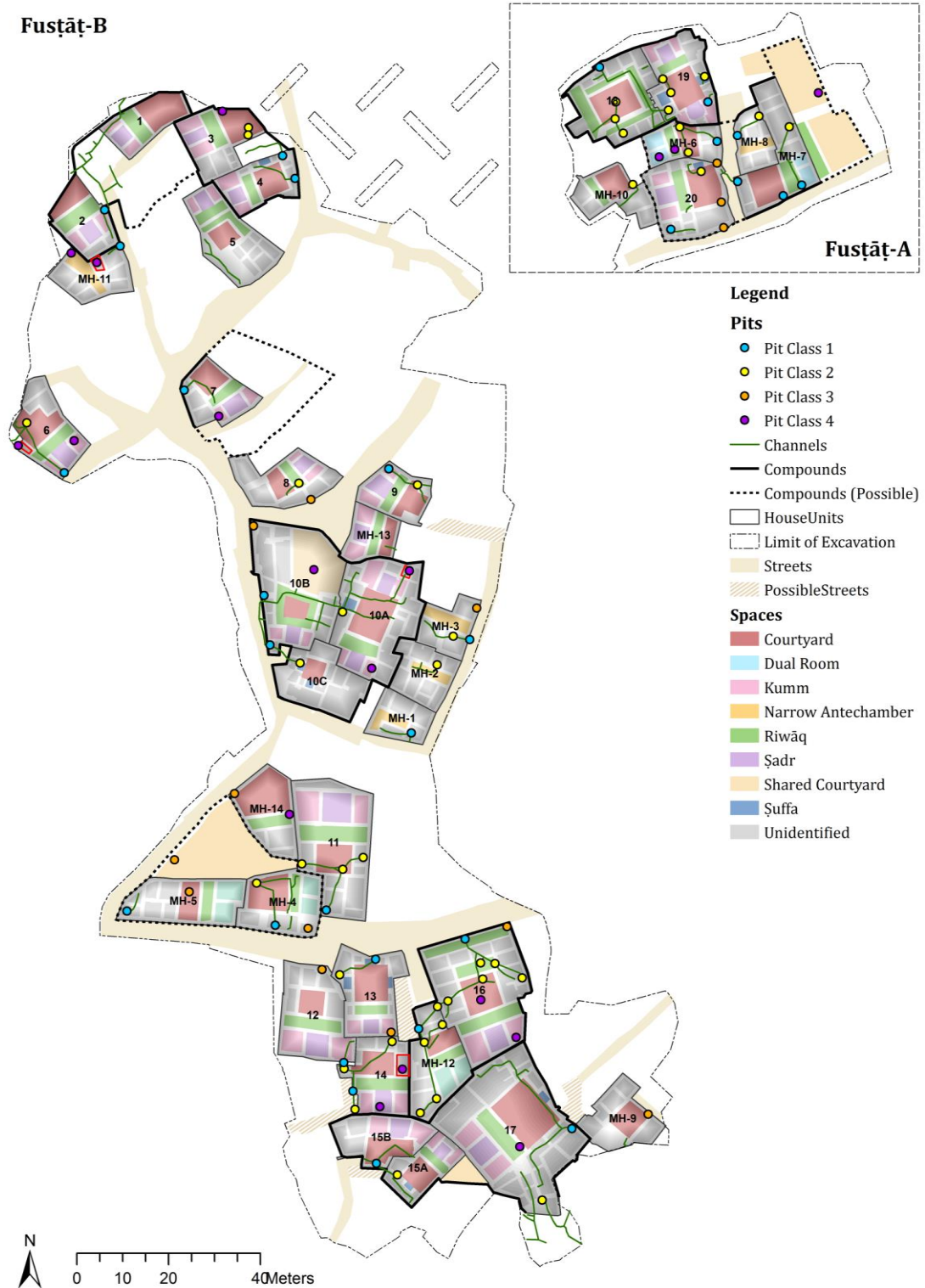
Figure 126 — Distribution of pit classes 1-4 in Fusṭāṭ-A and B, with unidentified rooms containing pit class 4 highlighted in red

One should not overstate this correlation. There are 24 pairs of *kumm*s, and only 5 of these have a class 4 pit within them (21%). If one includes those in the *riwāq,* those in the courtyard and in front of the *kumm* (Houses 17 and 3), and in the room behind (House 10A), this is still only 29% of the pairs. In the majority of house units no pit of this type is present. If one proposes that the same function may have been served by class 3 pits, there are still 19 houses (51.4%) that are served by neither feature type. Of course many of the house units may have extended further than defined here, due to poor survival or the limits of the excavation area. Moreover, units may have been part of a wider compound which did have such a feature, as supported by the prevalence of these features in shared courtyards. Alternatively, other methods of water acquisition or storage may have been used. If *zīr* (water-storage jar) stands were used they would have left no trace; the same could be said of cisterns built above floor level.

7.5.2 Basins

The general term "basins" includes, as discussed in the previous chapter, a number of *gabal*-hewn and brickwork containers that can be divided into the following three categories:

1. *Fisqiya*s, remains identified as ornamental and cooling fountains or pools
2. Shrubbery trenches found in association with *fisqiya*s
3. All other interventions in the *gabal*, structures built above it, or combinations of both, that form a hollow or container, the function of which is uncertain.

The distribution of these three feature classes is shown in Figure 127, below.

The clear spatial pattern of class 1 basins, *fisqiya*s, should come as no surprise. The frequency of their presence and absence across spatial categories is shown in Table 14, showing that 34.4% of courtyards, and 40% of shared courtyards have one, while most other categories show a complete absence. The residuals summarised in Figure 128, below, show this is greatly different from expected frequencies, and a Chi-squared test indicates clear statistical significance (p<0.001).
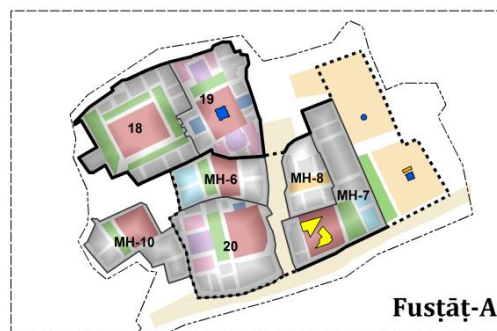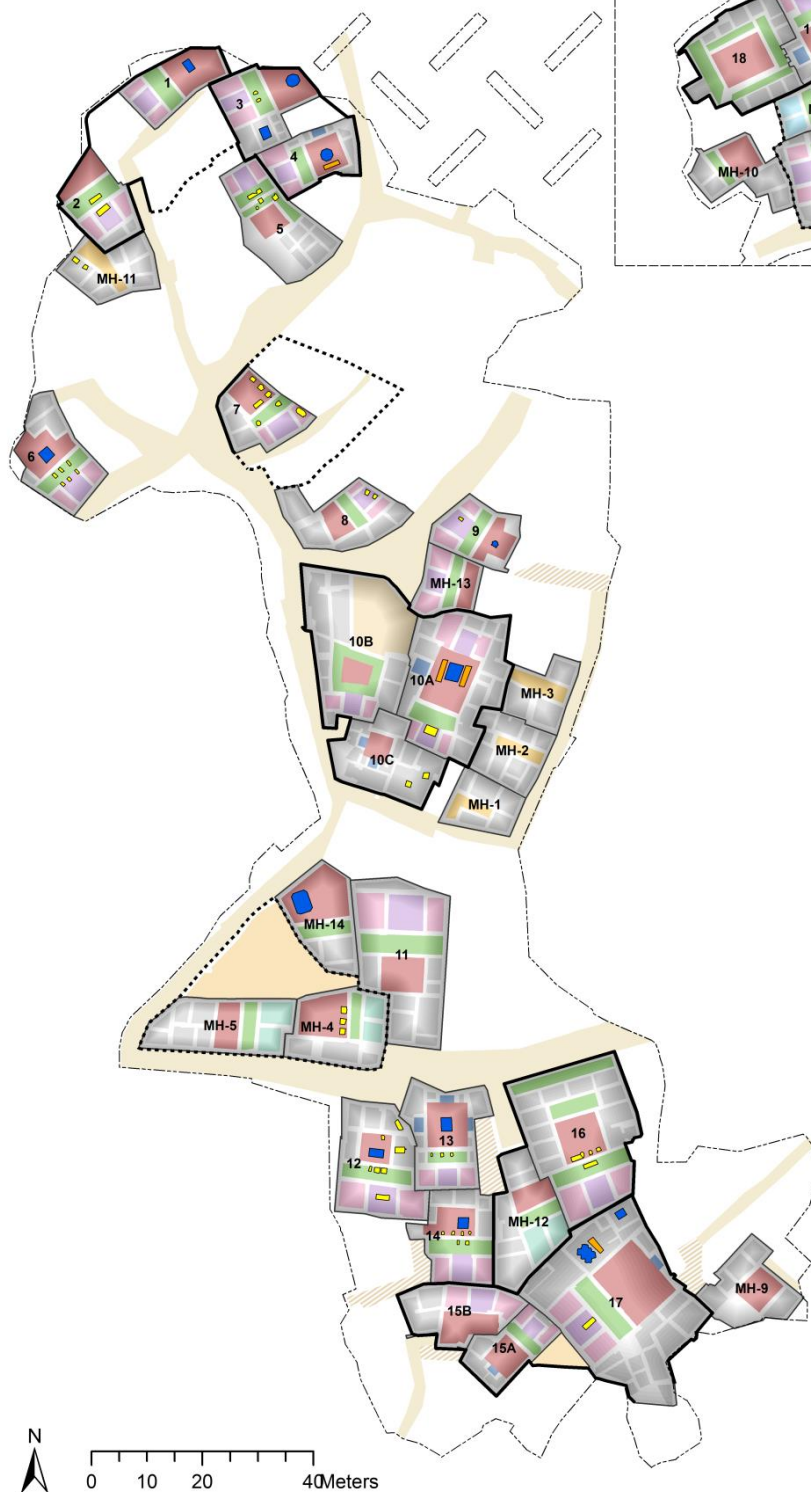
Figure 127 — Distribution of basins in Fusṭāṭ-A and B

Table 14 — Presence and absence of class 1 basins within space types

		Space Type										Total
		Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified		
Basin Class 1 (*Fisqiya*) Presence	0 Count	21	10	48	5	36	24	3	12	229		388
	Expected Count	30.7	9.6	46.1	4.8	34.6	23.0	4.8	11.5	222.8		388.0
	% within Space Type	65.6%	100.0%	100.0%	100.0%	100.0%	100.0%	60.0%	100.0%	98.7%		96.0%
	Std. Residual	-1.8	.1	.3	.1	.2	.2	-.8	.1	.4		
	1 Count	11	0	0	0	0	0	2	0	3		16
	Expected Count	1.3	.4	1.9	.2	1.4	1.0	.2	.5	9.2		16.0
	% within Space Type	34.4%	0.0%	0.0%	0.0%	0.0%	0.0%	40.0%	0.0%	1.3%		4.0%
	Std. Residual	8.6	-.6	-1.4	-.4	-1.2	-1.0	4.0	-.7	-2.0		
Total	Count	32	10	48	5	36	24	5	12	232		404
	Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0		404.0
	% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		100.0%

Figure 128 — Difference between observed and expected presence of class 1 basins within space types.

The only other category to show presence of this feature is unidentified rooms. Specifically, there are two rooms in House 17 and one in House 3 which have what are clearly brick-built and stone-lined water basins, but in spaces that do not resemble typical central courtyards due to their small size and peripheral location. That in House 3 borders a *majlis* on one side and a house boundary on the other, with three small alcoves or cubicles[95], and a large space of roughly equal size to that containing the basin on the remaining sides. Similarly, the larger space with a *fisqiya* in House 17 adjoins a large central courtyard on one side and a house boundary on the other, again with three small spaces, the southern two of which were certainly open-fronted, and a space of roughly equal area on the other side. A further room with a simple stone-lined basin is found behind the three smaller spaces.

How can these spaces be understood? With only two houses displaying such features, a parallel is sought in Bahgat's excavations. There, three contexts in which Bahgat recorded a *fisqiya* or pool beyond the central courtyard are as follows:

A. Two somewhat elaborate *fisqiya*s that were part of a *salsabil*, in which a smaller pool in an open-fronted room or alcove off the main courtyard fed a larger *fisqiya* in the latter, found in Maison III and Maison VI (Bahgat and Gabriel 1921, fig. 13; 14; 23; 24).

B. A rectangular-octagonal *fisqiya* in a relatively small and irregular room or courtyard behind the *majlis,* giving on to one small, nondescript chamber, found in Maison Groupe 1 (Bahgat and Gabriel 1921, fig. 6; 7).

C. A basin considered not to be a *fisqiya* but rather a domestic bath, placed far from the central courtyard in a corner of the house, within a small room (barely larger than the pool itself) adjacent to a latrine. withinMaison VI (Bahgat and Gabriel 1921, fig. 23; 24).

The two larger features in Fusṭāṭ-B are clearly not part of a larger courtyard-centred *salsabil*, and seem most comparable to (B), but not compellingly so. The two rooms with these features here are consistent in their adjoining tripartite alcoves and in the large space on the opposite side. No further explanation beyond some kind of ancillary courtyard can be proposed. However, why this bordered an equally large or larger room, which itself would seem more plausible as a courtyard given its size, is entirely unclear.

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[95] Scanlon was willing to consider this a **"bayt"**, the tripartite arrangement a *majlis*.

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The smaller feature in House 17, however, directly parallels the arrangement of (C) placed in a far corner of the house in a small room, and adjoining what is probably a latrine (cf. Figure 123, above). If this is a small domestic bathroom, it would seem a rare luxury. It is found within the largest house unit, which is certainly part of a larger compound. The comparable arrangement in this example and in Bahgat's area also draws attention to indications of stone slabs in the far north-western room of House 10A, shown in the 1965 site plan, but not discussed (Scanlon 1966, Plan II). These slabs are seemingly placed within a square cut in the centre of the room. This may therefore be the stone base of another water basin. The room has a sewer within, and is adjacent to a room with an intake (potentially a latrine). It is also placed again at the far-left hand corner of the house relative to the porticoed *majlis* of this unit, and within one of the largest and most lavish house units. It is therefore likely this represents another domestic bathroom.

As class 2 basins are those attendant to the *fisqiya*, lacking a lined base and most probably functioning as shrubbery pits, it is unsurprising that their distribution—shown in **Table 15** and **Figure 129**, below—is similar to that noted for class 1. Again one finds higher than expected frequencies within courtyards and shared courtyards, and a complete absence elsewhere, save for that attached to the large *fisqiya* in House 17 mentioned above. A Chi-squared test shows this to be a significant pattern (p=*0.037).* As the pattern is essentially a shadow of that for *fisqiya*s, it is not worth further discussion.

Table 15 — Presence and absence of class 2 basins within space types

			Courtyard	Dual Room	Kumm	Narrow Antechamber	Rīwāq	Ṣadr	Shared Courtyard	Ṣuffa	Unidentified	Total
Basin Class 2 (Shrubbery) Presence	0	Count	30	10	48	5	36	24	4	12	231	400
		Expected Count	31.7	9.9	47.5	5.0	35.6	23.8	5.0	11.9	229.7	400.0
		% within Space Type	93.8%	100.0%	100.0%	100.0%	100.0%	100.0%	80.0%	100.0%	99.6%	99.0%
		Std. Residual	-.3	.0	.1	.0	.1	.0	-.4	.0	.1	
	1	Count	2	0	0	0	0	0	1	0	1	4
		Expected Count	.3	.1	.5	.0	.4	.2	.0	.1	2.3	4.0
		% within Space Type	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	.4%	1.0%
		Std. Residual	3.0	-.3	-.7	-.2	-.6	-.5	4.3	-.3	-.9	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
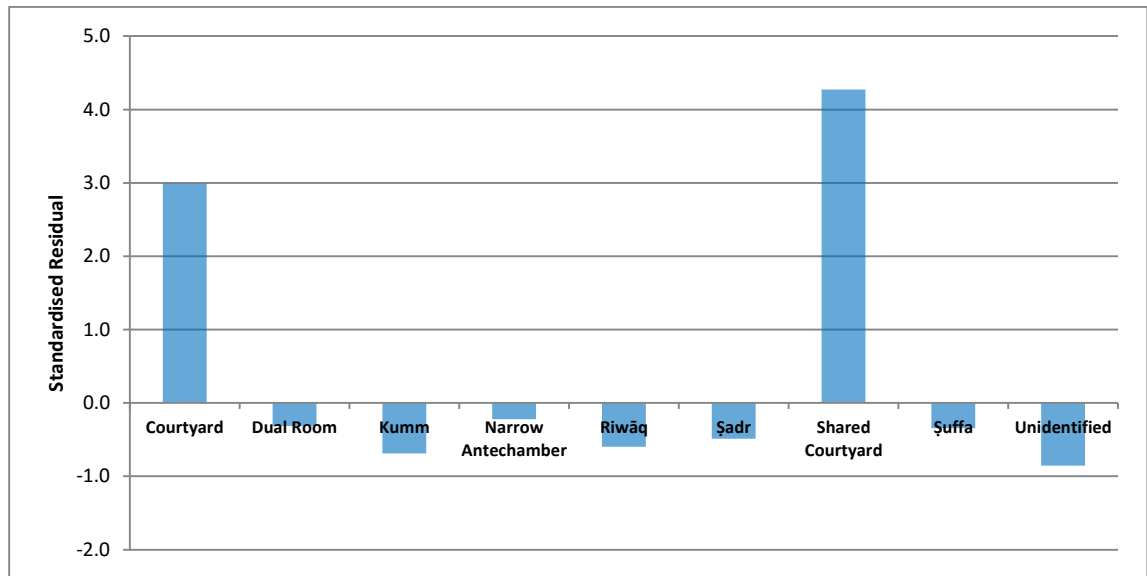
Figure 129 — Difference between observed and expected presence of class 2 basins within space types.

Table 16 — Presence and absence of class 3 basins within space types

			Space Type									Total
			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	
Basin Class 3 Presence	0	Count	26	10	47	5	26	17	5	12	227	375
		Expected Count	29.7	9.3	44.6	4.6	33.4	22.3	4.6	11.1	215.3	375.0
		% within Space Type	81.3%	100.0%	97.9%	100.0%	72.2%	70.8%	100.0%	100.0%	97.8%	92.8%
		Std. Residual	-.7	.2	.4	.2	-1.3	-1.1	.2	.3	.8	
	1	Count	6	0	1	0	10	7	0	0	5	29
		Expected Count	2.3	.7	3.4	.4	2.6	1.7	.4	.9	16.7	29.0
		% within Space Type	18.8%	0.0%	2.1%	0.0%	27.8%	29.2%	0.0%	0.0%	2.2%	7.2%
		Std. Residual	2.4	-.8	-1.3	-.6	4.6	4.0	-.6	-.9	-2.9	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
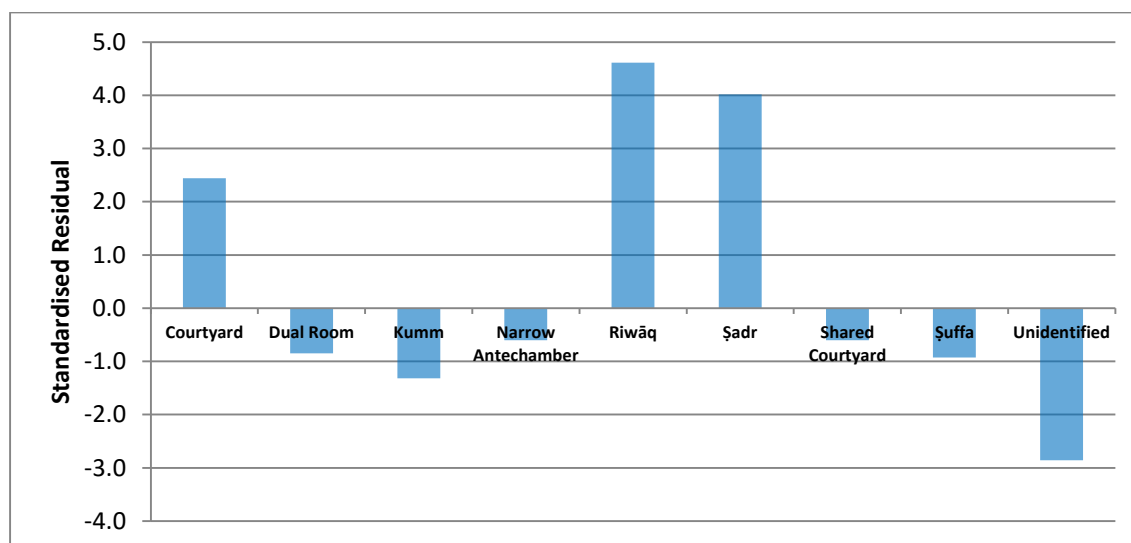
Figure 130 — Difference between observed and expected presence of class 3 basins within space types.

The presence of class 3 basins in spatial categories is shown in Table 16, and residuals summarised in Figure 130. *Riwāq*s and *ṣadr*s show an exceptionally higher frequency of these features than other categories. Courtyards also show a significantly higher presence than expected, while unidentified spaces show far fewer than expected. A Chi-squared test shows this pattern to be clearly significant ($p<0.001$). Evidently these features are most often found within the spaces of the central courtyard and adjacent *majlis*, and only very rarely elsewhere. What does this reveal about the use of these spaces? It is difficult to say when this class is essentially a miscellaneous amalgam, including cuts of different shapes, sizes and structural elements. It is necessary, therefore, to refine this category further. I have thus explored how certain characteristics of class 3 basins vary, and how these variations relate to their spatial context, with an aim to suggest functionally distinct features placed in specific parts of the house.

One of the most apparent variations among the members of basin class 3 is the total area occupied by each feature. Figure 131 shows a box plot of the areas of these features. If all were a single formal and functional type, one might expect a normal distribution in their size; however this plot illustrates a high degree of skewness (3.173, with a standard error of 0.325), with a long tail of larger features, and two groups of outliers. A Shapiro-Wilk test confirms that this is not a normal distribution ($p<0.000$). Plotting the area occupied by class 3 basins as a scatter graph, separated by spatial category, illustrates that there are three apparent groups of features of different sizes. Those in *ṣadr*s and *kumm*s present a

numerous group of smaller features (<1m²), and a less numerous group of larger features (c.1.5-3.5 m²). Those in courtyards contain many in the smaller-area group, with the addition of two much larger features as a third group (c.6m²). A clustering procedure, K-means clustering[96], was performed to assign the features to three internally-similar groups based on their areas, independent of subjective judgement. The results, shown in Figure 133 created a large group of small features (74.5%), a group of slightly larger features (21.8%) and a very small group of much larger features (3.6%), as expected. Since K-means clustering requires the specification of the number of clusters to be produced, this was compared to the results of Two-Step Clustering procedure, where the appropriate number of clusters is determined automatically; the results were identical, specifying three clusters.
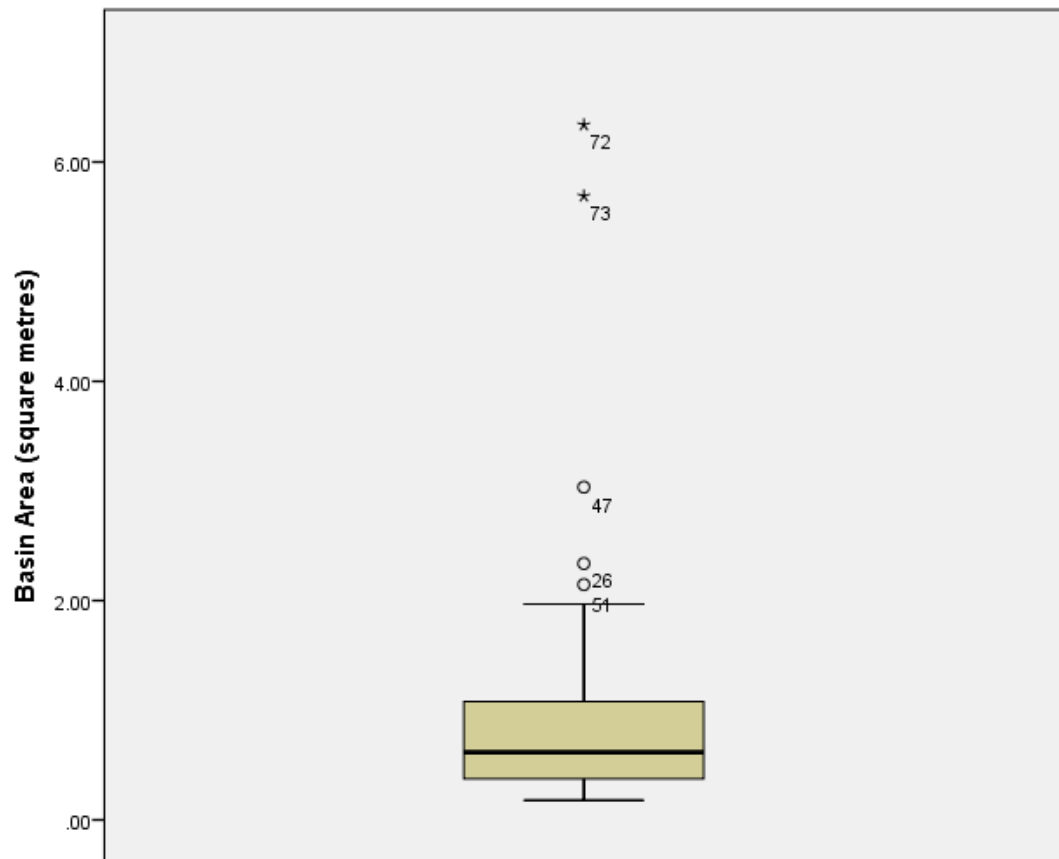
Figure 131 — Box plot of the area of class 3 basins

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[96] K-means is a relocation method of clustering. The entities are placed randomly assigned to the one of the clusters (the number of clusters is specified by the user), and iteratively re-assigned until these clusters show the lowest amount of internal difference in their characteristics.
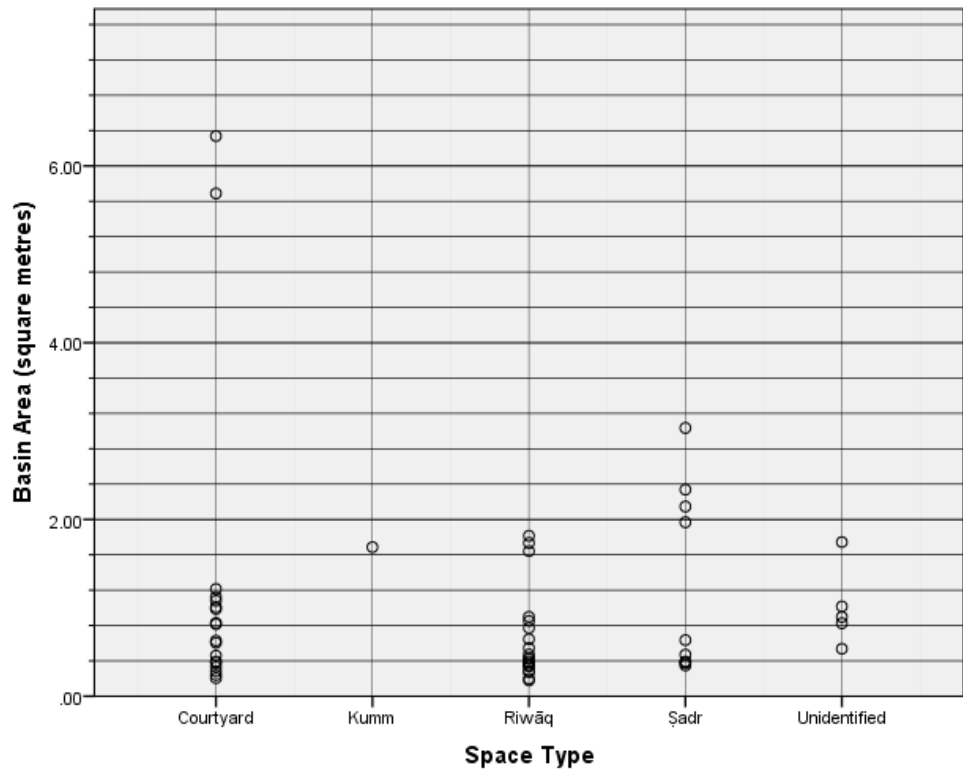
Figure 132 — Scatter plot of the area of class 3 basins, separated by spatial context
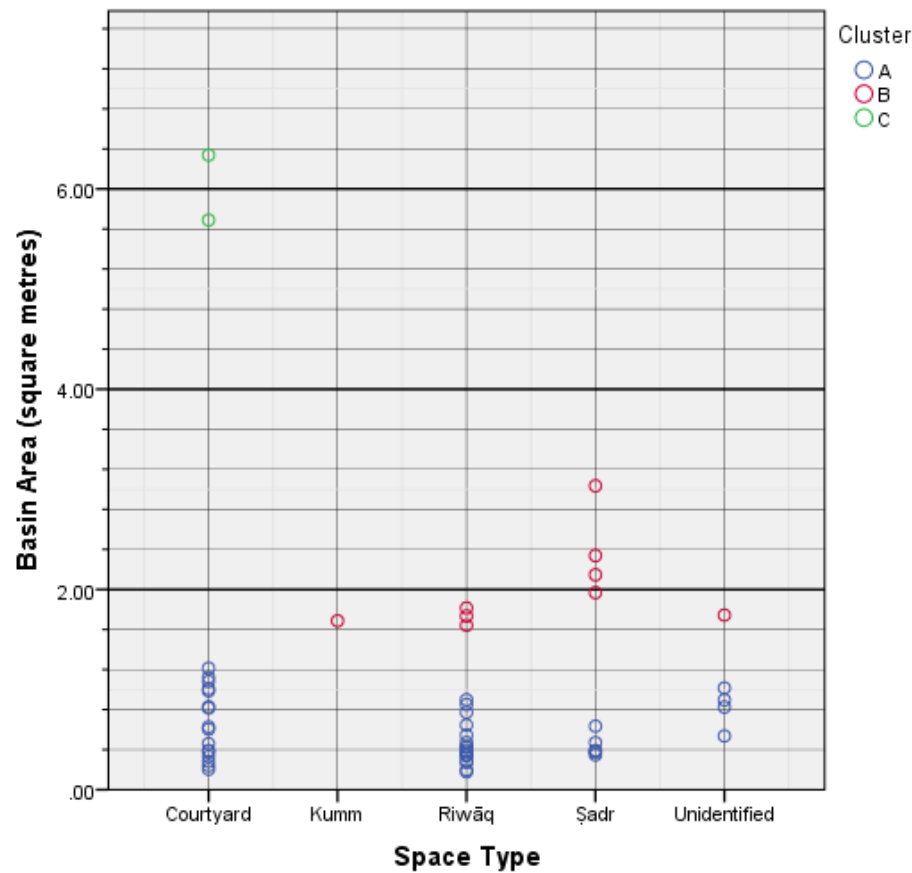
Figure 133 — Scatter plot of the area of class 3 basins, separated by spatial context, and colour coded based on their assigned cluster. K-means clustering was used to cluster features based on their area.
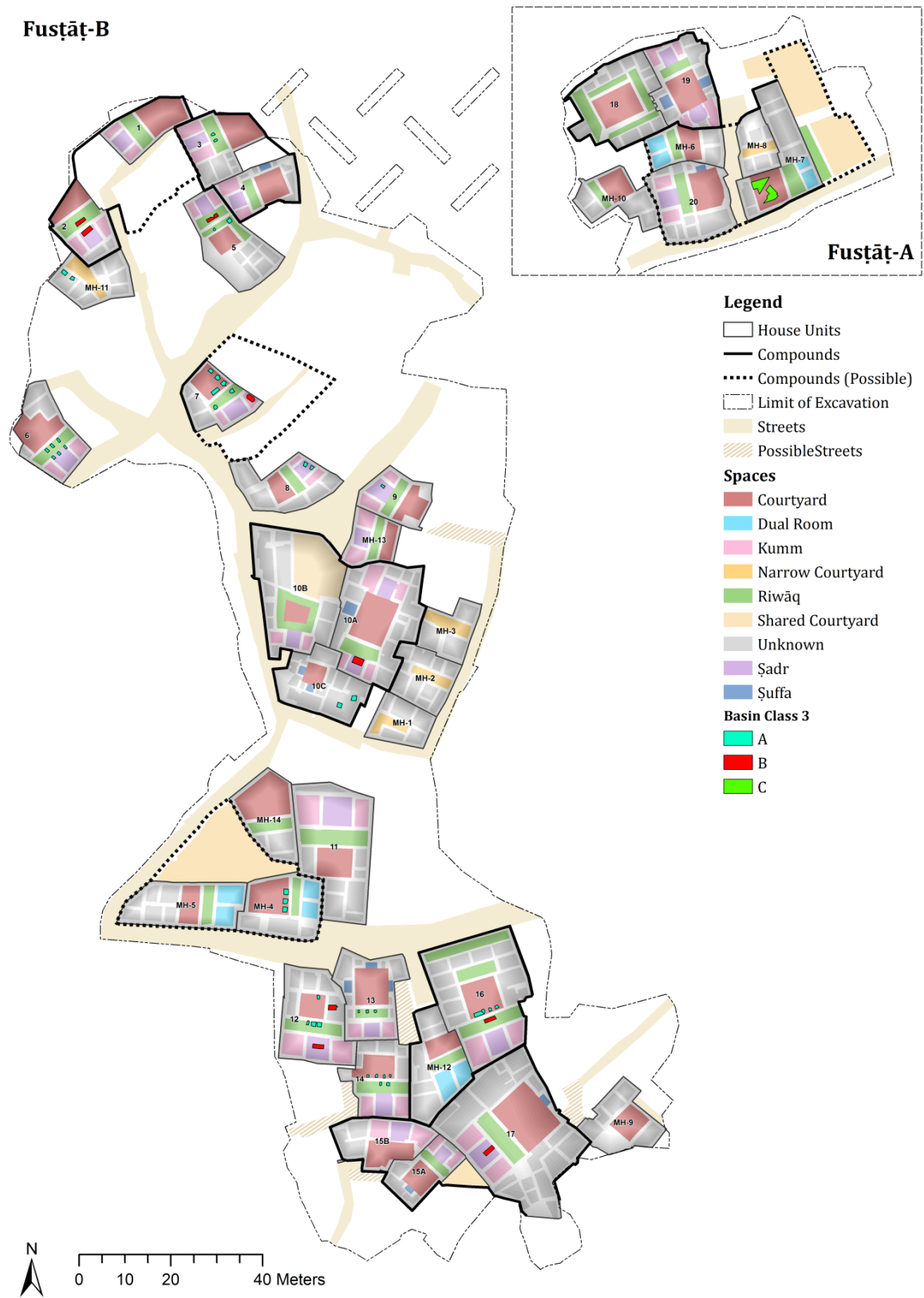
Figure 134 — Distribution of class 3 basins in Fusṭāṭ-A and B, divided into subclasses based on size.

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The distribution of these subclasses—now labelled 3A (smallest), 3B (medium-sized), and 3C (largest)—are shown in Figure 134, above. The lines of 3A basins within courtyards and *riwāq*s indicate that most of this category comprises those features dubbed "gougings" by Scanlon, interpreted as small shrubbery pits (see previous chapter). As discussed, this informal category was later expanded to include larger features in some later reports, which are excluded here.

Rates of presence of this subclass are shown in Table 17, below, and the residuals summarised in Figure 135. The features are only found within *riwāq*s, courtyards and *ṣadr*s—showing far higher than expected rates of presence—and in unidentified spaces, though only a small minority of the total (1.3%). A Chi-squared test shows this is a significant difference (*p*<0.001). This spatial distribution has already been noted by Ostrasz, and to an extent by Scanlon, their location ideally placed for a combination of direct sunlight and shade; they are typically found in the transitional zone between the courtyard, *riwāq* and *ṣadr*. Exceptions are those found alongside the eastern side of the courtyard in House 7, and those towards the back of the *ṣadr* in Houses 8 and 9. The latter will be discussed further below, as they may represent something distinct.

