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# An archaeological study of Egyptian houses, particularly those from the hellenistic period.

Volumes I and II

Volume I

- by -

Rachel Elizabeth Campbell

A dissertation submitted for
the Degree of Doctor of Philosophy of
The University of Durham.

Researched in the Department of Oriental Studies
August, 1984.

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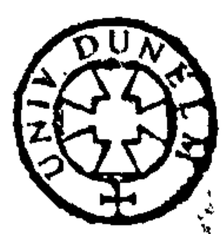

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Abstract

An archaeological study of Egyptian houses, particularly those from the hellenistic period.

Rachel E. Campbell

This thesis is an archaeological study of houses in pharaonic and hellenistic Egypt. It attempts to investigate continuity in the plan and construction techniques of houses from the pharaonic into the hellenistic periods and to pinpoint foreign types and influences, once the indigenous forms have been established.

The houses are divided into those from pharaonic sites, which include the workmen's villages from 'Kahun', el-Amarna and Deir el-Medina, the main site at el-Amarna, the town at Medinet Habu and priests' houses from Karnak, those from hellenistic settlements outside the Faiyum, such as Hermopolis, Medinet Habu, Edfu and Elephantine and finally the towns and villages from the Faiyum oasis. For each topic the pharaonic material is investigated first, so as to understand the standard features of houses from that period of Egyptian history and to provide a background against which to comprehend the hellenistic evidence.

The study establishes a basic pharaonic type of house, called 'strip' houses throughout, which can be traced on its own and combined into larger houses on sites throughout the pharaonic period. In hellenistic sites in settlements both outside and inside the Faiyum, this 'strip' house reemerges, although subtly changed. New methods of construction were introduced by both the Greeks and Romans, but more noticeably in the Roman period and these were grafted onto the older Egyptian type of house, producing, especially in the Faiyum, a characteristically hybrid form of building.

Quite outside this mixing of types were buildings which followed Greek prototypes for their plans and construction methods and which were found in places where the Greek presence was higher than normal, like the Faiyum and Hermopolis. Much evidence is lost as contemporary houses from Alexandria are unknown, but some hints can be gained from the Greek and Roman tombs known from there.

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August, 1984

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# INTRODUCTION

'Une maison est une machine-à-habiter.'

The purpose of this study is to investigate these words of Le Corbusier with regard to Egyptian houses in both the pharaonic and hellenistic periods, and to see whether the long occupation under the Greeks and Romans had any real effect on native Egyptian houses. A frequent approach to this question is from the hellenistic point of view - to endeavour to see whether the Greek house type was in any way modified or influenced by local characteristics; but the present aim is to discover whether the indigenous Egyptian population was affected by the newcomers in domestic matters, and the reverse method is therefore applied. In chapter I an attempt is made to discover whether it is possible to establish a typical form of house from the pharaonic period, or at least to see what kinds of housing existed throughout the greater part of Egyptian history, with the idea that, if such a form does exist, it can serve as a basis for the hellenistic period and will simplify the matter of pinpointing new or significantly deviant types for detailed study. In chapters II and III the evidence from the hellenistic era is considered, with chapter III dealing solely with structures from the Faiyum. Chapter IV looks at constructional method used in houses of both periods and the final chapter deals briefly with



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evidence for internal decoration.

This dissertation, therefore, is basically concerned only with the actual structures of houses themselves and does not look at courtyards and their component features associated with houses, nor at the furnishings which would have been found in the houses. Courtyards were an integral part of the houses, and alterations in their format could possibly provide interesting information on related social change, but unfortunately there is less evidence about the form of pharaonic courtyards than there is about the houses themselves, and similarly the hellenistic houses do not produce much material, so that, at present, such a comparison would not be particularly worthwhile. Similarly, furnishings are a very useful index to social standing but need to be investigated in a separate work.

Houses have in this study been considered solely from the archaeological point of view, and there has been no attempt to link archaeology with the documentation dealing with houses in either the pharaonic or the hellenistic periods. As with furnishings, much interesting information would be revealed if this were done but there is a great imbalance between the huge volume of Greek papyri, which relate to many aspects of houses in the hellenistic period, and the virtual non-existence of written sources from the pharaonic period, which makes comparisons of the

sort attempted here impracticable. The Greek papyri would shed much useful light on housing, but need to form the subject of a separate dissertation. Throughout this study, actual excavated structures have been the prime focus of attention, but in some places other material, such as tomb paintings or models have been mentioned. Other representational evidence, like paintings, mosaics and stone reliefs from the hellenistic period,[11] has not been considered, because its reliability cannot be totally guaranteed in relation to actual structures found in Egypt.

Finally, a brief word is necessary on the terminology used throughout. 'Pharaonic' indicates the period between the 1 and XXX dynasties, 'hellenistic' is used to describe the whole period between 332 BC and AD 641, whilst 'Greek' refers to the time from the takeover of Egypt by Alexander to the battle of Actium in 31 BC and 'Roman' spans from then to AD 641, when the fortress at Babylon fell and Egypt was no longer ruled by Rome or Byzantium, but came under Muslim control.

# CHAPTER I

## A SURVEY OF PHARAONIC HOUSING

Anywhere in the world a house generally has two basic functions, to provide shelter from climatic and environmental conditions and to form a centre for domestic activities and family life. However, the actual responses to these functions differ depending on the climate and locally available building materials.[1] Thus in northern parts of the northern hemisphere, solidly built houses have been standard to protect both man and beast from the cold and wet conditions throughout the year, and have generally been of wood owing to the common occurrence of forests.[2] Further south in Egypt, with the climate hot with very little or no rain,[3] the immediate requirement was to give shelter from the sun and,because daily activities were centred outside, the house needed only to provide a cool place to eat, sleep and receive visitors with an external area for food preparation and the protection of livestock. Although wood was not readily available as a building material, the Egyptians were fortunate in being able to use alluvial mud, which when mixed with water and straw and dried by the sun formed an ideal construction commodity.[4]

Models

At the dawn of Egyptian history, when the life-style was becoming more sedentary with the gradual changeover from a hunter-gatherer existence to a more agricultural one,[5] it is probable that there would have been a low population density[6] allowing each family to have as much land as it required. Very little is known about the contemporary structures but one form of the hieroglyph for a house shows a rectangle with the entrance in one long side ⌐¬.[7] A model from el-Amra in the British Museum (EA 35505) continues the same rectangular shape, but with the entrance in one of the shorter sides. Half of the area enclosed is covered, and in the wall opposide the entrance two windows are indicated; the dwelling thus already illustrates one basic principle of Egyptian housing - that of privacy - since the walls are tall and the windows placed high in them. Presumably the open area served as a court for food preparation, another common feature.

Models continue to provide the evidence for early house forms; the next group comes from Rifeh in Middle Egypt, which was excavated by Petrie in 1906.[8] The models are of the type known as 'soul houses', which were placed in the tombs for the soul of the dead man to inhabit in his next life. It is uncertain how representative in detail they are of houses at the time and this question is unanswerable until actual remains from the relevant period (VI

- XI dynasties) are found. [illegible]

The common features are a walled courtyard with a rectangular house behind. The earliest and simplest models, from VI dynasty tombs, show only slight development from the form of tent used by the nomadic ancestors of the Egyptians - a simple covering propped up by two posts. The change to a more sedentary way of life shows as the structures became more permanent and solid and as the roof became an integral part of the house with a ledge, ('satah'), around its perimeter and some kind of access onto it, either by ladder or by steps built up from the courtyard.[9] Once the single roomed structure was divided up into smaller units,[10] and a columned portico placed at the front to support the roof,[11] the future house was beginning to take shape. The use of the roof developed in the late IX - X dynasties by building north facing ventilators, ('mulqafs'), on it to catch the breezes;[12] then another portico was repeated on the roof, gradually becoming a second storey.[13] In the latest models of the XII dynasty, the houses and the courtyard are placed behind a high enclosure wall, similar to the el-Amra example and withdrawn from public view.[14] They are represented as being of

mud brick with barred windows and doors, which appeared in models of the X - XI dynasties, and were presumably made of reed stalks plastered with mud.[15]

Some of the features reflected in the Rifeh models and Beni Hasan tombs are also portrayed in the models of the house of Meketre, which were found by Winlock in an XI dynasty tomb at Thebes.[16] The two identical models showed a single-storied house within its own grounds, surrounded by an enclosure wall, with a portico at the back of the house consisting of two rows of columns, which enabled Meketre to sit in shade in the garden. Although nothing of the internal arrangements of the house is shown, the model continues the line of the Rifeh models. The similar layout of these compared with the house of Meketre - a portico facing onto a courtyard - suggests that, as with the latter (where the external doors facing onto the street are shown at the back of the model),[17] what is represented is the back of the house, i.e. the portico and the garden or courtyard. How the houses represented by the Rifeh models appeared to people on the street is unknown but another model can help, that of Amenemhat, the XII dynasty Mayor of el-Bersha, which shows a tall, possibly three-storied, squarish house in one corner of a rectangular enclosure. There was a large door at the front and windows on all sides, while the roof edge was protected by an undulating fence.[18]

'Kahun'

Apart from the tombs at Beni Hasan, which provide evidence for the use of a portico affording a cool approach to the house and also for other features of the contemporary house,[19] little structural has been found of a date earlier than the workmen's village at 'Kahun'. The site was built in the XII dynasty on a previously unoccupied area on the edge of the Faiyum specially to house the workforce for the building of a for Sesostris II pyramid.[20] There is a clear division in the type of housing on the site. The vast majority of the buildings belong to the workmen and are small in size (about 95-170 $m^2$) compared with the much larger estates on either side of the main east-west thoroughfare.

The plans of the workmen's houses varied considerably depending on the street; some of the simplest (e.g. the first row in the north-west corner) consist of a narrow entrance room with stairs directly behind, leading into a main part, possibly a courtyard, with the living quarters at the rear (Plan I.); others (such as those of the third row) appear even smaller and had only one main room if there was a court present, but stairs indicate at least the use of the roof, if not other storeys, so the buildings would not have been so cramped. Some were more substantial even in ground plan like that at the east end of the fourth row, where three house blocks have been connected. It was entered from the south and followed the same pattern as others

within the row for the entrance block - a reception room inside the entrance, a fairly substantial main room to the left whilst to the right of the entrance was a large room or courtyard off which opened smaller rooms or storage areas. A row of store-rooms was placed on the eastern side of this area, and behind it, encroaching on the northern half of the street, were more store rooms (Plan II.). Since there were similar arrangements in at least four other rows, it is conceivable that these larger groupings contained the necessary stores for each row, and that they belonged to the overseer of each block, while the average workman lived in the smaller, simpler buildings.

The larger residences along the main street varied in plan according to the side upon which they stood, so that the main court in each case faced north for coolness.[21] Those on the north side were better preserved, especially that directly east of the 'acropolis' (Plan III.). Since these complexes were more like country mansions with storage space as well as living quarters, they were naturally much larger than the workmen's houses. However, to avoid the unsightliness for visitors of the storage areas, in the northern houses these were out of sight along the sides or at the back of the complex. The columned entrance lobby with its guard-chamber foreshadows the arrangement in the larger Amarna houses, and from this lobby a long narrow corridor led into a courtyard with a columned portico along its southern side. This is again broadly similar to the layout of the Beni Hasan

tombs, since to the south of this portico the main living quarters of the house began. These consisted of a narrow entrance room, the length of the courtyard, from which one moved into a pillared chamber and from this into a larger columned room, which would have been the centre of the house. South of this was a bedroom and probably a bathroom for the main suite. The other domestic areas within this estate followed the same pattern, with a columned hall as the central feature and the bedroom to the south of it. Communication between these three sections of the domestic quarters was kept to a minimum, as it was throughout the rest of the domain.

Those houses on the south side of the street differed in having some store rooms in a block at the front on the road, but there was no access to them from the inhabited sections. Apart from this the columned hall remained important as the central aspect of the occupied parts, from which led the bedrooms.

At 'Kahun', therefore, not only are there actual plans for the first time but other information can be used to infer something more general about the housing of the XII dynasty. First, the workmen's houses are very basic in their ground plan, consisting of some kind of court or larger room with one or two others leading from it, and among these houses it is unusual to find evidence of a columned room, but in the eighth row (from the

north) the buildings seem more spacious and two of the three had columned rooms. These houses can be taken as reflecting the standard type of habitation for workmen or craftsmen generally in Egypt at the time; the homes of agricultural labourers would have been quite similar but in some cases with more storage and courtyard space.

The other type of houses, the mansions, reflect the conditions of the wealthier official class, who could afford to have everything necessary within one wall. In more spacious conditions, as later at el-Amarna these estates were less confined, but even in the planned situation of 'Kahun', the wealthy were anxious not to go without any of their luxuries. Thus, the gate-keeper's quarters (and the entrance loggia) were joined into the domain itself, with the house proper situated at its heart surrounded by the stores and work areas. The separate 'houses' within these estates show a pillared reception loggia, which was common among the wealthy as it was represented in their tombs at Beni Hasan as well as in their ordinary homes, a columned room, also reflected at Beni Hasan, and the private quarters behind this.[22] Clearly in the actual house there was more room to expand, but both house and tomb share the common features of reception and main halls with private rooms at the rear, which remained standard throughout Egyptian history.

Theban tomb paintings

Unfortunately, there is little more evidence for the form of houses until the XVIII dynasty, which has produced a considerable amount of valuable material. Conditions in XVIII dynasty Thebes were very different from those at 'Kahun', since it was the capital of a prosperous Egypt. Sadly, though, very little has been learnt about the nature of the city, since it was sacked in the Assyrian invasions in the 660's BC and then destroyed more finally by Ptolemy XI after a revolt in 88 BC, since when the site has been used as agricultural land and is covered by a few villages. It is, however, inconceivable that the bureaucratic centre of early New Kingdom Egypt did not have a sizeable population, but as to where the officials and ordinary members of the community lived, there is really very little idea, other than what can be inferred from the tomb representations about the types of housing and the relative amounts of land each required. There are occasional indications about the size of the city, like the reference in Homer (Iliad IX. 383) to 'hundred-gated Thebes', and some Egyptian records help a little in giving an idea of the population. The Papyrus Harris I mentions the number of people in the service of Amun-Re' under Ramesses III as 81,322, but it should be remembered that these were not necessarily all employed at Thebes in the temple of Amun at Karnak, but could have been spread out on lands dedicated to him throughout Egypt.[23] An earlier record from the time of Tuthmosis III mentions a 'town

quarter' at Karnak for priests and artisans in the employment of the temple.

From two tomb representations showing the side view of a house (TT 254 (Mosi) & 23 (Thay)) it is apparent that the houses, approached by a flight of steps, were rectangular in shape and at least two storeys tall, if the position of the windows can be assumed to indicate the internal divisions, and that in addition use was made of the roof.[24]

An interesting painting in the tomb of Dhutnufer (TT 104) portrays the inside of a three-storied Theban house.[25] The lowest storey was used by servants for baking and weaving and would presumably have been connected to the rest of the house by stairs, shown for the other floors. The main chambers on the next level are perhaps at the back of the house, and here Dhutnufer is illustrated sitting in his main living hall and likewise in a smaller room on the top floor where scribes are before him recording stores being brought in. The roof is occupied by a row of grain silos and a butcher cutting up meat for drying. The representation of the roof may furnish a clue as to the lighting of the house - the roof level of the principal section is somewhat higher than the rest of the house, which

suggests some arrangement of clerestory lighting and the smallish windows of the middle and top floors support this.

The activities in the basement, spinning, weaving and baking, suggest that this house was not just an official town residence; bedrooms and bathrooms would therefore be expected. The fact that they are not shown could indicate that they were not considered worth portraying, but it is interesting to speculate where they would have been in the house. The 'Kahun' mansions can give some clues, since this Theban town house is merely the former type of house slightly rearranged and translated vertically to fit in all the three main parts of an official's house. It seems that the hall on the second level is the centre of the house as at 'Kahun' and is marked out as such by the columned room with a high ceiling; also clearly shown is the pillared anteroom to the hall, which is the equivalent of the narrow reception hall at 'Kahun'. The presence of the stairs in front of this area is misleading, since it is unlikely that a service part of the house would have been on public view and it seems far more likely that they would have been placed less prominently in a corner. The lost part must have been a continuation of the front section, showing the entrance on this level, possibly reached up a flight of stairs, as with the houses in tombs 254 and 23. Following the layout of 'Kahun' in three parts, one is still missing here - that behind the main

hall, where the private rooms, like bed and bathrooms were positioned; since there does seem to be general similarity it is likely that this is where the unrepresented rooms would have been.

There has been some question of whether the main central floor was at ground level or not.[26] If the front portion of the painting had survived, it would have been clear, but as it is, the likelihood is that the entrance was up a flight of steps, as with the other two paintings, and as was often the case at el-Amarna.[27] This would make the lowest floor into a semi-basement, as seems to be represented on a model from the Louvre published by Desroches,[28] which shows airholes at ground level as well as ordinary grated windows; the solid, functional columns, as opposed to the more delicate and ornamental ones of the other storeys also support the idea of a working semi-basement, whilst the painting shows a particularly thick ceiling for this level, indicating ground level.

This Theban town house differs very little from the 'Kahun' mansion, both in the facilities and rooms present, and very little in actual layout. Clearly space dictated the actual form of the building - whether it could spread out on a horizontal plane or had to be built vertically - but the main feature of both houses, the central hall, was situated so that it received a

considerable amount of privacy and acted as the pivot round which the activities of the house revolved. As at 'Kahun', the reception area was directly in front of this hall but here it had become pillared, as those in el-Amarna usually were, thus dispensing with the columned portico and the separate long narrow reception hall of 'Kahun'. The more domestic areas of the house were placed around this main level, in the semi-basement, on the third floor, and, since space was vital, also on the roof. As mentioned above, the position of the bedrooms and separate female quarters is uncertain, but is likely they would have been still further away from the public gaze, as they were at 'Kahun' and slightly later at el-Amarna. Thus the distinctive features of the Egyptian house were preserved even in more cramped city conditions: the reception area, now becoming more elaborate than previously, the main hall, definitely the most important part of the house, and the private rooms, presumably placed behind as far from the street as possible.

Unfortunately, there is no similar evidence about whether the contemporary country mansion also continued this basic pattern. In the tomb of Hatiay (TT 324) there is a plan of his house in little detail, but enough to make out a rectangular enclosure with two entrances on one long facade; the main one leads into a rectangular court off which there are two rooms, one quite square and the other small and subsidiary, while the other

entrance appears to lead into a separate court, unconnected with the rest.[29] Conceivably one is dealing with the reception and main halls and with the private room at the back, but the evidence is too vague to draw firm conclusions. In another tomb representation, that of Ineni (TT 81), the house appears to be of two storeys and to be built of stone, but nothing about the internal divisions can be confirmed. Both houses were set within their own grounds containing a pond surrounded by shrubs, and the estate of Ineni had separate grain silos and other storage space.[30]

K44 at Elephantine and other administrative buildings

Before moving on to an investigation of the Amarna houses, there is one further complex worth looking at, namely K44 discovered by Grossmann and the German team at Elephantine.[31] It is a multi-period construction dating back quite possibly into the Old Kingdom, but in its latest phase assigned to the Second Intermediate period or at latest the early New Kingdom. It was found in the area to the south of the temple of Khnum and was orientated on the Middle Kingdom layout.[32]

To understand fully the final phase of K44, its predecessors need to be looked at first, since there was fairly direct continuity between the various buildings.

The oldest actual forerunner was Building C which was quite

a small house (about 8.70 x 9.20 m), although it was not the oldest building excavated in the area; there had been two houses to the south of C, A and B, whose shared north wall C took over as its south side. The house was dated between the late XII dynasty (its first floor level) and the end of the Middle Kingdom and so overlapped with the houses of the 'Kahun' settlement.[33] Its plan is normal, consisting of the usual three parts, apart from the angle of 92° of the west wall, which was so constructed to connect with a wall from an earlier building.[34] (Plan IV.) There is little indication about the functions of the various rooms; it is possible that c4 formed a court or open space, since in the angle between c8 and 9 there was a small storage area and later a kitchen was constructed in the north-west corner, but the plan of other rooms along the west range no longer exists. There is no indication of a staircase either up or down, nor of the entrance, which was likely to have been in the north or east side.

Although Building C is contemporary with the 'Kahun' settlement it is not particularly similar to any structure there - either mansion or workmen's houses. Not only is it smaller than the mansions but it does not share their characteristics - there is no columned hall nor reception area. Nor is it like the simpler workmen's houses since there does not appear to be a large court, and it adheres more strictly to the division into

three than those houses do. There is very little information about Building C, but it is possible that it forms another category of contemporary housing. The two types of 'Kahun' illustrate opposite ends of the social scale - the fairly poor and the reasonably wealthy - and this building, incomplete though it is, could be an example of a house of the more typical middle ranks, perhaps a minor official.

With the next building on the site, D, the dimensions of K44 were approached more exactly since there was an extension northward.[35] (Plan V.) There were internal changes too, as it became divided on an east-west line rather than north-south as before. The west wall continued along the line established by C but 80 cm further east, so the angle no longer appears as acute since the wall extended further north. Grossmann dated this house to the Second Intermediate period from evidence contained in wall d6, but he is unfortunately not more specific. The rearrangement that is apparent in Building D could indicate a change in function as well, since the layout that was decided upon was far more similar to K44, the domestic function of which was rightly questioned by Grossmann.[36] The main feature of D is the large room in the central section, 4, and round this are placed the other smaller chambers. The southern row mirrors that of K44 exactly in width, although only the room on the south-west corner is actually identical in the two buildings. Before discussing

Building D any further it is necessary to look at the final construction, K44.

Two plans are available for this later phase, thought by Grossmann to be of the late Second Intermediate period or early XVIII dynasty. One from the seventh report[37] (Plan VI.) shows a columned hall with a range of narrow rooms to the north and south, entered on the north side, whilst the other published in the fourth report[38] (Plan VII.) is basically the same, but has another, apparently later, row of rooms on the east side, where the entrance is. The hall which formed the central feature was columned, and five columns were found - four of them still in situ. There was no sign of a sixth to complete the two rows, but it is likely that it once existed since it formed the central position of the second row, and without it the gap between the two outer columns would have been too great.[39] It is noticeable that both plans of this structure reveal clearly the standard division into three, but the building does not seem to share the characteristics of domestic habitations from 'Kahun'. It has a narrow reception area similar to the mansions at 'Kahun' as well as the columned hall as the main feature, but the third row is simple, mirroring the divisions of the top part. Although the plan is similar to a domestic one, the dominance of the central hall without the living quarters suggests that it was not completely domestic and served some other function.

The same applies to K44's immediate predecessor, D, which is similar to the first plan. Although no columns are marked in the main room d4, the room is large enough (6 x 5 m) to have contained them, giving it the same prominence as in K44 and no entrance is marked on the plan of D - though it is likely to have been on the north side originally as in the later building.

From the plans it seems quite certain that there was a change in function between buildings C and D. C conforms to a standard domestic type with the normal tripartite division and three small rooms forming each row and the presence of a kitchen in the north-west corner and probably a court in the east range helps confirm this. Building D, however, changed this emphasis considerably with a switch from north-south to east-west divisions and the prominence of the central room surrounded on three sides. This continued in K44, and it is possible that this was built only because the available space was insufficient for the purpose the building was put to; this would seem to be confirmed by the similarity between the two plans.[40] There was little definite concerning the function of D and K44 in the reports, but Grossmann considered it possible that K44 had some sort of administrative purpose.

However, there are few examples of roughly contemporary administrative buildings for comparison. At el-Amarna there was

a row of such buildings in the central area consisting of office blocks and the Records Office. The offices, e.g. Q.42.1 and 7, were formed mostly of storage chambers, although Q.42.7 had a tripartite reception hall and an area with a columned hall and rooms opening off it. The Records Office consisted of two fairly separate halves divided by a north-south wall, the eastern containing a largish room, stairs and a room with two ovens, the western having four rectangular rooms and an entrance from the west.[41] One estate, though, in the northern suburb, V.36.7, 'the house of the Tax Collector', consisted of the usual Amarna type of house but there was another building associated with it. This was formed by a square hall with four columns and a dais, with smaller rooms to the north and south. To the west were six storage magazines - all except 1 and 6 leading from the central hall. In effect the whole structure consists of a slightly adapted but typical Amarna house. (Plan VIII.)

There is also a later administrative building from Medinet Habu, which was a square structure (16 x 16 m) divided into three rectangular sections, the front two consisting of a longish vaulted main room with two narrow side chambers, while in the back third the main section was divided into three, thus positioning the key room of the building directly in line with the entrance.[43]

From a consideration of these few administrative buildings there does not appear to have been a definite type; all that can be said about them is that they consisted basically of the standard tripartite house with extra storerooms or modifications as required and this is true also of the two Elephantine buildings. As to specific function it seems probable that D and K44 were used as public offices of some kind, rather than as a storage area, like the buildings at el-Amarna. K44 provides a convenient staging post between 'Kahun' and the Amarna buildings considered next, because it foreshadows the Amarna houses in the prominence given to the columned central hall and in the development of the reception area.

el-Amarna

El-Amarna (Akhetaten) was similar in several ways to the settlement at 'Kahun', since it was specifically created on a previously unoccupied site, with unlimited space. It was different in that it represented a move from Thebes owing to the change in religious beliefs of the King, Akhenaten, and his desire to begin afresh. However, el-Amarna provides a wonderful opportunity to study not only the types of houses currently inhabited, but also the way in which an Egyptian town developed and existed.

As at 'Kahun' it is proposed to work upwards from the bottom

of the social scale - here there are six different types of housing which seem to reflect different social classes. The first of these is in the workmen's village, specially created for the labourers and artisans working on the royal and nobles' tombs.[45] As at 'Kahun', it was enclosed by a wall and the houses were laid out in six rows, but there was nothing corresponding to the two rows of 'mansions', just one larger house in the south-east corner, probably inhabited by an overall commander of the workmen. The houses are very uniform in plan, being about 10 x 5 m, basically of one storey but making use of the roof for storage purposes and divided into the usual three parts. Here for the first time are examples of the most basic Egyptian house (from now on called a strip house) which is formed of a reception area, a central main room and living quarters at the rear consisting of a bedroom and a kitchen. (Plan IX.) The main room is marked out by the presence of a column generally taken to indicate clerestory lighting on two sides,[46] and there is often a raised bench round two of the sides, while the reception area in these houses is very simple, with signs that it was used sometimes as a courtyard because tethering blocks and mangers for animals were present.[47] The back third is divided equally, one half forming a kitchen with an oven, storage bins and a hearth in it and the other being used as a bedroom - although presumably the raised benches of the central room could be used for sleeping on. The fact that two of these tiny houses sometimes

communicated might indicate relatives living next door to each other - the connecting doors were probably added subsequently to the initial construction.[48]

The next group of houses are to be found in the main settlement of Akhetaten, in the central city directly east of the office blocks and Records Office discussed above. Owing to their proximity to these offices, Pendlebury associated the houses with them and interpreted them as the residences of the office clerks.[49] As in the workmen's village they are laid out in six rows, but the houses show more individuality then those in the village. They vary considerably and consist of two main types, which illustrate the two standard forms of Egyptian housing in juxtaposition. The first is the strip house just identified in the workmen's village - the three parts making up the complete house. The second type was described as a 'mansion' at 'Kahun' but that title is inappropriate here; the building consists of the three main sections, reception, living and domestic, but each of these three parts is likewise divided in three. This is not as clear in these clerks' houses as it is in later examples from el-Amarna, but house 32 for example shows it reasonably well. (Plan X.) Each row running east-west consists of three parts, and it seems probable that a larger building was formed by triplicating the basic strip house, which resulted in each three sections consisting of three rooms. One

feature noticeable there for the first time is a separate reception room, leading into a larger area or hall from which one entered the central room of the house, as in houses 19 and 20. As with the workmen's buildings there was an internal staircase, though again it is unlikely because of the flimsiness of the dividing walls that the roof was used for more than extra storage space or at most had a light shelter on it.

The next group of houses represents those inhabited by the majority of the Amarna population, i.e. the buildings placed around and between the large estates of the wealthy officials once these had been built. An example of this can be seen in square 0.48,[50] where the sizeable houses 8, 11, and 13 were constructed first, and then in the space between 8 and 11, a row of straggly buildings filled in. Actually within the grounds of 0.48.11 someone added a smaller house, 12, which could have been contemporary with 11, but since it takes for granted part of the north wall of 11, is likely to have been later - unless it was a subsidiary building to 11.

The houses within group 0.48.8 are similar to the previous two types in that they did not stand within their own grounds as with the larger houses. They were, however, more spacious than before; for example building 39-48 had dimensions of 8.5 x 9.6 m, which is nearer the square form of the bigger estate houses.

This structure was clearly divided in three, but some of the internal partition walls were slightly adjusted, so that it does not adhere totally to the nine room format. (Plan XI.) However, the dominance of the central section is clear as it is the widest, and the central room is certainly the main one. In room 35, north of this house, there is a bench marked on the plan along the west side, and, although none is indicated for house 39-48, it is possible that one was present. Plans of other such smaller houses do not differ markedly from these looked at here, but in general a frequent feature is an extension of the front section of the building, presumably to allow the keeping of cattle and livestock, possible here where conditions were not so regulated as in the workmen's village.

The next two social classes were distinguished by their relative positions within the city, those in the north city, which was mainly a middle class area,[51] and those in the south where the more important officials had their homes, such as Nakht the vizir. Really there is very little difference between the buildings in the two areas, so any differences of rank among the inhabitants might be shown by a greater display of wealth in the form of fittings and decoration.[52]

From the many examples of houses in the northern city, which share the same basic characteristics but with a certain amount of

individual variation, two will be looked at in closer detail. These have been chosen since they illustrate very clearly the fact that these Amarna houses consisted of three smaller ones joined together.

The first is T.35.9 (Plan XII.) placed within its own grounds (26.5 x 35 m in area) and is notable for the eleven large granaries to the north of the house.[53] This measured 14 x 17.5 m and is very clearly separated into three by walls running east-west, forming sections which from south to north measured 14 x 6, 14 x 6.5 and 14 x 5 m, helping to emphasize the central part as the most important. The entrance led into a separate room in the north-west corner and this continued into a reception room. A long hall was the major feature in this section and then at the back there were two very small store rooms (ignoring the other area east of the house proper). The only means of access into the central part was from the hall, and in this sector the same layout was repeated. The western third was divided into two, with one half containing the staircase, the middle was again a hall (this time squarer than the northern one, since the sections one each side were wider), and from this hall two further rooms opened on the east. The back part is the one which here, and always, followed the pattern least closely; here the eastern third is on the same line as that immediately above it with the rest of the space equally divided. Yet again there was only one

entrance into this section, helping to maintain its separateness.

The main room of the house, that right in the centre, was distinguished by a column in the middle, supporting a roof higher than those of the other rooms and indicating clerestory lighting. The owner's seat was in this hall, on a raised dais against the wall opposite the entrance from the reception hall, as previously seen in the house of Dhutnufer. There was access to the eastern row of rooms from outside, helping to designate these, at least in the front two sections, as subsidiary rooms of some kind, which were not intended to be seen by visitors as an integral part of the house, again as in the representation of the house of Dhutnufer.

The other house chosen for consideration is T.34.1,[54] occupied by the architect Hatiay, which was also within its own estate, an area 55 x 51 m, and which itself had dimensions of 20 x 18.5 m - considerably larger than the one just looked at. (Plan XIII.) Here the separate sections measured (from the south) 18.5 x 8; 18.5 x 6.5; 18.5 x 5.5 m, but it is interesting how extremely similar the two plans are. Once again there was a separate porch leading into a reception room, from which one entered the hall of this part. Since it was a larger house this hall was columned, as would be expected anyway, since it represents the central part of a normal strip house, which would have pillars. At the back

there were two small rooms with no access between them. Here too one could only enter the central section through one door which led into the main hall, again square with a column supporting the roof. Interestingly in this house, the western third, which would have been the reception area of the strip house, is columned too, a continuation of the habit at 'Kahun' of having a columned portico, and a feature which occurs in the servants' houses of the Great Palace at el-Amarna[55] and in some houses at Deir el-Medina.[56] Again it is the living third or southernmost house of the three, which conforms least accurately to the norm, although there is a pillared hall with an entrance vestibule and two smaller rooms to its east and the bedrooms behind. (Strangely, this columned room with chambers round it is exactly mirrored to the south, and may have been for Hatiay's wife or possibly his mother).[57] It is clear, therefore, that the identity of each house was maintained when they were joined up, and although these two examples illustrate this individuality particularly clearly, it is to be found in nearly all the other houses from this area.

In the single example of a house from the southern city, that of Nakht (K.50.1), there is less rigid conformity to this principle, but it still holds true.[58] (Plan XIV.) The dimensions are 29 x 25 m and the sections from south to north measure 25 x 10; 25 x 10; 25 x 9 m, making it the largest house so far looked at. As with others, the front two sections follow best the

division into three, both with columned central parts, and here again the middle section has a pillared reception hall, used as a warm evening loggia during the winter because it was west facing. An unusual feature is the second entrance on the west side, leading into this hall via a small reception room and also into the back third of the house. This as before is the least like the standard plan, but here there is a columned hall mirroring that in the central part, and the room falls on the north-south axis of the building with the doors between each section being in line. In the house of Nakht there was more communication between the three sections, making it more of a unified house, instead of being three distinct buildings. In the back section, there were two definite sleeping areas either side of the columned room, each with a bedroom (indicated by the raised platform at the end of the room) and a bathroom. Other small private rooms were also found in this section.

When this house was excavated by Peet and Woolley,[59] they discovered columns that had fallen through the roof into the central section and the reception area of the front of the house, indicating that there had been a light shelter or portico there.

At the top of the social scale were the royal palaces. The King's House, which seems to have been Akhenaten's normal residence,[60] approaches the layout of the larger Amarna houses in

the north and south cities, having such features as storage magazines, separate servants' quarters and a garden laid out in front of the house. The essence of the domestic structure - the columned central court - remains, together with the idea of living quarters behind it, in this case the princesses' bedrooms, although Akhenaten's bedroom and suite opened off to the east from the hall. Although one cannot say that the pattern is closely followed, at least there is nothing completely radical in its place.

It appears, therefore, that the 'reforms' of Akhenaten did not extend to the house, which continued to develop from the houses seen at 'Kahun'. At el-Amarna, the way in which the larger houses were formed can be seen clearly in the progression through the homes of the different social classes, and the buildings from the north city show particularly clearly the fact that they were really only three of the smaller houses joined together. With more wealth available in the house of Nakht, this individuality became less noticeable and a more unified house resulted, but it is interesting that the three separate basic house outlines were still adhered to.

This is only a further development of the 'mansion' houses at 'Kahun', where apart from the front reception area, which was still a single, long, narrow room, the other two parts already consisted of three sections each, with the central one in both

cases being columned. At 'Kahun' in the northern houses, the east side formed the reception area, and the middle section is pillared like the houses mentioned above at el-Amarna and those to be discussed from Deir el-Medina. It is interesting to note that the master's bedroom formed the back third of the central section emphasising even more that this is merely an ordinary strip house. The time when two or more of the strip buildings were joined together is lost at the moment - it was pre-XII dynasty, but the fact that some of the houses in the Amarna workmen's village connected through a single door shows how easily it could have begun.

Deir el-Medina

The next site to be considered, Deir el-Medina, is another workmen's village and provides further examples of strip houses but unlike 'Kahun' and el-Amarna was a long standing settlement of about four hundred years.[61] The craftsmen who lived here worked on the tombs built on the west bank; and the first village dated to the reign of Tuthmosis I, the instigator of this fashion, but was destroyed by fire leaving little evidence of the type of houses or the organisation of the village. In the general rearrangement after the Amarna period, the village was rebuilt and expanded during the rule of Horembeb.

The houses followed the same basic pattern as that at the

workmen's village at el-Amarna, being one storied and consisting of the three standard parts, although as usual the domestic section differed more than the other two, but there was more variety among the houses depending on the date of the construction and on the area in which they were built.[62] The front room opened directly off the street and was grander than the corresponding room at el-Amarna, often having a column to help support the roof and usually containing a shrine to the household gods. The central main room had a column as well and often another small room led out of it, which was more private. The back portion of the house was often arranged like the Amarna houses, with the area divided equally, forming storerooms, kitchens or sleeping space, but sometimes, especially where the houses were long and narrow as in the older part of the village, these rooms were placed one behind the other. The stairs to the roof were usually placed in these rooms. Plan XV is a typical house from the oldest part of Deir el-Medina, which shows the main features of the houses, although the later buildings in the south-east and south-west parts of the village had more space and were larger constructions altogether.

Two sites have produced material from the later periods of Egyptian history, Medinet Habu and the temple of Amun at Karnak. The first, Medinet Habu, will be dealt with again in the subsequent Roman and Coptic periods and will allow some

comparison between the housing of separate periods.

Medinet Habu

The settlement spans a long period, from the XXI-XXX dynasties, during which time the fortunes of the temple degenerated and recovered, with the XXI-XXIV dynasties showing a poorer standard of housing than the subsequent five dynasties when there are some fairly substantial buildings. The excavated south-eastern part of the temple area is the first example of a naturally developed town or village without the stringent planning of 'Kahun' and the other workmen's villages or the free expanse of el-Amarna, and it gives a better impression of how the average Egyptian settlement appeared, although the enclosure wall limited completely free expansion.[63]

The range of house types found throughout the town varied as much as at el-Amarna. At the top of the social scale were Ramesses III's royal palaces dating from the peak of prosperity during the Ramessid period,[64] but in general the houses of the earlier period (XXI-XXIV dynasty) appear to be those of a relatively poor class, since they are carelessly built and rather small. One exception to this is the house of Butehamun, which was constructed close to the western gate of the temple early in the XXI dynasty.[65] Although it is clearly incomplete, what remained shows that houses in the post-Amarna period retained

some features of those habitations. All that was left was a columned antechamber or hall, leading into a larger (5.90 x 5.10 m) hall with four pillars, with the owner's seat raised up on a dais against the west wall. (Plan XVI.) From this room, there was access into another range, but nothing remained to indicate its precise nature. It appears that these two rooms formed only one wing of a much larger building of which nothing except traces of an eastern wall remained, but even so its affinity to the Amarna type of mansion is interesting. There are other examples of this elsewhere at Medinet Habu; in the crowded south-eastern part, there are three houses that resemble in miniature the Amarna pattern.[66] The one in F6, dating from around the XXII dynasty (Plan XVII.), is about 10.5 x 8.5 m and is in essence a slightly more elaborate strip house, situated in the centre of a large insula of at least five houses. As the plan shows, it consists of the three basic elements presumably entered, from the street on the west side, into a long hall, then leading to the main room with two columns and the dais or water-stand on the east wall,[67] and, on either side of this, doors to two private rooms.

The other similar houses in the south-eastern section of the temple were slightly later - probably towards the end of the XXIV dynasty or into the XXVth - and occurred in a group of four buildings on the western edge of the excavated area. Of the

four, II - IV are very similar in plan and are closely connected, since there was access from IV into II. (Plan XVIII.) Both II and IV still had columned main halls, and II still preserved its 'dais' but without any rooms behind. The long thin room to the west of III might well have been a bedroom because of the recessed south end similar to the bedrooms in Amarna houses.

The majority of the other houses in this area are more difficult to interpret since they have few distinguishing features, but courtyards were an important part of the house, judging from the presence of storage pots and grinding mills. They were irregular in plan, with narrow streets and alleys dividing the blocks and one fairly common feature was the closing off of an alley by a gate as in the group in E6 -7. In these houses there is less adherence to the distinctive tripartite division of the house and the small area of town at Medinet Habu is probably the excavated site closest to a normal Egyptian village with carelessly built, irregular houses; buildings which adhered to the Amarna plan could represent the dwellings of slightly wealthier families, adhering to traditions of the past.

In the north-east section of the temple enclosure Hölscher excavated a group of buildings (G-F 12-13) which covered the same period from the XXI-XXIV dynasties, although there were considerable traces remaining in the west of a much larger,

non-domestic building.[68] (Plan XIX.) It dated to the XX dynasty and in plan was fairly similar to the administrative K44 at Elphantine, being a tripartite construction (about 22 x 16 m) with a large central section (16 x 14 m) with six columns in it, and on either side a narrow undivided room, with one doorway into the main chamber. In front of this building there was some evidence of trees having been planted in two rows, which would also indicate that it had some special function. The buildings which were constructed over this seem to have belonged to a farm, since there was a stable (interpreted as such due to tethering blocks) in the eastern corner and the small narrow rooms could well have had a storage function. There is also a domestic complex associated with this group which is of two periods, but there seems to be some discrepancy between the plans published in the folio and volume V, as is illustrated by the three different versions of plan XX. Whatever the reason for these differences, it appears that these houses owed allegiance to the Amarna type with many of the same features.

The relative poverty of the preceding centuries seems to have come to an end with the XXV dynasty, which is characterised by larger houses, especially in the west of the area, but still fairly crowded urban conditions. Two groups of houses have been excavated, one along the line of the southern wall and the other in the north-eastern section. This latter group consists of four

small houses, three measuring about 12 x 5 m and the fourth 15 x 7 m (Plan XXI.) which are further examples of the ordinary strip house.[69] The plan of all of them is very straightforward, consisting of the three standard rooms, with the 'dais' against the back wall of the central third. These houses extended upwards for at least one storey and quite possibly for more, if they can be compared with those in the Coptic settlement at Medinet Habu which were often four to five storeys high.[70]

The six buildings along the line of the south wall were constructed over a series of Ramessid houses and part of the palace garden, since a well included in this continued in use.[71] They were considerably larger than anything previously found here (house 1 - 16 x 13 m; house 3 - 21 x 16 m) and seemed to be more varied in function, since it is less easy to see 3 and 4 as completely domestic constructions. (Plan XXII.) The range of small rooms in 4 (c and d) and the three chambers in 3, together with d, which could easily have been divided for the whole of their length and then vaulted, suggest that storage was of greater importance than occupation. Since, however, both are incomplete, it is quite possible that they formed small sections of a larger whole, where domestic arrangements could have been situated. The grain storage bin inside the later wall in house 4 might indicate that at a subsequent date the function altered and that these rooms were used in a domestic capacity with an outside

wall built on.

The other four seem to have been primarily domestic structures, but apart from house I, there is no adherence to the standard plan. This is indicative of the general trait of the later periods, and shows how the rigidity of the Amarna buildings was being set aside in favour of a much freer layout. In House I, (Plan XXIII.) the features are still fairly clear - an entrance hall with stairs on the left, and two columned halls in the central section with small rooms behind, one incorporating the Ramessid well. The large area on the west probably incorporated a courtyard in the southern part. Like the narrow strip houses in G-H 13, these larger ones could have been several storeys tall and in this way come much closer to the earlier Theban town house of Dhutnufer and to the standard Graeco-Roman house.

Karnak

A French team working at Karnak made an interesting discovery in 1970, when they were excavating by the sacred lake.[72] In the south-east corner, they exposed a row of six small houses built along the line of an older enclosure wall.

There is very little of note in the actual plans; they are long and narrow (excepting number III), and follow the strip type of building, especially in the case of house II, (Plan XXIV.)

which is very reminiscent of the sort of house found at Deir el-Medina, with its large open courtyard, central room and two back chambers leading from this. A staircase led onto the roof terrace, but in an earlier phase of the building it had connected with a space used as a kitchen or for storage, between the east wall of the house and the enclosure wall of Tuthmosis III. House IV was also very similar to those found at Deir el-Medina with a court leading onto a small room behind. Down the side of these two rooms a passage led from the entrance to the staircase, which again went only to the roof, as the walls of these buildings were not solid enough to support barrel vaults and several storeys.

House III was the largest of the six (11 x 16 m) consisting of rooms on two sides of a narrow corridor which led to a kitchen area in the space between it and the enclosure wall. There were three rooms on the north of the central passage, which communicated with one another, but only the westernmost one had a door into the corridor. On the other side was a sizeable courtyard (8.75 x 3.30 m) from which led a smaller room and the stairs.

The only other house of the six whose plan was fully discernible was I and, although slightly more complicated, this still followed the same basic pattern. From an entrance yard, with the stairs immediately on the right, one went through a narrow vestibule at the end of which was a small room. The rooms

on the other side of the house were also acessible from the vestibule; they consisted of a large room from which another led which at one time had a door connecting with the staircase, but this was later blocked, leaving only the approach from the courtyard.

The other two houses were much smaller than these described, but due to bad preservation the excavators were not able to be at all precise about their internal arrangements.

These houses, as excavated, were believed to date between the 10th and 8th centuries BC,[73] but there had been earlier buildings on the same site. It is not known from when these date (a fragment of a stele with the name of Amenophis III on it cannot safely be used for dating purposes), so, although the site probably had a lengthy history, it is impossible to know when the first houses were constructed. The excavators believed that the inhabitants of these houses were priests who lived there during their month on duty and this accounts for their small size and limited facilities.

There are some interesting details of construction which should be mentioned here as well as in the chapter on construction. First, it appears that there was some overall supervision, since each dividing north-south wall in the row was

shared by two houses; a feature which was common in places where there was an economy of materials and no individual freedom of construction, for example in the workmen's villages of el-Amarna and Deir el-Medina.[74]

The other unusual feature is the manner in which the houses were roofed. The walls were not sufficiently thick to support barrel vaults, so the roof was constructed of palm beams with reeds or papyrus bundles covering them.[75]

In this type of house, the size of the room was dependent on the length of the wooden beam available, but this problem could be overcome to a certain extent by placing columns at strategic points, to help support the weight of the roof. Where there are examples of columns supporting flat wooden roofs, such as in the houses at Deir el-Medina and el-Amarna, the general supposition has been that the column supported a roof which extended over the whole area of the room, covering it completely[76] and it is also assumed that the roof of the central room (which contained the column) was higher than those on either side of it and allowed light in through clerestory windows.[77] It is fairly clear, however, that in houses I and II of the row at Karnak, the columns were so positioned that they could not possibly have carried a roof which extended over the whole area of the respective rooms, but rather supported the edge of a roof over

only part of the area. This had the advantage of allowing much more light into the rooms opening from them as well as making it a cool and light section to work in. With this situation the use of the roof for the purposes traditionally assigned to it, such as storage, daily work under some sort of shelter built on the roof and sleeping in the summer months would have been restricted but replaced by arrangements in the house. In the case of house II it turns the building into much more of an open-planned construction than has ever been imagined for an Egyptian house.

This discovery, particularly the arrangement in house II, has interesting implications for other houses of this type, namely the basic strip houses found at Deir el-Medina and el-Amarna. As already seen, the central room of these houses usually had a column which could support the roof edge so there is no reason why this part could not have been roofed in the same way as surmised for the Karnak houses, having part in the shade and part open, which would have been far more functional for the climate and type of house involved.[78]

Summary

From this survey of pre-Ptolemaic housing it is evident that there is a standard plan which formed the basis for much Egyptian housing, seen at its simplest in the houses of the workmen's villages at el-Amarna and Deir el-Medina and later at Medinet

Habu, and at its most complex in the villas of the Amarna nobles. Other buildings looked at have shown various stages of development, like the 'mansions' at 'Kahun', but there are several points which need to be raised about the sequence.

The whole discussion has been constructed on the basis that the simplest form of house was one called here the strip type, which contained three parts essential to the Egyptian way of life - a reception or ante-room, the main living and dining section, and the bedroom and kitchen areas at the back of the building. One difficulty is that there is little evidence for this kind of construction before it appears in the villages at Deir el-Medina and el-Amarna.[79] These, it is true, though, were specially constructed to provide the basic necessities of life within the minimum area, but it is interesting that examples occur not just at these villages, but also at royal courts and in temple compounds. This suggests that this type of house in all its simplicity expressed adequately all the needs of Egyptian life and could be used to house people of all social classes. It would be very interesting to discover such buildings on pre-XVIII dynasty sites to see their gradual development. Present evidence is little help, but it might be possible to see in the model from el-Amra the earliest stage, consisting just of a courtyard and living quarters. Garstang at Hierakonpolis discovered the remains of houses dating to the III dynasty, which consisted of

only one minute room about 2 $m^2$ leading out into a tiny enclosed courtyard, like the el-Amra model and the houses appeared to follow the line of the street, presenting a virtually unbroken face, apart from doors into the courtyards, which were the only means of access.[80]

There is another contemporary house of the III dynasty from Saqqara, which although not exactly in the form of a strip house, does approach it. It had the rectangular form of the later buildings and consisted of three rooms plus a guard chamber.[81] (Plan XXVI.) Despite the fact that these are not placed in a row behind one another, it shows that a slightly larger but simple form of house existed, with its rooms sharing the same functions as those of the later strip houses.

It appears, therefore, that there is some albeit slight evidence that there were natural forerunners to the house types of the workmen's villages. Fortunately, there are the remains of the later strip houses from Medinet Habu which indicate that the workmen's type was not an isolated phenomenon and which so far, form the only examples of such houses on non official sites.

Returning to the larger houses at 'Kahun' and el-Amarna, it seems quite clear that one explanation for their origin is simply the joining of two or three of the smaller strip houses and that

this is reflected in many of the Amarna villas already indicated.[82] This process can in fact be illustrated by houses in all the workmen's villages where there is a door between two or more buildings, forming a larger unit, but presumably this development started as soon as such houses were built.

The 'mansions' at 'Kahun' already consisted of the equivalent of two houses joined together, but prior to that there is little evidence apart from a III dynasty building at Saqqara called the Royal Pavilion. (Plan XXVII.) Ricke has pointed out its similarity to the future plans of el-Amarna, columned reception and living halls with domestic quarters at the back and three other rooms on the east side, while access between the two parts is limited as in the Amarna houses.[83]

It is evident that there are early precursors of both the strip and the mansion types of house dealt with, but there is no indication of when the joining up of the buildings occurred. It seems that the Amarna houses reflect the early ancestry of Egyptian dwellings of a certain type, with their rigid emphasis on reception and living halls and the domestic quarters at the rear and that they originated in much simpler houses, subsequently joined together into one larger one. More precise evidence for this is not forthcoming, but one day, on an early site, two simple strip houses with access between them may be found.

From this basic strip house developed not only the Amarna villas - by repetition on a horizontal plane - but also the town house, seen at Thebes illustrated in Dhutnufer's tomb and later on in Medinet Habu - in a vertical direction necessitated by the lack of ground space. Clearly the plan was not always rigidly kept to but on many occasions elements of it can be traced. Judging by the town quarters at Medinet Habu, this type of house was not so commonly occupied by the average city dweller where conditions were cramped and land expensive - there the buildings developed in a much less regular way with less trace of such plan behind them.

The results of this survey have established a distinctive type of building, which seems to have housed a relatively wide cross section of Egyptian society. However, more work needs to be done on pharaonic houses to establish these types with more certainty and to discover other kinds, particularly those found in a normal Nile-side village.