Table 17 — Presence and absence of class 3A basins within space types

			Space Type									
			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	Total
Basin 3A Presence	0	Count	27	10	48	5	29	21	5	12	229	386
		Expected Count	30.6	9.6	45.9	4.8	34.4	22.9	4.8	11.5	221.7	386.0
		% within Space Type	84.4%	100.0%	100.0%	100.0%	80.6%	87.5%	100.0%	100.0%	98.7%	95.5%
		Std. Residual	-.6	.1	.3	.1	-.9	-.4	.1	.2	.5	
	1	Count	5	0	0	0	7	3	0	0	3	18
		Expected Count	1.4	.4	2.1	.2	1.6	1.1	.2	.5	10.3	18.0
		% within Space Type	15.6%	0.0%	0.0%	0.0%	19.4%	12.5%	0.0%	0.0%	1.3%	4.5%
		Std. Residual	3.0	-.7	-1.5	-.5	4.3	1.9	-.5	-.7	-2.3	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
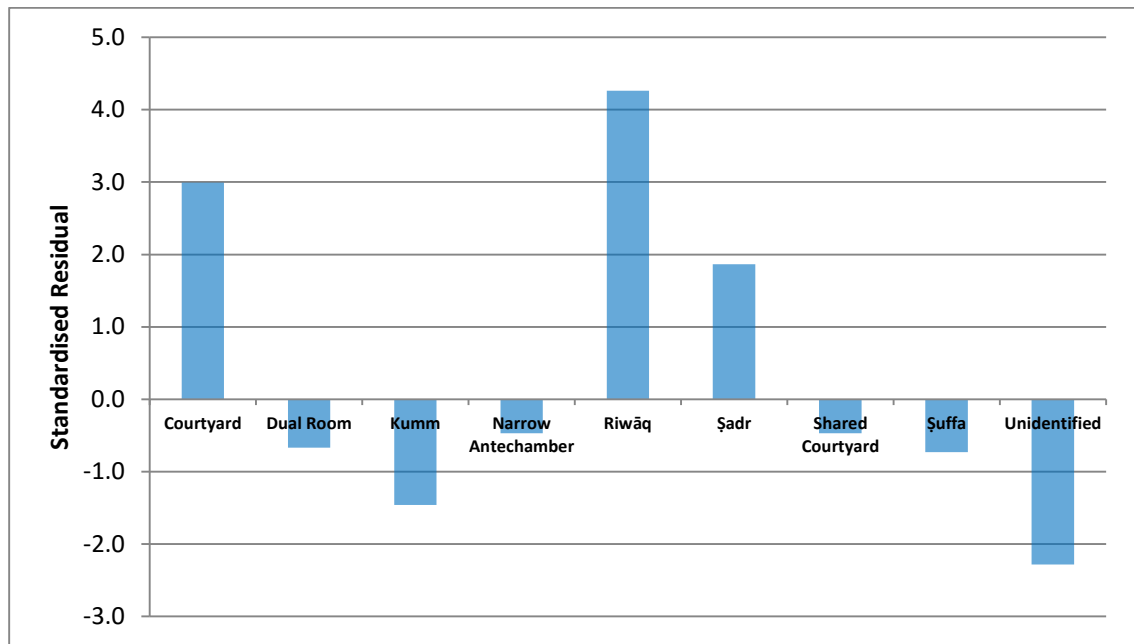
Figure 135 — Difference between observed and expected presence of class 3 basins within space types.

Those rare occurrences in unidentified spaces may indicate a function comparable to the *ṣadr/riwāq*, or at least rooms open to the sun. Those in House 10C are in an exceptionally large space in the corner of the unit, one bordering an apparently open-fronted room. It seems likely, therefore, that the larger space is an ancillary courtyard. That in MH-11 may indicate that this room, the largest in the unit, may have been open to the (probably roofless) narrow antechamber. However, this unit is somewhat insecure in its definition, and it is possible that this room faced another open space to the south.

Examining Figure 134 (above), one can see that subclass 3B is dominated by long rectangular features placed within the *majlis*, though more irregular cuts are also apparent in unidentified rooms and *kumm*s. The rates of presence of this feature are shown in Table 18 and residuals summarised in Figure 136, below. As suggested by the plan, there are much higher rates of presence within the *ṣadr* and *riwāq* than expected. A Chi-square test shows this to be a significant difference (*p*=0.002). The *ṣadr* shows the strongest correlation with this feature, which is placed exclusively on the side nearest its entrance. When placed within the *riwāq* it is found directly in front of the *ṣadr*, reminiscent of the placement of pit class 4 (possible wells or water-holds) within the *kumm*-corresponding part of the *riwāq*. In either space the features are placed centrally relative to the entrance of the *ṣadr*. Considering this strict axial placement, it is possible that the central rectangular cut in the

courtyard of House 7, classified as 3A based on its size, is rather another example of this feature type.

Table 18 — Presence and absence of class 3B basins within space types

			Space Type									Total
			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	
Basin Class 3B Presence	0	Count	32	10	47	5	33	20	5	12	231	395
		Expected Count	31.3	9.8	46.9	4.9	35.2	23.5	4.9	11.7	226.8	395.0
		% within Space Type	100.0%	100.0%	97.9%	100.0%	91.7%	83.3%	100.0%	100.0%	99.6%	97.8%
		Std. Residual	.1	.1	.0	.1	-.4	-.7	.1	.1	.3	
	1	Count	0	0	1	0	3	4	0	0	1	9
		Expected Count	.7	.2	1.1	.1	.8	.5	.1	.3	5.2	9.0
		% within Space Type	0.0%	0.0%	2.1%	0.0%	8.3%	16.7%	0.0%	0.0%	.4%	2.2%
		Std. Residual	-.8	-.5	-.1	-.3	2.5	4.7	-.3	-.5	-1.8	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 136 — Difference between observed and expected presence of class 3B basins within space types.

What is the function of these features, and what do they reveal about the use and meaning of the *ṣadr*? As mentioned in the previous chapter, a distinct category of rectangular trenches found within the *majlis* was never proposed by Scanlon, though considering the co-incidence of size, shape and placement evident in the preceding analysis I have no doubt that these constitute a distinct household feature. The two that were discussed in reports, those within House 2, had plastered brick walls encircling the cut, presumably built up to floor level or beyond. These were considered possible shrubbery trenches or water basins (Scanlon 1974, 86). When drawn in section (Scanlon1974, fig. 6) there is no indication that the plaster lining extended to the *gabal*-hewn portion of the feature. While this need not preclude the possibility of water storage entirely, it would seem prudent if one was already plastering the brickwork to continue to plaster the rock to improve its resistance, as it was certainly at least slightly porous. Moreover, the plaster is described as mixed with crushed rock, rather than ash or crushed brick that would give it water-resistance. The possibility that these are more substantial shrubbery pits than the smaller "gougings" is no doubt based on their general similarity to those found attached to *fisqiya*s, utilising plastered brickwork. However, in the latter cases the brickwork also lined the sides, not just above the *gabal*.

A significant problem with this interpretation is their placement. If one presumes that the soil was exposed across the full width of the trench, this would be a serious hindrance to accessing some these rooms—in particular House 10A, where only 50-70cm on either side would be left to access the room. If, alternatively, the trench was mostly paved over, leaving a smaller gap for a tree or shrub to grow, why were these features hewn in such regular shapes aligned with surrounding walls? In contrast, the irregularity and misalignment of the smaller class 3A basins seems plausible if they were hewn only to provide room for roots to grow and were not visible from floor level. Considering the problem of access posed by the features, it seems most likely that they were covered with stone slabs at floor level so that they could be walked over to enter the *ṣadr*. If they were unlikely to hold liquids, one must presume that they were to store objects of some sort. The placement and function of the stone-lined compartment described above , indicated by its stone lining, therefore may be a smaller version of these features (being more 3B than 3A in nature). This is particularly compelling as it is also in the *ṣadr* (House 8) despite its difference in size and alignment.

Do these potential storage units, provide an alternative to the isolated pit class 4, or are they functionally distinct?

Archaeological Features in Spatial Context

Figure **137** shows distribution of both features. There are several cases in which houses have both features—Houses 10A, 16 and 17, as well as potentially House 7 if the feature within its courtyard is included—making it unlikely that they are alternative modes of fulfilling the same function. Might they, therefore, provide complementary functions?
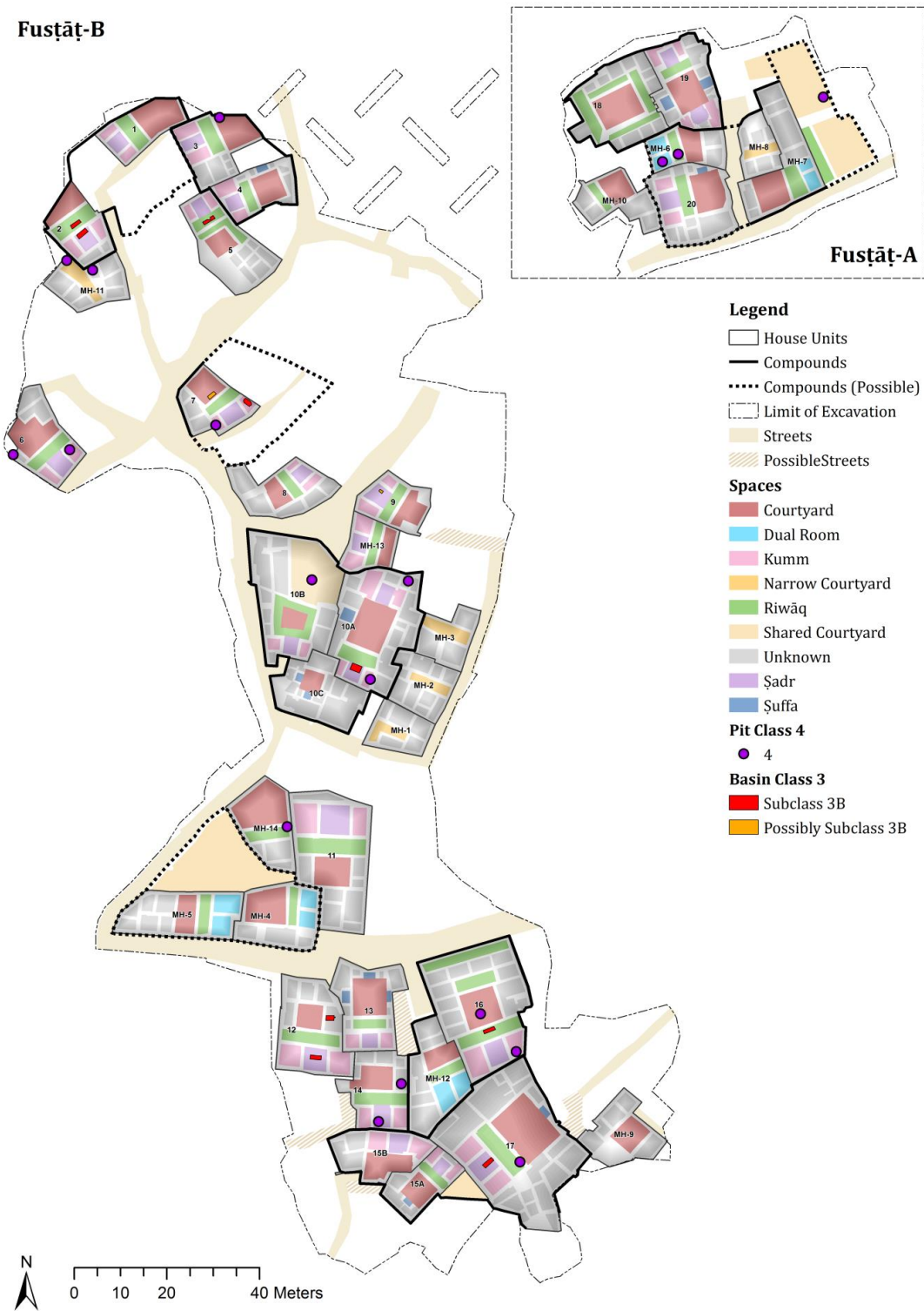
Figure 137 — Distribution of pit class 4 (possible water-holds or wells) and basin class 3B (possible storage compartments).

7.5.3 Floors

Figure 138, below, shows the distribution of flooring types across the sites (simplified to presence and absence within spaces, as fragments are small and cover one another). Flooring is divided into three categories: stone paving, brick and mortar. Packed earth (*dakka*) is excluded as it only appears within Houses MH-1, MH-2 and MH-3 (which seems to be a reporting bias), or relates to earlier structures. The rates of presence and absence within spatial types are shown in Table 19, Table 20 and Table 21, below. The residuals for all three floor categories are visualised in Figure 139.

While one sees a slightly higher rate of presence for stone flooring within shared courtyards, central courtyards and several of their attendant rooms—namely the *ṣuffa*, *ṣadr* and *riwāq*—the difference is not statistically significant (p=0.055), though only by a narrow margin. Brick flooring appears more frequently within narrow antechambers and dual rooms, as well as slightly more so within courtyards. This is based on very few examples, however, and is not statistically significant (*p*=0.089). Within narrow antechambers, the largest residual, the correlation is the result of the brick flooring found throughout the rooms of MH-1, MH-2 and MH-3, not just within this particular space. The only type to show a statistically significant difference between spatial categories is mortar flooring (*p*=0.002). However, mortar floors were found more often than expected in narrow antechambers for the same reason as brick flooring: they were part of the sequence found throughout MH-1/2/3. Since they were visible without the aid of sondages, they could be identified in all rooms of these units, which is no doubt responsible for the correlation with unidentified spaces. As suggested in the previous chapter, mortar flooring may have been in existence elsewhere but not reported; they were noted here due to their exceptional preservation, in contrast to surrounding masonry.

Thus, little can be discerned from the pattern of brick and mortar floorings, due to rarity and/or inconsistent reporting. The most meaningful result is therefore that of stone floorings, though below the conventional threshold for statistical significance. Those unidentified rooms with stone flooring do not, unfortunately, show any consistency in their location (Figure 140). In contrast to the previous features which left traces in the *gabal*, flooring is easily removed without a trace, and the depredation of several houses has removed much evidence. For this reason, any differences between types of spaces may have been obfuscated.
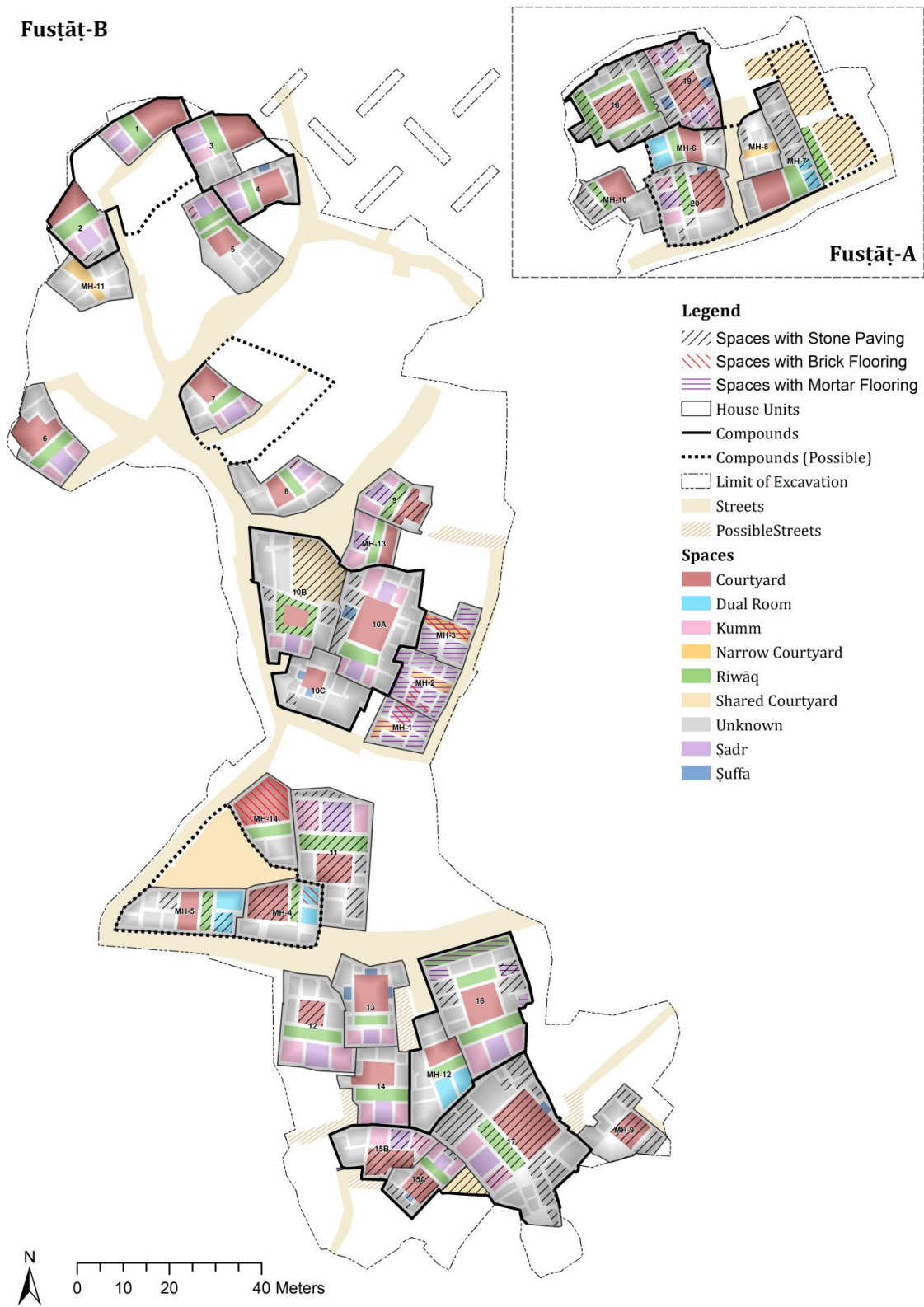
Figure 138 — Distribution of flooring types across Fusṭāṭ-A and B

Table 19 — Presence and absence of stone paving within space types

			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	Total
Stone Paved Floor	0	Count	21	7	38	5	25	17	1	7	182	303
		Expected Count	24.0	7.5	36.0	3.8	27.0	18.0	3.8	9.0	174.0	303.0
		% within Space Type	65.6%	70.0%	79.2%	100.0%	69.4%	70.8%	20.0%	58.3%	78.4%	75.0%
		Std. Residual	-.6	-.2	.3	.6	-.4	-.2	-1.4	-.7	.6	
	1	Count	11	3	10	0	11	7	4	5	50	101
		Expected Count	8.0	2.5	12.0	1.3	9.0	6.0	1.3	3.0	58.0	101.0
		% within Space Type	34.4%	30.0%	20.8%	0.0%	30.6%	29.2%	80.0%	41.7%	21.6%	25.0%
		Std. Residual	1.1	.3	-.6	-1.1	.7	.4	2.5	1.2	-1.1	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 20 — Presence and absence of brick flooring within space types

			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	Total
Brick Floor	0	Count	31	9	48	4	36	24	5	12	229	398
		Expected Count	31.5	9.9	47.3	4.9	35.5	23.6	4.9	11.8	228.6	398.0
		% within Space Type	96.9%	90.0%	100.0%	80.0%	100.0%	100.0%	100.0%	100.0%	98.7%	98.5%
		Std. Residual	-.1	-.3	.1	-.4	.1	.1	.0	.1	.0	
	1	Count	1	1	0	1	0	0	0	0	3	6
		Expected Count	.5	.1	.7	.1	.5	.4	.1	.2	3.4	6.0
		% within Space Type	3.1%	10.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	1.3%	1.5%
		Std. Residual	.8	2.2	-.8	3.4	-.7	-.6	-.3	-.4	-.2	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 21 — Presence and absence of mortar flooring within space types

			Space Type									
			Courtyard	Dual Room	*Kumm*	Narrow Antechamber	*Riwāq*	*Ṣadr*	Shared Courtyard	*Ṣuffa*	Unidentified	Total
Mortar Floor	0	Count	32	10	48	2	35	24	5	12	210	378
		Expected Count	29.9	9.4	44.9	4.7	33.7	22.5	4.7	11.2	217.1	378.0
		% within Space Type	100.0%	100.0%	100.0%	40.0%	97.2%	100.0%	100.0%	100.0%	90.5%	93.6%
		Std. Residual	.4	.2	.5	-1.2	.2	.3	.1	.2	-.5	
	1	Count	0	0	0	3	1	0	0	0	22	26
		Expected Count	2.1	.6	3.1	.3	2.3	1.5	.3	.8	14.9	26.0
		% within Space Type	0.0%	0.0%	0.0%	60.0%	2.8%	0.0%	0.0%	0.0%	9.5%	6.4%
		Std. Residual	-1.4	-.8	-1.8	4.7	-.9	-1.2	-.6	-.9	1.8	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 139 — Difference between observed and expected presence of floor types within space types.
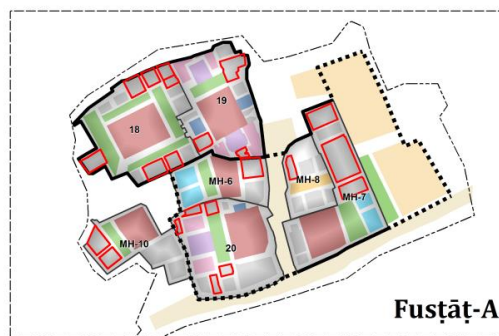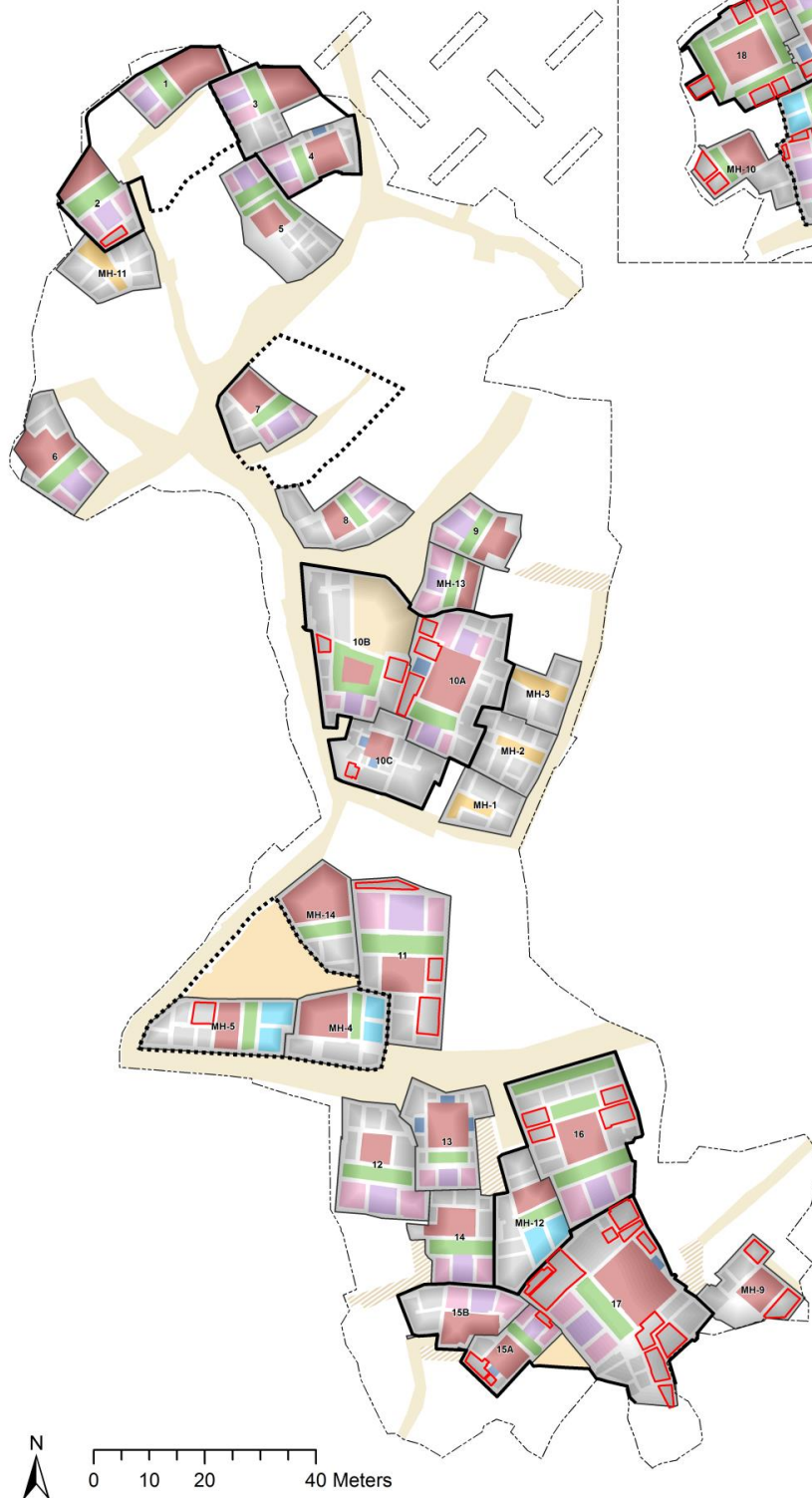
Figure 140 — Plan of Fusṭāṭ-A and B highlighting in red unidentified spaces with stone paving.

7.5.4 Niches and Recesses

Niches and recesses are fairly rare, most likely due to general destruction of the masonry, and only those that extended to floor level have survived. The distribution of spaces containing these features is shown in Figure 36, as they are too small to map individually. The presence of these features in each space type is shown in Table 22, and residuals summarised in Figure 142, below. There is an overwhelmingly higher than expected frequency within *ṣuffa*s (50% of all spaces of this type), and somewhat higher than expected prevalence within shared courtyards and *riwāq*s. There are also slightly more than expected in *ṣadr*s. The Chi-squared test shows the differences to be statistically significant (*p*=0.002), though if *ṣuffa*s were excluded from the test the remaining differences are probably the result of chance (*p*=0.552). This means that perceived correlations of recessing with *riwāq*s and the *ṣadr*, as often reconstructed by Bahgat and Gabriel, should perhaps be treated with caution.

Little can be said of the significance of unidentified rooms with these features. In the case of those in House 20, the spaces can be understood as an extension of the *riwāq*, perhaps separated by doors or screens. Similarly the small recessed space behind the *ṣadr* in House 19 can be understood as a subsidiary compartment of that room. This somewhat mitigates the caution recommended above. Beyond this, the only clear pattern is that these are more often found in the southern part of Fusṭāṭ-B and in Fusṭāṭ-A, where masonry survived to a greater extent.
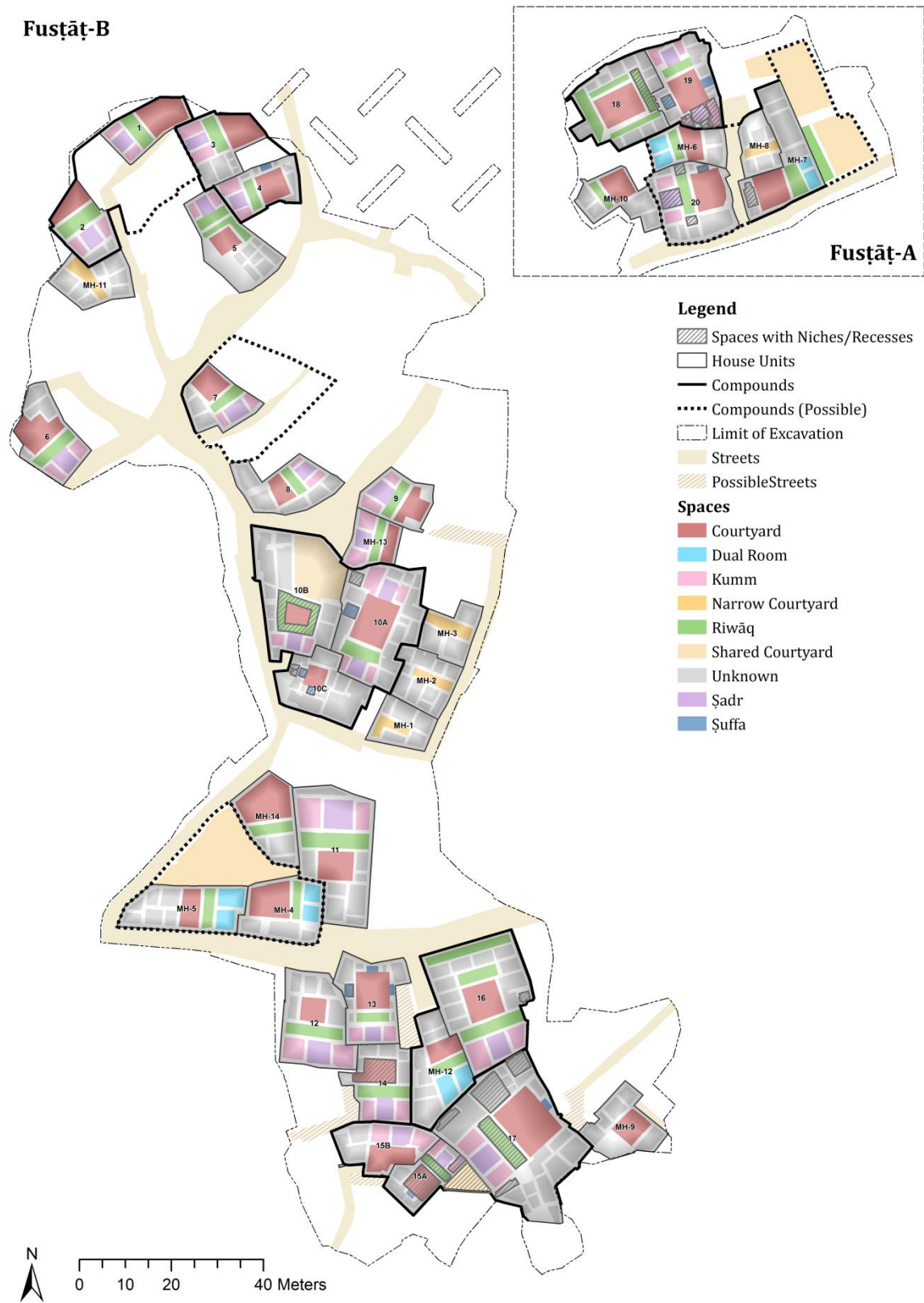
Figure 141 — Distribution of spaces with niches and recesses within Fusṭāṭ-A and B

Table 22 — Presence and absence of niches within space types

			Space Type									Total
			Courtyard	Dual Room	Kumm	Narrow Antechamber	Riwāq	Ṣadr	Shared Courtyard	Ṣuffa	Unidentified	
Niche Presence	0	Count	30	10	45	5	32	22	4	6	220	374
		Expected Count	29.6	9.3	44.4	4.6	33.3	22.2	4.6	11.1	214.8	374.0
		% within Space Type	93.8%	100.0%	93.8%	100.0%	88.9%	91.7%	80.0%	50.0%	94.8%	92.6%
		Std. Residual	.1	.2	.1	.2	-.2	.0	-.3	-1.5	.4	
	1	Count	2	0	3	0	4	2	1	6	12	30
		Expected Count	2.4	.7	3.6	.4	2.7	1.8	.4	.9	17.2	30.0
		% within Space Type	6.3%	0.0%	6.3%	0.0%	11.1%	8.3%	20.0%	50.0%	5.2%	7.4%
		Std. Residual	-.2	-.9	-.3	-.6	.8	.2	1.0	5.4	-1.3	
Total		Count	32	10	48	5	36	24	5	12	232	404
		Expected Count	32.0	10.0	48.0	5.0	36.0	24.0	5.0	12.0	232.0	404.0
		% within Space Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Figure 142 — Difference between observed and expected presence niches within space types.

7.5.5   Staircases

There are only five examples of internal staircases across the two sites, so a statistical analysis of their distribution is not necessary. Figure 143 shows their distribution. One apparent consistency, presented with caution due to the small sample, is that in Houses 13, 19 and MH-6 these are all within rooms that border the street or impasse. In the case of House 19 it is the only known room that could have formed a connection with a thoroughfare, and in the case of MH-6 it is one of two rooms in which an entrance might have appeared. House 13 could have been entered by a number of rooms, however, either from the so-called *darb* or the impasse, though the room with the staircase is a possible location. As upper apartments are a possibility, placing the staircase near the main entrance would seem plausible.

The plan produced when Fusṭāṭ-A was re-cleaned in 1973 shows a feature in House MH-7 that looks very much like the representations of staircases in Houses 19 and MH-6 further north. In this plan, as in that published following the 1964 season, the arrows indicating the direction of ascent are not shown, though these are always present in Fusṭāṭ-B plans. That these stairs were not mentioned by Scanlon is not surprising; the two nearby are noted only in passing, that in MH-6 being used tangentially to establish the boundaries of buildings. The proposed staircase follows the same pattern, being in a room adjoining the impasse from which these units were probably entered.

There are two further examples which show very different placements. That in House 11 runs along the wall of the central courtyard opposite the *majlis*, ascending to the west. The staircase in House 17 is found south of the *riwāq*, and ascends in the same direction. Paving over the foundation of the wall between the stairs and the *riwāq* indicate it was entered from the latter.

7.6   SPATIAL PATTERNS

The preceding analysis has illustrated a strict avoidance of sewerage features within the *ṣadr*, and moreover general direction of sewerage away from the *majlis al-ḥīrī* as a whole. Only if a connection to the street dictated so did the sewer network traverse the three main rooms of this ensemble, and in such cases only the *kumm* was used. The *kumm* is also frequently the location of an isolated pit which may have been used as a well or water-hold (the alternative *kumm* if one had a sewer channel). This feature is also frequently found within the *riwāq*, more specifically directly in front of the *kumm*. It is possible that other placements on this room's general axis may be part of the same pattern. Such features are also found frequently in shared courtyards, suggestive of communal resources between house units.
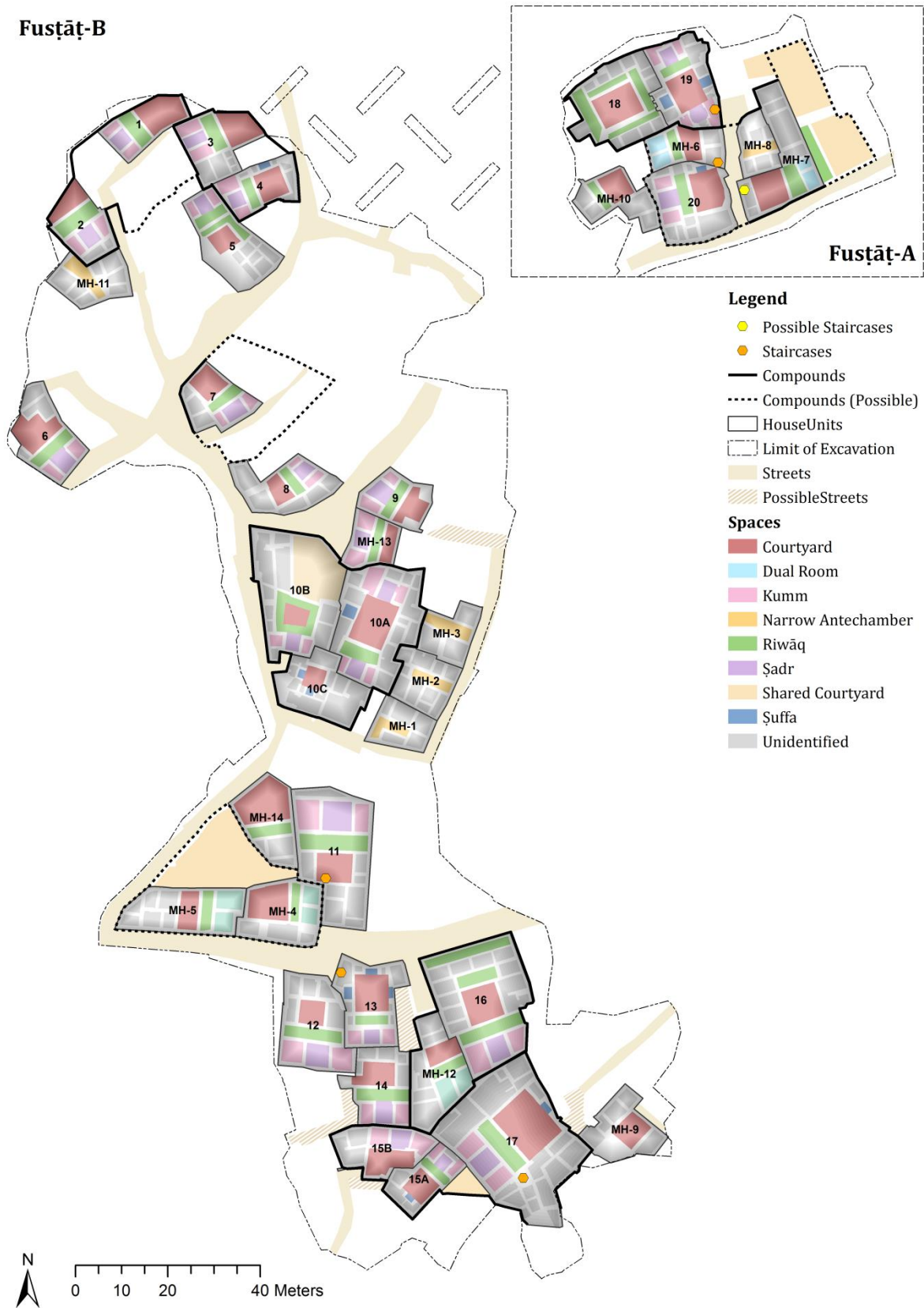
Fusṭāṭ-B

Fusṭāṭ-A

Figure 143 — Distribution of staircases in Fusṭāṭ-A and B

Prevalence of inlets into the sewer system, indicating drains, in the courtyard and *riwāq*, show that wastewater was most often deposited in outdoor spaces. Other inlets tend to be in unidentified rooms, and may largely represent latrines, though no specific pattern in their placement is evident. In contrast, a very particular placement of water basins within unidentified rooms—those in the far "left" corner of the house unit, by a latrine—is suggestive of possible domestic washrooms or bathrooms in the larger house units.

Furthermore, though very few survive, there are some suggestions that staircases were placed in street-adjacent rooms.

The dual rooms have been shown to have a lack of sewer channels and pits, suggesting that they are comparable to the rooms of the *majlis*. They resemble the *ṣadr* in their content, though a single water-hold or well in one such room might suggest that one of the pair functioned in a manner similar to the *kumm*.

I have confirmed the tendency for small cuts in the *gabal*, small "gougings", to appear in the area of the courtyard-*riwāq-ṣadr*. This partially sunlit location does indeed seem to be congruent with this feature's supposed use as a shrubbery pit. However, I have also highlighted a distinct group of larger cuts, which may have also been considered "gougings", that seem to constitute something functionally distinct. These appear to be synonymous with the brick-walled rectangular trenches recovered in House 2, though These features have a very strict spatial distribution, centrally placed on the border between the *riwāq* and *ṣadr*, and possibly into the courtyard.

The correlation of niches with the *ṣuffa*s, the small halls or recesses placed centrally along courtyard walls, is also significant, and requires some consideration in terms of their possible function.

The distribution of flooring types, has not revealed any significant or illuminating patterns. It is unfortunately the case that the distribution of these is more the result of chance preservation and exigencies of reporting than use and meaning of architectural space. Moreover, patterns of any features within the mass of unidentified spaces have not been forthcoming.

The significance of the positive results, and means to overcome the limitations encountered, are discussed in the following chapter.

8 A Social Interpretation of the Fusṭāṭ House

This chapter begins by discussing the patterns identified within the preceding spatial analysis of archaeological features, reflecting on what these reveal about the social use and meaning of space, as well as comparing this with the evidence provided from documentary sources discussed in Chapter 5. I will then reflect upon how far the approach taken in this thesis as a whole has succeeded in its aim of moving towards a social understanding of Fusṭāṭ's houses, returning to the three research questions identified initially.

8.1 Archaeological Patterns and Documentary Parallels

The analysis of the spatial distribution of the sewerage system has revealed clear preferences in the placement of these features, including those with no physical presence within the rooms themselves. Sealed subterranean channels and cesspits are located so as to avoid the central room of the *majlis*—the *ṣadr*—and only placed within one of its side rooms—*kumm*s—if functional necessity dictated so, specifically to connect the system to the street for cleaning. This is suggestive of a distinction between clean and dirty areas of the house that goes beyond practical concerns. It is unlikely that sealed features would have made the room malodorous, certainly not more so than the latrines that sometimes appear on the neighbouring sides of the courtyard. This is therefore more indicative of a conceptual distinction or social taboo, which would seem harmonious with the previous archaeological inference that the *ṣadr* is the highest-status room of the house, based on its size, central location and decoration. The *kumm*s are often implicitly given subordinate status in archaeological reports (Bahgat calls them "*salles secondaires*"). If the avoidance of sewerage is taken as a measure of status, as I suggest here, then the distribution confirms them as secondary to the *ṣadr*. Yet it also shows that they were of a higher status than other nondescript chambers in the house.

The precise routes of the sewer system and their potential conceptual rationale are not apparent in the documentary sources, though the high status of the *ṣadr*—and potentially its concomitant cleanliness—are. The room's status is indicated by its prominence in house descriptions[97], its elaborate ceiling, and potentially from details of the household textiles (as discussed in 5.4, above). The costly curtains (*sitr*s) and carpets (*ṭunfusa*s) referred to as *ṣadr*s (front or middle piece) are thought to be those centrally placed on the rear wall and floor of the room known by the same designation, flanked by side pieces or runners. Goitein

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[97] Simply referred to as the *majlis*, unless a distinction with its *kummayn* are stressed, as when discussing details of its construction or features.

is insistent that one did not walk on the carpets with shoes on (Goitein 1983, 124; 462 no. 210). While no direct evidence is cited to support this, in one case the fact that a *ṣadr* carpet was white is mentioned, making this seem practical. The proposed cleanliness of the *ṣadr* is also paralleled in later Cairene architecture. It was within the Cairene *dur-qāʿa* that one would take one's shoes off, before stepping into the *īwān* (Lane and Poole 1973, 12). These later forms are largely analogous to the open *qāʿa* and *ṣadr* (as discussed in section 3.4.4)

The identification of a group of cuts in the *gabal*, rectangular trenches of a consistent size that appear unfailingly at the *ṣadr*'s border with the *riwāq*, potentially illuminates the use of these spaces. I have argued that these are unlikely to have functioned as water basins, since where their plastered brick structure survives, it was placed only above the *gabal*. Furthermore, a shrubbery trench is unlikely due to the regularity of the shape (if mostly covered by paving) or its impediment to accessing the room in question (if open across its full width). As such, I have suggested storage of some kind.

There are two principal reasons one would store objects below the floor: either to keep something valuable hidden and secure, or to keep something cool in Egypt's hot climate. The first possibility could correspond with the feature called the *maṭmura* mentioned in the Geniza, from the root (*ṭ-m-r*) meaning to bury or cover up. Though some were clearly large rooms (that with 117 jugs of wine), one in which a few valuables were removed without permission (books, medicine, paper, fifty pounds of mercury and gold coins) may be a small compartment of this sort (Goitein 1983, 75). Yet, how secure were such compartments if they appeared consistently in the same location? Perhaps deceiving burglars was not the object here; the valuables mentioned above were removed without permission by someone's brother. Keeping valuables in a highly public area of the home, but in an inaccessible situation, would prevent any one tenant from taking from it without permission[98]. Not only would the central carpet (*ṣadr* piece) extend down the centre of the room, but there was also the *ʿataba*, literally the "threshold" carpet (Goitein 1983, 126), implying that it covered the precise area in which this feature appears.

One reason to doubt this interpretation is that while the *maṭmura* was often mentioned in descriptions of houses in deeds of transfer, Goitein reports that it was not found in a consistent location within the home (Goitein 1983, 75). It is unclear, however, whether this is because a specific location is never mentioned, or a range of locations are specified in different cases. If the former is the case, it may be that it is not specified due to its consistent

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[98] One is put in mind of the Umayyad *bayt al-māl,* a public treasury placed in the courtyard of a city's congregational mosque, which is highly visible but suspended on columns so one cannot easily access it.

location. Another type of storage place, a *makhzan*, is in one case explicitly located beneath a *majlis,* though in a house in Tyre, not Fusṭāṭ (Goitein 1983, 75). It may in this case be an alternative term for the same kind of compartment. In other cases, however, it was certainly a much more substantial room, as discussed in section 5.3.

The second possibility is that these compartments kept water jars cool. It is clear that earthenware pots called either *zīr* or *barrāda* were used to store water; their copper cups and cloth or copper covers are described in trousseau lists (Goitein 1983, 142). It is the storage of these *zīr*s that Scanlon suggests as the function of the inscribed compartment of House 8, which may be a smaller variant of the identified features. These earthenware pots cool water (*barrāda* literally means "cooler") to below ambient air temperature by capillary action and evaporation, as the warm water molecules escape from the surface of the jar. The only way that the temperature of the air and water can remain out of equilibrium is if the air remains dry, meaning warm water in the air cannot re-join the body of water. In an enclosed space, this cannot work, and it is usually near doorways, windows or outside houses that one finds *zīr*s in Egypt, placed in stands, whether today or in antiquity. This suggestion thus seems unconvincing.

The other significant pattern relating to the *majlis* is that isolated pits that are inaccessible from the street—most likely to be water-holds, wells or soakaways (see section 6.2.4)—are frequently found in one of the *kumm*s, or directly in front of that space, within the *riwāq*. It is tempting to associate this pattern with al-Masʿudī's account of the invention of the *majlis al-ḥīrī* in the Lakhmid Kingdom, in which one *kumm* is described as providing drink for the king/caliph, the other acting as a wardrobe. If these features are water-holds or wells, is this therefore a room to supply drinking water? The fact that the *kumm* for drink is described as that on the left by al-Masʿudī—which is interpreted as the left-side if one is facing the courtyard by Mathews and Mathews (1997, fig. 20, 307)—would suggest not. The feature is actually found in the right *kumm* in all examples save one (House 7), and on the right side of the *riwāq* in all such cases.

One might argue that because the term *ṣadr*— meaning "chest", "centre" or, crucially, "front"—is also used refer to the wall of the central room farthest from the courtyard, left and right should be reversed from what Mathews and Mathews propose. However, there are other grounds to doubt the interpretation of this *kumm* as a drinks-store. As discussed in sections 5.5.2 and 6.2.3, the Geniza indicates that drinking water took the form of Nile water delivered by water carrier and kept in vessels. The regularity of payments for delivery of drinking water (Goitein 1983, 232–3)—thereby indicating short-term supply— and the lack of any lining within these features to contain and protect the supply from

contamination, suggests that they were unlikely to have been designed to store large volumes of potable Nile water.

Rather, as suggested in section 6.2, these features were more likely related to non-drinking water, either as wells or water-holds. Without reconstructing the height of the ancient water table, which of these may have functioned as wells cannot be known with certainty. However, it should be noted that the only pit of this type within a *kumm* whose depth is recorded, that in House 6, reaches only 3.04m. In contrast another pit of the same type found west of this house's central courtyard was 11m deep. The other significantly deep isolated pit whose spatial context is clear is that within the shared courtyard east of MH-7 in Fusṭāṭ-A, which was found filled with "clear" water for a depth of 7.2m (Scanlon 1965, 13). It would seem more likely, therefore, that if some of these features are wells, it is those in the central courtyard (*qāʿa*) or the proposed "shared courtyards" between house units. It is indeed the latter spaces which showed the strongest correlation with this feature type. The shallower pits within the *kumm* are therefore most likely for water storage.

The only other possible interpretation is as soakaways for wastewater, but as the sewer system would benefit from receiving wastewater in order to flush material towards the terminus, I find this unlikely. If the water stored here was not for drinking, one may consider washing. Can this be related to washing of clothes, and thereby linked to the wardrobe store indicated by al-Masʿudī? As discussed in section 5.5.4, washing of clothes in the home is indicated in the Geniza through arrangements for drying on the roof, and in a grocer's order for soap and starch. However, no indication of where washing was performed is given. The *kumm* remains a possibility, but there is no reason to suppose this activity was performed here, rather than near the drainage (discussed below), especially considering the apparent cleanliness of this space indicated by a lack of sewer channels (lesser in degree than the *ṣadr*). Moreover, washing of dining utensils and of the house itself are just as likely to be the served by the water stored here.

The Geniza gives little insight into the function or features of the *kumm*. It is clear that the *kumm* is described as if conceptually distinct from other chambers such as *khizāna*s, though how is unclear. Goitein argues that they must have been structurally distinct. There is no clear indication of this archaeologically, except their adjacency to the *ṣadr* and *riwāq*, yet I have demonstrated that they were equipped with different features than other rooms.

The correlation of features with the central courtyard (*qāʿa*) and *riwāq* sheds a little light on the use of these spaces, which are poorly characterised in the Geniza. Both suffer from the problem of being indistinguishable from larger ensembles of the same name within texts. The *qāʿa* may refer to a courtyard proper or include the rooms around it, or even the

whole ground floor. The *riwāq* is a name given to an upper apartment in the Mamlūk and Ottoman period, only mentioned occasionally as an element of the *majlis* or as adjoining a street. Much of Goitein's characterisation of the *qāʿa*—as a common link between upper- and lower-storey tenants, as a place of business and storage of goods, as a place of teaching—may in the latter two cases refer to the wider ensemble. Goitein's characterisation of the *qāʿa* as a communal resource between different tenants may result from the observation that upper-storey residents had rights to use a water well found in the *qāʿa.* If this is the courtyard proper, it may be supported archaeologically by the slightly higher than expected frequency of isolated pits in the central courtyard (such as House 16). Equally, however, those in unidentified courtyard-adjacent rooms and *kumm*s may be what is described here.

The appearance of small cuts in the *gabal* within the *riwāq* and central courtyard, as well bordering the *ṣadr*, has already been noted by Ostrasz and identified as shrubbery pits. I can offer no alternative explanation for their form, though it is notable that no structure to contain the soil beyond the *gabal* level has ever been found. The main insight I have offered is that the distribution the sizes of cuts in the *gabal* indicates that these are not the only functional type present, and distinctions should be drawn with these and storage features, based on size as well as on location and structural elements. Beyond this, the frequency of intakes into the sewer system found within the *riwāq* and central courtyard seems to indicate that these spaces, despite their ornamental elements, had a certain utilitarian nature. I see no reason to suppose, however, that activities producing waste water were conducted in these spaces. Waste-water could easily be carried to the courtyard/*riwāq* to be disposed of, from wherever washing, or perhaps cooking, took place.

The distribution of staircases is difficult to assess statistically as there are simply too few examples. However, the tentative pattern identified, of the placement of staircases in rooms at likely entry points might indicate that these rooms are *dihlīz*es, the entrance halls mentioned in the Geniza. Along with staircases—which would logically be placed here to allow residents of upper apartments to access their homes independently—three other features of the *dihliz* are identified in the Geniza, two of which can be attested in proposed rooms. A *dihlīz* is said to have contained a kitchen and latrine, another included a place for water jars, while those in wealthy houses tended to have benches (*maṣṭaba*s). This "place" for water jars is likely to be a niche or alcove. A niche for water jars is found near the entrance of apartments in Mamlūk and Ottoman architecture (Ibrahim 1984, 57); such a

structure is known as a *bayt azyār*[99] in Mamlūk documents of the Karaite community (D. S. Richards 1972, 138, Doc. 23). In the Karaite documents the *bayt azyār* appears in internal passages, as well as in the *dihlīz* (D. S. Richards 1972, 122, Doc 12 A). The room with a staircase in House 19— previously identified as a *kumm* due to its location—contains not only a staircase but a large tripartite niche, which may have served as a *bayt azyār.* A large alcove or niche is also present in the room with a possible staircase in MH-7. A latrine is found in the large room with a staircase bordering the "*darb"* in House 13.

Other staircases found within the central courtyard and adjoining the *majlis* would be equivalent to those mentioned as within the *qāʿa* (in the narrower or wider sense) in several Geniza house descriptions. In several cases staircases described in the *qāʿa* lead to a mezzanine (*mustaraqa*) (Goitein 1983, 73; D. S. Richards 1972, 115, Doc. 24). The *mustaraqa* often faces north, presumably to make use of the cool northern wind, and is often described as belonging to the *qāʿā*, or more specifically overlooking it (Goitein 1983, 73). For this reason, the staircase on the south side of House 11's courtyard might have led to a *mustaraqa* overlooking the courtyard. This is, however, rather speculative. Staircases within the *qāʿa* do not exclusively provide access to the *mustaraqa*, nor do those in the *dihlīz* solely provide access to upper apartments. One staircase in a *dihlīz* leads to a *mustaraqa* (D. S. Richards 1972, 109, Doc. 5), and those in the *qāʿa* tended to also give access to other *qāʿas*, residences (*manzils*), and apartments (*ṭabaqa*s) (D. S. Richards 1972, 115, Doc. 24; Goitein 1983, 73).

The presence of niches in rooms adjoining the street and containing staircases can therefore be posited as emplacements for water jars, filled from the Nile by water carriers. In other unidentified rooms, however, it is unclear which niches may be emplacements for such jars, and which may have held shelves or cupboards. Moreover, if these features form very shallow recesses, might they simply be decorative?

Niches and recesses have been shown to be strongly correlated with open-fronted alcoves or rooms in the centre of courtyard walls, identified with the *ṣuffa*s of Geniza descriptions. Can their function in this context be identified, and if so illuminate their use within the home? The term *ṣuffa* was, according to Goitein, originally used to mean a covered bench or bower found outside a house or mosque, before appearing in descriptions of the internal plan of the house. By the 19th century, as reported in Lane's account of *The Manners and Customs of the Modern Egyptians*, a different meaning had emerged. Lane describes the *ṣuffa* as a small, apparently freestanding, stone shelving unit around four feet high (Lane and

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[99] Plural of *zīr*, water jar.

Poole 1973, 13–14). The top surface or shelf was supported by one or more arches, and under which were placed utensils relating to eating and drinking such as coffee cups, the basin and ewer for washing hands, and water bottles (see Figure 144).
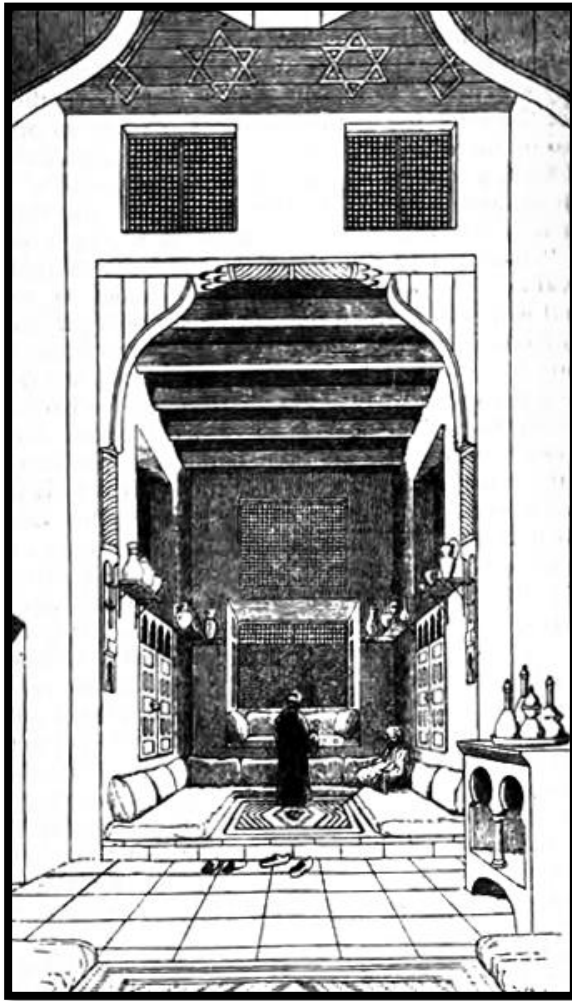
Figure 144 — A Cairene *qāʿa* as described by Lane in the 19th century. *Īwān* in background, *dūr-qāʿa* in foreground with *ṣuffa* to right (Lane and Poole 1973, 18).

Goitein acknowledges this later usage, but considers that in the Geniza descriptions, the meaning of covered bench was current (Goitein 1983, 67–8), based on two factors. The first is that in one case a *ṣuffa* looked out on the street; presumably "looking out" is presumed to indicate that one could sit in the *ṣuffa* and observe the street. The second is that one has a painted ceiling, indicating it was covered. Indeed, as identified archaeologically, their open-fronted construction and substantial size would make them a far more likely location for sitting in the shade than to store household objects. Yet, the prevalence of niches within these spaces might imply that the later concept of the *ṣuffa,* as a storage place, was already emerging by the Fāṭimid period. There are a number of parallels between the *ṣuffa* identified through excavation and Geniza documents, and that described in the 19th century by Lane. Firstly, the later *ṣuffa* is described as placed opposite the entrance to the *dūr-qāʿa*. An illustration clarifies that it was placed along this wall, between the two open-fronted

halls or *īwān*s that dominated the core of the Mamlūk or Ottoman house. Its placement is therefore comparable to the *ṣuffa* in Fusṭāṭ. Moreover, Lane describes how both the *ṣuffa*'s front and the wall over it were decorated with marble and tile in rich households. Similarly, one finds marble decorating the *ṣuffa*s in the Geniza (Gil 1976, 289: Bodl MS Heb. d 68, f. 100 [A21]). This not only shows a similar aesthetic concern for this feature in both periods, but crucially shows intimate association of the later freestanding shelves with their architectural context. It would seem likely therefore, that originally the shelves had been accommodated in a substantial alcove, a covered seating area, but as the importance of this seating area diminished the term came to signify the shelves alone, their architectural setting continuing to be emphasised through decoration, if not through recessing[100]. The diminished importance of the *ṣuffa* as a seating area is perhaps linked to the roofing of the courtyard, in order to receive the breeze it was better to sit in the overhanging *mashrabiya* that were equipped with seating, rather than the *dūr-qāʿa*.

I therefore propose that the prevalence of niches in the *ṣuffa*s are most likely to have accommodated shelving to store household objects, perhaps the same kind of utensils that would be placed on the later shelves known by the same name. This interpretation seems apt for the deep, usually quite narrow, recesses in the *ṣuffa*s of House 10A, 13, 19 and 20, though the shallow recesses in 10C can hardly have functioned so, and are probably decorative. The most apparent alternative hypothesis is that these niches are for water jars, as suggested for the *dihlīz*. Considering that good ventilation is the key to their cooling ability a room with a facade open to the courtyard would be a suitable location for water-jar storage. Yet this context is perhaps overly-sheltered from the breeze, in comparison to the niches of similar dimensions that front the courtyard directly.

The proposed "shared courtyards" found between or adjoining house units would seem most likely to correspond to the Geniza term *ṣāha,* translated as "open space" by Goitein (1983, 60; 364, no. 56), or as "parcel" by Gil (1976, 583). Little indication of the *ṣāḥa*'s function or form is discerned by Goitein; such spaces are only mentioned as defining the boundaries of properties, or as a place in which the owner had a right to build[101]. The identified prevalence of isolated pits likely to be wells, as evinced by the depth of that in Fusṭāṭ-A, in shared courtyards seems to indicate that these provided washing water to

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[100] Recesses and alcoves on this wall of the *dūr-qāʿa* were still common in Mamlūk and Ottoman urban mansions in Cairo.

[101] That in a document translated by Gil is a piece of cultivatable land south of Fusṭāṭ (in Dammūh) which included a well (Gil 1976, 320, TS 10 J 4. 11v [A100]). The suburban-rural context here might be misleading; I imagine those in the city were yards rather than cultivated land.

multiple house units. In this sense, these spaces seem to be potentially analogous to the large open courtyard of Ottoman Cairene mansions, connecting multiple parts of the mansion including one or more *qāʿa* units (based, of course, around covered courtyards, *dūr-qāʿa*s). This courtyard, called a *ḥawsh* by Lane (1973, 10), often included a well, for example at Manzil al-Kirīdlīya (Revault and Maury 1977, 75; Planche XXXIX) and Manzil Sitt Wasīla (Revault and Maury 1977, 105; Planche XLII).

The identification of possible private bathing facilities in the two largest house units (Houses 10A and 17) is made more compelling by their consistent placement, mirroring perfectly the same phenomenon as proposed by Bahgat and Gabriel in their Maison VI. These facilities are proposed based on the appearance of small (<2m long) rectangular stone-lined basins, in unidentified rooms that are: (a) not significantly larger than the basin itself, (b) have a sewer channel or terminus within, and (c) placed next to a latrine. In both cases, and Maison VI, this room is found in the far left corner of the house[102].

Insights into bodily washing in the home are made by Goitein through the washing utensils detailed in trousseau lists, while no bathing spaces are indicated in house descriptions. Goitein suggests that basin and ewer sets (*ṭāst wa-ibrīq*) that are listed were most likely for washing hands. *Maghsal*s, appearing in quantities of two or more, are interpreted as basins for washing the face and body. Despite the latter interpretation, no architectural context for this washing of the body is proposed, and Goitein insists that the public baths are the only form of bathing facilities. As Goitein describes, Jews were required to wash after rising, before prayer and before meals. In Jewish law, all that was required in these cases was the washing of one's hands. As such the small basin and ewer could be brought to wherever the person was to perform these acts. There is one clear account of a woman bringing a ewer of water to her father to wash his hands before his nightly prayer (Goitein 1978a, 33). Islam, however, involves two forms of ritual washing: *wudu* and *ghusl*. *Wudu*, performed before regular prayers, requires washing of the hands, face, head and feet. This would perhaps require a larger basin. *Ghusl* must be performed after sex, menstruation, childbirth, and is encouraged before Friday prayer, Eid prayers, and Hajj; it involves washing the whole body. While Muslim men would visit the public bathhouse before Friday prayers (Goitein 1988, 97), considering these obligations it would seem plausible that a domestic space for bodily ablutions would be most convenient for Muslim households, if not for other religious groups.

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[102] As if standing in the porticoed *ṣadr* looking towards the courtyard.

A Social Interpretation of the Fusṭāṭ House

In fact, a room literally translating as washroom, *mirḥād*, is found often in Geniza house descriptions, but it is considered it a euphemism for a toilet by Goitein (1983, 69; 367, no. 116). The same is true of less common terms *bayt al-māʾ* (water room) and *mustaḥamm* (bathroom). Only in the latter case is the reason for this being identified as a toilet made clear, namely that the room is found in a prison—though surely this is all the more reason for it to be a bathroom, as prisoners could not visit the public bath. All of these rooms are possible identifications for the proposed bathing room, though one would have to examine their precise context in house descriptions, particularly whether they are contrasted with other terms for latrine.

Figure 145 summarises the spatial trends identified, shown against a simplified plan of the typical majlis and its courtyard; the associations or functions of archaeological features are shown in the zones that they tend to occur more often in Fusṭāṭ-A and B. It should be stressed these represent trends only, and that I do not propose that this represents all houses. Moreover, the function inferred from features in these trends is, as discussed above, often only tentative.

Before considering the significance of these results and their interpretation, I will reflect upon the previous considerations—both theoretical and methodological—that have preceded this exploration of the archaeological data. In doing so, I will contextualise the extent to which this represents progress in the interpretation: how far this study has overcome previous theoretical problems, how far it has been limited by the data itself, and what direction future study might take to improve upon the limitations of this analysis.
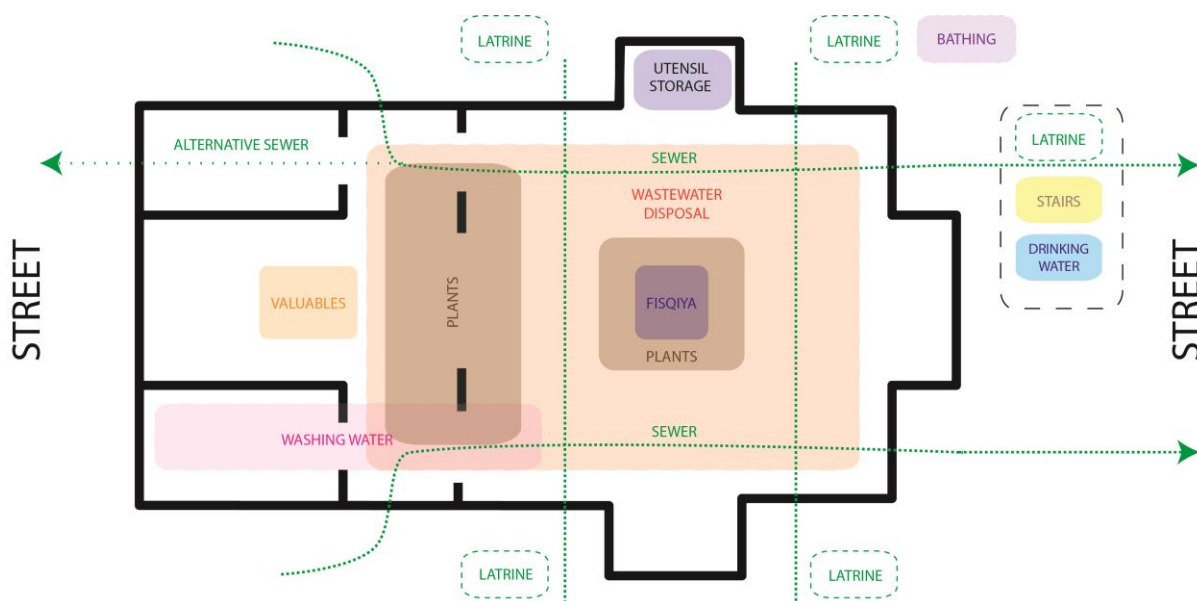
Figure 145 — Proposed trends in spatial associations within the core of the Fusṭāṭ *majlis*-house, based on or supported by the distribution of archaeological features. Dotted lines represent multiple *possible* placements of sanitation features.

8.2   PROGRESS AND LIMITATIONS

The overall aim of this thesis has been to move towards an interpretation of the use and conceptualisation of domestic space in Fusṭāṭ. In order to achieve this aim, I initially identified three research questions:

a) How robust are the theoretical and empirical foundations of previous interpretations of the houses excavated at Fusṭāṭ?

b) To what extent are social-oriented theoretical and methodological approaches applicable to the archaeological record of Fusṭāṭ, considering its limitations?

c) What can exploratory analysis of the archaeological data, considered together with the scholarship on historical sources, reveal about the use and meaning of particular domestic spaces?

What progress has been made in answering these questions? What further research is required?

8.2.1   Theoretical and Empirical Foundations

Expanding upon and revising existing interpretations of the houses of Fusṭāṭ requires one to engage with the conceptual baggage of around a century of scholarship. The interpretation of these houses is permeated by deeply rooted expectations and conceptual divisions—some of which spring from Orientalist thought—as well as by particular explanatory paradigms. I have sought to identity the theoretical foundations for the pre-existing interpretations of the excavated houses, to assess their limitations and question their empirical basis. Where do the potential problems lie? How far has my own work begun to address these? What further ways forward can be proposed?

A review of the scholarship on the archaeology of Fusṭāṭ has demonstrated that generalisations about Islamic-Arab "traditional" housing have implicitly informed both architectural-social interpretations and scholarly focus. Primarily, this is evident in the emphasis on the courtyard as the quintessential element of the "Fusṭāṭ house". This has been present from Bahgat and Gabriel's initial excavation report of the 1920s, through to Scanlon' reports of the 1960s-1970s, and to Ostrasz's synthetic analysis in the late 1970s. In each case the existence of other types of housing beyond the courtyard house has been acknowledged, but these have been eclipsed by discussion of the latter, further characterised by its typical tripartite arrangement of rooms. Certainly this is partly due to the complexities of interpreting such a complex and highly depredated site. The courtyards are not only identifiable through their size and surviving water features, but as they provide light and access to surrounding spaces they become a natural starting point to venture a probable plan for a house. Even within my own definition of houses, this rationale

has largely been followed. Yet it is difficult not to partly attribute the consistent de-emphasis of other potential housing types to the prevailing archetype of the traditional Arab-Islamic house as courtyard-based. Scanlon presented his only proposed examples of non-courtyard houses as a relic of pre-Islamic planning, that had yet to "give way" to Ṭūlūnid architectural practice, or alternatively as an adjunct to a larger courtyard house rather than true houses at all. In this way other forms of architectural plan are diminished, not being considered as active constituents of the material-social fabric of Egypt in this period. These forms are not presented (beyond a footnote) in Ostrasz's summary of archaeological evidence for Fusṭāṭ's domestic architecture, and have not been pursued by subsequent scholars.

The same themes emerge in Geniza scholarship. Goitein presents the family home as that centred on a courtyard, which is placed in contrast to the "apartment house". The perceived dichotomy between family life and non-family life, coinciding with the courtyard house and apartment house, serves to place the courtyard at the centre of the social world. The family is held as the principal unit of social production, and is the subject of an entire volume of Goitein's *A Mediterranean Society*. Those residences without courtyards— which it is clear families lived within, despite the proposed dichotomy—are therefore diminished as outliers, shadows of a more traditional way of living.

I have illustrated the ways in which the evidence put forward by Goitein for modes of tenure and accommodation within the houses of Fusṭāṭ contradicts any such hypothesis on numerous levels. A single property or compound (*dār*), including those incorporating courtyards, regularly accommodated multiple related or unrelated groups within units of various names: *qāʿa, ṭabaqa, manzil, qasr, riwāq*. Moreover, the exigencies of inheritance and financial trading in property resulted in ongoing processes of house division—both in ownership and occupation—as well as expansion and amalgamation. The archaeological evidence largely reflects this picture in two ways. It shows a modular arrangement of architecture, in which repetitive architectural ensembles seem to be united in their construction and infrastructure, suggestive of different occupational units within a single compound. Secondly, it shows processes of expansion or amalgamation, in which a new construction incorporates the remnants of earlier buildings. Processes of division are less evident, however. This is entirely expected, these were enacted through different occupants having rights to access and use various spaces, rather than building walls or even temporary partitions.

Archaeologists, as discussed, have grouped spaces around an open courtyard as some kind of architectural unit. As the common ground-floor occupational units of the Geniza, *qāʿas*,

were courtyard-centred, this is not a mere scholarly device but has grounding in a social reality. Yet at the same time there have been attempts to define which of these adjoining units form a single "house" or "*maison*". Scanlon, for example, often emphasises the amalgamation and co-planning between these courtyard-based units, to suggest wider "domiciles". These proposed domiciles, a term that could not be more misleading in light of the Geniza scholarship, are contrasted with a doubtful counter-hypothesis of "one courtyard equals one house". This, it would seem, creates a false opposition. In our own society a domicile, property, structure—reflecting occupational, ownership, and physical units—largely coincide, or are neatly placed one inside the other. The same was not true in Fāṭimid Fusṭāṭ. The use of the English term "house" seems to conflate all three meanings, and so in looking for "house" boundaries, one is frequently arguing at cross-purposes. One must accept that courtyard-based units may have held different branches of the same family in one period, and unrelated tenant groups in another, may have been built separately but owned and occupied communally, or planned communally but divided and sold separately. It is the occupational units themselves—if built around a courtyard relating to the *qāʿa*—that seem the unit of study most accessible archaeologically, and the most meaningful in terms of understanding use of space and daily life.

Yet, as suggested, is it not fallacious to consider the courtyard as the sole identifier for an occupational unit? It is true that a *qāʿa* often forms the ground-floor unit of a property in the Geniza, but there are also other occupational units on the ground floor, such as the *qaṣr*, the plan and definition of which are unclear (Goitein 1983, 76). Moreover, the Geniza house descriptions do not necessarily reflect the complete social spectrum of Fusṭāṭ. My analysis of reports of Fusṭāṭ-A and B has at least suggested a further two examples of a house type that differs from that built around the large central courtyard (MH-8 and MH-11), but is still largely defined by courtyard units. Moreover, even though the aforementioned house type, three examples of which were initially identified by Scanlon, differs considerably from the usual courtyard houses, its central chamber was probably unroofed. In that sense, they might actually be considered courtyard houses still. One is guided by the independence of lighting and access provided by courtyards to suggest units. The resolution of the archaeological data, and the poor survival of architecture remains an impediment to identifying non-courtyard based units. If thresholds regularly survived to suggest independence of access, and individual units of masonry and their stratigraphic relations were presented to suggest independence of construction, further building units might emerge from within or beyond those identified here.

To return to the orientalist generalisations of Arab-Islamic housing, it is true that such archetypes have not only permeated the focus of architectural analysis, but also the content

of interpretations. Both Bahgat and Scanlon propose that where two courtyard-based units are seemingly united, they must represent male and female apartments, the *selamlik* and *haremlik* (Scanlon 1967, 73; Bahgat and Gabriel 1921, 65), familiar from other Islamic contexts. No such terms, nor any with equivalent meanings, appear in the Geniza. The scarce examples of the *qāʿa ḥurmiyya*, translated as "women's *qāʿa*" by Goitein (1983, 64), are restricted to Alexandrian houses. Furthermore, the meaning of *ḥurmiyya* cannot be established with any certainty and may be synonym for what was locally called a *dur-qāʿa* in Fusṭāṭ/al-Qahīra (Rabbat 1995, 115–18). While a segregation of women and men within Muslim households is implied in the Geniza documents, it is entirely unclear how this was achieved within architectural space, thereby making such assumptions misleading.

Beyond a focus on the courtyard itself, I have demonstrated the degree to which the tripartite arrangement of rooms found adjoining the open courtyard, dubbed the *bayt*, has dominated the interpretation of the houses of Fusṭāṭ. A brief review of the concept of the "*bayt*" (literally meaning "home"), in archaeological-architectural scholarship has shown that the term was originally used to denote a domestic apartment within a wider structure—specifically the ʿAbbāsid palace of Ukhaiḍir—and that a tripartite arrangement of rooms resembling those found Fusṭāṭ was considered an integral part of these particular domestic units. Soon thereafter, however, the term "*bayt*" became synonymous with these three rooms themselves[103]. The interpretation of Fusṭāṭ's houses parallels this linguistic conflation of the Arabic for "home" with the three rooms—if not being directly influenced by it—in that the "*bayt*" is implicitly taken as the key identifier of a house by Scanlon and Ostrasz. It is only through the compilation of the various site plans and reports within my own analysis that the extent of this bias has become clear. This is demonstrated by the identification of numerous possible house units based on bipartite rather than tripartite plans. These had invariably been de-emphasised in reports by Scanlon, being seen as subsidiary parts of the more typical units, and went on to be omitted by Ostrasz.

Furthermore, the so-called *bayt*—since identified as the *majlis* or *majlis al-hīrī* of literary and documentary sources—was placed by Scanlon at the heart of his explanation of the domestic architecture as an import from Iraq at the transition to Ṭūlūnid governance. Within Islamic archaeology in Egypt, there is a longstanding tendency to frame material-culture change in terms of élite taste, giving agency to particular dynasties in creating broad societal change. Not only are ceramic forms often seen as the hallmarks of certain dynasties—notably Fusṭāṭ Fāṭimid Sgraffito (FFS), Fāṭimid lustreware, and Mamlūk

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[103] Alternatively, it may refer to the *five* rooms that are found in Umayyad architecture of Syria, the "Syrian *bayt*".

Sgraffito—the dynasties themselves are implicitly or explicitly seen as sponsors of, or trend-setters for, the development of such mass-produced and widely circulated artefacts. A brief excerpt from the *Grove Encyclopedia of Islamic Art & Architecture*, specifically the entry on Fāṭimid ceramics, illustrates the typical framing of developments in terms of dynastic rule:

> "With the establishment of the Fatimid dynasty in Egypt (r. 969-1171), a ceramic renaissance took place there. Pride of place must go to lusterwares, a technique derived from Samarra wares… Egyptian potters soon shed their commitment to the Abbasid decorative repertory..." p.453

What is evident here, as with Scanlon's architectural hypothesis, is the tendency not only to attribute changes within Egypt to the influence the local ruling élite, but ultimately to external influence. The Fāṭimid lustrewares are seen as ultimately based on Iraqī (Sāmarraʾ) lustrewares, imported to Egypt from Iraq in the 9th century. The Sāmarrāʾ wares have in turn traditionally been seen as influenced by Chinese imports, produced at the behest of the ʿAbbāsid court.