## CHAPTER II

## HELLENISTIC HOUSES OUTSIDE THE FAIYUM OASIS

In the nine hundred years that make up the hellenistic era of Egyptian history (332 BC to AD 641) the general situation became inevitably more complicated, since it was no longer a case of one indigenous population and the different classes within it; now the Egyptians were ruled by foreigners and placed over them were Greek bureaucrats followed by Roman administrators. The cautious approach of the Roman Emperors in their dealings with Egypt is well known because of the wealth they could draw out of it and it was exceptional in not experiencing the same degree of "Romanization" as in other provinces, for fear that too much would destroy the economic position and hence the flow of wealth.

Against this background, one would expect a sharp differentiation at first between the housing of the Egyptian farming populace and the wealthier foreigners, which through time would probably become less clear as mutual assimilation of plans and construction occurred. The sites which provide the evidence are more diverse than those from the pharaonic period, consisting of the new settlements in the Faiyum and towns in Upper Egypt (like Medinet Habu, el-Ashmunein (Hermopolis Magna), Edfu and Elephantine Island) where occupation had been more or less

continuous from the pharaonic period. Because of the unusual history of the Faiyum oasis, it is proposed to deal with the settlements there separately from those in the rest of Egypt. This chapter, therefore, will consider sites in Upper Egypt, outside the Faiyum oasis and the next will investigate the Faiyumic evidence. It is fortunate that at three sites occupation was continuous for the three different periods which form the nine hundred years of hellenistic Egypt, Greek, Roman and Byzantine: these are Edfu and Elephantine Island in Upper Egypt and Kom Aushim (Karanis) in the Faiyum. Karanis will be investigated in chapter III but it is interesting to look at the other two sites in their entirety to see if there was any significant change through time in the kind of houses which were built.

Edfu

Edfu was famous because of the successive temples of Horus but the important one for this purpose started in 237 BC and was not completed until 57 BC, so the associated settlement dates from the 3rd century BC and continued in some parts at least until the 9th and 10th Century AD.[1] Only a fraction of the ancient town has been excavated, that on the western side, since on the other three sides occupation has been continuous to the present day. The investigated part was worked on by French expeditions during the 1920's and early 1930's under different

leaders[2] and then in the late 1930's by a Franco-Polish team;[3] between them they examined an area of about 6000 $m^2$. The earlier expeditions excavated a strip about 30 m west of the temple on a level with the inner pylon, which joined the section running north-south inside the old town wall. This latter area was investigated by Bruyère and Michalowski in their three seasons at Edfu, so the whole area formed a 'T', starting outside the temple temenos wall. Because of the ravages of the Sebbakhin, whose work is only too visible either side of the central strip, this must be a mere fraction of the whole that was occupied in hellenistic times. (Plate 1) In its original form the quarter would have been a fairly densely populated area, enclosed on the west side by the town wall which dated from the Ptolemaic period[4] and on the east by the temenos wall of the temple.[5]

It is not altogether easy to envisage the layout of the tell in the Ptolemaic period, since the various excavations do not join up. Those of the earlier years did not go down to Ptolemaic levels and it was not until Alliot's expedition of 1933 that any Ptolemaic buildings at all were excavated.[6] These were situated up against the temenos wall of the temple, and although there were some houses among the remains (along the line of the wall), the majority were shops or storage magazines. The prominence of these in the area suggests that the primary function of this part of the site was not domestic habitation, but that instead it had

a commercial intent - possibly serving the houses in this area as the Roman market excavated by Bruyère served the buildings near it.[7] There appear to be several rebuildings within this Ptolemaic phase but on the whole the buildings are oriented in an east-west direction and are divided up by narrow alleys, which were retained throughout. The stores appear towards the back of the excavated section leaving the houses overlooking the temple and its temenos wall. Their remains do not allow of much attempt at reconstruction except in very general terms, but generous storage space seems to have been a characteristic feature in the private buildings as well as the communal stores.

In the excavations carried out by the Franco-Polish teams, the Ptolemaic levels present a clearer overall picture with a "Jewish ghetto" in the southern part[8] and scattered individual houses in the rest of the area. The town wall on the western extremity of the site dates from the Ptolemaic period,[9] but it is uncertain whether it was a completely new feature or replaced an older wall. The presence of such a wall is strange, since the tell was about 15 m above the level of the plain to the west, so a defensive purpose seems unlikely; however in the Roman period, bastions were added to it and there was a garrison at Edfu, so presumably some defence was required.[10] Judging only from the plans in the 1937 - 1939 publications, this area was not densely populated in the Ptolemaic period, but possibly later alterations

and new building obscured the true plan. Of the Ptolemaic buildings from this area of Edfu there are five which are interesting enough to look at in some detail. Although the date of construction is discussed for only one ('la maison centrale'),[11] they must be roughly contemporary, about the 2nd century BC and so do not represent the first structures put up when work began on the temple.

The first of these buildings is 'la maison centrale',[12] which was virtually in the centre of the north-south mound and nearly connected with the northernmost part excavated by Alliot.[13] In plan it is a very simple building, being almost square (10 x 13 m) and divided internally into three parts, with the main staircase in one corner. (Plan XXVIII.) The walls were well constructed, being 1.60 m wide on the east side and 1.35 m on the north and south, with the internal walls all about 75 cm thick probably to support vaults and at least one other level. The remains were preserved to about 2 m in height so the lower parts of vaults and doorways were still in place, but there was no door leading outside. There was however a flight of steps adjoining the northern wall consisting of eleven steps to a height of 1.50 m above ground level; it seems that they must have led to an upper level but the measurements provided in the report do not quite tie up.[14] Michalowski mentions that the spring of the vault in room 25 was 1.55 m above the floor, giving a height

of about 2.80 m for the top of the vault,[15] which is about 70 cm taller than the height above ground of the steps, making it apparently awkward to reach the upper level. The solution must be that the floor level of room 25 was at least 70 cm below the ground surface from which the steps began, thus bringing the top of the steps more or less into line with the upper level.

This raises the question of whether 'la maison centrale' was in fact a house rather than the basement level of one. Michalowski considers it was probably a basement, although he says he found no traces of it continuing upwards.[16] If it is seen as a self-contained house, the most difficult problem is that of lighting, since in the surviving walls there are neither signs of windows nor niches to hold lamps, which is usually a good indication that the room was actually inhabited. To consider that enough light would come through from the stairwell is an unlikely solution, especially since the stairs turn through 90° twice, thus limiting the amount of light much more than if it were a straight flight of stairs. It is much more probable that this was a basement whose upper levels had disappeared and which possibly continued in use until the construction of Roman baths nearby in the 1st century AD when the entrance steps were closed off by a brick wall.[17]

There was at least one change in the layout of this

basement, when room 26 was divided in two by a wall forming room 27. The purpose of this is uncertain because it seems peculiar that, as there was an actual staircase, access to this narrow room should have been from above, so it is possible that this room was closed off and 26 remained alone. This too was abandoned after a while because the doorway between 25 and 26 was blocked and a window made between them.

There are traces of fire damage in two parts of the building, on the outside wall at the top of the steps, where the brick was entirely burnt by fire and on the walls of the staircase (28).[18] The major problem is that there is no clear indication of when the fire occurred and whether after it the building continued in use or was abandoned. It was considered in the reports that fire might have been one of the reasons why this area of Edfu was abandoned in the 2nd century AD, but as there are only traces of fire in this building and in the ghetto area, this seems unlikely.[19] Conceivably the fire damage was not so devastating that the house had to be abandoned afterwards, as the peculiar positions of the traces of fire suggest that this level was possibly not the worst affected and that therefore an upper storey suffered worse and was then destroyed or collapsed with no replacement. The burning of one part of the north wall and the top four steps might hold the clue as to the date of the fire; it has been mentioned above that the steps went out of use about the

time the Roman bath was erected at the end of the 1st century AD, and if the steps together with an upper storey had become unsafe in a recent fire, it would have been sensible to block them off. Since the basement itself was little harmed, presumably some other kind of entrance was made and it continued in use, due to its solid construction. This is suggested also by the fact that only one later building was erected over any part of it and that is the Byzantine basement (CV 1) which went over the north-west corner (by room 24 which was probably damaged anyway since no sign of its roof was found).[20] If after a gap of four centuries, this house still survived well enough and with damage only in the north-west corner, then it suggests that the fire did not have a drastic enough effect to cause the abandonment of the house altogether.

Just slightly south of 'la maison centrale', another building was excavated which followed almost exactly the same plan, and which was built during the 2nd century BC.[21] (Plan XXIX.) It measured about 11 $m^2$ and had the same division into three parts, though with slightly altered arrangement of the rooms in the central and northern parts - although this could in fact represent the layout of 'la maison centrale' before the alterations in 26 and 27. It is interesting that unquestionably this house continued in use into the Byzantine era, since Byzantine amphorae were found in it and the Copts built directly

on top of the Ptolemaic walls, showing that the structure continued sound well into the 6th century AD.

The most interesting Ptolemaic building is that excavated in 1938 and called in the report 'la maison du nord', owing to its position about 9 m north of 'la maison centrale'.[22] (Plan XXX.) In plan it is really very similar to the other two houses, although it is rectangular (12 x 8 m) and divided into two rather than three internal sections. Yet again there is debate as to whether the remains of this building represent a house in themselves or are simply the basement level. For some reason, although the two situations are very similar, it was decided that this building represented a house as it stood and that there was no superstructure. This decision has been perpetuated in the literature on the subject of the Graeco-Roman house, although it seems questionable on several grounds.[23]

Michalowski was apparently himself unclear how to interpret this construction and he considers the possibility that it was used for commercial basements or storage.[24] In the end he decides it was probably a private dwelling, mainly because of the height of the vaults, which were probably about 2.80 m. He envisaged a building which was one storey high, entered up a flight of steps on the north side leading onto a terrace, with access into the main house down the flight of steps in the

south-east corner. The two main rooms opened off a vestibule v at the foot of the stairs, while the small chamber λ was entered through the roof. Lighting was through special holes in the roof, which had been made usable by pouring sand into the gap between the vaults and the wall to make a smooth surface. The sand was kept in place by a ledge of about 30cm running round the top of the walls.

Photographs published in the 1938 report do not however conclusively support the assumption that the building was of only one level. Figure 4 on page 6 shows Coptic remains directly above the west wall and it is difficult to draw a dividing line between the end of the Ptolemaic and start of the Coptic brickwork. Another photograph (Figure 4 on page 9), taken when the Coptic courses had been removed, represents the present state of the building and from this it is not at all clear that the walls finished only about 30 cm above the top of the surviving vaults in rooms λ and μ. The location of the entrance is also completely unresolved; in the report it was assumed to be on the north side - under a layer of sebbakh which remained unexcavated - and to be of the same kind as in 'la maison centrale', namely a flight of steps placed against the wall leading up onto the terrace. This seems a reasonable theory, but one wonders why they did not make the effort to corroborate this, and it is moreover rather suprising that they could not see some sign of the steps, such as slight traces of mortar on the wall along the

line of the steps. One wonders also how low down they were.

Later building north of this house might support the supposition that a flight of stairs was indeed placed against this wall, since it was only in the 2nd century AD that anything substantial was placed there, by which time the function of the building had quite possibly changed and the ground level altered. One fact which has never been considered is the presence of a doorway in the west end of room θ, which shows up quite clearly in figure 6 on page 9 and in a recent photograph of the building. (Plate II) Although this will be discussed further in connection with area η, it could conceivably have formed an entrance from the street, albeit not a main one.

The building was well constructed, with external walls of 92 cm thickness and with vaults which began at 1.14 m, were 2.65 metres high and made of two superimposed layers of bricks. As mentioned, this is the reason why 'la maison du nord' was judged to have been a dwelling; but evidence from other buildings at Edfu refutes this conclusion. The vault of room 25 in 'la maison centrale' was about 2.80 m and few objections were raised to interpreting this as a basement. House H" in the other part of the tell, excavated by Guéraud, had two basement rooms of late Ptolemaic or early Roman date and roughly 3.05 m in height.[25] Vaults which survive well enough to be measured elsewhere on the site have an average height of about 1.80 m[26] and so it is quite clear that the

height of vaults cannot be taken as a reliable indication of whether a room was a basement or not.

The lighting arrangements are as strange here as in 'la maison centrale'. Temporarily leaving aside room λ, the same two factors are present in 'la maison du nord'; no wall niches and a staircase that takes two 90° turns restricting the light which could have come in down it. Since the presence of niches is a good indication of whether a room was a living area, their absence is reasonably conclusive in deciding that this is a basement. Room λ is strange, since the only access was through the ceiling, which was a common way of entering basement rooms in Edfu but which was generally employed when there was only one basement room or when there were several, which did not connect at their own level.[27] There is a similar room in each of the other two houses looked at, especially in η - v where θ is virtually identical being unconnected to the other rooms of the level and therefore presumably entered from above and in 'la maison centrale', room 27, which was made when room 26 was divided. If these rooms had a specific function like a safe or other kind of store then this method of approach is more understandable and, the lack of such a room being felt in 'la maison centrale', room 27 was split off to remedy this.

Only in room λ was there actual evidence of a 'light hole'

in the ceiling (more probably the remains of the trap door from which one entered from above), but such an arrangement was suggested for the other rooms as providing the means of lighting.[28] This is extremely unlikely, since the other rooms all received some light through the door and lamps brought down would have supplemented this sufficiently.

The final point concerns the sand filling between the vault and the external walls; there is no reason to doubt this as sand or other fillers were frequently used in other areas of Egypt, especially in the Faiyum,[29] not to provide a level surface for the room terrace, but to give a flat and firm basis to the floor of the next level. This apart, it seems very unlikely that to enter room λ one had to walk across the roof to get in.

It seems, therefore, that Michalowski's reconstruction of this building as a house in its own right is incorrect and that it should be seen as a basement level of a house that consisted of at least one other floor, like the other two Ptolemaic houses looked at so far. Now it remains to consider the door in the west wall of room θ and the possible relationship of area η to the house. Area η was small, only 3.30 x 2.60m, situated directly west of 'la maison du nord' without any evidence of having had a roof (no sign of a vault or wooden beams).[30] On its west side was part of the Ptolemaic town wall, while the date of the wall

to the south is uncertain, since on the 1938 map it is marked as of Roman date, connected with the shops to the south, while on the 1939 it is a Ptolemaic feature. The northern boundary of this area is also problematical; it is marked as Ptolemaic, but, although Michalowski interpreted the area as being accessible to the outside world through a gate in its east side leading to the street, the presence of this wall would prevent all access.[31] However, if η is seen as being a courtyard area for 'la maison du nord', the existence of this wall is not a problem but rather makes it into a self-contained area. Michalowski considered that this area predated 'la maison du nord', but not by much, since the construction methods were very similar, sharing the same coloured brick and orientation. He believed also that once the house was built the yard was left unused and that 'la maison du nord' was built so fast that it caused the occupiers or users of area η to leave behind their bronze and iron tools and other implements in their rush to evacuate the area.[32] Moreover, Michalowski considered that a layer of sand and earth in the yard - which contained a papyrus of the 3rd to 2nd centuries BC, which he used to date the construction of η, even though it was found higher up in the debris than would have been expected - formed quite quickly. This too is strange: elsewhere on the site, the rate of debris accumulation was extremely slow, as will be discussed further on; when abandoned for four centuries, the overall level rose between 60 - 80 cm. It seems unlikely that

this nondescript area of Edfu should have had its own extra fast accumulation rate when once abandoned. Surely the accumulation indicates continued use over a reasonable length of time so in this context one should see the papyrus as representing a later loss or discard. Within area η two walls are marked which from their form should be interpreted as gate posts, one forming a gate into area η from the east and the other making an entrance, albeit rather narrow (about 30 cm) into a space just outside the door in the west wall of θ . The presence of a gate separating this entrance from area η is the one feature which raises uncertainties about η being a yard for the house to its east, but looking at the 1939 plan, where the area forms much more of a unified whole, it seems unlikely that η had a separate existence unconnected with the house.

In conclusion therefore, 'la maison du nord' should be interpreted as representing the basement level of a larger unit with a small associated courtyard to the west, entered through the door in the west wall of θ . This hypothesis is backed up by the discovery in rooms θ , μ and ν of six large storage jars of the type used for dry materials and of either Ptolemaic or early Roman forms.[33] The lack of an upper storey is slightly puzzling, but neither is there one in 'la maison centrale', where, however, it is quite possible that fire destroyed it. In 'la maison du nord' the Copts built directly on top of Ptolemaic walls of the

basement and it is likely that they destroyed any unsafe parts before building on the sound walls.[34]

There were only two other Ptolemaic buildings in this part of Edfu. The first was a house α - δ, thought to be a doctor's house, because of bronze utensils, animal bones and a wax skeleton. As published it is of later Ptolemaic date than the buildings looked at so far, but is on top of an earlier Ptolemaic construction.[35] Although incomplete and considerably built over, it continues the pattern of solidly constructed, regular structures.

The second building worth noting is one excavated further to the north, right up against the boundary wall, which was L-shaped; it consisted of two rectangular vaulted rooms joined at right angles and a much smaller chamber to the south, not connected with the other two but with a small flight of steps in it, probably aiding access through a trap door in the roof. (Plan XXXI.) The house was entered down steps and in the centre of K' was a brick table with a light hole above it. This rather unusual arrangement was not met anywhere else and its plan seems to have been thus to make use of all the available space, because, at the north end of the excavated area, the amount of land available for habitation was very narrow.

With the main part of Edfu in the Roman period, there seems to have been a change of function, since there are two areas which have a commercial purpose. They are both dated to the 2nd century AD, but one of them (that near 'la maison centrale' and 'la maison du nord') had in part a 1st century AD predecessor. This area took the form of an open square with long narrow stores or shops grouped round it and it is quite possible that at this time both the main houses in this area shared some commercial or administrative function in connection with this market.[36] The other group of shops was south-west of the other major Ptolemaic building (η - ν) and consisted of rooms 101 - 115. It was not arranged like the other one, with shops off an open area, but was simply a row of shops along one side of street 111.

As for the houses, whenever possible the builders of the Roman period used remains of earlier constructions for their foundations and so tended to keep fairly closely to the layout of the earlier buildings, as for example in the ghetto with house 61 - 64 of the 2nd century AD more or less covering ξ, λ, μ + ν from the Ptolemaic period.[37] Clearly many of these original structures must have survived well into the 1st and 2nd centuries AD, since as already mentioned nothing else encroached on them. The greatest amount of Roman building survived at the most northerly end of Edfu, where it is at its narrowest, but this was military in nature, connected with the garrison stationed at Edfu

throughout the first two centuries AD.[38]

The Byzantine period at Edfu, which in places continues until the 10th century AD, has been more extensively excavated.[39] One major problem when dealing with the results of all these excavations is that of dating and here one finds a discrepancy between the area looked at by the early excavators and the longer strip further to the west excavated by Bruyère and Michalowski in 1937 - 39. Briefly the picture appears as follows: in Michalowski's strip there seems to be a large sterile gap between the end of the 2nd century AD and the middle of the 6th century AD. In the other part, although dating is far from exact, it looks as though occupation went on continuously from the end of the Roman period into the Byzantine era,[40] and then without major interruptions to the 10th century when the area became used as a cemetery.

The first problem is why there appears to have been no occupation in Michalowski's area for very nearly four centuries. The evidence he gives is that there was a completely sterile layer of between 60 - 80 cm, without any artefacts or documents that could be placed in this intervening span. The very small rise in level is perhaps not sufficient to be taken as building debris of four centuries, since in other settlements which have been deserted for a quarter of the time the rise has been

spectacular. In Faiyum settlements, notably Soknopaiou Nesos, there were two occasions when the area excavated had been deserted. In the first of these between levels IV and III, which was judged to be a gap of between 267 and 183 BC - i.e. 84 years - the two-storey buildings of level IV were completely buried in about 5.5 m of sand,[41] and then again in the break between the next two levels - III and II - Boak reports that the level III building was completely covered with sand.[42] At Karanis similarly there were breaks in occupation, but here the case is not so clear cut, as the rise in levels - e.g. a 3 m gap between the B and A levels - might include the rise throughout the B level itself, as well as the interval when there was no habitation.[43]

At Medinet Habu, which also had its share of breaks in occupation, the increase in levels resembles more closely that at Edfu. In the north-east part of the enclosure there actually appears to have been a drop in level, as the average height in this part of the temple grounds between the XXV and XXX dynasties was about -0.90 meters (below the datum point of 77.09 m above sea level taken at the threshold of the first pylon), whereas after a break in occupation until the Roman period (1st century AD), the level had dropped to an average of -1.70 m. It is possible that this could be attributed to the work of the ancient sebbakhin, since Hölscher found evidence in the form of a large

heap of sebbakh outside the enclosure wall that they had been at work on the site when it was unoccupied.[44] A period of desertion between the late Ramessid period and the beginning of the XXXI dynasty produced a rise of between 70 - 90 cm.

What light can this information shed on the problem at Edfu? Judging by the Faiyum examples the rise is amazingly small; at Soknopaiou Nesos in a gap of the same length, the difference would have been about 25 m, but one should remember the position of Soknopaiou Nesos - right in the desert and totally exposed to the wind blown sand. The same applies, though perhaps to a lesser extent, at Karanis which is higher up and so slightly less open. The common factor between Medinet Habu and Edfu is that at the former there was an enclosure wall all the way round and at Edfu, at least in the part Michalowski excavated, there was a town wall. Alliot mentions that it was only 2.50 m tall when he investigated it in 1932,[45] but originally it must have been considerably higher than this, and, as it was on the desert side of the settlement, it must have helped considerably in preventing the accumulation of wind-blown sand. Also, at Edfu, by the Byzantine era the height of the Edfu settlement above the ground level of the temple court was between 12 - 18 m and this too must have played its part in stopping an enormous covering of sand.

In view of these factors therefore it is perhaps not too

surprising that the general deposit over the four centuries was an inconsiderable one, but even so, the smallness of it is unusual. Leaving this aside, the next problem is why the area was deserted at all, when the area to the east was apparently still occupied.

The excavators could shed no light on this, other than indicating that there was evidence of fire in some places.[46] As discussed already the fire damage mentioned is limited to two places over the entire area excavated, namely in the jewish ghetto and in 'la maison centrale' and here the time of the fire is uncertain, but could have been during the 1st century AD.[47] The only quarter which bears traces of fire of about the right date is the southern end of the tell, so it seems unlikely that a serious fire was the reason for the abandonment. Another possibility is depopulation caused by either economic depression or sweeping plague. A combination of these is plausible, because there was a severe plague which raged through Egypt from AD 165 for about fifteen years, coupled with a period of economic depression in the country.[48] This alone cannot explain the reason for the desertion of this particular area. The answer must lie in the purpose to which the area had been put during the preceeding periods of occupation, which seems to have been a mixture of commercial, military and domestic. The central area was very much commercial with a series of shops and an open

square west of 'la maison centrale', the conversion of 'la maison du nord' into basement shops and also small shops further to the south in and close to the ghetto. At the northern end, there seem to have been some military installations protecting the bastions and, in between these various establishments, houses of varying kinds were squeezed in. Perhaps the overall impression is not one of great wealth, although the solidly built Ptolemaic houses were still mostly in use with or without alterations, and this might be expected since it is furthest from the main feature of the site, the temple of Horus, which provided the town with one means of livelihood. The shops and houses directly connected with this would have been closest to the enclosure wall of the temple, like those excavated in 1933.[49] The area in question on the west of the site was probably fairly poor and anything such as a serious plague could have had reasonably devestating consequences. Once more or less deserted and with the population of the whole site depleted, such an outlying area would naturally not have been instantly resettled. Presumably during the 6th century AD there was a sufficient upsurge in population to warrant the use of previously unoccupied areas. Unless by chance some documentary evidence is ever discovered, the true reason for this long abandonment will never be known, but it is in the realm of economic problems that the solution would seem to lie.

The Byzantine occupation, when it finally happened, does not appear to have been particularly important and was probably first an overflow from the areas of denser settlement.[50] That there was more extensive Byzantine building than remains is clear when looking at photographs such as figure 4 on page 6 in the 1938 report, showing Coptic buildings on top of 'la maison du nord', and so presumably the area had been robbed in antiquity or decayed gradually. The excavated remains were concentrated in two areas; the same two as those where evidence of fire was found.

In the central part, the buildings centred round 'la maison centrale' were not very imposing. As excavated they were all basement levels, although these had originally been part of larger complexes, and all made use of earlier buildings. It is interesting to see that the basements CV I and II are the first buildings to ignore the position of 'la maison centrale' and build over it, even though it is only over the north-west corner, probably destroyed by fire, and this must indicate that the building had finally become ruinous after eight centuries. However, it is surprising that it was not used for foundations of other buildings as it was solidly constructed. There is nothing particularly special about the buildings; they all had fairly small rooms, especially CV I and II which only measured 2.40 x 2.50 m (internally), and all were vaulted.

The rest of the area excavated to the west of 'la maison centrale' was assumed by Michalowski, on account of the amount of fine pottery, to have been some kind of institution, most probably a monastery.[51]

In the area to the south which produced Byzantine buildings, there was only one domestic complex v - x, a layout which is interesting for the very symmetrical layout of the wall niches in the two main rooms. In form it is very simple, belonging to the strip type of house, consisting of one room the entire width of the building and the other half sub-divided irregularly, with the smaller part being used as a store room.[52] The other main building in this southern part made use of the Ptolemaic house η - ν, with the whole northern part used for basements. The construction built around it seems to have been some kind of defensive system, since in this area the enclosure wall was very close.

The evidence from the Byzantine period in the two areas excavated by the Franco-Polish expeditions of 1937 - 39 gives little impression of the area once reoccupation occurred, which backs up the idea that settlement was sparse and that what there was formed an overflow from the sections further east.

The main house of the Byzantine period from the earlier

excavations was H", which was very similar in plan to the Ptolemaic ones particularly 'la maison du nord', discussed above.[53] (Plan XXXII.) The eastern part of the building was probably Ptolemaic in date and was better constructed than the rest of the house.[54] Like 'la maison centrale' and 'la maison du nord' there appeared to be no entrance at ground level, but, unlike these two buildings, this one had more features indicating domesticity, such as wall niches and a place in which to store water jugs, so it is possible that this could sustain an interpretation as a house. It is clear that, if future excavations are carried out at Edfu, particular attention should be paid to the way in which the houses were entered.

Little of interest can be said about other houses excavated from this area, but it is possible to look at the way the occupation built up from the Roman period to roughly the 10th century AD and this has been done in Appendix I.

This concludes the evidence from Edfu and it remains to summarise the results. As the Byzantine occupation owed much to the preceding Roman period, the two must be considered together to gain the best impression but unfortunately the amount of evidence from the two areas of excavation is unequal and leads to a rather unbalanced view. A better knowledge of the Roman levels from the area excavated by the earlier archaeologists would help to give a more

complete idea of continuity, which, at least, achieved. Michalowski's excavations The most notable feature about this area of the site was the long gap in occupation, followed by a very brief mid-Byzantine resettlement of an unspectacular nature, whilst in the other section the use was far more continuous. It is clear that, whatever the reasons for the abandonment of Michalowski's site were, once it has occurred, the area was never considered a prime one for resettlement; it would be interesting to know if anything similar had taken place in other marginal parts of the town to discover whether it was a universal feature or confined to that part. However, until the present settlement ceases, this must remain unanswered, but clearly, at the first opportunity, other parts of Edfu should be investigated.

The buildings themselves do not present anything very unexpected. The main ones looked at are either square or rectangular, solidly constructed, and regularly divided up, probably of two storeys, but conceivably more, with vaults for the basement levels.[55] It is uncertain how the other floors were roofed, either with continuing vaults until the top like the houses at Hermopolis and Djeme, or with flat roofs as in the Faiyum towns.[56] A peculiarity is the method of entrance, which seems to have been up a flight of steps onto the first floor. It

is difficult to think of a sufficiently convincing reason for this practice, since if space was tight, steps would be very impractical. It could be connected with the rise in levels which must have been fairly rapid when the area was actually occupied,[57] so steps provided a more effective way into the houses, less affected by the increase in ground level.

Elephantine Island

The other site where occupation continued uninterrupted throughout the three periods is the settlement which grew up round the temple of Khnum on Elephantine Island. Like Edfu, this was an old village dating back to the Old Kingdom,[58] and similarly reliant on the temple for its existence but, unlike Edfu, it was not situated metres higher than its accompanying temple. The settled area was much smaller than at Edfu and the fact that it did not continue on to the present day shows the relative difference in importance of the two sites.

There are very few houses which can certainly be dated to the Ptolemaic period. The first team to excavate there dated several buildings to this period,[59] but successive excavations throughout the 1970s by a German group under Kaiser et al. have redated their findings, so that now only about three can be placed within this time and they are rather fragmentary. As mentioned above, when dealing with the group K44 there was a

distinct change in orientation at about the start of the Ptolemaic period, possibly due to rebuilding of the temple of Khnum.[60]

This is seen in only one Ptolemaic building, K11, which was south of the temple and one of the first structures to be aligned on the new orientation, although incorporating older remains.[61] (Plan XXXIII.) A Roman structure K13 partly covered it which was thought to have had a religious function, so it is conceivable that throughout this area had some special significance. One quite unusual feature was the foundations which were deeper than usual, probably indicating several stories. The oldest part was in the north - K111, 113 and 114 - and the other three rooms appear to have been added onto this. The south wall of K111 follows a wall belonging to the older orientation and this slight discrepancy of direction gives the house a very small twist. Other than interpreting K115 as a courtyard and noting the presence of a bench in K112A and B it is difficult to understand the purpose of the rooms, and it is not clear that this plan represents the total extent of the building as there was extensive use of the area in successive eras.[62]

The other two Ptolemaic buildings came from the area of the town north of the temenos wall. The first group, excavated by Honroth's expedition, consisted of 'a', 'b', and 'c' and room 'r'

on his plan and it is unclear exactly how they connected, but they appear to be small rooms bordering on courtyards.[63] Rooms 'a' and 'r' had basements and in both cases access was through the roof, although in 'a' there was no flight of steps against the wall as with 'r'. Their purpose was clearly storage, as in 'a' there was an enormous storage vessel of clay, made up of separate rings, which had been built in as the room was made, since it was too large to come through the trap door.[64] A strange collection of objects came from 'r' - loom weights, oyster shells and a piece of pure gold from a bar.[65]

In the courtyard was a staircase leading up to a granary, very like the representations from Beni Hasan.[66] There was also a bench in this yard, as often found in the Faiyum villages today. The precise nature of the different rooms and their relationship to one another is unclear, but through 'c' there was access to the street.

The other house was re-excavated by Grossmann and he called it F.[67] It is of two clear periods, the small rectangular part in the north (7.7 x 5 m) predating the larger section, which contained the stairs and three other rooms. There is little else to mention about this and it is the last of the houses which were definitely of Ptolemaic date. They form a rather incoherent trio, from which it is difficult to draw many conclusions, other

than that courtyards seem to have been an integral part of the houses and they generally had vaulted basements as at Edfu.

The buildings of the Roman period came from the southern area of the site, where there was a deposit of several hundred years. The main domestic buildings investigated in this area were houses 19, 27, and 16, although the group K13 and 40 were also excavated but some sort of religious function was attributed to them.[68]

House 19 was initially excavated by Rubensohn in 1906-8 and published by him as house $\mu$.[69] However, the German expedition re-excavated this in their first season and altered Rubensohn's interpretation quite considerably.[70] The two plans do not differ very dramatically, as even in 1906 the southern part had been dug away, but more survived than when Haeny looked at it. The house was quite sizeable - about 12.5 x 12.5 m originally - but with a later annexe which measured 10 x 5 m. (Plan XXXIV.) The layout is regular, divided into three rectangular sections by two north-south walls and this is exactly mirrored in the later addition. The original position of the door into 19 is unclear as the one found showed signs of alteration;[71] however one would expect to find it in the north wall where it is; possibly, therefore, there was a slight change when the annexe was built. In both parts the staircase was immediately on the right of the entrance, but, in the original house, there is a peculiar arrangement on the other

side, with a minute room (199, 3.5 x 0.5 m) accessible from 198. Its dimensions are such as would appear to preclude its use as a storeroom or as a vestibule, so it is hard to imagine what it was used for.[72] The annexe seems to represent a completely separate unit, although one clearly closely connected with 19, and Haeny suggested another family unit, possibly another generation.[73]

The date was not precisely established; Rubensohn associated it with the temple enclosure wall from the Ptolemaic period due to similarities in building technique,[74] but Haeny placed it in the Roman settlement between the 2nd century and early 4th century AD.[75]

Very close to the north-west of this complex (19 and 19A) was building 27, which was fairly well preserved.[76] Its plan is rather interesting, since it is formed from three rectangular sections, with only two subdivisions. (Plan XXXV.) The building measured 13 x 10 m and seemed to be rather more carefully constructed than usual, with stone foundations except along the west wall (where the north-west corner seems to have replaced an older building anyway). Unfortunately only a few brick courses remained, so the positions of all doorways were lost. It would have made sense if the entrance was in the middle of the east side (before building 26 was built), because it is the narrowest of the three parts (about 2 - 3 m internally) and

therefore less likely to have been used domestically. The presence of a bench along the north wall of 275 is unusual, as is the well-made floor (the bricks were covered with lime), since, if this were a storeroom as its size would suggest, both these above features are exceptional. The floor would imply that some process occurred in this room, which required a waterproof surface, as ordinary earth would be too churned up, while the bench need not have been for sitting on, but rather for storing something like large jars.

Room 273 was probably the main living room due to its northern position, thus kept cool by the north wind, and also because of the niche in the southern wall, which tends to be indicative of frequent habitation as all that remains of wall-cupboards or lamp rests. The careful construction - foundations of stone, herring-bone floors, baked brick used for the stair vault - and rather unusual layout of the house suggests that this may have been constructed with a specific purpose in mind, but unfortunately nothing has been recovered to hint at what function was intended.

The remaining two Roman houses are less complete than the above two. The first, 16, appears to have had an ordinary plan, consisting of three rectangular sections, the first two forming two sets of three rooms with a narrow undivided space at the

south side.[77] 16 was probably a fairly late Roman building, since part of it was built over 13, once this fell into ruin, and the construction technique used for this extension - pan bed courses with specially prepared foundations - confirms this.[78]

Finally building 17, north-east of house 19, was very simple consisting of two connecting rectangular sections, with divisions in the western part, which seem to have been added later and to have been some sort of storage bins.[79]

The Byzantine period at Elephantine is perhaps the most interesting of them all, due to the exceptional use to which the temple buildings themselves were put once its religious function ceased. Occupation round the temenos wall continued unbroken through the late Roman era well into the Byzantine settlement. In the settlement that had grown up south of the enclosure wall, a Coptic building continued east and west of house 27. Though somewhat fragmentary, the middle one,26, seems to have kept the normal tripartite division and for some strange reason its west wall abutted against 27, forming an extremely narrow and useless area.[80] Building 28 was based on the same remains which the north-west wall of 27 had already incorporated and the east wall of 28 either abutted against or was built over part of the west wall of 27. Although it is difficult to interpret, 28 had a fairly sizeable rectangular courtyard, where

either storage bins or an oven were found.[81]

The main Coptic houses were discovered to the north of the temple on either side of a street between the temple and earlier building. T43 was a long narrow building constructed over part of the temple sanctuary and was only a section of a much larger complex (which Haeny thought could have been a small religious community).[82] So little of it remains that it is difficult to say anything very definite about it, other than that these remains formed one range of a squarish building. There appeared to be an entrance in the north-west corner with a small lobby, from which one entered a longer, narrow room. Like other buildings here, this one seemed well constructed, with a herring-bone floor in the entrance vestibule, that might have continued into the main part (mostly destroyed by graves) and a stone threshold at the entrance.

The building north of the street, T51, was one of a line of Coptic houses (T52 and T53) along this side, which were in turn the last phase of building activity dating back at least to the Middle Kingdom.[83] (Plan XXXVI.) T51 as such was late Coptic, but no more specific date was given, although it succeeded a building from earlier in the Byzantine era, which was probably built after the closure of the temple and so was contemporary with the settlement in the temple court. The older house (T51A)

consisted initially of two small rectangular rooms (2.70 x 3 m internally), but it is just possible at some time it extended further to join a west wall which formed the precursor of the western side of T51. This building seems to follow the alignment of the much older enclosure wall of Middle Kingdom date, since it is almost perpendicular to it, whilst the line of T51 follows another orientation parallel to the line of the temple and T43.[84]

The first phase of T51 consisted of a rectangular building in three parts, with the central one divided in two and the entrance in the middle section on the south side. It was longer in an east-west direction than T51A (11 m instead of 7.80 m), but the rooms were slightly wider (3.10 m as opposed to 2.95 m) with relatively thinner walls (50 cm rather than 80 cm in T51A). In the entrance room of T51 was also the staircase, which caused the position of the doorway to be off-centre, and likewise the doorway into the room behind. In plan, therefore, T51 is very similar to the types found at Medinet Habu in the Byzantine period (see below), falling into the category of strip houses. The direction of the staircase can be established since the excavators discovered a niche in the east wall of the entrance room. To gain access to this, the flight of stairs above it must have been highest on that level, which means that the stairs began immediately inside the doorway and went in an anticlockwise direction. Quite probably the recess formed was used as a store

room as with the houses in the Faiyum, especially at Karanis.

Later on, the south front of the building was extended by 3.50 m to form another entrance room and storage space. There is a similarity between this and house 19 with its annexe, since the party wall with the main house was very flimsy, but in this addition there was no sign of a staircase. Later the south wall of the extended house was moved further south again, and a fairly solid wall constructed (70 cm), possibly to allow for another storey. Here it is not quite as obvious as in house 19, but it is possible that the alterations occurred to provide more space for other members of a family.

The other late Coptic buildings to the east of T51 continued the line of the second extension along the street creating a regular frontage, which might suggest some kind of planning, as buildings tend not to adhere naturally to such a pattern. One wonders whether it was in any way connected with the settlement inside the temple hypostyle court. There are only fragmentary remains of two structures; T52, which seems to have been very simple consisting of a wide entrance corridor leading into a single room (1.9 x 5 m), and T53 which seems to have been only one room (about 3.50 x 5 m).[85] Judging from the plan this row of buildings seems to have continued further east following the same street frontage, but it is impossible to know what kind of

structures they were.[86] These houses do not give an impression of great wealth in their construction or form and contrast with T43 with its carefully laid floor and stone outer walls (taken from the temple), and might represent dwellings of the ordinary people during the Byzantine era, distinct from those in the religious community or military camp, but on whom, even so, some kind of organisation was imposed.

These buildings form the extent of examples of Byzantine construction other than those in the temple, but before mentioning these it is worth taking stock of the general picture of housing at Elephantine from the Ptolemaic period onwards, since the temple settlement is exceptional. The most striking feature is the general conservatism of the buildings. Returning to the characteristics of pharaonic houses - rectangular or square shape, with regular disposition of rooms often divided into three sections, at least one storey, often a courtyard, opening straight off the street - it is clear that most of the structures looked at have at least one of the features and there is no totally atypical house. The usual form of roofing was probably barrel vaults, although in many cases not enough of the building survived for this to be determined. This meant that the rooms could not be excessively large and accounts for the compactness of the houses; vaults may not have been completely universal, since there appears to be evidence of wood used in 19A

and it could equally well have roofed the annexe to T51, at least before the south wall was extended. It appears, therefore, that in this settlement on Elephantine Island, traditional building methods and forms continued with little hint of external influence.[87]

The use to which the temple was put, once it was closed down, was the most unusual of all the settlements where there was a similar situation,[88] because, in the first hypostyle court, small houses were constructed between the pillars and in the open area in the centre.[89] There was clearly a guiding principle behind it because of the regularity and uniformity of the buildings and the alleys between them. The temple itself was not severely destroyed since the form of the settlement would have made little sense if it had been (if the east and west walls had been knocked down, the houses built inside along those walls would have had no support), and the houses were built directly on the surface of the temple court, which also suggests that the time gap between the end of use of the temple and the new construction was very small. The houses consisted simply of two rooms, with the front one containing the staircase, which implies that they were probably several storeys tall like the Byzantine dwellings at Medinet Habu. It is not necesary to be more specific about this settlement since it really falls outside the scope of this study, but this use of the temple is worth

mentioning.

Hermopolis

El-Ashmunein, the site of ancient Khemenu and then Hermopolis Magna (in the hellenistic period) spans as equally long a period of time as Edfu and Elephantine but it was a much larger settlement, being the capital of the Hare Nome and also had a fundamental place in Egyptian religion.[90] It was excavated by a German expedition in the 1930s, but unfortunately the publication of such a key site is not altogether satisfactory, with no detailed plans of the domestic areas looked at (just overall plans) so one has to be content with verbal descriptions.[91] However, a large amount of information can be obtained, especially on the topography of the ancient city and from this it is clear that it was much larger than Elephantine[92] and different from either of the two settlements considered so far in not having only one temple as its central focus. In the hellenistic period, two main roads divided the town into four areas and tax returns from two of these in the 3rd century AD (the Oststadt-Bezirk and the Weststadt-Bezirk) indicate that there were about four thousand, three hundred houses in these two alone. Roeder reckoned that an estimate of about seven thousand houses in the whole of Hermopolis in the 3rd century would not be too far wrong, so it is a much more complicated situation than at either

of the other two sites.[93]

However, from what information there is, it seems that the houses were grouped into insulae or at least high narrow blocks, which were divided up by alleyways, from which the houses were entered. These alleys were so connected that they eventually led to one or other of the two main streets. Roeder describes the Coptic houses as being narrow and of several storeys due to the lack of ground space. They had thick external walls to support barrel vaults and the other storeys, small rooms with windows placed high up, and a flat roof at the top for use as a verandah and garden.[94]

Even though there is little definite from Hermopolis itself, it is fortunate that the necropolis associated with the city is known (Tuna el-Gebel) and survived in quite good condition, because the form the tombs took was funerary temples and, later, houses.[95] The best known monument is the 4th century BC chapel and tomb of Petosiris, with its strange mixture of Egyptian and Greek reliefs and styles, but this is a general characteristic of many other structures.[96] For instance tomb 21 is basically in plan a continuation of the layout of the XVIII dynasty nobles' tombs in Thebes, being T-shaped with a well leading to the sarcophagal chambers underground, but the facade and internal decoration of the two main rooms are a confusion of styles.[97]

The front door, for example, has an Egyptian cornice but surmounting it is a Greek triangular one, above which is a window with two others at either side. To have windows on a facade is unusual in typically Egyptian buildings. The decoration inside is Egyptian in style but certain features are distinctly foreign, such as the decorated panel under the paintings while the Greeks represented seem very incongruous.[98]

The houses are basically simple, like that of Isidora, which dated from the 2nd century AD and which was a two-storied mud-brick building, with two rooms on each floor and an external staircase leading to the upper storey.[99] The rooms were small (4.60 x 2.61 m) and vaulted (although they have been restored with flat roofs) and both those upstairs have wall niches, while there was a large axial recess in the east wall on which Isidora's mummy was placed. Here again the mixture of styles occurred, with a representation of an Egyptian funerary bed on the front wall of the recess, but the top was a conche shell, including Roman funerary connotations. The best known feature of Isidora's tomb is the epitaph to her, written in Greek on the right door jamb into the back room, but in fact this feature was not confined to this house, but occurred elsewhere (houses 2, 3, 6, 13, 14 and 15).

Other houses shared the simple plan of Isidora's tomb, like tomb 12, which was again a two roomed structure with a second floor, roofed by barrel vaults, but here Gabra believed the lower storey was a basement, with the funerary chamber downstairs, like tomb 21 and the nobles' tombs. Here too a conche shell covered the recess but was painted rather than sculpted as in Isidora's tomb.[100]

However, other tombs were defintely not of this type, such as tomb 5, the functional part of which also consisted of two groups of two rooms, one behind the other, but, instead of being on two floors, they were adjacent and at the front of them was a colonnade.[101] (Plan XXXVII.) The funerary chamber was the back room of the right pair. There were stairs to a basement level, making this into a fairly substantial construction. In style it is definitely not Egyptian, but relates to the Priene type of house, which consisted of an oecus (room behind) and prostas (main living room) which were often fronted by a long narrow room, sometimes colonnaded. The two rooms opened separately into two more, which did not connect together.[102] (Plan XXXVIII.) There the only difference is that there is no communication at all between the two sides and that the colonnade continues right along the facade, but the basic origins are quite clear. These houses flourished at Priene during the 4th and 3rd centuries BC and it is considered by some that they are reflected in some tombs in

Alexandria like those of Shatby of the 3rd century BC.[103] This tomb is not an isolated example; there are buildings with colonnades, such as 10 and 13 (both without published plans) and 18, which although without the portico, is quite similar to the plan of a Priene house. Here, the decoration in the main room is more Egyptian, but with features of Greek ornamentation - painted in imitation of orthostats.[104]

Although it is interesting that these different styles of houses are present at Tuna el-Gebel the deductions to be made about the sorts of domestic buildings found in Hermopolis are more fascinating. It is dangerous to do more than put forward speculations which must of necessity be very tentative, but one might assume that this division of types occurred at Hermopolis as well. Unfortunately there is no attempt in the report of Tuna el-Gebel to try to establish a relative chronology of buildings - Isidora's house of the 2nd century AD is only about 15 m behind the tomb of Petosiris dating from the 4th century BC - which might have given some clue about the spread of the types. It is unlikely that the tombs which appear to be of the Priene type date to the 4th or 3rd centuries BC, but it is possible that they were built relatively early on during the hellenistic use of the necropolis and this would presuppose that they had occurred in Hermopolis at a similarly early period.

Also, the type represented by Isidora's tomb does not appear wholly Egyptian, since it is unusual to have outside staircases (with the notable exceptions of 'la maison centrale' and 'la maison du nord' at Edfu). In his report Gabra mentions that this type of house recalls Aegean types,[105] but it is likely they were modified by Egyptian conditions and traditions. Since the description of Egyptian houses in Hermopolis does not agree with the two types found here, it would suggest that there was a considerable diversity of house forms in hellenistic Hermopolis, some typically native, but others clearly showing Greek influence and one wonders to how great an extent the two races kept apart in their own areas of the city, each adhering to their individual housing traditions.

Medinet Habu and Djeme

At Medinet Habu, the funerary temple of Ramesses III, the Roman period saw a reawakening of domestic settlement round the perimeter of the temple, after a break from the end of the XXVI dynasty right through to the Roman period.[106] Roman remains were quite scarce, though, and the main area of houses was north of the gate built by Tiberius (AD 41 - 54) on unused land, outside the Great Girdle Wall, where there were three definite Roman levels covered by Coptic remains.[107] These caused considerable damage to the earlier structures, so that most of the recognisable buildings belonged to the middle period of Roman

occupation. It is difficult to make very much of the earlier structures, but they seem to have extended over the same area as the later building. The middle period phase shows seven buildings laid out regularly, with a north-south street dividing them into two rows and then small east-west alleys, so each house stood on its own ground. The frontage of the buildings does not make a straight line as at Elephantine, but there had been some attempt at standardisation.

As to the houses themselves, the plans of only four are really recognisable and of these three are solidly built, square structures, divided internally into three parts, although in the cases of I and III, the central section is only a connecting corridor giving access to the rooms on either side.[108] In house I (about 14 x 14 m), these rooms have the appearance of being for storage, since they are very small, and the walls of the house are thick (between 1.50 and 2.00 m) which suggests vaults and probably several storeys as well. (Plan XXXIX.) There were two doors into the house, one at each end of the corridor and it is quite reminiscent of the later Coptic store (76 west of the temple in Djeme). Building III (c. 15 x 15 m) appears from its plan to be a domestic structure, but again had thick outside walls implying vaulted ceilings and several storeys. (Plan XL.) The staircase was in the north-west corner, just inside the entrance and here too, there was a second entrance, but not at

the other end of the central corridor; it was on the west from the street and led into a room next to the stairs from which there was access into the rest of the house. The east side consisted of a large room (c. 8 x 4 m internally) with a small recess at the north end, which had a brick floor on which were marks that could suggest an industrial use for that room if not for the whole building.[109]

House IV is the only one here which did not share the solidly built tripartite characteristic, but was instead a single strip. Owing to the three indentations along the west wall, which are similar to niches and particularly to those in house II here; it is possible that this formed part of a larger whole, although its position on the overall plan suggests that there was no space for any extension westwards, in which case they were a unique feature of an outside wall.

Other than these four houses there were a few above the XXIV dynasty levels in E-G4 in the south-east corner of the temple area which were less well preserved. The building in F4 showed the usual tripartite division, but there is no indication of the position of the entrance, whilst the house to the east in E4 was larger (c. 17 x 12 m). The storage facilities appear to have been an important feature since there are storage vessels in three rooms and the group on the south and west of the building

are small and either square or rectangular, like storerooms elsewhere.

In the Byzantine period, this rather scant occupation developed into a very densely populated settlement with houses all over the temple enclosure, on the Girdle Wall and inside the temple itself;[110] the settlement grew from the late Roman village and became the Coptic town of Djeme. The temple must have been taken over quickly once it went out of use, since it provided the Christians with a church (in the second hypostyle court) and the dignitaries probably lived in houses built in the first court and the sanctuary area. Hölscher found remains of many Coptic houses throughout the site, but he concentrated on the best preserved areas, which were those to the north and west of the temple of Ramesses III and on the Girdle Wall round the north-west corner above a Roman watch tower. The town was relatively well organised because, despite the density of building, the houses were roughly grouped into blocks with narrow alleyways leading to them from fairly straight streets about 1.75 m wide.[111] At the time of the excavations only first floors and basements were left but the stairs and incomplete walls show that there were two and occasionally three storeys with flat roofs.[112] The houses were narrow, often only one room wide through their length and some tended to taper noticeably towards the top, like house 112. (Plate III.) Courtyards were fairly infrequent due to the

cramped conditions - for example there are only three within the group of houses, 2-9 and 14-24, so light came in through doors at ground level and windows placed at a height above the neighbouring buildings. As well as being several storeys tall, the houses had a basement, usually reached by a continuation of the stairs (house 3) rather than through a hatch in the roof vault. This was the normal roof form; flat ceilings were only used for the actual roof, which meant that the walls needed to be well constructed and were usually about 75 cm thick (houses 3, 8 and 10 for example).[113]

The houses are all simple in plan, consisting basically of variations on the standard strip house, so they tend to be long and thin, as one would expect in these conditions. Although it is unwise to categorise too minutely it is fair to say that there are at least two types and that it is the position of the stairs which is the deciding feature. Several houses consist of a long thin strip with one room behind the other and with the stairs in the central part.[114] (Plan XLI.) In some of these, the central part (122) or either or both of the end sections can be divided (37). The other main type consists of houses like 38, 84, 101, 104, 110 and 119 where there is one main rectangular room, with another section behind divided in two and with the staircase taking up one of these two parts. (Plan XLII.) These two types form the great majority of buildings represented on

Hölscher's plan, but clearly there are variations like 100 and building 3 and 4 which are unusual due to their irregular shape. On the west side of the Girdle Wall are two large single-roomed structures (123 and 124), which probably had a different function and finally house 76 should be mentioned. This is similar to house 1 from the Roman period having a long central corridor with vaulted rooms on either side. (Plan XLIII.) Presumably its prime function was storage, and it seems likely that the upper level shared this rather than having a domestic purpose, judging from the small rooms which show on recent photographs, so perhaps the whole served as a municipal grain store. This basement level was below the street in the late years of the site's occupation, but it was entered down stairs situated in one of the rooms.

The houses formed in the sanctuary of the temple were entered directly from a street along the north side or up stairs leading from the street. It seems that some of these houses were probably only one level in height, since in examples where stairs from the street led up one-storey to an entrance there was no communication between the two levels of houses.[115] The houses seem to have been built into the chapels round the sanctuary and so must have been very small and cramped, and being next to the church, were probably inhabited by priests or people in some way connected with it.

Medinet Habu represents the first site where there is good evidence of reasonable continuity in occupation from the pharaonic to Byzantine period and it should help in elucidating whether there has been any noticeable change in house types. Those looked at from the pharaonic settlements mostly showed a continuation of Amarna characteristics, like that of Butehamun, the group of four in G7, the two small houses in G12 and the four strip houses in G-H13, all of which shared a roughly tripartite nature and had a water jar stand or 'dais' in the central room, which was a clear analogy to the layout in the large Amarna houses. Some of them had staircases indicating another storey but in others, like those in G7, there is much more of a hint of the one-storied Amarna 'mansions'. Especially in the strip houses in G-H13, it is easy to see how these long thin buildings developed into the type of strip house common in the Byzantine settlement. Another detail was the presence of a water-jug stand. Although internal furnishings is dealt with in chapter V, it is worth mentioning this here to prove basic continuity of types. As mentioned above, the 'dais', which appears in many of the XXI-XXVI dynasty houses at Medinet Habu, was quite possibly not for the master's seat as at el-Amarna, but served as a base on which to put the water jugs so that the evaporation of some water from them would help in keeping the room cool.

By the Coptic period this had altered and in the houses at

Djeme, the stand occurred in the entrance hall and had developed considerably. It now took the form of a wall niche, which was sometimes very ornately decorated with an arch at its top and pilasters on each side (e.g. in house 102) and the jugs were placed in stone stands in the niche.[116]

The basic difference between these Coptic houses and those of the earlier period is that the former have more floors, but this could be because of differential preservation, since no earlier buildings survived as well as the Coptic ones. Apart from this, there appears to be a line of continuity from the remains of the XXI dynasty. The Roman houses are not of this strip type of building, but there is nothing about their plan to suggest anything foreign; rather they follow the same types as seen at Edfu, the solidly built structure divided into three rectangular sections, which in turn are related to the large types of houses seen at el-Amarna.

In so far as can be judged, there is no feature in the Roman and Coptic settlements at Medinet Habu which cannot be traced back to some aspect in the earlier houses; this is to be expected, since Medinet Habu, positioned on the west at Thebes, was clearly not of special interest to the Roman settlers. The later spread of Coptic monasteries nearby and generally on the west bank[117] again serves to emphasise that occupation here at

this time was essentially native.

Again in Djeme there is nothing which is uncharacteristic of standard Egyptian domestic forms. As in the older settlements at Medinet Habu, Djeme probably provides a reasonably accurate impression of how an Egyptian town appeared in the Byzantine period - buildings close together, each of several storeys and interestingly without much courtyard space (this being compensated for by good storage facilities in the basement) - and the houses there quite probably illustrate the sort built at Hermopolis throughout most of its history as they correspond in many details.

Nag 'el-Madamud

Two sites remain to be dealt with briefly, Madamud and the island of Philae. Like most of the sites looked at in this section, the settlements were both associated with an important temple - at Madamud, that of Monthu and at Philae, that of Isis. At Philae the domestic remains were destroyed because of the whole island's being submerged seasonally due to the first Aswan dam and then totally when the second was built. The situation was rather different at Madamud where, after fairly thorough destruction of the temple by the Copts, they built a settlement within its grounds which did not last into the Arab period.[118] As at Hermopolis and Medinet Habu, there had been previous domestic areas outside the temple, but once this went out of use,

the Copts took it over for their own purposes and destroyed it far more thoroughly than for example at Medinet Habu.

The actual remains of the Coptic settlement were very scanty when excavated by Bisson de la Roque in the 1920s. There was no sign of a long occupation, since there was no clear proof of two distinct levels and no indication that it continued into the Arab period.[119] It is impossible to describe what a typical house looked like on this site, since in no case did anything considerable enough survive, but some glimpses are obtainable. There were two main areas of settlement between the south wall of the temple and the temenos wall, where evidence of nineteen houses was found, but mostly so fragmentary that only small sections of flooring or short stretches of wall remained.[120] Slightly more survived of two houses, 12 and 13, along the temple wall. House 12 consisted simply of a small square room (5.50 $m^2$) with the entrance in the south-west corner and the only internal feature was a niche in the east wall. House 13, however, seemed a large construction, stretching back to the temple wall and measuring 9 x 7.5 m. Very little remained of internal divisions but the presence of three stretches of east-west cross walls indicated that this was a more substantial building. There was a sizeable well on this part of the site to provide water, possibly indicating that the sacred lake had dried up, but the most dominating feature of this area was the presence of an enormous

storage building in the south-west corner, around which several houses were gathered (1,3,5,6,8,9 and 11). It measured 20 x 20 m and resembles in plan building 76 at Medinet Habu, with a central corridor and storage rooms on either side. The walls were about 2 m thick and presumably supported barrel vaults and other storeys as well. The presence of such a large building is rather surprising in this context and perhaps means that occupation of Coptic Madamud was more concentrated than is immediately obvious.

The other group of remains was on the west side of the temple, making more use of the temple fabric than in the other area.[121] Even so, the condition as excavated was very fragmentary and only minor details can be ascertained. Groups I and III were built between the temple west wall and the southern kiosk and were all simple structures along the lines of the military buildings at Elephantine, but not, as there, using the columns as integral parts. However, V incorporated two columns, apparently to delimit the entrance. In this house and its neighbour IV, there were remains of staircases, possibly making these dwellings similar to those in the court at Elephantine but VII appears to have been larger, since there is clear evidence of three rooms. The buildings in group IX, which were south of the gate of Tiberius, seem to have had basements, which were made using the stone foundations of the gate, since these extended out a considerable way.[122]

Little, therefore, can be ascertained about these buildings at Madamud; merely odd fragments of information, such as that some houses were at least two-storied and made use of pre-existing walls and materials, although mostly the buildings were of ordinary sun-dried mud brick, sometimes with baked brick for floors. The areas excavated do not suggest a particularly concentrated settlement, although as already mentioned the presence of a huge store might contradict this.

Philae

It is owing to the researches of Capt. H.G. Lyons in 1895-6 that there is any record at all of the Coptic settlement on the island of Philae, since these were subsequently washed away when the island was flooded owing to the construction of the two Aswan dams.[123] When Lyons visited the island, it was fairly densely covered with Coptic remains in the spaces between the temple buildings, and the fact that they did not intrude very much onto temple land suggests that this village follows the line of an earlier one, which was inhabited when the temple was still functional.[124] The photographs he includes in his report show that the houses remained to a height of about 1 m at least and sometimes enough survived to show the brick vaults (e.g. in number 50). They were built of dried mud brick, but sometimes had stone foundations, as is the case with the only house which

survives today on the new island of Bigeh. (Plate IV.) This is on a corner (between a road leading along the east side of the temple and one coming away from the kiosk of Trajan) and is quite sizeable (about 14 x 12 m) consisting of three sections, with the central part being basically no more than a connecting corridor for the other two parts. In the entrance way, there was evidence of a staircase when Lyons was there, but this seems not to have survived when the house was moved, as it is not present today. Traces of staircases survive in many other houses, usually indicating that they turned, since all that remains is the central post, round which the stairs were built. Although it is less easy to generalise here than at Djeme, the houses here seem to have been more varied and the position of the stairs was not as critical; in some strip houses it remained in the central section, as in the two houses to the south-west of the Coptic church of St. Mary, but in other houses (Plan XLIV.), the stairs were immediately inside the entrance, or to either side of it.

The types of houses varied little from those common elsewhere in Byzantine Egypt. There are examples of strip houses, like the two mentioned above, which are quite interesting since they are more or less indentical and appear to have been built as a separate block, with additions or indeed another house attached later. There is one other strip house worth mentioning - in the south of the village, directly east of the temple of

Ar-hes-nefer. This is an extremely regular three-roomed structure (about 14 x 8 m) and what is unusual is the exact alignment of the three doors on the axis of the building: symmetry was a constant feature of pharaonic architecture, as for example in the Amarna houses, but in the post-Amarna period and throughout the hellenistic era, this characteristic of Egyptian domestic architecture tends not to be very apparent. It is also unusual in having windows marked on the plan in two of the three rooms, since windows are not frequent in Egyptian houses. Because of these unusual features and its rather isolated position, one wonders whether it did really have a domestic function.

Other houses are usually almost rectangular in shape and consist of two or sometimes more sections. Very few of the houses in this village had a truly rectangular or square plan, possibly due to the twist in the line of the temple which caused the main axis of the settlement to alter. There was a main street running along the east side of the temple which continued to the quay wall and then turned west to the Roman gate and other alleyways led off this, from which the houses themselves were entered, as at Djeme. This settlement must have been important since there are two Coptic churches - one part of a monastery - very close together. Although it is impossible to tell from Lyon's plan how much, if any, courtyard space there was for each

house, it would seem likely that there was more than at Djeme, since this settlement gives the impression of being much less compact, with larger buildings more frequently intermingled with strip houses than at Djeme, to which, otherwise, it is very similar.

Summary

This site concludes the survey of domestic architecture in the hellenistic and Byzantine periods in Upper Egypt and it remains to see what conclusions can be drawn from the various settlements. The most striking feature is the general conservatism at the majority of sites - the continuity of the basic types of house from the pharaonic period, and the predominance at Djeme of the strip house, although its appearances were not limited to that site. As well as the house composed of three strip buildings (like 'la maison centrale' at Edfu and 19 at Elephantine) a frequent sort was that of only two rectangular sections like 'la maison du nord' and several examples at Philae. Although many houses adhered to the three-part layout, numerous others which were not so regular kept the clear division into rectangular sections, often with only one connecting door between the parts (like 'la maison du nord' and some houses at Philae), continuing the trend which was very clear at el-Amarna in the 'mansions'.

It is true to say though, that some houses from these settlements almost form a type of their own, since there is a clear indication that many of them would have been several storied, narrow buildings, compensating for the lack of ground space by extending upwards. Remains at Djeme seem to indicate that the width of the house did not stay the same, but tapered towards the top and one of the photos (50) in the Philae report might indicate the same. Lack of courtyard space was quite universal except for several houses at Elephantine but can be explained by the type of settlements; they are all towns or certainly large villages, and seem to have been densely populated with every available part built over. This inadequacy was generally compensated for by having a basement level with the same layout as the inhabited floors of the house and this was either accessible by a continuation of the stairs or through a trap door in the roof. There were often large storage vessels within one or more of the basement rooms (e.g. 'a' at Elephantine and many of the houses at Djeme). Although construction techniques will be dealt with separately, it should be mentioned that these buildings were made of mud brick, which by the late Roman and Byzantine period was sometimes interspersed with baked mud brick and stone when it was available from the destruction of temples. The buildings generally had vaulted ceilings with a flat roof at the top so it could be used and in house 19 at Elephantine, the presence of a supported wooden floor caused Haeny to wonder whether the

ceilings had been wooden as well.

It is interesting to find that models of hellenistic houses, such as that known from Xois, agree in many respects with this description, being several storeys tall, narrow and with evidence of pan-bedded courses in their construction.[125] They do not, however, appear to taper like the houses at Djeme and have more windows than is likely in the Djeme buildings. Other models reveal different types of houses, such as that in the Graeco-Roman museum at Alexandria (1621), which is however, curiously similar to the painting in the second tomb of Dhutnufer at Thebes (TT80) of his house, but these have not yet been verified by excavation.[126] Further models show tower dwellings, which however have not been considered here as none have as yet been discovered by archaeologists in Egypt.[127]

One site, though - Tuna el-Gebel, the necropolis of Hermopolis Magna - presents a different picture from this native conservatism and hints at the mix of house types in a larger city. As seen above the 'house tombs' represent traditions foreign to Egypt, like tomb 5, which seems to follow the type of domestic houses found on Priene in the 4th and 3rd centuries BC having a slightly stylised prostas and oecus arrangement. The tomb of Isidora (1) , although in constructional details similar to Egyptian buildings (mud brick, with vaulted roofs and wall

niches) is unlike them in having steps to the first floor from the street and Gabra saw here the influence of Aegean domestic architecture. Presumably these foreign types occurred also in the city of Hermopolis, but the interesting question of whether there were segregated areas for Greeks and Egyptians has not yet been proved archaeologically within the city itself.

# CHAPTER III

## HELLENISTIC HOUSES IN THE FAIYUM OASIS

Now the evidence from Upper Egyptian sites has been evaluated, it is now time to investigate the hellenistic settlements in the Faiyum basin. Although there had been some occupation in the basin itself during the pharaonic period,[1] it was not until the era of the Ptolemies and particularly Ptolemy II Philadelphus (285-246 BC), that the basin was sufficiently well drained to allow more wholesale settlement in the area. The object of draining the Faiyum was to provide agricultural land for the Macedonian mercenaries who formed part of the army of the early Ptolemies. From papyrological evidence there were one hundred and fourteen villages in the early Ptolemaic period, excluding any very small places, and from their names, (sixty-six Greek and forty-eight Egyptian) it is evident that there must have been a large number of Greeks in the area.[2] As there had been only limited pharaonic settlement in the Faiyum, the majority of those places with Egyptian place names must have been specially created and inhabited predominantly by Egyptians from other places. Rostovtzeff believed that since many of the villages were called after pre-existing settlements, like Tanis, Bubastis or Busiris, these indicated the origins of the new settlers.

Against this background, one would expect to find a continuation of Egyptian house types intermingled with some evidence of Greek structures, but it is best to let the evidence speak for itself.

Karanis

First, therefore, is the only site in the Faiyum where occupation continued into the Byzantine era - Karanis or Kom Aushim. This site lies in the north-east of the Faiyum and is high up on a ridge overlooking the oasis to the south, west and east. It was visited by Grenfell and Hunt in the course of their general search for pap yri in the late 19th century and fortunately they made extremely useful and interesting observations about the topography of areas which have subsequently been lost,[3] although they were not particularly interested in individual buildings other than temple remains. In the 1920s, however, a team from the University of Ann Arbor, Michigan, excavated in detail a large part of Karanis, making it into the type site for the Faiyum. As at many other sites, the sebbakhin had cleared large areas, including most of the early Ptolemaic occupation, but Boak and Peterson excavated a sizeable section on the north and east sides of the mound and smaller areas along the west face.[4]

As mentioned most of the Ptolemaic levels had already been

dug away before the Michigan team arrived, but there were some Ptolemaic houses around the south temple, some of which had possibly been connected with a mud brick sanctuary. When the existing stone temple was built in the late 1st century AD, they became incorporated into the temple enclosure, underwent many alterations and, where actual houses survived, they must have been very closely connected with the temple and presumably served as priests' houses.[5] The southern temple of Petesuchos was the focal point of the ridge. However, the parts excavated by Peterson and Boak were situated between the two temples (north and south) on the edge of the section destroyed by the sebbakhin, so very little remained.[6] The remains in the south of this area dated to the 2nd and 1st centuries BC, whereas it was not so easy to date the northern part precisely, other than to place it within the Ptolemaic period.[7] The small group of buildings excavated in H11 show several of the characteristics of Faiyumic houses.[8] The plans of the houses do not differ very markedly from those already familiar from the Upper Egyptian sites, particularly at Djeme.[9] For instance, House E107 is basically the same as the second type there, formed from a single rectangular room with two behind, in one of which is the staircase, here leading to basement rooms. (Plan XLV.) It is strange that E107J has its own entrance and does not communicate either at ground level or in the basement with the rest of the house. In this house, as in many others at Karanis, there is considerable courtyard space, in

front of E107J and on the east side as well, in E107F where a later storage bin blocks the entrance into it from room D. One unusual feature is the narrow passageway leading along the south side of the building from the street ES110, thus providing a blind entrance to the house. Husselman writes that similar corridors were also found frequently in earlier Egyptian houses[10] but there is reason to disagree with her because in all the pharaonic houses investigated, entrance directly from the street or from a public alleyway has been the rule, except in the Amarna 'mansions', situated in their own land. The same applies to the houses investigated from Upper Egypt of the hellenistic and Byzantine periods, so it seems that this feature is unique to Karanis and possibly to this level. Husselman says that E111 and 112 shared this type of entrance way but it is not quite the same in the two cases, being much wider and virtually a separate area in 112, whilst in 111 it was more of a central corridor off which led two rooms. The other house in this insula, E109, does not share this feature, but is of a type which is common in the Faiyumic settlement; it resembles more closely 'la maison centrale' at Edfu, being a square building with rectangular internal divisions, which are divided into two, not three parts each. Like E107, this was two-storied with a basement level, although there is no trace of a staircase so the basements must have been entered from above through trap doors in the ceilings of the ground floor rooms.[11] These four houses are the most

informative of the remains from this level and together with those in E10 form all that is known of early 1st century Karanis.

In level D, which corresponds in the south to the rebuilding of the temple of Pnepheros and Petesuchos, in the early 1st century AD, and in the north to the construction of the northern temple, there are a few more remains, but still focused around the southern temple. The buildings looked at above were altered so that D107 became a one-storied building, probably with a basement room since there was a staircase leading down. It lost most of its private entrance passage and in this level has come closer to house type 1 at Djeme, the strip building with the stairs placed in part of the middle section. (Plan XLVI.) Even so, there is still more courtyard space there than there ever was at Djeme - a feature which is very characteristic of Karanis. This was the only building in this group which survived relatively unchanged - both E111 and 112 disappeared and were not rebuilt whilst the outline of E109 remained. A new building was placed between E109 and 112 (D108), which of necessity was a strip house. At least one room had a basement, entered from above, since there does not appear to be a staircase.

It is not until level C, which represents the expansion of Karanis outwards from its original centre to the north, west and east during the middle of the 1st century AD and through to the

early 2nd, that any real idea of how the town appeared can be gained. The main area of the Michigan excavations was a large section (about 340 x 140 m), just east of the north temple, comprising grid squares E-H9-11 on map 1 of Husselman's book, with a subsidiary excavation in H7-8. Unfortunately much of the main part had already been dug away and so the buildings discovered form a horseshoe.[12] Although it is not the intention to discuss topography here, a few remarks concerning it are pertinent. The main feature was the road CS210, which ran the length of the excavated area on the eastern edge and which was extended northwards from its original position when there was a general northern expansion in this area of Karanis. The buildings were roughly grouped in rectangular blocks, which were intersected by narrower streets or alleyways, mostly running in an east-west direction, although there was no main line of east-west communication and it was unusual to find individual houses outside the framework of the insula.

The houses themselves are generally simple in plan and although there are exceptions, it is true to say that many come under the same two categories as those at Djeme, namely type I - the strip house with the stairs in the centre - and type II - a rectangular house divided in two with stairs in part of the back section. The main difference between these houses and those at Djeme is the frequency of courtyard space at Karanis, whereas in

the more cramped conditions of Djeme, this was more limited and sometimes non-existent.

Entrance to the houses was either directly from the street or else from the alleyways which bisected the insulae. One notable feature of level C was the regularity of the street fronts with the houses aligned onto the street. Although the main streets were kept relatively clear of obstruction, apart from flights of steps up to house entrances and wind-breaks jutting out into the street, the narrow alleys often served as extra courtyard space and had ovens, storage jars and animal pens in them.[13]

The first type of house - the strip house with stairs in most of the central third - can be further divided into two groups.[14] The first consists of those houses which genuinely had three inhabited sections, all of several storeys (e.g. C107, C422, C32, C68 and C403).[15] (Plan XLVII.) The other group appears at first glance to be similar to the first, but in fact the front section is a courtyard restricting the house as such to two-thirds of the total area, but at more than one level (e.g. C194, C181, C143, C102, C5, C5, C477). In this sub-group the third containing the staircase is virtually filled by the stair well, leaving only a narrow passage to communicate with the back room, as clearly shown in C194 for example. (Plan XLVIII.)

The other type, which was squarer and divided into two halves with the stairs in part of the back section, was perhaps slightly more frequent in Karanis at this level. There does not appear to have been any pattern behind which type of house was constructed in any particular space, although as there are these two distinctive types, one wonders whether it could mean some slight difference in function or whether it is merely a matter of personal whim. In this level there are at least twenty-one clear examples of this type of house[16] and there are several others where the plan is not so immediately obvious but more or less follows this type. (Plan XLIX.)

In both types of house, but particularly the first, there is variation in plan. Among the most usual variants in type I are extra rooms, or more courtyard space, as for example in House C55.[17] (Plan L.) Here the strip plan is quite clear, but a considerable amount of extra yard space has been included at the south of the house. Similarly in C88 an extra room is present in the north part under which were two smaller basement rooms.[18] Both these houses shared a slightly unusual characteristic, with the stair well built into a separate room, so that the passage communicating with the other two parts of the house was entirely apart from the stairs.[19] Variations in houses of type II could result from lack of space to build the house into a square, so

that the front section was not the same length as the back parts, as in C146 and C454,[20] (Plan LI.) but other than this or having extra courtyard space there was little irregularity.[21]

Clearly there were houses which did not follow these two types, but usually they bore some resemblance to one or other, or else were similar to buildings from sites elsewhere in Egypt. C142, for example, is very like 'la maison centrale' at Edfu, being rectangular and consisting of two clear sections with a staircase in exactly the same position.[22] The layout of the rooms is different, but the general similarity in plan is evident. (Plan LII.) Another house of a plan related to one at Edfu is C43, where the basic house (excluding the courtyard space) is L-shaped, like building k' - v' in the northern part of the Tell.[23] At Karanis the house was definitely of more than one storey whereas, at Edfu, the extent of the construction was unclear. Another fairly common class of house at Karanis was similar to the square pattern of house at Edfu but here the buildings generally consisted only of two sections each, comprising four rooms (like E109) instead of the nine common at Edfu. This type of house at Karanis was usually small and, unlike other types, often did not have its own courtyard. Examples are houses C213, C3, C89, C67 (which did have a large courtyard associated) and C401 (like C67). (Plan LIII.)

These were the types of houses found in Karanis during the 1st and 2nd centuries AD and they, combined with the general topography of the excavated area, give the impression of a reasonably prosperous, well-ordered community, which is not really maintained in the succeeding B level. This lasted throughout most of the 3rd century AD, and began after a substantial break in occupation in the latter half of the 2nd century AD.[24] Comparison between the overall plans of levels C and B shows that there was shrinkage in the extent of the area covered during level B. This was presumably connected with the break at the end of level C, which was possibly associated with plague and the resulting depopulation in AD 165.[25] The area was virtually the same as in level C, but the houses were not so closely packed and there were several large open spaces over parts of the site that had previously been densely populated.[26]

As to the houses themselves, many continued virtually unaltered, although upper floors from level C were basements in B, owing to the rise in ground surface. The houses in use in level B were mostly those which had their origins in the earlier centuries; there was very little new domestic building and what there was occurred mostly in H7-8.[27] Here the insulae between CS400/BS500 and CS450/BS550 became slightly more crowded, but retained the earlier remains as the foundation and there was an extension southwards from House C477/B571 of about four

buildings. In other parts of the site any new building was generally confined to walls which changed the layout of the older houses, but two new buildings, B241 and 242 were constructed in E-F10 (map 17).

The types of houses on level B, therefore, remained the same as those for level C, since most of them were earlier buildings. It is interesting to note the conversion of house C142 in H12 into two buildings.(Plan LIV.)

These two levels, C and B, represented the period of Roman rule in Egypt from the 1st to the late 3rd centuries AD. Despite the breaks in occupation, the town was fairly consistently inhabited although shrinkage is apparent from the early 3rd century. There is little surprising in the plan of the houses built in this area of Karanis and there certainly is nothing which can be attributed to outside influence in the plan of the buildings.

The more untidy aspect of level B continued into the final phase of Karanis which dated to the early Byzantine period, from the very late 3rd to the mid 5th century AD, by which time Karanis was deserted. A break occurred between levels B and A, this time with more devastating results, since there was a gap of about 3 m between levels B and A.[28] This meant that mostly

buildings from C and B layers, including the northern temple, were completely lost, but some continued in use, where they were tall or the rate of debris accumulation had not been so fast.

In level A, this area of Karanis took on a rather different appearance. The open spaces which were a legacy of the break between C and B levels increased so that large sections of the excavated area were unoccupied. It is curious how older buildings continued in use west of a line following the division between grid squares 10 and 11, while to the east of it, considerable new building occurred. The form of this new housing is extremely interesting, particularly in E-F-G 11 (map 19). The new building consisted of several substantial houses kept quite separate from any smaller constructions. These latter were of type II, like A100 and 101 and there does not appear to have been any contemporary construction of houses of type I.[29] (Plan LV.)

The larger houses follow the types seen at Edfu, square or rectangular buildings divided into two or three sections in turn split into two or three parts, recalling the plans of the substantial Amarna houses. There is none of the Amarna regularity of rooms here, as A165 illustrates but the two houses A158 and 159 are interesting because they are more or less mirror images of each other, although the functions of the same rooms were not identical within the two establishments.[30] (Plan LVI.)

The other interesting house is that directly south of these two, A152, which measures about 17 x 17 m and shares a virtually identical plan with a house of the Ptolemaic period from Medinet Ghoran, which will be discussed later.[31] This consists of a central room or courtyard with others leading off it, in much the same way as in the small houses at el-Amarna. Plans of the other large houses follow the nine-room layout, but little more can be said about them, since the remains were so few.

It is interesting to speculate why this row of larger houses should have been constructed here and in the period preceding the final decline and abandonment of the town. Perhaps, instead, one should ask: why were there no such larger houses in the earlier centuries? It should be remembered that east of street CS210 there were some slightly more important constructions, like C68 and 63 and the possible Mithraeum, C178. The first two were tentatively connected with the military presence in Karanis and C178 was initially a private house which was later converted, so they do not form a totally suitable comparison with the situation in level A. Since also by the time these late houses were built, the C level buildings were buried under about 7 m of sand, the likelihood of any continuation of such a division is small. Presumably the position of these houses was chosen because this part of the town was still inhabited and happened to be free from building debris; then one wonders who could afford to

construct these larger houses and why they wanted to live in Karanis at a time of general decline there, when most of the other Faiyum towns and villages on the outskirts of the oasis had long been abandoned owing to the collapse of the irrigation systems. If more were known, from general archaeological debris, about the functions of the different rooms in the buildings, these questions could in part be answered, but so little was found in the houses that it is not possible.

To conclude, the plans of these houses do not appear alien to the Egyptian tradition, rather continue the forms which were firmly established in the pharaonic period, although there have been changes in detail and function through the centuries and because of the different kinds of settlements. It is in the construction methods used that non-Egyptian features are found, as will be seen in chapter IV.

Soknopaiou Nesos

The only other site in the Faiyum where excavated remains cover more than one period is Soknopaiou Nesos or Dimai which is situated in the north-west corner of the oasis, with its southern edge about 2.25km from the north shore of the present lake. Like Karanis, the town was built on a limestone ridge and occupied an area measuring about 660 m in a north-south direction and 350 m east-west.[32] Not as much is known about the topography of

Soknopaiou Nesos as Karanis, since although it was visited by Hogarth, Grenfell and Hunt and they did some excavation there, they made few topographical remarks other than to mention that the town was laid out symmetrically, with houses either side of the dromos leading to the temple enclosure.[33] It is clear that considerable 'excavation' had already occurred at Soknopaiou Nesos before Grenfell and Hunt arrived and that this had yielded large amounts of papyri,[34] so the site must have been in a fairly disorderly condition when the University of Michigan team moved there after concluding their work at Karanis.[35]

Nothing like so substantial an area was investigated at Soknopaiou Nesos as had been at Karanis and unfortunately no-one has collated the results of the excavations as Husselman did for Karanis, so there is not the same amount of detail for the buildings at Soknopaiou Nesos.

In one area the Michigan team studied, in E5 on the west of the mound near the temple precinct,[36] there were five distinguishable layers, the first three of which corresponded to the Ptolemaic period. The first layer, called the fourth level, produced one-and-a-half well constructed houses, which were built on the soil above the desert bedrock and so were defintely the first structures in the area. The house, IV 401, was partially cleared and is very reminiscent in plan of 'la maison centrale'

at Edfu, square and divided into three parts with the stair well in the south-east corner, exactly as in 'la maison centrale'. (Plan LVII) Here, however, there was no basement level, since it was too difficult to excavate one into the bedrock, as occurred also at Philadelphia and Euhemeria elsewhere in the Faiyum.[37] There were small hollows in the ground to compensate in part for this, but it seems that the building was probably two or three storeys tall and made up for the lack of basements in this way. From what remains of the house north of IV 401, IV 402, it seems that this was similar and also two storeys tall. It appears that the houses were not built into insulae, but instead each occupied its own plot of land, separated by narrow streets from those nearby. Peterson and Boak dated this initial settlement to the late 3rd century BC, which would have placed it among those founded by Ptolemy II Philadelphus.[38] It is a pity that there is no indication of the extent and layout of this early settlement to complement the evidence from other early sites like Philadelphia.[39]

As at Karanis, considerable gaps in occupation marked the different levels and that between the fourth and third was no exception. The houses of level IV were completely buried in about 5.5 m of sand[40] and the building of level III formed a complete contrast to that of the preceding one, since it was a poorly constructed strip house, (III 301), only one storey high

and one room in width (about 10 x 2.25 m). (Plan LVIII.) Very little can be said about it, other than that part of it appears to have been added later, which means the original part was very tiny indeed. It was dated to the mid 3rd century BC by coins of Ptolemy VI (181-146 BC) and it is interesting to speculate whether it was literally the only building in the area, or an outlier from a larger group.[41]

After another break in occupation, more permanent buildings were established in the late Ptolemaic period during the early 1st century BC,[42] and this level represents a different approach again, because at this time the insula arrangement commenced. When excavated some remains were basements, but it is possible to recognise more or less the types of house that formed the insula. II 226 and 227, for instance, are examples of type I, although in II 227 the corridor beside the stairs continued to the back part of the house (until it was blocked). The rooms were accessible from this which was presumably mirrored in the upper storeys.[43] (Plan LX.) There are no examples of type II however. Where it is possible to say anything about the other houses, they appear to be variations of type I, like II 222, which does not have the stairs in the central part but on the left of the entrance with the corridor leading into a courtyard in the back section. II 218 is another type I building, but here the entrance is in the central third, with the stairs in their right place, but with the

back (northern) section being only a minute yard. (Plan LIX.) II 223 is of the square category, as characterised at Edfu, and had considerable storage space in the basement in non-connecting compartments, which were reached through separate trap doors in the ceilings from the floor above.

The general layout of the insula continued in the early Roman period, which is marked by level I.[44] More buildings were fitted into the area whilst those which had been established previously continued in the same form. Hence II 227 became I 103 and took on the general aspect of a type I house - divided into three parts with the stairs in the middle and a corridor connecting all three sections, but with the front and back sections split into more rooms. (Plan LX.) Similarly a new house, I 106, was basically a type I house, but there was some variation in the central third, with the staircase taking up less room than usual and the remaining space being split into the connecting corridor and a small additional room, I 106E. This type of alteration was also present in I 108, with extra rooms added, and II 222 continued virtually unchanged as I 107. These four plus I 102 formed the houses of type I, with type II unrepresented. I 111 is L-shaped with considerable courtyard space around it. Although there is no indication as to how many storeys were above ground, one common feature, as at Karanis, was the presence of basements. Here they seem to have been only

store chambers since they did not form a connecting basement level as at Karanis but were individual chambers, each reached through a trap door from the floor above. There do not appear to be any consistent parallels to this arrangement at Karanis, although the use of trap doors to enter lower levels was quite common there and at other sites, like Edfu and Djeme.[45] The purpose of having individual chambers in this insula at Soknopaiou Nesos rather than a proper basement, is not clear, unless for some reason Soknopaiou Nesos did not have the same number of granaries which could be rented by the inhabitants as at Karanis and so they had to store their own grain.

There was very little alteration in the final period of occupation of this insula and it was not a separate stage, just a continuation of level I with the changes that continuous occupation brought about. This insula seems to have been abandoned about the end of the 2nd century AD, since the last datable papyri from the area was one of 193 AD.[46] The whole settlement was abandoned about this time and this was a direct result of neglect of the irrigation canals and the encroachment of the desert sand, so at Soknopaiou Nesos there is no material comparable to that of level A at Karanis.

The other area excavated at Soknopaiou Nesos was of Roman date and like the insula above, was continuously occupied from

the time it was built, early in the reign of Augustus, until it was abandoned during the first half of the 3rd century AD.[47] The main feature of the insula was a very substantial house, II 201, about 17 x 18.5 m, which was roughly similar in plan to 'la maison centrale' at Edfu. In this building, however, as in much smaller ones looked at above, storage seems to have been very important, as can be seen from the plan of the second, or earliest, level building where only the basement survived. The small, regular rooms, each with a window in one wall, indicate something unusual and show that a great deal of storage space was required. Boak remarks that the height of these basement rooms was about 4 m, which is very unusual as no room in any building at Edfu was of such height.[48] It would be unlikely that grain was stored in these rooms, since they are not divided up into the small bins which make the granaries at Karanis so characteristic, but it is unclear what else required such large vaults for safe-keeping.

The houses alongside II 201 do not require any comment; they are small buildings, II 202 and 203 being of the square, four-roomed type with the stairs in one section and extra courtyard space as necessary or as building allowed.

Results from these two small areas at Soknopaiou Nesos do not add any new types of house to those already seen at Karanis

and the Upper Egyptian sites, but as mentioned the emphasis on storage is not paralleled at Karanis, where the basements are much more like that of II 201 - with connecting rooms forming an actual level.

Excavations in those places looked at from now on, although generally occupied through both the Ptolemaic and Roman periods, have only produced houses from one or other of these eras. There remain therefore, only about twelve houses to look at.

Buildings in the desert hamlet

Of these, the houses Caton-Thompson and Gardner discovered during the course of their investigations in the Faiyum are quite interesting. They found three buildings of Ptolemaic date near irrigation canals, which all have rather unusual plans unlike previous buildings.[49]

Building I consisted of remains from three separate periods of construction, but these all seem to have occurred within the reign of Ptolemy II Philadelphus judging from two coins of 266 - 252 BC from within his rule. (Plan LXI.) The initial part was made up of rooms 1-5 and there must have been a courtyard of some description present to make sense of the arrangement of rooms 1 and 2, which clearly faced onto something. Rooms 3-5 presumably formed the nucleus of the house at that stage, if it is safe to

assume that future rebuildings did not totally alter the form of the original house. Fire necessitated new building, but there was not a long gap between the two events as the layer of ash had not been dispersed by wind. The structure was considerably enlarged with the addition of rooms 9 and 11-16 to the north of the original features and probably 6-8 to the south. Presumably the small chambers, 11, 13-16 and 7-8 were for storage, since their dimensions, (about 3 x 2 m, room 16; 1.6 x 1.6 m room 15 and 0.6 x 2.6 m for room 8) virtually preclude actual habitation. If these rooms were for storage, then their nature is quite unlike those seen elsewhere, since their walls are very thin (only about 30 cm) which means they could not have supported vaults and were instead roofed by reed thatch supported on a framework of timber poles; evidence of this was discovered among the remains. In the final period of this building, walls were constructed which enclosed areas 10, 17 and 18; this happened after the ground level had risen by about 45 cm, which could have been deposited fairly quickly if the rooms had been in constant use.[50] As a result of these structures, rooms 3-5 and 9 and 13-18 became separate units, possibly inhabited by individual groups.

The building was, rather surprisingly, fairly well constructed with plenty of wood used inside for door jambs and stepliners, sandstone lintels and floors of either beaten earth

or plastered mud.

Building 3 was similarly well built - better than 1 - with more carefully made bricks, plastered walls and in many rooms, large well-laid flagstones for the floors. At first sight, though, the plan of the building is rather bewildering, consisting of a series of separate units as in the final stage of house 1. According to the excavators there was only one building phase, so it had been planned as this.[51] (Plan LXII) From the few objects of personal adornment found in the various rooms (a hexagonal bead of carnelian in room 4 and bronze or copper earrings in room 7) it was believed that this was possibly a better residence and might have had separate female quarters.[52] The south-west corner (rooms 1 and 2) was detached from the rest of the house and in this area there were kitchens, two large ovens and storage bins. To form the yard (1) large flagstones had been set on edge, and this could, therefore, have been a later addition. The northernmost part of the building had been badly destroyed and the position of the doors had therefore vanished.

After the houses looked at so far, this provides a great contrast and an instant reaction is that it is not a typical Egyptian construction. This is mainly because of the maze-like appearance, as Egyptian houses have been very balanced and

generally symmetrical. The rectangular or square shape so characteristic of native housing is missing as well. If it is not Egyptian, what can be made of it? Although it appears to be just a confusion of rooms, a central point does emerge as the line of rooms including 15. This is because 15 has four doorways leading from it, more than any other room in the house; 9 has three, with two in the east wall and from its position, the fact that nothing was found in it and the existence of these two doors, it seems that this room controlled access to the main house. If room 15 was the centre of the house, it is interesting to note how the rooms on either side of it divide; those to the west were paved with flagstones and the items found during excavation mostly came from them - pottery, a carnelian bead, a pair of earrings, loom weights, spindle wheels and saddle querns. By comparison, the only object to come from the main part of the house to the east was a net weight. As there is no knowing the relationship of the northern part of the building to the rest (i.e. the line including rooms 11-17 and the un-numbered rooms above this), it appears that the house itself consisted of the un-numbered room between 5 and 13 and then rooms 4, 9, 10, 12, 13, 14, 15 and 16 with the two unmarked chambers east of 15. It is unlikely that there was an upper storey owing to the extreme thinness of all the walls - only about 30-40 cm - so presumably this building was similar to House 1 and was roofed by reed thatch on a timber frame. Although it is very difficult to

comprehend this building, it is worth mentioning that the 'inhabited' section of it bears a very slight resemblance to the arrangement of houses from the Greek settlement of Priene. First, one presumes that room 15 was an open courtyard, which was entered in a slightly roundabout way from the entrance room between 5 and 13 and then through room 9.[53] The main feature of the Priene houses was the arrangement of two rooms called prostas and oecus with a side room opening from each as in house XXXIII.[54] (Plan XXXVIII.) However, there were variations to this - some where there were double ranges of prostas and oecus, which in one example, house XXXV, had no connections between each set of rooms. (Plan LXIII.) Although the house here in the Faiyum is clearly very different to those at Priene, it is just possible that the rooms to the east of 15 are mirroring in a rather corrupt way the prostas and oecus pattern of the Priene houses. The rooms are very much smaller than those usually found at Priene, where for example in house XXXIII the prostas and oecus measured 7.00 x 5.50 m and 7.00 x 7.00 m respectively and the side chambers were 5.30 m x 5.30 m x 6.50 m. However, house XIII had smaller rooms and the side chambers there were about 2.75 x 2.5 m. (Plan LXIV.) The rooms in this building in Egypt are much smaller - the two un-numbered ones measure about 1.6 x 3.3 m and 1.6 x 2m whilst room 13, the largest, is only 3.8 x 2 m, so there is some considerable discrepancy, but small rooms are a feature of this group of buildings in the Faiyum. The one major

inconsistency with this idea is that in the Priene houses, these chambers were the most important of the house, while in the one under consideration, this would appear not to be the case, since it is noticeable that the rooms on the east side of 15 are smaller than those on the west and these latter are also paved, whereas not a single one on the east side had this kind of paving, unless the stones had been systematically removed later.[55] Also the distribution of objects suggests that the west side of the house was preferred to the east for day to day living, although the quantity of finds can hardly be conclusive in this matter.[56] As to the question of whether there were separate female quarters in the house, again nothing conclusive can be decided. It would seem that at least one function of the building was as a domestic dwelling, from the presence of the kitchen, ovens and storage bins and the finds of spindle wheels, loom weights and saddle querns, but in typical Greek houses there was a definite division between the 'androconitis and gynaeconitis', mentioned by Vitruvius.[57] In the Priene houses, it is assumed that the women's quarters were on an upper storey, but it has already been decided that this building in all probability did not have an upper level, so their quarters must have been on this level. Conceivably the arrangement was that the females of the house lived in the less well provided area east of room 15, while the master had his rooms in the paved chambers west of 15. However, this is only speculation and

unlikely to be resolved. Nothing more definite can be said about house 3 in conclusion, other than it is defintely not Egyptian in origin, as it fails to conform in any way to those previously investigated and instead seems to share some characteristics with Greek houses, particularly those from Priene.[58]

The final building of the three, 2, is equally difficult to interpret as it consists of a series of small rooms on one side of a large courtyard (about 13 x 7 m), but once again the rooms were small and a whole unit, like for example, rooms 2 and 7, measured only about 5.6 x 3.3 m overall, so that the separate rooms were about 2 x 3.3 m (no. 2) and 3.6 x 3.3 m (no. 7).[59] (Plan LXV.) As with the other two, there was probably no upper storey to this building and no basement either since the authors mention the presence of small pits in the floors of rooms 2 and 7; so it is unlikely that this building formed a unified whole - rather each pair of rooms represented an individual unit - and presumably this is what led Caton-Thompson and Gardner to describe this 'house' as 'a series of small barrack rooms and the garrison cookhouse, because of the four ovens'.[60] However, this seems a rather unlikely suggestion, as there is nothing else to suggest that this building, or the other two, had any military connections and there seems no reason why the canal nearby should have required special protection. It is more likely that the purpose of building 2 was to house a workforce associated with

the other two complexes.

Presumably this hamlet is to be interpreted as a small farming community of early Ptolemaic date, but one which did not inhabit houses of Egyptian origin, rather those owing a loose allegiance to Greek types and priciples. Possibly this group could be associated with some actual Macedonian mercenaries of Ptolemy II Philadelphus who set up as farmers on their own forming a small group away from the larger settlements and who built houses of no definite type, but owing more to Greek ~~rather~~ than to Egyptian traditions.

Philadelphia

Ptolemaic remains were excavated at two other sites and plans of them produced. The first of these is Philidelphia (el-Roubiyat), a military colony founded during the reign of Ptolemy II Philadelphus in the 3rd century BC.[61] Like Karanis there had been no earlier settlement on the site, which was on a plateau overlooking the desert to the east and the Faiyum basin to the west. The town was laid out in a very regular fashion, with the inhabited part divided up into insulae of about 100 x 50 m and in the ones excavated by Viereck there seem to have been roughly twelve houses to each block measuring about 12 x 12 m.[62] Despite the fact that Viereck and Zucker excavated about nine insulae, only one house was described in real detail in either

report, but there is quite a lot of general information to be gleaned. As already mentioned in connection with level IV at Soknopaiou Nesos, the houses here were built directly on the bedrock, making the excavating of cellars too arduous, so here the first storey of each house formed the cellars. The entrance of the houses, therefore, was at first floor level, as at Edfu,[63] and was up a flight of steps. Each insula was arranged so that there were open areas in the midst to act as courtyards; some of the houses were entered from these yards, while others opened onto narrow alleyways which bisected the insulae and still others opened directly onto the street.[64]

The only house to be described in more detail is D6 and there is no knowing whether its internal arrangement (only the first floor) is typical of most of the houses at Philadelphia. This building was on the corner of an insula, with streets to south and west, another house to the east and its yard and entrance to the north. It was almost square, measuring about 12 x 13.5 m, but internally is unlike similar houses from other sites, as there was none of the regular divisions into three. Instead of seeing it as an Egyptian-type building, it has been suggested that this is a compressed example of a Priene house.[65] (Plan LXVI.) This can be achieved by taking room 1 as the courtyard, which is really only vestigial owing to the actual yard outside, and seeing 2 and 7 as the prostas and oecus

respectively and rooms 5 and 6 as the normal side rooms, leaving 3 as the stair well and 4 as another less important living room. It is clear that room 7 was regarded as the most important feature of this floor, because of the three wall niches in the east wall. The walls were decorated in a Greek fasion, as in the other rooms, with imitation marble and alabaster at the base of the walls, followed by wooden panelling below the niches, which were themselves painted.[66] If this was in essence a Greek house, it is interesting to note how it has been altered. As mentioned, the courtyard was diminished in size, but the fact that a small area was set aside with that function in mind, shows how important a place it held in this type of Greek house. The presence of a basement was alien as must have been an open, shared courtyard; in the houses from Priene, these were enclosed within the confines of the domain. There is no knowing how many storeys these houses at Philadelphia had, but presumably they had at least one above that represented by the present ground plan, to provide bedrooms and female quarters, since if the occupiers were of Greek origin, then it would have been very unusual for the men and women of the household to have shared the same rooms.[67]

Like the house from the hamlet, this settlement dated to the reign of Ptolemy II Philadelphus and it is interesting to see the way in which the standard Priene house has been altered on

possibly two different occasions to suit the conditions and circumstances in Egypt. In both cases, there was general condensing of the building, particularly of the courtyard, and the subsidiary rooms have been altered. In the hamlet house, they were spread out on the same level, whereas at Philadelphia, the builders resorted to the normal Egyptian technique of building upwards with a substantial basement level. In this way, the Philadephia buildings have conformed more to Egyptian construction methods, although the basics of the Greek house have been maintained in both cases, if the interpretations of these two buildings are correct.

Medinet Ghoran

The final site to produce published plans is Medinet Ghoran in the south-west corner of the Faiyum, which was investigated by Jouguet at the turn of the century.[68] As usual he found traces of many more houses than were later published, but it is fortunate that the two he did decide to pursue further are both interesting buildings. The first house was situated on the west side of a square with which it did not connect directly, but two annexes I and K opened onto it and might therefore have been shops. As to the house itself, there is considerable uncertainty about the correct way to interpret it. The problems are concerned with deciding whether E was a room or a courtyard and are further complicated by the question of the staircase. As

Jouguet interpreted it, H was an open court, G the kitchen, E the main court and A, B and C the living quarters. (Plan LXVII.) Although no scale is given, Jouguet indicates that the 'bath' in room B is 1.10 m and, extrapolating from that, this gives a measurement of about 17 x 17 m for the building, which is reasonably likely.[69]

The rooms about which there is little uncertainty are A, B and C, which formed the main living areas of the house, and G, which was a kitchen because the floor was covered with a layer of burnt cinders deriving from a long period of use.[70] Only the foundations of the two small rooms, F' and F, remained, but it appears from the plan that they were later additions. If it was the kitchen of the house, it would not have been roofed and it is worth noticing that the stairs ended on a level with F' and not G.

The main problems are connected with the interpretation of rooms H and E. As seen by Jouguet, H was an open court, because there was no sign of roofing material and because there was a window in the wall between C and H.[71] Jouguet also believed E to be a courtyard, because the position of the stairs prevented it from having a roof.[72]

It seems that Jouguet's problems resulted because he failed

to realise that there were two periods of use in the house. The most likely use of rooms in the first period was that both H and E were roofed along with A - D with only G open to the sky as the kitchen. This is because, as shown on the plan, the doorways from the street into H, and from H into E are recessed, which at el-Amarna and other sites indicated a proper door frame to support the door. The doors from E to B and B to A and C are also drawn thus, whilst that from G into H is left plain, meaning that there was only a simple door between the two.[73] The question of lighting such a house is slightly problematical; if E were totally roofed, clerestory windows are the most obvious but it is conceivable that there was only a partial roof, perhaps shading the northern part of the area, including the entrance to room B. This latter arrangement seems most likely, as room A had a window onto the street and into E, and with this situation this part of E would have been open.

In the second phase, it seems probable that E became completely open and that H also lost its roof, becoming a courtyard and thus explaining why Jouguet found no roof remains. Stairs were built at the entrance into E, which led to the roof over F' (not to G as this still remained a kitchen area without a roof). The stairs were not an integral part of the house as there was no separate stair well or area for them as always occurred in Egyptian or Greek buildings.[74] Conceivably F' and F

were separated off at this time, which made using the roof a possibility as there had been no position for a flight of stairs anywhere else in the first phase.

The evidence from this second period suggests strongly that the building underwent a change in function when the stairs were constructed. The stairs are unlikely to mean that a second storey was constructed - more probably that the roof (what remained of it) was used for storage. The position of the stairs presumably meant that the doorframe in E had been removed and the living quarters, if the building still had a domestic use, were restricted to rooms A to C.

It is difficult to know exactly how to interpret this building. The house is often seen as typically Egyptian in plan - a continuation of the type of houses from el-Amarna.[75] Clearly there are similarities between the plans, but there are certain features which make one hesitate to be too categorical. First the house was built in stone blocks, which could just be the result of availability as in house IV 401 at Soknopaiou Nesos, with the door frames and one window also of limestone. This too is unremarkable, since many doors and windows were made of stone in places like el-Amarna, but Jouguet is probably incorrect in describing the door from E to B as 'une assez jolie porte de style égyptien'.[76] It seems instead to be very similar to the type of Greek door known as doric, of which there are several

examples in the Alexandrian tombs, like Moustafa Pasha.[77] The door from B into A was peculiar - half resembling a doric door and half an Egyptian style door and the window in A looking into E could be of Greek type.

It appears that one should be cautious about this building, as it seems to have a genuine mixture of characteristics. In plan it is closest to Egyptian prototypes and has some Egyptian features, such as the stone block inside H. Jouguet would make nothing of this, but it probably dates from the first phase of the house, and was the base of a water jug stand, as seen at other sites. It is interesting, therefore, to see that the jug stand is in the entrance room which was its position in the Coptic houses at Djeme. However, the fittings and construction appears to owe more to Greek styles and rooms I and K built on the east side of the house and opening onto the square are of foreign inspiration.

Finally, the remarkable similarity in plan between this house and A152 at Karanis should be pointed out (Plan LXVIII). Like most top level houses at Karanis, little more than the foundations remained so it was impossible to know where most doors had been or to what purpose the indivdual rooms had been put. One important function of this house seems to have been storage, as there are many receptacles in the rooms, but Peterson believed

that several of these, like those in rooms G, H and A had been in use in street 157 before the house was constructed and that part of them were removed to make way for the house.[78] Objects found in 152 suggest that it was a domestic building despite this storage function and it is interesting how very like the house from Medinet Ghoran it is in size and plan.[79] One wonders whether a large type house of this plan was fairly frequent in the Faiyum or elsewhere and further discoveries would be interesting as would information on the inhabitants.[80]

The other house at Medinet Ghoran does not cause so many problems. It is much smaller, possibly about 11 x 11 m and has fewer rooms. (Plan LXIX.) Again A-C formed the living quarters of the house with D as a courtyard and E as a recess under the stair well, as often occurred in houses at Karanis. It should be noted here that the staircase was purpose-built and much more Egyptian in style, since it turned at least once through 90° and did not go in a straight line from the ground to its conclusion as in house I. Noshy thinks he can see in this building the same type of house as those in the workmen's village at 'Kahun' and there are indeed similarities.[81]

These two houses at Medinet Ghoran are the most interesting buildings so far discovered since house 2 seems to represent a continuation of the other common pharaonic type of house into the

hellenistic period, while house 1 is a true mixture of Greek and Egyptian in plan, construction and fittings.