Recent scholarship in Islamic archaeology has begun to question the interpretative value of these explanatory schemas. Watson's (2014) recent reassessment of Samarran lustrewares, describes the concept of "influence" as misleading, as it "gives agency to utterly the wrong party and obscures deeper issues in a relationship". Watson considers the proliferation of glazed pottery across the Islamic world in the 9th century in terms of the *demand* for these products in the wider market; in the case of Egypt this is linked to a long history of fine ceramic tablewares, in contrast to Iraq (Watson 2014, 126). Similarly, a somewhat more developed understanding of the adoption of Mamlūk sgraffito in Egypt has been developed by Bethany Walker (B. J. Walker 2004). This form, understood as an imitation of metal vessels used in Mamlūk élite military ceremonies, has been considered in light of the aspirations of the "nouveau riche" (B. J. Walker 2004, 38), the organisation of the production, and the social and political climate of the time.

What is beginning to be illuminated in these cases is the agency and motivation of the proposed adoptee of the material culture. What remains to be explored in Walker's study, however, are the potential differences in use and meaning between the original object and the proposed imitation—the two found in contrasting social contexts (élite military ceremonies versus poorer domestic use) and executed in different materials (metalwork versus ceramic)—as well as the reasons why social emulation took this particular form in Mamlūk-era society. Alison Gascoigne's (2013) critical reflection on the process of

emulation in medieval Middle Eastern cooking vessels, focussing on the proposed imitation of higher-status vessels in less prestigious materials, represents a crucial step forward in this respect. Drawing on the work of sociologist Colin Campbell, Gascoigne highlights that the aspiration of a lower class is not a sufficient explanation of emulation in itself. The emulated artefacts, it is argued, are desirable "not simply because of their connection to a particular social group, but because of their own material and cultural qualities" (Gascoigne 2013, 2).

The present study has attempted to move beyond an explanation of the *majlis*—and by extension the Fusṭāṭ house more generally—as an import from Iraq, adopted due to the influence of the Ṭūlūnid élite. It has aimed, through emphasising social use and conceptualisation of architecture, to give agency to inhabitants, rather than presenting them as passive recipients of foreign and élite "influence". Yet, considering the theoretical developments above, it is clear that more can be done to understand the architectural ensemble's adoption in Fusṭāṭ. If the *majlis* is the product of emulation, can one understand the motivations and transformations that characterise this process? Can the *majlis*, for example, be understood simply as a visual reference to élite architecture, without the same original functions and meaning being retained— a process analogous to the skeuomorphism of objects in different media? Or, rather is it emulated because of the domestic functions it served? Exploration of how the *majlis* was used in palatial settings within historical sources, and in the palaces and domestic architecture of Iraq recovered at Sāmarrāʾ, would provide crucial contextualisation for the proposed process of domestic emulation in Egypt.

All of this rests, of course, on the assumption that the empirical evidence supports the case for introduction of the *majlis* from Iraq. Yet I have highlighted that the "Samarra hypothesis" of Ṭūlūnid importation and popularisation of the ensemble has not been adequately *tested against* the interpretation of material evidence, but rather used to *guide the interpretation* of material evidence. That is not to say, however, that there is a strong case for pre-Ṭūlūnid use of the form. The problem lies in a lack of 7th-9th century architectural evidence, from either the Geniza or the ARCE excavations. The sites of Fusṭāṭ-A and B were continually occupied up until the 11th or 12th century, and though evidence of occupation from earlier centuries is clear, the pre- 9th century architecture appears only as fragments either incorporated into later plans, or buried beneath them. The appearance of pre-9th century architectural fragments incorporated into the walls of a *majlis* is explained by Scanlon as re-use of walls that must have, overall, formed a different kind of domestic plan. This is possible, but not certain.

Ideally, to assess the potential layout of pre-9th century architecture one needs to analyse fully the architectural-stratigraphic sequence of those buildings incorporating early elements. The ARCE preliminary reports only provide broad generalisations about phasing, and a unit-by-unit, or wall-by-wall, sequence cannot be reconstructed from these alone. As well as incomplete phasing, the dating of those phases is also made somewhat doubtful in many cases by a lack of critical reflection on the formation processes of deposits supplying datable artefacts. Whether the fills of sewerage features represent accumulation through use of the houses, or backfill relating to their abandonment, has a large impact on architectural dating. The floor fills represent much more secure contexts, but it is lamentable that their precise relationship with surrounding masonry is rarely reported.

In order fully to re-assess the date of the architectural sequences, one would have to have access to full reporting of stratigraphic relationships (if these were routinely recorded as part of rescue excavations of large size and complexity), and objects recovered (not just the objects of artistic value which tend to be highlighted in preliminary reports). Needless to say, this was far beyond the scope of this thesis, and is unlikely to be achieved for the ARCE material as a whole, due to the dispersal of objects to different private and public collections, and most importantly after the recent passing of George Scanlon.

The date of the adoption of the *majlis* in Fusṭāṭ is most likely to come from areas of the site abandoned before the 9th century. Such is the case with the southern site of Istabl ʿAntar, which has preserved Umayyad housing. The fact that the small area of 7th-8th century housing at the latter site does not include a *majlis* cannot be taken as proof alone, however; many similar-sized areas in the ARCE excavations also lack a *majlis.*

Nevertheless, the account of al-Masʿudi supports an Iraqi origin for the form, and a popularisation in the 9th century. As no clear architectural evidence to the contrary can be supplied, it seems reasonable to accept a 9th-century adoption in Egypt as a working hypothesis. I only highlight the treacherous tendency to place archaeological evidence implicitly within historical narratives, and using those narratives to supersede material interpretation without critical consideration of the relationship between the two bodies of evidence.

8.2.2   Potential of the Archaeological Data

Thanks to the ARCE excavations at Fusṭāṭ, the city is one of a very small number of large early Islamic urban foundations whose architectural fabric has been revealed on a substantial scale and recorded in considerable detail. Within the central Islamic lands, it is paralleled perhaps only by Sāmarrāʾ, whose immense scale of recorded urban plan (primarily through aerial and terrestrial survey) is counterbalanced by relatively little

excavation of its domestic architecture. The importance of Fuṣṭāṭ for understanding the developments of the early Islamic periods and the history of urbanism cannot be underestimated.

At the same time, however, this thesis highlights the degree to which the data available, though exceptional, is incredibly problematic. Chapter 6 began with a quote from the late George Scanlon, in which he lamented the problems of the depredation and sheer size of the site, concluding that it is "well-nigh impossible to be clever in excavating Fuṣṭāṭ". Scanlon's work represents an extremely commendable achievement, working not only to improve upon previous excavation methods, but to record as much of the remains as possible before the site was developed. The difficulties faced in interpreting the remains are largely a result of the circumstances of the excavation, and the intrinsic problems of a multi-period and highly scavenged site.

While I believe that a "social turn" in the study of Early Islamic domestic architecture is overdue, a review of major theoretical developments in archaeological studies of houses reveals that these approaches are often ill-suited to such a problematic dataset. Household artefact studies—in which artefacts are used as evidence for the distribution of domestic activities—are useful only for situations in which the preservation of a considerable number of artefacts is the result of their chance loss in their context of use, or discard *in situ* during rapid abandonment. Such circumstances are, in my own estimation, rare in archaeology in general, and are certainly not apparent at Fuṣṭāṭ. In addition, I have argued that overtly structuralist approaches are problematic due to the combined uncertainty of structural limits (house or house-unit boundaries), and elemental relations (access between rooms) in the case of Fuṣṭāṭ. It should be noted, however, that I have indeed proposed house boundaries, with an aim of relating spatial units to a wider structure. Moreover, some of my interpretation is largely structuralist in tone, such as the divisions of clean and dirty areas within the home.

To clarify, it is *formal* structuralist approaches such as architectural grammars and access/convex analysis that prove problematic in this case; the basic tenets of structuralist approaches to architecture do not. The house boundaries proposed in my analysis have only acted as an informal contextualisation of spatial patterns, they do not form the units of analysis in themselves, which would prove problematic considering their incompleteness and uncertainty. Similarly, the relations of unidentified spaces to wider plans are only assessed visually, and not formalised.

In many ways the approach that I have taken has asked a much simpler question—namely, where do features occur across the sites? I rely on what I would contend are very modest

theoretical assumptions: (a) that different features have different uses and social connotations and (b) that the differential placement of these features therefore reveals differences in social meaning and behaviours in their spatial context. Despite this simplicity, what has become apparent in chapter 6 is that the use and meaning of many features is in itself highly ambiguous. More work needs to be done to establish which of many proposed functions may be correct. In particular, more research is required into the functioning of the water supply and sanitation system. There are two avenues to be explored in this regard. The first is the geology and physical functioning of the systems as revealed archaeologically, if the ancient water table can be reconstructed, or at least the porosity of the *gabal* to groundwater. The second is the organisation and functioning of infrastructure as revealed in documentary sources beyond the Geniza, in particular the description of water supply and sanitation systems installed as *waqf*s (charitable/pious endowments).

I have already outlined the problems of phasing and dating the various architectural remains and features. These issues create three problems for the analysis:

A. In the definition of spatial units, boundary walls may be remnants of earlier phases.
B. In considering the relationship of spatial units to a wider plan, some units may have remnants of earlier phases, or earlier buildings.
C. Some features may be remnants of earlier plans, and have never related to the surrounding spatial unit.

Some attempt has been made to assess the evidence to avoid these pitfalls. However, (C) has been difficult to assess when the fills of cut features have unclear formations processes, and (A) and (B) are impossible to assess with any certainty unless discussed by Scanlon directly in reports, which is rare. In this regard, the spatial contextualisation of features must be taken with considerable caveats relating to temporal uncertainty.

At times an intuitively evident pattern could not be shown to be significant through statistical methods, seemingly due to the fact that a feature—though occurring considerably more often in one spatial category than another—could likely have occurred by chance in so small a sample. Proving the significance of such a pattern is contingent on the same difference being evident in a larger sample size. There are limited numbers of surviving features of certain types, and even fewer that can be spatially contextualised in any meaningful way. In some cases the number of surviving features was so few that statistical analysis was altogether redundant. Increasing the scope of the study would ameliorate these problems. This thesis has limited scope, and one key limiting factor is the time required to digitise and assess the excavation reports and plans into a tabulated and spatially referenced database. I have chosen to focus on those sites which had accessible

and reasonably detailed reporting of stratigraphy and finds, crucial because of the temporal issues outlined above, and those most in need of collation and comparison. Including Bahgat and Gabriel's published houses would greatly increase the number of studied spaces and features, and add much to this study. However, the atemporal reporting of the remains means that these could only be incorporated as an admittedly specious amalgam of phases. Inclusion of Fusṭāṭ-C would be illuminating in itself, but would be unlikely to impact on the results shown here. The houses of Fusṭāṭ-C are all of a very consistent type, which differs from any houses identified in Fusṭāṭ-A and B. As such, the spaces of these houses would be defined in their own categories, and any patterns would related to them alone. The Waseda University excavations led by Kawatoko and Sukurai would provide an important addition, due to the fact they offer a large excavated area and seemingly include examples of the Type C houses that are somewhat rare in the ARCE excavations. Of course, a linguistic barrier remains.

8.2.3 Archaeological and Historical Insights

Beyond highlighting the conceptual problems of past interpretation of the Fusṭāṭ houses, and assessing the uncertainties of the archaeological data itself, this thesis has attempted to provide an analytical insight into the use and meaning of spaces. How far has this been successful?

The patterns identified through spatial analysis of archaeological features offer some understanding into particular rooms and spaces, both in terms of their conceptualisation and possible uses. Much of this insight is reliant upon relating these archaeological patterns to the information provided by the Cairo Geniza. The relationship between the archaeological patterns and the information gleaned from documentary sources is complex; moreover, it is different for each architectural phenomenon. In some cases the archaeological evidence has confirmed inferences that have been made by Geniza scholarship such as the high-status of the *majlis* and its *ṣadr*. Crucially, however, archaeological analysis has identified different social manifestations of these broad conceptualisations of domestic spaces. Namely, archaeological patterns suggest that the status of architectural spaces such as the *majlis* appears to be intimately tied to concepts of cleanliness and pollution.

In other cases the archaeological patterns have illuminated the use of spaces that have been identified in the Geniza documents, but for which details beyond categorisation are not forthcoming. The confirmed association of the central courtyard and the *riwāq* with large numbers of plants provides a unique insight into their physical reality, and may be related not just to aesthetics, but to climatic control and concepts of bodily health. Furthermore,

the prevalence of drains in these spaces shows a contrast with the customary cleanliness of the inner chambers of the *majlis*, as well as suggesting quotidian activities such as laundry and other household cleaning. The prevalence of what are most likely washing-water storage features in the *kumm* represents the first indication, beyond the account of the palatial *majlis* by al-Masʿudī, of how this space differed from other simple accessory chambers throughout the home.

An identification of the rectangular trenches strictly associated with the *majlis* as *maṭmura*s or *makhzan*s is tentative, and based on the features' physical properties and spatial context more than a correspondence with details in the Geniza. If correct, this would represent a spatial contextualisation for a feature only mentioned fleetingly in the documentary sources. It also represents something about the *ṣadr* that is neither highlighted in documentary descriptions and literary accounts, nor has any parallel in the later *īwān* which replaced this form.

Where archaeological evidence is scant in its preservation, preventing large-scale statistical comparison, it is only through parallels in the documentary sources that insights into the use of spaces were achievable. This was the case with the proffered identification of street-adjacent rooms with staircases as *dihlīzes.* The proposed function of the *ṣadr*, beyond its seating capacity, is a similar case, except that analogy with later forms has also aided in its interpretation.

Most exceptionally there are those cases in which the archaeology provides a complete contrast with the Geniza. The cautious identification of private bathrooms is a case in point. Their existence is not entirely absent in the Geniza, but what may be indications of their existence have been interpreted as something else entirely.

All these patterns have been presented against the plan of the typical *majlis* and *qāʿa* (Figure 145), which is telling in itself. I have strived to (a) move emphasis away from the *majlis-qāʿa* plan to consider other potential house types, and (b) find spatial categories within the mass of unidentified rooms. Has this been possible?

With regard to understanding house plans beyond those with *majlis*es, some progress has been made. The dual rooms of the Type C houses have been shown to mirror the pattern of the *majlis*, showing the same lack of sewerage features. This suggests that these spaces were conceptualised in much the same way.

Regarding the understanding of unidentified spaces, the identification of any archaeological patterns has been limited, but this may in itself be revealing in terms of use and conceptualisation of space. Many of the feature types have shown associations with the

already identified rooms, and where informal assessment of feature distribution in unidentified spaces has been attempted, little consistency has been discerned, the exception being two possible bathrooms, and three possible entry halls (*dihlīz*es). This can mean either that the uses associated with specific features are associated with multiple spatial categories/room types, or that specific rooms with particular uses were not placed in a consistent location within the plans. Certainly the latter is the case for latrines, clearly forming a distinct spatial category but appearing in multiple positions. Beyond this, however, the lack of any characteristic form or features within a large number of rooms may simply reflect that these rooms were not functionally distinguished by inhabitants; they were multi-purpose. This is, as discussed in Chapter 5, something Goitein emphasised. He describes the function of rooms in the Geniza thus:

> "[U]nlike the *majlis…* the other rooms of the house are described in the Geniza documents according to their size and situation in the buildings or to the specific materials of which they were constructed, but not with regard to their function (such as dining room, bedroom, study, office). Depending on the seasons of the year and other circumstances, they could serve different purposes at different times and occasions." (Goitein 1983, 107)

This rather gives an impression that descriptions mostly contain lists of generic rooms (*bayt)* with specific materials, sizes and locations. However, this is not the case. Goitein admits the exception of the kitchen (*matbakh*), but one could also add the *khizāna* (closet), *makhzan* (store), *manẓar* (belvedere), *mafrash* (drying space) in each case named after their function. In addition the *dihlīz* (entrance hall), has an implied function. Rooms are very rarely described generically and size and materials are usually only mentioned with regard to important rooms such as *īwān*s and *majlis*es. This passage appears in a discussion of the furnishings of the home, explaining why such items cannot be assigned to specific rooms. As such, it seems to be conflating two ideas, that these rooms did not have specific functions, and that they did not have their own specific furniture. Goitein is stressing that much of the soft furnishings, textiles, small trays, stools, etc., that he describes could be used to alter the functions of rooms. It is true that many rooms are described by their particular form and relation to the wider plan—the *mustaraqa* (loggia) overlooking the *qāʿa*, the *aghānī* (gallery), the *ṣuffas* facing each other across the *qāʿa*. Similar activities may have occurred in all of these spaces, depending on occasion and season, the appropriate textiles and furnishings added. Furthermore, the common *khizāna*, closet, may have been used as a place for business, storage or sleeping, and furniture added accordingly.

Many of those rooms with unique forms are on upper storeys, the belvederes, loggias, galleries, which are inaccessible archaeologically. I have no doubt that many of the unidentified rooms in the archaeological record are *khizānas,* which could serve numerous purposes depending on their furnishings. The only ground-floor rooms that one might expect to identify archaeologically based on their features are kitchens. Yet, as discussed in section 5.5.2, it is unclear what kind of food preparation occurred here, and portable stoves or food warmers may have been used. The kitchen's utensils were stored on hooks and racks suspended from the walls and ceiling. The only possible indication of these spaces archaeologically would be if they included drains (which cannot be assumed), if they were given a particular flooring (which due to inconsistent reporting is hard to assess), or if they were given ventilation to remove smoke (which may have left no trace at floor level).

The theory that rooms served different purposes in different seasons, that Goitein cites above, is something worth exploring in the archaeological record, assessing the plan against the direction of sun and wind over the course of the day and year. It should be stressed that no direct evidence for this in the Geniza is cited, and I am not aware of any summer/winter morning/evening room designations within the documentary sources. It is, however, something that is often cited as a characteristic of "traditional" Arab/Islamic domestic architecture (as discussed in Chapter 3). Archaeological exploration of environmental factors might suggest possible uses (if not categories) of particular unidentified rooms, explain the chosen orientation of open-fronted rooms such as the *majlis*es and *ṣuffa*s, and the placement of latrines.

9 CONCLUSIONS

The excavated houses of Fusṭāṭ loom large in scholarship on the urbanism, architecture and history of the medieval Islamic world. An idea of the "Fusṭāṭ house" has crystallised over the course of a century of excavations, and is cited copiously in architectural studies. Yet previous archaeological interpretations of the houses are limited in scope, neither reflecting the breadth of architectural forms in the excavations, nor engaging with lives and perspectives of inhabitants in a meaningful way.

A review of previous research has revealed that scholars have been guided by the limitations of a highly fragmentary archaeological record, and the exigencies of excavating in a rapidly expanding and highly populous modern city. They have also been influenced by existing assumptions and paradigms within scholarship on the Islamic world more widely. There has been a tendency to read social facets of the archetypal "traditional Arab-Islamic house" into the architecture without critical reflection, principally the segregation of women and the need for privacy. Moreover, the idea of the Arab-Islamic family home as that built around a central courtyard has created what I contend is a false dichotomy between "apartment houses" and "courtyard houses" in architectural interpretations—a fallacy that has been perpetuated in documentary studies. This has also reinforced a continued emphasis on the courtyards and surrounding rooms as the defining elements of the Fusṭāṭ house, ignoring the wider plan and housing styles without this central open space.

Explanations of the houses have been framed in terms of chronology, style and élite foreign influence—namely as a style of architecture imported from Iraq in the reign of Ibn Ṭūlūn—rather than as a lived space. This can be partly attributed to Islamic archaeology's origins in art historical scholarship, and its continued isolation from theoretical developments in archaeology more widely. The limitations of this explanation, in terms of the diminished agency of the inhabitants who purportedly emulated the élite, have been highlighted. Moreover, a lack of a firm empirical grounding for this has been underlined. This study has not been an attempt to disprove this hypothesis, however, but rather to broaden the interpretative scope beyond this explanation towards social life.

That a more nuanced and socially-oriented picture of the domestic architecture of Fusṭāṭ has not emerged before now is partly due to the disparate archaeological data of variable resolution and completeness that is available to scholars, as well as the relatively late

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appearance of Geniza studies on social life in Fusṭāṭ. The latter provides a complementary insight into domestic life in the city, one that mirrors the archaeology in its immense scope and social potential, but also in its fragmentary and complex nature. This study has attempted to move forward our understanding of Fusṭāṭ by both collating isolated archaeological data in much need of synthesis, and by comparing the Geniza evidence to patterns evident within.

Common archaeological approaches to the social use of space are, in the case of Fusṭāṭ, not easily applicable. Poor preservation resulting in unclear boundaries and relations between spaces, and the dearth of artefacts found in their context of social use present problems for structuralist spatial studies and artefactual analysis respectively. An approach was thus defined based on exploring the distribution of fixed features within architectural space as a proxy for use and meaning within the home. This approach, though modest in theoretical scope, was still beset by numerous limitations of the data. The inconsistent reporting of features within excavation reports, the lack of phasing of the remains, the unclear function of features and only partial description of their characteristics all presented significant barriers to interpretation.

Still, spatial analysis has provided new insights into the use and conceptualisation of space, particularly the divisions between clean and dirty parts of the home (the rooms of the *majlis al-ḥīrī* versus the *qāʿa* and wider house), the distribution of storage and water provision (within the *ṣuffa*, *kumm* and *dihlīz*), bathing facilities (domestic bathrooms, *mustaḥamm,* in consistent locations), drainage (within the *qāʿa* and *riwāq*), potential routes of access (possible identification of *dihlīz* entry halls), as well as beautification and climate management (plants and *fisqiya*s within the *qāʿa* and *majlis*). Many of these archaeological elucidations are only possible through, or have served to confirm insights form, the Geniza evidence. The archaeology has, however, also elaborated upon some of the lacunae in the Geniza in terms of the use of space, and has provided evidence to suggest re-assessment of some of the documentary interpretation.

Furthermore, by collating excavation reports to be analysed as a continuous urban fabric, unexpected insights were made. Namely, there were suggestions of further house-units that had not been previously identified by scholars, some of which show distinct architectural consistencies that deviate from the "Fusṭāṭ house" so often cited.

As a key limitation of the analysis was the small sample size of functionally-distinct features, expansion of the amount of excavation data considered would be a logical way forward. However, the lack of definitive functions for the surviving features—principally

water and sanitation utilities, some of which show very distinct spatial patterning—represents a more pressing concern. As such, investigation is required of the functioning of water and sanitation features, in terms of their relation to surrounding geology, potential comparators in the later medieval architecture of Cairo and neighbouring regions, their appearance in historical sources such as *waqf* documents.

Expansion of the textual sources utilised to interpret the archaeology also represents a priority for future research. In particular, the literary prose sources should be explored. As texts such as the *Thousand and One Nights* were not only known in early Islamic Cairo, but were possibly first compiled in a written form in the city, there may be a profusion of incidental details within the earliest manuscripts that reflect the architectural fabric and social life of Fusṭāṭ and its younger sister-city.

Lastly, as discussed above, this study has highlighted the conceptual limitations and empirical uncertainty of the explanation that the Fusṭāṭ house's *majlis al-ḥīrī* was introduced in the 9th century under Ibn Ṭūlūn. However, further research is required to fully empirically assess the validity of the date of its emergence (beyond Fusṭāṭ), and to further investigate the possible social reality of the proposed architectural emulation. This should address issues of what motivates such emulation, and whether architectural forms, functions or meanings are the objects of this process.

APPENDIX I: HOUSE DESCRIPTIONS

HOUSE 1

House 1 is notable in having very little discussion of its remains in the report of its excavation in the 1968 season. It is mentioned as one of two *bayt*s (*majālis al-ḥīrī* and courtyards), making up a single domicile (Scanlon 1974a, 85). The second is House 2, which is given a more lengthy discussion of its peculiarities.

The house is composed of a large courtyard with a rectangular basin fed by pipes, and adjoined by a porticoed *majlis al-ḥīrī* (C-A-B-D). Traces of the courtyard's southern wall run parallel to the *majlis al-ḥīrī* of House 3, presenting a clear boundary. The continuation of this wall, as it bounds the *riwāq* (D) and *kumm* (B), adjoins a narrow alley. To the west complications arise. Here, wall traces indicate a parallel abutment with rooms F and E, suggesting a limit to the structure. However, a canal runs from by Scanlon to be the only viable emptying point of the system. the *kumm* and *riwāq* under the double walling to F, and eventually on to House 2. This canal is part of one of the longest contiguous systems on the site, not only uniting this house with House 2, as well as rooms F and E, but also to poorly preserved structures to the southeast of the street through conjunction with pit B' in VI'13.

It is this sewerage system causes Scanlon (1974a, 88) to suggest that Houses 1 and 2 are part of single compound—though a unique cooperation between properties is briefly considered as an alternative hypothesis—and that it also must have also included the area south of the impasse (Scanlon 1974a, 84–85). No attention is drawn to the double walling, however. In discussing the area south of the impasse the idea of "enthronging" is used (Scanlon 1974a, 88), meaning later buildings that incorporated earlier ones, or built among their ruins. This is evinced, it is proposed, through the two-period fill of pit B' in VI'13, which had a "floor" of mortar brick and rubble separating a lower 9th-10th century fill from an upper late 10th-11th century fill (Scanlon 1974a, 88). It is therefore likely an early pit that was altered as part of a re-configured system sometime between the 10th-11th centuries.

Usually the term "enthronging" is invoked to suggest the jointure of smaller Ṭūlūnid units into larger Fāṭimid complexes, as is the case with houses 10A, 10B and 10C. However, channels are considered to be built *before* the surrounding structures, surely meaning it is more likely that a system extending across this area from large earlier dwelling was retained or disused when smaller separate dwellings, as indicated by the

double-walling, were built here. In contradiction to such a proposition, however, the plan shows what appears to be piping extending from the courtyard (presumably coming from the basin which clearly has pipes serving it) into the impasse and along its length. A smaller section surviving as it traverses a channel and heads towards House 2, or one of the pits of the sewerage system (if it is for drainage). This would seem to confirm that the House 1 functioned along with House 2 in terms of its utilities, and as piping has not been found in pre-Fāṭimid contexts this co-functioning is not remnant of earlier systems but was planned in the Fāṭimid period.

No finds from floor fills are reported, perhaps because the area was heavily depredated, not least because of later squatter settlement as demonstrated by intrusive walls in VI'7 /3. No finds from the channels are reported either. Scanlon assigns the *majālis* of this house and House 2 to the 11th century owing to their symmetry. This is rather speculative, though the piping supports a Fāṭimid date, if it is contemporaneous with the house's construction. The dating is also presumably based on the upper fill of pit B' in VI'-13, part of the proposed joint sanitation system of the wider compound. The pit's "floor" was perhaps added as part of the development of the joint ensemble in the late 10th century, its 11th century fill representing its use or eventual abandonment during this century.

If one accepts a Fāṭimid date, the double walling suggests that this part of the compound was built alongside buildings F and E, or *vice versa*. These might be part of House 2, built slightly earlier in the Fāṭimid period, or might be the remnant of a much earlier building incorporated into the larger Fāṭimid domicile on either side of the impasse. How the channel came to traverse this boundary is unclear. Might the original channel have terminated in F, but have been extended by undermining the wall when this unit was added? Or was it an earlier channel that fortuitously extended to the north-east allowing this expansion of the compound to be achieved? Either way, I consider E and F not elements of a building of a different date that need not be considered part of this house unit as planned and occupied in the Fāṭimid period, the double walling making direct access between the two unlikely.

HOUSE 2

This unit, excavated in 1968, consists of a *riwāq*-fronted *majlis al-ḥīrī* (C-E-A-G) and a partially-excavated courtyard (G). As discussed, this is considered a distinct unit that was part of a larger compound including House 1, built during the Fāṭimid period and perhaps incorporating or built over earlier structures. The Fāṭimid date is based on the

style of its plan, and the material as pit not within this unit but linked to it by the wider sanitation system of the proposed compound (see above). The wall running across the *riwāq* is thought by Scanlon to be the trace of an earlier plan (Scanlon 1974a, 88), presumably made with lime mortar, nominally supporting a Fāṭimid date. It would seem likely that the short wall in the courtyard G is similarly an earlier phase, as it makes little structural sense with regard to the majority of the plan.

The traces of a wall to the east across the impasse may represent a gateway that sealed the impasse off, encompassing the entrances to the various units of this compound (and potentially others). A similar wall trace further south may represent a primary gateway or more likely a different phase.

Continuous masonry places room B' within this unit, as well as the room east of it that has an inlet to the sewer system. Further south rooms G and H may be a separate unit (see MH-11, below), though the lack of surviving masonry makes assessing this difficult. To the west and north the presence of the Mosque of Abū Sūʿud made further excavation impossible.

HOUSE 3

House 3 consists of a large courtyard with octagonal *fisqiya*, attended by a *majlis al-ḥīrī* (B-C-D) without a *riwāq* to the west. A clear boundary between the northern *kumm* (B) and the courtyard of House 1 is indicated by parallel double walling, as discussed above. The same is true of the large room D to the west, which may be related to the compound of which House 1 and 2 form a part. To the north excavation one meets the limit of excavation so a boundary cannot be defined, though trenching to the west indicated a continuation of the north-south thoroughfare that likely bounded the unit on this side.

The appearance of a *fisqiya* in such a small courtyard or room to the south is rare occurrence, flanked by a room of similar size E and smaller rooms C and C''. Such a pattern is extremely similar, however, to that in House 17 where basin K' (XXVI-10), the only other *fisqiya* in such a small space, is flanked by room K and three small rooms to the east. Scanlon considers this suite of rooms a "*bayt*" (Scanlon 1974a, 86) no doubt because of it having three rooms facing a *fisqiya*, though these can hardly have functioned in the same manner as the much larger rooms of the typical *majālis al-ḥīrī*. Though no continuous masonry survives to confirm that these rooms are integral with those to the north, room E's western wall runs parallel to the large room D to the east, as is the case with B-C-D. Moreover, the alignment of the walls is identical. This suggests the two were planned and built together and communicated with each other. To the

south of E a more likely boundary is suggested by parallel walling with the *kumm* of House 5 (N).

While considering the rooms around F as a separate "*bayt*", which I find unlikely, Scanlon also proposes that it was part of a larger compound including not only House 3 but also House 4 (Scanlon 1974a, 86), and possibly House 5. While the link between the area around *fisqiya* F and the main area of House 3 is clear, such that I will consider them a single house unit, the other links are more tentative. Doubt is raised by the representation of the traces of the wall of room D in House 4 in plan, as a perpendicular wall appears to abut (or is truncated by) room E. Scanlon's rationale is the lack of double walling between these two units—though it area south of the courtyard is too poorly preserved to assess the structural connection here—and presumably the very similar alignment. Moreover, both are dated to the Fāṭimid period based on both the shapes of the *fisqiyāt* and their symmetrical placement with regard to the *majlis* and courtyard.

Can the sewer system comprising pit G, a length of brick-vaulted channel, and the terminal pit C which is emptied from the thoroughfare via a vaulted passage, be associated with House 3? The gap in the wall traces south of pit M is intriguing; it seems unlikely to be a threshold but perhaps an arched opening providing access to the pit? Ostrasz places this system as part of House 4, which seems more likely as Pit C is so close to the courtyard that a further room relating to it seems likely here. Though this leads this house without a sewer serviceable via a thoroughfare, this may have existed beyond the limit of excavation.

All of the sewerage channels and pits were disturbed (meaning they included Mamlūk sherds), and so the house is dated to the Fāṭimid period purely the basis of the symmetry of its layout, the geometry of the *fisqiya* (Scanlon 1974a, 86).

HOUSE 4

As discussed above, this house was considered to be a Fāṭimid construction by Scanlon due to its architectural plan and features, and was considered part of a single compound with House 3 to the north due to lack of double walling between the two. The *majlis al-ḥīrī* is built abutting the walls of House 5 to the west, which was dated to the earlier Ṭūlūnid period.

It is clear from the plan that this house has both demolished and re-incorporated elements of a number of earlier structures on different alignments. What appears to be an extension of the northern wall of House 5, dated to the Ṭūlūnid period, is found in

fragments across room D, and to the south the wall of rooms E and L built abutting another wall on the same alignment. Traces of a wall joining these two early walls crosses the courtyard. It seems likely that these are earlier structures of an extension of, or a house neighbouring, House 5 to the west. The thick wall bounding the thoroughfare is also likely an earlier construction, a wall contiguous with this house's courtyard appears to abut it. Indeed, the mismatched alignment between the thoroughfare wall and the courtyard creates odd triangular shaped rooms on the east and south side of the courtyard.

South of the courtyard what may be an extension of the thicker walls bounding the thoroughfare seem to meet the thinner walls of the earlier structures related to House 5. While the two are not continuous in their construction, their relative dating is not clear. Four rooms can be posited here, though Scanlon is reluctant to assign them to either this proposed compound or to House 5 (Scanlon 1974a, 87). However, the deviation from the strict alignment of Houses 3 and 4, and a carved bone inlay found in the *sabakh* is used to suggest that association with House 5 is more likely (Scanlon 1974a, n. 87), discussed further below.

HOUSE 5

This unit is centred on courtyard P, which has porticoes (*arwiqa*), on two sides. In a unique arrangement, the northern portico leads onto a second portico that is part of a typical *majlis al-ḥīrī* (M-K-N-L). Asymmetrical arrangement of the courtyard itself with respect to the *majlis* and the presence of "gougings" in the northern porticoes, leads Scanlon to suggest that the house is Ṭūlūnid in construction "by analogy with earlier examples of these concerted features" (Scanlon 1974a, 87).

To the south of the courtyard are seven rooms arranged in a symmetrical way, in a row of two, three and two (S-T-M-N-R-O-W). These are considered by Ostrasz to be part of the same house unit, though Scanlon does not discuss them explicitly. Their inclusion by Ostrasz is perhaps the result of similar alignment with the courtyard P, and that they unite the courtyard with the thoroughfare from which the house must have been entered (though the area to the southwest may have served this purpose, as will be discussed). There is, in fact, double walling between S/M and courtyard P. However, the northern wall does not appear to be the courtyard's boundary wall; it does not extend into the portico, and is not seemingly continuous with the portico's masonry. I would consider that it is possible that this wall seems more likely to be the foundation for columns

engaged piers [104] to complete this atrium-like courtyard, perhaps supporting an overhang above.

Scanlon suggests that this house may have been a *kharab* in the Fāṭimid period, or may have been incorporated into the compound of Houses 3 and 4 (Scanlon 1974a, 89); clearly few secure contexts survive from which to posit a definitive range for occupation. Pit Z in VI'-25, which connects to pit Y and two further intake channels would, however, seem a likely sewerage system for this house, despite any architectural traces in this area to prove this definitively. The system centring on B' to the east is also a candidate, if the rooms to the west were part of the house. The western system seems like a more conservative line of the western wall of the *majlis al-ḥīrī*, if extended would coincide with one of the intake channels of this eastern system, and so. Pit Z included 8th-9th century artefacts in its "lower depths", though it is unclear if this means that its upper fill was disturbed (post-12th century) or Fāṭimid (Scanlon 1974a, 88). Pit B and its channel were entirely disturbed (Scanlon 1974a, 87, no. 26).

HOUSE 6

Though the masonry here is poorly preserved, the ground plan is quite clear, comprising a *majlis al-ḥīrī*, courtyard with *fisqiya*, united by a sewerage system emptied from the thoroughfare (pit X). The *majlis al-ḥīrī* (C-I-D-E) is bounded by a thoroughfare to the south, while to the west quarrying of the *gabal* meant that the full extent cannot be ascertained (Scanlon 1974a, 82). To the north there is a suggestion of double walling through the traces of an east-west aligned wall suggestive of a limit to the unit. This places the two rooms north of the courtyard within the house. The traces of a curved wall to the east provide a boundary to the thoroughfare, pits Q, D and F to the south most likely indicating the original extension of this boundary. It is unclear whether the area between the thoroughfare and the courtyard/*majlis al-ḥīrī* was once part of the house, perhaps even an open area considering the lack of any wall traces here. Because of the lack of joint sewerage and indications that the curved wall was not integral with the house I am forced to consider that it may be a different structure.

The house is dated to the Ṭūlūnid period on the basis of its asymmetrical courtyard arrangement and presence of "gougings" in the portico (C) (Scanlon 1974a, 82), though. Most of the pits were disturbed and re-filled with later material, though three are

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[104] That this is shown as a wall rather than "wall traces" does not prohibit such an interpretation, several courses may exist from the *gabal* to the floor level.

undisturbed contexts are used to make inferences about the date of the house. The isolated pit G (XI'-12) contained finds from the 9th and early 10th century. The undisturbed lower portion of Pit A (XI'-14/20) provided material from the 8th and 9th century, including a copper coin of Maḥfūz, 802-3. Pit F (XI'-12/17), provided material of the same range of dates. The absence of 11th century material is used to infer the house was a *kharab* in the Fāṭimid period (Scanlon 1974a, 83).