Theadelphia

The houses from Medinet Ghoran complete the Ptolemaic buildings and there remain the sites where Roman houses were discovered. The first of these is Batn Ihrit or Theadelphia on the north-west side of the Faiyum basin, from where two houses discovered by Rubensohn have been published.[82]

The second house at Theadelphia was virtually complete and was quite sizeable, although slightly irregular, with a large room in the north-east corner which jutted out beyond the line of the rest of the house.[83] (Plan LXX). Rubensohn believed that it had a long span of use, since there was coin evidence to show that the building was in use during Diocletian's reign (284-305 AD), and then into the 4th century, finally being abandoned sometime under Constantine's rule, or before 337 AD.[84] There was unfornately no firm evidence as to when it was built, but Rubensohn dated it to the time of Hadrian, on the basis of the wall decoration, which was similar to that in Roman houses in Eleusis and on Thera.[85] He further pointed out that two hundred years was a long time for a mud brick house to exist, and this, together with the special decoration, suggested to him that the building had some particular function within the town and was not

simply a domestic house.[86]

This idea is rather borne out by the plan as well. Although at first glance it appears to follow a normal Egyptian plan, with the rooms all opening off the central courtyard, it becomes clear that the emphasis of the building is not on the courtyard, as with houses like 0.48.8 at el-Amarna, but is very definitely on the room opening off the south side of it. This initially had only one opening, with a double-leaved door, which would have been quite impressive as few normal Egyptian buildings possessed this. At a later date two more entrances were added, not quite symmetrically, in the spaces between the middle door and the walls. These spaces were remoulded into columns and wooden beams were used for lintels to carry the weight of the wall above.[87] The room itself was quite large (about 6.6 x 5.8 m) and was remarkable for the way the walls were divided up by three niches to a wall and for the decoration of the walls and niches. During excavation it was discovered that there were two separate layers of decoration, the first being quite simple and picking out the pattern of bricks on a plaster background which was common in other Faiyum houses, like those in Karanis.[88] The second, though, was more involved and consisted of rectangular blocks, divided by bands of fairly intricate design, whilst inside the blocks were figures.[89] The niches were also ornamented and one wonders whether the seond layer of decoration did not correspond

with the construction of the two doors, in a general attempt to improve the status of the room. It is interesting that another room connected with this one alone, again emphasising its importance; the small room in question was probably intended to be a more private living room.

This undue emphasis on one room could be put down to the original character of the building and indeed it is probably in part due to this, but it may also be because of the type of building. The plan loosely resembles the Delian type of house, which succeeded that from Priene as the standard Greek form of domestic building and is thought to be reflected in Alexandrian tombs, such as Antoniadis and Mex of the 2nd century BC.[90] The characteristics of houses from Delos were a peristyle court, off which all the rooms opened but generally did not interconnect. There was usually one large, well decorated room, called an 'oecus' often with colonnades in the description of Vitruvius.[91] Although Chamonard did not actually find colonnaded examples during his excavations at Delos,[92] there were often three openings into the 'oecus major', a door and two windows - in the 'Maison de la Colline' for example - and, on two occasions, three doors, as in the 'Maison du Dionysos' and 'Maison des Dauphins'.[93] (Plan LXXI.) Another important room was the exedra, which was open for its entire length onto the peristyle court and no door remains were ever discovered leading into it

but this was not as standard a feature of the Delian house as the 'oecus major'.

Several of these characteristics fit the building under consideration from Theadelphia. First, however, there is no peristyle court but the open area serves the same function as the court did at Delos, namely to provide a light source for all the rooms, which opened off it. In this the Theadelphia house agrees as all the rooms except the one already noted open from the court, and none of them interconnect. As to the main room, this seems to have the necessary features of an 'oecus major' - with three openings from the court, being at least twice the size of most of the other rooms in the complex and having rich decoration.

If this building from Theadelphia fitted the mould of a Delian house, this has interesting repercussions for the history of the Greek house in Egypt. As already seen, there appears to be evidence of the Priene type of house at two places in the Faiyum, both of an early (3rd century BC) date and their presence in Egypt is also confirmed by the plans of the early cemetries in Alexandria. There, it has been reckoned from the changeover in tomb plans, that the Delian house superceded the Priene design about the 2nd century BC. It would be interesting to have information about the time this change took to be felt outside

Alexandria, and whether Greeks continued to build in the Priene style. The use of a Greek type in the 2nd century AD might appear peculiar, but if it were an official building it is far more likely to have followed Greek models than Roman, since Greece still largely held sway in official matters, and administrative constructions were probably not excepted.

Unfortunately, the second building from Theadelphia was not as complete as the other, but it seems to have shared certain features. (Plan LXXII) The part which was lost must have contained the entrance and probably another group of rooms to complete the ground floor plan. As it is, the plan is puzzling, consisting of one large square room, and two smaller ones, plus a courtyard with the stair well in it. Although the black blocking of the plan makes it difficult to be sure, it appears that there had been alterations along the line of the west wall of the courtyard, which was possibly a later addition altogether. The main room follows the same pattern as the southern room in the other house, with three openings into it and niches in the walls but here there was only one in each wall. Rubensohn interpreted the area opposite it as another room, but as he points out, this would have left both rooms very dark, as there was no evidence of any windows in the walls of the north-east room, which survived to almost 4 m.[94] The evidence for the north-west area being an actual room is slight and one wonders therefore whether this was

not in fact a court or only partially covered, as apart from the one wall niche in the west, there does not seem to be any decisive proof that this served as a domestic room.[95] However, if this area were interpreted as a courtyard, the presence of two such areas so close together is peculiar, but if the north-west area is a room, then the lighting arrangements are equally strange, so interpretation is equally difficult. Maybe the answer to this dilemma lies in the alterations which seem to have occurred around the entrance to these areas. It would appear that the west wall of the actual courtyard has undergone about three changes, which seem to be in the following order:-

1. The south wall of the north-west room was extended eastwards about 80 cm (internal wall or 40 cm external wall) and then southwards for about 1 m;[96]
2. The west wall of the southernmost room was altered;
3. A wall connecting numbers 1 and 2 was built, which did not match up with either previous section and which formed the doorway into the northern areas.

The purpose of these alterations is mysterious and it is tempting to think that there were originally some more rooms, west of the actual courtyard, or that the courtyard itself was larger than it appears on the plan. Clearly as it is drawn it makes rather a nonsensical building, although even the little that there is

speaks of being Greek rather than Egyptian in nature, mainly because of the northern part of the house.

Dionysias

The final site to be looked at is Qasr Qarun or Dionysias, which like Theadelphia is in the north-west corner of the Faiyum, but nearer the lake, Birket Qarun. Like many other Faiyum sites it was visited by Grenfell and Hunt during the course of their papyrus search, but little was known about it archaeologically until the investigations of Wild and Schwartz in 1948-49.[97] They looked at various areas of the settlement, all of Roman date; although the town originated in the Ptolemaic period and seems to have been known, among other things, for its breeding of camels and their use in the transport of corn.[98] The main feature of Dionysias in the Roman period was the presence of a sizeable military fortress in the north of the town,[99] but there was also a temple in the centre and Roman baths in a small area in the south-west corner of the town (called 'l'îlot' by the excavators).

One set of domestic buildings excavated was on the island and formed part of a much larger 'insula'-type complex. This consisted of five houses within an area 20.5 x 17 m and another one, separated from the others by an alley of about 2 m. (Plan LXXIII.) It is quite hard to categorize the houses within the

insula, but they are either rectangular or square and of a fairly simple internal arrangement, house IV being the most complex. This is vaguely reminiscent of houses of type I at Karanis and Djeme, with a passageway through from the front to back sections leaving the stairs in the centre. Here, the house is not just one room wide and the stairs are not in the central part, but there is a passageway connecting the front and back parts of the building. The main room of the house seems to be 2 with two smaller areas leading from it, whilst 7 was probably a courtyard with four storage rooms off it.

There is evidence in some of the buildings of staircases, 6 in house I, 3 in III and so they were probably about two storeys high. Little else is particularly worth mentioning about the individual buildings, but a certain amount of information can be ascertained from the published ground plan about the structural changes to the insula.[100] It is a great pity that the east side of the insula no longer existed since it held the key to much of the building patterns, but even so, quite a lot of information is available.

Four periods of actual construction are discernible, which were followed by minor internal changes and alterations in the alleys. House III appears to be the earliest structure of the group, but it originally extended further south as shown by the

elongation of the east wall. The reason for placing this as the earliest building is the position of the entrance, which is on the west side, whereas those of all the other houses were on the north. Also, it does not follow the regular 2 m space between houses of the north row and the gap between III and IV is only 75 cm. Alterations were next made to the southern part of house III which was cut off by a wall, 50 cm wide, that formed part of house V. It is unfortunate that this area has been destroyed or robbed, but it appears that V and the southern section of IV (rooms 5-9) were built at the same time. Shortly after this, the rest of IV was constructed as well as I and II and probably VI.[101] The regular arrangement of the entrances on the north sides and the fact that before rooms 2-4 of house I were added there were equal spaces of roughly 2 m between the three northern houses, emphasise the conclusion that VI should be considered as dating from this period. The last structural additions were rooms 2-4 in house I. Later alterations were internal, like those in house VI, and then rooms 6 and 7 in house II were created and much later the curious arrangment of room 4 in house IV was made, together with the blocking of the alley leading to houses IV, III and V.

This insula seems to date about the 1st century AD, as there are coins in house I and elsewhere of that time, but room 5 in house I produced coins of the Severi, which carry its use forward

to the 2nd century.[102] However, objects vaguely illustrated on the plan of this insula (in house IV) might give some indication of still later usage. The objects in question are amphorae in rooms 1, 2 and 8 and the stone water jug stand in room 1. A similar amphora was found in a well excavated more in the centre of Dionysias and other vessels found with it dated to the 4th century,[103] and so it is likely that this amphora is no later than the 4th century. This is about the date that would be expected for the water jug stand illustrated as well. These objects have already been mentioned in connection with the Coptic settlement at Djeme and Wild, discussing some from there in connection with examples from Dionysias puts them at a later date than the types found at Dionysias.[104] If one can assume a later 4th century date for the main Coptic settlement at Djeme, where there are more developed water jug stands, then it might be reasonable to ascribe to those from Dionysias a date earlier in the 4th century, which would tie in with the dating evidence for the amphorae.[105] Although this is speculative, it might point to a reasonably long period of use for the insula under discussion, from about the 1st to early 4th centuries AD.

Summary

Since no more sites remain to be discussed, it is time to draw conclusions from these three chapters. The Faiyumic material has shown quite nicely the split between the indigenous

and the foreign, which has always been assumed, but not proven archaeologically. It seems the majority of Faiyum inhabitants occupied buildings which in plan owed their allegiance to older Egyptian forms, and which indeed, seem to have been quite common in other parts of Egypt in the hellenistic period (i.e. types I and II as seen at Elephantine, Djeme, Karanis and Soknopaiou Nesos). Other types of houses at Karanis, Soknopaiou Nesos, Medinet Ghoran and Dionysias relate to similar structures from sites like Edfu and Elephantine Island. However, dispersed amongst these native forms of architecture, are types which deviate quite significantly from the features which one recognises as typically Egyptian, and closer inspection of these has indicated that their orgins are to be found in Greek housing. It is unfortunate that not more buildings have been published, so one can see other types of housing from the Faiyum, and especially regrettable that there are not more examples of houses from small villages in rural parts of the oasis, such as those published in The Desert Fayum, since it is likely that more individuality would show in these isolated situations - as those buildings seem to prove.

To return to buildings from other sites; it was established that there were two types - the strip house - and the form, particularly typified in the sizeable Amarna mansions, which consisted of three of these strip buildings connected together.

Both types of building usually showed strict division in their ground plans into three main parts. Towards the end of the pharaonic period, evidence of the larger 'mansion' type of building was not so forthcoming in its el-Amarna form, but only two sites produced buildings later than the XX dynasty - Medinet Habu, and Karnak. It could be that at other places this kind of house continued less changed than at Medinet Habu, where, however, there was evidence of some of the Amarna features becoming standard, like the water stand and a columned main room (seen in the four strip houses, house of Butehamun and examples in grid square F6).[106]

The fact that there are no houses from the XXVI dynasty until the start of the Ptolemaic period is very regrettable, for there must have been gradual changes in the house forms. It is pleasing to discover continuation of the standard types through these unexplored centuries to emerge among Ptolemaic buildings and those of the Roman and Byzantine eras. To deal first with the strip house, its actual successors are the houses designated as type I at Djeme. Here the shape - rectangular, width - one room -, and the number of rooms - 3 - are all the same, but there have been changes. For instance, the central third has lost its function as main living area and has been taken over by the stair well, with a small passage connecting the front and back sections. The fact of the staircase indicates another major

difference - that the hellenistic buildings were more than one storey high and probably tapered as existing remains at Djeme show. Similarly, a lot of them had a basement level, reached by the stairs, or through trap doors in the floor above. This is very different from the original strip buildings in the workmen's villages at el-Amarna and Deir el-Medina where the stairs led only to the roof, where there may have been light shelters. There was no actual basement level, but individual cellars were constructed which were accessible from some rooms in Deir el-Medina. However, there are indications of change in the four strip buildings from Medinet Habu of the XXV dynasty, which are more irregular than those from el-Amarna and Deir el-Medina and have more substantial staircases, possibly denoting the presence of other storeys. In these four houses, though, the central room has not yet been totally deprived of its function and one house still has columns while the other three are not special in anyway. Change, therefore, was clearly under way in the strip house as early as the XXV dynasty, but could easily have begun earlier at other places.

The larger, squarer buildings are not so easy to pinpoint. After the remains from el-Amarna there is no evidence of this type until the Ptolemaic period, where it appears as a rather different kind of building. There is no doubting its solid square shape or the clear divisions into nine basic parts, but

the dominance of the central hall has been completely lost. The most genuine examples, like 'la maison centrale' and house η-ν at Edfu very definitely maintain the division into three sections, each sub-divided into three, but no single room dominates the others. As with the strip houses, these squarer buildings were no longer one-storied but would have probably been about three - two above ground and a basement. Variations on this type were quite common; often the houses consisted of two, three-part sections like 'la maison du nord' at Edfu and T51 in its original form at Elephantine Island. Other types were those found at Karanis - the kind now called type II - and the other fairly frequent sort, which was square and divided into four equal rooms.

As already mentioned, these types of houses could not have formed the only house types found in pharaonic Egypt and it is equally likely that their successors did not form the exclusive indigenous types in hellenistic Egypt. However, what is evident is that the types which archaeology can prove for the former period did continue into later Egyptian history and were not isolated phenomena. The changes which are apparent are probably due to the different situations - at both el-Amarna and Deir el-Medina there was plenty of space and no need for buildings to expand upwards - whereas all the subsequent sites were more urban in nature and therefore expansion was limited to a vertical

direction, until houses reached the four or five storied buildings as portrayed by contemporary hellenistic models.[107] In this light, the XXV dynasty Medinet Habu houses possibly showing the beginnings of vertical expansion are particularly interesting.

It is against this background of continuity that the isolated examples of Greek style buildings must be seen, although it should be re-emphasised that they would have been more common than the archaeological record shows. In the new 'foreign' houses that there are (at Tuna el-Gebel, and in the Faiyum) it is generally the plan which proves their foreigness - in construction details, it seems they conformed to the local customs out of necessity, since mud brick was cheap and other building materials expensive and more scarce than in Greece and Italy. The details of this, however, will become apparent in the next chapter on construction methods.

# CHAPTER IV

## TECHNIQUES OF CONSTRUCTION IN PHARAONIC AND HELLENISTIC HOUSES

The purpose of this chapter is to pursue the investigation of differences between the indigenous Egyptian type of house and any new introductions in the hellenistic period, but concentrating now on the methods of construction used, rather than the types of houses. The Egyptian techniques will be established first to provide a background against which to see the evidence from the hellenistic era.

The material falls neatly into six sections:-

A. Walls

B. Doorways and doors

C. Windows

D. Ceilings and roofs

E. Floors

F. Stairs

As well as archaeological evidence from the main sites, interesting information can be gained from the contemporary hellenistic house models,[1] as well as the Theban tomb representations of houses.[2] In addition to this comparisons between the archaeological material and modern methods of construction can be very illuminating.[3]

A. Walls

The intention is not to deal exhaustively with all the different aspects of brick and stone architecture in general, since that has been done many times,[4] but to pick out aspects of architecture which are relevant to domestic buildings. To facilitate the treatment of evidence to be dealt with it is proposed to sub-divide this section further as follows:-

1. Materials used in construction
   - i. brick
   - ii. stone
   - iii. wood
2. Foundations
3. Walls above ground
4. Mortar and plaster

1. Materials used in construction

i. Brick[5]

Constitution

The raw materials of the bricks used in Egypt were (and still are) Nile mud and water, together with sand and chopped straw in varying quantities depending on the exact nature of the mud, as this differed from area to area throughout the Nile valley. Clay and sand are the components of the mud but the percentage of clay is the crucial factor, since the right amount can mean that nothing need be added, but if there is too much,

the bricks will dry too slowly, cracking and losing shape while this happens.[6] In this situation sand and chopped straw are added, sand to correct the imbalance and straw to strengthen the clay. Fathy, whilst building his new village, experimented with brick composition and found the optimum composition for the strongest bricks to be 1 $m^3$ of earth, ⅓ $m^3$ of sand and 45 lbs of straw.[7]

To make bricks, water was added to the mud, then the necessary sand and straw mixed in, and a wooden mould filled, levelled off and removed, leaving the brick to dry in the sun. There is textual and epigraphical evidence concerned with brickmaking[8] and some papyrological material, which illustrates the standard Roman practice of leasing out brickmaking as a monopoly and which also gives some prices of bricks /10,000.[9]

The bricks used to construct domestic buildings throughout the pharaonic period and normally in the hellenistic era were dried only by the heat of the sun, although there were instances of baked brick during dynastic history.[10] Frequent use of this kind of brick did not occur until the hellenistic period, especially in the Roman era. Examples of variation in the composition of bricks from in the pharaonic period are not particularly easy to illustrate, since only at Deir-el Medina and Medinet Habu was anything along these lines noted. In the former

place Bruyère mentions that bricks of the XVIII dynasty were heavy, large and with a lot of clay, while those used in the Ramessid houses were sandy, light and pliable.[11] At Medinet Habu, some bricks had been made of soil taken from the desert edge, which produced whitish sand and clay and therefore presumably a much lighter brick.[12] However, Grossmann noted that in Old Kingdom house remains at Elephantine in the north-west part of the town, the bricks were made of very rotten material with a great deal of ash and cultivation soil and very little proper fresh Nile mud.[13] He comments that the quality of the mud brick improved after this and was much better towards the top.

At Edfu the bricks deteriorated from the Roman period, when they contained little straw or organic debris, to those used by the Copts, which contained more of both straw and debris.[14] In Byzantine houses (21 and 28) at Elephantine, the bricks had an inclusion of 'tafl' which is a coarse grained marl found between the layers of sandstone in southern Egypt, and which was used to increase the toughness of the bricks.[15] The houses built in the temple courtyard at Elephantine had great inclusions of broken pottery sherds, which proved very useful to the excavators in dating the buildings.[16]

There is a profusion of evidence about the composition of bricks from Karanis due to the work of Yeivin, but his material

does not completely overlap with that of Peterson and Husselman. There is little doubt that two main types of bricks were used at Karanis and that these differed in composition according to the level. The solution is to be found in the dating schemes used by the two - Peterson and therefore Husselman labelled their levels E to A with E as the Ptolemaic and A as the latest Roman/Byzantine layers,[17] while Yeivin worked on a shorter time scale, from roughly level C to level A of Husselman's dating, and these he sub-divided into periods IIIb (corresponding to C), IIa and IIb(B) and Ia and Ib (level A). It appears from this that in the Ptolemaic period the bricks used were large and made of grey clay, those in the early and middle Roman levels were of yellow or brown clay and in level A, the late Roman or early Byzantine period, the bricks reverted to grey clay, less well made.[18]

The yellow bricks of the early Roman period were made from a local marl caused by the gradual decay of limestone found in the area. To this was added straw and sand, but the care taken in producing the bricks varied considerably and so the straw was not always well chopped and the fine sand could become small pebbles, or even shells.[19] The inside appearance of the best bricks showed 'a uniform yellowish mass containing a varying quantity of fine sand and very finely chopped straw used as degraissants', but generally the inside was a rough mass containing nodules of variously coloured clays - red, white and dark brown, with small

and large pebbles, even stoney kernels and fragmentary, even whole, fossilised shells.[20] The better bricks occurred in buildings of layers IIIb and IIa.

The grey bricks were made of mud taken from the banks of canals around Karanis.[21] Yeivin distinguished two classes of these bricks and it is possible that his first class was the kind of brick used in the Ptolemaic houses, apart from a size discrepancy, since the dimensions he gives for them are 26 x 13 x 9.75 cm, while those given by Husselman are 31 x 14.5 x 10.5 cm which is nearer to the size of Ptolemaic bricks from other sites.[22] However, Yeivin mentions that they seem to have been reused in the situations he found them in and that they were well made with finely chopped straw and little sand used to give the mixture the correct consistency.[23] Inside they appeared as a homogenous light grey mass with spots of a white clayish substance evenly distributed throughout the interior of the brick.[24] His second class of grey brick was similarly made of canal mud but with more straw and its inside appearance was a 'dark grey mass'.[25]

The materials used in making the bricks clearly affected the colour they were, as seen in the Karanis bricks, and those used at Soknopaiou Nesos were lighter, since they were made of white earth from the desert.[26] Those at Theadelphia from the Roman

period had been well made with considerable quantities of extra straw and were light brown as a result.[27]

Size and shape

The size of Egyptian bricks has been dealt with several times, but most recently by Spencer.[28] In this present study, the kind of bricks to be investigated are of the small domestic type, rather than the larger 'official' bricks, although Spencer points out that the latter bricks did get used occasionally in domestic situations, but normally they were kept separate until the later Roman/Coptic period when bricks were generally smaller anyway.[29] It is not proposed here to add anything more other than to reiterate briefly the trends in brick sizes through Egyptian history. To quote Spencer, 'the bricks of the Archaic Period are all small, then comes an increase in size until the Middle Kingdom, followed by a fluctuation until the Twenty-Sixth Dynasty, after which there is a decrease until modern times.'[30]

By contrast, the shape of Egyptian bricks, i.e. the ratios of the length:width:thickness, has been little studied and it is likely that shape, as well as size, changed through time. Spencer's plate 42, together with all the others supplied in his book, is based on one of these ratios, length:width and so the changes in this ratio through Egyptian history can be seen clearly.[31]

Clearly most bricks were rectangular, apart from a few used for special purposes, like square flooring tiles, which were often very thin, and vaulting bricks, which were often convex; but, apart from specific types,[32] bricks used for general construction were always rectangular. A sample of bricks from domestic sites were studied statistically and the ratios of length:thickness and width:thickness were investigated initially, then length:width was added as well.[33] The bricks came from a selection of domestic sites from the pharaonic period with hellenistic examples from towns outside and in the Faiyum oasis. As a result of the tests on the sizes of these bricks, a selection of bricks from Naucratis were examined and more bricks from outside the Faiyum still mostly of hellenistic date.

The results of the statistical tests indicated that the ratio of length:width was about 2 : 1 as already stated and this did not vary very much with the area of Egypt the bricks came from or with the date. However, once the third dimension was investigated, more variation was found, with the results of both length:thickness and width:thickness producing the same results. Before the Naucratis and other Graeco-Roman bricks were looked at the results indicated that the bricks from the pharaonic and the hellenistic non-Faiyum sites were thin in proportion to their length and width, with three bricks from the late pharaonic period at Hermopolis being especially thin and forming a small

group on their own. By contrast to these together with the other pharaonic and the first type of hellenistic bricks, those from the Faiyum formed a separate class, since they were much thicker in relation to their length and width. They continued to be this shape throughout the Ptolemaic, Roman and Byzantine eras whilst bricks were generally decreasing in size and apparently remained this shape into the Arab period, although this is based on the evidence of only one brick found and measured by Petrie, who vaguely labelled it 'Arab dyke-Faiyum'.[34] It is particularly interesting in the context to note that Petrie also measured a brick from Hawara of the XII dynasty and this conforms to the pharaonic class and is a thin brick.[35] This seems to reinforce the impression that the kind of bricks used in the Faiyum domestic sites in the hellenistic period was different from that used elsewhere in Egypt both contemporaneously and previously and might be evidence of a new imported type of brick. It is interesting, therefore, to note that in the Faiyum brick-making was a royal monopoly, which might have ensured that required measurements were kept to.[36] The bricks measured by Petrie at Naucratis came mostly from houses and are therefore very useful,[37] as, if the Faiyum bricks owed their shape to a Greek brick standard, then one would assume that bricks similar to these might be found at other sites directly connected with the Greeks. The same tests carried out on the sample of bricks noted by Petrie and dating from 350 BC into the Roman period showed

that they were not quite as thick as those found in the Faiyum, but were thicker than the general pharaonic bricks. The eight bricks analysed formed a distinct group of bricks very close to each other in size and varying very little through time and it is perhaps relevant that it was the Ptolemaic bricks in the Faiyum group which were nearest to those from Naucratis in shape, before the decrease in size occurred which was general in Roman times.[38] It is unfortunate that there is not further brick material available from other sites directly connected with Greek settlements in Egypt, such as Alexandria, as more measurements are necessary to establish whether these results really indicate that the Greek town and villages were built with bricks made in a slightly different shape from that used by Egyptians.

Burnt Brick

Although there are examples of mud brick baked hard in the pharaonic period, it did not become widely used until the Graeco-Roman era and particularly the Roman occupation.[39] In domestic contexts these bricks were rarely used in the construction of vertical walls, although there are examples of baked bricks being used in courses of ordinary bricks at the corners to provide better resistance as in Roman houses at Hermopolis,[40] at Djeme, where in some houses every third row of the foundations was constructed of baked brick to increase strength[41] and at Madamud, where walls were occasionally made of

baked brick.[42] Other than this, baked bricks tended to be used in places which were liable to excessive wear, like thresholds,[43] window sills,[44] floors,[45] in the edging round trap doors to vaults[46] and sometimes in stairs.[47] At Karanis, Yeivin reports the discovery of brick kilns along the royal road from the Faiyum to Cairo, with hoards of broken burnt brick lying around.[48] There, baked brick was used only in his two latest layers and was of two types, one for use in general construction measuring 25 x 11.5 x 7.5 cm and the other type for flooring - 23 x 23 x 5.5 cm.[49] If well baked, the inside was a uniform brick red colour, but if only partially baked, the bricks were red round the edge and violet to black inside.[50]

In shape, baked bricks were rectangular when used in walls, but tended to be very thin, whilst special flooring tiles were square and extremely thin.[51] In the recently discovered public baths at Karanis, baked bricks had been used in a variety of different rooms and for different purposes - in walls, vaults and domes, on the floor and to form certain parts of the baths themselves - and the shape varied considerably depending on the use.[52]

Vaulting Bricks

To aid in the construction of inclined vaults, special bricks were sometimes used which were thinner and generally

lighter than those used in ordinary walls.[53] Often grooves were made in the large side faces to enable the mortar to have a firmer hold, as at Elephantine[54] and in the modern bricks used in the building of the village at Sheikh 'Abd el-Qurna.[55] Slightly curved bricks were also used sometimes in vaults, like those at Deir el-Medina,[56] which also had grooves made on them, and those used to build vaults of Roman houses at Edfu.[57] The size of the bricks varied considerably, but generally they were very thin for their length and fairly wide.[58]

ii. Stone

The use of stone in walls of domestic constructions was infrequent at all times of Egyptian history. Occasionally there are examples of parts of walls being built in stone, like house IV 401 at Soknopaiou Nesos, where stone was used from the foundations to the second floor level at which point mud brick took over,[59] in house 1 at Medinet Ghoran[60] and in a Coptic house on Philae, which had carefully made stone walls.[61] More frequently, the use of stone and mud brick were combined as in the Ramessid houses at Deir el-Medina, where stone was used only to a maximum height of 2.5 m and usually less.[62] Stone was used to protect corners of houses which were on main streets in towns like Karanis[63] and it was often used in the foundations of houses, as in the Rammessid houses at Deir el-Medina which were built over the accumulated rubbish of the XVIII dynasty houses

and so needed good strong foundations.[64] Other sites with stone used for foundations are Elephantine,[65] Dionysias[66] and Karanis,[67] but these will all be investigated in more detail in the section on foundations.

The use of stone in houses depended largely on its availability; thus at Deir el-Medina there were supplies of limestone from quarries north of the Valley of the Kings and sandstone from further afield at Silsileh[68] and at Karanis, again both sandstone and limestone were available locally, as ridges and small lumps of both stones were found nearby.[69]

Although the use of stone was not very common in the construction of walls, it was used to decorate the house with elaborate door and window frames, but these will be discussed in the appropriate sections.

iii. Wood

The actual use of wood in the construction of walls will be considered in part 3 of this section, Walls above ground, but it is proposed here to look at the types of wood available for use.

The scarcity of wood in Egypt is well known, together with the need to import for any major undertakings, but as will be seen in later sections wood was certainly used in houses and in

some a great deal more than in others. It was used for door frames and actual doors, window frames and above all for roofing, so there must have been a supply of wood available to householders. At two sites a study was made of the types of wood found and what they were used for. The first was Deir el-Medina, where Bruyère found evidence of:-[70]

a. date palm (phoenix dactylifera)

b. palm (cucifera thebaica)

c. dom palm (hyphaene thebaica)

d. sycamore (ficus sycomoros)

e. acacia (acacia nilotica)

f. ebony (dalbergia melanoxylon)

g. carob (ceratonia siliqua)

h. persea (balanites aegyptiaca)

i. tamarisk (tamarix nilotica)

j. syrian pines and cedar

The other site is Karanis, where Yeivin took thirty-nine samples, of which six were unidentifiable. Only one of the remaining thirty-three was foreign and that was a piece of ebony (dalbergia melanoxylon) which came from a house in his IIIb layer.[71] The commonest indigenous trees Yeivin found evidence of were:-

a. tamarisk (tamarix nilotica and articulata)

b. acacia (acacia arabica)

c. sycamore (ficus sycomoros)

It is slightly surprising that no kind of palm is mentioned especially since it was used in roofing the houses at Karanis, but conceivably it was discovered as fronds or ribs rather than as sizeable pieces of wood.

2. Foundations

Very often little attention was given to the preparation of firm foundations for Egyptian houses, as at the palace of Amenophis III at el-Malqata, which was built directly on the desert sand.[72] Occasionally trenches would be dug, never exceeding 1.5 m in depth, to compensate for the uneven surface of the desert, but generally the walls were built without any kind of preparation. It is strange that such little care was taken over foundations, since the ground houses were normally built on - the alluvium - changed considerably in its strength according to time of year.[73] When hard baked by the sun, it could take great strain and weights, though was liable to crack widely due to shrinkage, whilst, once flooded and muddy, it lost these characteristics and became soft. Hence there must have been greater need to have some foundations for normal village and town houses built on this surface than on the desert where not only at el-Malqata, but also at Deir el-Medina, the orginal houses of the XVIII dynasty village were built directly on the desert surface without any foundations.[74] There is no mention of any foundations in the houses of the workmen's village at el-Amarna

which could suggest that they did not have any, indicating that the desert surface was considered suffciently strong to support houses, albeit reasonably light structures, without any special preparation. This idea is backed up by the fact that the late Ramessid houses at Deir el-Medina, which were built on the accumulated rubble from the XVIII dynasty houses, had foundations of stone or brick dug through this debris until firm ground was reached.[75]

Unfortunately, these sites are the only ones from the pharaonic period about which there is any information about the foundations and it may or may not be coincidental that they were all desert sites.[76] Among the hellenistic towns, most evidence comes from Karanis and Elephantine, where, in contrast to the pharaonic houses, the foundations of the houses were very carefully prepared.

In the early houses at Karanis, the foundations of the houses were usually of limestone blocks and very deep - between 1.50 and 3.00 m.[77] This depth of foundations was also found in the early Ptolemaic sites of Soknopaiou Nesos and Bacchias.[78] Yeivin wondered understandably, whether this was a non-Egyptian feature in house construction. Unfortunately, there are no measurements concerning the depth of foundations from other sites for comparison, apart from Philadelphia; this is interesting as

it was an early Ptolemaic town and the brick foundations extended only about 10 cm into the hard bedrock.[79] It is probable that Yeivin was not dealing with the early Ptolemaic levels at Karanis but rather the early Roman ones, although it is possible - but nowhere stated - that the Ptolemaic houses also had such deep foundations.[80]

By the middle of Yeivin's level II, stone fondations had disappeared and ordinary mud bricks were used. The walls were made very thick at the base of the foundations - between 85 cm and 1.10 m - and decreased in width from there upwards to lessen the weight the foundations had to carry.[81] There were two unusual instances in level C (houses C122 and C43) where the foundations of the houses were constructed against the sides of a pit dug through the debris of earlier houses, with the result that the end walls sloped, following the line of the pit.[82] The walls were built in brick or stone forming normal foundations, but the tops of the foundation walls were often broadened out to ensure firm footings for the house walls. Yeivin also cites examples of houses on the corner of streets where brick foundations were strengthened with slabs of limestone lent against the walls underground, sometimes mortared together, presumably to help prevent shaking of the walls, if knocked against too frequently by passing animals or humans.[83]

A feature of house walls at Karanis was they they were not normally completely in line with the foundations but were often recessed a little. With brick foundations the ledge was about 8-12 cm and often the wall itself did not start for a further three or four layers of bricks, which sloped much more than the wall.[84] If the foundations were in stone, the builders did not go to these lengths, but just placed the wall back from the line of the foundations.

Finally Yeivin noted that it was normal for brick foundations to be constructed of bricks placed uniformly in one direction, with eighty-six examples consisting of bricks placed on end, seventy-one of headers and fifty-one examples of stretchers, rather than having the very irregular courses which constituted the walls above ground.[85]

The houses at Elephantine where details of the foundations were noted, were Coptic in date and cannot be used for comparison with the Karanis examples. In these houses the foundations seem commonly to have been of stone, quite possibly, as Grossmann mentions, taken from the temple of Khnum once it was abandoned.[86] Several of the houses south of the temple used stone blocks, like house 16, where each foundation wall was constructed of different stone blocks, some worked and some not, and some incomplete.[87] It is interesting that Grossmann could see that in the north wall

the foundations had been made ready to take the concave courses used in the walls above ground. House 27 had three of its walls based on stone, with that on the west side being of 'tafl' bricks for increased strength.[88] The north wall also seemed to have been strengthened with two more layers of stone than elsewhere and there was an increase in width 40 cm below the actual walls, which made Grossmann wonder if there had been problems connected with the site, causing the builders to add these precautions for extra safety. Generally in this area, the ground had been carefully prepared to take the foundations and this was also the impression in house T51, north of the temple of Khnum, where an uneven ground surface had been flattened by a brick layer, then one of sandstone blocks, while the bulk of the foundations were of brick.[89] The stone was to prevent damage caused by damp and in the north wall, where, for some reason, it was missed, stones were placed immediately below the start of the walls above ground to compensate.

These are the only sites where there are better details of how the foundations were prepared for the houses and it is much to be regretted that more care is not taken wherever houses are found, so that more information can be built up of how the Egyptians made foundations, and to see, for example, whether more care in preparation was taken after the XXV dynasty.[90]

3. Walls above ground

The walls of houses were virtually always built of mud brick, since that was the most readily available material with stone expensive and wood scarce, hence house IV 401 at Soknopaiou Nesos is a rarity, being constructed in stone from the foundations up to the level of the second floor, where brick continued.[91] There is no equivalent example of a house being built of so much wood and brick, although as will be seen, considerable amounts of wood were used in the Faiyum houses.

Since this part of the section encompasses a considerable amount of material, it is proposed to divide it up further for ease of comprehension.

i. Use of bricks in the walls

This subject has been dealt with recently by Spencer and his work on brick bonds should prove especially useful, but it is often difficult to translate a written description of the composition of a wall into one of his bonds. The attempt, however, should still be made so that a standard body of reference material can be accumulated.

The first site for which there is any evidence is 'Kahun', where Petrie recorded that the walls consisted of 'three courses of stretchers and one of headers'[92] which could fit about three

of Spencer's bonds, A5, A7 and A8,[93] and it is perhaps most likely to be A8, as this seems to be the simplest, since Petrie does not mention how many bricks wide the walls were. However, Spencer describes all these bonds as belonging to the Archaic Period, with A8 extending into the Old Kingdom but being rare later,[94] so this clearly illustrates the problems mentioned above.

The evidence from the other workmen's villages, el-Amarna and Deir el-Medina, is not particularly helpful, except that Peet and Woolley found that the main walls at el-Amarna were only about 35 cm thick, which is very thin, and that the internal dividing walls were often only one brick in thickness, about 13 cm, so the houses were not at all solidly constructed.[95]

There is very little information about the construction of walls in the main areas of el-Amarna although Peet and Woolley discussed the architecture of the houses they discovered in the city[96] and Pendlebury also intended to write a chapter on the architecture of the houses he excavated.[97] However, the houses were built of mud-brick and not always very substantially, since houses N.49.34 and 35 were constructed totally of walls of one brick thick, apart from the east and west walls of the main hall in N.49.35.[98]

By contrast, the walls of the palace at el-Malqata were well constructed, with the main walls being between 65 cm and 1 m in width, the former consisting of about four bricks in thickness and being used for the dividing walls of smaller rooms and the latter, used when the dividing walls carried the substantial roofing beams, being the equivalent of six bricks.[99]

At Medinet Habu, Hölscher did not give much detail, but it seems that the houses in the town there during the XXI-XXIV dynasties did not have walls as substantial as at el-Malqata and that during the time of neglect during the XXII-XXIV dynasties, the houses were not at all well constructed, with thin walls.[100] This changed with fortune and the houses of the XXV dynasty not only altered in plan, but were better built with walls between 80 cm - 1 m thick, and in a new smaller brick, 24 x 14 x 8 cm.[101]

Moving to the brickwork of the hellenistic period there is more information and indications of a distinct change in the construction practices, with the use of pan bedding in houses throughout Egypt but concentrated in the Faiyum towns.

At Hermopolis there was evidence of concave courses in the Coptic houses but Roeder did not indicate whether this was a universal characteristic or more isolated.[102] The walls were quite substantial and occasionally were reinforced with baked

brick at the edge of a wall to give extra strength.[103]

In the Roman houses at Medinet Habu the walls of the earlier buildings were generally quite thin, between 48-64 cm or one-and-a-half to two bricks, whilst those of the later houses were as substantial as 1-1.50 m[104] - Spencer has classified the brickwork as being of types A2, A3, A18, with some C6.[105] The fact that only the front walls had pan bedding makes one wonder whether it was intended only for effect and did not serve any structural function.[106] Interestingly, the Coptic houses of Djeme were not built with concave courses but were straight and often in A3, C1 or C3 bonding,[107] the latter two types being characteristic of Roman and Coptic brickwork.

At Madamud Bisson de la Roque noticed an unusual feature in house III in group XIV, which was a wall made of pipes normally used in water conduits, placed on edge, and he mentions that it is often used in modern Egypt,[108] but Lozach and Hug apparently did not come across it in their travels.

The houses at Edfu were very solidly constructed, especially those of the Ptolemaic periods, like 'la maison du nord' and 'la maison centrale'. Both these houses had thick outer walls - 92 cm in 'la maison du nord'[109] while 'la maison centrale' had exterior walls of between 1.35 m on the north and south sides and

1.60 m on the east [110] - to enable the vaults and upper floors to be built, and the internal walls were themselves very thick compared with buildings elsewhere - 75 cm.[111] 'La maison du nord' was built of large bricks, 34 x 17 x 11 cm in A3 bonding[112] and it is probable that this was also used for 'la maison centrale' as it was a common type of bond at Edfu. The bases of walls often consisted of bricks placed on edge to achieve final levelling off of the ground surface and this feature is found used similarly at Elephantine; in some photos from Medinet Habu the same line is perhaps visible in a few houses.[113]

In Ptolemaic buildings elsewhere at Edfu the same careful construction was noted, for instance in house H", where the basement was probably Ptolemaic.[114] The walls had been very well built although Guéraud did not make a note of how the bricks were laid, but Alliot says that walls, if thick, were laid as headers and stretchers and, if dividing walls, consisted of a single layer of stretchers.[115]

At Elephantine there are further examples of pan bedding in some walls of houses dating from the Coptic period. In house 16 the foundations of the north wall had been prepared specially for this and similarly in house 19.[116] Grossmann commented particularly on the unusual method used to build the walls of 19, which were two-and-a-half bricks thick and had binding bricks in

the core of the wall. These moved position in each course which produced a change every two layers on the outside face of the wall[117] which must have been quite like Spencer's A10 bond, except that A10 used more than two-and-a-half bricks and was not common at any period of Egyptian architecture.[118] In the other Coptic buildings south of the temple the walls were generally the same width, 50-70 cm or two-and-a-half bricks, but apparently there was no regularity in the brick bonds, with changes in the same course.[119] As already mentioned, the base of the walls often had a layer of bricks on end before the normal bond of the wall began, which appears frequently to have been A3, at least in the south-west part of the town.[120] Honroth comments that this 'Rollschicht' was never missing from the buildings he investigated, however well the walls were built, so it must have helped in some way to form a good basis for the walls.

The two most striking features of the houses at Karanis are the considerable slope inwards of the walls from top to bottom and the pan bedding of the courses.[121] The purpose of both these was to add extra strength to the walls, but it was generally only found on the external layer of each wall, the internal one being built straight.[122] The pan coursing began at the top of the foundations, which unlike those at Elephantine were built straight and were not prepared for the pan course. With the four external walls sloping inwards, as well as the brick courses,

which were not laid exactly above each other but were slightly recessed, the house could not collapse outwards and the internal dividing walls and roofing beams prevented a collapse inwards.[123] It seems that this method of construction achieved its aim, since parts of many older houses continued in use for several centuries without cracking or falling apart. The thickness of the walls certainly decreased towards the top but Yeivin and Husselman disagree on how much, Yeivin giving the width of an average wall at its base above the ground as between 68-75 cm, decreasing to 55 cm at the first floor and to about 40-45 cm at the second level,[124] while Husselman quotes for an average level C house, a width of about 80 cm - 1 m at ground level and 25-30 cm at the top, which is presumably higher than the level of the second floor.[125]

Yeivin gives considerable detail about the bonding of the wall, for example in level IIIb (C) the usual appearance of a wall was alternate courses of headers and stretchers,[126] which seems to fit Spencer's A2 bond.[127] At the start of his level IIa or Husselman's B, the same was still in use, with the occasional addition of bricks on their long edge to correct a gap created.[128] These bonds were in use when stone foundations were still in vogue, but once they were abandoned so apparently was any regularity in the wall courses, at least in the lower parts of the wall, with frequent alterations within a course to correct

it.[129] Once the pan shaped courses started the bonds were usually as before, alternate course of headers and stretchers, but gradually towards the end of level II(B) and through I(A) the bricklaying lost any pattern.[130] Finally in level I the concave courses were abandoned and the normal bond could well have been CI, which Yeivin describes as 'typical Byzantine' and it has already been seen to have been common at other Byzantine domestic sites.[131]

The two faces of a wall interleaved a little during the IIIB(C) level, but in the II(B) layer, the builders seem to have stopped this, leaving a space, which created the need for mats or reeds or wooden pegs to tie the walls together.[132] With the final abandonment of stone foundations at the end of the IIb(B) period and throughout level I(A) more care was taken over bonding the walls together with bricks and the practice of mats was stopped.

The internal walls were apparently never tied into the external ones of the house and it was the gentle slope of the outside walls and the pressure they exerted, which kept the internal ones standing.[133] They were built afterwards, so that the plans of the individual houses could differ considerably by the simple addition or destruction of any number of internal walls and they were constructed as walls of headers and

stretchers.

There is relatively little information about the houses at Soknopaiou Nesos apart from the stone walls, already discussed, of house IV 401, but it sounds as though house III 301, built above IV 401, was constructed very similarly to those from Karnais, with interleaving and alternating courses of headers and stretchers on both parts of the wall.[134] This house was earlier than those described by Yeivin, but it would not be surprising to find the same bonds used throughout the Faiyum and for a considerable length of time.

None of the other Faiyum site reports produced enough detail to enable any conclusions to be drawn, but the main feature, certainly of the Karanis houses, and probably elsewhere, as in some houses at Soknopaiou Nesos, was the slope on the house walls and the concave courses. It is interesting that this latter feature was not restricted to the Faiyum house, but also occurs in the Roman houses at Medinet Habu and in later Byzantine houses at Elephantine and Hermopolis, but apparently not any earlier there. Spencer does not see any structural reason for this method of construction although it is undeniable that the houses built thus at Karanis survived well, so it cannot have been detrimental.[135] One explanation for this construction is that outsiders believed that pan bedded courses were typically

Egyptian and that by building houses in this way, they were imitating Egyptian construction techniques, although concave courses were not a feature of pharaonic houses, but were used in temple walls. One further argument against this explanation is that, judging from present evidence, houses on traditional Egyptian sites were not built like this until the Byzantine period, creating a gap of about three hundred years between the Roman Faiyum houses and those elsewhere in Egypt. Although there is little indication of this type of construction occurring at sites prior to the arrival of the Ptolemies, it is perhaps conceivable that some houses were built thus, which prompted the building of the Faiyum houses with these characteristics and their re-emergence at indigenous sites later in the Roman occupation.[136]

ii. Use of wood in the walls

There is very little evidence of wood being used in the construction of walls during the pharaonic period and it did not become a feature until the hellenistic period. Even then it was mostly restricted to houses in the Faiyum, although in some houses at Elephantine there are examples of wood being used. Here, Honroth discovered one house in the earlier part of his excavations which had wooden beams placed in the front wall to strengthen it[137] and Grossmann came across fairly frequent examples of wood used to tie the wall courses together in the

Coptic houses south of the temple, and also to protect the corners of buildings, just as at Karanis.[138]

In the houses at Karanis wooden beams were used to tie in and strengthen the brick courses, to protect the corners of houses from traffic and general wear and to encase the doors and windows. Large pieces of wood, often irregularly shaped, were laid along a brick course and the succeeding courses were built round the wood, thus strengthening the layers which encompassed it, as in C57.[139] Other pieces of wood were placed at regular intervals through a wall, although this cannot have had quite the same effect as the other method. In one instance, C5024, the wooden poles extended beyond the line of the wall to prevent animals amd passers by from knocking against the wall and causing too much damage.[140]

To protect the corners of houses vertical wooden beams were placed round them, held in place by blocks at either end, which in turn were built into the wall. The vertical beams fitted into these blocks with mortice and tenon joints, so that they were kept very securely in place.[141] Examples of these protected corners were found in houses C401/B501 and C116.[142]

The same binding blocks were found at Soknopaiou Nesos in house II 201 and in the south-east corner there was a similar

wooden protective beam.[143] The unusual feature about II 201, however, was the wooden wainscoting inside room A, where panels of wood had been keyed into the walls, probably once to the height of the lintel, although it only remained for 1 m.[144] No other example of panelling is known from any domestic site in Egypt, so this room must have been used for very special functions.

Finally at Theadelphia, Rubensohn found examples of wooden blocks keyed into the walls, at intervals of about 12-15 cm. The walls were about the same width as those at Karanis, one-and-a-half to two bricks wide, about 50-80 cm.[145]

iii. Use of stone in walls

Although stone was widely used in the pharaonic period for fittings such as door and window frames, it was an unusual building material in houses. In the hellenistic era it was still found infrequently in domestic buildings, with the one notable exception of the houses at Soknopaiou Nesos, in the earliest 3rd century BC level.[146] Houses in areas of Egypt other than the Faiyum virtually never used stone in the walls. There are one or two examples of stone reinforcements to walls at Karanis and in the houses of the hamlet north of Karanis. These protective stone layers were particularly used in houses built on street corners, like house B1 at Karanis, where a layer of stones had been placed

on edge and plastered against the west and south walls.[147] Sherds had been used in the same way in the north wall. A similar line of blocks had been placed along the south side of C2, but here a second row had been put in front of this, to keep traffic out from the house.[148] Again, large stone blocks had been built into the corner of C401/B507, with the long face of the stone alternating on the two walls.[149]

It is interesting that the first house excavated by Jouguet at Medinet Ghoran was built in stone and brickwork, whilst the two shops connected with it facing onto the main square were of brick.[150] Another Ptolemaic house, in the Faiyum hamlet, was built partly of limestone slabs for the outside walls, whist the partition walls were made of mud brick, made like those at Karanis, of alternating courses of headers and stretchers.[151] House 2 there had walls of limestone and brick and in house 3, the floors of some rooms were paved with stone flags, in contrast to the normal mud or mud brick floor.[152]

iv. Use of mats or reeds in walls

The practice of placing layers of reeds or actual mats between the courses of a wall was found at all periods in Egyptian history and was confined to no particular type of building.[153] The reason for it is not certain - it has been suggested that placing reeds or halfa grass stems helped the

interior of the wall to dry,[154] but Spencer points out that since walls were normally plastered, which would have prevented any moisture evaporating,[155] it is perhaps more likely that they were used to give the mortar something to grip against and so helped in binding together the wall.

Rushes were used in a vaulted cellar at el-Amarna,[156] and date palm leaves were found in the house walls at Karanis[157] but the practice cannot have been that widespread in houses; probably they were not thought substantial enough to warrant it.[158]

4. Mortar and plaster

Although two types of mortar were in general use throughout the pharaonic period - clay and gypsum - generally only the former was used in the houses, whilst gypsum was kept for stone buildings.[159] The clay mortar was made of the same materials as mud brick - alluvial mud mixed with water and varying amounts of chopped straw and sand.

At Deir el-Medina the builders appear to have made their mortar from earth of several different types, of fertile mud, of dried out earth, of fine earth with sand in it or of pounded earth, the last three kinds needing a lot of water for mixing.[160] According to Bruyère, poor mortars became useless and crumbled away as they dried, whist ones made of good clay were as strong

as the best brick.[161] Sand was used in the mortar at Malqata palace.[162]

Moving to hellenistic houses, Yeivin made notes on the mortars found at Karanis, where three types seem to have been used. The standard one was ordinary mud mortar, which was mixed where needed leaving shallow holes in the ground, found also at Soknopaiou Nesos.[163] At Karanis this kind of mortar was either yellow or grey, like the bricks, depending on the type of earth used and the level.

The seond type, too, was found for walls, but also for floors and ceiling and had no sand but straw.[164] At various times dung was added to help bind it together, as in IIb(B) and later, and again the colour of the mortar varied according to the colour of the earth. Finally, there was a white plaster used with baked brick and made of gypsum.[165]

Inside and outside walls of houses were often covered with a plaster layer and the plaster used was, like the mortar, of two types - mud and gypsum.[166] Mud plaster was made of mud with varying amounts of straw, depending on how smooth the finished product was to be. The best mud plaster was made from 'a natural mixture of clay and limestone....found in hollows and pockets at the foot of the hills and plateaux, from which it has been washed

out by the occasional rainstorms that occur'.[167] It still is used occasionally in Egypt and is known as 'hib'.[168]

Houses in the pharaonic workmen's villages normally had mud plastered walls and often these were painted, as at 'Kahun' where there were sometimes painted dados.[169] At el-Amarna the walls were plastered with mud and often whitewashed, and these coverings were repeated as necessary as the older ones needed replacing, as in East Street 12.[170] Other washes were occasionally used as in 5 Main Street,[171] where the living room was covered with a 'lime' wash, which was then replaced by ordinary mud plaster and this occurred also in 22 West Street.[172] Considerable traces of decoration were found, often covered as in 10 and 11 Long Street,[173] although some were discovered on the top layer of plaster, as in 3 Main Street.[174] If the walls at Deir el-Medina were intended to have paintings on them, they were either plastered or covered with whitewash to which slaked lime was sometimes added.[175] This lime was sometimes replaced by 'hib', which gave the plaster a hardness like cement.[176]

In hellenistic houses the same kinds of plaster were used, so that in the houses south of the temple at Elephantine the walls were plastered with a mud and straw mixture and were then covered with a thin lime wash.[177] At the Roman village near the Bucheum at Armant the plaster used was a mixture of calcium

carbonate with a larger percentage then usual of sand and much angular quartz.[178]

The houses of Djeme were quite probably plastered outside as well as inside, and the inner walls were also whitewashed.[179] Some rooms, however, were not plastered, as in house 45, since baked bricks had been built into the mud brick wall in an ornamental manner.[180]

At Karanis the plaster changed in texture from fine yellow plaster spread thinly over the wall to a coarse kind which could be one of several colours (although Yeivin omits to say what these were), which appeared in the IIb(B) layer.[181] If a house had been in continuous use then the transition from one kind to another was apparent and helped in dating the building. The brick wall was covered with a layer of plaster between 3-5 mm thick and once that had dried, with a second coat.[182]

In the baths discovered at Karanis, ordinary mud plaster was used for walls, whether baked or not, but for those walls or areas which were exposed to dampness, a lime covering was used.[183]

Cement was not used until the Roman period,[184] but examples of its use in houses have not been discovered in this survey.

However, it was used for stone buildings at Karanis, like the North Temple and was pink in colour, with a large amount of sand added.[185]

This concludes this study of the construction of walls and the materials used for them. It is clear that there was basically very little alteration in the standard techniques and materials used from the pharaonic to the hellenistic periods, although there were certain changes in detail in the latter era.

The commonest building material was sun dried mud brick, held together with mud plaster. The bricks were rectangular and those used throughout the pharaonic period were relatively thin in relation to their length:height ratio. This continued to be the standard shape of brick on into the hellenistic centuries on sites which can be classed as 'traditionally Egyptian', like Edfu and Elephantine. In other towns and villages, notably those associated with the Greeks, like Naucratis and those in the Faiyum, there seems to be clear evidence that a differently shaped brick was used which was thicker than the normal Egyptian one. Occasionally another material was used to construct a house, like the two in the earliest layer at Soknopaiou Nesos, which were built in stone from foundation level to the second storey, where brick replaced the stone. Maehler has pointed out the possible connections between these stone houses and those

from certain parts of the Greek mainland, either in northern Greece or Olynthos,[186] and if so, this would certainly provide another example of Greek influence in the establishment of the Faiyum settlements. It is, however, surprising that other towns which were founded early under the Ptolemies, like Philadelphia, have not produced similar stone or partly stone houses.

Another major change in the hellenistic period was the use of concave courses to form the outside walls. Although this feature was most noticeable in the Faiyum towns and villages, it was also noted at Egyptian towns like Hermopolis, Medinet Habu and Elephantine. There will probably never be a convincing explanation for this, but certainly in the Faiyum houses, it seems to have contributed to their long-term survival. The explanation that it was outsiders building in an 'Egyptian manner' is not really convincing with examples coming from places where foreign influence is considerably less than in the Faiyum. It is perhaps interesting that most occurrences of concave courses come from Roman houses or later and maybe this is connected with the considerable increase in the use of wood in Egyptian houses. It is strange to find a link between the Roman Faiyum houses and those at Elephantine of the Byzantine period which used wood for corner protection and in the walls as well as having concave coursed walls, especially in view of the time lag.

There is no precedent in Egypt for this increased use of wood in house construction, nor does it occur outside the two areas mentioned, so one suspects that it was introduced from abroad and probably with the Romans, since it does not appear in Egypt until after their arrival. There may not be any remains today of the tenements built of mud brick and wood[187] which once were so common in Rome, but there are literary allusions to them and frequent mentions of the terrible fires caused when one caught alight.[188] These quarters of Rome were probably quite similar to the crowded conditions in, for example, level C at Karanis and although the houses were not as tall as the tenement blocks in Rome, the areas might well have borne considerable resemblance to one another. If wooden protection was used in Rome then its use in a similar situation in Egypt would have been quite logical.

The reason for the appearance of wood protection at Elephantine may be no more than coincidental, but it could conceivably be connected with the stationing of an army unit there in houses which were built in the courtyard of the temple of Khnum.[189] The civilian houses in which this feature was noted were contemporary with the houses in the courtyard and were just south of the temple.

So, although the construction techniques used in Egypt

mostly remained the same, there were some changes which can generally be attributed to the outside influence of the Greeks, followed by the Romans.

B. Doorways and doors

The purpose of any door is to close off areas at will and this aspect was very important to the Egyptians with their predilection for being private when at home. Hence the main door from the street in a pharaonic house was well constructed and often formed quite an imposing feature to signify the retreat from the outside world into the home. According to Koenigsberger,[190] the door possessed another equally, if not more important religious function, forming the boundary between the present world of men and the after life of gods,

making it necessary to decorate doors with suitable lavishness.

Rather than discussing the 'door' as a whole it is easier to break it down into its component parts, which consist of:

1. The doorway
2. The door

1. The Doorway

This is the framework round the door itself and to which the door is attached and it consists of three parts: the door post each side of the opening, the lintel and the threshold. These distinct sections apply most naturally to buildings made of mud-brick, where the separate door frame was often of a very elaborate nature. In simple structures of reed, it is probable

that there was no special door frame, but instead a rectangular opening left during construction, as seems to be indicated by drawings of the I dynasty from Saqqara and elsewhere.[191] It might be possible to make out definite door posts in these representations whose origin is probably connected with the type of construction employed, namely strong vertical posts made of reed stems, so that the doorway was placed naturally between two of these posts. The kind of door cannot be guessed from the drawings themselves, but it could have been either woven mats hanging in the door space when needed but which were otherwise rolled up and secured at the top of the door, or a more sophisticated type made of reeds held together by cross pieces and plastered with mud, as seems to be indicated on the Rifeh models.[192] It is more likely that in huts such as those represented in the I dynasty drawings such as a substantial door was not used and that the simpler mats were employed.

Koenigsberger envisaged the first step in the development of a door in a mud brick house to be the strengthening of the opening left for the door with posts and lintel of similar material. The posts were not placed absolutely adjacent to the door opening but rather a little way to each side of it, making the door and its frame into an impressive feature. He pointed out the continuation of this type of doorway into modern Egypt and illustrated one from the Faiyum very similar in construction to

one from an old kingdom tomb at Giza.[193] However, a model of a simpler and earlier building apparently made of wattle covered with mud from el-Amra appears to suggest that the builders of a similar kind of door had already discovered the benefit of using a stronger material, wood, for the door posts and lintel.[194] In fact it seems to represent a later stage than the door at Giza since it does not have large brick posts each side of the door but shows strengthened jambs right next to the opening itself. There is similarity between the arrangement of the lintels, especially between that on the model from el-Amra and that from the Faiyum, illustrated by Koenigsberger, with a sizeable lintel beam extending either side of the door jambs, and a small beam a little lower down, indicating the height of the actual door. Koenigsberger suggests that this form was to allow some light into the room and this seems likely, since the light came in at a sufficiently high level to maintain internal privacy whilst the space was large enough to allow sufficient light in to illuminate most, if not all, of the house.[195]

After it became usual to place supports for the door next to the opening, which the el-Amra model indicates could have been in the pre-dynastic period, it was normal to encase the door in a material other than the mud brick in which the house was built. The usual ones were stone, either limestone or sandstone, and wood, and generally availability of these resources together with their

cost determined which was used; so in the village of Deir el-Medina stone was readily obtainable and was commonly used for the door frames of both houses and tombs, whereas at the workmen's village of 'Kahun' there was no such easily accessible stone quarry so wooden fittings were necessary.[196]

i. Door Jambs

According to Koenigsberger these were considered a very special part of any building and so tended to be made of the best material.[197] In the finest houses the door jambs were of stone, usually sandstone or limestone, and examples of stone jambs have been found at Medinet Habu,[198] Elephantine[199] Deir el-Medina[200] and el-Amarna.[201] Less wealthy establishments had to be content with wooden jambs and evidence of these has been discovered at the same sites, side by side with stone examples.[202] The simplest form of door was that without a separate door frame and in these cases the jambs were carefully formed in the mud brick wall, sometimes with separate lintel and threshold beams. Examples of this kind have been discovered at Malqata palace at Thebes[203] and in some houses at el-Amarna,[204] although the brickwork was disguised there by being plastered and painted red round the edge of the door, which occurred in all the houses regardless of the material used for the doorframe. At other places, the disguise of the brickwork was even more elaborate, with not paint being used, but a veneer of wood or stone, as in

priests' houses I and II at Karnak.[205]

The form of Egyptian door jambs was very simple. When they were made of wood or stone, the ideal was to have the jambs formed of a single piece of wood or stone to facilitate keeping them in place.[206] Although lintels and thresholds will be discussed shortly, it is necessary to consider the door frame as a whole to understand its construction during the pharaonic period. Figure 1 illustrates the way in which the door jambs fitted into the threshold in houses from Deir el-Medina and el-Amarna, although it is reasonably safe to assume that this method, or one very similar to it was employed elsewhere throughout the pharaonic period. The jambs were held in place fairly securely by being slotted into the threshold at the bottom but additional methods of tying them into the brickwork were sometimes employed.[207] At the workmen's village at el-Amarna, where the jambs and lintel were usually wooden with only two examples of stone, the jambs were held in place by wooden pegs fastened into the brick surrounds of the door.[208] In one house, 17 in West Street, the upright of the wooden casing of the door was further secured on one side by being nailed to a wooden tie fastened into the brick jamb at the threshold level.[209] In other sites, this information is not generally forthcoming, nor does Koenigsberger discuss how, if at all, the door jambs were tied to the wall. Judging from the sandstone door found in separate

pieces and restored in house M.50.13 in the main city of el-Amarna, there is no clear evidence of the framework, especially the jambs, being slotted into the brickwork; rather it appears very much as a freestanding and independent structure. If tying in to the brickwork did occur, it is more likely that it happened where the framework, or at least the jambs were wooden, as pegs could be passed through this more easily than with stone. It was considered presumably that with the base of the jambs slotted into the threshold and with the weight of the lintel above, which was sometimes literally tied into the brickwork, this was sufficient to keep the door jambs in place.

Often the door jambs were decorated and incised with the names and titles of the inhabitant of the house, mainly when they were made of stone. At both the main settlement of el-Amarna and at Deir el-Medina, the whole frame was usually reddened with ochre to imitate wood. At Deir el-Medina, it is clear that the frame was erected prior to being coloured, judging from smudges on the thresholds and it was doubly useful to colour the frames red there, as many of them were taken from doors of tomb chapels, which had fallen into disuse, and which were initially painted yellow; so the red paint hid their origin.[210] However, the entrance door frame of house K.50.1 at el-Amarna, that of Nakht, was of limestone and painted yellow and decorated with blue hieroglyphs, but as mentioned, the door frame was usually red at

el-Amarna.[211] The jambs of the priests' houses at Karnak, however, do not appear to have been painted, although they were inscribed with the names of the inhabitants and prayers.[212]

Wooden or stone jambs varied according to the size of the door they were enclosing, which does not appear to have been a standard measurement. However, Peet and Woolley recorded that the doors in the main city at el-Amarna were on average 63 cm wide (or 1 cubit, 1 palm and 1½ digits).[213] The height of the actual door inside the frame in house M.50.13 was 1.48 m (or 2 cubits, 5 palms and 3 digits). The external dimensions of this door frame were 2.07 m high and 1.35 m wide, which means that the lintel was 59 cm high and the jambs each work out at 38 cm (5 palms) wide.[214] The stone was apparently 10 cm thick (1 palm and almost 2 digits), so each door jamb measured 1.48 x 0.38 x 0.10 m. It would appear that the doors were generally tall since other jambs discovered have usually been well over 1 m in height, for example another door, which was found complete in the house of Hatiay (T.34.1) had an opening 1.82 m high and 70 cm wide (3 cubits, 3 palms high and 1 cubit, 2 palms and over 1 digit wide). Other jambs found in his house ranged from 1.54 m - 2 m in height (2 cubits, 6 palms and 1½ digits - 3 cubits, 5 palms and 2 digits), although the one 2 m tall was not formed from a single block of stone.[215] No complete jambs seem to have been recovered in situ from Deir el-Medina, but occasionally a complete lintel or jamb

was recovered among the debris and a left door jamb was found in the basement of house S.E. VII. This was only 74 cm tall (1 cubit, 2 palms and 3 digits) but had an almost square section being 22 x 21 cm, whereas the ones from el-Amarna were much more rectangular.[216] At Karnak, the door in house 1 at the back of court A was 1.62 m high (3 cubits and nearly 2 digits) but it is not stated how tall the lintel was, so it is not easy to decide on the height of the jambs.[217]

It is clear, therefore, that apart from their function purpose of forming part of the frame necessary to structure the door, the door jambs, at least those of the main entrance, had a decorative and informative intent, telling the public of the social standing of the occupier. Thus it was considered important to have an impressive entrance, with a tall, well decorated door frame round the wooden door. It is also interesting to see how carefully measured the jambs were.

ii. The Lintel

This impression was enhanced and continued by the lintel, which topped the rectangular door frame. It was usually of the same material as the jambs, although as it was often decorated, either by paint, or sometimes by plaster and then painted, the original material was generally disguised.

The actual form of the lintel was more varied than that of

the door jambs. There were two basic types - either a flat beam of wood or stone across the jambs or else a relieving arch which had the same function as a straight lintel i.e. to form the top of the door and carry the weight of the wall above the opening. It seem that both these forms of lintel were known very early in Egyptian history, as it is likely that the flat lintel could have developed from palm trunks,[218] while placed along the top of the door. Arches made of brick are known from the I dynasty and even before that in the archaic period,[219] but they were ofen used in tomb architecture during the Old Kingdom at Giza and Saqqara.[220]

The choice of which type of lintel generally depended on the kind of roofing employed in the building, so that a straight lintel would be connected with buildings which had flat roofs and arched lintels with roof vaults.[221] Apart from the arched doorways at 'Kahun', there are not other examples of this type of lintel until the houses of the hellenistic period at Edfu and the Faiyum settlements.

The flat lintel can be divided into two types; the ordinary straight, rectangular piece of stone or wood, which may or may not have been inscribed and painted, and that which had a torus moulding and cavetto cornice. This latter type was more ornamental and was illustrated by the lintels which capped the huge doorways in the pylons of temples like Karnak. Petrie

believed the origin of both features to be in the reed huts and buildings of early Egyptian history with the torus roll reflecting bundles of reeds or palm sticks bound together, not only at the top of a door frame but on its edges as well, and the cavetto cornice being equivalent to the loose top of palm leaves.[222] This type of lintel was more impressive and so tended to be used to display wealth or importance - for example, in the wealthier houses at el-Amarna, such as that of Hatiay the architect (T.34.1), where one lintel found measured 2.22 m in length (4 cubits, 1 palm and 1½ digits).[223] It was also used in the houses at Deir el-Medina, not only for the actual doors, but also for the lintels of the doors round the shrine (laraire) in each house.[224] Many lintels from these were discovered and usually they were decorated in relief showing the owner of the house praying to the god of the shrine.

A lintel of this type was found in the second palace at Medinet Habu and this is particularly interesting, since it shows that sometimes lintels did not rely entirely on their own weight to keep them in place, but like the door jambs were actually built into the brickwork. The one at Medinet Habu was of stone and the part which formed the actual lintel was beautifully finished off, but on each side a rough area had been left, in which a small hole was bored. Through this, a piece of cord was placed which was literally tied into the brickwork each side to

give the lintel extra rigidity.[225] (Figures 2 & 3)

One site which did not produce cavetto cornice lintels was Karnak in the priests' houses; instead they were formed from a flat piece of sandstone, but in house II the lintel was engraved with the titles of the owner and representations of him before Montu.[226]

One other source provides much information about the type of lintels - the houses protrayed in the nobles' tombs at Thebes. The majority of these illustrated by Davies show doors that seem to represent cavetto cornice lintels, for example the main door to the central hall in the house of Dhutnufer (TT 104), the house of Nefer-hotep (TT 49), the main door of the house shown in TT 254, that of Nakhte (TT 90) and the one shown on the papyrus of Nakhte.[227] The representation of the house and shrine from the tomb of Sennufer (TT 96) is interesting in that it shows clearly the separateness of the lintel, which in this case is not moulded but is quite straight, resting on the door jambs,[228] and it is worth noting how this representation gives the impression of the doors being quite a separate entity from the rest of the building, as Koenigsberger mentions.[229] A similar group of material, the Amarna talatat from Karnak, provides further evidence about contemporary doors. Here a group of priests' houses are portrayed and included among these are several doors,

which confirm the actual evidence from el-Amarna since the doors are known to be quite tall and well built, with separate, moulded lintels. They are also painted red on the talatat as they usually were in real life.[230]

It appears from both archaeology and representational evidence, therefore, that the most common form of lintel was that moulded into a cavetto cornice, which made the doorway more impressive. Where position or wealth did not allow this type, an ordinary flat lintel of stone or wood sufficed, which could, even so, be carved into an impressive cap stone for the door. Although the relieving arch, used in place of a flat lintel, was known from very early times in Egyptian history, the only well-known example of its use in domestic architecture is at 'Kahun' in the XII dynasty.

iii. The Threshold

The two parts of the door already discussed formed the actual casing of the door, which was fitted round the brick edge of the opening and helped to prevent unnecessary wear of the brickwork and to make the doorway look impressive. The final member of the door frame was the threshold, which was more functional and less likely to be given special attention. It was functional in that it formed a secure base for the jambs of the door frame and being made usually of a material harder than mud

brick, it prevented excessive wear at the entrance. The lower pivot hole for hanging the actual door was also made in the threshold whether it was an actual hole in the material of the door still, or a stone impost that rested in a hollow in the threshold, as at the workmen's village at el-Amarna. This latter situation also occurred at the workmen's village of 'Kahun' where the door pivoted in a stone shoe that fitted into a hole in the wooden threshold. The pivot was protected from general decay by being covered with a rectangle of stone which went round the hole - a feature which has not been found on other Egyptian sites. Petrie noted during his excavation here that owing to the sill being of wood it had worn down easily and to maintain the height, old sandals and other pieces of leather had been placed in the door socket.[231]

The only site where the report mentions the type of wood used for the thresholds is Deir el-Medina and there Bruyère mentions the use of sycamore and palm wood together with limestone, sandstone and ordinary brick. Generally the threshold was of stone when the door frame was, and the same applied with wood. Thus in house N.O. XV the doorway into room II was framed in wood and had a sycamore threshold, while in N.E. XII, the door into room II had a door sill of date palm wood with traces of wooden doorposts.[232]

In the houses at el-Amarna, wooden thresholds appear to have been used where there was a change in level. In house V.36.5 for example the room leading off from the south-east corner of the central hall had a wooden sill as the small south-eastern room was at a lower level than the hall.[233] In the larger houses the thresholds of the outer entrance doors at least were of stone and in some really wealthy households, all doors were framed in limestone and so presumably had stone thresholds as well, as for example the house of Ramose.[234] On one door sill in house 0.49.24 the scraping on the threshold caused by opening the door indicated the direction the door opened; the pivot hole for the hinge was at the south end and at the other, north end was a hollow made by the door as it opened inwards into the central hall.[235] At the workmen's village at el-Amarna, the door thresholds were often of stone blocks, as in house 10 in Main Street, where the threshold of the entrance door was of stone and 15 cm high and that into the living room was made of stone and mud covered by a wooden still, which held the bases of wooden door jambs.[236]

In conclusion it appears that in most cases in pharaonic Egypt, openings for doors were surrounded by a separate freestanding framework of wood or stone, attached to the brickwork and with a threshold either of the same material or of brick or stone capped by wood or stone to prevent excessive wear.

It is clear, however, that not every door was thus framed, since in several houses at Deir el-Medina, doors were clearly just left as openings in the brickwork, as the excavators found no indications that a frame had ever existed, for example in house S.O.I, II and V, S.E IV.[237] Finally, some tomb representations appear to show the frame sloping gently,[238] and Koenigsberger mentions this phenomenon as well, but it would appear that these few examples were very much exceptions to the standard rule that the opening and its surround were strictly rectangular. The actual opening must always have been rectangular since any slight slope would have made it impossible to hang the doors themselves properly, but the idea of a slanting surround could easily have been taken from the pylon entrances to temples.

2. <u>The Door</u>

Although doors in some early houses were made of reed stalks plastered with mud, as for example part of one in Cairo Museum (5160)[239] and those represented on the models from Rifeh,[240] all domestic doors were made of wood and as already mentioned were regarded as objects of high value, owing to the scarcity of wood.[241] Some evidence of how pharaonic wooden doors were constructed comes from representations on sarcophagi, but there is another source, which shows complete doors, and that is the false doors found in houses like those at el-Amarna and Deir el-Medina. One purpose of false doors was to provide symmetry

within a room and so they are usually found in the central hall in the houses at el-Amarna, creating a balance if actual doors were lacking.[242] A false door at Deir el-Medina (house N.E.XV) in room II was 1.55 m tall and 90 cm wide (measurements which are much the same as those of real doors), and it had red jambs and a decorated lintel, presumably of the cavetto type, whilst the door itself was divided into three bands, a central yellow one with red either side.[243] The false doors at el-Amarna were usually surmounted with a grille decoration of semi-circular shape, which Koenigsberger interprets as representing original latticed windows above the door.[244]

Very few actual doors have been discovered, but one that has survived comes from Illahun and is now in Cairo Museum (number 20/5/24/4). It consists of seven vertical pieces of wood joined by pegs placed through battens with a horizontal wooden plank at the top and bottom forming a pivot to fit into holes in the lintel and threshold. The two outside pieces of wood were of harder (but unspecified) wood than the five inner planks, making the whole door well-secured and quite tough.[245] At Deir el-Medina the door to a household shrine was discovered in house S.O.VI (belonging to Sennedjem) and it was made of wooden planks of ebony joined by three horizontal bars across the back, which were pegged into place. The front had been carved and painted to show Ma'at and, because it belonged to a shrine, the door was very

small. Although only a fragment remained Bruyère estimated its measurements as 24 cm tall and 18 cm wide (3 palms tall and 2 palms, 1½ digits wide). Since the door frames to these household shrines appear to have been similar to real house doors at Deir el-Medina one can presumably infer that the actual doors there were made in a similar fashion, although clearly not of such expensive woods as ebony.[246]

Finally it remains to look at the evidence regarding the method used to hinge doors. As already mentioned, this was done by small circular extensions at the top and bottom of the door panel, which fitted into pivot holes made in the threshold and lintel. Much of the evidence for these in domestic buildings has already been discussed but it is perhaps worth collecting it together. At 'Kahun' the doors were placed in stone 'shoes' let into the threshold which were then covered by rectangles of stone to keep dirt out.[247] A wooden socket hole was used in the stone or brick threshold at the Amarna workmen's village,[248] while in house 0.49.24 in the main city at el-Amarna the doors opened into the central hall and were hinged on the south side, leaving scrape marks on the stone threshold.[249] Finally at Deir el-Medina it seems that the pivot was always on the right side of the door and the hinge in the threshold either went through the thickness of the door sill or was just a small 'cup' made in it.[250] The lack of actual doors makes it harder to know how the

pivot was attached to the door but the door from Illahun shows that it was sometimes a horizontal piece of wood separately attached to the rest of the door with the pivot formed out of this. A much simpler form would have been to fashion an extension for the pivot from the end plank of wood.

Having looked briefly at the main body of material from the pharaonic period it is now proposed to look at that from the later eras of Egyptian history. Most evidence from the hellenistic period comes from the Faiyumic sites of Karanis, Soknopaiou Nesos, Theadelphia and the Upper Egyptian sites of Edfu and Medinet Habu. In other places all the evidence amounts to is brief mentions of details in the text of a report with no illustrations. It is proposed to deal first with the separate parts of the doorway as above and then conclude by looking at the complete examples of doorways from Karanis and Edfu.[251]

i. Jambs

These continued to be made of either stone or wood and again the choice generally depended on either availability or wealth. Hence at the well-built house at Medinet Ghoran quite good hard limestone was used for the jambs of the door to room B,[252] and similarly at Philadelphia many of the entrance doors had limestone jambs as did the one house actually excavated there in block D6.[253] In the Coptic settlement of Djeme the door jambs

were sometimes of stone, presumably taken from older remains on the site but mostly they were carefully formed in the brickwork, leaving a very straight edged doorway.[254]

One very interestingly designed doorway is that in house I 112 at Soknopaiou Nesos, where the doorway was basically formed of mud brick, but had been protected by a very elaborate pattern of wooden blocks and beams built into the door jamb. (Figure 4.) It is a pity that the lintel no longer survived, as it would have been interesting to see how that fitted into the design.[255]

Generally inner doorways seem to have been made of wood. For example in the buildings of the Faiyum hamlet, the jambs of the inner doorways were made of wooden poles, with the spaces between filled with paster to protect the brickwork[256] and similarly at Philadelphia the inner doors were framed in wood.[257]

An exceptional example of not only the doorway but also a room being lined with wood is to be found at Soknopaiou Nesos, in building II 201, where room A and the doorways leading from it were all lined with planks of smoothed wood, held into the brickwork by means of wooden tie blocks. Only the thresholds and a part of the door jambs remained, but Boak believed the panelling probably extended as high as the level of the lintel, making an impressive room and one unique in Egyptian

buildings.[258]

ii. Lintels

From the general descriptions given it is impossible to know what kind of lintel is being referred to - whether plain or moulded. As before, the materials used for lintels were wood or stone and generally wooden lintels occurred with wooden jambs and the same for stone. In the hamlet in the Faiyum, the lintels in house 1 were made of sandstone, as were those in house 3, apparently flat, since Caton-Thompson writes that 'large slabs of sandstone formed the lintels'.[259] At Philadelphia in Block C4 on street 4, a single house was discovered which had a door on the side facing the street, which had a semi-circular relieving arch made of limestone.[260] The two lintels found at Medinet Ghoran were of limestone and were labelled as 'Egyptian' by Jouguet but this interpretation is rather suspect.[261] In the Coptic houses at Djeme, the lintels of the entrance doors from the street were formed of flat pieces of sandstone and it seems from the associated plans that these were often surmounted by a brick arch. Doors to the other rooms were arched and sometimes decorated with a row of bricks following the curve set slightly outside the line of the wall about two courses above the top of the arch. This is clear for example in the remaining door of house 55 and similarly in house 100. The doorway in this latter building is interesting as the actual opening has been recessed

and so appears framed by the decorative arch.[262] (Plate V) Brick arches similarly formed door lintels at Hermopolis during the Coptic period, but as usual with Roeder's report, nothing else is mentioned.[263]

At Tuna el Gebel one finds a confusion of Egypian and Greek styles. For example in tomb 21 the builder has simply combined two styles of lintel, placing a Greek triangular cornice above one of Egyptian cavetto form.[264]

iii. Thresholds

The same two materials were used to form the thresholds of doors as in the pharaonic period, with the addition in later buildings of baked brick. The two sites where this latter material was defintely used were in the Coptic houses at Djeme and buildings of the same period at Edfu.[265] Even at these two places stone and wood were also used for door sills and at Djeme the stone pivots used for the bottom hinge were sometimes found but it is not known whether these were used in thresholds of all materials or just of stone.[266] In the Faiyum hamlet, limestone thresholds were found in both houses 1 and 3, in each instance with a hole drilled to take the lower door pivot.[267] At Medinet Ghoran the thresholds appear to have been quite high and made of limestone, although it is not clear whether this was just a stone capping on top of bricks or a solid, thick piece of limestone.[268]

Apart from Karanis, the only site where wood is mentioned as forming the threshold is Philadelphia, where it was used for the internal doorways.[269]

It is now time to look at the evidence from Karanis, Theadelphia, Dionysias and Edfu.[270] The doors from these sites have been left until now, since they are described and illustrated to a higher standard and a much clearer idea of how they were constructed can be gained.

Karanis

The doorways here were generally framed with wood and considerable sections of these casings have survived, and in one or two houses are still complete. Stone was, however, occasionally used but according to Yeivin only in the wealthier houses, as would be expected.[271] One such house seems to have been C401/B301, whose entrance door was framed by limestone.[272] This stone frame replaced an original one of wood - a sign of increased wealth and importance. It consisted of jambs made of a single piece of stone, of rectangular section, and a lintel, which covered the jambs exactly and which was plain apart from a slight moulding at the top. There is no indication how, if at all, it was tied into the brickwork and so the assumption must be that it was not and was kept in place by its own weight. The outer threshold was also limestone but it is not clear if any

slot was made in it to take the bottom edge of the jambs; it appears they just rested on it. The lower pivot for the door was placed in a piece of wood just behind the right jamb. The whole entrance was made even more impressive by the presence of a flight of four limestone steps which were presumably added with the stone door frame and replaced the original steps. These were not connected to the door frame and a gap was left between the jambs and the steps.[273]

Yeivin writes about another outside doorway that was faced with limestone which was excavated in the 1926-27 season - B50 in area G. Unfortunately there is no sign of this building on the sketch map supplied by Peterson and Boak, nor it is subsequently dealt with by Husselman. The door of B50A when excavated, consisted only of sections of the jambs, each made of several, slightly moulded blocks. As carved jambs are unusual, Boak and Peterson wondered if it came from part of the temple.[274]

A final doorway to be framed in stone was found in level E, in house 112. This is unusual in that the frame was not associated with the entrance door from the street, but communicated between rooms A and B. It seems to have consisted of jambs made of single pieces of stone, rather narrow but square in section, with a correspondingly small piece of stone used for the lintel. The threshold appears to be raised and at least

capped with stone blocks, but it is difficult to be precise from the photograph supplied.[275]

Almost without exception other doorways at Karanis were framed with wood. One of the best preserved was the door in house C50, leading from street CS46 into the courtyard C50A. When discovered, this had been blocked up during period B owing to the rise in ground level, but it was possible for Boak and Peterson to remove the blocking and investigate the form of the original framework.[276] (Figure 5.)

The basic structure of this casing did not vary from the standard type already described - consisting of two wooden jambs and a wooden threshold and lintel. The differences occurred in the more obvious manner in which these components were tied into the surounding brickwork by means of small rectangular wooden blocks built into the wall.[277] The most striking feature of the door was the lintel. This consisted of one main piece of wood, which was not pegged onto the jambs as normal, but instead rested on the end of each jamb. This beam was covered by another much narrower one, which overhung the main beam a little and seemed not to serve any particular function. The main lintel beam was secured into the brick wall by fitting into blocks at each end with mortice and tenon joints and there were other blocks below the lintel which were built into the wall. About half way down

the wall on the right side, a huge semi-circular piece of wood marked the place where this bolt case was attached to the framework.[278] Interestingly this bolt case was surrounded by moulding in the form of a door, with a raised jamb slightly away from the actual opening and a large lintel beam, imitating a typical Egyptian cavetto cornice.[279]

Another example of the same method of fixing the lintel on to the jambs was found in house B503, but in this building the lintel was not fastened into the surrounding wall in such an intricate way, nor was it such a well constructed frame.[280] This method of fixing the lintel to the jambs was not the most usual - normally, pegs were left at the top of the jambs, which fitted into holes on the underside of the lintel. This was used for the door from street CS95 into building C68, which again had a door frame, with the same number of component parts forming the lintel as in house C50 and the same method of tying them into the wall by mortice and tenon joints at the ends of the main beam and small blocks of wood below (Figure 6). The curve of this lintel, which is more apparent than in C50, is due to the greater concavity of the walls of building C68.

These examples illustrate the form of the lintel and jambs and show how they were attached to the brickwork. That three doors had survived in so complete a form was unusual; mostly only

the threshold remained together with part of the locking mechanisms employed. The way in which the threshold was made is clear; it consisted of two wooden beams, one forming the basis of the actual door frame and into which the jambs fitted, while the outer edge of the second was laid down level with the inner surface of the wall, as in house C50.[281] The space between these two thresholds was usually filled only with earth, although there are some examples of stone paving being put down. However, Yeivin mentions that this was rather unusual and occurred only in his period IIb onwards.[282] The outer threshold beam was sometimes set flush with the outside wall, but Yeivin says that it was more usual for it to be recessed a little, so that the door frame was placed slightly within the opening, for example in the entrance to C68G from C595 and in door C151.[283] In some instances, the wall between the two thresholds was lined with planks of wood let into the wall, to protect it from unnecessary wear, but Yeivin believed that this normally happened only with outer doorways, while the inner ones were left as plain, plastered brickwork.[284] One example illustrated by Husselman of this was the doorway between C50A and C51B.[285] One piece of wood was certainly placed in the wall to encase the bolt, as already seen in C50A, and it is possible that the panelling illustrated in plate 45b did not extend above the level of the bolt.[286]

Apart from the doors themselves, this sums up the evidence concerned with the door frame from Karanis. It is evident that there was basically very little alteration to the standard form of the pharaonic period, but here more concern is shown over tying the jambs and lintel into the surrounding brickwork. Since some parts of this fixing mechanism are occasionally non-functional, it can be assumed that to a certain extent they had a decorative role, making the outside doorway as impressive in its way as it had been in the pharaonic examples, and as was the case at Soknopaiou Nesos in house I 112.

Theadelphia

The next site where complete doorways have been found is Theadelphia. This example comes from house 2 and the door formed the entrance from the courtyard into the main room of the building.[287] Originally there was just a single door in the centre of the north wall, about which very little is known, although it is possible that, like the door in the main room of house 1, it had a wooden threshold. Other doors mentioned by Rubensohn were trimmed with limestone and the doors were flanked by ionic columns, on top of which rested a stone architrave. It is quite possible that the door in house 2 had a similarly elaborate frame, since it was the habit in Greek houses to give doors from the street or courtyard into the main body of the house an impressive facade to show the quality of the

building.[288] However, improvements were made to the door itself when two other doors were pierced unsymmetrically through the same wall and the threshold of the orignal door was covered in lime plaster. To carry the wall above the new openings, substantial wooden beams were built into the walls at each side to ensure greater strength. The spaces between the walls were fashioned into pillars, which do not seem to have had any structural use, as the beams carried the weight, so these were purely decorative. Rubensohn unfortunately does not talk about these pillars in any detail, so there is no knowing whether they were given decorative capitals to ornament the wall. It is clear that this arrangment was intended to look impressive, since the door in the centre was double. Little is known about the doors used but it is quite likely they were of the framed type, like the window shutter found in house 1.[289] All three doors could be closed by bolts, as their holes were found cut into pillars.

It is much to be regretted that Rubensohn did not illustrate this wall with its four doors, as it is very unusual among the available archaeological evidence. The suggestion has already been put forward that this building owes some allegiance to the Greek house from the island of Delos, though built in the Roman period and it is clear from the description that there are some non-Egyptian features. These are the pillars moulded on the outside of the doors, similar to those found on the doorway into

room 2 in the tomb of Isidora at Tuna el-Gebel and in other tombs there and at Alexandria. The double doors are a Greek characteristic although there were Egyptian examples in the houses at el-Amarna.

Dionysias

Many examples of doors were found in the Roman fort at Dionysias, all constructed in a very similar way to many described from ordinary Egyptian sites.[290] They resemble most closely the doors from Karanis, but the chief difference appears to be that the jambs were formed in the brickwork and so an entirely separate frame was not constructed and placed in the opening. The lintel was constructed of two thin pieces of palm wood, exceeding the width of the door opening and well embedded in the wall to either side. There is none of the elaborate tying-in mechanism seen in the Karanis houses; instead the lintel beams rested on a single block of wood placed next to the opening. The thresholds were raised above ground level and were made from baked bricks set on edge and covered by narrow planks of wood. As at Karanis, a space separated the two threshold planks, which despite being made of baked brick was probably plastered rather than left plain, to bring it up to the level of the top of the plank. The pivot holes for the door were found in the usual place at the angle between the threshold plank and the wall jambs and so presumably the top one was found in a

corresponding place in the lintel unless separate wooden planks were inserted for this purpose just below the lintel, as at Karanis.[291] The doors in the camp seem to have been approximately the same size as that for house C401/B501 at Karanis, for which rough measurements were obtained.

A complete doorway from Sonkopaiou Nesos (from street I 100 into house I 107) is quite interesting, as it is of stone, with blocks held together by mortar forming the jambs and a single piece of stone for the lintel.[292] The jambs do not appear to have been tied into the wall in any way, continuing the pharaonic method of construction. It is the lintel which is most interesting, as it is formed of a single piece of stone, which fitted onto the top of the jambs, but there is a semi-circular groove running along the inner side of the lintel which makes one wonder whether it was connected with the method of hanging the door leaves, or whether it served some other, more unusual purpose. The doorway was slightly under 1 m wide, but there is no means of discovering its height.

Edfu

The final site where reasonably complete doorways were found is Edfu. The buildings concerned were those found by Bruyère and Michalowski in their first and second seasons - 'la maison centrale' and 'la maison du nord'.[293] The doors in the basements

of these two houses were made entirely of brick, with no special frame so the openings were formed in the brickwork, with the thresholds of brick and the lintels in the form of brick relieving arches. The ceilings of these rooms were vaulted and so it was natural that the doorways would be arched and from pictures of 'la maison du nord' in particular, it is clear that the door arch was just an extension of the ceiling vault. Michalowski describes the arch over doors in room 25 of 'la maison centrale' as being formed of '...briques posées de champ avec une brique biseautée au milieu'[294] and Spencer states that doors of the Graeco-Roman houses were covered by arches he has classified as either $c_1$ or $bc_1$.[295] From the illustration given in the publication of Edfu, it would seem that the door arches of room 25 were more likely of type $c_1$ than $bc_1$, as there does not appear to be a double row, nor does Michalowski mention two. The doors in this room were quite low and narrow in comparison with those looked at from Karanis and Dionysias, measuring only about 1.55 m tall and 70 cm wide.[296]

The doors in room v of 'la maison du nord' shared similar dimensions, being about 1.65 m tall and 70 cm wide and in the photographs included in the report it is quite easy to see how the door arches were built into the ceiling vault, which explains why they were not straight vertically but rather curved inwards in the direction of the vault from that room.[297] Figure 6 in

particular illustrates clearly the slightly raised brick thresholds of the basement. One would not expect to find evidence of any doors since these were basement rooms.

It is much to be regretted that these two buildings supply the only evidence for doors with arches instead of flat lintels, as, although the basements at Karanis were vaulted, together with the doorways, no information is available about them, other than that which can be gleaned from the plans given for some buildings by Husselman, and from those of Boak and Peterson for Soknopaiou Nesos. From these it seems that the basement doors measured about 1.50 m tall and 75 cm wide (in house II 223 at Soknopaiou Nesos[298]) or 1.50 m in house II 206 there,[299] and 1.50 x 0.50 m in house C50 (door from C50C to C50B in the basement) at Karanis.[300] From the plans it appears that these have raised thresholds and only a layer of bricks forming the arch and so were probably again of type $c_1$.

The dominance of the flat, rectangular doorway over the arched one is false to some degree, as buildings which would have been vaulted rather than flat roofed have probably not been found. As mentioned above the arch was an archaic kind of covering known to the Egyptians at the start of their history and probably descended from arches formed in reed huts. According to Spencer, the type of arch with which these doors were covered was

known from the II dynasty, so to find it in these buildings is a good example of continuity.[301]

To sum up, it is apparent that with some exceptions, features of the Egyptian door frame in domestic situations continued unchanged from the Middle Kingdom and presumably earlier, until the Byzantine period. There are indications, however, that in some hellenistic buildings Greek characteristics were apparent, such as the frontage of tomb 21 at Tuna el-Gebel, which is an uneasy mixture of Greek and Egyptian styles and in house 2 at Theadelphia, where the archaeological evidence fits in well with material in the papyri from Philadelphia. Clearly one would expect further evidence of Greek influence from Alexandria, and false doors in the tombs there are able to provide considerable information. These will be looked at after the archaeological evidence for doors themselves from the hellenistic period has been briefly examined.

Very few doors have been recovered dating from the hellenistic period, which is probably closely connected with the high value of wood, so that doors were taken away when the inhabitants moved, plundered, or else put to some other use.[302] The only surviving doors come from Karanis with one in situ, C88B, so it is fortunate that there are several and that they represent different types. The simplest were those consisting of two or three unshaped and rough pieces of wood, held together by

cross pieces along the back, which were nailed or pegged on. An example of such a door was found in A254 and was interesting because it had a piece of string round it, with a twig placed in it, which when twisted tightened the string and thus drew the planks close together.[303] The door pivots were held on in a similar manner - two separate pieces of wood nailed on, with two pieces of string tying them on more tightly. The pivots were made of acacia wood while the main part of the door was palm. A bolt was fitted to the door, with a hole left in the front to fit the key through and raise the bolt. A slightly less rough door of this sort was found in C42C, where the planks were levelled off at the top and bottom; three battens had originally held the door together but only one-and-a-half survived.[304]

Other examples of doors from Karanis illustrate a second type of construction. This consists of a much better made door with panels of wood inside a framework. Koenigsberger believes that this sort of door owed its existance in Egypt to the presence of the Romans, as he says it was not found in Egyptian buildings before that time.[305] Certainly, from what limited evidence there is, such a well-fitting type of door is not apparent at any earlier date than these examples from the Roman occupation and it is only in places like Karanis and presumably Theadelphia that examples have been discovered. If it is not of Egyptian origin can it be traced to Greek or Roman buildings?

The evidence from Delos suggests that this kind was found there, as the excavation reports mention a framed door, which was then stuccoed,[306] and the false doors from the Alexandria tombs illustrate doors essentially of this type, with the top panels considerably smaller than the lower ones.[307]

A window shutter of this form from Theadelphia provides further information and it is easy to see the panels fitting into the frame and the pivots which hang the shutter in the window frame.[308] Given the similarity between this and the doors of the type from Karanis (such as those from B198), it is a reasonable assumption that the doors themselves at Theadelphia were also of this type. It is interesting that plate 55a in Husselman shows two such doors from C63 in situ and that these were hung with the smaller part of the door at the bottom, as opposed to the Greek method, which placed it at the top.[309] This photograph, together with that from Theadelphia, is further proof that double doors were used for the entrance from the courtyard[310] as these were placed to form an impressive entrance into C63 from street CS210, as would befit a military building.[311] The other doors illustrated on plate 55 are more difficult to explain, as they were found in B198, which does not seem large or special enough to warrant such an imposing entrance, so presumably they were placed there from another grander building. Husselman suggests that each one was used as a

single door, but the precision in the construction, their general appearance and other parallels would appear to contradict this idea.[312]

To complete this survey, it is necessary to investigate the evidence available from the Alexandrian tombs.[313] The best evidence comes from the cemeteries of Moustafa Pasha, Shatby and Hadra, but false doors and doorways have been found in most of the hellenistic necropoleis. No actual doors have been discovered and it seems that most of the doorways in the tombs were not intended to be closed; however in tombs 1 and 2 of Moustafa Pasha doors had once been present, as repeated opening and closing has left its mark in tomb 2, as well as pivot holes being apparent, but the doors themselves had disappeared by the time the tombs were excavated.[314]

The variety of material which these tombs provides makes classification difficult, although Adriani believed there were three basic types of doorway present at Moustafa Pasha. These were simple openings; ones which Adriani named 'doric', which sloped outwards from top to bottom with a lintel slightly longer than the jambs but the same width and a narrow moulding on top of this, and thirdly the 'ionic' type sloping less than the doric, and with jambs and lintel decorated by fasces with a small cornice on top of the lintel.[315]

The doric type was common and doorways which can be classed as such include the entrance from the stairs into the courtyard of tomb 2 at Moustafa Pasha,[316] and the doorways into rooms 9 and 11 in tomb 1 at Moustafa Pasha,[317] whilst the doric facade in room 3 of tomb 3 in the same necropolis[318] and the north and south walls of room d in tomb 1 at Shatby[319] show characteristics of this type and could perhaps be included.

Figure 7 shows the doorway from the stairs into the court in tomb 2 at Moustafa Pasha and the 'doric' features which Adriani mentioned are clearly visible, the gradual slope outwards from the top of the jambs, the lintel which was slightly longer at the top than the opening but which was the same width as the jambs and then the moulded cornice placed on top of the lintel. Another characteristic seems to have been the moulding running round the edge of the jambs and lintel. Figure 8 shows the cross section of this door and the shape of the lintel. The doors into room 9 and 11 in tomb 1 at the same cemetery are of exactly the same type, with all the same features, whereas the doors in the other two examples mentioned differ because the length of the lintel beam did not extend either side of the jambs, so that the line continued unbroken from the foot of the jambs till the first moulding of the cornice. It is perhaps worth pointing out the similarities between the 'doric' type of door as exemplified by the first door mentioned above, from tomb 2 at Moustafa Pasha and

the door, described as 'Egyptian' from house 1 at Medinet Ghoràn. The illustration Jouguet provided is not as good as one might have hoped, but it shows quite clearly the slope of the jambs, the extension of the lintel to either side of the jambs and then the moulded cornice.[320] (Figure 9) The moulding round the edges of the jambs and lintels also match but the cornice does not correspond quite so exactly. Its slope is apparent but there are not so many divisions on the cornice till it reaches its widest point and the final, narrow moulding is missing as well. The door is raised upon a considerable threshold, if one takes the illustration at face value, and the outside moulding round the jambs does not extend down into this, so the whole door gives the appearance of being within a framework, but it could be the way Jouguet drew it. These details apart, there is considerable similarity between this and a typical 'doric' door and it might be worth reconsidering Jouguet's description of it as Egyptian.[321] If so, it is interesting to find this Greek type of door within a house which shows close allegiance to an Egyptian plan,[322] and it would also provide another example of hellenization within an Egyptian framework early in the period of Greek occupation, as Jouguet placed the building firmly in the Ptolemaic period.[323] The other door illustrated by Jouguet, from room B into A, is perhaps even more interesting, as it has more in common with Egyptian doors of the Amarna type in that the opening is rectangular, and the lintel does not protrude on the left side,

whilst that on the right has the characteristics of the 'doric' door just described - a very slightly extended lintel, and the moulding along the jamb and round the edge of the lintel.[324] The cornice also appears more Egyptian in style, not sloping so much and apart from the moulding up the jamb and along the top edge of the lintel, this door frame could pass as Egyptian. Perhaps here is an example not of hellenization, but of a real mixing of styles and even cultures. It is a pity that the door from B to C was not illustrated as this might have been of yet a different variety.

Other Alexandrian tombs have examples of doorways, which cannot be considered in isolation, since they are just one feature of a facade. Two facades have already been mentioned above as the doors of the facades are essentially doric (in tombs 1 and 3 at Moustafa Pasha). The doorway into the burial chamber at Minet el-Bassal is also worthy of note.

The first facade is that in tomb 1 of Moustafa Pasha with entrances into room 9-11. The doors into 9 and 11, as discussed, were doric, but they formed a sizeable and impressive doorway, which was reconstructed as having jambs surmounted by corinthian capitals.[325] The moulded lintel was capped by a triangular pediment, the whole forming an imposing wall front, although it is strange the way the central doorway was placed asymmetrically

between the two doric doors.

The other facade formed of doric doors from Moustafa Pasha was in tomb 3 in room 3 and had been very badly damaged, but Adriani was able to restore it reasonably successfully.[326] This consisted of four half columns of doric style, with three open doric doors in the spaces. At each end, a doric door was represented shut, with doors painted in. These were brightly coloured with red, yellow and blue bands in the corner sections of the two doors. The final doric facade came from Shatby and formed the north and south walls of corridor d. Each wall consisted of six doric semi-columns with the doorway (not strictly doric as defined above) between the third and fourth columns.[327] The other intercolumnations were occupied by false windows shown with half open and half closed. The architrave carried by the columns was much simpler than in other places, but the whole must have formed an impressive entrance into the main court, f.

The last major facade from Moustafa Pasha was also in tomb 1, leading from the courtyard 1 into room 8, the vestibule.[328] It is very imposing as restored by Adriani, with three doorways, each fronted by two sphinxes on pedestals. Each door was identical, consisting of sloping jambs with three bands of decoration at the top - ionic, lesbian and doric, then a plain

lintel, surmounted by an elaborate cornice. Between the lintel and bands of decoration on the cornice (ionic, lesbian and doric) were fillets with six guttae each, which according to Adriani were a remnant of an earlier frieze. Two acroterions capped the top of the cornice on each door and the whole doorway was very brightly coloured. Over the central door was a fresco of a libation scene, while above the side doors was a space, intended to let more light into the room behind. Between each doorway was a doric half column to complete the impression of grandeur.

The 'court' (g) in the tomb at Shatby was lined on each side by five attached ionic columns with a door between each.[329] These were quite elaborate, with several mouldings round the actual door, which was not rectangular at the top but triangular. The cornice was quite plain with only one or two mouldings on it. The architrave was decorated only with a band of projecting dentils and was not particularly high.

Finally, the doorway in Minet el-Bassal was made with pilasters each side and ionic columns joined on to these.[330] The entablature of this doorway was very beautiful (if correct as restored), consisting of an architrave decorated with garlands, a frieze and then a cornice with dentils. It is quite clear from its width that no doors were ever intended for this doorway and the funerary couch in the chamber behind makes it certain that no

doors were wanted, so that the couch could be seen.