Despite the fact that the finds from pits are thought to indicate occupation from the 8th and early 9th century, Scanlon insists that the architecture itself should be considered 9th-10th century (Scanlon 1974a, 83). Presumably this is a result of the assumption that a *majlis al-ḥīrī* cannot have been constructed before Ṭūlūnid rule. While this reasoning may be erroneous, a roughly mid-9th century date for the house's construction seems probable. The location of Pit F, completely within the street rather than under a boundary wall, seems to indicate that it is a remnant of an earlier plan when the street was narrower. That a similar date range was provided by material from pit A may suggest that the two were backfilled in the early 9th century (if they were for water storage), or ceased to be emptied at that time (if cesspits), when the house plan now visible was laid out. Pit G, thought to be for water storage, must have been backfilled in the early 10th century, suggesting a short period of occupation.

HOUSE 7

House 7, excavated in 1966, is built around a courtyard with no central *fisqiya* but with numerous cuts in the *gabal*. This is adjoined by a *majlis al-ḥīrī* (K-N-M-L) with an unusually wide central room. Rooms to the west (X, Q and an unnamed room to the north) border the thoroughfare, at the point where numerous streets converge (the so-called *maydān*). Continuous masonry clearly unites these rooms with the courtyard. The sewerage system emptied from the "*maydān*" at pit Y (XI'-9) also ties the portico with the northern room.

One might entertain the possibly, as Scanlon and Ostrasz did, that scant traces of walls to the northeast on roughly the same alignment are the limit of this house, but as there is very little masonry surviving here I have excluded it from the house unit. That pit H is also part of the ensemble, a few metres to the northeast of the courtyard seems possible, but cannot be established with certainty. The appearance of a channel running across the impasse from what may be part of this house to a pit to the south is intriguing, but as no architectural spaces are discernible south of the impasse it has little relevance for this study.

The area south of X is labelled P as if it were an internal space, despite no clear boundary between it and what is labelled an impasse, south of the *majlis al-ḥīrī*. Wall fragments to the east (XI-6), running in parallel alignment separated by around 1m and bordered by pits to the south, seem to be a continuation of this impasse. The presence of a channel running across the impasse from the north into pit C presents the possibility, like in House 1 and 2, of a compound incorporating structures on either side of this impasse. It seems possible that the western wall of P is a gateway, leading to a private impasse, as has been suggested for House 1 and 2's impasse. Despite the fact that Scanlon represents P and the impasse as part of the street network (perhaps indicating a gateway) in figure 4 of the 1968 report, Ostrasz includes them as part of the house unit as if they are integral internal spaces. Considering the evidence above, I have deviated from Ostrasz's limits and exclude them from the house unit, though they might be part of a wider compound.

The house was thought to be pre-Fāṭimid because of the asymmetry of the architecture (Scanlon and Kubiak 1973, 21), which was confirmed by the artefacts from cut features. Pit X in Xi'15 contained artefacts of a 9th-10th century date, as did the lower undisturbed fill of possibly associated pit H (XI'-4/5). There were no paving fill surviving to confirm the dating, though a lack of any Fāṭimid material in the pits led Scanlon and Kubiak to consider this a possible *kharāb* from the late 10th century (Scanlon and Kubiak 1973, 21).

HOUSE 8

There was a large amount of robbing and intrusive building in the area, excavated in 1966, making the interpretation of House 8 difficult. The structure is centred on a small trapezoidal courtyard (T) with an adjoining *majlis al-ḥīrī* (I-R-K-L). Continuous masonry suggests that the area south of the courtyard and *majlis al-ḥīrī* was part of this unit, up to the east-west thoroughfare. The same is the case for area C-J, making the house's western boundary the north-south thoroughfare. To the northeast a high level of depredation makes determining any possible extension of the house almost impossible. However, if small wall fragments to the northeast of X and I are extended along their current alignment one would have a case of double-walling along the back of the *majlis al-ḥīrī*, suggesting this may be the maximum extent of the house. To the northwest seemingly continuous masonry bordering the north-south street implies the original house extended at least as far as pit C. However, as will be discussed below, later adaptation here make interpretation of the plan difficult.

The pit in the portico (B in XI-16) had one 9th century find at the base, its upper fill contained Fāṭimid material (Scanlon and Kubiak 1973, 22). A lack of any Fāṭimid

"stylistics" such as herringbone paving is used to suggest that the architecture, however, is pre-Fāṭimid. Early occupation in the area is attested by the fill of pit C (XI'-20), which contained only material of 8th-9th centuries including a coin weight of al-Mahdī (775-85). The alignment of the house's western wall with pit C suggests that the pit might have been integral to the original house plan. Scanlon considers that even A, further north and filled with material of the same era, is part of this house (Scanlon and Kubiak 1973, 22 no. 42), though his reasoning is unclear. That pit C was put out of use in the 9th century is confirmed by later masonry which blocked its associated channel (around 2m south-east of C). References to a blocking of this channel by a "later foundation wall" may refer to this masonry—as illustrated in photograph (Scanlon and Kubiak 1973 Plate VII-d)— or the L-shaped wall visible in plan to the south. This would make this L-shaped wall, built alongside the walls of C-J and T, part of a later reconfiguration of the house.

Was this a renovation that decreased the area of the room with pit C a reconfiguration of this house, or did it involve surrendering some of the property to a new development to the north? Since pit A (XI'-20) had no Fāṭimid remains, and the property including House 7 that was abandoned in the 10th century likely extended south of the impasse, this seems unlikely. The highly kinked wall running in Xi'20/16/11 seems the most likely boundary of this house even after the renovation, as internal walls (that is, not bordering the thoroughfares or another house) are almost never as irregular. Still, the room containing pit X (XI-16) and that further east are poorly preserved, and it is not clear how exactly they relate to the courtyard-*majlis* area. For this reason they are excluded from the house unit.

If pit C was hewn as part of the original house plan and was disused sometime in the 9th century as part of a reconfiguration, it seems likely that the plan was already in place in the 8th or early 9th century. Did the original plan include the *majlis al-ḥīrī*? This possibility is not considered by Scanlon. Continuous masonry runs from C to the courtyard, but not beyond. While no indication of a break in construction exists, the possibility cannot be excluded.

The wall dividing C-J from the main courtyard, appears to be a separate construction. This wall is excluded from the plan of House 8 provided by Ostrasz. Though Scanlon never describes it, it would therefore seem possible that it is a trace of an earlier wall. Yet it seems to meet two jambs on either side that are part of the courtyard's masonry. This suggests the two spaces were divided at least conceptually in the later phase.

HOUSE 9

This house, excavated in 1965, was centred on an apparently T-shaped courtyard (K) with an octagonal *fisqiya* (G). It had a typical porticoed *majlis al-ḥīrī* (B-H-J). A sewerage system composed of three channels with a sump (u') placed at their junction, was emptied from the street to the north, the terminal cesspit (Z) within *kumm* (J).

Double walling between the courtyard and riwāq and room S (House MH-12) to the south indicate a likely boundary. Similarly north of the courtyard there are traces of walls, perhaps associated with the "fountain-basin complex", running parallel. Scanlon is certain that X in XI-19 as part of this house due to the fact that its flooring is at the same level as that of the courtyard and *majlis* (Scanlon 1967, 72) — the nature of this floor is never described and is not shown in plan. This seems doubtful, especially considering that the walling of X is not a continuous construction with the courtyard.

To the east the remains are too poorly preserved to posit an architectural plan. An impasse to service pits V and N' and W in XI-24 is suggested by Scanlon (1967, 68). The latter pit, which is considered a cesspit based on the large number of douche-bottles found here, might have been part of the house, but it is impossible to say with any degree of certainty. There is evidence of masonry of a different alignment in the northeast corner of XI-34.

An early kiln, found beneath later fill in Z' to the north seems neither related to this house chronologically nor spatially.

Though there were numerous fragments of stone paving in the *riwāq* and *majlis* (H), the fill beneath did not reportedly produce any datable artefacts. The pits Z and J and their channels were also completely disturbed. The date put forward for the house's construction by Scanlon is Ṭūlūnid, but this is principally based on his proposal that this house is part of the so-called fountain-basin complex to the northeast, which presented evidence of 9th century occupation. The spurious evidence for the uniting of these two courtyard-based units as part of a single complex, speculated to be a *selamlik* and *haremlik*, is simply that their paving is at similar levels. The house is in fact dated to the Fāṭimid period by Ostrasz. The herringbone paving in H, and the elaborate octagonal-based shape of the fisqiya would, subsequent to this 1965 season, become clear indications for Scanlon of Fāṭimid construction.

The only evidence for an earlier phase to the house is that the small stone-lined pit C in the *majlis* was covered by the herringbone flooring. No fill is described, therefore when this feature was put out of use is unclear. The only other consideration one might make

is the shape of courtyard K. Courtyards narrower than the *majlis al-ḥīrī* are most often associated with Ṭūlūnid construction, though this is most often through the presence of rooms running up to the *riwāq*, the T-shape here is unique. However, the closest parallels are the somewhat L-shaped courtyards of Houses 6 and 14 (thought to be Ṭūlūnid).

HOUSES 10A, 10B AND 10C

Excavated in 1965, these houses provide one of Scanlon's key examples of so-called "enthronging" (see House 1, above). It is one of only two cases where Ostrasz acknowledged the jointure of individual courtyard-based units though a common number in his labelling — as Houses 10A, 10B and 10C (the other example is 15A and 15B). This area is also one of the few in which an attempt to create a phased plan occurs (Scanlon 1966, 110, Plan 4).

There are three courtyards—Z, P and A—that define House 10A, 10B and 10C respectively.

Scanlon proposes that there were two entirely separate complexes in the Ṭūlūnid period (presumably Z and A), on the basis of 9th century finds from the floor fills of rooms on the west side of courtyard Z (Scanlon 1966, 98). It is speculated that an impasse following the line of the channel in XVI-6/7 would have separated the two houses, but that all three were joined in the Fāṭimid period; the later masonry is identified on the phased plan. The proposed impasse would have to make a turn to the south at some point to separate the two, presumably occupying the area of the later constructions, which centre on the southern *majlis al-ḥīrī* of. Its proposed course along the channel would mean that courtyard P, if it existed in this period, would have bordered the impasse directly[105].

The later construction, as indicated on the phased plan, does not provide unequivocal evidence of jointure. The later walls are found as part of rooms attached to both courtyard P and Z, but these are not continuous constructions, they may be separate renovations. The clearest evidence of courtyard Z and P forming a single unit actually dates from the earlier phases. Firstly, the sewer channel linking the two complexes was

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[105] Scanlon's hypothesis is made slightly unclear by also referring to a paved "impasse" or "impasse mews" created *after* the jointure of the complexes (Scanlon 1966, 100). This is seemingly the paved portico north of P, and the small room by the street to the west. The paving of the former crosses the foundation into the latter, indicating this was completely open, but the describing this as an impasse still perplexing.

sealed with fill containing 9th century evidence (Scanlon 1966, 97). Secondly, the surviving entrances from courtyard P's portico into room H', and another from H' into room G', which borders court Z, are part of the earlier building phase. If an impasse once existed, one might expect evidence of a continuous foundation running across the north side of P and its eastern and western porticoes, but such evidence is absent. Not only is there substantial joint sewerage between the complex centred on Z and that on P, but a channel connects room B adjoining courtyard A, to the same system. Furthermore, the only evidence of double-walling relates to the later construction activities. I would argue that all three courtyards were likely part of a single complex from their conception and that the remodelling associated with the southern *majlis al-hīrī* of court Z and beyond involved building alongside some retained earlier walls for structural purposes.

Scanlon casts doubt on whether the long rooms, suggested to be stables or storerooms, and what appears to be an open area to the north are associated with court P (Scanlon 1966, 100). That the best surviving threshold leads from portico N to this open area would in reality seem to provide a strong basis for association, despite the fact that the masonry is not continuous. A boundary with rooms to the east subsequently excavated in 1971 seems likely, but is not entirely clear. Double-walling, and the appearance of a recognisable sequence of floorings and fills held in common across rooms of the eastern buildings allows one to posit a division as shown. However, Scanlon considers the possibility that some of these buildings may have provided access to the larger complex.

PLAN IV.
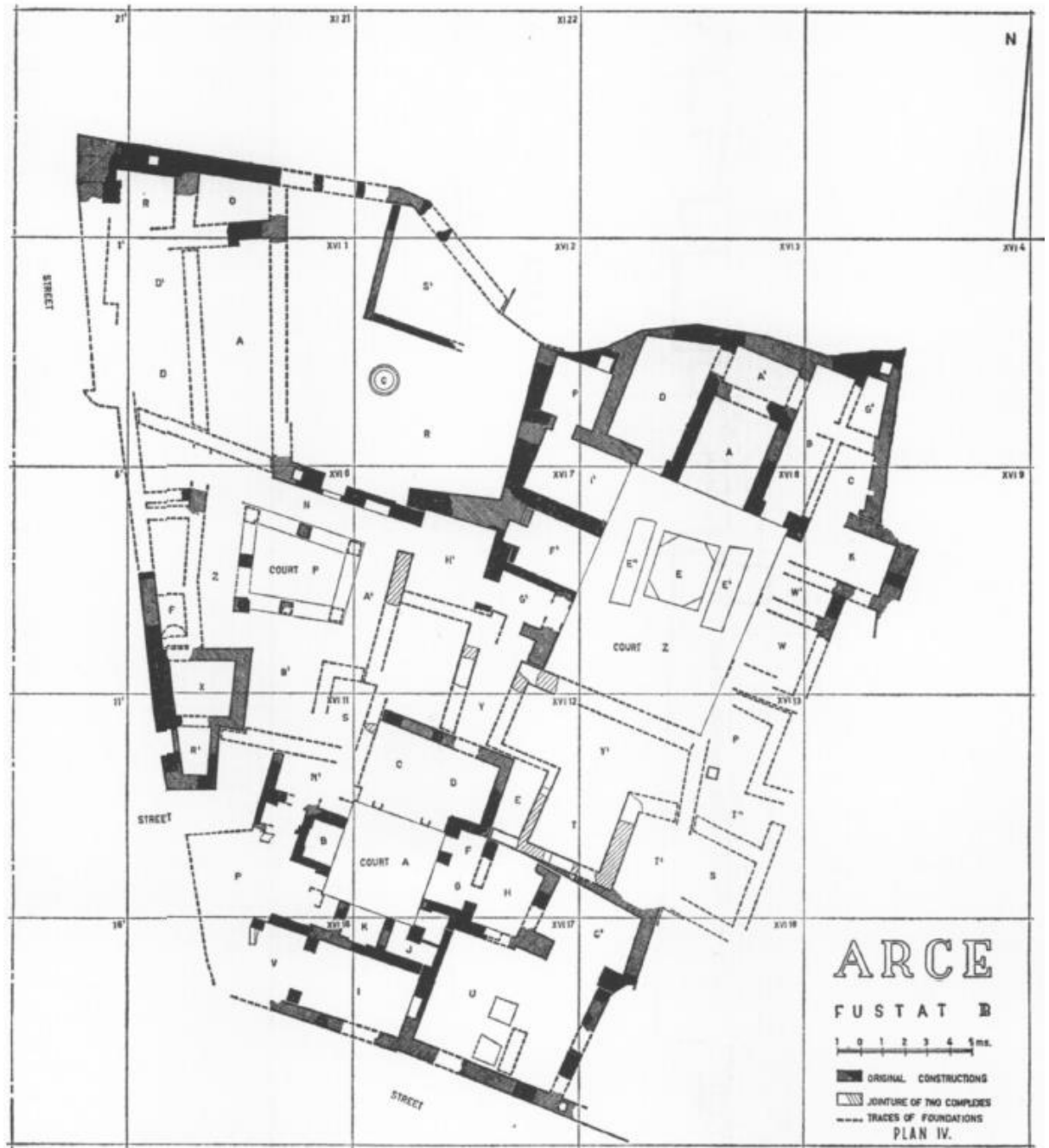
HOUSE 11

This house appears to be one of the most spatially defined examples due to extensive parallel walling, but its multiple phases make it somewhat problematic. It centres on small courtyard F, and *majlis al-ḥīrī* to the north, though the eastern *kumm* is very poorly preserved. The room behind the western *kumm* (V) and central *majlis* (A) has evidence of double walling separating it from the so-called "glass factory" to the north, which appears to continue to form a boundary to the west (the "southern glass factory"), and is also the case with the boundary with house MH4. To the east double walling separates it from the *hammam* (Scanlon 1981b, 63). The thoroughfare—later called the *darb* by

Scanlon, as it is identified with the historical Darb al-Maʾasir from 1971 onwards—provides the southern boundary. That the unit extends to the street is confirmed by the sewerage network, which runs from rooms H and L, through courtyard F, terminating at pit I, which is serviced via a small stairway in the street.

Rooms X, P and A at the north were excavated in 1965 (Scanlon 1966, 101). The floor of X is very unusual, accommodated in a quarried trench in the *gabal*, with white lime plaster to covering the sides of this trench and onto the fragments of masonry that skirts it. The latter was noted for use of mud mortar, indicating for Scanlon a pre-Ṭūlūnid building technique that rarely survives. When the paving was removed and the fill below excavated in 1968 it included some Arab imitation *dodecanoumia*, fragments of painted plaster, large number of unglazed sherds, and Coptic slip-painted shards and no glazed shards, leading Scanlon to date the room's construction to ca.700 (Scanlon 1976, 70).

The dating of this room, ostensibly the central room of a *majlis al-ḥīrī*, to over a century before this form was supposedly introduced into Egypt is not commented upon at all by Scanlon. Scanlon's nonchalance results from the fact that he considers X an early element, in fact the *central* element, of a previous plan that was later incorporated into a Ṭūlūnid "Samarra *bayt*" plan (Scanlon 1976, 71). Reference to its "piers", might suggest that this is what form the early mud mortar masonry is thought to take, though this is not clearly evident in plan or in photographs — a possible finished face in the fragment to the northeast might equally be a threshold. However, X may not be the only early element in the plan, the portico contained two pavings with two fills, the lower one of which matched the date of the sunken room. The upper fill was 9th-10th century. The same two-phases of flooring were present in room N further south, and the courtyard P is also noted have evidence of mud-mortar construction. To confirm these rooms were part of the original plan, however, one would need to know that the fill in question was laid against the surviving walls, rather than the latter being cut through the fill. This is not made clear in the preliminary report. Mud mortar construction is noted "throughout the area" (Scanlon 1976, 70), but it is unclear which walls. This mud mortar construction is found both "in association with" and "beneath" the earlier of the two pavement fills. This would suggest at least two phases of mud-mortar construction, the earliest of which may be early 8th century. Pit K, a portion of J, and the majority of the channel between J and V had 8th-9th century finds, suggesting they were part of the earlier plan. 8th-9th century material also came from pit U, along with later artefacts, suggesting it may have been part of the plan as well.

Two kilns or ovens are also posited to be part of the early phase (Scanlon 1976, 71). The first is W, found in the *kumm* V in 1965, the other is C found within courtyard F in 1968. The latter is seen as this early because the fill of F (presumably 9th-10th century?) covered it completely, and presumably also because its attendant walls were made with mud mortar. Why W should be part of this phase is by no means clear, however. When first encountered (Scanlon 1967, p.79) it is described as built within a basin hewn in the *gabal*, its sides bricked up to the level of the flooring. Exactly which of the two flooring levels encountered in 1968 this might be is unclear. The interior of the enclosing basin was plastered with a mixture including ground sandstone (this may be the *gabal*, as Scanlon sometimes refers to this as sandstone or sand-limestone). It is perhaps because of the latter feature that it is seen as contemporaneous with the kiln or oven within the courtyard, which had containing walls plastered with a mixture including ground gabal. Though the kiln and adjoining walls in P are mud-mortared, no such construction is mentioned with regard to the feature in P, the two are simply described as "not unalike" (Scanlon 1976, p.71). Artefacts from Pit V and the channels heading to pits U and I had finds exclusively of a 10th-11th century date. This is used to suggest that these parts of the system were hewn or renovated as part of the later reconfigured plan (Scanlon 1976, 71). The use of ash mortar in Pit V's vaulting also puts it within the 9th century or later for Scanlon. The lack of post-9th-century finds in K (and possibly J) is inferred to indicate that these were stopped at this point. As well as 8th-9th century material from pit U were 9th-11th century finds, suggesting its contents were not fully emptied before the systems were refurbished (Scanlon 1976, 71). Pit G and its canal across F is also considered part of the earlier phase, though no finds to support this are mentioned.

This renovation, when the layout as visible in plan was presumably created, is proposed to have happened in the late 10th or early 11th century. This seems rather late, considering the backfilling or disuse of K would seem to be no later than the 9th century, and this is proposed to be part of the renovation (though one need not assume so). A more secure estimate of the date of the later phase can surely be supplied by the upper floor fill found in N and the portico, which one can only assume were related to the surrounding walls. This was 9th-10th century in date, as discussed. Moreover the plan, in which rooms H, L and B significantly diminish the courtyard's overall size so that the *majlis al-ḥīrī* is far wider than it, is mirrored in plans such as Houses 12 and 14, both dated to the Ṭūlūnid period.

I would date the later phase, therefore, to early 10th century. How far can we assume that the earlier 8th century plan was significantly different from what is visible here? Houses

MH-1, MH-2 and MH-3 provide clear evidence of rebuilding of mud mortar (and mud brick with mud mortar) structures on the same lines with lime mortar. Moreover, no mud mortar walls on different lines are visible in plan, so one can only assume the traces referred to are incorporated in the walls as shown. I press this point only in that it would make the *majlis al-ḥīrī* pre-date the Ṭūlūnid period. There is insufficient evidence here to prove this to be the case, and the unusual construction of room X, including its style of paving, and perhaps evidence of piers, would support Scanlon's idea that what was later the *majlis* took a different form and role in the 8th century. It is important to consider, however, that the evidence for pre-Ṭūlūnid structures is often obscured by later building, as is the case here, making it difficult to assess the origin of the form.

HOUSE 12

This house was partially in 1968 and 1972. It is centred on a small courtyard (C), with a simple rectangular *fisqiya* (Q). To the south is a porticoed *majlis al-ḥīrī* H-T-K-L'.

The presence of double walling to the east of X G and H suggests the boundary with House 13, as Scanlon notes (Scanlon 1982, 120). Similarly, double walling with House 14 at L', both its eastern wall bordering room A and the southern wall bordering the "superstructure" (see below). To west one reaches the limit of excavation, and to the north the house is bordering the street (the so-called *darb).* Many of the rooms (V'-V-X-E'-C) are linked by continuous masonry.

The "enthronging" of this house with House 13 is suggested based on facts pertaining to channel Q and its terminal pit E. The discussion provided by Scanlon is somewhat confused, but as best as can be surmised the jointure is proposed based on a connecting passage or channel between pit E, within this house, and D', the pit of House 13 that underlies the "superstructure" (see below). It also perhaps based on the Fāṭimid impression given by the masonry of both the arch in House 12's wall over pit E (at its junction with channel Q) and House 13's "superstructure", though the two are separate builds according to the plan. Returning to the connection, sections (Scanlon and Kubiak 1973, fig. 24; 25) shows a thin wall of *gabal* separating the two pits except for the top c.50cm. This hardly seems to imply purposeful and functional jointure, either for personal access or sewage flow. It seems likely that the later pit D' simply was mined too close to E and the *gabal* has crumbled here. Certainly the superstructure has been constructed with consideration of pit E; it includes a half dome over the pit. This should not be surprising, the superstructure is not continuous even with the masonry of House 13, and is likely a later addition, built around existing voids in the *gabal* such as these. At

the same time as proposing the superstructure and pit E represent some kind of jointure of the two houses, it is also noted that the superstructure blocks any means of emptying pit E (a thoroughfare is considered possible here) and therefore "estopped" it. This would seem to be true, and leaves utter confusion as to what the evidence for "enthronging" is supposed to be.

This estopment of pit E sometime in the Fāṭimid period, based on the masonry of the superstructure, still left pit E (XXI-22) as a possible sewerage system, and possibly X (XXI-16) if the house extended to the west, but this cannot be speculated upon. Numerous areas show evidence of Fāṭimid construction. The fragment of herringbone pavement in the courtyard is a clear sign, and the floor fill of room X contained 11th century material (Scanlon 1976, 74), and the portico floor fill contained a fragment of a 10th or 11th century Northern Sung celadon (Scanlon 1982, 121). The house itself is thought to be 9th-10th century in plan, owing to the asymmetrical placement of *fisqiya* Q within the courtyard and the presence of "gougings" (Scanlon 1982, 121).

Even earlier evidence was present, but is likely the remains of earlier houses or buildings. The lowest fill of room V' was 8th century (which was selected for "analysis", perhaps indicating all fills were not removed, or not removed in spits). As is common, no mention is made of the relationship of this fill to the surrounding walls, but another wall made with mud mortar was revealed within the room that had been "incorporated in the later fill" (Scanlon 1982, 121). Presumably this indicates that the 8th century fill had built up around but not over the earlier wall and was therefore related to this earlier structure of a different layout.

A further feature was apparently from this period. To correct for a depression in the *gabal* sandstone piers or props were used to support a brick floor at X' (Scanlon 1976, 74). The earth floor of this compartment included a coin dated to 751, but the floor fill of the surrounding room (presumably placed over the brick flooring/roofing of this compartment, again this is not clear) contained only 11th century material, as mentioned above. Again, this cannot be positively associated with this house.

No finds from pit E (XXI-22), nor channel Q and pit E (XXVI 2/7) are reported.

A possible courtyard is present to the south, as indicated by a paucity of masonry traces and a line of trenches in the *gabal* that might have functioned as either animal watering troughs or shrubbery pits. They are connected by holes in the sides, and the northernmost trench went on to connect to a shallow (1.5m) pit N', which in turn is

connected by a wider runnel to pit N. It seems plausible that N (which could not be fully excavated due to groundwater) represented a well from which to pour water into N', allowing it to distribute through the trench system, whether for watering animals or plants. The pits were filled with Fāṭimid material (Scanlon 1982, 121). Though Scanlon considers this possible courtyard as potentially part of the house, there is no strong evidence to support this, and so it is excluded.

Pit N' is 1.5m deep, which is connected to N which couldn't be excavated past 2.8m

HOUSE 13

House 13, excavated in 1968 and 1971, is centred on a courtyard (R') with a simple rectangular fisqiya (S). To the south is a porticoed majlis al-ḥīrī (D-A-E-H) generally wider than the courtyard, save for portico H', which has two smaller rooms to the east and west to make it equal in width.

The double walling to the west between this house and House 12 (discussed above) provides a clear boundary, and to the north the house appears to border the street (darb). To the south the perpendicular walls of House 14 abut or are truncated by the majlis al-ḥīrī, showing the two are not the same continuous construction. The eastern boundary is more problematic. Room E was not discovered until 1971, this area and that to the south of E had previously been considered an impasse used to service P', the terminus of House 16's sewerage system. It would also service pit B' in this house, and pit J in House 14. As such it is proposed that room E is earlier than this (or any surrounding) house, and that it was covered over by an impasse when this house was constructed (Scanlon and Kubiak 1980, 80). There is no artefactual or structural evidence to suppose this would be the case. Equally, however, no direct evidence is presented that might disprove such a theory. Still, it is also proposed that area B-B' is an impasse, and a stepped entrance from this area (south of E) to B-B' would surely provide access without demolishing room E. I therefore see no reason for seeing this room as a remnant of an earlier phase. Ostrasz also did not omit room E from this unit.

B-B' also has some masonry, seemingly early in construction (all fills of the street are built up against it, as shown in section (Scanlon 1982, fig. 1, 90)[106], stratum IX, separating

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[106] The lowest stratum abutting this wall is IX. However, the finds are not discussed stratum by stratum, but in general terms. The lowest layers are said to have no glazed wares, being probably 7th-8th century, but IX is not the lowest stratum. Probably it was one of the layers that produced 8th-9th century finds.

it from the street. This does not seem to connect to any surrounding walls, but they seem to be built with regard to its alignment and limits. It seems likely this is a gateway or doorway. Were the two gateways/doorways in use at the same time?

The impasse itself, even though it is separated by a doorway from B-B', need not be seen as part of this unit. It served House 14 and 16's sewerage as well, if these can be considered a single compound, then the impasse is shared common to the compound but not this unit in particular. This will be discussed further below.

The common alignment of this house and House 14 to the south led Scanlon to propose in 1968 that they are two "*bayts*" of the same "ensemble" - or two houses of the same compound as I am terming it here (Scanlon 1976, 74). This is in spite of the discontinuity in masonry between the two, and the non-linkage of their sewerage; J' and B' being two separate cesspits of the respective houses emptied from the gated impasse only around 1m apart. The two were then dated to the 9th-10th century due to the presence of "gougings". Later artefacts were found in the pits during the 1971 season, however. Pit D, along the street, provided only 10th-11th century finds (Scanlon and Kubiak 1980, 79). This sewerage is therefore proposed to be a later addition, linked to the supposed "enthronging" of House 14 with House 12 in the Fāṭimid period, which I have already deemed to be unlikely. In reality since the sewerage systems were cleaned this might simply represent a thoroughly emptied 9th century system used in the Fāṭimid period. Still, Scanlon goes on to suggest that allof this house is more Fāṭimid in plan, displaying "suavity" in its construction and symmetry in its plan (Scanlon and Kubiak 1980, 79–80). Presumably no floor fills survived to confirm or deny this dating, nor the fill of pit B'.

It is true that the placement of the *fisqiya* so symmetrically (both with regard to the *majlis* and both axes of the courtyard) is unheard of in other houses ascribed to the Ṭūlūnid period, but equally the difference in width between the courtyard and *majlis al-ḥīrī* (not used as a "stylistic" by Scanlon, but as I have noted is a recurring pattern), the simplicity of the *fisqiya* structure, and the "gougings" are usually associated with pre-Fāṭimid building. The symmetry Scanlon refers to is the commitment to tripartite arrangements of rooms on all sides of the courtyard, at least some of these certainly bneing open halls or alcoves (to the north and east, and possibly at A). This certainly is a departure from anything seen in other Ṭūlūnid period houses. Ostrasz, who defines the single *majlis al-ḥīrī* with three alcoves on other sides of the courtyard as type A4, presents this as the only Ṭūlūnid example, the other five being Fāṭimid. Scanlon and Ostrasz therefore disagree on the date of this house. It seems reasonable to propose that it represents a

transitional form of the mid-10th century, or represents a Ṭūlūnid form that was re-built in the Fāṭimid period, retaining the *fisqiya* and retaining or covering over the "gougings". In support of the latter, a wall on a different course, but the same alignment, is found within courtyard R. Could this have been the remnant of the original portico? Walls seemingly underneath the majlis (A) are also presumably earlier structures, but are not discussed.

Returning to the issue of the supposed jointure with House 14, there is not any definitive evidence for this being the case. The common alignment, the lack of double walling, and the common reliance on the gated impasse to the east to service the sewers, gives an impression of some kind of intimacy between these units, but the lack of common masonry suggests at the very least that they were built at separate times.

HOUSE 14

House 14 is built around a courtyard with rectangular *fisqiya* (H) and a There is clear evidence of modification of the plan. The northern wall of the portico abutted the walls either side, though the western wall does not survive. This wall is contiguous with the walls of the room containing pit P, which also abuts the wall eastern wall, and also seems to form a single build with the walls encompassing rooms A and J, which abut or are cut by the majlis al-ḥīrī of house 13 to the north, and run parallel to the majlis of house 12 to the west. The wall of small room F also abuts the structure to the west

Scanlon suggests that the plan has been modified from a larger courtyard with a majlis al-hiri on both north and south side, the courtyard's original extent diminished by the addition of room with pit P and room F. In fact, most of southern majlis al-ḥīrī appears to be a later construction than the long eastern wall presumed to be the original boundary of the courtyard. The disregard for symmetry in placement of the central basin H is given as evidence that this house is Ṭūlūnid, though the perception of asymmetry depends on whether the basin was built before or after the proposed additional rooms of P and F. The "gougings" in the courtyard would also later considered a Ṭūlūnid dating criterion.

IN its final form, the boundaries with houses 12, 13 and 15B are clear, resulting from parallel walling perpendicular abutment or truncation. Clarifying whether these perpendicular junctions with houses 13 and 15B entailed the truncation of existing walls of this house, or whether these were built up against existing walls, would of course provide the most vital evidence in suggesting a sequence of construction in this area. It is suggested that house 13 is the later construction, due to the fact that the masonry is

"non-integral" (somewhat unclear whether this is truncation or abutment), but seemingly because in plan they appear to be truncated; if they had originally been part of a majlis al-ḥiri they would have been longer north-south (Scanlon and Kubiak 1973, 24).

An "enthronging" with house 15B is proposed, based on the lack of double walling at Z' (Scanlon and Kubiak 1973, 24). This reflects reasoning at a time before the inconsistency of house boundaries was fully appreciated; there is no substantial evidence for the jointure of these two houses.

The eastern boundary is defined by the early walling. While this early wall continues to the NE, since most the house's elements are later elements, this is not sufficient reason to see the house as extending that far. It may be that this early wall is a convenient but unrealted structure was used as the basis for the creation of this house.

The massive reconfiguration of elements in this area makes association of the various features, the basin, gougings, pits and channels with the final form apparent in plan problematic. The gougings and *fisqiya* are clearly arranged with reference to the courtyard, in the case of the former almost certainly with the final form of the courtyard after construction of the room with pit P. There is no report of the finds within any of the pits, meaning that their dating cannot be used as any guide here.

In 1968 The canal between C and N had entirely Fāṭimid finds, showing late utility of the ensemble.

HOUSES 15A AND 15B

These two units, initially dubbed the domicile with the "radial plan" were excavated over many seasons (1965, 1966, 1968, 1972, 1978). 15 A is built around courtyard F, with a porticoed *majlis al-ḥīrī* to the north (O-H-S-I), its eastern *kumm* continuing around the back of central room H, and only accessible from the latter's back wall. The well-preserved masonry of the house includes multiple strengthening stone pillars. House 15B is based around irregular courtyard B, though the rooms to the north are somewhat irregular and differ in their alignment, I am willing to consider them as a *majlis al-ḥīrī* due to the certainty of the central room G being open to the courtyard.

As will be discussed with regard to House 17, below, 15A was clearly built together with the former. It is also clear that 15A and 15B were united to form a single compound, but that 15B (built around courtyard B) was an earlier structure incorporated into the plan of 15A/17. Such a process of "enthronging", as Scanlon dubs it, was proposed as early as.

While the portico I seems to be built up against the existing eastern wall of House 15B, masonry in the mode of 15A, including strengthening piers, can be seen west of this divide (either side of the entrance to A). This creates a triple-walling in this area. The jointure is confirmed by the join sewerage system. A flue in the western wall of 15A's courtyard (F) leads into 15B, and at a different point the intakes at pit X (room E in XXVi-18) and the possible latrine in room U (XXVI-19) form a small network that eventually joins 15B's terminal pit M to the west.

Within 15B there is clear evidence for an earlier phase of the building, before a later refurbishment that may be synonymous with the "enthronging" with house 15A/17. Firstly, the herringbone paving in G was laid over one in a different pattern, reportedly similar to that found in the eastern part of the courtyard (Scanlon 1967, 80). When in 1968 herringbone paving in the courtyard was removed, another "flooring" (what kind is unclear) was evident there too. Its fill was dated to the 9th-10th century (Scanlon 1976, 73). In the same season the flooring of A was removed, and again an earlier flooring was found. The fill between the floorings[107] included 11th century sherds. Below the lower flooring was a pit that had been sealed by a low dome, it appears to have been put out of use before the first phase of flooring was laid. The finds from the channel connecting to this pit were 9th-10th century.

Curiously, 9th century finds are said to distinguish the part of the channel giving onto pit M, in contrast to the Fāṭimid finds in the parts sealed under herringbone flooring in the courtyard (Scanlon 1967, 81). Are we to imagine that 9th century finds simply curated in the channels and were never successfully cleaned out? In contradiction to this, in the 1668 report, the finds of all but the branch connecting to the sealed pit under the floor of A are described as Fāṭimid (Scanlon 1976, 73).

Pit X' (XXVI-13), was filled with material consistently datable to the 9th century (Scanlon 1976, 73). Was this disused when the house was built? This is somewhat uncertain. The earliest floor fills are frequently dated to the 9th-10th century, or said to prove 9th-10th century occupation, but it is unclear whether this means a mixture of 9th and definitively 10th century finds, or finds that may be either 9th or 10th century. If the former is true, this floor was laid in the 10th century. The lack of 10th century material in pit X' therefore would indicate that the pit and its system were out of use by the time the house was built.

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[107] This is written as "*below* the two pavings" [my emphasis], which I assume is an error. (Scanlon 1976, 73)

A 9th or 10th century date for the flooring could, conversely, mean that the floor was laid and the pit used as part of the plan in the 9th century, but abandoned by 900. To be cautious, the system will be excluded from analysis.

In contrast, House 15A generally showed only a single 11th century phase. The fill of its *majlis* H was shallow and laid directly on the *gabal*, it contained a glass weight of al-Mustanṣir (1035-94) (Scanlon 1967, 80). The channel under U contained Fāṭimid filters (Scanlon 1967, 81). The exception was pit X (XXVI-18), which contained 9th-10th century finds, indicating this was a feature from an earlier system and perhaps earlier building that was not used when the layout of House 15A was constructed (Scanlon 1976, 73).

The northern walls of 15B's Q, G and A, had parallel walling with House 14, and the latter with House 17, providing a clear boundary (the latter disregarded when the amalgamation took place). The southern boundary of 15B is no doubt provided from what must be a street or impasse from which to service the cesspit M. That 15A may have extended further to the south is explored in numerous late seasons (1972 and 1978), but the lack of any clear architectural definition here, and clear evidence of later squatting, means that this cannot be taken into account as part of the unit. A large flat area of fill, with scant traces of paving, was located at P' (XXVI-20) and thought to indicate a courtyard that is part of 15A. Its boundaries are not drawn so it has been estimated in analysis by extending surrounding wall traces. It is possible that such a courtyard was shared between House 17, but lack of firm definition to it, and possibly communal status, mean is excluded from this unit specifically. Beyond this no further traces to the east can be firmly associated with 15A.

The western boundary of House 15B is unclear. Pits T'-U-X', when excavated in 1966 were supposed to be part of 15B (Scanlon and Kubiak 1973, 23), before the finds from X' were shown to be potentially earlier than the house (see above). Is the surrounding architecture, at least, part of the house? Hints at continuous walling between room Q and Z-Y' are visible in plan, though preservation is poor, and the walls of the latter room do extend form a threshold between T and X. I therefore tentatively include this area within 15B. I have presumed that room X had a wall in line with pit X' and that the stump wall here either represents either a truncation or a finished edge for a threshold. There is no clear evidence for boundary west of the aforementioned area. Though a small area of double walling exists in room E (XXVI-12) this is quite possibly a remnant of earlier buildings, it does not relate to another visible structure. Still, there is no continuation of

the masonry to connect the rooms further west, the only extension is X's southern wall bordering the impasse, but this comes to an abrupt, perhaps deliberate end.

HOUSE 16

This unit presents a unique grid-like plan centred an expansive *majlis al-ḥīrī* with portico and a relatively narrow square courtyard K. Its most unusual element is the portico or corridor (L-H') running alongside the street (the *darb*), as well as perhaps a smaller portico J on the north side of the courtyard.

Common masonry and regular alignment seems to unite the *majlis al-ḥīrī* and courtyard to a host of small regular rectangular rooms (Q, L, D, H, P, F, R), the latter four perhaps entered from the portico (L-H') from the street. Double walling east of R seems to provide a likely boundary with Z in XXI-16, which must represent a different building that was not fully excavated. To the south somewhat inconsistent double walling (or triple walling) south of P S and O seems to provide a likely boundary with House 17.

The western boundary is far more problematic. This house has a large and complex sewerage system with numerous pits and three wall flues; its channels were primarily tunnelled through the *gabal*. At first glance this system does not extend beyond the wall west of (L-H-F-D-L-Q), where two of the flues are placed. Its emptying point is seemingly the pit A on the street to the north. However, another system to the west, that which was emptied from P' in the impasse (also utilized by House 13 and 14), may be connected with this one. This connection is between pits E, within this house, and pit A, to the west, in XXI-24. While this is used by Scanlon to suggest that the two areas are part of one compound, it is also considered that the connection between the two may be accidental (Scanlon and Kubiak 1980, 81). It certainly seems difficult to see the function of the connection as illustrated in section (Scanlon and Kubiak 1980, fig. 7), though the connection as represented does appear as if deliberately quarried, a slender tunnel two metres long. The slope of this connection is inclined towards pit E (labelled B in section), and is strange in its narrow width (c.35cm) as well as its high level, above the base of the channels and pits. As Scanlon notes, it could not be traversed to clean two systems as a whole. Moreover, it could only function to move material towards this house's system from the western one, which is already adequately served the terminus P' a short distance away. The connection looks more like an overflow for the western system. Lastly, the western system shows evidence of use going into the 11th century, which the system of House 16 does not, as will be discussed. It appears some degree of cooperation

and planning linked the systems at some point in their history, but the two were emptied from separate points and sewage would not ordinarily flow between the two.

A similar ambiguity exists in the degree of structural connection with the area west of the *majlis al-ḥīrī* and wall with flues that seems to be served by this western system (the area in question is rooms A-P-N'-O-M'-A-V'-V-L'-J). In contrast to the apparent continuity across the grid-like plan around courtyard K, the wall of House 16's *kumm* (P) is not continuous with the northern wall of room A (XXVI-5), nor the southern wall of A (which appears to be part of the earliest wall about which House 14 is constructed, see above). However the northern wall of O *is* seemingly continuous with P, but is also composed of two other separate constructions. In general, most of this area is a complex mosaic of different builds that seemingly run parallel to older walls as well as replace sections. The phasing of this defies any speculation without details of the construction and relationships between elements.

In sum, this western area seems to be related area (as indicated by emergency measures linking the sewerage systems) but have a degree of structural and functional independence. For this reason it will be considered a separate house unit (MH-12), but one quite likely linked to House 16 as part of a wider compound. Its similarity to the plan of house MH-6 in Fusṭāṭ-A, which is in turn paralleled in the Japanese excavations, supports the idea that this is a separate unit.

What is the date of House 16? The terminal pit A was entirely disturbed as far as it could be excavated. Pits O' (XXVII-1) and N (XXI-25), contained comparable materials (presumably not chronologically identifiable by Scanlon initially), that through the presence of two ʿAbbāsid copper coins produced sometime between 750-850 (Scanlon and Kubiak 1980, 81–82). The 8th-9th century construction was confirmed by the floor fills in H (XXI-19), where a fill contained artefacts datable to the 8th-9th century covered a mortar floor with another fill below. This fill contained a single glazed sherd, the rest unglazed, this apparently covered (?) a wall made of crushed *gabal* bricks laid in mud mortar, which would seemingly date to before 800. A later phase of construction was found at L (the western part of the street-adjacent portico), a floor fill containing artefacts dating to the 9th-10th century, this overlay a sequence exactly the same as found in H, save for the mud-mortar wall on the *gabal*.

Scanlon sees this as evidence for a "predominantly 8-9th century reality" for the house, with occupancy into the 10th century. Most of the sanitation system was disturbed but a few finds in undisturbed contexts indicated 10th century occupation (Scanlon and Kubiak

1980, 83). The fact that the fill of isolated pits O' and N provided the same date range as the floor fills is seen as a clear picture of 8th-9th century construction and occupation for Scanlon, failing to consider that the floor fills represent construction activities while the infilling of the pits surely relates to their disuse, if they functioned as water holds or wells (the former is Scanlon's preference). If these were part of the house plan as constructed 8th-9th century, they were abandoned within the same date range. Of course, since the dating range is so broad, this is not at all implausible.

Scanlon also adds that "since nowhere in Fusṭāṭ has it been proven that masonry employing mortar was the mode before the introduction of the Samarra *bayt,* we must see what stands of ensemble (c) [House 16] as being *architecturally* more 9th than 8th century." As has been discussed throughout the thesis, there is a tendency to use the introduction of the Sāmarrā' *bayt* (*majlis al-ḥīrī*) in the mid-9th century as an assumption that cannot be contradicted by the archaeological evidence, and this is this date that Scanlon is here saying lime mortar cannot pre-date. One might infer that the dating of mortar construction to the same period as perhaps relying on the assumption that since all *majālis* are themselves built with lime mortar (even where mud mortar survives in traces as in House 11), and are assumed to be Ṭūlūnid or later, that mortar construction is this date too. The artefactual evidence alone seems to suggest that the *majlis al-ḥīrī* and the rest of the plan, built in lime mortar, were built over a previously occupied area sometime in the 8th or 9th century (no finds can be definitively dated to the 9th century alone, it seems), and further alterations were made to some areas sometime in 9th or 10th century. The pits O' and N' were likely disused sometime in the 8th or 9th century due to a lack of 10th century material.

HOUSE 17

The elaborately shaped *fisqiya* (K) placed in a room scarcely wider than this feature, was first exposed in 1968. It was only in 1971 that it was revealed that this was an ancillary room off a much larger courtyard (Y). The large courtyard has a spacious *majlis al-ḥīrī* including a portico (N-N'-N"-C) to the southwest, including clear evidence for piers.

The highly reduced rooms to the northeast are suggestive of a lack of space for the plan to extend into, and indeed some parallel walling is in evidence here at A, and perpendicular abutment further north. The area northeast of pits V' and C XXVII-12 is supposed to be a possible impasse to service these pits (discussed below). Lastly, double walling between G and R in XXVII-12 seems to be continuation of this boundary, as Scanlon noted (1984, 19). Double walling between the paved room K and the early wall

incorporated into House 14 and MH-12 to the north-west suggests another boundary, the same is true northwest of *fisqiya* K' (at one point triple walling) and room T. Though in the latter case this double walling is foregone in the centre to provide a recess. Still, no continuity of masonry or sewerage is detected with regard to House 16 to the north.

The south-western boundary is intriguing. Scanlon proposes that the lack of double walling between the *majlis* and *kumm* (N', C) and the area of fill proposed to be courtyard P' in XXVI-20, which is implicitly associated with House 15A, there is evidence of "enthronging" between the two houses (Scanlon and Kubiak 1980, 79). "Enthronging" usually implies the amalgamation or incorporation of older buildings/ruins, but here it seems that in fact the common alignment and, more importantly, entirely continuous masonry between House 17 and 15A indicates they were likely to have been planned and built together. They are, however, independent in terms of their sewerage, and both exhibit their own courtyards and *majālis*. They are therefore considered two house units within a single compound. House 15B is also part of this compound (see above)—an earlier building that has (as is usually implied by "enthronging") been incorporated by this later development.

The *kumm* with its paving in situ (C) had an underlying fill with a *dinar* of al-Zahir (1021-36). This covered a lower paving that was built over a fill with a copper of 'Isa ibn Mansur (831-2) (Scanlon and Kubiak 1980, 83). This is the most crucial evidence leading Scanlon to propose a "predominantly 9th century dwelling" on which a 11th century structure was reared (Scanlon and Kubiak 1980, 86). The 11th century constructions activities are confirmed by the fill in the courtyard, where a T'ing porcelain sherd was found beneath the herringbone paving (Scanlon and Kubiak 1980, 85). Evidence of 11th century occupation was also found in several parts of the sewerage system. Canal V'' had 11th century material , as did the flue (possibly for a latrine) in L-shaped room F-H (Scanlon and Kubiak 1980, 85).

The earlier paving in C (presumably built against the surviving walls) would seem to mean that at least this room, and most likely the *majlis al-ḥīrī* more widely, was in place by the 9th century. Isolated pit X to the north-east, within the portico N'', contained only 8th-9th century artefacts. It is therefore proposed to have been disused in the Fāṭimid period. Its abandonment would seem more likely in the 9th century, as no 10th century finds were in its backfill. That this should be removed from the spatial analysis of features was considered, however, because the paving in C indicates it was likely that the *majlis al-ḥīrī* was part of the 9th century plan (Scanlon and Kubiak 1980, 86), the pit

is within its original architectural context (the portico). Since the *majlis al-ḥīrī* was built after 830-1, this pit could not have been in use for more than 70 years.

It is worth noting that 15A, which I have proposed was built with this house as a single construction based on the continuous masonry, is dated to the 11th century. This would mean that if the majlis al-ḥīrī here was part of the 8th-9th century plan, it would have to have been largely rebuilt during the 11th century refurbishment to result in the continuity in masonry with 15A revealed in plan. Were the lower courses earlier? Certainly Scanlon was not in the habit of separating each build and labelling them individually. Or was the *majlis al-ḥīrī* rebuilt form the foundation up but on the same lines?

Another element which was filled in the 9th century and not utilised in the Fāṭimid renovation was (pit V' XXVII-12), which again had only 8th-9th century finds. The terminus of the sewer system in the Fāṭimid period is thought to be C (XXVII-12), the slope of channels from V' and from rooms to the southeast confirming this. There is no obvious means of emptying this pit as shown in plan, and it is suggested an opening might be found "beneath the double walling" here (Scanlon and Kubiak 1980, 85). Presumably this means the masonry of R in XXVII-12 blocked this house's sewer access. As this system was in use up to the 11th century, this makes the walling of R 11th century or later. However, as will be discussed with regard to house MH-?, this section of walling is proposed to be much earlier. The issue therefore remains unresolved.

This is complicated further by the description of the 1972 excavations, where the southern area, the continuation of the channel system to the south of H (XVII-16) was investigated (Scanlon 1982, 122–3). This is phrased as an attempt to establish the terminus of the system, which was reportedly found in room J — this seems to be the room labelled O' (XVII-16/17) there are no other possibilities. The meaning of "terminus" here is not just a maximum extent but certainly an emptying point, as the street to service the terminus is also explicitly sought but admittedly was not found. The so-called terminus seems to be spur of the channel extending under a wall. It appears to be a channel for collecting from a wall-flue, or if it is exceptionally deep compared to the rest of the channel perhaps a small sump. It cannot be emptied from a street. Moreover, as already established, the slope of the channels in this part of the system is reportedly to the northeast, towards pit C (XXVII-2). This cannot have functioned as a terminal pit.

In general making sense of which parts of the visible sanitation system were in use at any one time is difficult. Scanlon proposes that the channel running from the flue north

of fisqiya K' (XXVI-10) past the smaller rectangular basin in T (XXVII-1) and then heading towards (as well as collecting from what is possibly a latrine in room U was in use in the 11th century phase due to 11th century finds within. Presumably it is thought to run towards C, but V' (part of this route) is proposed to be "estopped". Perhaps only the lower part, below the line of the channel, was filled with 8th-9th century material. It is proposed that the rest of the channels in the courtyard were also defunct in this period. They were "rendered nugatory by the laying of the paving" (Scanlon 1982, 85). Does this mean that the channels were uncovered when the fill of the paving was laid, and they are filled by it? If so, might this not explain the 11th century finds in the aforementioned channel thought to be in use? The so called "terminus" is explicitly described as lying under a floor fill, indicating that the "entire system" (including the channel with 11th century finds?) was rendered nugatory by the later development.

The area to the south has not been discussed. Here there is evidence of double walling at A, but this is not a house boundary. A is a block of masonry that supported a narrow set of steps. Despite the abutment, paving crossing the wall in portico N" indicates that access to the stairway was via this room. A channel was also found here in 1972, running for some distance to the south and including numerous branches. Though no structural evidence was apparent to suggest so, but a latrine was suggested to exist at A, as the channel must serve some intake. Another system was discovered to the east the limits of which again were not established. The united sewerage from staircase A down to pit Z in XXVII-22 and beyond is used to consider all of this area part the house. However, as no architectural spaces are defined south of O and O' XXVI-16/17, this is considered the limit of the house unit for this study.

An argument is made for the incorporation with both House 15A/15B and House 16. The evidence proposed is the lack of continuous double walling between the houses, the "wedged between" aspect of this house's plan, and the similar chronologies (Scanlon and Kubiak 1980, 86). Scanlon therefore posits the creation of a 11th century compound incorporating earlier elements. As has been emphasised here and within the thesis, double walling is *never* continuous in defining any house, and the boundary between this house and House 16 displays more double walling (and triple walling) than most. The common chronology between House 16 and 17 is dubious as well, House 16 presents only 10th century occupation, no later, and no evidence of 10th century construction. An 11th century enthronging is therefore unlikely. As discussed above, the jointure of this house and House 15A and 15B seems on a firmer footing.

HOUSE 18

House 18, when first excavated in 1964, was erroneously to be built as part of a pottery (Scanlon 1965, 18), but was reassessed and planned in 1973. It is centred on a paved courtyard A", which appears to have porticoes on all four sides. There is no *majlis al-ḥīrī* to speak of. While room B to the west is clearly open to the portico E, it is somewhat misaligned, and not centrally positioned. Nothing of a tripartite arrangement exists on any other side of the courtyard. Four rooms are found on the northern and southern sides, of varying sizes, and a further room accessible from just off the porticoes (M) to the northeast.

To the north a drop in the *gabal*, possible quarrying, seems to truncate rooms H, K and M. However, if the pit G to the west represents the terminus of the sewer system (discussed below), it seems possible that the rooms fronted a thoroughfare here, as Scanlon speculates (Scanlon 1965, 24). To the west, excavation was not pursued much further beyond B (VII-7), presumably since the remains became less well preserved here. A boundary to the south is suggested by double walling between room L and Rooms O and P in House MH-6. While the same can be said of room L's border with room J in House 19 to the east, and the distinction is underlined by the flues in these two walls emptying into what appear to be different sewer systems, there is reason to see jointure between these two houses. The wall of room K' and K in Hosue 19 are shared by House 18, which is by no means beyond the realms of possibility when houses are quite separate, but what is exceptional is that these walls contain niches for this house. In this way they are constructed with the needs of both units in mind, rather than one house making use of the existing wall of another. Supporting the hypothesis of jointure between these two units is the sewer system. The channel in room J connects to that in the portico of House 18.

Scanlon identifies strong evidence indicating conjoining of this house with 19 to the east. The masonry of the eastern courtyard, that including its niches, is continues to into room K' that is entered from House 19's courtyard. Furthermore, a tunnelled channel from J VII-9 in House 19 connects to this house's sanitation system, ultimately emptied from G VII-2. However the masonry is not always continuous, abutment between the west wall of L and the aforementioned conjoining wall can be noted in plan. To the south, in addition, there is abutment between the two walls with flues; one flue is related to this house's sanitation system, the eastern one as far as can be discerned from the plan seems to connect only to a channel heading further east. It seems that perhaps, therefore, this is an example of so-called "enthronging" in which two separate houses were at one point

amalgamated, or one built to incorporate the other. House 19 would seem to be the later addition as it has extremely thin walls at J Vii-9, which must have been supported by existing masonry.

There are two distinct sewer systems. The first, that which is linked to House 19, has two intakes, one at J in VII-9 (possibly a latrine) and the wall flue in L which would have connected to an upper storey. Parts of the channel were tunnelled through the gabal and the course to the terminal pit is not shown in plan. However, G in VII-2, which itself as a flue above it, is referred to as the terminus of the system throughout the 1973 report. The flue or latrine in room G, directly adjacent is also referred to as emptying into this terminus. The second system including pits C and D' in VII-8 is referred to as being a remnant of an earlier systems in the 1973 report (Scanlon 1981a, 417), presumably because the terminus of the system (D') cannot be emptied from any thoroughfare in the current plan. Nothing is saif of pit A', placed directly in the centre of the courtyard. A shallow and narrow runnel runs from this pit to the sump J. The direction of flow is indicated in the initial report (Scanlon 1965, 19), where this pit is speculated to be for fresh water. Why a runnel is needed to move water into the sewer is unclear, but the idea of this being a sump is also problematic when the narrow channel would so easily be blocked.

Another unusual feature of this house was the presence of upturned pots reinforcing the floor fills in rooms H, K, M and L. This seems to suggest L is part of this house rather than that House 19, and this is seemingly confirmed by a thick or apparent double walling between L and O and the portico of the latter.

The House is dated to the 11th-12th century based on the surmise that it must be the same date as House 19 (Scanlon 1981a, 417). Ostrasz does not provide a date, listed as "unknown". The high water table in Fusṭāṭ-A presumably made the acquisition of dating materials from the fills of pits and channels impossible. Numerous floor fills must have survived, however, at least including those reinforced with upturned pots. What date were these pots? Moreover, the closest parallel to this unusual plan is arguably House 16, with its rows of small rectangular rooms and multiple porticoes, which was is thought to be 8th-9th century, but the unusual plan of both of these structures may relate to a specific function rather than date, the rows of rectangular rooms perhaps functioning as storerooms or shops.

HOUSE 19

Like House 18, this was supposed to be part of a pottery complex, its domestic element, in the initial 1964 excavation (Scanlon 1965, 20). It was later surmised that industrial installations were added after the abandonment of the houses by the end of the Fāṭimid period. The house is centred on courtyard A, with an elaborate octagonal *fisqiya* A' which is serviced by two pipelines. To the north is a porticoed majlis al-ḥīrī with slender piers (c.f. House 17). The *kummayn* (F' and F") would seem to extend behind the central *majlis*, based on the presence of surviving paving, with an opening in the back of the latter as well as on at least the western side into F'. This is complemented by a *majlis al-ḥīrī* without a portico to the south. The central intricately recessed *majlis* (C) is flanked by somewhat irregular *kummayn* (H and G*)*, necessitated by the borders with house MH-6 and the impasse to the southeast and southwest. The three niches in kumm G— seemingly described as a single niche in 1964—are thought to be three parallel latrines (Scanlon 1981a, 416). Such an interpretation is difficult to comprehend without any canalisation beneath the niches and as such is ignored.

The jointure with House 18 has been discussed above. This house seems to be the later of the two, its extremely thin wall at J (VII-9) built up against the existing masonry of House 18, while constructing K and K' involved adding niches for the latter. To the north no boundary is established as excavation was not pursued here. To the south there is some double walling between room J and the portico of House MH-6, but this house seems to truncate the northern wall of MH-6's courtyard. The extremely thin walls of the back of C and G must have abutted existing structures here that have since been demolished.

The southern *kumm* G borders an impasse to the east, the pit B' accessed from this impasse through a vaulted entrance. The rest of the eastern limit is difficult to establish. The courtyard K to the east is considered by Scanlon (1981a, 416) as part the house as there is no double walling between the two, and the pavement here is as fine as that securely in the house. Without continuous masonry between the two, and even the suggestion of an abutment south of M, I am reluctant to consider this as part of the house. The courtyard has its own sewer system emptied from A, which though unexcavated would suggest it was linked to rooms to that were beyond the excavated area.

Pits H-L are considered to be a discontinued system (Scanlon 1981a, 417). Presumably this is because the wall over pit L without a flue or entrance of any sort seems to render it redundant , or perhaps because H cannot be emptied from a street. Presumably the same argument can be made for pit C (VII-5) to the east, which has two channels that

seemingly terminate under walls that are too narrow to carry flues (though perhaps pipes?).

The structure is dated to the Fāṭimid period (Scanlon 1981a, 417), justified through the existence of discontinued earlier sewerage here. More precisely, the herringbone paving, the elaborate shape of the *fisqiya* and perhaps the recessessing of the southern *majlis* may be considered indicators of a Fāṭimid date. Seemingly, no fill was removed from beneath the paving to confirm this date (or it did not produce any chronologically identifiable finds), and the high water table perhaps made excavation of any pits impossible.

The *fisqiya* was covered by p[aving when first encountered. This may have occurred in the 12th century, during the later occupation of the house, as a sherd of that date was found in the fill underneath (Scanlon 1981a, 417). It is still possible, however, that this occurred when the industrial installations were added after abandonment.

HOUSE 20

Because the "*bayt* was reared quite high above the *gabal*" pit R must have belonged to an earlier habitation (Scanlon 1981a, 403).

"nothing definite can be discerned to the south" 403

House 20 in Fusṭāṭ-A, like 18 and 19, was once thought to be an industrial installation during the initial season of fieldwork in 1964, as it has two glass kilns in its courtyard (M and N). It also, however, has a well-preserved majlis al-ḥīrī . Upon re-planning the area in 1973, the industrial equipment was deemed to be a post-abandonment adaptation of the architecture. It seems possible that kiln M, summetrically placed within the courtyard M', made use of a cut for fisqiya in the original house. The portico is unusual in that it extends beyond the kummayn, as well as beyond the width of the courtyard, and has evidence of smaller compartments or rooms beyond the entrances to the *kummayn*. In the case of the northern compartment (Q) this is through thin foundations or slots (for some kind of screen?) and in the southern case by a more typical wall foundation (though it is represented in a strange manner in the 1973 plan, including individual bricks?).

A boundary is provided with house MH-6 through double walling at T, and Q, the thin walling at Q probably indicating it is builty against the earlier MH-6. A boundary with MH-10 is also clear due to very consistent double walling at the back oif the majlis al-ḥīrī. The southern boundary is provided by the street with the aqueduct.

The impasse is the last boundary to the east, though this is somewhat complicated by the lack of masonry here. At the north-east corner of this house is a thick wall forming Y-shaped junction; it has a vertical flue leading to a pit, C, which is serviced from the impasse via an arched opening. This is considered part of the house by Scanlon, but this relationship is actually somewhat dubious. The flue, if leading to an upper storey room, could not be structurally accommodated anywhere but to the north, over House MH6. Moreover, fragments of a wall apparently running parallel to this one seem to bound the courtyard to the south. The westerly projecting wall of the Y also stops almost immediately, where it would appear to meet a very thin wedge of walling clearly associated with this house. Lastly, if the thick wall continued on its projected course to the south, it would block the impasse almost entirely. It therefore seems likely it is the remnant of an earlier structure. Considering the continuity of wall traces to the north with that branch of the Y, it would seem to be part of MH6. The eastern boundary was therefore a largely lost wall parallel to this, presumably meeting the apparently gateway to the impasse.

In 1973 a trench was cut through the portico O (Scanlon 1981a, 414–15). The fill beneath the herringbone pavement included 11th century objects. Two further fills are described; one with 9-10th century evidence and at the lowest levels 7th-8th material — as indicated by lack of glazed sherds and association with mud mortar brick wall traces[108]. As is most commonly frustrating, the relationship between the fills and the masonry of this house is not reported. If one presumes that the earliest fill was built up against the rather than over the mud mortar walls, since the wall is— based on photographs (Scanlon 1981a Plate XXXb)—on a different course to the walls visible in plan, the 7th-8th century material is the remnant of a different building. If the 9th-10th century fill is up against the piers and walls of the portico, however, this might mean the same date range for the construction of the house's *majlis al-ḥīrī* and perhaps wider plan.

We are left with the situation, therefore, where it is clear that a lot of construction can be dated to the middle of the Fāṭimid period, as evinced by herringbone paving with 11th century fill beneath, but that the construction of the overall plan may be much older. The lack of clarity is reflected in Ostrasz's date for the house, which is listed as "unknown".

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[108] An imitation *dodecanummia* was also found in the lowest fill elsewhere (Scanlon 1981a, 415), and early lead glazed wares in the lowest fill of compartment P.

The pit R is apparently disused, the southern wall perhaps blocking access to it (Scanlon 1981a, 403)[109]. In contrast, a vaulted entrance to service pit V from the thoroughfare is present. Its ingress was likely to have been a ground floor latrine. Pit Y may have also been in use within this house. As discussed above, I am inclined to associate pit C' with the house to the north. The presence of both a wall flue and possibly a ground floor latrine at K VII-14, is perplexing. The flue is, of course, integral to the house's masonry, but the sewerage ends in an exceptionally large and oblong pit E that could not be emptied from the impasse. It is difficult to imagine a plausible scenario in which this could be emptied from outside the house an earlier phase, but went out of use at some point, especially considering the supposed early date for the Y-shaped wall fragment and the existence of a pit and channel to the east. One is left to assume that E was emptied from the courtyard, and its exceptional size was the result of the wish to do so as infrequently as possible.

The highly irregular walls south of the courtyard are not continuous with the outer walls of the wider plan and may be related to the industrial installations that were placed here after abandonment.

HOUSES MH-1, MH-2 AND MH-3

Though Ostrasz was aware of these buildings, as yet unpublished at the time he assessed the architecture of Fusṭāṭ, they would never have been included in his analysis because they do centre on a courtyard in the usual sense. The remains were excavated in 1971, between the well preserved complex of House 10A, 10B and 10C and a north-south thoroughfare.

The masonry here had been extensively robbed, but the traces of walls were easily discerned as the robbers had left the intervening floor fills in situ. This created a plan largely based around "ghost walls". Not is all of this extensive area distinguished by this depth of fill and lack of masonry, but repeating patterns within the plan can be seen, suggesting three distinct units. As Scanlon and Kubiak note (1979, 109), it is easy to see a pattern in which squarish rooms are arranged alongside long rectangular rooms, dubbed "antechambers", of which there are three (J-E in XVI-18; L in XVI-14; M in XVI-9/10). Not only do these long spaces seem to provide a connection between smaller rooms, the plan would seem to call for these antechambers to be roofless, to allow the

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[109] The precise explanation is that because the "*bayt* was reared quite high above the *gabal*" pit R must have belonged to an earlier habitation (Scanlon 1981a, 403)

smaller rooms further from the street to be lit and ventilated. The antechambers can be accessed from the long north-south street or the east-west street to the south, and so three independent units can be proposed: MH-1, MH-2 and MH-3. Reinforcing the impression of three units, each of the proposed units had their own sewerage system.

There is not, however, any double walling separating the units. There is even continuous masonry (where it survives) between rooms proposed to be in separate units (see the T-shaped wall fragment between MH-2 and MH-3 in XVI-14). Double walling *within* the units is seemingly the result not of property boundaries but slight modifications of the plan during what appears to be numerous re-builds on largely the same lines, discussed below. Some kind of unity between the three units is also commented upon when the stratigraphy of several rooms was explored through small trenches (Scanlon and Kubiak 1979, 109). These were placed in M (XVI-9), A (SVI-14), J (XVI-14/19) and C (XVI-18/19), encompassing all three house units. In all there was a baked brick floor in mortar evident at a mid-point in the sequence. Below the brick floor levels of earth mixed with pot sherds, rubble, charcoal, crushed mortar presumably represent preparation for the floor surface made from occupational and demolition refuse from the earlier structures. The lowest levels of this included unbaked brick and mud mortar fragments. Objects below the brick floor were 8th and 9th century in date.Above the brick floor level floorings of mortar are interspersed with packed earth. Scanlon and Kubiak see these as accumulation of refuse being trampled into mud floors, rather than preparations.

A unique discovery of traces of *unbaked* mudbrick walls bonded with mud mortar "within the fill" of rooms such as J. Judging from photographs, this appears to refer not to fragments of walls simply within the room and unrelated to the plan, but actually within the bounds of "ghost walls". Other wall fragments are of baked brick with mud mortar, as well as with lime mortar (of both ashy and sandy mixtures), indicating that the complex was rebuilt along the same lines at least twice (Scanlon and Kubiak 1979, 108). In some cases new walls were built parallel to older ones, the older ones buried within subsequent floor fills. In this way a room was expanded or contracted slightly, but the shape and plan stayed the same. The original plan of these units, executed in unbaked brick in mud mortar, may be as early as 8th or 7th century, since the baked brick floor fill was laid in the 8th-9th century, and it included debris of the earlier unbaked brick walls. The plan appears to have been maintained into the 11th century. The date of the latest occupancy is based on the fill of the sewerage systems such as D, and from upper floor fills. It is also noted that the fill of the "ghost walls", the robber trenches that had scavenged the masonry but left the floor fills intact, was both easily distinguishable from

the overlying mounds and contained no later than 11th century material. As such, the buildings were abandoned and scavenged during the course of the 11th century (Scanlon and Kubiak 1979, 111).

The existence of a flue in the central unit, built in a lime-mortar bonded wall, indicates that in the later phase the complexes certainly had upper storeys, though Scanlon doubts the mud mortar could have supported upper storeys. This same sewerage network has its terminal pit in one of the internal rooms, rather than accessible from the street. Perhaps if we consider the central antechamber as a private impasse this makes seems less unsavoury as a prospect. Even so, it seems that the channel's course would make any access even from the antechamber difficult, and so sewerage would have to be carried through the rooms when emptied.

The limits of the three units to the west and north may be posited. To the west, in agreement with Scanlon and Kubiak (Scanlon and Kubiak 1979, 107) the area X-Y is not included in MH-1. Its sewer system, linked to the area south of the street seems completely unrelated. To the west of MH-2 and MH-3 the situation is less clear, double walling does not clearly define the limit of 10A. Scanlon and Kubiak use as the presence or absence of the deep fills that characterised these buildings. As such R S and K are included MH-2, while S T P (XVI-13) are not. Double walling between the unnamed room east of W and south of K (XVI-9) and both fill-rich rooms of MH-2 and MH-3, puts the former clearly in House 10A (contra Ostrasz). MH-3's northern extent is somewhat problematic. Given the general pattern, one would expect a full range of rooms flanking M to the north, but only Y is present. The area L-V seemingly had no "ghost walls". Stratigraphic analysis in of the buildings to the north in 1968 (first revealed in 1965), showed that the herringbone paving and its mortar bedding were laid directly on a fill of pre-Ṭūlūnid material (Scanlon 1976, 77). The remains of mud mortar construction throughout the room (presumably within the room, rather than directly under the lime mortar built walls, but this is as ever unclear) indicate that the building here was built on a ruined 7th-8th century building, quite possibly the remains of MH-3 or other further units of this type.

Still, Scanlon and Kubiak consider that the distinction with House 10A may not be real. The antechamber M is considered to be instead an access route to 10A, or alternatively both the antechamber of MH-3 and the access route to 10A. This is posited on the basis of it being quite convenient access route for House 10A (Scanlon and Kubiak 1979, 108). This seemingly strange proposition might be explained somewhat reference in a later

report (Scanlon 1984, n. 11) to these units as "service quarters" for the palatial House 10A-B-C. Such a speculative proposition is no doubt held in mind when this hypothesis of joint access is put forward.

The idea of service quarters no doubt results from the supposed meagre status of these houses. Shallow pits—cut from the "higher" (or, seemingly the high*est,* as will be discussed) fill layers within rooms—contained "rich earth" that is thought to represent refuse. It is noted that the inclusion of open rubbish pits in internal rooms would be highly unpleasant, illustrating a certain kind of squalor, at least in the 11th century. Some of the earlier fills, in contrast, included painted and carved stucco, suggesting the earlier occupancy was not as simple. However, it seems more likely that the shallow pits, which are not visible in many of the rooms, and certainly not found cut from the various occupation levels in the rooms whose sections were drawn, are actually the result of post-abandonment squatting. The relative poverty of the later tenants is apparently confirmed by the "unsophisticated" pottery from floor fills here. This cannot be discounted, but makes a much weaker case for such low-status; floor fills in numerous locations were devoid of any datable materials, likely indicating largely coarseware sherds.

Despite the meagre image painted of the houses, highly ornate objects from the 11th century were recovered from the sewerage system, particularly pit D and its channel. In explanation, it is therefore proposed that a higher social class inhabited the upper storeys (Scanlon and Kubiak 1979, 111). Attempts at explaining such incongruity can be abandoned if one accepts the refuse pits as squatter habitation.

HOUSE MH-4

House MH-4 was excavated in 1972. It is centred on a small trapezoidal courtyard with a slight recess to the north (Q'). Despite the absence of any *majlis al-ḥīrī*, the presence of "gougings" on the east of the courtyard is reminiscent of other houses encountered previously. The house was used for industrial activities in a later phase. The three kilns— W (XXI'-15/11), M (XXI-11/12) and B (XXI-16) —can be seen to be later additions as B is built over the walls of the house. The others share a similar mode of construction and the same debris of glass slivers. Small traces of squatter walls of boulders in thick mortar are also found in the courtyard (Scanlon 1981b, 63).

The double walling defining the short border between this house and MH-5 to the west, and to the east bordering House 11, is one of the few where the abutment is completely consistent. To the south the boundary is the street, and to the north one encounters no

double walling, but rather a large triangular area with a confusing array of scant wall traces. This will be discussed below.

The sewer system is emptied from pit E (XXI-16), near the street (Scanlon 1981b, 63). That an entrance is not visible here does not, as in many cases, trouble Scanlon, presumably the surviving masonry is low here and the entrance was at a higher level to match the level of the thoroughfare. Pit B in XXI-17 also accessible from the street, but here an entrance is visible, apparently at foundation level. Presumably this one would have to be accessed via stairs from the higher thoroughfare as is the case with House 14 immediately to the east. Pit E had entirely Fāṭimid contents indicating occupation in that period (Scanlon 1981b, 64). The masonry is thought to indicate this era for construction as well, but an earlier phase is also proposed. The basis for an earlier phase is the two walls on slightly different courses west of D-D' (though neither is continuous with surrounding masonry, and one wonders whether they are ad hoc supports for something above), as well as the "gougings" which are associated with Ṭūlūnid construction for Scanlon. Lastly, the unusual brick flooring in the north-eastern room, forming a radial pattern with a cross cutting through it, is thought to be remnant of an earlier phase. It is noted that the surrounding walls "constrict" this pattern, meaning presumably that it is not symmetrical within them. The evidence for this earlier phase is slight, therefore, and its dating to the 9th-10th century even more so.

HOUSE MH-5

House MH-5 is a multi-phase structure with a unique sequence of construction. The plan as shown is of a later house, dated to the Fāṭimid period. The later phase was built over a room hewn into the gabal, 3.5-4m deep, a *serdab* (cool room) or underground chamber of some other kind, which was entirely filled in when this house was constructed. A vaulted passage was built, however, from the street to allow access pit cut into the *gabal* base of the *serdab*. Since this pit (A') was not attached to any sewer channels, it is supposed to be a water hold filled from the street by water carrier. The earlier phase, the *serdab* is not considered in this study, and the definition of architectural spaces is based on the plan provided of the Fāṭimid phase in the 1972 report (Scanlon 1981b).

The Fāṭimid date is provided by the mode of laying the bricks, the traces of herringbone paving in rooms C, D, and Z (not shown in plan, but included in analysis), the fill of room T that contained a glass weight of al-Mustanṣir (1035-94), and contents of both the pit A' (above) and L' (Scanlon 1981b, 65). The latter provides the logical emptying point of a very simple Fāṭimid sewerage system, making J the latrine. As at MH-4 the lack of

visible entrance structure does not seem worthy of note, and must have been at a higher level. The vaulted passage also contained a dirham of al-Ḥakim (996-1020).

The largest space A is thought to be a courtyard, perhaps because this makes D a portico. This seems relatively plausible, particularly as the bipartite rooms fronted by a portico would mirror other plans such as MH-6, and to an extent MH-12.