The majority of these doorways and facades were cut out of rock forming the walls of all these tombs, which were then plastered and painted, often in very bright colours as for example, the facade into room 8 of tomb 1 of Moustafa Pasha and that in tomb 3 there. Other doorways were decorated to represent alabaster, like the frame of the doorway into burial chamber, number 4 in tomb 2 of Moustafa Pasha.[331] Here the wall was plastered and then painted to imitate alabaster, with red veins running through and this also occurred as an edging round one of the false doors from Shatby, where the plaster was painted to imitate veined alabaster.[332]

Finally, there are the actual false doors to look at. These were found in many tombs either painted and sculpted realistically as in Shatby or else much smaller and more symbolic as at Hadra. Wherever they occurred they were of the same type showing two door leaves in the doorway with each leaf divided into two unequal parts - the bottom being much larger than the top. The separation is quite clear, as usually some kind of bar or band is represented on the door and the edges of the leaves are quite obvious. Perhaps the best example of such a false door is that from room e in Shatby, which as already mentioned was edged with a frame of imitation alabaster.[333] Inside this there

was an elaborate doorway with jambs painted in red and blue and surmounted by an elaborate architrave and triangular pediment painted in seven different bands of colour. The doors were divided into the two standard sections, clearly separated by bands of black and white, which also formed an edging round all the door. The interesting feature of these doors occurred in the top panel, which Breccia described as being decorated with a lattice and painted alternately in black and white. There are other examples of doors with a lattice work in the top part of the door, such as one from Hadra and one of an unknown provenance now in the Alexandria Museum.[334] Mostly, however, these doors seem not to have had a lattice but to have been solid and possibly decorated with different coloured panels. Some were more elaborate than that and had figures in the top panel, like another door from Hadra which had a female head in each top panel.[335] Keyholes and handles were fairly often represented, as in doors from Shatby.[336] Some of these illustrations appear to represent doric doorways, such as one from Shatby, on the central door shown on the east wall of room C.[337]

Finally, one must reiterate that the comparisons between the tomb and house plans are fairly tentative and acknowledged as being so,[338] which means that one cannot assume that the position of a particular facade within any of the tombs dealt with above was necessarily its exact position in a related Greek house.

This is particularly true of the facade on the south side of room 1 in tomb 1 of Moustafa Pasha, which Adriani says reminded him of similar ones seen in other funerary or sacred contexts. The safest thing to say is that similar facades could have occurred in Greek houses, without being specific as to their exact position. With the doors, this is not so much of a problem as many of these, like those in Hadra, were just painted on the wall where the burial had been placed,[339] and these types represented are shown frequently enough for it to be reasonably likely that these were the kinds of doors found within the door frames.

## Conclusions

Returning to the pharaonic evidence, it seems that the types of doorways and doors in use were reasonably standard, and based on the results of the above survey, it would seem fair to describe the average doorway as being rectangular, with a frame of either wood or stone encasing the door. The door frame was surmounted by a lintel either just the length of the opening, or else carved into the form of a cavetto cornice, which nonetheless kept the actual opening rectangular but added a little decoration. This door frame was fixed into the door opening in some way, usually rather unobtrusively, so as not to spoil the impression of the door frame. The door itself was wooden and was made of boards held together by battens, which were pegged or nailed on and it was hung in the door frame by pivots at the top

and bottom.

The other type of doorway, for which there is much less evidence, was that which was arched, and which was probably associated more with vaulted buildings. It is known from tombs in the I dynasty, but apart from 'Kahun', no domestic sites have produced examples.

The evidence from the hellenistic era produces a more varied picture, largely owing to the emergence of the Faiyum settlements. In places outside the Faiyum the traditional forms continued unaltered, as at Edfu with its arched doorways where the ceilings were vaulted and at Medinet Habu, where the door frames were sometimes of stone removed from earlier buildings, and at Djeme, where they were sometimes of baked brick and where they had flat lintels capped with arches for some doors, while others were arched, often in a decorative way.

At the other end of the scale, there are doors which appear completely outside the types now classed as Egyptian. These are to be found in Tuna el-Gebel, tomb 21, which is more of a mixture of Greek and Egyptian styles, at Theadelphia, where one has no actual evidence of what the facade looked like, only Rubensohn's description, and finally the doorway into room B from the courtyard in house 1 at Medinet Ghoran, which has previously been

thought of as Egyptian, but which in fact appears to owe far more to the doric style of Greek doorway. The Alexandrian funerary and epigraphic material provides further evidence of the form of real contemporary Greek doors and facades and it is much to be regretted that archaeological evidence does not allow proof of these in domestic contexts.

It seems that Greek and Egyptian doors shared a few characteristics, in that Greek doorways sometimes had a wooden frame inside them, as the doorway from the stairs into the court in Moustafa Pasha shows and this would have been slotted into grooves by the threshold, but it was not actually tied into the brickwork as with similar Egyptian doors. Also the door leaves were hung on pivots, not hinges, like the Egyptian ones were and holes in the threshold were found in houses in Delos, sometimes of bronze lined with lead.[340]

Finally, there is the type of door exemplified by Karanis, Soknopaiou Nesos and the Roman fort at Dionysias. These appear similar to the Egyptian type often with a wooden casing, but nonetheless have unusual features, including the excessively long lintel beam, which tended to curve slightly following the concave slope of the house walls, and with several pieces used to make up the lintel. The method used to tie the frame into the wall - wooden blocks - was far more apparent than in earlier buildings

and in some examples, a decorative element must have been intended as well, since so many tying-in blocks cannot have been structually necessary, for example in house I 112 at Soknopaiou Nesos. It is clear however, that this type of doorway does not altogether descend from the Egyptian types, because these have been seen in their pure form at Medinet Habu and Edfu. They do not fit the Greek type doorway and so here perhaps is more proof of construction in a basically Egyptian fashion with Greek ideas about Egyptian construction added to create the huge, imposing entrances from the street.

It is interesting that most of the examples looked at date from the period around the beginning of Roman occupation in Egypt - period C at Karanis, and the Roman fort at Dionysias, while house I 112 at Soknopaiou Nesos was used during the 2nd century AD, although it was founded in the Ptolemaic era, sometime before 74BC and labelled as II 216 in Boak's plan of that level.[341] It might be nothing more than coincidence, especially as evidence for Ptolemaic houses is scarce from the Faiyum generally, and at these sites in particular, that this type of lintel is seen in these houses at this time, as typically Egyptian domestic structures did not usually have lintels extending either side of the jambs, while evidence from Ostia, Pompeii and Herculaneum shows that with Roman houses and shops it was a standard feature.[342]

The gap betwen the last piece of evidence from the pharaonic period (the priests' houses at Karnak) and the start of the hellenistic housing in Egypt is as usual regrettable, but more so in this case than with the plans, for it is possible with them to see future developments beginning. With the door, it is the lack of evidence from the Ptolemaic period which is particularly unfortunate, since this holds the key to the development of the door in the Faiyum settlements and would presumably show new types appearing in buildings elsewhere in Egypt.

The evidence from the Faiyum houses indicates that they are of hybrid orgin; although not deviating much from Egyptian buildings in actual plan, they are unusual in their construction methods and so it might not be unexpected to find something similar happening to the fittings of the houses.

C. Windows

The northern European idea of a window - to allow in air and light, as well as providing the inhabitants of the house with a means of looking out - would have been quite alien to the ancient Egyptians, since their houses were intended to provide a haven against the heat and strong light of the sun. Privacy was also important and so windows, when there were any, were so positioned as to make it difficult for outsiders to see in through them.

As they were not such an important feature of an Egyptian building, there is far less evidence than for doors. The traditional impression of lighting arrangements in houses has been upset by the French discoveries at Karnak and these will be discussed further in the following section on roofs.

All the light necessary in the earliest reed and palm huts would have come in through the doorway making windows irrelevant, but it appears that separate openings in walls developed quite early as in the model from el-Amra the building has two small windows apart from the door opening.[343] These appear to have been simple rectangular openings in the wall opposite the doorway, each framed with an upper and lower beam, presumably of wood. They were placed high up in the wall to allow sufficient light in and to ensure privacy.

It has been suggested that some kind of opening was made above doorways[344] and this arrangment is shown, perhaps a little stylised, on the numerous false doors built into tombs and later houses.[345] Above the doorway in the Old Kingdom tombs a scene is shown of the deceased in the burial part of the tomb sitting before a table of offerings, which relatives and visitors to the tomb could see into by means of the window above the doorway. There is very little other evidence to confirm this theory, but the model from el-Amra might well have had just such an arrrangment above the door, although it was not pierced through to make an actual opening.[346]

Later false doors such as those in buildings of the XI dynasty and[347] in the larger houses at el-Amarna,[348] as well as above an actual door at Saqqara from the III dynasty,[349] show a semi-circular opening. Inside this is a pattern imitating palm trees in the example from Saqqara which became stylised into representations of pillars in the XI dynasty temple at Deir el-Bahri and later at el-Amarna. This design must have allowed far less light into rooms than plain openings above the doors but presumably it was sufficient for the needs of the household.[350]

Evidence of these elaborately decorated windows in domestic contexts is rather rare. The normal type of window appears to have been simple, consisting of a rectangular wooden or stone

frame with several vertical bars allowing in limited light, separated in the centre by a horizontal bar. Decorated windows must have continued in use in other contexts to re-emerge into the archaeological picture at the monastery of Epiphanius in the Byzantine era. At the palace of Amenophis III at el-Malqata, Tytus found remains of screens made of, for example, bound lotus flowers, which he believed had formed window openings, placed high up as clerestory lighting in the main halls.[351] Initially the use of bars must have been for security reasons even though the windows were placed high up in the wall; this is shown clearly in the house models from Rifeh, where the windows on the ground floor are small and high up with bars, horizontal as well as vertical, while those on upper floors were larger.[352]

The best evidence for windows in the pharaonic period comes from Deir el-Medina and el-Amarna, together with representations in the Theban tombs. The windows found in the excavations are of the same type - a continuation of those seen in the Rifeh models with vertical bars, but divided centrally by a cross piece. As with doorways, either stone or wood was used, but since the surfaces were often plastered and then painted, the material did not make very much difference. (The actual bars of the windows, in one case at least, V.37.6, at el-Amarna were found to have been made of mud plaster modelled round reeds and were oblong in shape).[353] In L.51.1 at el-Amarna, remains of

window plaster were recovered which were painted red, blue and yellow while the cornice was white, with a coloured petal pattern below, so the whole window must have presented a colourful aspect.[354] It is clear from another house at el-Amarna, V.37.1, that the windows were occasionally used decoratively, as Frankfort and Pendlebury found pieces of painted plaster which imitated actual grate windows, and they decided that these dummy windows were interspersed with real ones to unite the wall ornamentally as well as functionally.[355]

In another house, V.37.6, the windows were framed by an edging of whitewash and the ceiling was also painted white to give a lighter aspect to the room. In this room a frieze was again made from the windows, but here it was white instead of multi-coloured and there is no mention that dummy windows were inserted.[356]

The question of where the windows were placed in the larger houses at el-Amarna seems easier to determine than for the workmen's type of smaller strip house. The amount of wall remaining usually prevented precise statements about the position of windows but it is generally assumed that it was high up in the wall, close to the ceiling.[357] However, in one house, N.49.10, definite evidence concerning the placement of windows in the West Loggia was found during excavation.[358] Part of the west wall of

this room had fallen in, which Peet and Woolley decided was the piece which had contained the bottom of a window, since there was a distinct edge and the brickwork had been whitewashed, as occurred round the windows in V.37.6. On the basis of this section of wall, Peet and Woolley reconstructed the arrangements of the window in relation to the doorway in the opposite wall, so that the window (3.08 m in length) extended almost 1 m either side of the doorway, which was 1.10 m wide. The distance of the window from the floor and its actual height were more difficult to reconstruct, but judging from the whitewashed part of the wall, Peet and Woolley estimated a measurement of at least 80 cm for its height, while they were unable to determine anything about its distance from the floor.

The length of this window, if correct, is rather exceptional and is probably connected with the function of the room, which is usually believed to have acted as a warm sitting area in winter - large windows would therefore have allowed in more light and heat. It is not known whether this was the only window or whether the loggias had a series of larger openings in the outside wall. The theory that a similar situation occurred in the reception hall of the large houses was not substantiated by Frankfort and Pendlebury, who found no evidence for it and discovered that ovens or granaries were often built right up against the front wall of the house, making any such openings

quite illogical.[359]

There was unfortunately no evidence about the type of window placed in the loggia of N.49.10, but epigraphic material from Thebes indicates that there was a more ornamental type of window as well as the normal 'grate' kind, with a central vertical column and a horizontal bar, which was not central, as it was normally. This type is shown in the houses belonging to Sennufer (TT 96) and Nebamun (TT 90),[360] and a loggia could conceivably have some kind of similar ornamental opening.

In the central hall of Amarna mansions, the windows were of the grate type, and occasionally painted mud plaster from them was found during the excavations, as in V.36.6, where it appears that the inside of the window was coloured in bands, while outside the window was plain white.[361] The belief is that these grates were placed almost at the level of the ceiling, which in this hall was higher than in the surrounding rooms, to enable the central feature of the building to get light other than through doors. This arrangement is shown in the representation of Dhutnefer's house (TT 104), where the central room is higher than those round it and has four small windows close to the ceiling. These were not grated, but rather seem quite open.[362]

Reconstructions of the houses in the workmen's villages at

both el-Amarna and Deir el-Medina have always restored the central room of the house in a similar way to the larger mansions in the main settlement of el-Amarna, with the roof carried above the level of the other rooms at the front and back, and with grate windows placed below the ceiling of the main room to allow in sufficient light.[363] Remains of such windows were found at Deir el-Medina, but Bruyère in his 1934-35 excavations found only part of one actual window from the oldest central part of the village, which consisted of two grates of wood measuring 50 cm tall and 37 cm wide, with five bars across divided by a wider central bar.[364] Apparently pieces of stone lattices were found in other digs and Bruyère states that this indicates numerous windows in the houses, placed at the top of the walls in the central room. This seems rather a surprising assumption from the evidence, but it does seem likely that at a certain time in the history of Deir el-Medina, some houses had grating windows in the main room.[365]

The other rooms were apparently lit by small air holes made in the roof, although Bruyère believed that the entrance room could sometimes have had proper windows placed near the ceiling, presumably in the front wall of the house.[366]

The evidence from the workmen's village at el-Amarna is much less definite, as Peet and Woolley did not apparently find any

actual windows and assumed that the houses were lit by clerestory windows in the main room and by slits high up in the walls of the entrance area, with no light or air in the bedroom, other than that coming through the door.[367]

It is much to be regretted that there are no contemporary representations of the strip type of house as typified at el-Amarna and Deir el-Medina, since judging from the information gleaned from the Theban tomb illustrations, much useful evidence about the actual arrangement of windows and the roof might be gained. One block from the Karnak talatat could possibly show a type of house the same as or similar to these strip buildings.[368] It shows a structure with courtyard space at front and back, (possibly all the way round) and it consists of three rooms, apparently leading one from the other. The furniture of each room is shown in it, as well as the fittings like doors and windows. The roof level of the first two rooms is higher than that of the smaller back room, which is the only one to have a window clearly represented. Anus believed that the semi-circular object in the middle room was a window, but this would seem rather unlikely since there is no archaeological or epigraphical evidence for windows of this shape. In this room were the stairs to the roof, on which were two granaries over the front room and no light shelter, which is believed to have been placed on houses in the village at el-Amarna.[369] It is particularly interesting

to note that no columns are illustrated in the front two rooms and that the only room with a window was the bedroom, as Anus thought the triangular object might have been a sleeping couch. This would directly contradict the excavators' view about the bedrooms in the houses in the Amarna village.[370]

The houses shown in the Theban tombs are of a grander nature than this simple hut or house on the edge of the desert and the windows seem to have been of the grate type, mostly with one or two examples of the more open kind already mentioned in connection with the loggias in Amarna houses. One difficulty with these paintings is knowing exactly how the windows related to the different floors of the buildings and whether it is safe to assume that each row of windows marked a separate level in the house: for example with the house in tomb 23 it is not clear whether the two sets of windows represent a ground and an upper floor, or whether there was a ground storey without any windows and two upper levels.[371] The types of windows, large and with central bars, would suggest the latter situation.

Of the grate type of windows there appear to be two types - the ones already familiar from el-Amarna and Deir el-Medina - with several vertical bars across, interrupted in the centre or just below centre, by a slightly wider horizontal bar. The other sort is much narrower and smaller altogether and did not have the

central cross beam. From two tomb representations, the tomb of Neferhotep (TT 49) and that in TT 254, it seem that this latter type was found in connection with the main entrance door to the house, presumably fairly high up in the wall, while the small size and closeness of the bars helped prevent forced entry and ensure privacy.[372] In both tomb illustrations the larger windows were shown at a higher level - in the tomb of Neferhotep, with brightly decorated shutters closed across them; if this was a reasonably common arrangement, then the placing of the windows in the house in TT 23 would suggest that the ground floor had no windows, at least on the side of the entrance, and that there were two upper levels.[373] The curious feature about these windows is a short bar set a little above the top over three of the four openings. It is not found on any of the other tomb scenes and unless it was an extra piece of wood set into strengthen the wall round the window for some reason, its function is likely to have been decorative.

The other type of window, with a vertical column dividing the opening from top to bottom as well as a grate in the bottom third of the window, is shown in two tombs - TT 96 and TT 90.[374] The peculiar way the house in 96 is drawn makes it hard to know where the windows were placed in the house, but in the other house the window of this type stands above the doorway. There is no means of knowing whether the other two windows of the

houses were of this kind or not, since they are shown shuttered. Davies wondered whether the position of the window above the entrance in any way reflected the window of appearance at el-Amarna assimilated into domestic use and it seems quite possible that this happened occasionally in houses of the immediate post-Amarna period.

The amount of evidence from post-Amarna sites is very slight, but it continues the same picture. At Medinet Habu there are a few window fragments from the second palace of Ramesses III, which Hölscher believed came from the side windows placed high up in the main hall. All he says about them is that there were fragments of quite elaborate stone grillwork, which sounds as though windows more complicated than the grate ones are indicated.[375] However, in the 'Syrian tower' at the same site, a large wooden window of the normal grate type was found and so it is possible that the palace ones were just of this type.[376]

This evidence constitutes all that is known about windows in pharaonic domestic contexts and it is clear that there was little variation in the types of window in use. Mostly they were grated rectangular openings, with a central horizontal bar and a cavetto cornice and torus moulding at the top. The materials used were wood or stone, but these were often disguised and painted in bright colours. Some windows had a single vertical column with a

small grill at the bottom and others appear to have had a decorative design inside in place of the grill. The evidence about their position in the house has not been dealt with very fully and will be discussed in more detail in a subsequent section.

The Graeco-Roman period produces slightly more material, mainly from the excavations at Karanis, but it is still little and only a general impression can be gained. There is not the same wealth of evidence from the Alexandrian tombs on windows as there was on doorways and doors, as they were not portrayed by the builders, but there is some information available in the hellenistic necropolis at Tuna el-Gebel.

Most of the excavations on Upper Egyptian sites did not recover remains of windows, but houses at Djeme and Hermopolis, which stood to a greater height than in other towns, like Edfu and Elephantine, revealed some evidence. The mentions in publications concerning both sites are very brief, particularly Roeder's discussion of the houses as Hermopolis. He says that the Roman houses there rarely had windows on the ground floor, with light from the door sufficing, while there were some on higher levels, but he gives no description of these.[377] However, those in the Coptic houses were vaulted,[378] so it is possible that windows in those of Roman date were similar.

In the multi-storeyed houses at Djeme, Hölscher could see the different kinds of window used at the various levels. Usually there were no actual windows in the cellars - just ventilation openings in the roof vaults - while on the ground floor there were small slits placed high up in the walls, small windows on the first floor and larger openings at the top.[379] (Plate VI.) Hölscher does not mention whether these were framed in stone or wood or whether they were formed in the brickwork,[380] but it is interesting to note that he found many fragments of stone columns which had been part of stone lattices in large windows on the top floors.[381] Hölscher did not find evidence of shutters or any other means of excluding the light, like mats,[382] but the amount of air and light coming in must have been quite limited owing to the closeness of the houses, and because of this the windows must have been placed carefully, so that it was not possible for neighbours to see in.

Further examples of latticed windows come from the tombs at Tuna el-Gebel. These were small rectangular windows situated directly below the ceiling with a fine lattice grill placed inside a framework. In temple 1 this frame was a simple rectangle, but in others it was modelled into a cavetto cornice at the top, such as temples 4 and 10.[383] Gabra says that this type of window was typically Egyptian and unknown to the Greeks[384] and indeed it is easy to see the elaborately decorated windows of the Islamic 'mashrabiyah'

in these tiny windows, enlarged into greater proportions and more elaborate designs, which as noted above seem to have derived from pharaonic Egypt. Gabra, however, in his preliminary report noted the similarity between these windows at Tuna el-Gebel and Roman windows of the type called clathri,[385] which were found at Pompeii,[386] sometimes real and sometimes false as those in temple 1 were. He believes that this form of window was in fact the origin of Coptic windows found in the monasteries and churches and it is true that some of these (like the lattice work found at the monastery of Epiphanius)[387] and even later Islamic gratings were very like them. However, as mentioned there is another line of development which has its roots clearly in pharaonic Egypt, which was more ornamental, and from which the Maltese Cross opening in the monastery of Epiphanius descends.[388]

One further interesting lattice window was discovered by Petrie during his excavations at the site of Tanis. He unearthed strips of bronze, which had been placed horizontally across window openings and then fastened into place with bronze nails, so that they were similar in appearance to the wooden lattices used in houses at the time Petrie was working. When he discovered this, Petrie thought it was the only lattice window to have been found in Egypt and it probably still remains the only bronze lattice to have been brought to light.[389]

The evidence from the Faiyum sites is rather different and in some ways the windows are more ostentatious than on the native sites, as the doorways were. As usual the site with most material is Karanis, although Theadelphia, Medinet Ghoran and Soknopaiou Nesos also provided some information. The dissertation by Yeivin on Karanis is particularly interesting on windows, since he produced a rough typology of those found while he was present at the excavations and this could well be taken into more general use.[390] (Figure 10.) The windows at Karanis and Soknopaiou Nesos consisted of substantial rectangular wooden frames with either vertical or horizontal bars dividing them: Inside, at least on the ground floors, the window sills sloped considerably, to increase the effect of the light. On the ground level, the windows were placed above the wall niches, which would give a rough height of about 2-3 m for the position of the windows.[391]

Usually, windows with horizontal bars were used on the ground floor, presumably for security reasons despite the fact that they were almost at ceiling level anyway.[392] The main top and bottom beams of the window usually were held in place by blocks, as happened with the door frame; the top piece of wood was quite substantial, with smaller ones for the central and lower parts. Yeivin's typology divides these horizontal windows according to the manner in which the central beam was held in

place, either by beams above and below it, as in C35B, or by two vertical pieces of wood connecting the two main horizontal beams with the central strut slotting into this, as in C45.

A feature of the Karanis houses was a series of two, three or even four windows made togther in a long row across the face of a brick wall. The windows were made of horizontal bars, since they were usually at ground floor level, and they were constructed from series of tie blocks with the necessary long beams being fixed into the wall by blocks, strengthened by ones placed underneath for extra support. One impressive example of this practice was in C51, where four windows were joined together, two lighting room B, the next the passage to the stair well E, and the last the actual stair well.[393] Other instances of this practice can be seen in C5043, where there were again four windows,[394] C62, which had three joined together and where decoration seems to have played some role, since the tying-in blocks at the bottom were very regularly spaced and were probably not needed in such numbers,[395] and finally C47 which had two sets of two windows.[396] It is interesting that all these illustrations come from the C level; was it a practice merely confined to that time in the history of Karanis or does the evidence provide a very one-sided impression with more of the houses from the C period standing above the ground than for the later eras? It is much to be regretted that the plates in

Husselman's book do not illustrate any examples of windows from either the earlier or the later levels.

The windows which had vertical bars were not included in these long series. Instead, according to Yeivin they were normally used on the first floor and above.[397] They were constructed very similarly to the second type of horizontal window, with the vertical beams slotting into the main ones. Yeivin's typology here was made simply according to the number of vertical bars in the window. One of the most impressive windows he illustrated was one from C50 which had a substantial top beam held in place as though it were one in a long line with two tie blocks at right angles to each other. In the centre of this was the actual functional top of the window into which the beams slotted. These numbered four with the two central ones bevelled. With this type of window the bars again fitted into grooves in the top and bottom beams and were about 9 cm wide and placed 7-9 cm from each other.[398] Yeivin comments that these windows were not positioned so high up in the wall and so were usually about 1 m from the floor.[399] The reason for this was that being higher, the rooms would get more breeze and less dust, so there was no need for the windows to be so small. Because of this, there was similarly no reason to have the window sills sloping, and so they were made on a level with the bottom of the window, sometimes of baked bricks covered with gypsum plaster, as in house A227.[400]

One window discovered in C56 was very different from either of the main types described above.[401] It was hybrid, being rectangular, with the two top joints mitred together, while at the bottom they slotted into the piece of wood as usual. Slightly below centre was a horizontal cross bar, while the whole was fixed into the wall by tie blocks.

Yeivin also mentions two examples of window frames (in houses C84 and C47) which were divided into four equal sections and which he though might have held small panes of window glass, although none was found.[402]

Light was sometimes provided from windows for the basements of houses not directly, but by a shaft left in the brickwork leading into the basement.[403] In house C194 the underground room had such an arrangement with a simple B1 type of window at the opening which measured 30 cm high by 12 cm wide.[404]

Finally, as the ground level rose, some of the windows became defunct, and new ones had to be made. Sometimes, the window frame was removed altogether and the space blocked up with bricks as in house C5026,[405] but more usually, mats were pushed between the bars of the windows and these were plastered over, as can be seen in many of the illustrations in Husselman's book.[406]

Matting or baskets were also used to block the windows when necessary during their actual period of use. Despite the fact that Yeivin mentions the use of shutters inside the windows, only two were found, both in situ.[407] One in C45K was made in a similar fashion to some of the simple doors discussed above - three pieces of wood battened together with wooden pegs, measuring 41 cm high by 38 cm wide.[408] Like the doors it had pivots at each end and hinged in holes inside the top and bottom frames.

The only mention of windows at Sokopaiou Nesos comes in the discussion of the ground floor of houses II 202, II 203 and II 204. These unusually were vaulted, but they were lit through windows with long sloping sills on the inside. Externally it sounds as if they belonged to category B1 of Yeivin's typology, but perhaps with the bars closer together than in some instances at Karanis, since Boak talks about the windows divided 'into two long, narrow slits'.[409]

It appears that these types of windows were fairly standard in this kind of Faiyum house, at least in the early Imperial period, although there was an example of such a wooden framed window from the lowest level at Karanis in house E107.[410] However, in the house at Medinet Ghoran a completely different window frame was found. Jouguet found evidence of four windows,

but only illustrated one.[411] This was between rooms A and B and it is reasonably similar in style to the doorway which was found in room B.[412] It shares with it the sloping frame, although the actual window opening is rectangular unlike the door, which was on a slant. There is a similar sloping lintel with some moulding, but not as much as on the door lintel, and the window frame does not have any of the moulding running right round the edge of the door. Jouguet does not mention what material was used for this window frame, but another window in room A facing the street had stone bars and so it is quite likely the window frame itself was made of stone.[413] Since the doorways were also of stone, it is probable that all the windows were in this material. As mentioned above, the doorway showed considerable similarity to the doric type of door as seen in the tombs at Moustafa Pasha and so it would be logical if one could see this window as the doric type. At Delos, one house, IIIG, had a doric window in room e which reproduced a doric door, so such a combination was not unknown.[414] Greek windows were, like Egyptian, closed with shutters and the final piece of evidence comes from Theadelphia, where Rubensohn found a window shutter, made in the same way as the framed doors discussed above.[415] It imitated a door in every respect, with projections at each end for hinging purposes and was the same, only smaller, as the framed doors found at Karanis.[416]

This concludes the survey of archaeological evidence about the window and it is clear that for the hellenistic period there is much that archaeology cannot reveal, since the Greek tombs do not provide information on this aspect of Greek housing and the excavation record is pitifully thin. However, examination of the papyri has produced some evidence, which is summed up by Nowicka. She concluded that there were eight types of window of which the archaeological evidence can match:[417]

| | | Pharaonic evidence | Hellenistic Evidence |
|---|---|---|---|
| 1. | Two crossed bars dividing window into four. | Model of house in Louvre.[418] | Word of Yeivin at Karanis & model of hellenistic house.[419] |
| 2. | Vertical bars at bottom with single vertical bar in centre. | Theban tomb reliefs e.g. TT 80, TT 96, TT 90.[420] | None. |
| 3. | Several vertical bars inside frame. | Deir el-Medina.[421] TT 49, TT 254.[422] Medinet Habu.[423] | Yeivin's type B.[424] |
| 4. | A single cross-bar (horizontal). | None. | Yeivin's type A.[425] |

| | | | |
|---|---|---|---|
| 5. | A lattice of oblique bars. | None. | Tuna el-Gebel.[426] Monastery of Epiphanius (not on slant, but still lattice work).[427] |
| 6. | A single perforated plaque | Evidence from Saqqara III dynasty[428] and representations on false doors.[429] el-Malqata palace.[430] | Remains of stone grill work from Djeme.[431] Decorated openings made with turned wood pieces at Monastery of Epiphanius.[432] |

Her types 7 and 8 (7 - window with single vertical bar in the centre and 8 - in form of two rectangles curving inwards at top and jointed by a bar) have not left any trace in the archaeological record.[433]

In conclusion, there was little substantial alteration to the basic design of the window, once the balance of light and air had been achieved to the satisfaction of the Egyptians. The main feature of their windows was some kind of grate covering either the whole opening inside a rectangular frame, or at least part of it, but the representations from the Theban tombs show just how

much variation there was on this theme. It is clear also, from el-Amarna at least and also from these same illustrations, that windows were treated as decorative elements within a house and from the outside, with brightly coloured mats or shutters used to close off the window. This aspect continued into the hellenistic period, as can be seen in some of the long windows built at Karanis, especially in house C51 and C62. Decoration was the first consideration in the other main type of window found in pharaonic Egypt - that illustrated by the remains from Malqata palace which had come from a window frieze of lotus buds. Windows of this kind continued as well, although traces of such decorative openings are not as common as those of the other kind. However, it is clear that this tradition did not die out, since it re-emerges in the windows of Djeme, where the frieze was made of stone, and also in some window elements found in the monastery of Epiphanius. This showed later Roman influence with the pieces of wood having been turned on a lathe, but the idea was still the same and the circlar piece of sycamore wood with a maltese cross opening carved in it indicates the idea translated into Christian decoration.

Decoration of a different kind is found in the precisely made lattice grills covering the windows in monuments at Tuna el-Gebel. The similarity between these and windows from some houses in Pompeii is presumably not coincidental and it seems as

though a window of a fairly identical nature was found in a house at Delos, suggesting a link and influence between Delos and Pompeii as well as Delos and Egypt. Gabra believed that this type of window influenced ones found in later Coptic monasteries and churches and indeed the piece of such a lattice found at the monastery of Epiphanius could very well be derived from this type of window covering. It would appear that the Islamic mashrabiyah type of grating took over this aspect of Egyptian window grills, although the patterns are sometimes so intricate that elements of the earlier pharonic decorated window could have had some influence.

Other types of actual Greek windows do not show up in the archaeological record, despite being mentioned quite frequently in the papyri and it has been seen that most of Nowicka's types had pharaonic precedents, which continued unchanged into the hellenistic period. The Faiyum evidence, as usual, seems to fit in best as a compromise between purely Egyptian and purely Greek - most of the actual kinds of windows do not deviate much from the Egyptian line and the emphasis placed on decoration is in keeping with this as well. It seems that the appearance of the exterior of their homes concerned the inhabitants of Karanis, particularly during the early years of the Roman Empire, just as much as during pharaonic times; hence their impressively framed doorways and long lines of decorated windows.

D. Ceilings and Roofs

Owing to the climate in Egypt, the roof of a domestic building does not generally have to be constructed to exclude rain in large quantities (except for the occasional heavy storm in the Nile Valley and along the Mediterranean coast) but does have to provide sufficient shelter from the sun, and is built to allow some air in as well. Today, as well as in pharaonic Egypt, the roof is still an integral part of the house, with light shelters constructed on it or with stores of fuel and grain kept there. The types of roof commonly seen in modern Egyptian villages - flat or, only rarely today, vaulted - have scarcely altered from pharaonic times, since they are so well suited to their purpose, making any changes unnecessary.

In this section, it is proposed to look at the evidence for roofing in domestic structures, investigating the methods of construction, the situations in which the two main types were used and anything which arises from this, such as the question of lighting in certain types of house, which could not be usefully discussed in the section on windows.

Both the main kinds of roof, vaulted and flat, have their origins in very early dynastic, if not pre-dynastic times. Badawy believes that the brick vault represents the translation into brick architecture of forms developed when reeds and wood were used for construction and which well suited the form of a

vaulted or domed roof.[434] He thinks these forms could have been used for religious buildings, thus ensuring their continued use, and in this context, it is perhaps noteworthy that the earliest brick vaults were used in graves at Saqqara (around tomb 3500).[435]

The flat roof, too, had equally early origins, being portrayed in some early representations of cabins on the Nile boats and the type of materials used - reeds and thatch over a light wooden structure - were also ideally suited to this type of roof.[436] Again, flat roofs are found in early graves of the I dynasty at Saqqara and Abydos and in the latter place there were occasionally wooden supporting columns.[437]

Before tracing the history of these two forms of roofing in domestic contexts, a brief description is needed of the way in which a typical roof of each kind was constructed.

There are many examples to be found in the archaeological record of flat roofs from houses, but the one used here comes from the Amarna workmen's village, since in these basic houses it is likely that the roof was also simple and not in any way elaborated upon. In 11 Gate Street, Peet and Woolley discovered the remains of the roof in the living main room.[438] It consisted of four layers:

1. rough tree trunks stretching from wall to wall (direction unstated);
2. a layer of twigs laid perpendicular to these beams;
3. a layer of matting or halfa grass, reeds or palm fibre;
4. a layer of mud between 5 - 15 cm in thickness.

It is generally assumed that the roof in these houses was supported in the centre room by a wooden column; however only one was found which had notches in its top end to take beams. These columns rested usually on stone bases placed in the central room - in the other rooms none of these was found and the excavators assumed they stood on the earth floor leaving little mark of their presence.[439]

Most of the examples of vaults come from the hellenistic period, apart from a few discovered covering rooms at 'Kahun' and one found as a basement room in the main city at el-Amarna and another at Deir el-Medina. To illustrate vault construction from domestic contexts during the pharaonic period, the most typical vault is that from el-Amarna, but then a brief description of vaults as still built in Nubia will further clarify the ancient techniques, as they have continued without change.

The vaulted cellar at el-Amarna was found in T.36.59.[440] It was small, only measuring 3 x 1 m and the vault was inclined against the narrow wall above the doorway. The first layers were

incomplete and leant against this wall until a whole course could be achieved, and after this the successive layers were supported on each preceding one.[441] The great advantage of this type of vault was that no centring was needed whilst it was under construction. One unusual feature in this particular vault is that reeds were placed between each layer of bricks to strengthen the vault by giving the following course of bricks something firmer to grip on to.

It is amazing, when reading Hassan Fathy's description of modern Nubian builders constructing a vault, to discover how similar the end product is to historical examples, such as that above, and to appreciate the enormous time span of this architectural form.[442] After making special bricks with a greater straw content for lightness and two finger grooves on one face the builders formed a mud arch on the supporting wall and began placing the bricks against this.[443] Packing was placed at the base of each layer to ensure the correct degree of slant and the bricks were placed directly on top of each other without mortar so that there would be no shrinkage owing to drying mortar. Care was also taken to alternate the joints between the bricks so that the strength of the vault was not reduced at all.

From now on, unless there is any reason to specify alterations in the form of flat or vaulted roofs, it will be

taken that these descriptions are standard. Since to discuss both types of roof simultaneously would be confusing, it is proposed to look at each one separately and then collate the results. As usual, the pharaonic and hellenistic material will be treated individually and any differences discussed.

Vaulted roofs

As mentioned, there is very little evidence of vaulted roofs or ceilings in domestic contexts during the pharaonic period. The earliest information comes from the soul houses found at Rifeh. One of the interesting features of these models is the way the use of the roof developed and how it necessitated the extension upwards into a further storey, whose roof became an integral part of the house.[444] In the early houses the roof was flat, but Petrie thought that in his type D, domed roofs were evident and these became more obvious in models of successive types. There are only two models which seem to show vaulted roofs rather than domed; one is a piece of a roof constructed of a brick vault, on which it is easy to see the ribbing of the layers of brickwork.[445] This vault does not appear to be an inclined one since the ribs do not slope backwards, but are upright, and so presumably it had been constructed using some kind of centring on which to form the arches. The other model shows a house of two storeys with an intervening columned portico which were all vaulted.[446] The vault of the lower floor was

flatter than that of the one above it, to enable it to give more support.

Another model from Edfu shows two vaulted chambers joined together within an enclosure and completely open at the front, possibly with some sort of courtyard before them.[447] They were found in a Middle Kingdom context and so are roughly contemporaneous with the Rifeh models. The excavators, Michalowski and Bruyère, believed that they represented a house model and, as they are incomplete, it is conceivable that they do, but it is possible that instead they are store rooms or granaries, similar to the vaulted magazines still visible at the Ramesseum.

The first vaulted rooms in actual domestic contexts come from buildings of about the same period in the workmen's village at 'Kahun'. Most rooms had flat roofs, but Petrie discovered a few that were roofed with brick barrel vaults. It appears, like the model from Rifeh, that these were not inclined vaults, but were constructed using a centring of sand to support the vault.[448] Petrie found no evidence of wooden scaffolding being used, so presumably it was cheaper and more convenient to fill the chamber with sand or earth and dig it all out when the vault was finished. Unfortunately no indication was given by Petrie of which rooms in these houses were roofed in this way, whether they were used for storage or were integral parts of the house.

Petrie also mentions that a few vaulted rooms were found in the first mansion on the north side of the road, but again is not more specific.[449]

The next site which produced vaulted rooms in a domestic context is Medinet Habu during the Ramessid occupation of the site. Here both the palaces of Ramesses III were unusually roofed with barrel vaults and their relative positions were seen on the south wall of the temple by Hölscher whilst he was excavating.[450] The unusual feature was that the vaults were built onto architraves supported by columns - twelve in the great hall of the first palace and six in the second palace. The side rooms were also vaulted, so there were seven narrow vaults in the first palace and five in the second. Wooden scaffolding was used for centring and support during the construction and the holes these beams made in the brickwork of the temple south wall are still visible.[451]

The row of buildings immediately inside the pomoerium dating from the XXI dynasty consisted of houses which probably had more than one storey originally.[452] When excavated, only the first floor remained and this had been constructed of several small rooms some of which were vaulted, forming a firm base on which to support other floors. Hölscher believed that the vaulted rooms were those directly on either side of the entrance room M, making

a total of six, with the vault spanning a width of 1.60-1.90 m. He noted that this floor of the houses was underground relative to the level of the pomoerium, which is another reason why they would probably have been vaulted, and he believed that the upper floor was possibly accessible from the ground outside the pomoerium wall[453] and was probably roofed with beams and thatch.[454]

This small amount of material is all the evidence that is available from the discussion of vaulted roofs in the pharaonic period. The information seems unfairly biased in favour of flat roofs and probably there were more houses during pharaonic times which had vaults constituting at least part of their roofing systems.

Flat roofs

There are far more houses with flat roofs and they are also more common on models of houses and representations in the Theban tombs. As with so many other parts of Egyptian houses, the decision of whether the roof was flat or vaulted was in part due to the availability or rather lack of suitable wood for the roofing beams. Often, if wood was scarce, vaults would be used for the basements with beamed ceilings for the storeys above ground level.

Some of the Rifeh models clearly represent vaults or domes, but the majority were flat, often with raised flaps or 'malqafs', facing the direction of the prevailing wind to allow more air into the houses.

Petrie believed that the earliest models showed a light shelter supported by posts resembling a later portico, but no use of the roof was feasible as the structure was portable.[455] It is interesting to note that this arrangement was maintained in the subsequent types of soul houses and on both floors when the houses extended upwards. As the roof space became an integral part of the house it became necessary to protect people who were working or sleeping on it and so a raised ledge or 'satah' was built round it, which could also serve to provide privacy.[456] As the use of mulqafs became more common, satahs were constructed between these in the remaining space, so that every part of the roof could be used.[457] In one example, a columned cloister was constructed between the mulqafs, making it more bearable to work or shelter on the roof.[458]

There is little indication on these models of how the roof was actually constructed except that pillars were clearly used for support. One illustration Petrie gives shows a long square beam which formed part of the ceiling of the ground floor and which does not appear to have been held up by any columns.[459]

Unfortunately, there is no representation of what went on top of this beam, but presumably there was some arrangment of woven mats or bundles of reeds covered by mud plaster for extra strength.

The mulqafs are represented as raised semicircular hoods protruding above the level of the roof, which acted as tunnels to trap the breezes and help keep the house cool.[460] They had to be built to face the direction of the prevailing wind and must also have helped light the rooms they were built into.

The columned portico associated with a flat roof remains evident in the XI dynasty model of the house of Meketre and also in that of the shelter used for inspecting cattle.[461] The house itself appears quite small but was enlarged by the double pillared portico consisting of a back row of papyrus columns and a front one of lotus. These pillars supported an architrave of wood, on which the roof rested. This consisted of smaller wooden poles which were covered by some firmer material, again presumably mats or bundles of some kind covered by a layer of mud, although this is not clear on the model. A curious feature inserted into the roofs of both the houses and the shelter is the presence of water spouts to catch any rain there might ever be; in the case of the house it ran off into the pond in the garden, but it is harder to see its purpose in the cattle inspection shelter. For the greatest benefit one would imagine that these

buildings were oriented to the north, so that they obtained maximum shade and breeze.

This was certainly the case in the large mansions on the north side of the street at 'Kahun'. The main house part of the complex was protected by a north facing columned portico, which must have helped keep the house cool, by providing shade through much of the day.[462] As already mentioned, some of the rooms in these mansions were roofed with barrel vaults, but although Petrie is not specific, it is most likely that these covered store rooms. The large rooms in the house all had flat roofs and wooden columns were used to support them, as Petrie found that the longest roofing beam seems to have been almost 3 m,[463] and this distance was used only in the central hall of the main house. Elsewhere care had been taken to ensure that the distance between columns did not exceed about 2 m, as in the main colonnade fronting the 'central house'. These columns rested on wide, flat stone bases and it is generally these that had survived, indicating the position of the columns, but part of one octagonal column had survived.[464] Petrie does not say whether there were any indications of plastering and painting or whether it was simply left as plain wood.

The roofs of the workmen's houses were also usually flat and they were constructed in the normal manner, with smaller poles

placed on the longer, more substantial beams and the whole being covered with straw or reed bundles and then plastered with mud to provide substantial covering.[465] Some of the larger rooms in these small houses had pillars as well, and these seem to have been the same as those found in the mansions - almost 1 m in diameter, of wood and octagonally shaped.[466] Again they were placed on stone bases, which indicated the presence of columns after their removal or destruction.

There is a substantial group of evidence relating to roofing techniques from the XVIII dynasty onwards, both archaeological and epigraphical. The sites which have produced material include Malqata palace, town and village houses at el-Amarna and the workmen's village at Deir el-Medina and the slightly later houses at Medinet Habu. The epigraphical evidence comes from the Theban tombs and provides useful evidence concerning the use of roofs in Theban town houses. All these houses almost without exception had flat roofs and any vaulted rooms were extremely rare, only one in the village at Deir el-Medina and a few vaulted cellars in some houses in the main part of el-Amarna.

The striking feature of the roofing remains found by Tytus at Malqata palace was the way they had been decorated. Clearly this palace was a colourful place to inhabit judging even from what was left at the time of the excavations and the roofs were

included in this scheme, which meant that they had to be constructed to leave large, uninterrupted flat surfaces to take paintings. However, in parts not destined for special ornamentation, such as corridors or fairly narrow rooms, the roof was constructed in the standard manner except that no short poles were laid perpendicularly to the main beams; instead the mats of palm fibre were laid on a layer of mud covering the beams and then plastered again.[467] The visible part of the beams were painted or left alone. With the roofing beams protruding at regular intervals, there could be no question of painting a wide area, so in those rooms where this was required, an arrangement was reached whereby the shorter poles were tied underneath onto the main beams and then the mats were tied to these poles.[468] This was subsequently plastered and formed an excellent expanse to be painted as required. To form an even stronger base the mats were filled in with mud plastering from above as well as being completely covered underneath. This type of ceiling must have been excessively heavy and have demanded very strong and secure roofing beams, such as would have been readily available when constructing a royal palace. The area of decoration was, however, limited to the space between the two solid wooden architraves, which were necessary to support the disguised roofing beams running at right angles to the architraves.[469] Examples of this kind of roof were found in the main hall of the harim quarters, where there was a row of eight pillars with lotus

flower capitals each side supporting the architraves; the painted area was probably in excess of 5 m since the vultures which ornamented the space had wing spans of about 16ft and it is quite likely that there was some kind of border edging them.[470] This was the case in the pharaoh's bedroom, where the vultures had an edging not only of rosettes, but also of checks, making a width of about 17ft.[471] The king's robing room, placed in between the bathroom and bedroom, had the same kind of ceiling, which was covered by a design of floral rosettes with bull's heads in the spaces between.[472] Clearly, frequent interruptions by roofing beams would have totally destroyed the overall effect of this painting.

It appears that this type of disguised roofing was a royal prerogative or else just devised specially for Amenophis III, for there seems to be very little evidence for it in the succeeding Amarna period from the palaces or any of the houses. It is not surprising to find no indication of it in the private houses, for the expense of obtaining the necessary beams was probably too prohibitive even for wealthy people, but it is strange that the palaces have produced no evidence of wide expanses of ceiling decoration.

The construction method used in the houses in the city of el-Amarna reverted to having exposed roofing beams supported by

two long architraves, which in the larger houses often rested on two columns each side, but in smaller or less wealthy ones, had only a single central column to carry the main beams of the ceiling. No actual roofing remains were found in the main city as they were in the workmen's village, but it was assumed that the roofs were constructed in the same way as there.[473] However, from scraps of painted plaster which had fallen from the ceiling, the excavators were able to reconstruct the normal decorative scheme of the roof, which in turn gave valuable hints about its form; this together with the evidence from the workmen's village, allowed a reasonably good idea of roofing in these houses.

As mentioned above, always in the central hall and often in the front reception hall and western loggia, there were columns supporting the ceiling. The number depended on the size and ostentation of the house, so that for example, in a central hall the size of that in the house of Nakht (9 x 9 m) there were four columns placed 3 m apart and 3 m from each wall.[474] It is interesting to note that this is the same as the maximum length of beam used in the mansions at 'Kahun', so it appears that this was perhaps the greatest length of beam available to private householders. However, in the house of the architect, Hatiay, the lengths of the main beams would have had to exceed 3 m to span the distance from the single column to each side wall.[475] Perhaps his position entitled him to better timber than the

average person.

Where there were four columns, it is clear that there were two architraves supported on these columns and on which the smaller but still substantial roofing beams rested.[476] Usually there is little indication about the direction of the architraves, but sometimes the position of the painted plaster gave some information. In the central hall of V.36.6 the painted plaster from the main beam, distinguished by its check pattern, was found lying in a north-south direction, while that from the smaller rafters ran east-west, which were pink when found, but had been painted red originally.[477] The same applied in the central hall of V.35.3 where the main beam crossed the room in a north-south direction, with the rafters placed east-west,[478] but in T.35.9 the situation was reversed, with the main beam lying east-west but painted red together with the other rafters, and distinguished only by the thickness of the plaster in it.[479] It would have been unusual if there had been any set specifications for the direction of the main beams in individual houses, since the direction adopted must have been partly dependent on the length of wooden timbers available to each householder and the dimensions of the rooms concerned.

In rooms where there was only a single column, supporting the roof rafters must have been more difficult than in the

situations where there were architraves to rest them on. It could have been arranged so that there was still only one main beam running the length or width of the room, but also one might envisage a system whereby there were two such beams placed perpendicularly. There does not appear to be any evidence for this latter arrangement, but a single main beam must therefore have had to support a tremendous weight. However, in one house in the workmen's village, Peet and Woolley discovered the central post in its entirety and noted that its upper end was square and not circular and was notched to take cross-beams.[480] One wonders therefore whether this does not mean that the column did support rafters in opposing directions and if so, whether it could be applied to the larger houses in the main settlement.

In the central hall and in any other columned rooms the roof consisted of one or two wooden architraves supported by the columns, on which the rafters were placed, fairly close together, then palm ribs or smaller branches at right angles to the rafters, which were subsequently plastered.[481] In rooms without columns there could have been a stronger main beam, but not of the length of those in the columned halls as there was no central support. In house T.36.11 remains of plaster ceiling were found in the main bedroom, which revealed beams about 11 cm deep and running north-south.[482] In the bedroom of another house, V.35.1, Frankfort and Pendlebury found remains of rafters roughly

equidistant and parallel to each other.[483] They believed there had been four beams placed about 50 cm from each other and either side wall, which gives a width of 2.50 m for the room; it is very unfortunate that no hints about the length of the beams could be gained.

Finally it remains to look at the decoration of the ceilings, which was reconstructed from plaster fragments. In those rooms which had an architrave beam, this was plastered and painted in a chequered design as in the central hall of V.36.6.[484] The rafters were normally coloured red and the spaces between these rafters were left white, although in the front hall of V.36.6, the excavators thought the ceiling had been divided into rectangular or square sections, each possibly differently decorated.[485]

Peet and Woolley reconstructed these large houses at el-Amarna as having a clerestory level to light and ventilate the central hall.[486] Owing to its position in the centre of the house, the only light and air it would have otherwise received would have been that filtering through from the surrounding rooms. Therefore, they believed that the roof of the central hall was made higher than that covering the rest of the house and that windows would have been placed on all four sides of the clerestory, but, owing to the presence of a loggia on the roof

built against one side of it, windows on three sides are more likely.[487] It is conceivable that a row of dummy windows was painted on the fourth side, so as not to spoil the symmetry of the room, but not enough evidence of imitation windows has been found to know whether they were a frequent or rare occurrence.[488] There is no indication either of how high the clerestory was above the roof level of the remainder of the house, but it must have been at least as tall as the windows inserted into it; also there is little indication of what type of windows were used. In one contemporary representation of clerestory lighting, that found in the tomb of Dhutnufer, the windows in the main hall appear simply as small square openings without any gratings and with no decorated mouldings at top or bottom.[489] It appears that their lower edge was placed level with the top of the architrave beam in the adjacent room, which is unlikely since the walls of the clerestory could only have started level with the top of the surrounding roof. One must therefore assume that what appears to be the architrave beam is in fact the actual roof and that the windows are level with the top of this roof. What is clear, however, is that the height of the clerestory is not very great and one should not perhaps conceive of the clerestories in the Amarna houses as being raised great distances above the level of the rest of the house. Complete windows of roughly the right period are rare but one example from Deir el-Medina measured 50 cm in height and incomplete construction evidence from a house at

el-Amarna gave a height of at least 80 cm; this, however, was from a loggia and it is possible that windows there were slightly larger.[490] Allowing for some space at the top of the windows below the start of the roof, it is possible that the difference in levels did not exceed 1 m.