The boundary with MH-4 has already been discussed, and the southern and western boundaries are provided by streets. The northern boundary is, like MH-4, defined by the large triangular area with only scant traces of masonry. The evidence from this area will now be considered. The zig-zagging wall to the east is represented along with the *serdab* in what appears to be phased plan of this area (Scanlon 1981b), it is therefore likely to be part of the earlier phase. It appears, also to be continous with the wall that defines the boundary of the street. This wall has two pits clearly intended to be maintained from this thoroughfare (W and V). The former had 8th and 9th century coins within. However, this wall also seems to be continuous with the wall of MH-5 itself, raising the possibility that earlier traces of the original house including the *serdab* are incorporated into the Fāṭimid dwelling, or that parts of this boundary wall were renovated in the Fāṭimid period. Not only that, but pit V contained Fāṭimid material, leading Scanlon to suggest that it was used in this phase. However, it could also have just been backfilled in this phase. Still, evidence of utilisation of this large area in the Fāṭimid period came from baulks of fill within the area with late 10th century finds. The lack of any Fāṭīmid masonry, except perhaps the street boundary wall, indicates that this was likely an open court. It may have been used by MH-4, MH-5, or considering its extent and lack of boundary, by both (the latter is favoured in proposing a common compound between the two).

There were also earlier fills in this triangular area, one of which revealed a brick tub (A) filled with 8th century finds including a coin of Maṭar (773-6) (Scanlon 1981b, 66). This must therefore relate to an earlier occupation here, as must pit Q which contained 8th-9th century evidence alone. Pit S had contained lustred glass and a coin of the ʿAbd al-Malik ibn Yazīd Abbasid governor, dated 751, and so is associated with the early phase too. However, the double piping feeding this pit is perplexing, this has been considered a purely Fāṭimid method of sanitation previously, and is not noted as revelatory by Scanlon. There are numerous hearths or ovens here, which are dated to the earlier occupation (Scanlon 1981b, 67). It is therefore proposed that the area was an open kitchen courtyard, even in the earlier phase (despite the early wall traces, hearths being found on either side of zig-zagging remains). The dating to the earlier phase might relate

to their construction (using mud mortar), rather than their stratigraphic relationships (at least one appears to be cut into the early wall traces at XXI'-5/10, another appears to be cut into a rough boulder wall (is this squatting?) at R (XXI'-10). The ambiguity here means these must be excluded from the analysis.

HOUSE MH-6

The previous examples MH-1 to MH-5 were all noted by Ostrasz as (then unpublished) examples of houses that deviated from the general principles of the *majlis al-ḥīrī* courtyard house and so were excluded from his analysis. MH-6, however, represents a group of remains that must have been known to Ostrasz (excavated in 1964 and 1973) but were not considered a house unit at all. The lack of a *majlis al-ḥīrī* partially explains this, but the house is well defined by double walling and is centred around a courtyard F". A portico P appears to lead to two rooms O and U, though the portico may have been divided by a smaller wall north of V, shown as a separate entity in plan, in a later phase. If indeed this wall stood proud of the floor and was not part of the superstructure of supposed water hold V[110], no detailed description is available. A second possible water hold was in room U. On the other side of the courtyard were a further two rooms, F and D', the latter containing a set of stone stairs (discussed below). This combination of two rooms, a portico, courtyard, and a further two room is, as discussed, mirrored exactly by the plans of houses from Japanese excavations.

The rooms here were distinct enough for Scanlon to discuss them separately, to the more conventional courtyard houses to the north (19) and south (20), though tending to attempt to assign the rooms to one or both of them, rather than consider it a separate building. Not only does the unit as proposed have double walling separating it from some rooms of House 18, 19, and 20, much of these parallel walls from neighbours are less than half the thickness of those of this house[111]. This would suggest that this unit is the earliest in the vicinity (though only the structure of 19 can be dated with any degree of confidence, to the Fāṭimid period), the others built abutting it for support. The eastern boundary is provided by the impasse, while the western boundary seems likely to be marked by rooms O and U. The sudden lack of masonry any further than the back wall of these is highly suggestive, but even more so the small stump wall or buttress at the very

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[110] This is shown on the plan as a "wall trace" but seems substantial in photographs.
[111] As discussed above (see House 19), an additional wall as part of this house can be hypothesized north of F considering how thin the odd-angled wall of House 19 is here, it seems that it was built abutting a more substantial existing wall on a different alignment.

south of U, which appears to be a finished face rather than truncated. Supporting the idea of independence of this unit is the sewer system Z, Y, and W, emptied from the impasse.

Scanlon suggests that this unit is part of House 20, or is joint with both 20 and 19. The argument presented is that the stone steps at D were built "relative" to the thick wall with a flue leading to pit C, (Scanlon 1981a, 414). This seems to presume that building steps up against this wall means that the stairs and wall must be part of the same compound, which hardly seems true considering the inconsistency of double walling in general, meaning that walls are frequently shared in an ad hoc fashion between separate units. Secondly, it presumes that pit C and the wall must be part of House 20. As discussed above (House 20), this does not seem to the case; the wall is likely an earlier wall that is incorporated into both of these houses. Does this set of stairs not turn 90 degrees to the west? There are certainly remains drawn here that suggest so, but the arrow drawn to denote the incline of the stairs does not bend so. There are no clear photographs of this area; the exact structural relationship of the staircase to the two houses therefore cannot be precisely determined. It is entirely possible that this unit, though separate, may have been joined in some way with that to the south via the staircase.

Secondary evidence for the unity of this house with House 20 presented by Scanlon is the mode of paving here (six slabs in room F) matching that to the south, though there are insufficient slabs surviving to determine if this is indeed herringbone, and the similarity of the height of these pavings. Even if the paving was definitively herringbone, neither of these is a particularly strong argument for uniting the two buildings. Lastly the "quality" of the water holds here, U and V, is thought to indicate the building must relate to another finer complex. Why this should be the case is baffling.

The case for jointure of the two units should be considered, therefore, as supported only by the structural relationships around the staircase and Y-shaped wall. I will consider this a separate unit, and do not posit a wider compound with House 19 an 20. There are other possible jointures to consider, however. These rest on the question of whether sewer systems within the Y-shaped wall were used within this house, or are remnants of an earlier system. Assessing this is difficult, as no artefactual evidence whatsoever is presented for this house, within its cut features or floor fills. Its date in general therefore is unknown. This is partially because in the 1964 season, when the water holds and pits were first identified, no contexts are labelled individually in the report and objects are discussed only in general terms. I have already suggested that the Y-shaped block of

masonry in must be a relatively early wall, as its original course would have blocked the impasse if extrapolated, and it is seemingly truncated by construction in House 20. Not only does the masonry contain a flue to pit C, emptied from an entrance to the impasse, there is a second flue farther south that heads to a different system. Specifically it connects this wall with cesspit of House MH-7. Without knowing the dates of materials within these systems it is difficult to speculate whether this is evidence of cooperation between this house, House 20, or MH-7 or opportunistic exploitation of individual parts of a pre-existing system. A possible compound is tentatively suggested.

While no dating is provided for the house, as discussed above, the main sewer system Z-Y-W is considered as disused by Scanlon, without any explanation (Scanlon 1981a, 417). It may be based on some hypothesis of "enthronging" with the houses north and south. Regardless, the sewer system seems likely to have been planned to be used within this unit and is thus included within the analysis.

HOUSE MH-7

This house in Fusṭāṭ-A is, like MH-6, not considered by Ostrasz despite being excavated before the publication of his typology, in 1964 and 1973. It is excluded, like MH-6, perhaps because it lacks a *majlis al-ḥīrī*, the basis for Ostrasz's typology[112]. The unit is centred on a courtyard (A), devoid of any paving, and is flanked to the west by two rooms, B and A, the former having a large alcove to the north, and on the east by a slightly trapezoidal room K that in turn leads onto two rooms with fragments of irregular paving. K's occupation of the full width of the courtyard means that it is potentially a portico, though it is unusually deep if so. If one accepts such an interpretation then these parts of the plan match exactly MH-6, though the proportions are vastly different to the latter (and to those examples from the Japanese excavations). Moreover, the plan seems to include a further range of rooms to the north (discussed below).

When the area was re-cleaned and re-planned in 1973, the rooms D-E-F were seen by Scanlon as a "Samarra *bayt*" attending the courtyard, with their portico placed *behind* them (Scanlon 1981a, 410). This seems doubtful, not least because such a placement is illogical for a portico. Furthermore, D's entrance would be somewhat obscured by masonry of room B to the west, just as F's would be by room K's western wall. I would rather entertain the possibility that D-E-F were entered from a private impasse or

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[112] Though Scanlon, as will be discussed, thought that it did include one.

narrow open court G to the north, mirroring C', C and C" on its farther side. It is possible that these rooms are therefore a different unit, discussed as MH8.

There are three pit and channel systems in evidence within the rooms certainly associated with the central courtyard. The cesspit Q', potentially cleaned from the impasse and also linked to the area west has already been briefly mentioned as suggesting possible cooperation or unity with Houses MH-6 and 20. There is also a pit (T) accessible from the street within the courtyard, it has a possible indication of an incoming pipeline or channel in plan. The larger sewerage system terminates at pit I in the portico, that could be and again be potentially cleaned from the street. Its channel connects to a flue in the wall to the north, and continues as a tunnelled channel to pit B' farther north, a short distance from a second flue. This would seem to unite those rooms on the east of the courtyard to those to the north, at least as far as the large room with polygonal paving B (VII-6) — possibly a secondary courtyard. Continuous walling between B, Y, and U would extend this house quite some distance. This array of rooms from J in the south to U in the north forms one of the strictest alignments anywhere in the excavations, supporting a unified layout. The rooms W and V In VII-1 seem to be part of later structures truncating this house (Scanlon 1981a, 411).

Something should be said here of the two courtyards to the east of this unit. The remains here are not well preserved. The southern courtyard centred on elaborate *fisqiya* A' is proposed in 1973 to have two porticoes to the east and west (L and L') (Scanlon 1981a, 410), and there is potentially some walling separating this courtyard from R to the north, which presents only the outline of a fisqiya cut in the *gabal*. In 1964 Scanlon is more willing to consider these courtyards as some kind of public plaza. In 1973, when the area is revisited, the courtyards are presented as more explicitly linked to houses to the west. The lack of double walling between this unit and both courtyards might be used to suggest a unity between the three. Indeed, Scanlon considers the rooms U-Y-B (which he had not associated with the courtyard farther south as I have argued) as having some relation to courtyard A, with room B having "as much structural relevance to courtyard A as to R" (Scanlon 1981a, 411). Courtyard R is also, however, explicitly linked with courtyard K at the end of the impasse due to the direction of sewer channels between the two (Scanlon 1981a, 416). As discussed, K was associated with House 19 (which I do not find compelling evidence for), which is also associated with 18 to the west by Scanlon, as well as to MH-6 and 20 to the south. It seems Scanlon thereby presents a case for nearly all of Fusṭāṭ-A being a single compound.

In truth, the lack of double walling alone is not enough to associate this unit with courtyads A and R, and the abutment between the walls in the courtyard (perhaps those separating A from R through some kind of portico) suggests they might have been built separately.

As with MH-6, no finds from this area are reported, and so no date can be suggested for the unit.

HOUSE MH-8

As has noted with regard to House MH-7, the rooms D E and F in VIII-11 were thought by Scanlon to be the *majlis al-ḥīrī* of a courtyard to the south (H). Rather, the misalignment D and F make this unlikely, and the presence of a clearly established entry north of F, make it more plausible that they were accessed from G to the north. A similar triple arrangement is found to the north of this long impasse or open-roofed antechamber. In effect, what is proposed here is an arrangement similar to houses MH-1, MH-2 and MH-3. Access from the impasse to G seems likely considering the misalignment of apparent jambs here, suggesting it may not even have been closed by a door or gate.

Was this a separate house, or just a part of MH-7 accessed independently? The southern wall of D stops in line with limit to courtyard H, as if the parallel walling once existed here, however the line of the masonry drawn on the original plan gives an impression of a slightly uneven cut through the wall rather than a finished edge. It therefore seems probable that the masonry was continuous. Furner complications arise from the consideration that the house or houses may have incorporated earlier elements (perhaps explaining the misaligned jambs to G) as indicated by Q's link to the truncated Y-shaped wall to the west (see MH-6, above).

Despite suggestion of continuous masonry, these rooms had their own sewerage system, running from H' to its emptying point J and potentially. This, plus the fact that they were likely to have been accessed separately, leads to the conclusion that—like House 17 and 15A—they were planned and built together, potentially incorporating earlier elements, but were in some sense functionally independent units. The two would share a common N-S wall on its eastern side with MH7, no parallel walling is present.

HOUSE MH-9

While the plan here is poorly understood, a house unit is tentatively proposed due to two factors. The first is double walling between room R and G (XXVII-12) in House 17. The second is the presence of an exceptionally large room (S) that is well defined by masonry all four sides, which seems likely to be a courtyard, about which a plan could be conceptualised.

The plan is complicated, however, due to multiple phases. The northern wall of S truncates earlier walling, an extension of which runs across the courtyard. Walls in Z are also remnants of an earlier phase or building. The later walling, however, seems to be continuous with walls dividing room W, Q and L. It seems likely that the wide room to the south-east (a deep portico?) is also part of this construction. The two periods are apparently represented by fills in W. Here the upper fill was 11th-early 12th century and lower one of 10th century date, as indicated by filters, tonged glass, and lustred pottery (Scanlon 1984, 22). Pit R, between the courtyard and a small impasse, contained entirely 11th century material.

Should R be included in this unit? The wall it shared with W would seem to be of the later phase (11th century) but alongside this a rough wall was built of so-called "stone bricks" and baked bricks, covered with mortar. This wall was also dated to the 11th –early 12th century based on the fill built up against it (Scanlon 1984, 21). The wall is built on earlier fill, and for this reason Scanlon dates the original walls of R to the southwest and northwest to the 10th century[113]. Whatever the purpose of the rough wall built in the 11th-12th century, it seems to reduce room R, but without indicating it was obsolete by this point. For this reason it is included in this unit, assumed to be an early element retained in the later plan.

One unusual feature in this area was the large slightly octagonal cut in the *gabal* with evidence of brick vaulting. It is believed to function as a cold storage unit (Scanlon 1984, 20). Its fill dated to the early 11th century, probably before or at the same time the rough wall was built. Assuming this means that fill refers to that of the storage area itself this would place its abandonment before the later reconfiguration of the house. Indeed, the wall defining it to the north-west appears to be continuous with the early walling demolished in S and retained in R; it was part of the original plan that was put out of use at or before refurbishment. The space here, however, might have been retained even if

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[113] As nothing is said of what the finds in this fill were, it seems this is a supposition based on the aforementioned fills in W

the feature was not. There is no evidence of another intrusive structure and it is possible that the channel Z was still in use.

The unity with rooms M, N and H to the north, bordering an impasse, is unclear. The fact that pit P's contents were 10th century seems to suggest that this area might have been abandoned with the plan was reconfigured. For this reason the area is excluded.

HOUSE MH-10

This area was uncovered in 1973 after the stockpile of clay associated with later industry was removed from Fusṭāṭ-A (Scanlon 1981a, 414). In direct contrast to House MH-8, the independence of this unit is quite clear while little remains of its overall plan. The independence from House 20 to the east is indicated by consistent double walling, and by a large space flanked by a portico to the west, that is surely a courtyard. If long but unusually deep room W to the south be also considered a portico, the plan begins to resemble House 18 to the north; the paved room C fronts the western portico just as B does in House 18. A sewer system begins at S to the east of the courtyard, and heads west, where a street or impasse might have once run. Too little remains to the north to establish a boundary with House 18. Traces of two small rooms in VII-13/8 are as likely to be part of this unit as that to the north. No traces of double walling are found here.

HOUSE MH-11

This unit is proposed with level of caution similar to that expressed with regard to MH-8, its distinction from other houses is by no means certain.

The remains were encountered in 1968, at which point the relative asymmetry of the three rooms H, J and K, mirrored in A, C and C', were seen by Scanlon as potentially indicating a distinction with the "more rigidly aligned" units E-A-G and B' to the north (Scanlon 1974a, 85) — the latter having been discussed above as House 2. In general this alone does provide a compelling argument for considering these as a separate unit. However, there are other considerations to make. Firstly it is possible that G consisted of an open corridor-cum-portico, particularly if Ostrasz is correct in interpreting the "gougings" as shrubbery trenches. Two such "gougings" appear where A borders G, mimicking the pattern of gouging in porticoes and *majālis* bordering the courtyards in order to receive sunlight. If true, this would provide alternative access and lighting separate from House 2. More securely, the sewer system of House 2 (joined with House 1) does not extend here, but three pits, at least one of which is linked to a sewer channel and emptied from the impasse, provide an independent alternative for water supply and

sanitation. Accepting such a hypothesis would create a plan largely comparable to houses MH-1, MH-2, MH-3 and MH-8, in which rows of rooms flank an open antechamber/private impasse/narrow courtyard.

Casting doubt on this, however, is the poorly preserved remains to the southwest. It cannot be proven that A-C-C' do not in fact relate to the latter area, which is equipped with its own extensive sewer system. The proposition that the "gougings" indicate a well-lit open-fronted room is less relevant when one considers A may have been open to the south-west. In fact, two "gougings" in the back corners of a *majlis* can be noted in House 8, supporting such a hypothesis.

Pit F had early contents, dating to the 8-9th century. Both F, and the other isolated pit B, are described as "estopped" (Scanlon 1974a, 85). It is unclear whether this relates to their early content (if pit B also contained early material), their isolation from channels and the impasse to the east, or that there was actually any structural indication that they were sealed at some point. There is, therefore, insufficient reason to suggest that these pits are remnants of a pre-existing plan, especially when the surrounding structure has no clear date. They are treated as contemporaneous with surrounding buildings. That House 2 was at least occupied, if not large parts of it built during the Fāṭimid period, might support further the distinction of this unit; considering the use of "gougings" and early material in pit F an earlier 8th-9th century construction and occupation seems likely.

HOUSE MH-12

The area defined here as MH-12 is to a large extent spaces that have been assigned to House 16 by Ostrasz and Scanlon. The rooms under discussion were first considered the principle elements of a distinct "ensemble" by Scanlon in 1968 (Scanlon 1976, 75). Despite a lack of obvious courtyard or *majlis al-ḥīrī*, a seemingly self-contained and elaborate tunnelled sewer system prompted consideration of these rooms as a separation unit to that farther to the west. Yet by 1971 a connection between this sewer system and that of a newly discovered more conventional courtyard-*majlis* house (House 16) to the east led to these rooms being reconsidered an "ancillary" area of this larger building (Scanlon and Kubiak 1980). As in reference to House 16 above, the channel connecting the two systems did not allow joint cleaning, nor for sewage to pass through regularly. The two systems therefore maintained a functional separation but displayed some kind of joint planning (overflow mitigation?). As such, this will be considered a separate house unit that may be linked to House 16 as part of a wider compound.

The rooms can mainly united by the sewer system (encompassing J, L', V, V', N', P and A). The masonry is a mixture of different builds, incorporating numerous stub-walls to the west. No lucid sequence can be proposed based on the plan alone. The north-south aligned western wall, which I posit as the boundary with House 14, has already been discussed as a potentially early element. It extended into House 14, around which the majlis al-ḥīrī was seemingly planned. This wall also provides the southern boundary of this unit, providing double walling with Houses 15B and 17. It seems much of this house was built around this wall as well, with M' and A's dividing wall being a separate construction.

The inclusion of M' and A, as well as O within this unit is largely based on the seemingly coherent and familiar plan they would provide, together with N'. The distance of most of the unit from the impasse would mean some rooms must be open-roofed to provide light and air. If one accepts that N' is a likely candidate for a courtyard owing to its size (along with J, which is equally as large), then O would be a portico providing light to two rooms, M' and A. Such a bipartite range of rooms fronted by a portico would mirror those proposed for MH-6 and MH-7. Less securely, one may speculate as to whether P is another portico leading to A, but these rooms could equally be lit from the neighbouring impasses. The association of O, M' and A with this unit is supported by a break in construction between A's northern wall and P, the kumm of House 16. However, part of O's northern wall is continuous with P. That much of the rest of it is different constructions, in contrast to the unified masonry of the rest of 16, provides enough evidence to separate the two. Why some of the masonry is shared is unresolved.

The contents of the sewage system as a whole provided material dating between the mid-8th century and mid-11th century (Scanlon and Kubiak 1980, 81), often very mixed. Floor fills apparently were heavily scavenged here, meaning the dating of the phases of construction and occupation cannot be clarified beyond what was found in the sewer system.

HOUSE MH-13

House MH-13 represents remains uncovered in 1965 between Houses 9 and 10. It is not included in Ostrasz's study, seemingly for the reason that none of its walls or features are mentioned in either of the two reports of that season. Despite this it is well defined in three of its limits. To the north and south sections of double walling separate it from both Houses 10A and 9. These are not adhered to consistently, being present only with regard to rooms R and S, not the three smaller rooms Q-Q'-C. Room Q, however, does

appear to be a separate construction from 10B, as indicated in plan. To the west the three smaller rooms are bounded by a thoroughfare, specifically the large triangular area noted for its so-called disposal units, and street middens.

The remaining walls defined by these three boundaries seem to form a typical porticoed *majlis al-ḥīrī* (Q-Q'-C'-R), which makes the omission of this area from the reports and subsequent architectural analysis somewhat anomalous. Admittedly, the rooms are somewhat lacking in symmetry, and a further anomaly is provided by the fact that what would normally be the courtyard, S, appears as if only slightly deeper than the portico. This can be explained as a simple architectural anomaly, perhaps necessity by architectural circumstances further east that are unclear. More likely, however, S's eastern wall is actually of a different phase. The wall is largely hypothesized as shown ion plan, and along a small section in the middle survives as traces. A similar situation, where an earlier trace on the same alignment is visible in the courtyard, is noted in House 13, above. It is perhaps the seeming lack of courtyard that meant this was excluded from Ostrasz's study.

The eastern boundary cannot be speculated beyond S's supposed eastern wall, due to the scarcity of remains in this direction. It is possible that the house extended all the way to N in XVI-4/5, which had double walling separating it from M and R. This seems all the more likely considering the alignment of wall traces from S, which can be extrapolated along the line of the two pits Y and N accessible from a hypothesized impasse here. Still, without being able to discern the architecture here, the limit is not extended this far.

One or both of the aforementioned pits would provide a necessary sewage system that could be emptied from outside. It is quite possible that pits S' and C' were either for fresh water or were disused when the house was built (these are not part of the analysis, regardless).

HOUSE MH-14

This unit represents the most unusual plan, complicated by later intrusions, but one that is well defined by double-walling as separate from surrounding units. The northern boundary is provided by the thoroughfare. The western boundary appears as a curving wall, which is built parallel to the early walls that define the triangular yard (that possibly associated with houses MH-4 and MH-5), discussed above. Further double walling is apparent, in this case more extensively, to the east, bordering House 11.

The area bordering the thoroughfare includes an octagonal *fisqiya*, most likely making this extensive area a courtyard. However, numerous later squatter walls are inserted here, as well as intrusive glass kilns (E, J and H-C') dated to the post-abandonment phase. To the northeast, traces of an earlier layout are also apparent. The *fisqiya* is dated to the Fāṭimid period due to the herringbone paving at its base, but it was also reduced in size in a later period.

As this is likely a courtyard, the rooms south of here are considered a "grimly constricted bayt" by Scanlon (Scanlon 1981b, 62). As there is no tripartite formation I am unwilling to categorise R as a majlis, but H' may well function as a portico.

The most puzzling aspect of this unit is its potential relationship with the "glass factory" to the north. Due to the change in alignment and the lack of common sanitation Scanlon suggested they were separate. Yet at the same time he notes that this house has no sanitation, and for that reason may have been united with the "glass factory" (Scanlon 1981b, 62). This seems to ignore pit B-D, though it is true that this has no channels, and B itself makes an unlikely point for a latrine. A common wall, running parallel to the boundaries of House 11 is proposed in plan, but it is based on very minimal fragments of walls that may not be a single construction. It is possible that both units simply had parallel walling with House 11, without the two being one building.

The lack of any continuous masonry between the two areas, and no plausible means to reconcile their two differing alignments into a coherent plan, means that I have not included the glass factory as part of this unit. The building is not included in itself as a separate house as it may, as the name suggests, be an industrial complex. While many glass kilns throughout this area were proven to be post-abandonment installations placed among the ruins of houses, the kiln in the glass factory was interpreted as integral to the architecture. However, it was excavated in 1965, when the chronology of the site was poorly understood. It has already been mentioned extensively that the industrial installations in Fusṭāṭ-A were once considered contemporary with the houses, but were later all revised to be intrusive later features. This revision led to more careful exploration of subsequent kilns as they were encountered, but the "glass factory" was never revisited to establish its overall sequence of construction. One should be wary about re-dating all kilns in the vicinity of the clearly intrusive ones in this area as later additions, simply through spatial association. The kiln or oven (W) in House 11 was still considered an early feature when the unit was being interpreted as part of the 1968 report (published in 1976, three years after the re-dating of kilns in Fusṭāṭ-A), as has

been discussed. Moreover, kilns buried beneath earlier floors have indicated 8[th-9th] century industry, as in the courtyard of House 11. It is therefore possible that the "glass factory" is just that, its plan certainly looks like no house as yet encountered.

Returning to MH-14, the unique form and stratigraphy of pit B-D indicated it was hewn in the late 7th early 8th century with a diameter of 1.6m, cleaned to 1.6m from the bottom and then small boulder chips in a thick mortar for 2.2m then widened. The upper fill had glass weights of al-Ḥākim and the Abbāsid Caliph al-Muqtadir (908-32). It seems likely therefore that a Fāṭimid building, as indicated by the *fisqiya*'s form, was built around remnants of earlier occupation, as was abundantly evident in the area to the south-west (see MH-5).

GLOSSARY

aghānī	Gallery or arcade.
Ahl al-Raya	The central quarter of Fusṭāṭ, around the Mosque of ʿAmr, originally endowed to founding general ʿAmr ibn al ʿAsʾs retainers and notables (literally: "people of the banner").
ʿalāqa	Metal hanger.
ʿAmal Asfal	Low-lying area of Fusṭāṭ near the Nile bank.
ʿAmal Fawq	Upland area of Fusṭāṭ towards the Muqaṭṭam Hills.
Amnis Traianus	The Roman canal, constructed under Trajan, connecting the Nile with the Red Sea, connecting to the former at Babylon (later the site of Fusṭāṭ).
ʿaraqa	The piece of wood that crosses the *majlis/ḥīrī* door.
ʿashāʾ	Evening meal.
al-ʿAskar	Abbāsid city or district established north of Fusṭāṭ, later considered part of the city.
asṭiḥa	Roof terrace.
ʿataba	Threshold. Used to describe the carpet, placed at entrance to a room.
Babylon	Roman fortress around which Fusṭāṭ was created, now referred to as the core of "Old Cairo".
bād-hanj	Wind-catcher. A vertical shaft to draw air into the house.
barrāda	A jar used to cool water.
bawwab	Gatekeeper or guard.
bayt (I)	Modern Arabic for home or house.
bayt (II)	Used in archaeological/architectural scholarship to refer to specific repetitive suites of three (Iraqi-Persian) and five (Syrian)

	rooms within palatial architecture, thought to be residences or apartments.
bayt (III)	A generic room or alcove (in the Geniza).
bayt (IV)	The household or family (in the Geniza).
bayt al-māʾ	Literally "water room", bathroom or toilet.
Bilād al-Shām	Greater Syria (the Levant).
dāʿī	Missionary appointed by the Fāṭimids to spread the Ismāʿīlī faith and cause.
dakka	Earthen floor.
dār (I)	Typically translated as "house" (literally "enclosure"), a domestic compound potentially containing numerous occupational units.
dār (II)	An endowment of land to an individual (cf. *khiṭṭa*).
dār al-ʿimara	Governor's palace.
darb	Major street.
Dayr al-Banāt	The Convent of St George. A convent in Bablylon (Old Cairo/Fusṭāṭ), built around a Mamlūk *qāʿa,* excavations under which revealed a Fāṭimid structure of a different plan.
dhimmi	Non-Muslims under protection of a Muslim state.
dihlīz	Entrance hall or corridor, in Geniza documents.
dūr-qāʿa	The central space of the *qāʿa* in Cairene houses from the Mamlūk period onwards; a small but lofty space, sometimes with a central fountain, and roofed with a wooden lantern or dome.
fatwa	Legal opinion.
firāsh	Mattress for reclining or sleeping.
fisqiya	Fountain or pool.
gabal	Bedrock, in Fusṭāṭ and al-Qāhira an Eocene limestone.

ghadāʾ	Morning meal.
ghulām	Male slave.
ḥammām	Bathhouse.
al-Ḥamra	Area of Fusṭāṭ along the Nile bank north of the Mosque of ʿAmr and Babylon.
haremlik	Women's apartment in Ottoman architecture.
harim	Women's apartment.
hawsh	An open courtyard within Cairene houses of the Mamlūk period onwards.
Hijāz	The western region of the Arabian Peninsula bordering the Red Sea, containing the Islamic holy cities of Mecca and Medina, now part of Saudi Arabia.
ḥisba	A genre of literature setting out the obligations of the *muḥtasib.*
ibrīq	Ewer.
imam	In Shīʿa doctrine, the *imam* is a descendent of the Prophet Muḥammad imbued with spiritual authority and divine wisdom, a true successor to the Prophet as leader of the *umma* (Muslim community).
irdabb	c.70kg.
ʿiṣma	Divine wisdom and authority.
Istabl ʿAntar	19th-century fort in modern Cairo, situated in what was the south of medieval Fusṭāṭ, after which the Fusṭāṭ excavation site of Gayraud is named.
Ismāʿīlī	An adherent of Ismāʿīlism, a branch of Shīʿa Islam (which holds that the true successors to the Prophet Muḥammad are his descendants through his cousin Alī and his daughter Fāṭima).
īwān	In architectural scholarship, used to indicate a range of open-fronted halls or porticoes. In Cairo, it principally refers to the

	open-fronted hall facing the *dūr-qāʿa*, functioning as the reception room of the Mamlūk and Ottoman house.
jafna	Trough for making dough
jāmiʿ	Congregational/Cathedral/Friday Mosque.
jizya	Poll tax for non-Muslims.
kabaka	Metal drying or storage rack.
kānūn	Brazier or food warmer.
Karaites	A Jewish sect or tradition characterised by a rejection of the Talmud as a legal authority.
kaylaja	Small vessel to take measures of wheat.
kharāb	A ruin or unoccupied property.
khalij amir al-muʾmunin	"The Canal of the Commander of the Faithful", the name given to the Red Sea canal or Amnis Traianus in the Islamic period.
khawāṣṣ	Attendant.
khiṭṭa	An endowment of land to a tribe, typically given as part of the founding of a *miṣr.*
khizāna	Translated by Goitein as "closet", a store/chamber, possibly also a cupboard.
khūristān	Persian loanword in Arabic used to mean a shelf in a niche or recess.
khuṣṣ	A kind of light structure forming an apartment on the roof, in Geniza documents.
kumm	The room found either side of the majlis (literally "sleeve").
kummayn	Dual form of *kumm* (i.e. two *kumm*s).
kursī	Stool or stand.
līwān	see *īwān.*

madīna	City.
mafrash	Drying space (possibly for fruits rather than laundry).
maghsal	Wash basin.
Mahra	A district of Fusṭāṭ east of the Mosque of ʿAmr.
māʾida	Large tray functioning as a table.
majāz	Passage.
majlis	The central, open-fronted room of a tripartite arrangement found within a *qāʿa* (II), flanked by kummayn and often fronted by a *riwāq*. Often by extension used to refer to the wider arrangement.
majlis (II)	An expensive mattress or sofa found in 11th century Geniza documents.
majlis al-ḥīrī	The full name for the *majlis*, and by extension its kummayn and riwāq, referring to its supposed origin in al-Ḥīra, Iraq.
makhzan	Storeroom or compartment.
manẓar	Belvedere.
manzil	Dwelling.
al-Maqs	A Nile-bank port founded north of Fusṭāṭ, west of al-Qāhira, in the Fāṭimid era.
masṭaba	Bench.
martaba	A sofa-mattress.
mashrabiya	Window screen of turned wood.
maṣnaʿa	Cistern.
maṭbakh	Kitchen.
maṭmūra	Buried chamber or compartment.
mawqida	Possibly a stove.
mirḥād	"Washroom", bathroom or toilet.

Glossary

miqlā	Cooking pan.
miṣr (I)	An early Islamic urban foundation in which troops were settled, a "garrison town". See also: *khiṭṭa*.
Miṣr (II)	Egypt.
Miṣr (III)	The common name for the city of Fusṭāṭ, including its extensions al-ʿAskar and al-Qaṭāʾiʾ.
Miṣr al-Qadīma	Translated as "Old Cairo", the modern name for the area of Fusṭāṭ and particularly Babylon.
muḥtasib	Market inspector, an urban official with wide-ranging commercial and civic authority.
Muqaṭṭam	Range of hills east of al-Qahira and Fusṭāṭ.
muṣalla	Prayer carpet, or side carpet.
mustaḥamm	Literally "bathroom".
mustakhdam	Possibly a pantry.
mustaraqa	Mezzanine
Nawruz	Coptic New Year celebration
purda	Segregation of women within the household (Persian)
qāʿa (I)	A central courtyard
qāʿa (II)	An ensemble of rooms clustered around a central courtyard.
qāʿa (III)	The ground floor of a house, including
qāʿa ḥurmiyya	Translated as "women's *qāʿa*" by Goitein, though alternatively may have been another name for the *dur-qāʿa.*
qāḍī	Muslim judge
al-Qāhira	Fāṭimid walled city founded north of Fusṭāṭ, al-ʿAskar and al-Qaṭāʾiʿ. Cairo.

al-Qaṭāʾīʿ	Ṭūlūnid urban foundation north of Fusṭāṭ and al-ʿAskar, later considered part of the same city.
qanāt	Underground water channel. Often used to refer to subterranean aqueducts of Iran, used in the Geniza seemingly to mean rock-cut channel (or pipe, as Goitein and Gil have translated)
qaṣār	Copper cooking pot
qaṣr	(I) Palace or fortress
	(II) A part of the home rented out as an occupational unit in Geniza documents, possibly indicating an apartment on the ground floor separated (physically or in terms of access) from the wider compound.
Qaṣr al-Shamʿ	"The fortress of the candles", the Arabic name for the fortress of Babylon.
qibla	The direction of prayer towards Mecca
qidr	Cauldron
qodesh	Jewish pious/charitable foundation
quṣūr	Plural of *qaṣr* (palace/fortress). The term "the Umayyad *quṣūr*" is used to refer to a series of Umayyad-period fortified structures appearing Greater Syria in somewhat marginal landscape settings, also known as "desert castles". The precise purpose of *quṣūr* and the validity of the overall category are unclear, with palatial, recreational, commercial, military and agricultural elements evident.
rabʿ	Mamlūk-era apartment building.
Rāshidūn	The "rightly guided" caliphs, the first four caliphs to reign after the death of the Prophet Muḥammad.
al-Rawda	An island in the Nile opposite Fusṭāṭ/Babylon.
Riwāq (I)	Portico or arcade.
Riwāq (II)	A type of upper apartment .

Glossary

sabakh	Nitrogen-rich fertiliser.
ṣadr	(I) Chest, front, or middle.
	(II) The central room of the *majlis al-ḥīrī.*
	(III) The back wall of a room, its most prestigious wall.
	(IV) The middle piece (in the case of carpets and curtains).
ṣāha	Open space or parcel of land.
Saljuk	A Turkic dynasty ruling over central Asia, Iran, Turkey and the Levant in the 11th-12th century.
sāqīya	A water-lifting device, in which jars attached to a wheel powered by draft animals.
serdāb	A subterranean room used to keep cool in summer.
selamlik	Men's apartment in Ottoman architecture.
shaqqaʾin	Roasters, after whom a market was named in Fāṭimid al-Qāhira.
sifl	Copper cooking pot.
ṣitr	Curtain.
al-Sharaf	Plateau in the southern reaches of Fusṭāṭ, location of Istabl ʿAntar excavations.
ṣuffa (I)	A covered bench or seating area, seemingly equivalent to the alcoves found in the centre of *qāʿa* (I) walls in the archaeological record.
ṣuffa (II)	A stone shelf unit with arched structure, placed within the *dūr-qāʿa.*
sukn	Residence.
ṭabaqa (I)	Upper apartment
ṭabaqa (II)	Storey.
ṭājin	Cooking pan.

tanjara	Vat.
ṭannūr	A cylindrical, open-topped oven made of ceramic or mud plaster.
ṭarma	A kind of light structure forming an apartment on the roof, in Geniza documents.
ṭarrāha	A mattress, translated by Goitein as "daybed".
ṭāst	Small basin.
ṭīn	Clay.
ṭunfusa	Carpet.
turāb	Earth or dust, also used to indicate refuse in the Geniza.
Ukhaiḍir	An early ʿAbbāsid palace in Iraq.
ushnān	ashes of alkaloid plants used to wash hands.
Wadi Tumilat	50km long wadi to the east of the Nile Delta, beginning near the modern town of Ismailia and running to the east.
waqf	Muslim pious/charitable foundation.
wāṭan	Homeland or home city.
wayba	One sixth of an *irdabb*, c.11.6kg.
ziyada	Open area surrounding a mosque.
ziyāra	Social visits.
zīr	Large jar, often for storing water.

Glossary

REFERENCES CITED

MEDIEVAL SOURCES

AL-BALĀDHURĪ, AḤMAD IBN YAḤYĀ (1956-57) *Kitāb Futūḥ al-Buldān*, edited by Ṣalāḥ al-Dīn al-Munajjid. Cairo: Maktabat al-Nahḍah al-Misriyah.

IBN ʿABD AL-ḤAKAM, TAʾLĪF ABĪ AL-QĀSIM ʿABD AL-RAḤMĀN IBN ʿABD ALLĀ (1922) *Futūḥ Miṣr wa-l-Maghrib,* edited by C. C. Torrey. Yale oriental series. New Haven: Yale University Press.

IBN DUQMĀQ, IBRĀHĪM IBN MUḤAMMAD (1893) *Kitāb al-intiṣār li-wāsiṭat ʿiqd al-amṣār (Description de l'Égypte, par Ibn Doukmak, publiée d'après le manuscrit autographe conservé à la Bibliothèque Khédiviale),* edited by K. Vollers. Le Caire: Impr. Nationale

IBN ḤAWQAL, MUḤAMMAD ABŪ AL-QĀSIM (1964) *Configuration de la Terre: Kitāb ṣurat al-arḍ,* translated by G Wiet & Johannes Hendrik Kramers. Paris: G.-P. Maisonneuve

IBN RIḌWĀN, ABŪʾL-ḤASAN ʿALĪ (1984) Medieval Islamic medicine*: Ibn Riḍwān's treatise "On the prevention of bodily ills in Egypt",* translated with an introduction by Michael W. Dols. Berkley: University of California Press.

JOHN, BISHOP OF NIKIU (1916) The Chronicle of John, Bishop of Nikiu, translated from Zotenburg's Ethiopic Text by R. H. Charles London: William & Norgate

KHUSRAW, NĀṢIR-I (1986) *Nāser-e Khosraw's Book of Travels (Safarnāma),* translated from Persian by W. M. Thackston, Jr. New York: Bibliotheca Persica.

MAQRĪZĪ, AḤMAD IBN ʿALĪ (1854) *Mawāʿiz waʾl-iʾtibar bi dhikr al-khiṭaṭ wʾal-athār*. 2 vols. Bulāq: Dār al-Ṭibāʿah al-Miṣrīyah.

AL-MASʿŪDĪ, ABU AL-ḤASAN ʿALĪ IBN AL-ḤUSAYN IBN ʿALĪ (1966). *Murūj al-dhahab wa maʿādin al-jawhar*. Beirut: Dār al-Andalus.

AL-MUQADDASI, MUḤAMMAD IBN AḤMAD (1994) *The Best Divisions for Knowledge of the Regions (Ahsan al-Taqasim fi Maʿrifat al-Aqalim)*, translated by Basil Anthony Collins and reviewed by Muhammad Hamid al-Tai. Reading: Garnet.

MODERN SCHOLARSHIP

'Abd al-Rahman, Ibrahim, and 'Abd al-Rahman 'Abd al-Tawwab. 2002. "Preface." In *Fustat Finds: Beads, Coins, Medical Instruments and Other Artefacts from the Awad Collection*, edited by Jere L. Bacharach, VII–XI. Cairo: American University in Cairo Press.

Abdel Rahman, Ibrahim. 1998. "Excavations at Fustat, Season 88." In *Colloque International D'archéologie Islamique: IFAO, Le Caire, 3-7 Février 1993*, 61–64. Le Caire: Institut Français d'Archéologie Orientale.

Ahsan, M. M. 1979. *Social Life Under the Abbasids*. London and New York: Librarie du Liban.

Amin, Muḥammad, and Laila Ibrahim. 1990. *Al-Muṣṭalaḥāt Al-Muʿmāriyya Fiʾl-Wathāʾik Al-Mamlūkiyya*. Cairo: American University in Cairo Press.

Ashtor, Eliyahu. 1976. *A Social and Economic History of the Near East in the Middle Ages*. London: Collins.

Bacharach, Jere L. 2002. *Fustat Finds : Beads, Coins, Medical Instruments, Textiles, and Other Artifacts from the Awad Collection*. Cairo: American University in Cairo Press.

Bagneid, Amr. 2006. "The Creation of a Courtyard Microclimate Thermal Model for the Analysis of Courtyard Houses." Unpublished PhD Thesis, Texas A&M University.

Bahgat, Aly. 1923. "Les Fouilles d'Al Foustat. Extrait de La Revue." *Syria* 4 (1): 59–65.

Bahgat, Aly, and Albert Gabriel. 1921. *Fouilles D'al Foustât : Publiées Les Auspices Du Comité de Conservation Des Monuments de L'art Arabe*. Paris: E. de Boccard.

Behrens-Abouseif, Doris. 2002. "Waḳf: In Egypt." *Encyclopaedia of Islam, Vol . 11*. Brill.

Bell, Gertrude Lowthian. 1914. *Palace and Mosque at Ukhaidir : A Study in Early Mohammadan Architecture*. Oxford: Clarendon Press.

Bianca, Stefano. 2000. *Urban Form in the Arab World : Past and Present*. Zürich: VDF.

Bianquis, Thierry. 1998. "Autonomous Egypt from Ibn Ṭūlūn to Kafūr, 868-969." In *The Cambridge History of Egypt, Volume 1, Islamic Egypt, 640-1517*, edited by Carl Petry, 86–119. Cambridge: Cambridge University Press.

Bloom, Jonathan M. 2008. "The 'Fatimid' Doors of the Fakahani Mosque in Cairo." *Muqarnas* XXV: 231–242.

Bongianino, Umberto. 2014. "«And Their Figures and Colours Should Be Different» Incised and Carved Glazed Wares from Fustat (9th-12th Century) in the Martin Collection (International Museum of Ceramics in Faenza) Part I." *Faenza* 2: 28–48.

Booth, Philip. 2013. "The Muslim Conquest of Egypt Reconsidered." *Travaux et Mémoires* 17: 639–70.

Bourdieu, Pierre. 1977. *Outline of a Theory of Practice.* Translated by Richard Nice. Cambridge: Cambridge University Press.

———. 1990. *The Logic of Practice.* Translated by Richard Nice. Stanford, California: Stanford University Press.

Briggs, Martin S. 1921. "The Saracenic House I." *The Burlington Magazine* 38 (218): 228-238.

Brockelmann, C. 1991. "Maḳāma." *Encyclopaedia of Islam, Vol . VI*. Brill.

Butler, Alfred Joshua. 1970. *The Ancient Coptic Churches of Egypt*. Oxford: Clarendon Press.

Caetani, Leone. *Annali dell'Islām*. Milano: U. Hoepli.

Casanova, Paul. 1913. *Essai de Reconstitution Topographique de La Ville D'al Fousṭâṭ Ou Miṣr*. Le Caire : Institut Français d'Archéologie Orientale,.

Chomsky, N. 1956. "Three Models for the Description of Language." *IRE Trans. on Information Theory* 2 (3): 113–124.

Contadini, Anna. 1998. *Fatimid Art at the Victoria and Albert Museum*. London: Victoria and Albert Museum.

Cooper, John. 2014. *The Medieval Nile: Route, Navigation and Landscape in Islamic Egypt*. Cairo; New York: American University in Cairo Press.

Cortese, Delia. 2015. "The Nile: Its Role in the Fortunes and Misfortunes of the Fatimid Dynasty During Its Rule of Egypt (969–1171)." *Historical Compass* 13 (1): 20–29.

Cortese, Delia, and Simonetta Calderini. 2006. *Women and the Fatimids in the World of Islam*. Edinburgh: Edinburgh University Press.

Creswell, K. A. C. 1953. "Problems in Islamic Architecture." *The Art Bulletin* 35 (1): 1–7.

———. 1958. *A Short Account of Early Muslim Architecture*. Beirut: Librarie du Liban.

———. 1952. *The Muslim Architecture of Egypt. Vol. 1 Ikhshīds and Fāṭimids, A.D. 939-1171.* Oxford: Clarendon Press.

———. 1959. *The Muslim Architecture of Egypt. Vol. 2 Ayyūbids and Early Baḥrite Mamlūks, A.D. 1171-1326*. Oxford: Clarendon Press.

———. 1979a. *Early Muslim Architecture, Vol. 2: Early Abbasids, Umayyads of Cordova, Aghlabids, Tulunids, and Samanids, A.D. 751-905.* New York: Hacker Art Books.

———. 1979b. *Early Muslim Architecture. Vol.1 Umayyads, A.D.622-750*. 2nd ed. New York: Hacker Art Books.

Cutting, Marion. 2003. "The Use of Spatial Analysis to Study Prehistoric Settlement Architecture." *Oxford Journal of Archaeology* 22 (1): 1–21.

Denoix, Sylvie. 1992. *Décrire Le Caire, Fustāṭ-Miṣr D'après Ibn Duqmāq et Maqrīzī : L'histoire D'une Partie de La Ville Du Caire D'après Deux Historiens Égyptiens Des XIVe-XVe Siècles.* Caire: Institut Français d'Archéologie orientale du Caire.

Ennahid, Said. 2002. "Access Regulation in Islamic Urbanism: The Case of Medieval Fès." *The Journal of North African Studies* 7 (3): 119–134.

Ettinghausen, Richard. 1977. *Arab Painting*. Geneva: Skira.

Fathy, Hassan. 1972. *The Arab House in the Urban Setting*. London: Longman.

———. 1973. *Architecture for the Poor: An Experiment in Rural Egypt*. Chicago: University of Chicago Press.

———. 1986. *Natural Energy and Vernacular Architecture: Principles and Examples with Reference to Hot Arid Climates*. United Nations University.

Fethi, Ihsan, and Susan Roaf. 1986. "The Traditional House in Baghdad - Some Socio-Climatic Considerations." In *The Arab House: Proceedings of the Colloquium Held in the University of Newcastle upon Tyne, 15*, edited by C. Hyland and Ahmed Al-Shahi, 41–53. Centre for Architectural Research and Development Overseas.

Fitzner, B., K. Heinrichs, and D. La Bouchardiere. 2002. "Limestone Weathering of Historical Monuments in Cairo, Egypt." *Geological Society, London, Special Publications* 205 (1): 217–239. doi:10.1144/GSL.SP.2002.205.01.17.

Flemming, U. 1987. "More than the Sum of Parts: The Grammar of Queen Anne Houses." *Environment and Planning B* 14: 323–350.

Foruzanmehr, Ahmadreza. 2014. "Thermal Comfort and Practicality: Separate Winter and Summer Rooms in Iranian Traditional Houses." *Architectural Science Review* (July 25): 1–11.

Fuʾād Sayyid, Ayman. 1998. *La Capitale de l'Égypte Jusqu'à L'époque Fatimide, Al-Qāhira et Al-Fusṭāṭ : Essai de Reconstitution Topographique*. Beirut: Franz Steiner Verlag,.

Gascoigne, Alison L. 2013. "Cooking Pots and Choices in the Medieval Middle East." In *Pottery and Social Dynamics in the Mediterranean and beyond in Medieval and Post-Medieval Times. BAR International Series 2257*, edited by John Bintliff and Marta Caroscio. Oxford: Archaeopress.

Gayraud, Roland-Pierre. 1986. "Istabl `Antar (Fostat) 1985. Rapport de Fouilles." *Annales Islamologiques* 22: 1–26.

———. 1987. "Istabl `Antar (Fostat) 1986. Rapport de Fouilles." *Annales Islamologiques* 23: 55–71.

———. 1991. "Istabl `Antar (Fostat) 1987-1989. Rapport de Fouilles." *Annales Islamologiques* 25: 57–87.

———. 1993. "Istabl `Antar (Fostat) 1990. Rapport de Fouilles." *Annales Islamologiques* 27: 225–232.

———. 1994. "Istabl `Antar (Fostat) 1992. Rapport de Fouilles." *Annales Islamologiques* 28: 1–27.

———. 1995. "Istabl `Antar (Fostat) 1994. Rapport de Fouilles." *Annales Islamologiques* 29: 1–24.

———. 1998. "Fostat : Évolution D'une Capitale Arabe Du VIIe Au XIIe Siècle D'après Les Fouilles d'Istabl `Antar." In *Colloque International D'archéologie Islamique: IFAO, Le Caire, 3-7 Février 1993*, edited by Roland-Pierre Gayraud, 435–460. Le Caire: Institut Français d'Archéologie Orientale.

Gayraud, Roland-Pierre, and Ayman Fuʾād Sayyed. 2000. "Fustât-Le Caire À L'époque Fatimide." In *Grandes Villes Méditerranéennes Du Monde Musulman Médiéval*, 135–156. Roma: École française de Rome.

Gayraud, Roland-Pierre, and Jean-Christophe Tréglia. 2014. "Amphores, Céramiques Culinaires et Céramiques Communes Omeyyades D'un Niveau D'incendie À Fustat-Istabl 'Antar (Le Caire, Égypte)." In *LRCW4: Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean, Archaeology and Archaeometry. The Mediterranean : A Market without Frontiers, BAR International Series 2616*, edited by Natalia Poulou-Papadimitriou, Eleni Nodarou, and V Kilikoglou, 365–375. Oxford: Archaeopress.

Gazzard, Roy. 1986. "The Arab House; Its Form and Spatial Distribution." In *The Arab House : Proceedings of the Colloquium Held in the University of Newcastle upon Tyne, 15*, edited by Al-Shahi Ahmed and A.D.C. Hyland, 15–25. Newcastle-upon-Tyne: Centre for Architectural Research and Development Overseas.

Giddens, Anthony. 1984. *The Constitution of Society : Introduction of the Theory of Structuration*. Berkeley: University of California Press,.

Gil, Moshe. 1976. *Documents of the Jewish Pious Foundations from the Cairo Geniza*. Leiden: Brill.

Glassie, Henry. 1975. *Folk Housing in Middle Virginia*. Knoxville, Tennessee, USA: The University of Tennesee Press.

Goitein, S. D. 1967. *A Mediterranean Society : The Jewish Communities of the Arab World as Portrayed in the Documents of the Cairo Geniza. Vol. 1 Economic Foundations*. Berkeley: University of California Press.

———. 1971. *A Mediterranean Society : The Jewish Communities of the Arab World as Portrayed in the Documents of the Cairo Geniza. Vol. 2 The Community*. Berkeley: University of California Press.

———. 1978a. *A Mediterranean Society : The Jewish Communities of the Arab World as Portrayed in the Documents of the Cairo Geniza. Vol. 3 The Family*. Berkeley: University of California Press.

———. 1978b. "Urban Housing in Fatimid and Ayyubid Times (As Illustrated by the Cairo Geniza Documents)." *Studia Islamica* 47: 5–23.

———. 1983. *A Mediterranean Society : The Jewish Communities of the Arab World as Portrayed in the Documents of the Cairo Geniza. Vol. 4 Daily Life*. Berkeley: University of California Press.

———. 1988. *A Mediterranean Society : The Jewish Communities of the Arab World as Portrayed in the Documents of the Cairo Geniza. Vol. 5 The Individual*. Berkeley: University of California Press.

Goitein, S. D., and Henri Bresc. 1970. "Un Inventaire Dotal de Juifs Siciliens (1479)." *Mélanges D'archéologie et D'histoire* 82 (2): 903–17.

Goitein, S. D., and Jacob Lassner. 1999. *A Mediterranean Society : An Abridgement in One Volume*. Berkeley: University of California Press.

Goitein, S.D., and Mordechai Akiva. Friedman. 2011. *India Traders of the Middle Ages : Documents from the Cairo Genizah : India Book*. Leiden: Brill.

Gordon, Matthew S. 2015. "Aḥmad Ibn Ṭūlūn and the Politics of Deference." In *Islamic Cultures, Islamic Contexts: Essays in Honor of Professor Patricia Crone*,

edited by Patricia Crone, Asad Q Ahmed, Robert Hoyland, Judith Herrin, and Karen Bauer, 229–256. Leiden; Boston: Brill.

Grossman, Peter, M. Jones, C. Le Quesne, H.-C. Noeske, and P. Sheehan. 1998. "Zweiter Bericht Über Die Britisch-Deutschen Ausgrabungen in Der Römischen Festung von Babylon, Alt-Kairo." *Archäologischer Anzeiger* 1: 173–207.

Grossman, Peter, C. Le Quesne, and Peter Sheehan. 1994. "Zur Römischen Festung von Babylon-Alt-Kairo." *Archäologischer Anzeiger* (2): 271–87.

Grube, B Y Ernst J. 1963. "Three Miniatures from Fusṭāṭ in the Metropolitan Museum of Art in New York." *Ars Orientalis* 5: 89–95.

Guthrie, Shirley. 1995. *Arab Social Life in the Middle Ages: An Illustrated Study*. London: Saqi.

Hanna, Nelly. 1990. "La Cuisine Dans La Maison Du Caire." In *L'habitat Traditionnel Dans Les Pays Musulmans Autour de La Méditerranée. Recontre d'Aix-En-Provence 1982. 2 - L'histoire et Le Milieu*, 405–9. Le Caire: Institut Français d'Archéologie Orientale.

Harrison, Matthew, Graeme Earl, and Simon Keay. 2013. "Grammar Modelling and the Visualisation of an Uncertain Past : The Case of Building V at Portus." In *Archaeology in the Digital Era : Papers from the 40th Annual Conference of Computer Applications and Quantitative Methods in Archaeology (CAA), Southampton, 26-29 March 2012*, edited by Graeme Earl, Tim Sly, Angeliki Chrysanthi, Patricia Murrieta-Flores, Constantinos Papadopoulos, Iza Romanowska, and David Wheatley. Amsterdam: Amsterdam University Press. http://dare.uva.nl/aup/en/record/500958.

El-Hawary, Hassan Mohamed Eff. 1933. "Maison de L'époque Tulunid." *Bulletin de l'Institut D'Egypte* 15: 79–97.

Al-Hemaidi, Waleed Kassab. 2001. "The Metamorphosis of the Urban Fabric in an Arab-Muslim City: Riyadh, Saudi Arabia." *Journal of Housing and the Built Environment* 16: 179–201.

Herz, Max. 1917. "Babylon and Kasr Es-Sam'." *Der Islam* 8: 1–4.

Herzfeld, Ernst Emil. 1907. *Samarra; Aufnahmen Und Untersuchungen Zur Islamischen Archaeologie.* Berlin: Behrend & co.

Herzfeld, Ernst Emil. 1912. *Erster Vorläufiger Bericht Über Die Ausgrabungen von Samarra, Herausg. von Der General-Verwaltung Der Königlichen Museen.* Berl.

Hill, J. N. 1968. "Broken K Pueblo: Patterns of Form and Function." In *New Perspectives in Archaeology*, edited by S. R. Binford and L. R. Binford, 103–42. Chicago: Aldine.

Hillier, Bill, and Julienne Hanson. 1988. *The Social Logic of Space*. Cambridge: Cambridge University Press.

Hingley, Richard. 1990. "Domestic Organisation and Gender Relations in Iron Age and Romano-British Households." In *The Social Archaeology of Houses*, edited by Ross Samson, 125–148. Edinburgh: Edinburgh University Press.

Hodder, Ian. 1982. *Symbols in Action*. Cambridge: Cambridge University Press.

Ibrahim, Laila. 1984. "Residential Architecture in Mamluk Cairo." *Muqarnas* 2: 47–59.

———. 1988. "A Tulunid Hammam in Old Cairo." *Islamic Archaeological Studies* 3: 33–78.

Irwin, Robert. 1995. *The Arabian Nights: A Companion*. 2nd ed. London: Penguin.

Jefferson, Rebecca J. W., Erica C. D. Hunter, Geoffrey Khan, and Shulamit Reif. 2004. *Published Material from the Cambridge Genizah Collections: A Bibliogrpahy 1980-1997*. Cambridge: Cambridge University Press.

Johns, Jeremy. 1999. "The 'House of the Prophet' and the Concept of the Mosque." In *Bayt Al-Maqdis: Jerusalem and Early Islam*, edited by Jeremy Johns, 59–112. Oxford: Oxford University Press.

Johnson, Matthew. 1993. *Housing Culture : Traditional Architecture in an English Landscape*. Washington, D.C.: Smithsonian Institution Press.

Jomard, E. F., ed. 1823. *Description de l'Égypte : Ou Recueil Des Observations et Des Recherches Qui Ont Été Faites En Égypte Pendant L'expédition de l'Armée Française: État Moderne I.* Paris: Imprimerie de C. L. F. Panckoucke.

Jorgensen, J. 1975. "A Room Use Analysis of Table Rock Pueblo, Arizona." *Journal of Anthropological Research* 3: 149–61.

Kaegi, Walter E. 1998. "Egypt on the Eve of the Muslim Conquest." In *The Cambridge History of Egypt, Volume 1, Islamic Egypt, 640-1517*, edited by Carl F. Petry, 34–61. Cambridge: Cambridge University Press.

Kawatoko, Matsuo. 2001a. "On the Coins Found at Al-Fusṭāṭ." *Cultural Change in the Arab World, Senri Ethnological Studies* 55: 55–71.

———. 2001b. "One Unique Neck of a Double-Filtered Water Jug." *Dirāsāt Wa Buḥūth Fi Al-Āthār Wa Al Ḥaḍārāt Al-Islāmīya, Al-Qāhira*: 137–150.

———. 2005. "Multi-Disciplinary Approaches to the Islamic Period in Egypt and the Red Sea Coast" 79 (August 2004): 844–857.

Kennedy, Hugh. 2002. "Military Pay and the Economy of the Early Islamic State." *Historical Research* 75 (188): 155–169.

———. 2010. "How to Found an Islamic City." In *Cities, Texts and Social Networks 400-1500*, edited by C. Goodson and Ayala Lester, 45–63. Aldershot: Ashgate.

Kent, Susan, ed. 1990. *Domestic Architecture and the Use of Space: An Interdisciplinary Cross-Cultural Study*. Cambridge: Cambridge University Press.

Kubiak, Wladyslaw B. 1976. "The Burning of Misr Al-Fustat: A Reconsideration of Historical Evidence." *Africana Bulletin* 25: 51–64.

———. 1979. "The Circulation Tracks of Al-Fustat: One Aspect of the Physiognomy of a Mediaeval Arab City." *Africana Bulletin* 28: 7–28.

———. 1987. *Al-Fustat : Its Foundation and Early Development*. Cairo: The American University in Cairo Press.

Kubiak, Wladyslaw B, and George T Scanlon. 1989. *Fusṭāṭ Expedition Final Report. v. 2 Fusṭāṭ-C*. Winona Lake, Ind.: Eisenbrauns.

Kubiak, Wladyslaw B, and George T. Scanlon. 1973. "Re-Dating Bahgat's Houses and the Aqueduct." *Art and Archaeology Research Papers* 4: 138–148.

La Saussure, Ferdinand. 1949. *Cours de Linguistique Générale, Publié Par Charles Bally et Albert Sechehaye ; Avec La Collaboration de Albert Riedlinger*. Edited by Charles Bally and Albert Sechehaye. Paris: Payot.

Lambert, Phyllis. 1994. *Fortifications and the Synagogue : The Fortress of Babylon and the Ben Ezra Synagogue, Cairo*. London: Weidenfeld and Nicolson.

LaMotta, Vincent M., and Michael B. Schiffer. 1999. "Formation Processes of House Floor Assemblages." In *Archaeology of Household Activties*, edited by Penelope Mary Allison, 19–29. London and New York: Routledge.

Lane, Edward William, and Edward Stanley Poole. 1973. *An Account of the Manners and Customs of the Modern Egyptians*. 5th edition. New York: Dover Publications.

Lawrence, R. J. 1983. "The Interpretation of Vernacular Architecture." *Vernacular Architecture* 14 (1): 19–28.

Lehrman, Jonas Benzion. 1980. *Earthly Paradise: Garden and Courtyard in Islam*. University of California Press.

Leisten, Thomas., and Ernst Herzfeld. 2003. *Excavation of Samarra. Vol. 1 Architecture : Final Report of the First Campaign, 1910-1912*. Mainz am Rhein: P. van Zabem.

Lévi-Strauss, Claude, Claire Jacobson, and Brooke Grundfest Schoepf. 1972. *Structural Anthropology*. Harmondsworth: Penguin.

Lewicka, Paulina. 2011. *Food and Foodways of Medieval Cairenes: Aspects of Life in an Islamic Metropolis of the Eastern Mediterranean*. Leiden: Brill.

Lézine, Alexandre. 1972a. "Persistance de Traditions Préislamiques Dans L'architecture Domestique de l'Egypte Musulmane." *Annales Islamologiques* 11: 1–22.

———. 1972b. "Les Salles Nobles Des Palais Mamelouks." *Annales Islamologiques* 10: 63–148.

———. 2002. "Pre-Islamic Traditions of Domestic Architecture in Islamic Egypt." In *Patterns of Everyday Life*, edited by David. Waines, 1–18. Aldershot: Ashgate.

Lutfiyya, Abdulla M. 1966. *Baytin: A Jordanian Village. A Study of Social Institutions and Social Change in a Folk Community*. The Hague: Mouton.

Marmer, David. 2000. "Patrilocal Residence and Jewish Court Documents." In *Judaism and Islam: Boundaries, Communication and Interaction*, edited by Benjamin H. Hary, John L. Hayes, and Fred Astern, 67–82. Leiden: Brill.

Mason, Robert B, and Edward J Keall. 1990. "Petrography of Islamic Pottery from Fustat." *Journal of the American Research Center in Egypt* 27: 165–184.

Mathews, Thomas F, Annie Christine, and Daskalakis Mathews. 1997. "Mansions in Byzantine Cappadocia and the Development of the Inverted T-Plan." *Journal of the Society of Architectural Historians* 56 (3): 294–315.

McPhillips, Stephen. 2008. "The Fustat Sherd Collection in the Medelhavsmuseet in Stockhold." In *Blue and White: Porcelain from the Topkapi Palace Museum and the Museum of Turkish and Islamic Art in Istanbul*, edited by S. Häggman and S. Houby-Nielsen, 184–189. Stockholm: Medelhavsmuseet.

Mehrez, Gamal. 1972. "Les Habitations D'al-Fustat (Resume)." In *Colloque International Sur l'Histoire Du Caire, 27 Mars - 5 Avr., 1969.*, 321–322. Le Caire: Ministry of Culture of the Arab Republic of Egypt.

Moossavi, Seyed Morteza. 2011. "Passive Cooling Systems for Hot-Arid Climate in Islamic Iranian Architecture Climate of Iran." In *International Conference on Islamic Arts and Architecture 5th Edition, November 11-13 2011, New Delhi*, 1–23.

Mortada, Hisham. 2005. *Traditional Islamic Principles of Built Environment*. Abingdon: Routledge Curzon.

Al-Musaed, A, A. Almssad, S Harith, M Nathir, and M Ameer. 2007. "Shading Effects upon Cooling House Strategy in Iraq." In *2nd PALENC Conference and 28th AIVC Conference on Building Low Energy Cooling and Advanced Ventilation Technologies in the 21st Century, September 2007, Crete Island, Greece*, edited by M. Santamouris and P. Wouters, 1:40–44. Santorini, Greece: Heliotopos Conferences.

Noor, Magdi. 1986. "The Function and Form of the Courtyard House." In *The Arab House : Proceedings of the Colloquium Held in the University of Newcastle upon Tyne, 15/16 March 1984*, edited by A. D. C. Hyland and Ahmed Al-Shahi, 61–71. Newcastle-upon-Tyne: Centre for Architectural Research and Development Overseas.

O'Kane, B. 2000. "Domestic and Religious Architecture in Cairo: Mutual Influences." In *The Cairo Heritage: Essays in Honor of Laila Ali Ibrahim*, edited by Doris Behrens-Abouseif, 149–82. Cairo: Institut Français d'Archéologie Orientale.

Ostrasz, A. A. 1977. "The Archaeological Material for the Study of the Domestic Architecture at Fustat." *Africana Bulletin* 26: 57–86.

Parker Pearson, Mike, and Colin Richards, ed. 1994. *Architecture and Order: Approaches to Social Space*. London: Routledge.

Patricolo, Achille, and Henri Munier. 1922. *La Chiesa Di Santa Barbâra Al Vecchio Cairo*. Firenze: Fratelli Alinari.

Power, Tim. 2012. *The Red Sea from Byzantium to the Caliphate: AD 500-1000*. Cairo; New York: American University in Cairo Press.

Pradines, Stephane. 2015. "Les Fortifications Fatimites, Xe-XIIe Siècle (Ifriqiyya, Miṣr et Bilād Al-Šām)." In *La Guerre Dans Le Proche-Orient Médiéval: État de La Question, Lieux Communs, Nouvelles Approches*, edited by Mathieu Eychenne and Abbes Zouache, 231–76. Le Caire: Institut Français d'Archéologie Orientale. doi:10.3406/polit.2000.4972.

Rabbat, Nasser. 1995. *The Citadel of Cairo : A New Interprettion of Royal Mamluk Architecture*. Köln: Brill.

Rapoport, Amos. 1969. *House Form and Culture*. Englewood Cliffs, New Jersey, USA: Prentice-Hall.

Rapoport, Yossef. 2005. *Marriage, Money and Divorce in Medieval Islamic Society*. Cambridge: Cambridge University Press.

Raymond, André. 2001. *Cairo: City of History*. Translated by Willard Wood. Cairo: The American University in Cairo Press.

Revault, Jacques, and Bernard Maury. 1977. *Palais et Maisons Du Caire, Tome II: L'Architecture Domestique Au Caire À L'époque Ottomane (XVIe-XVIIIe Siècles.* Le Caire: Institut Français d'Archéologie Orientale.

Revault, Jacques., and Bernard. Maury. 1975a. *Palais et Maisons Du Caire Du XIVe Au XVIIIe Siècle.* Cairo: Institute Français d'Archéologie Orientale.

———. 1975b. *Palais et Maisons Du Caire Du XIVe Au XVIIIe Siècle*. [Cairo]: [Institute Français d'archéologie orientale].

Richards, Colin. 1990. "The Late Neolithic House in Orkney." In *The Social Archaeology of Houses*, edited by Ross Samson, 111–25. Edinburgh: Edinburgh University Press.

Richards, D. S. 1972. "Documents from the Karaite Community in Cairo." *Journal of the Economic and Social History of the Orient* 15 (1/2): 105–162.

Rosenthal, Franz. 1971. "Poetry and Architecture: The Bādhanj." *Journal of Arabic Literature* VIII: 7–17.

Sakurai, Kiyohiko, and Mutsuo Kawatoko. 1992. *Ejiputo Isurāmu Toshi Aru Fusutāto Iseki : Hakkutsu Chōsasenkyūhyakushichijūhachi Senkyūhyakuhachijūgonen*. Tokyo: Waseda Daigaku Shuppanbu.

Samson, Ross, ed. 1990. *The Social Archaeology of Houses*. Edinburgh: Edinburgh University Press.

Sanders, Paula. 1994a. *Ritual, Politcs and the City in Fatimid Cairo*. Albany, New York: State University of New York Press.

———. 1994b. *Ritual, Politics and the City in Fatimid Cairo*. Albany, NY: State University of New York Press.

Sayed, Hazem. 1987a. "The Development of the Cairene Qāʿa: Some Considerations." *Annales Islamologiques* 23: 31–53.

———. 1987b. "The Rab' in Cairo: A Window on Mamluk Architecture and Urbanism." MIT.

Al-Sayyad, Nezar. 2011. *Cairo : Histories of a City. 1st ed*. Cambridge, Mass.: Belknap Press of Harvard University Press.

Scanlon, George T. 1965. "Preliminary Report: Excavations at Fustat, 1964." *Journal of the American Research Center in Egypt* 4: 7–30.

———. 1966. "Fustat Expedition: Preliminary Report 1965, Part I." *Journal of the American Research Center in Egypt* 5: 83–112.

———. 1967. "Fustat Expedition: Preliminary Report 1965, Part II." *Journal of the American Research Center in Egypt* 6: 65–86.

———. 1970. "Housing and Sanitation: Some Aspects of Medieval Public Services." In *The Islamic City : A Colloquium Published under the Auspices of the Near Eastern History Group, Oxford, and the Near East Center, University of Pennsylvania*, edited by Albert H. Hourani and S.M. Stern, 179–97. Oxford: Cassirer.

———. 1971. "The Fustat Mounds: A Shard Count 1968." *Archaeology* 24 (3): 220–233.

———. 1972. "Fustat: Archaeological Reconsiderations." In *Colloque International Sur l'Histoire Du Caire, 27 Mars - 5 Avr., 1969.*, 265–274. Cairo: Ministry of Culture of the Arab Republic of Egypt.

———. 1974a. "Fustat Expedition: Preliminary Report 1968, Part I." *Journal of the American Research Center in Egypt* 11: 81–91.

———. 1974b. "The Pits of Fustat: Problems of Chronology." *Journal of Egyptian Archaeology* 60: 60–78.

———. 1976. "Fustat Expedition: Preliminary Report 1968, Part II." *Journal of the American Research Center in Egypt* 13: 68–89.

———. 1981a. "Fustat Expedition Preliminary Report. Back to Fustat-A 1973 [avec 4 Plans et 8 Planches]." *Annales Islamologiques* 17: 407–436.

———. 1981b. "Fustat Expedition : Preliminary Report , 1972 Part I." *Journal of the American Research Center in Egypt* 18: 57–84.

———. 1982. "Fustat Expedition : Preliminary Report , 1972 Part II." *Journal of the American Research Center in Egypt* 19: 119–129.

———. 1984. "Fustat Expedition: Preliminary Report 1978." *Journal of the American Research Center in Egypt* 21: 1–38.

———. 1986. *Fusṭāṭ Expedition Final Report. Vol. 1 Catalogue of Filters*. Winona Lake, Indiana: Eisenbrauns for the American Research Center in Egypt.

Scanlon, George T., and Wladyslaw B Kubiak. 1973. "Fustat Expedition: Preliminary Report 1966." *Journal of the American Research Center in Egypt* 10: 11–25.

———. 1979. "Fustat Expedition Preliminary Report 1971, Part I." *Journal of the American Research Center in Egypt* 16: 103–124.

———. 1980. "Fustat Expedition Preliminary Report 1971, Part II." *Journal of the American Research Center in Egypt* 17: 77–86.

Al-Shahi, Ahmed. 1986. "'Welcome, My House Is Yours': Values Related to the Arab House." In *The Arab House : Proceedings of the Colloquium Held in the University of Newcastle upon Tyne, 15,* edited by A D C Hyland and Ahmad Shahi, 25–32. Newcastle-upon-Tyne: Centre for Architectural Research and Development Overseas.

Shalaby, Tarek. 1986. "Behavioural Patterns and the Arab House." In *Title The Arab House : Proceedings of the Colloquium Held in the University of Newcastle upon Tyne, 15/16 March 1984*, edited by A.D.C. Hyland and Ahmed Al-Shahi, 73–82. Newcastle-upon-Tyne: Centre for Architectural Research and Development Overseas.

Shatzmiller, Maya. 1994. *Labour in the Medieval Islamic World*. Leiden; New York; Köln: Brill.

Sheehan, Peter. 2010. *Babylon of Egypt : The Archaeology of Old Cairo and the Origins of the City*. Cairo: American University in Cairo Press.

Shindo, Y. 2000. "The Early Islamic Glass from Al-Fustat, Egypt." In *Annales Du 14e Congres de l'Association Internationale Pour l'Histoire Du Verre.*, 233–237. Venezia / Milano.

Sijpesteijn, Petra. 2013. "Naming a New Capital." Paper presented at Premier Colloque International: Fusṭāṭ et Le Contrôle Des Territoires, IFAO, Cairo, 9-11 April 2013.

Stiny, George, and James Gips. 1972. "Shape Grammars and the Generative Specification of Painting and Sculpture." In *Information Processing 71 Proceedings of the IFIP Congress 1971. Volume 2*, 71:125–135.

Van As, Abraham, Kim Duistermaat, Niels Groot, Loe Jacobs, Judith Schoester, Nico Staring, Rania Zin, and El Deen. 2009. "The Potters of Fustat (Cairo) in 2008: A Preliminary Report." *Leiden Journal of Pottery Studies* 25: 5–30.

Vezzoli, Valentina. 2015. "Céramique de Fustat." In *En Harmonie: Art Du Monde Islamique Au Musée Du Cinquantenaire, Brussels*, edited by Mieke Van Raemdonck, 197–215. Brussels: Racine.

Vorderstrasse, Tasha, and Tanya Treptow, ed. 2015. *A Cosmopolitan City: Muslims, Christians and Jews in Old Cairo*. Chicago: The Oriental Institute of the University of Chicago.

Walker, Bethany J. 2004. "Ceramic Evidence for Political Transformations in Early Mamluk Egypt." *Mamluk Studies Review* 8 (1): 1–114.

Walker, Paul Ernest. 2002. *Exploring an Islamic Empire : Fatimid History and Its Sources*. London: I.B. Tauris in association with the Institute of Ismaili Studies.

Watson, Oliver. 2014. "Revisting Samarra: The Rise of Islamic Glazed Pottery." *Beiträge Zur Islamischen Kunst Und Archäologie* 4: 123–140.

Wilfong, Terry G. 2002. *Women of Jeme : Lives in a Coptic Town in Late Antique Egypt*. Ann Arbor : University of Michigan Press,.

Yeomans, Richard, and Anna Hines. 2006. *The Art and Architecture of Islamic Cairo*. 1st ed. Reading, UK: Garnet.