It is unfortunate that no complete columns remain from any central halls or surrounding rooms, as columns from the different areas of the house would have provided conclusive evidence about the height of the clerestory and the type and size of windows used could possibly be deduced. The evidence from the Karnak talatat is interesting as it shows quite clearly, in two of the priests' houses, the difference in height between the front reception hall and the central hall, but with no indication of clerestory windows, while in the other house, there appears to be very little difference in level.[491] Although it is slight evidence on which to base conclusions, one wonders whether this does not hint at some other arrangement of roofing of which no other trace has been discovered. If one takes this representation at face value, it seems that the front reception room, hall and central hall were all roofed at the same high level, while other rooms had a lower roof, such as that leading off the central hall on the right side. If this were really the situation, what benefit would this arrangement have had for the house itself? The central hall was not really affected since it

would still have had a clerestory with windows on three sides, but it is possible that more light entered the front section of the house, through windows placed at the back of the front hall. Such a layout must have made a lofty and impressive entrance and this might have been the real intention. The roof was used in this house as in the other two, since the terrace is portrayed, but there could not have been the same arrangement as normal, with a columned portico built over the front hall resting against the north wall of the clerestory. Instead it must either have been built against another wall of the clerestory, restricting the light into the central hall slightly more than usual, or it was freestanding over the front hall to achieve a northern direction for maximum breeze and shade.

Finally, it remains to discuss the evidence for the use of the roof. There is proof that in some houses at least there was a loggia or columned portico over the front hall. This was first discovered in the house of Nakht (K.50.1), where stone column bases, extraneous to those needed in the front hall, were found lying among the debris there and Peet and Woolley concluded they had fallen through as the roof decayed.[492] A kind of loggia on the roof was not unknown, since it is shown, for example, on a house of unknown date in the Louvre, where a tall town house had a small roofed and columned loggia covering less than half the area on the roof.[493] The Karnak talatat also shows some sort of

columned portico for XVIII dynasty houses without any specification of exact position. Since its intent was to povide a cool place to work and sit in during the day, the best position for it was north-facing, to feel the winds from the north. There is no actual evidence of how the loggia was constructed but at its simplest, it was presumably a light covering of thatch resting on thin walls, while more complicated examples show columns supporting a roofing beam.

The rest of the roof was also used and it is not impossible that light shelters were erected over other parts of it, if certain tasks were regularly carried out in a definite place. For example in V.35.1, while excavating the master's bedroom, Frankfort and Pendlebury found pounders among the debris which had fallen through from the roof, where they had been left as the house was abandoned.[494] In the larger houses, which had their granaries and other storage areas completely separate, there was no need to use the roof much, but in the smaller houses, the roof would probably have been used for storage and domestic chores as shown by this find of pounders.

The other sites at el-Amarna is the workmen's village and this is best discussed with the houses from Deir el-Medina, the harim quarters at el-Malqata, the priests' houses from Karnak and some houses from Medinet Habu. These houses, apart from those at

Medinet Habu, are examples of the 'strip house' discussed in chapter I. The construction of the roofing at the Amarna workmen's village has already been discussed and that used at Deir el-Medina was very similar, but it appears that there was no layer of small branches above the main beams, instead a framework was made of palm fronds and stems, which was then plastered.[495] To complete the roofs there a layer of sherds mixed with mud and then sanded was placed on top of those parts which were frequently used, while pottery sherds were strewn on the non-accessible areas of the roof. No trace of the roof was found in the houses at Karnak but presumably it was very similar to those used in these workmen's villages and on other houses with flat roofs. This was also the situation in the inner row of houses at Medinet Habu, owing to the continued use of the area and destruction of material such as roofing remains. However, the good preservation at the workmen's villages gives a reasonably clear idea about the roofing structures in use.

The traditional method of reconstructing the houses at el-Amarna[496] and Deir el-Medina[497] is with a raised roof in the central main part of the house, similar to the larger houses in the main city at el-Amarna, which, as there, enabled one or more windows to be placed in the space between the two roof levels of the front and central rooms. The roof of the main room and sometimes the front one as well was supported by one, and very

occasionally two columns. This arrangement allowed full use to be made of the roof for storage and a light shelter might have been constructed on it, as in the larger houses.[498] This view seemed perfectly reasonable, until the French discovery at Karnak of a row of priests' houses by the Sacred Lake which were strip houses.[499] It was quite clear to the excavators from the position of the column bases in the main rooms of houses I and II that these rooms could only have been partially roofed.[500] These houses dated around the 10th and 8th centuries BC, but it is clear that a partially roofed room was in use long before that, since there is definite evidence from the inner row of XXI dynasty houses at Medinet Habu.[501] In these buildings it appears that one entered an open court, which had a columned portico at the back. The other rooms of the house opened off the open section of the court, thus serving to a certain extent as a light court. This is reminiscent of the columned porticos found in the large 'Kahun' houses and like them is facing northwards. Similarly there are examples of columned porticos in some of the tombs at Beni Hasan, which could not be north facing, because of the westerly direction in which they had to be constructed.[502]

With the knowledge that the columned portico was an ancient and often integral part of the Egyptian houses in the Middle Kingdom and still present, but possibly less common, in later times, what implications can the Karnak discovery have for the

strip houses of el-Amarna and Deir el-Medina? Looking closely at the published information about the houses from el-Amarna it appears that there is little firm evidence for Peet and Woolley's reconstruction of clerestory lighting; it appears they assumed that the houses in the two parts of el-Amarna would be constructed similarly. No windows of any description were found during the course of the excavation nor was there any sign of them in the walls, which were no higher than 1.80 m as found.[503] Peet and Woolley believed that the front room was lit by small windows or gaps under the roof, the main room by clerestory windows, nothing in the bedroom and a very light roof in the kitchen which allowed light to filter through it.[504] There is little clue as to the height of the rooms; only one column was found, which was 2.10 m tall in stone and came from the overseer's house, and was probably unique in the village regarding material and may be height as well.[505] In the only houses at Deir el-Medina which gave any indictions of height, one preserved a column from a main room which was 1.95 m,[506] while in the other the walls were left to a height of 2.60 m in the entrance room.[507] From this it would seem that the rooms at Deir el-Medina were in the region of 2.60 m tall and a column of 2.10 m would indicate a ceiling of about the same height, so it is possible that the workmen's houses at el-Amarna were about this height as well.[508]

The evidence for columns in these houses is actually rather limited, relying on a few stone column bases, although in some cases the excavators were uncertain whether they were not stone tables instead.[509] However, as they remarked, it is likely that any large pieces of wood like columns were removed when the village was abandoned. It seemed that in some rooms there was no stone base for the column, but a depression was found in the ground; it is conceivable that this too was removed at the owner's departure.[510]

As an alternative to the reconstruction of these houses with a raised roof and clerestory lighting, it is proposed that there was a roof at the same level over all the building, which was only partial in the central main room. The main advantage of this arrangement is in the lighting, since the open part of the room would provide enough light to illuminate the back and front rooms of the house, negating the need for any independent means of lighting in those rooms.[511] Shade was provided through the day in the area under the roof[512] and little of the total roof area is lost. It is possible that a totally flat roof could have been more convenient, since a third of it was not at a different level. The clerestory could have been about 1 m higher than the roof either side as discused above, so it was clearly impossible to get from one part to another without steps or a ladder of some description and one wonders how much this middle section of the

roof would therefore have been used.[513] Peet and Woolley believed some plaster found in two houses indicated a portico on the roof of the main room, but this seems unlikely and more probably it fell from a structure on one of the other parts of the roof, as the height of the clerestory would have made any shelter on it very conspicuous.[514] In the larger houses in the main city, there was sufficient roofing space to enable the clerestory to remain unused, which accounts for its lighter construction,[515] but, in these small buildings, all available space was necessary and so a roof at the same level throughout therefore meant it was more readily accessible.

With these points in mind, it is necessary to look at the evidence and see how it fits this theory. Clearly the position of the stairs is crucial to this idea as, if they led onto a non-existent part of the roof, the theory is unfounded. Peet and Woolley specify that there were two main positions for the stairs - either in one of the two back rooms, in which case they were built round a turning post, or else in the front room where they went up in a straight run.[516] The direction of the stairs in the latter case is particularly important, but it is clear from the main plan and from the description, that they started in the central room and went up onto the roof of the front room, since use was made of the space created under the stairs as a storecupboard and often as a stall for a goat or other animal.[517]

This could not have occurred with the reverse situation since the space would have been curtailed by the wall between the front and central rooms.

The main feature of the central room was a divan, a low mud-brick platform, which ran round two sides of the room and was used for sitting on during the day and sleeping at night. In many houses, Peet and Woolley found traces of this divan and have marked it on the overall plan in each case. There is a predominance of divans in the northern part of the room among these few houses and it seems that this was true throughout the village as a whole. It is relatively simple in the houses which are only outlined in plan to pinpoint on which side of the main room the divan would have been, mainly from the position of the corridor running through the house, connecting the front room with one of the back two. The divan was obviously not on the same side as this[518] nor would it have been constructed against the wall in which were the two doorways into the back rooms, so its position was either against the northern or southern wall of the central area. Out of the seventy-three houses, two were unidentifiable, so of the rest, forty-five had northern divans and twenty-six southern ones. If there was only half a roof in the room it presumably covered the divan. When this was in the southern half of the room, it equalled the situation in the Karnak houses with the north part of the room

open to receive the breezes and shielding the southern section from the heat of the midday sun. More of a problem is posed by the houses which had a divan against the north wall of the central room. On first impression it would seem impossible that an arrangement with half a roof could have been at all practical, but this is not in reality the case. Most of the northern divans are not in houses excavated by Peet and Woolley, but in the ones which they only outlined in plan, so it is to be hoped that their information and reconstructions are correct. However, from the ones which were cleared most of the north divans were constructed in the north-west corner of the central room. If the roof ended approximately on a line with, or a little before, the corridor, then, depending on the time of the year and the position of the sun in the sky, the divan would be virtually completely protected from the sun's rays throughout the day.[519] During the summer, with the sun virtually overhead, only the corridor would have been lit for most of the day and, as the sun moved round further to the west, the front (or back) section of the house started to block out the sun completely. Later in the year the sun was lower and hence shone in a little more, but it would never reach right into the north-west corner but, anyway, the temperature was cooler and the sun's warmth presumably appreciated.

This situation depends very much on exactly where the roof ended and how it was constructed in this room. From Peet and

Woolley's report, it is difficult to ascertain where the column stood in the room as the only one marked on the overall plan in 19 West Street was in the centre of the room. Another house in 15 West Street had a mark on the floor south of the hearth, which presumably was connected with the column, but which must have meant that the roof span was considerably less than envisaged, although the room had a southern divan, so the length of the roof was not so critical. The best position for the column or posts would have been as near the centre of the room as possible to take the maximum weight of the roof. If this were so, then, in the majority of situations, the roof would have covered most of the divan along the west side of the room and all of it along the north or south walls. It is interesting that in the report on the Karnak houses, Anus and Sa'ad have reconstructed the roof with an overhang beyond the column of about 50 cm,[520] which if used here would have meant virtually all the divan along the side wall was protected.

Finally, it is worth pointing out that the description of the roof does not altogether fit with the use of a column in the central room. As illustrated by Peet and Woolley, it consisted of a series of 'main beams', which were 'usually quite thin' and which ' were laid close to each other often nearly touching, never more than 0.15 m apart'.[521] Over these were laid the other much thinner poles, then the matting and finally the mud plaster

to complete the roof. The narrowest span of the central room was from west to east and was aproximately 3.8 m, which is more than the greatest span in the mansions at 'Kahun'. It would make more sense if there had been some kind of heavier central beam running from the column into the north or south wall of the room, which is a distance of about 2.3 m and on which the main beams of the actual roof were supported, leaving the longest length for them as about 1.9 m, which is much more plausible and which would have made a stronger roof altogether.

In conclusion, therefore, there seems very little reason why one cannot envisage these houses as being constructed with slightly more than half a roof in the central room, at the same level as that covering the rest of the building. The stairs led onto the roof at the front or back of the house and sometimes there was a very light shelter on the roof, usually at the front. In the central room, the position of the divan determined that of the roof, but whether built covering the north or south side of the room the divan was protected against the direct rays of the sun throughout the day. This arrangement explains why there was no sign of any windows among the excavation material; they were simply not needed in these houses.

The position in the houses at Deir el-Medina appears rather more complicated than at el-Amarna, and is not helped by the

longer occupation of the village and the occurrence of fires there, which destroyed roofing evidence and anything else combustible, such as columns and wooden windows.[522] Once again, there is little conclusive published evidence relating to the use of clerestory windows; since no columns remain there can be no comparison between pillars from the different rooms, but there is Bruyère's statement to consider, that there were 'numerous windows in the houses', which 'could not be anywhere other than at the top of the wall near the ceiling'.[523] As mentioned in the section on windows, only one actual window was found, but there were fragments of stone grilles from earlier work in the village; this has interesting implications for the village at el-Amarna where no trace of windows was found.

The plans of the houses at Deir el-Medina are more varied than those at el-Amarna, which, despite some variety of internal arrangment, conformed to the simple strip type of house. Those at Deir el-Medina were more irregular in layout, partly owing to their long, thin nature, especially in the north-east and north-west parts of the village, although some houses in these areas were standard strip houses.

To explore whether the same roofing arrangement as proposed for el-Amarna could have worked here, it is necessary to look at the same criteria as for el-Amarna and to ignore temporarily the

knowledge that some houses had lighting through windows.

The important features in these houses regarding this type of roof are the position of the stairs, the divan and the column in the main room, the location of the corridor and the orientation of the houses themselves.

This last point is important for deciding where and when the sun would pitch at various times of the day and different seasons of the year. Most of the houses were aligned in the same direction as at el-Amarna, that is, along a rough east-west axis, but houses IV-VII of the central group and numbers XXV-XXVII in the north-west area followed a north-south line. In the former situation this was for means of access, but there is no such need with the houses of the north-west group, as they could have easily continued in the same east-west direction as houses XX-XXIV of the area.

There is little regularity about the position of the stairs in these houses, which makes prediction about their place and direction harder in those houses where no trace of them was discovered. However, they do not appear ever to have been placed in the front part of the house, nor as at el-Amarna starting in the central room leading onto the front roof.[524] Their position was often in the back sections of the house, perpendicular to the

orientation of the building, where with one exception, in house N.E.IV, the stairs went in a straight run and did not turn round a central post, unlike those at el-Amarna, but it is interesting that these houses are all in the oldest section of the village, in the north-east and north-west areas. Here, there are at most two examples of the other common arrangement for stairs, which is found mostly in the latest southern part of the village, where the stairs were enclosed in the main, central room between one side wall of the room and a specially constructed wall, so that they were out of sight of people in the central room. In the part of the village between these two sections, houses N.O.XX-XXVII, no indication of stairs is marked on the plan, but they were most likely in the back third of the houses.

The divans in the houses differed from those at el-Amarna, in that they were much smaller, only 60-70 cm in length and were enclosed by a low wall at each end, over which it appears that there was sometimes a raised canopy.[525] They were always built against a wall, and often protected the entrance to a small cellar in the ground below, which was covered by a plank of wood or stone slab. Like the Amarna platforms, it was only about 20 cm off the ground, but it must have had a rather different function from the ones there, since only one person could have sat comfortably on it or used it, whereas in most Amarna houses the divan could have formed beds for two people and many more

could have sat there. Eighteen divans at Deir el-Medina were built against the west wall of the room and tended to be in the north-east section of the village, ten were against the east wall, mainly in the north-west and south-west areas, there were none against the north wall and six against the south wall, in houses oriented on a north-south line.

Although very few actual columns were found during the excavations, more stone bases remained, often in situ and bearing traces of the actual column on their upper surface, which indicated that the diameter of the columns varied between 25-35 cm, considerably larger than the one found at el-Amarna outside house 19 in West Street, which varied between 20-22 cm in diameter.[526] Regarding position, it appears they were placed as centrally in the room as possible in houses of all periods. Occasionally there were two in the main room but this seems to have had more of a social than functional significance since the inhabitants of these houses were often chiefs of work or scribes.[527]

The last point to be considered is how the corridor bisected the house. In most of the XVIII dynasty houses, i.e. those in the north-east, north-west and central areas, the plan consisted of a corridor leading in a straight line through the front and central rooms directly into the back rooms and usually continuing

to the back wall of the house. The houses in the north-west section were more irregular than those in the north-east, but in general this is true. In the later houses in the southern quarters of the village, which were larger and less true to plan, there sometimes was a through corridor, occasionally two, as in house S.E.V, but there were a few examples of the entrance door offset in relation to the doors through the rest of the house as in S.E.VI and VII - a feature found also at el-Amarna.

Having looked at the evidence what conclusions can be reached about the roofing arrangements? First, owing to the variety of houses in the village, it is unlikely that the same layout occurred in all the dwellings. Second, there is no characteristic in most of the houses which would prevent a reconstruction with a half roof, so the various types of houses need to be investigated separately to reach any conclusions.

The XVIII dynasty houses were built in the north-east and north-west parts of the village and because of considerable alterations and remodelling in the successive dynasties, there are few houses which remained relatively unchanged to act as type models. In the north-east section, houses XI and XII were both long and thin, approximately 17 x 6 m and were constructed along the corridor, which in both ran the full length of the house, making the rooms into simple extensions of this. The

divans were placed in the main room, which came second, in XI in the south-west corner and in XII in the north-west. The stairs were in the back of the house in each case and there was a pillar in the main room of XII, indicated by the limestone base, whilst in XI there were traces of the base. In XII the column had been placed fairly centrally and so presumably was that in XI; in neither house was there a column in the front room. So for both these houses, it is perfectly feasible to reconstruct them with a half roof in the main room, with the pillar in the centre of the room supporting the main beam; which if the room had been roofed with a clerestory would have been built into each side wall, making the pillar redundant in such narrow buildings.

The houses in the north-west quarter are far more varied and were changed substantially in subsequent dynasties, but houses XIV, XVI and XVIII suffered less than most and can serve as examples for this side. Like most houses in the north-east and north-west areas, they were oriented on an east-west line. They were about the same size as those in the north-east section - XIV: 18 x 4 m, XVI: 14 x 4.5 m, XVIII: 12 x 5 m - and it is interesting that XVIII is very close to the dimensions of an Amarna house (10 x 5 m) and reflects this similarity in layout as well. Houses XIV and XVI are built in typical Deir el-Medina fashion, constructed along the corridor, which linked all the rooms, although XVI had a room which was only accessible from the

main, central chamber of the house. In these three houses, there was unquestionably a column placed fairly centrally and in XIV and XVI, the divan was discovered as well, in the south-east corner in XIV and tucked in to the north-east corner in XVI. The position is not marked for XVIII, but it can only have been on the north-east wall, since there was no other free corner and they were never constructed along an open piece of wall at this period. Only in one house, XIV, were the stairs discovered, placed behind the rooms and running perpendicular to the orientation of the house. It is strange to find a house of this kind without stairs, but Bruyère mentions in his description of these buildings that they had suffered from flood destruction, which could have removed any traces of stairs, but the plans do not immediately reveal an obvious place for a staircase in either XVI or XVIII. The intervening house, XVII, which is similar in layout to XVI, had stairs placed at the back of the rooms and it is perfectly possible that they were originally in a corresponding situation in XVI. Finally, house XVIII is very different in plan to the other two considered here and bears far more resemblance to the type of house found in the Amarna workmen's village. One wonders whether it is mere coincidence or whether, since it is next door to a XIX dynasty house (N.O.XIX), it did owe some direct allegiance to the Amarna houses. However, there is no reason why these three houses could not have been covered with a roof at the same level, which was only partial in

the main room and allowed in sufficient light to illuminate the rest of the house.

This arrangement need not be thought of as being restricted to these five houses alone in these two quarters; they were selected simply as reasonably unaltered XVIII dynasty examples, whilst others were changed considerably at the end of the XVIII dynasty, during the XIX and XX dynasties. However, in many respects they are very similar to those described and it is perfectly feasible to imagine them roofed in this way.

Houses built in the XIX dynasty after the return from el-Amarna are rather different from those described as typical of the XVIII dynasty building. Generally the shape of the XIX dynasty houses changed and became wider and shorter, like N.O.XVIII, already looked at, although some houses in the central block, IV-VII remained long and thin, following the original XVIII dynasty plan. The remainder of the north-west group, houses N.O.XX-XXVII, were very similar to XVIII, apart from XX and XXI, which were larger and squarer houses. Three, N.O. XXV-XXVII, were oriented differently on a north-south line, but were like the rest of this group in plan, except that the back third was not sub-divided. In several of these houses there was no trace of a staircase, as in N.O.XVIII, and, although it could be that flood damage destroyed the stairs, to find the same situation in several houses of the same group is curious and

makes one wonder about the possibility that no use was made of the roofs of these buildings. If these houses had stairs, then they would have been in the back of the house, as in N.O.XXII and XXVII where steps to the roof were found, and the plan of this area of the dwelling does not preclude the presence of stairs. For houses N.O. XXII-XXIV, which are oriented east-west and differ very little from house N.O.XVIII, it is again perfectly possible that the central room was partially roofed, since they are all similar to the Amarna type of house and the first two had central column bases still in place, whilst none was found in N.O.XXIV. However, for houses N.O.XXV-XXVII, it seems that such a roofing arrangement would not have been particularly practical, since the half roof would have had to cover the southern part of the central room which would have left the back section of the roof, if used, completely isolated thereby wasting useful space. So it is proposed that these three houses, the four in the central group, C. IV-VII and two XIX dynasty houses in the north-east part of the village, N.E. XVI and XVII, which were all oriented on a north-south line, had a roof covering the entire building. It is significant, therefore, that the only window actually discovered by Bruyère came from house C.VI, which indicates that there was clerestory lighting in these houses to provide the necessary illumination. However, this arrangement, as already discussed, presumably allowed much less use of the total roofed area, since it was necessary to climb over the clerestory each

time someone wanted to move from the front to back parts of the roof. This explains, therefore, why the stairs were in the back section of the house, since this part was normally larger than the front third (excluding the main room) and provided more space on the roof, maybe removing the need to negotiate the clerestory at all.

The last two groups of houses in the south of the village are more difficult to interpret, since they were all much larger and more individual. They date from the southern expansion of the village at the start of and through the XIX dynasty, with some modification during the XX dynasty. Apart from being larger and more irregular in plan the main difference is that many houses had a column in the front room, which raises the question of why it was present. It could have been simply that the room was of such a size that it was necessary structually, or that it had become common to have clerestory lighting in both the front and central rooms, or that it had become the habit to have a half roof in both those rooms. Undoubtedly the front area in S.O.II had a half roof, since the column was not centred at all, but placed in the south-east part of the room. Similarly the pillar in the front of S.O.IV was not centred, but was less off centre than that in S.O.II. In the case of S.E.I, the pillar in the front room presumably served a functional purpose since the room had dimensions of approximately 10 x 6 m, larger than an entire

house in the village at el-Amarna. This probably explains the column in houses S.E.V and VII as well, since they were quite large rooms and the roof would have sagged in the centre if there had been no support.

The change in these houses is seen also in two XIX dynasty dwellings in the north-east group, N.E.XVI and XVII, which as mentioned, are oriented north-south, have a much larger front area and the stairs walled off separately in the main room, although in these two houses, the start of the staircase was in the front section. If, as seems possible, they were roofed with a clerestory then presumably the east wall of this rested not on the outside wall of the house, but on the inside wall of the stairway, leaving the stairs completely open. In several houses in the south-east and and south-west parts there was the same arrangement, but with access to the staircase from the main room rather than the front. In two houses, S.E.VII and VIII, they were made completely separate - a door closing them off, made like all the doors in the houses of red painted wood with stone thresholds, although in S.E.VIII, the frame itself was stone, not wood.[528] (Plate VII) In S.O.V, it seems that there were two wall niches in the north wall, similar to those found in the central walls of the larger houses at el-Amarna. The closing-off of the stairs, the increase in size and complexity of the houses, and features which are found in the Amarna mansions all lead to

the conclusion that in these two groups of houses, there was no partial roofing arrangement in the central room, but that rather, they were lit by clerestory lighting and that it was possible to have windows placed on all four sides of the clerestory. This was achieved by putting the stairs in the main room and running up the main clerestory wall on the inner wall of the stairs, leaving that side free to have windows and that on the opposite wall of the room as well. Normally in houses built side by side, it would have been possible to have windows only at the front and back (here east and west) of the main room.

Having looked at all the groups of houses in Deir el-Medina, it seems that there is evidence to suggest a change in the type of houses built in the village at the start of the XIX dynasty. The XVIII dynasty houses seem to fit the criteria necessary to have partial roofing in the main room of the house, thus allowing much greater use of the roof, which would have been important in these relatively small and cramped houses. At the start of the XIX dynasty houses were constructed, which seem to owe allegiance to the type of house found at the Amarna workmen's village and which could also easily have had a half roof, although the use of the roof seems to be called into question owing to the lack of stairs. Other houses, oriented differently, do not make a half roof seem at all a practical arrangement and the evidence instead indicates that these had a clerestory in the main room to let in

the necessary light and air. The larger houses in the south of the village, built throughout the XIX dynasty, are very different and seem to show characteristics of the Amarna mansions, including the use of clerestory lighting, in some houses on all four sides of the room, as occurred in the large Amarna houses.

Having looked at these two main sites where partial roofing could have occurred, the evidence seems to suggest that it was used in a certain type of house, particularly throughout the XVIII dynasty. However, it was not restricted to this era, since it recurs in the XXI dynasty houses at Medinet Habu and then much later in the XXII-XXV dynasties at Karnak. It does not seem very probable, though, that the quarters of the harim ladies at el-Malqata, which were enlarged strip houses, had half roofs. The central rooms of these buildings had two columns, although two of them had four pillars, and these presumably supported a raised roof with clerestory windows, imitating the situation in the harim hall, off which these homes opened. The harim quarters were only one-storied as no stairs are included in their plan and storage facilities were built in, so the roof was not an integral part of these houses. These buildings were oriented east-west, like those at el-Amarna and Deir el-Medina but the 'dais' here was on the east wall, so that if there was only a half roof, the sun would have shone into the room most of the day and none of the advantages of the half-roof situation would have pertained. This

illustrates clearly the variety which could occur among houses of the same ground plan and emphasises that it is rash to assume that such houses were the same in every situation.

It remains to investigate the representational evidence and to see what information the tomb representations afford about contemporary roofs. First, there is the block from the Amarna period found at Karnak which shows a house of three rooms, may be all in line, with stairs to the roof in the central part.[529] The roof is at two different levels, with no means of communication between them and with granaries on the front part of the roof at the same level as the central section, which helps corroborate the idea that clerestory roofing cut down the amount of roof space available. The representation of the house of Dhutnufer is interesting in this respect since it shows a Theban town house where as much use as possible was made of the roof, which appears to have had a raised section over the main rooms of the house.[530] It was necessary to have steps on the second floor to get from one level to the other and it is clear that the raised part of the roof was used, since steps are shown leading on to it. In cramped town conditions, therefore, the inhabitants could not afford to leave aside the valuable space offered by this part of the roof, as seems to have happened in the villages.

Other representations in the Theban tombs show the roof

raised at the corners with protection all the way round in the form of a lattice reed fence (TT 254)[531] and two examples of mulqafs on the roof to take in the breezes.[532]

This survey of roofing techniques and arrangements in the pharaonic period has shown an imbalance in favour of flat roofs, which might be rectified to some degree if town or village sites in southern Egypt had been excavated. There was greater survival of vaulted roofs in domestic buildings in this area during the hellenistic period and there still is today although they are declining rapidly.[533] The material from the hellensitic era will now be investigated.

As usual, the evidence divides itself into two parts consisting of the houses from Upper Egypt, which will be dealt with first and then that from the Faiyum sites.

As before, the information from all the towns is often limited to a brief verbal description, but in this section, it does not matter quite so much, since the methods of construction were fairly standard throughout Egypt. Some sites have been published with clear details of the roofing used as at Edfu and Karanis.

The situation in the hellensitic period is different from

the pharaonic, since one-storey flat roofed houses were not in use as much, if at all, in the later period; instead several-storeyed buildings were common, with smaller vaulted rooms and a flat roof only right at the top to form a small terrace. In other towns and villages, the basement was the only vaulted room, with the floors above ground covered with a flat roof.

It is not so practical, therefore, in this part to divide the sites into those which had predominatly vaulted or flat roofs, but rather to discuss the types of roofing found at each place.

Moving south through Upper Egypt the first site is Hermopolis. Although clearly many houses were discovered here, only the vaguest of description is given by Roeder, but it seems that at least the Coptic houses consisted of several storeys made up of tiny rooms, of which certainly the ground floor and presumably the other floors were vaulted.[534] He mentions that the vaults went lengthways along the room, so they were probably inclinded, leaning against one of the narrow end walls as described above. The roof of the top room was flat and therefore must have been constructed from wooden poles and thatch, covered with plaster or even bricks to make a floor strong enough to be walked on, since Roeder thought that the roof was used as a garden or verandah as the houses did not have individual

courtyards.[535]

Similarly, many of the tombs at Tuna el-Gebel consisted of vaulted rooms and occasionally of a domed chamber.[536] The vaults were built perpendicularly to the axis of the room as normal, but Gabra does not specifically mention whether they were inclined or not, although presumably they must have been, especially on any upper storeys where the use of centring materials would have been more difficult. House 19 consisted of a ground floor and one upper storey, each with two rooms, all of which were covered with barrel vaults, and was therefore probably similar to houses at Hermopolis but with fewer floors.

Continuing south through Egypt, similar houses are found at Djeme to those at Hermopolis, consisting usually of a basement and two storeys above ground, and sometimes a third floor as well.[537] The ground plans of these houses show that there were most often only two rooms to a floor plus the stairs, and the barrel vault was the commonest from of roofing used, not only for the rooms but also to cover and support the stairs.[538] As at Hermopolis there was sometimes a flat roof right at the top of the house, used as extra storage space or as a verandah. The houses remain to such a degree that it is easy to trace the outline of the vaults on surviving walls and to see their oval shape. From this it is clear that most of them were formed in the same way as those

built by Nubian masons described above, with the shape outlined on the wall at the start and the bricks following this, rather than the type of vault found in the Faiyum houses which sprang from a ledge made in the long walls of the room. There are, however, examples of this at Djeme, for instance in houses 86 and 116. The Nubian method of construction enabled vaults of any height or width to be constructed easily (plate VIII ) and some in the houses of Djeme were quite high as in house 85, which must have been almost 3 m tall, whilst others, such as that remaining in 110, were considerably smaller.

As a result of very careful observation by Alliot during his excavations at Edfu, knowledge of vaults and basements there is much better than at most sites. Most of the remaining buildings seem to have been roofed with vaults, but since most of them also seem to be basements, it cannot be concluded that other storeys were necessarily covered by vaults. Some of the excavators of Edfu talk about flat-roofed terraces, but give little indication of how many floors they envisage the houses as having.[539] Alliot discovered that Ptolemaic buildings did not use vaults at all so they must all have had flat roofs and probably no basement.[540] There was little distinction to be found between the Roman and Byzantine basements - those of both eras consisted of vaulted rooms built of specially made curved bricks. In both periods, the vaults were made from these curved bricks placed lengthways

across the vault producing a shape completely different from that characteristic of the vaults at Djeme - flatter and less oval than there.

The basements generally had no windows in them, unlike some already discussed at Karanis.[541] Instead they were often ventilated by a pipe let into the top of the vault which allowed air in from the room above, and which could be covered if no-one was in the basement.[542] A certain amount of air must have filtered into the room through the trap doors built into the top of the vault through which one entered. In the example Alliot uses of a Byzantine house, the hole was built up about 30 cm above the floor and was edged with burnt bricks to provide greater strength and durability.[543] Steps either were cut into the wall below the trap door or else were specially built out from it to make the descent easier.[544]

Ventilation in vaulted basements in other parts of Edfu was provided by a natural flow of air around the house, since they were not cut off as in Alliot's example. This was the situation in house H" excavated by Guéraud and in 'la maison centrale' and 'la maison du nord' excavated by Michalowski. In all these houses, it seems that a different type of vault was used from that described by Alliot, as two layers of bricks were involved in the construction of these vaults.[545] All probably dated to the

Ptolemaic period, although Guéraud could not be sure about the exact time of construction of house H", as it formed the basement of a Byzantine building and had been in continuous use since its foundation, but from the manner of building and care taken he believed it to be of Ptolemaic or, at latest, early Roman date.[546] The vaults in all the rooms of these basements were formed by a row of special vaulting bricks placed lengthways and then a layer of bricks laid widthways, which corresponds to Spencer's arrangment cd,.[547] (plate IX.) In the two houses excavated by Michalowski the vaults began between 1.14 and 1.55 m from the floor level and the height of the vault varied between 2.65 m (in room θ of 'la maison du nord') and about 2.80 m in 'la maison centrale'.[548] In 'la maison du nord' Michalowski believed the spaces between the top of the vault and the surrounding walls had been filled with sand to provide a level surface, which he thought was used as a terrace, but which more likely was used to form a firm basis for the next floor of the house.[549] The rooms in these two Ptolemaic houses in the centre of the Tell all intercommunicated, except for one which certainly in 'la maison du nord' was entered through the roof, although the reason for this arrangement is far from clear.

In examples of Byzantine vaults from the central Tell from the small building CV III, the joints between the vaulting bricks were filled with earth and sherds and again there were two layers

of bricks forming the vault, although since they are not illustrated there is no means of defining the type using Spencer's guide.[550]

There is no way that it is now possible to tell how subsequent floors of these houses were roofed as there are precedents from different parts of Egypt either for more vaulted storeys or for flat roofs. To judge from the houses looked at so far in other parts of Upper Egypt, it might be more likely that, if the buildings were several floors tall, then all except the top one were roofed with vaults; the strength of the walls in the houses looked at would appear to confirm this.[551]

Vaults continue as the predominant form of roofing at Elephantine, where lack of wood seems to have prevented any flat roofs at all.[552] As a result all the rooms were barrel vaulted and seem generally to have been of Spencer's type $d_1$ - a single layer of bricks placed lengthways.[553] As at Edfu, at least in the southern part of the town, spaces between were filled with stones and sherds so that the mortar drying and shrinking would not cause cracking. It is very interesting to note that at Elephantine there is evidence for a technique used for constructing cellar walls which has also been noticed at Karanis and not apparently at any other sites. In the north-west area of Elephantine, Grossmann remarks that to construct a cellar a

hollow was dug and the walls built up against that.[554] Once constructed, the basements were normally entered through the roof through a small hole left in the vault in one corner, which could be closed with a plank of wood. The excavators found only one exception to this total dominance of vaulted rooms and that was in house 19, where it appeared that the floor of the annexe 19A consisted of a framework of wooden beams and Grossmann speculated whether the roof of this part had not also been made in a similar way.[555]

Returning finally to the Faiyum, a great deal of evidence about roofing and the techniques used were recovered from the excavations at Karanis and at some of the other sites, also, further information was gained.

At Karanis the houses had flat roofs to the storeys above ground level, whilst the basements were always covered with barrel vaults. No flat roof was found in situ but some were discovered which had fallen down still fairly intact, and from this the construction is clear.[556] Yeivin's description of both the flat and vaulted roofs is more detailed than that of Husselman and is the one followed here. It is clear that the types of roofing found did not vary much from those already investigated, as the flat roof still consisted of wooden beams laid across the room from wall to wall, covered by a layer of

palm sticks tied onto the beams, onto which mud bricks were placed to form the floor of the room above.[557] Yeivin adds that the main wooden beams were inserted into the walls for about 30-40 cm each side, and that these gaps were not left as the walls were built but were hollowed out after completion, as they found twigs which had been used to pack in round the beams. These were placed across the room at a distance of between 20-40 cm apart, and were laid with their natural curve downwards to strengthen the ceiling.[558]

The next layer, of palm ribs, was prepared and kept bundled up until required.[559] This simple method of roofing with a layer of bricks over them occurred in the earlier period of Karanis, perhaps level C and part of B, whilst later, the palm twigs were replaced by reeds and palm leaves which were still tied down by palm twine.

The roofs over stairways and narrow corridors were constructed from beams or thinner branches placed across the area, resting on ledges made in the walls each side and the bricks for the floor above were laid directly on these.[560] The final appearance of the roof above the stairs was not flat, but arched, as layers of plaster were put on to achieve a vaulted shape.

Mostly the basements were rectangular in shape, in which case they were barrel vaulted, but occasionally they were square, which meant the roof became a dome.[561] If vaulted they were usually of Spencer's type $d_1$ with only a single layer of bricks, but there were also examples of his type $cd_1$ with two superimposed courses.[562] The vaults did not begin at the bottom of the walls, but instead were sprung from specially constructed ledges on the long walls of the room. These ledges were formed by two courses of stretchers jutting out slightly from the line of the wall and capped by a layer of bricks on their sides.[563] The vaults were normally only slightly inclined against one of the shorter walls, but sometimes they leant more steeply. The space between the vault and the walls of the room was usually filled with rubble as happened at Edfu, except that sand was used in 'la maison du nord'. Yeivin gives details of 'false vaults' which were used to cover narrow basements, corridors of bricks placed slanting inwards and covered by a final brick.[564] No ledge was specially constructed for these 'vaults' but sometimes a recess was chipped out of the wall to give some support. Like the real vaults, this type also inclined towards one of the shorter walls. These, like the main barrel vaults, were plastered and made to look like the true vaults.

The domes found in some underground rooms seem to have been of two types as well. The first consisted of bricks built

inwards gradually along the line of walls as in C84,[565] whereas in the second the layers of bricks were laid in circular courses round the room.[566] This seems to be the type which Yeivin is describing and he mentions that shelves were built out at the top of the walls which were arched inwards to provide a basis for the dome.[567] Concentric layers of bricks were laid in decreasing circles until the room was completely covered and then the whole was plastered. The space between the dome and walls was filled in with earth rather than rubble and Yeivin believed this was due to the more fragile construction of a dome than a barrel vault.

Finally, it was mentioned in connection with Elephantine that the walls of basements were sometimes built up against the sides of a hollow and that this is also noticeable in some houses at Karanis. For example in house C43, the north and south walls of the cellar sloped outwards to quite a noticeable degree in the north wall, which could only have been achieved if it was following the outline of an existing support. Presumably the vaults in such a basement must have been inclined considerably more than normal as a result of this.[568]

Elsewhere in the Faiyum, there is more evidence for flat roofs. At Soknopaiou Nesos there seem to have been fewer vaults covering the basements and, where found, they are recorded as being steeper vaults approached through the ceiling into narrower

storerooms.[569] The flat roofs were made in the same way, but with straw bundles replacing the reeds which were then covered by bricks. The house at Medinet Ghoran shared the same roof construction as this with straw bundles tied to the roofing beams with palm fibre.[570] There is very little variation on the standard form of constructing a flat roof to be found in the reports on other Faiyum sites - any alterations are likely to have been the result of personal choice and slight differences in the availability of resources.

Very little is known about the type of roofs used in Greek houses in Egypt, but it seems, from the evidence of the necropoleis, that vaulted roofs were built in some houses at least.[571] These were not left simply plastered as in the houses of the Faiyum, but seem to have been beautifully, and in some cases, elaborately painted as would be expected in Greek houses. It is not proposed, however, to deal with this decoration at this point but in Chapter V.

In conclusion, therefore, it seems that there was very little change in the types of roofing used throughout Egyptian history. Exactly which form was favoured depended on the kind of house to be roofed and availability of materials. From the pharaonic sites it appears that flat roofs were commoner, although there were certainly some buildings covered with barrel

vaults, while in the hellenistic period, these latter are strongly favoured for basements and floors above ground at some sites. Their apparent predominance probably results from the fact that basements tend to be the section of a house preserved and it is therefore fortunate that houses at Karanis survived sufficiently well to show a combination of vaulted and flat roofs. These Faiyum houses are not unusual in the forms of roofing they employed, but so far there are few examples in the rest of Egypt of houses having vaulted cellars and flat roofs for the rest of the floors; at other places, vaults were normal throughout the house apart from the actual roof, which was often flat, but the use of flat roofs in the Faiyum is not surprising, because of the greater availability of wood and the increased use of timber generally in these houses.

E. Floors

There is very little to be said about the floors of houses; generally a floor in an Egyptian house consisted either of earth, worn hard by constant use, or of a layer of bricks, which could be plastered and sometimes whitewashed as well. Details of flooring come from only a few sites, which is to be regretted, because although, the construction of floors varied relatively little, there is enough difference between the sites to make one wish there had been better records.

The only pharaonic places where the excavators noted the type of flooring used were el-Amarna, Deir el-Medina and Medinet Habu, although at other sites the kind of ceiling or roof built often indicates how the floor or terrace was made.

At el-Amarna, Peet and Woolley recorded examples of flooring in the workmen's village, but did not mention what form the standard floor took. It seems unlikely from the evidence that it consisted of a mud brick pavement and so was presumably just of beaten earth, as at Deir el-Medina. However, there are several cases of the floor being roughly paved with boulders or stones where there was likely to have been extra wear to the floor. These occurred in parts of the front room where animals were sometimes kept, as in 10, 11 and 12 East Street, or at the bottom of the stairs, and generally in the room which held the stairs,

for example in 12, East Street and 10 and 12 Main Street.[572] There were two examples, one certainly in a kitchen and the other, in a room which could have been so used before stairs were constructed in it, of the floor being made of hard white cement. In the first instance, in 11 East Street, this was later broken up and mud plastered[573] and in the second, 8 Main Street, stairs had been built on this firm base.[574] The only other specially mentioned floors both came from bedrooms, one in 1 Main Street,[575] and the second from 8 Main Street, and, in both these houses,[576] the floor had been carefully laid. In the first, it was a brick floor put down with precision, while in the other Peet and Woolley described it as 'carefully mud paved'.

Although these are the only specific references to floors of the workmen's village, throughout there are mentions of pots and jars being sunk into the floor, with their rims level with the ground surface, to avoid taking up valuable storage space if placed in the room.[577]

In the houses in the main city, Peet and Woolley recorded very few specific details, but state that floors in the poorer houses were 'simply a coating of mud plaster'.[578] Wealthier houses had floors consisting of a layer of bricks which were then mud plastered and either whitewashed or brightly painted. The central hall in the house of Nakht was paved with actual flat

tiles rather than bricks,[579] whereas in another house they excavated, N.47.31, they found two brick floors separated by some sand, again in the central hall.[580]

In the other workmen's village, at Deir el-Medina, the floors were again very simple, consisting of hardened earth, which in both the 'lit clos' and the 'salle du divan' was sometimes plastered and coloured with red ochre.[581] In the central main room, there was occasionally a small rectangular pit acting as a grain storage magazine, but in which also a few child burials were found.

In two houses of the XXII-XXIV dynasties at Medinet Habu, in G-12-13, the floors were made of square mud brick tiles measuring 40 x 40 x 7 cm,[582] and in another part of the same town in F6 of the XXI dynasty there was an exceptionally rare example of a floor in a pharaonic house being made of baked bricks, probably because the house was built above an earlier garden pond.[583]

The houses from the hellenistic era provide rather more evidence than the pharaonic sites do and it is rather more varied. In the Faiyum sites in particular the discussion on roofs is relevant here, since layers of bricks were added over the construction of the ceiling to provide the floor of the next level; however, as usual the Faiyum will be discussed after the

Upper Egyptian towns. Nothing has been recorded about the flooring of houses at Hermopolis, but since they were constructed on vaults the evidence from sites where similar arrangments were found should give some indication. At Tuna el-Gebel, the upper floor of the tomb of Isidora was painted red.[584]

Unfortunately Hölscher is not very specific about normal flooring in the Roman and Byzantine houses, other than in the Roman bath houses which had underground heating systems.[585] In the four Roman houses he excavated, one room in house II had stone paving and one in house III had a brick floor which had been deeply marked, he believed by some kind of equipment.[586] He is singularly uninformative about the flooring of the Byzantine houses, but presumably they consisted of a brick layer built across on top of the vaults, which were filled in between the top of the vault and the walls with rubble or earth to provide a strong foundation for the floor. House 41, though, had a floor of baked bricks laid down as stretchers, which was covered with a lime and brick dust pavement.[587]

The use of baked brick in floors is clear in the remains of the Byzantine houses at Madamud, where little apart from the floors survived. Since the site suffered from flooding it is strange that not more of the houses than the floor was built of baked brick or stone to prevent the gradual seepage of water into

the walls of the house, but they appear to have been consistently built of ordinary mudbrick.[588] Throughout the excavation reports, one finds mention of floors of baked brick as in areas B and H in the 1928 report,[589] and section IX in the 1929 publication[590] and in addition, the floor of house D in 1928 was made of gypsum.[591] The same situation existed at Tod as well and so the house floors were similarly made of baked brick or reused stone where the temple fell into disuse.[592]

In the Ptolemaic houses at Edfu in the central part of the Kom, the floors in the basements were made of earth, which in 'la maison du nord' was roughly 10 cm thick.[593] Byzantine houses tended to have firmer floors consisting of baked bricks, which in one room in house H" excavated by Guéraud, was cemented together as in that room the water jugs were stored and water seeping out would have ruined an ordinary floor of mud brick.[594] Similarly in the basements investigated in detail by Alliot, they were both floored with baked brick, which in C was covered with a thick layer of mortar and in D was, like H", joined by white cement.[595]

In the Byzantine houses at Elephantine, there was a variety of flooring used. The poorer houses in the area south of the temple of Khnum had mud floors to which refuse and straw were often added, but also occasionally dung, blood or chalk, all to help bind it together.[596] Later houses among this group, such as

27, had herringbone-pattern floors, usually covered with plaster, although in 27 the herringbone was covered with earth in which Grossmann could see the impression of another layer of bricks, this time baked measuring 26 x 11-13 x 4-5 cm.[597] In 275, the little store room, the floor was covered with lime, which makes it seem likely that water jugs were placed on the bench in the room and in 272 the floor was of limestone.[598] Herringbone flooring was found in the other houses, both Byzantine, one from T43, which was thought to be some kind of religious foundation where the herringbone was patterned in plaster over a brick floor,[599] and the other in T45/46 in the temple court where the herringbone floor of baked brick had been removed when the owners moved on.[600] In other houses built in the temple court and T51, a contemporary house, the floors were usually plastered - in T51 over a brick base.[601]

The houses in the Faiyum did not have as substantial floors as those just described, but tended to be plastered bricks in upper floors and earth in the basements. However, at Karanis, Yeivin noted that floors in basements of the earlier houses (his periods IIIb and IIa and usually IIb, about levels C and B) consisted of regularly laid bricks about 15-30 cm above the foundation course on clean sand.[602] In the later periods (1a and b) the basement floors degenerated into mud mixed with dung beaten together and spread across the area.[603] In the ground

floor and those of upper levels one or more layers of bricks were plastered, resting on the ceiling beams and mats as already described. Boak describes the floor in B1, which was probably only one storey high and rather unusual in plan, as a 2-4 cm layer of mud packed down and mixed with chopped straw and courtyard refuse.[604] This was much the same at Philadelphia where the floors were usually stamped earth, but, unusually for the Ptolemaic period, sometimes baked brick covered with plaster.[605] In the hamlet discovered by Caton-Thompson and Gardner, the floors of houses 1 and 2 consisted of hardened earth or mud, which in 2, was covered with charcoal and interrupted by stones covering storage pits made in the floor.[606] In house 3, some parts of it were paved with large, carefully laid flagstones and either the rest had been once so paved and the stones removed or else the floor had been of earth.[607]

In complete contrast to these relatively rough floors, are the fine mosaics found in Alexandria and other Greek cities in Egypt, but these like the decorated ceilings will be investigated in chapter V, together with decoration of the houses in general.

It appears, therefore, that normally little care was taken with the floors of houses, so long as they were serviceable and not likely to dissolve away from water spilt during cooking or other activities. With the increasing use of baked brick in the

late hellenistic period, this was often used for floors as it was more resistant to water and damp and, for a totally waterproof ground, could be covered with cement or lime plaster. It is clear also that sometimes care was taken to achieve a more attractive pattern with bricks.

## F. Stairs

The position of stairs in certain houses has already been discussed in connection with roofing and lighting arrangements, but in this section the construction of staircases and steps will be investigated.

The earliest evidence comes from the Rifeh models, where the most usual position for the stairs is at the side of the house, far more often on the left side than on the right.[608] There are fairly frequent representations of 'flying stairs' which were not supported by wooden beams and rubble, but probably were built on some kind of arch to enable them to remain standing.[609] Whether the stairs led up in a direct flight or had a turn in the middle must have depended on the amount of space in the courtyard and the type of house. There is little indication of how the stairs were built, but presumably they were made of mud bricks since that was the material of construction of the houses.

In the houses inhabited by workmen at 'Kahun', there were stairs onto the terrace, which were made of brick and were built in two flights of between five to eight steps each, turning at right angles in the middle, presumably round some kind of central core.[610] The steps were fairly wide - between 35 and 61.6 cm - but Petrie did not record how deep they were, nor whether there was any wooden facing to them, as often occurred at other places.

As usual a great deal of information came from all parts of el-Amarna. In the workmen's village Peet and Woolley used the position of the stairs as the basis for classifying the houses - type A having stairs in the back part of the house and type B in the front.[611] They were sufficiently well preserved that construction could be well understood. There was a basic difference between the two types of staircases - those in A being built in two sections turning round a central column, while in B, the stairs went up in a straight flight; but the method of building was similar in the two cases. Peet and Woolley do not mention how high the staircases were, but they do give the height of individual steps as about 20 cm[612] and mention that from the height of the stairs, they believed the height of the front room was about 2.30 m,[613] so on the basis of this there must have been from ten to twelve steps in a total staircase. Normally the first five, that is the lowest flight in a turning staircase and the bottom half of a straight line, were composed of bricks resting on a solid core of rubble and sand, into which were slotted wooden poles which joined into holes in the brickwork in the top wall.[614] These formed the framework for the rest of the steps to be built on and allowed the space underneath to be utilised as a cupboard or manger, where the floor was often specially prepared, as in houses 8, 10 and 11 Main Street.[615] In two houses in West Street, 20 and 22, the stairs rested on a series of brick arches, as in the later houses at Djeme and in

some Faiyum sites.[616] The steps themselves in all the houses were made of mud brick, apart from one example of them being constructed of mud and stone in 10 East Street.[617]

Stairs in the larger houses in the main city at el-Amarna could be placed in a separate room since space was not at such a premium, but it was still usual for the space beneath to be used for a store cupborad, with the stairs normally turning through a right angle in direction, as in N.49.15.[618] In two houses in the central city, the construction details were still clear and did not vary very much from the workmen's houses. In 0.49.23 the stairs were built round a central brick core and the second flight of steps on top of logs running between the brickwork of the core and the wall of the room.[619] The sockets for the sloping wooden beams were still clear in the brickwork, as they were in N.49.20 where the sloping beams had been overlaid by horizontal pieces of wood, on which the actual brick steps were secured.[620] It appeared that these planks were reused as they left flakes of paint stuck into the plaster and there would have been no reason to paint the wood in this position.

Some of the wealthier houses at el-Amarna were entered up a flight of steps or else up a gently sloping brick ramp. The house of Nakht (K.50.1) had steps to the entrance floor, built against the house wall on one side and with a low retaining wall

on the other.[621] In house N.49.18, that belonging to Ra'nufer, the entrance to the front door was up a flight of nine steps, each 5 cm high, so that really this was no more than a very gently sloping ramp.[622]

The stairs in the workmen's village at Deir el-Medina generally led to the terrace in a straight flight, with the exception of house N.E.III, whereas those to the basements often turned through a right angle.[623] The steps were constructed of brick or stone, sometimes combined as in N.E.VIII and IX.[624] The stairs were sometimes built over a supporting vault, which enabled the space created underneath to be used for storage, as in N.E.VII, XII and XVI.[625] One house, at least, had its stairs to the terrace covered by a vault and this also turned through 90°, S.E.II, where it seems the first three stairs were open, then there was a landing and this and the succeeding steps were covered with a vault.[626] Otherwise, the stairs to the terrace must have been open to the sky in most houses, certainly in houses roofed all over clerestory lighting on all four sides of the main room, as in houses, S.E.VII and VIII, S.O.IV, V and VI and N.E.XV, XVI and XVII.[627]

At Medinet Habu, Hölscher noted that in F6 there was a staircase to the flat roof, which like those in the later Coptic houses was very narrow and probably quite steep as well.

Underneath, as always, the space had been utilised - here a small room had been made out of it.[628]

Karanis is the only site from the hellenistic ones to have a relative wealth of material and once again Yeivin provides the extra detail. However, there are small pieces of evidence from several other towns which all help in placing together the types of stairs found in hellenistic houses throughout Egypt. As usual the Upper Egyptian sites will be dealt with first.

At Hermopolis, Roeder recorded that the stairs were covered with arches and that both stairs and arches were of ordinary sun-dried brick.[629] This was found as well by Hölscher in the Coptic town of Djeme, where the stairs were built over barrel vaults made in sections.[630] These ascended one behind the other turning round a central post[631] and, as the stairs were often very steep, so was the angle at which they were constructed. As well as being steep, the stairs were also narrow - between 60-80 cm wide - and built so there was very little headroom. The material used to form the steps was normally baked brick with additional stone slabs for extra protection placed on top of them.[632]

The staircases at Edfu in houses of all periods were all constructed round central pillars and therefore turned through at least one right angle with small landings where each change of

angle occurred. In the two Ptolemaic buildings 'la maison central' and 'la maison du nord', the internal staircases to the basements both turned through two right angles, that in 'la maison du nord' having twelve steps in the two long sides and eight in the connecting southern section.[633] The steps were made of brick in both houses and were wide and shallow, being 73 cm long and 14 cm high in 'la maison du nord', and 73 cm long and about 16 cm high in 'la maison centrale'.[634] In this latter house, two parts of the stairs were covered by a vault consisting of simple arches placed one behind the other, similar to Djeme.[635] In 'la maison centrale' the lowest flight of stairs was built above a small recess, which was covered by a vault forming the foundation of this part of the staircase.[636]

Certainly 'la maison centrale' and probably 'la maison du nord' were entered up a flight of steps built against the north walls of each house, and that of 'la maison centrale' was still in good condition. It consisted of eleven steps, measuring 1.20 m wide by 12-25 cm tall, giving a total height of between 1.32 and 1.65 m.[637]

Houses in the area thought by Bruyère and Michalowski to be a Jewish ghetto had stairs constructed similarly to these in the two Ptolemaic houses, with steps built round a central core, and landings when there was a change of direction.[638] The same

applied to a Byzantine house investigated by Alliot, but, whereas in one instance there were three parts to the stairs (room K), in another, there were only two stages (L & H).[639] Only the central core remained in K, but the steps of L and H were well intact and there were eight in the first flight followed by a landing and three further into the basement.

Although stairs at Elephantine did not necessarily turn round a central post, they were usually narrow with high steps according to Honroth, who excavated in the west part of the town.[640] The houses in his area seem to have had stairs onto the terrace which abutted against one of the house walls and in house 'a' the stairs were carried on a brick arch for support.[641] House 27 in the south part of Elephantine had a baked brick arch as a basis for its staircase, which could have left a recess underneath for storage[642] as was found in house 16, where the recess appears to have been an actual room as there was a threshold, which probably indicates some kind of door.[643]

In the houses at Karanis, the stairs generally turned round a central post and there were small landings whenever they changed direction. Four flights leading from one floor to the next were most usual, but Yeivin noted that there were also instances of three.[644] The steps themselves were usually built of mud brick and often had a protective covering of wood placed

against the front part to prevent heavy use wearing the steps away, at least in the early periods of Karanis.[645] As mentioned above, the flights of steps were roofed by small beams of wood placed across the top of the walls, which were then plastered to appear as vaults following the natural slope of the rising sections of the staircase and the steps were constructed above the beams.[646] The roof over the landings did not slope and neither were they falsely vaulted.[647] Yeivin found one example of stairs, which had not been constructed like this, but rather following the method used at el-Amarna, with steps built on top of the parallel sloping beams, which provides an interesting occurrence of standard pharaonic practices continuing in very different types of houses.[648]

A feature which has already become apparent in houses of all periods, is the use of the area created underneath the stairs for storage. At Karanis, storage space or even an extra room was made inside the central core of the stairs, which apparently was built separately for each floor.[649] The central core was either square or rectangular and usually solid,[650] although clearly, if a room had been set into it, this was not the case. It was a fairly common practice to build storage jars into the walls of the core, so that the mouth of the jar was set flush against the wall of the core, with the body of the jar extending back into the column, as in B272.[651] In the neighbouring house, B273, the

central core had been turned into a small room, with a door and very thick walls, so that the actual space was only 70 cm wide.[652] As well as storage jars, niches were sometimes made in the walls of the central core which must have been used for storing different materials from those kept in the pithoi. The area created under the stairs of the first floor and basement were also used as additional space as has been noted in houses at other sites.

The houses were often approached from the street up steps, which were often made of stone slabs. The particularly decorative entrance to house C401/B501, already discussed in connection with doors, had four limestone steps between two low side walls which were built up on stones and building rubble.[653] House B1, excavated by Boak, had stone steps leading to its front door.[654]

Information regarding stairs at other Faiyum sites is more scanty, except for house 1 at Theadelphia where the staircase remained relatively complete. Like those at Karanis it was constructed round three sides of a central core and the steps were made of brick, with the tops unusually formed of cement and the sides and front edge protected by wood.[655] The upper floor of the house had been destroyed and it was not clear what occurred at the top of the stairs, although Rubensohn suggested

that there might have been a kind of balcony, off which the rooms of the floor opened.[656] Use was made of the space under the stairs in this house as well, and again there was a door present to close it off completely although it did not follow the line of the stairs absolutely, as they turned twice and the space only extended past the first change of angle.[657]

Stairs in houses at Bacchias sound very similar to those at Karanis, although the roof was not plastered to imitate vaults, but was left thatched.[658] They were constructed round a central brick core and usually had two or three flights. At Philadelphia, the stairs were usually covered with a vault and there were steps up to the entrance since the basements were built above ground there, pushing the normal ground floor up to first floor level.[659] House 1 in the hamlet north of Karanis had steps up from the courtyard which had been made by placing poles across to form a firm basis.[660] Finally in the house west of the temple in Dionysias the staircase had been made of three stone steps followed by six of baked brick.[661]

In conclusion, it seems that there were two types of staircases in common use during the pharaonic period - the first constructed round a central core, like those used at 'Kahun', and the second consisting of stairs built up in a straight flight like those shown on the Rifeh models, found in some houses at the

workmen's villages of el-Amarna and Deir el-Medina. In the hellenistic period, the first type seems to have been the commonest, occurring not only in most houses in Upper Egyptian towns but also in the Faiyum houses. The stairs were of mud or baked brick, often with some kind of reinforcement to help prevent the excesses of wear and were constructed in a variety of ways. Space created under the stairs was used to full advantage, often being turned into storage cupboards and occasionally an actual room with a door to close off the area.

# CHAPTER V

## INTERNAL DECORATION

This chapter concludes the survey of housing in Egypt during the pharaonic and hellenistic periods. The intention, as before, is to try to find continuity, in this case in the decoration used inside houses. This, however, presents more of a problem than with the sections on either plans or construction. With both these aspects the attempt to discover traditions established in the pharaonic era and continuing into the hellenistic period and beyond was aided by the nature of the subjects, since once a fairly standard plan had developed, it remained the basis for the future, and, similarly, once the method of construction had evolved, the main alterations were generally those of detail rather than of fundamental importance. With decoration, however, similar limitations to those imposed on the plan and construction of houses, such as tradition, were less apparent; once a wall had been built and plastered, it was ready for decoration in whatever style was in vogue at the time but the wall itself imposed some restrictions, as its size and shape were unalterable. As a result of this and because of the two separate cultures under consideration, one would expect to find little overlap in styles of internal decoration. One should remember, however, that the overall decorative effect was not produced by the wall

ornamentation in isolation; rather, it is clear that many elements, such as doors, windows, ceilings and sometimes floors, were all intentionally combined with wall paintings to create a colourful and light effect.[1] Although these features have been discussed in chapter IV, they will be mentioned as necessary in the following section.

To attempt any kind of comparison between pharaonic and hellenistic styles, it is necessary to reduce pharaonic house decoration to its essential elements and to look at the way these were used on the wall, ceilings and floors to see whether the use of space continued the same into the hellenistic period, thus preserving the basic features of earlier Egyptian decoration. One wonders whether, for example, in the later hellenistic houses, there is any evidence of a decorated door frame with a band of colour round it on the wall, as occurred originally in the mansions at el-Amarna.[2] The same applies to other points of decoration and by approaching the subject in this detail it should be easier to pinpoint their appearance in mixed contexts like the Faiyum houses, than it would be if only the actual decorative styles were investigated.

It is much to be regretted therefore, that the information regarding the decoration of domestic buildings in the pharaonic period is mainly limited to the houses at el-Amarna. A few other

pharaonic houses have produced details, such as two in the workmen's village at 'Kahun', but little can be deduced from these about the special organisation of the internal decoration.[3] A few sections of painted wall plaster were found in the workmen's village at Deir el-Medina and often depicted the god Bes, whilst in one house the bottom piece of a scene showing a musician was discovered.[4] Originally these houses, like those in the workmen's village at el-Amarna, were more completely decorated than they appeared when excavated, which was due to the weathering of the walls causing the plaster to flake off. There is no other evidence from domestic houses, but cautious use of the material from palaces, like el-Malqata and el-Amarna, might add a few more details. Other than these, el-Amarna must remain isolated as the standard for pharaonic domestic decoration. There is more material for the hellenistic period, beginning with the early Ptolemaic settlements in the Faiyum and continuing through to the Coptic houses at Djeme. In a tradition quite apart from this, evidence is cast on the style of decoration in Greek houses, afforded by the Greek tombs in Alexandria, and it cannot be ignored for the effect these had on the Faiyumic houses.

As mentioned, very little is left of the wall paintings in the houses of the workmen's village at el-Amarna, but Peet and Woolley believed that originally the walls of at least the

central room were covered with panels of painting about 20 cm from ground level.[5] These, apparently, were covered with successive layers of mud plaster or whitewash, so that little remained of them, and in the descriptions of the individual houses, there is scant mention of these wall paintings. In house 3 in Main Street, Peet and Woolley discovered wall paintings in both the front and central rooms, with that in the front showing Bes, painted simply in white paint against mud plaster. There are no details of the decoration in the central room, except that there were remains of three layers of wall painting.[6] Another panel was found in the front room of 7 Long Wall Street, not 20 but 80 cm above the floor and in black against a white ground; again no mention is made of the design.[7] There is more information about decorative panels found in the front room of 10 Long Wall Street, which was similarly drawn in white against a grey mud wall.[8] Here the panel was made of a frame consisting of two lines each side and three below.[9] Peet and Woolley believed that this decoration of white on the plastered walls was a later development, once the paint used in the earlier wall paintings had run out, but on the evidence they give there seems little proof for these, with or without colour and only rather scant indications of the white outlines; presumably more was discovered than was published.[10] Apart from these panels, there was little sign of decoration, but interestingly there was one house, 17 West Street, where a corner between two walls had been emphasized

by a line of red paint[11] and another, 19 West Street, where the jambs of the door to the staircase had a border of whitewash and an edging of red paint.[12] This latter example seems similar to the houses in the main city at el-Amarna where the doors had an edging of white wash, but it is the former case which is most intriguing as a very similar decorative feature will be noted in one house at Karanis.[13]

Most evidence comes from the houses in the main settlement at el-Amarna and usually concerns the decoration of the central room in them. It is in the central hall that several different elements seem to have contributed to the overall decorative effect, with the aim of being colourful and making the best use of the amount of light in the room. Behind the arrangement of the decoration seems to have been the intention of drawing the gaze of the observer upwards to the source of light, since the walls of the central hall were often left plain white for nearly 2 m (approximately the height of a man) and above this a colourful frieze was painted on the wall plaster.[14] Over this and immediately below the ceiling was a band of white corresponding to the depth of the roof beams, as in house U.36.39.[15] As already mentioned, the roof itself must have presented quite a colourful aspect, with a checkered main beam and red rafters, and the intervening spaces of the ceiling usually painted in one colour, but sometimes decorated with

geometric patterns.[16] The function of windows as a decorative feature has already been discussed, with the use of dummy windows to balance the symmetry of the room; the bars themselves were sometimes multicoloured facing into the room although outside they were plain white.[17]

It seems that the decoration of the central hall in some Amarna houses was basically very simple, with plain walls until the frieze, although, where there was a door or wall niche, this afforded some colour, as the former had a painted lintel and jambs, usually red, whilst false doors were usually red with a central yellow stripe.[18] Sometimes in rooms where the wall had been left mud plastered, an extra touch was achieved by painting a narrow band of white round the niche, as in 0.48.17,[19] and it is possible that something similar occurred in rooms where the walls were already white.

The frieze, which acted as the first focus of attention in the room, was often formed from garlands of flowers or fruits with occasional birds interspersed among the scenes.[20] There seems some evidence that the wall above the door on each side of the entrance into the central hall from the front hall was covered with garlands of flowers with ducks among them as, for example, in houses V.37.1,[21] V.36.1[22] and particularly V.36.6, where a clearer picture of the frieze was obtained.[23] The

garland here consisted of lotus petals with a border and then cornflowers and ducks surrounded by more flowers.

It is likely that the columns supporting the roof of the central hall were also decorated, and in house N.49.39 were found pieces of the mud plaster placed round the columns, which had been painted with lotus petals and circles.[24] Finally, the presence of faience tiles in some houses from the northern suburb is interesting, although where they were placed is not mentioned. Presumably, though, they were wall tiles, perhaps replacing the painted frieze found in other houses, and if so, their presence would have directed the gaze of the observer even more to the top of the wall and the source of light. The designs on the tiles in these private houses seem to have been similar to those employed in the painted friezes, showing flowers, in U.36.5 and U.37.22[25] or a bunch of grapes, 0.47.16,[26] as well as a tile with the cartouche of the Aten on it, from house U.36.5.[27] The use of faience wall tiles was known in early dynastic Egypt and is illustrated well in the tomb of Djoser at Saqqara, where the tiles imitated a woven reed wall.[28] Tiles were also used in the palaces at el-Amarna, and, in the festival hall of Smenkhkare, they formed a dado, covering the lower wall showing white daisies with yellow centres, other plants and at least one bird.[29]

Although there is some slight evidence concerning the

decoration of other rooms in the 'mansions' at el-Amarna, it is not enough to enable one to obtain much of an overall impression.[30] This can only be achieved for the central hall, and here it seems that the artists tried very much to create a unified impression in the room, despite Frankfort and Pendlebury's statement that 'the Egyptian saw no objection against treating each wall as a separate unit in matters of decoration; this at least we learn from the tombs'.[31] The colour in the central hall seems to have been kept to the upper part of the room, apart from the casing of the door and the door itself and niches if these were present. At the top of plain walls, a coloured frieze must have had a striking effect, and coloured windows, topped by a decorated ceiling, all must have helped make the room light, if somewhat unbalanced and top heavy.

This same imbalance perhaps prevailed in the palace at el-Malqata, and Tytus writes about the decoration here that the schemes were so designed as to carry one's eye upwards intentionally although he believed the walls had been covered with mats or rugs, which were probably very colourful.[32] The main elements of decoration already analyzed at el-Amarna are found in the palace; undecorated walls with a frieze at the top and a painted ceiling. Since this was a palace, there were also painted plaster floors in some parts,[33] and often a decorated dado round the base of the wall, which consisted of flowering

plants, but in quieter colours than were used for the frieze.[34] The details of the decoration are not particularly important here, but it is interesting that Tytus emphasizes the use of broad parallel lines to divide up the different elements of the ornamentation.[35] This feature was also apparent in the workmen's village at el-Amarna in a few houses.

Thus it is clear that at both places, el-Malqata and el-Amarna, there was the same basic simple linear use of space. The areas for decoration were very much regimented into rectilinear panels, as would be expected following the principles of Egyptian art, although there is no formal delineation into registers as found in tomb paintings and relief in general. The use of borders to enclose wall paintings at el-Malqata, such as those in the harim quarters,[36] and in workmen's houses at el-Amarna and Deir el-Medina appears characteristic.[37] Another significant feature is the grading of the decoration upwards through the room, so that the interest of the observer would have been drawn upwards to the decoration of the ceiling as the focal point of the room. At el-Malqata, the ceilings were brilliantly painted with designs of vultures, flying pigeons or bull's heads amidst a spiral design,[38] whilst although in the private houses at el-Amarna the ceilings were less vividly decorated, they would still have provided a colourful climax to a room, at least in the central hall.

It is not very likely that many significant comparisons will be possible on the basis of this pharaonic survey. However, the lack of evidence for domestic houses between the XVIII dynasty and the Ptolemaic period is not perhaps as important as might be thought, since it is possible that trends in other forms of art might hint at the direction domestic decoration could have taken. Since there was little basic alteration to the types and styles of sculpture, relief and painting in the intervening centuries, apart from a gradual disintegration in execution, one might postulate that some of the features mentioned above remained in use, but that less care was taken over the end product. Certainly in the workmen's village at Deir el-Medina, in the latest houses of the XIX dynasty, such as the house of Sennedjem, S.O. VI, there was still decoration in the earlier manner with a picture of a dancing Bes, drawn in white on a grey ground, ornamenting the wall of the 'lit clos'. It is unfortunate that the houses from the XXI-XXV dynasties at Medinet Habu and the priests' houses at Karnak of the XXV-XXVI dynasties did not preserve their decoration, if they had any, as this would have provided very useful information for the way internal ornamentation was developing. As it is, there is the usual gap between the XIX and XXX dynasties, with rather more information from the hellenistic era than from the pharaonic.[39]

Two Faiyumic sites produced houses which still preserved

much of their decoration, Karanis and Theadelphia. Brief mention is made in reports of painting at Philadelphia, and the evidence from these three sites constitutes all that is known about domestic decoration from this area of Egypt.

The wall decoration in the houses at Karanis tended to be simple and linear rather than pictorial, although pictures were often found inside some wall niches and occasionally on walls. It does not appear to have followed such a standard pattern as the pharaonic examples illustrate, nor to have been created so uniformly, but it is probable that the occupants of these houses were not as completely immersed in one tradition as were the inhabitants of the pharaonic houses.

One very frequent method of providing simple decoration in rooms at Karanis, which occurred in levels C and B, was the delineation of the individual courses of bricks,[40] without normally representing the individual bricks, although there is one example of this, in house C84.[41] The lines were deeply incised into the plaster and then filled with a white lime wash, which provided a good contrast against the darker, almost black, lime wash, used on the walls in some houses.[42] The white wash would still stand out if the walls were simply left covered with plaster, which could be yellow or grey depending on the period.[43] In one room, C71F, vertical grooves marked not only the corners of

the walls, but also those of the windows, and in one window the junctions between the sloping sill and the the wall were indicated.[44] The decoration in this room was fairly elaborate, with a dado marked off by strips of wood, while above this the courses were indicated, and there was an ornate wall niche, indicating that the room may have been reserved for special functions. However, the vertical lines are possibly reminiscent of the simple line found in house 17 West Street at the workmen's village at el-Amarna, where the junction in one corner had been similarly emphasized, but in red not white paint.[45]

It is not clear whether it was common practice to have only part of the wall covered with this type of decoration, but the plates published by Husselman suggest that whole walls were often decorated thus.[46]

There are a few examples of a wall being divided up into separate panels, mainly in room 8 of house C4.[47] On the north wall there were five panels, varying in width between 45-51 cm and painted alternately maroon and a yellowish brown. They were not placed symmetrically on the wall, being much nearer the east wall than the west, and were 41 cm above the floor. This space was covered with a light grey wash. The east wall was similarly decorated with five panels, this time alternating maroon and blue black, and they were generally wider, between 50-56 cm. On this

wall the panels were divided up by a border, 5 cm wide, in a yellow brown colour. Against this background two pithoi were painted, appearing to rest in the floor, painted in maroon on blue black stands. On the western part of the south wall in this room, there were three horizontal rows, each of four circles and the colours of those on the bottom row alternated maroon and blue black.[48] Above this decoration Boak believed he could trace the remains of a scroll pattern.

The evidence one has about decoration elsewhere in Karanis does not reveal other sequences like that in C4B, just random references to details, but it would be surprising if C4B were unique in its ornamentation. Yeivin mentions that grape and vine designs were common[49] and the west wall of the stairs in C5 was decorated with this.[50] A vine and grape pattern formed the border round a crudely drawn Eros on the wall above a niche in C62F.[51] Human figures were sometimes sketched onto the wall very roughly, but were more frequently found on the back walls of niches. Animals and trees had been drawn on the walls of 5008A and 5005C[52] and also below the representation of the pithoi on the east wall of C4B.[53] One painting which was not in a niche was discovered by Boak in B50E on the south wall and showed Isis holding the infant Harpocrates.[54] On the facing wall was a sketch of Heron, the Thracian rider god, but with what seemed to be the sign of Petesuchos over his head.

In house 2 at Theadelphia, the main room was quite elaborately decorated, with three walls divided up almost symmetrically by three niches in each wall.[55] It was evident on discovery that there had been two separate periods of decoration, the first quite simple and like Karanis, imitating in white the brick courses, but here showing the individual bricks as well.[56] Rubensohn believed that this building had been in use for about two hundred years when it was destroyed in the first part of the 4th century AD[57] and presuming that the room had been decorated immediately it was built, this dated the wall covering to the start of the 2nd century AD, or slightly later. This is directly within the timespan for level C at Karanis, which lasted for a century,[58] from the mid 1st to mid 2nd centuries AD. It might appear, therefore, that this imitation of courses of walls was in fashion in some Faiyumic houses round the start of the 2nd century AD.

It is not known exactly when alterations were made to the main room, but it was probably during the 2nd century AD, owing to similarities between the wall paintings in the niches and those from 2nd century houses on Thera and from Eleusis about the same time.[59] It is evident that the room was made much grander, with an impressive new entrance, whilst the walls were divided into rectangular panels with borders of ornament and figures in

them, which were very faded on discovery.[60] The borders were formed of geometric designs and Rubensohn says that the figures were small and 'schwebende', as seen on wall paintings in the fourth style at Pompeii.[61] There do not apear to have been any other similarities to the fourth style in decoration of this room, which seems to have been limited to the paintings in the niches apart from these panels on the walls. In another house east of the main temple at Theadelphia, Yeivin saw walls covered with paintings divided up into broad bands, very similar to the first style at Pompeii.[62]

By comparison with Karanis and Theadelphia, the evidence from Philadelphia is very slight. Here, one room, 7, was found to be decorated with a dado painted to imitate marble, whilst in room 6, part of the walls had been painted to represent wood.[63] Imitations of wood and marble or alabaster were a standard feature of hellenistic decoration in Egypt and elsewhere, as can be seen from the Alexandrian tombs and as is evidenced by correspondence concerning the house of Diotimos, built during the first stage of settlement at Philadelphia.[64]

When the decoration of the walls is considered in association with the evidence already discussed for ceilings, windows, doors and floors, it is clear that in these Faiyum houses of the early Ptolemaic and Roman eras there was no sense

of uniformity similar to that seen in the pharaonic houses. Undoubtedly, there was a decorative element in the way the doors and windows were constructed on the exterior of some houses. However, the construction methods used kept this decoration to the outside walls, so that, although some wood was visible forming the casing of internal doors,[65] it was very simple in comparison with that of the main door from the street, and the windows, being placed high up and with long sloping sills inside the rooms, were scarcely visible. There is no evidence at all to suggest that the ceilings of the Faiyum houses were ever decorated, even though the roof beams and spaces between were sometimes plastered to imitate square architrave beams like those from el-Amarna, and it is possible there could have been some attempt at painting them.[66] Similarly the floors were left plain, so any ornamentation in the rooms was restricted to the walls. It does not appear that any links can be traced between the essential elements of XVIII dynasty pharaonic domestic decoration and that in the Faiyumic houses. The imitation of the brick courses of the wall lies firmly within the Greek tradition of wall decoration and is a development of the 'hellenistic structural style' as defined by Rostovtzeff.[67] Pagenstecher believed that this direct copying of the manner of construction of walls other than those of stone was an Egyptian extension of this style, similar to the imitation of faience tiles seen on the walls of the tombs at Anfushy and Ras el-Tine.[68] Both these

imitative decorations are fully within the ideals of the hellenistic structural style[69] which developed into the first style at Pompeii and which was based on the imitation by painting and sometimes relief of the materials used in the construction of the stone walls.[70] However, this accounts only for the appearance of the horizontal courses in the wall and, where present, of the individual bricks and leaves the vertical lines seen in C71F unexplained. Although at the moment, there is little indication that a vertical line marking out corners in a room was frequently used in pharaonic times, it is conceivable that in some types of houses it was a feature and was imitated for some reason in this 1st century AD room at Karanis.

The remainder of the wall decoration mentioned above, apart from the second phase at Theadelphia, falls within the sphere of the hellenistic tradition, although it is in rather a degenerate state and not pure as found in the Alexandrian tombs. The division of the wall into the four parts characteristic of the hellenistic structural style - plinth or socle, layer of orthostats, frieze and finally isodomic layers -[71] is not found completely represented at Karanis or Philadelphia, and it seems that at both these places it is the orthostats which have been singled out to decorate the walls. The imitation marble and wood described for D6 at Philadelphia is completely in keeping with the features of this style,[72] but at Karanis it is possible that

the decoration in C4 owed its allegiance to a later style, with the pithoi painted in as an integral part of the wall. In the later third and fourth styles at Pompeii, there were far more architectural and pictorial elements represented on the walls, and in the fourth, the use of these spread into the socle, where the pithoi begin, although clearly they extend into the orthostat layer.[73] There seems to be little evidence for the fourth style before about AD 60, and, allowing for the time taken for it to spread throughout the Roman world, it would not be at all unexpected for some features to be found in level C houses at Karanis. It has already been noted that Rubensohn drew comparisons between the figures found in the panels of the second phase of wall decoration at Theadelphia and those seen on walls at Pompeii painted in the fourth style,[74] so it is interesting to find possible further traces of this last style in houses elsewhere in the Faiyum.

The evidence of the Alexandrian tombs and the tombs at Tuna el-Gebel indicates, not surpisingly, that decoration in the hellenistic style was common in buildings which were Greek in plan. Many of the tombs at Tuna el-Gebel had their walls painted to imitate blocks of marble, granite or porphyry. Often the walls were then plain to the ceiling apart from a floral frieze, as in the house of Isidora, where the walls were painted white to the roof above a dado of orthostats, apart from the right wall

which was decorated with a frieze of flowering branches and pink flowers.[75] Similarly in tomb 2 there was a laurel garland at the top of the wall, which were otherwise plain above the orthostat layer.[76] Tomb 4 was decorated in an interesting manner with orthostats alternating with rectangular panels showing macedonian shields or clipei in the centre.[77] Such a use of shields, according to Gabra, was ancient and can be traced back to the Mycenaens, and he speculates that the use of Macedonian shields reflected the Macedonian presence in Egypt at the start of Ptolemaic rule.[78] In this tomb there is a further example of the direct imitation of the building material used - here probably small carefully cut stone blocks used to build the funerary couch - with the individual blocks delineated in white.[79] This is a simpler interpretation of stone blocks than is usually seen in the isodomic layers which form part of the total wall decoration in the hellensitic structural style.

Since there is such a great deal of information on the Alexandrian necropoleis, all of which clearly has a bearing on the way some contemporary houses were decorated, it is not practical to deal in detail with all the separate tombs here. It is proposed, therefore, to look briefly at the stylistic developments, which are apparent in the various tombs, presuming that these changes were reflected in some houses in Egypt. Dating the tombs is not very easy since there is little definite

dating material available, and the chronology has to be worked out by comparison between the ground plans and artistic styles.[80] On this basis it is not really feasible to assign an exact order to the tombs, since some must have been under construction at the same time, or with only very small gaps between, and presumably the changes in decorative styles occurred gradually over a period of years or decades rather than instantaneously.

The Alexandrian tombs form only part of a large number of such monuments found throughout the hellenistic world, all decorated at various stages, ranging from the zonal style (the earliest) to the hellenistic structural style which became the first style at Pompeii with a few slight changes.[81] The tombs at Alexandria occurred relatively late in this sequence and stylistically illustrate the transition between the basic zonal and the more elaborate hellenistic structural style in the east Mediterranean countries or the first Pompeian style for the contemporary decoration in houses in the south of Italy.[82] It seems to be generally accepted that in Alexandria the tombs of Shatby, Sidi Gaber, Moustafa Pasha, Suk el-Wardian and Anfushy provide examples of the artistic changeover.[83] The zonal style was very simple and originated when walls in parts of the hellenistic world were built of brick on a stone base, with a wooden layer between the stone blocks and first brick course and

again at the top of the wall, thus dividing the wall into four parts - base, stone or intermediate layer, central (brick) section and cornice.[84] The wall was plastered, but painted to retain these sections, with the central one usually red and the base also one colour, but different from that of the central part, and the remaining two often decorated with geometric designs. A very simple and ancient example of this zonal decoration was found by Rostovtzeff in the south Russian tomb at Kertch dating to the 4th century BC.[85]

The hellenistic structural style differed from this zonal form of decoration, in that it actively imitated the construction of a wall, whilst preserving the same basic divisions.[86] Thus the intermediate section developed into the copying of marble or alabaster orthostats and the central part into the isodomic layers, whilst the base or socle usually stayed plain.

Although as mentioned, there is disagreement between authors about the exact sequence of the tombs, it seems that there is some concurrence of opinion over the order Shatby, Sidi Gaber and Moustafa Pasha, which were basically decorated in the zonal style, followed by Suk el-Wardian and Anfushy, which form examples of the hellenistic structural style.[87] In Shatby, the painted decoration has mostly been lost, but the walls were plastered[88] and there were traces of paint, as in the portico, d,

where orthostats and a frieze were brought forward in light relief and above the frieze there was a band of yellow followed by one of blue.[89] The portico, d, and aithrion, f, had actual architectural ornamentation in them, in the form of doric and ionic half columns, and in d, the spaces between were filled with imitation windows and false doors.[90]

The decoration at Sidi Gaber still belonged to the zonal style, but is sometimes believed to look forward to later forms.[91] As in the fragments of painting at Shatby, the zones here were formed from wide bands of colour above one another. Pagenstecher thought that this usage came from a pre-hellensitic type of decoration, which was soon replaced.[92] In the entrance room to the funerary chamber, there was a blue socle with orthostats imitating alabaster, crowned by a back band. Above were red and blue zones bisected by a white strip, and the wall was blue till the ceiling.[93] The wall of the funerary chamber was blue above the funerary couch, until a narrow red band, above which it was blue, decorated with garlands[94] similar to those seen in tombs 1 and 2 at Tuna el-Gebel.[95] Framing the entrance was a red border carried by pilasters placed at the edge, so as not to interrupt the observer's view into the room.[96]

The tombs at Moustafa Pasha shared several of the same characteristics found in Sidi Gaber, such as a black line dividing the orthostats and zones above in room 4-7 and moulded cornices of the same outline.[97] Sometimes here the socle was divided from the orthostats by a lightly incised line[98] - the 'Ritztechnik' mentioned by Schütz.[99] The orthstats were not regular in height or width, even within a single room,[100] while the area of wall above the frieze was often painted in a single colour, usually white, but red in room 6.[101]

Moving on to the tombs of Suk el-Wardian and Anfushy, the differences between the zonal and first styles are quite clear. In these two necropoleis, the decoration is obviously imitating the actual construction of a stone wall which was overlaid with alabaster or marble panels near the base and was then built of layers of carefully cut stone blocks. The socle in Suk el-Wardian stayed either blue or red,[102] whilst the orthostat layer above normally copied limestone blocks with grey and white veining,[103] but sometimes alabaster.[104] Above were several isodomic layers and the wall ended with a decorative band showing palmettes and then griffins.[105] This probably referred back to similar final zones found in tombs like Kertch.[106] Pagenstecher estimated that this changeover in styles reached Alexandria about 280 BC.[107]

Although the Egyptians were accustomed to imitating many materials, including those that covered walls like tapestries, they did not copy actual architectural details, such as how walls were constructed. The hellenistic architectural style, therefore, which reveals clearly how walls were formed, was a new departure in Egypt.

The decorative schemes found in the hypogea of Anfushy are well known and have already been mentioned because of the second layer found in room 1 of 'souterrain 1' in hypogeum 2, which seems to have represented faience tiles on the wall of the orthostats.[108] However, the first type of wall painting followed the format of the first style, as can be illustrated by the walls in rooms 1 & 2 of Hypogeum 1.[109] There was a low socle, often hidden by benches for mourners to sit on, then a row of orthostats imitating alabaster with multicoloured veins. The frieze was formed from white plaques bordered in black and then there were three layers of 'opus isodomum' in white with wide coloured borders to divide them up. The top of the wall was completed by further plaques, this time imitating red and yellow marble.

Some later tombs, such as Mex, were simply decorated[110] or else they showed a merging of Greek and Egyptian funerary styles as in Kom es-Schogafa. The latter occurred also, for example in

tomb 21 at Tuna el-Gebel, where there is an orthostat layer showing veined alabaster and above are Egyptian funerary scenes, interspersed with the occasional Greek figure.[111]

This summary traces the early development of styles in Alexandria and raises the question of the likehood that these changes were reflected in houses in Alexandria or elsewhere. Presumably, in early houses of purely Greek type in Alexandria, the decoration was close to, if not identical with, that found in the tombs and was predominantly zonal in character. Exactly which was the first tomb to be decorated in the hellenistic structural style is clearly crucial as is the date of its appearance, but it seems quite possible that it was some time during the reign of Ptolemy II Philadelphus, 285-246 BC, which embraces both Pagenstecher's date of about 280 BC and that of Vanderborght, about 250 BC.[112] If so, then it is clear that the houses of the first settlements in the Faiyum, like Philadelphia, Soknopaiou Nesos and Tebtynis, are unlikely to have been decorated in the zonal style, but rather following the features of the hellenistic. This appears to be borne out by the papyri dealing with the construction and painting of the house of Diotimos at Philadelphia, which seems to agree with the characteristics of the later style.

The wealthy houses at Alexandria were far more lavishly

decorated than those which archaeology has revealed in the Faiyum, with painted ceilings as well as walls and mosaic pavements in the late Ptolemaic period. These will not be discussed here, since they come outside the range of this study,[113] but it is clear that these houses in Alexandria were the social equivalent of the houses from el-Amarna looked at above. In buildings from both places, it would appear (thus making the total difference in styles quite irrelevant), that there was a sense of balance and uniformity in the decoration of the various rooms, which is not apparent in houses lower down the social scale of either era.

In conclusion, therefore, it seems that on the basis of the very limited pharaonic evidence which is available, it is not really practical to attempt to find similarities and continuity in artistic styles of house decoration surviving into the hellenistic period. As would be expected under the Ptolemies, completely new forms of decoration came into vogue, which can be glimpsed in the houses of the new Faiyum settlements and seen more fully in the contemporary or slightly earlier tombs in Alexandria. It is evident that the houses in the Faiyum towns and villages generally continued to owe allegiance to Greek artistic ideas even into the Roman period and so, for the first time in these houses, there does not appear to have been a mixing of Greek and Egyptian types. That such a compromise was reached,

albeit an uneasy one, is shown by the decoration in tombs at Tuna el-Gebel, tomb 21 and the tomb of Petosiris, and in later tombs at Alexandria, like Kom el-Shogafa.

Wall niches

Although certain houses in the pharaonic period had recesses which are sometimes called niches, it was not until the hellenistic period that real wall niches became a standard feature of most houses throughout Egypt, with two main purposes - storage and religion.

The central hall of houses at el-Amarna usually had recesses in the wall which are sometimes described as 'niches', but which also provided a symmetrical balance within the hall by matching the real doors on opposite walls if there were not enough actual entrances. These recesses were sizeable, extending from the floor for about 1.70 m, virtually the same size as a real door, and were placed either one or two bricks in the wall. They were sometimes painted in stripes - two red enclosing a central yellow one - although they could also be one colour all over.[114] Another function seems to have been to inform visitors about the owner of the house and his status, and also to provide an opportunity for prayers to the Aten, inscribed on the wall, at either side of the recess. Similar false doors or niches were constructed in the main rooms of the houses at Deir el-Medina,

usually placed opposite the divan,[115] and some rooms had more than one false door. Bruyère mentions that in the walls of the central room there were sometimes wall niches used as household shrines with religious images in them.[116]

The dual functions of wall niches - for storage and as a small household shrine - continued in the hellenistic houses. Wall niches seem to have been common in houses of all types at this period, so that unlike the evidence concerning internal decoration, there is material from houses outside the Faiyum, although often it is only a brief mention. Thus at Hermopolis the niches were normally arched and vaulted, following the nature of the rooms themselves.[117] So too were the niches found in the Coptic houses at Djeme, which were of the utilitarian type and probably used for cupboards.[118] As at Karanis, niches were sometimes placed underneath windows, like in houses 19 and 77, and there is one example at Djeme of a niche in the stair well, in house 77, which was also a common arrangement at Karanis.[119] In house a, there were two cupboard niches which had flat tops made from wooden boards and a shelf half-way up to increase the storage capacity.[120] Many houses at Djeme had a large niche in the entrance room, which was used as part of a water jug stand and strainer. In house 102, the water jug niche was well preserved and consisted of an arched niche made of baked brick and covered with lime plaster, which was waterproof.[121] The side

walls of the niche projected beyond the line of the wall and underneath these the actual water jug stand was placed, which had two round depressions for the jugs to rest upright in. The purpose of the arrangement was to keep the water in the jugs cool, but also to filter it a little, since the jugs were made of porous clay, so that some water evaporated from them and some trickled down a channel in the stand into a basin placed inside it. A framework of wood was constructed at the bottom of the arch to hang cloths on so that flies and dust could be kept away from the water. In house 102, another bowl was placed in front of this to collect any overflow, and this strained water was a little purer than usual in an arrangement similar to that found with the modern 'zir'. Some of the water jug stands were made of stone and had 'lions' heads on them, through which the water drained. A special place to keep water jugs was not a new innovation in Egyptian houses, since stands had been made for them in houses at el-Amarna, in the harim quarters at el-Malqata and probably in XXV - XXVI dynasty houses at Medinet Habu (in G-H 13). Unfortunately, no one seems to know what earlier jug stands were like, so it is not possible to say whether the Coptic ones continued a direct line of development or were at all innovatory.[122] There is no evidence to indicate that niches continued to be used as small Christian shrines in these houses; with the advent of Christianity, the form and nature of domestic religion must have altered significantly from its pharaonic counterpart so that no household shrines were needed or

acceptable. With two sizeable churches as close by as they were in Djeme, this is understandable.

Some of the houses at Elephantine also had wall niches, as for example, Honroth's 'house' g, where the niches were rectangular with stone slabs for roofs and were plastered in white.[123] The houses in the temple courtyard had small rectangular niches with a brick arch capping them, like those at Djeme. Grossmann mentions that in some, small unfired pots had been fixed into the wall presumably to enable something to be stored in them.[124]

Much more information comes from the Faiyum houses and particularly from Karanis. Here there was a distinct division between those niches which were used as cupboards and those which were shrines. The cupboard niches were normally rectangular, with flat ceilings made of carefully planed wooden planks.[125] Sycamore and acacia were the usual woods used, although sometimes palm planks were found, although these could not be as well finished as the other two woods allowed. In later periods, Yeivin noticed the use of twigs or sticks for roofing, as in the two niches in C35B,[126] and from his IIB period onwards, stone slabs sometimes replaced the wood.[127] The tops and bottoms of the niches were protected by wooden beams set into the walls, in a manner similar to the way doors and windows were built into the

walls. Like the doors and windows, these beams were held in place by wooden tie blocks;[128] plates 24-25, 59-60 and 60-70 in Husselman's book illustrate this wooden protection very clearly.[129] These niches often had wooden shelves placed about half-way up, as in C51A, where, as well as the wooden shelf, a low wooden stool had been placed on the base of the niche to provide a second shelf.[130] Often there were moulded rims of mud plaster round the edges of the niches to prevent objects from falling out,[131] and there are one or two examples of niches having shutters, like in the north wall of B43F and in C51A.[132] The position of these niches above ground levels seems to have been roughly 1 m,[133] as in B1, but their actual height varied, the one in B1 being about 43 cm tall and another in B of the same house being roughly 56 cm high.[134] Usually in ground floor rooms, the niches were placed below the windows and their sloping sills usually came down to the top of the niche, as in C47A and E,[135] and sometimes there were two niches above each other below a window.[136] If there were several niches placed round a room, then they were usually all at the same height, all about 1 m from the ground.[137] As at Djeme, niches were often inserted into the core of the stairs at various levels of the staircase to provide extra storage space, as in C5033.[138]

Niches used as shrines only occurred in the main room of the house, which was presumably always on the ground floor.[139] They

were often elaborately decorated, and sometimes contained paintings on the back walls, of which now only traces remain. It appears that there were two standard arrangements for shrines; either there were three niches - a large one flanked by two smaller ones as in B14D -[140] or else there was one small niche placed high up in the room above the lintel of the door, as in C60A.[141]

The central niche in B14D was rounded at the back and surmounted by an arch, which was decorated in a dentil pattern made in mud plaster, and which rested at each side on an engaged column.[142] The inside of the arch was decorated in a shell pattern. The niche was 1.2 m above floor level and 1.50 m high from the top of the shell pattern ceiling to the sill making it considerably larger than cupboard niches, and about 1.3 m wide. There is no information about the two rectangular niches at either side of the central main one, but presumably they were smaller, and Boak thought that window sills might have sloped down to them. Most of the shrine niches found in houses at Karanis were constructed along similar lines to this one,[143] but details of their decoration varied and could include patterns made from grapes - leaves, tendrils and clusters - like the niche in B64,[144] or could be geometric as in C119E.[145] The top row of the arch on this niche was formed by a row of slightly projecting bricks. Quite a common feature of the shrine niches

was the presence of pegs hammered into the walls by the niches so that lamps could be hung on them, presumably to help in the worship.[146]

Sometimes the backs of the shrine niches were painted although the preservation of such paintings was not usually very good. One such painting was found in a niche in B51, which was in a bad condition, but Boak was able to trace a man seated on a chair, holding a staff in his left and and a dagger in his right and he seemed just to have wounded an animal which could have been a bull.[147] An incense burner was shown near the animal. The state of the painting was too bad to allow a good judgement, but Boak believed it could possible have been drawn by someone with very vague knowledge of the Mithraic cult. In house C111/B138 there were two paintings, both apparently of the same subject, of which that in B138 appeared to be a copy of the earlier one in C111F.[148] They showed a female inside a painted border. Finally in a niche in C45B, there was a painting, which contained a symbol that could have been Christian. On either side of it was a palm branch, and above an object which could have been a sun.[149] It would, however, have been very unlikely for there to be any indication of a Christian symbol as early as level C (which lasted for about a century, from the mid 1st - mid 2nd centuries AD), which would have been only decades after the traditional arrival of St. Mark in Alexandria in the reign of

Nero.

An interesting painting was found in a wall niche and on the walls at either side of it in house II 204 at Soknopaiou Nesos.[150] Inside the niche were the figures of a man and a woman, each with an incense altar beside them, over which they extended their left hands while the right was folded across their chests. The painting on the wall to the right was thought to show the god Souchos, as although the painting was in a fragmentary state, more pieces of plaster were found in the room showing parts of the head and proving it was Souchos. On the other, left side were four figures, more altars and palm branches. Boak believed this scene showed the owner of the house with his wife offering to Souchos, which would not be altogether surprising at Soknopaiou Nesos. Another house had a niche painted with a scene of Heron and his horse, similar to that mentioned above from Karanis.[151]

Finally, there are the wall niches in the main room of house 2 at Theadelphia. As mentioned on page 363, there were three niches in each wall and, as at Karanis, these were arranged as a larger central one, flanked by two smaller ones.[152] They were all about 1.10 m above the floor and the tallest were 1.40 m high, with the others 90 cm.[153] They were not quite regularly spaced along the walls, but the gaps were about 1 m or slightly over. The niches were rectangular,[154] not round topped as at Karanis, and were more

elaborately decorated than the shrine niches there, with brick pilasters at the sides of the larger ones, but two of them had actual limestone capitals and bases, one of which was decorated with grapes intertwined with an acanthus scroll.[155]

The back walls of all the niches along the south wall and of the large niches in the side walls [illegible] virtually all showed Greek gods and goddesses. The central niche in the west wall showed a woman, whom Rubensohn identified as Tyche with the attributes of Fortuna and Isis;[156] that in the east wall represented Demeter and Chora,[157] while the painting in the central niche of the south wall was too badly damanged for identification, but showed a male deity.[158] The niches on either side of this were also painted, but in a fragmentary state on discovery; one, on the left, showed a naked youth, with a helmet and sword[159] and the other was difficult to identify at all but showed a figure with a vexillum and another unclear object.[160] It is entirely in keeping with the nature of this building that the figures shown in these niche paintings should all be of Greek origin and helps prove even more conclusively that this house was purely Greek in inspiration.

Although there was the same twofold use of niches in the pharaonic period, it was not until the hellenistic era that they appear in the archaeological record to have became more widespread and the shrine type became decorated. It

is interesting that the water jug stands of the pharaonic houses of the XVIII dynasty continued into hellenistic houses at Djeme and became an important feature of the room they were built in. There does not appear to have been a similar niche for water jugs in the Faiyumic houses, although the discovery of the stone stand for jugs at Dionysias and possibly from house 1 at Medinet Ghoran might suggest that there could have been such an arrangement. However, the force behind the shrine niches in the Faiyum town seems to have been Greek, with purely Greek ornamentation round the niche, although the shell in the top of them indicates Roman influence. If this were so, then it would be interesting to have some examples of shrine niches from houses in the Ptolemaic levels in the Faiyum for comparison, or even to see if they existed and were not another Roman introduction. Finally the paintings, like the ornamention, owe far more to Greek ideas and mythology than Egyptian, apart from that possibly showing a domestic cult of Souchos. The absence of shrine niches from the Coptic town of Djeme suggests that domestic religion changed considerably with the advent of Christianity and became a collective activity rather than an individual one.

# CONCLUSION

The purpose of this study has been to investigate the houses of Egypt in both the pharaonic and hellenistic periods, as they are traceable in the archaeological record. Although the emphasis has been placed on the hellenistic houses, it would have been impracticable to look at these without some knowledge of domestic structures from the earlier periods of Egyptian history, and so a brief survey of houses from the main pharaonic sites has been undertaken to provide the necessary background.

The most important function of a house is to give protection to its inhabitants from the local climate, and this in turn is vital in determining the type of building considered necessary. Given the generally warm, rainless weather of Egypt, the prime consideration was shelter from the sun and a cool area in which to perform domestic duties. These two prerequisites are already visible in the predynastic model from el-Amra showing a small covered section together with an open area, both surrounded by a high wall. The same features are apparent in many subsequent houses from the pharaonic period - the Rifeh models, those of the house of Meketre, the workmen's houses at 'Kahun' and the huge estates there belonging to officials, and the middle ranking houses at el-Amarna. In the houses of the workmen's villages at Deir el-Medina and el-Amarna as well as priests' houses at

Karnak, there seem to be the vestiges of such an arrangement, with a half roof in the central room, whilst the communal method of building prevented each house from having an individual enclosure wall.

The protective rôle of the house is well emphasized in the houses mentioned above and in most of those considered from the pharaonic period - a feature which, coupled with the need for privacy, resulted in the mansions at 'Kahun' in the placing of the actual domestic quarters right in the centre of the domain, and similarly in the positioning of the larger mansions at el-Amarna behind boundary walls and in the centre of their estates. In houses which were not set within their own grounds but rather opened directly off the street, the curiosity of passersby was apparently frustrated by not aligning the doorways into the various rooms of the house, although in many houses at Deir el-Medina, the entrances to the rooms were in a straight line, often without any internal doors.

The other major function a house is required to fulfil is to provide an area in which certain social pursuits can take place. These include both general domestic activities like cooking, eating and sleeping, and duties which result from the pressures of the encompassing society, such as, for example, entertaining, and possibly also religious observances. It is. It is also worth remembering that local trade and industries could be based in houses, such as the shops in the front rooms of the houses at Deir el-Medina and the workshop of the sculptor, Thutmose, at el-Amarna.

likely that the earliest structures to be built, such as the type represented by the model from el-Amra, emphasize only the former category, underlining the basic need for shelter from the elements and protection from predators. Conceivably only with the gradual establishment of a set pattern of society are the more peripheral activities likely to have been provided for in a house, so the appearance of specific areas set aside for the receiving of visitors or to hold a shrine could indicate a certain degree of social development. With the evidence considered above, it is difficult to know when this point was reached, but the fact that already by the protodynastic era models of houses were being placed in tombs might suggest that the house was considered sufficiently important as an instrument for it to have been necessary to represent it in the afterlife.[1] Direct imitation of houses as the basis for tombs had begun by the II dynasty, with royal and nobles' tombs at Saqqara revealing useful information about their houses.[2] The regard in which a house was held by the Egyptians is shown by the continuing representations of their homes, either as models or on walls from the VI-XVIII dynasties, and in particular the painting showing the interior of the house of Dhutnufer (TT 104) emphaizes the social element of the building, with Dhutnufer being shown seated receiving offerings from his wife.[3]

It is fortunate that among the pharaonic houses excavated

there seem to be examples of very simple buildings, which, however, appear to have housed people from very varied positions in society, ranging from workers constructing royal tombs to ladies of the royal harim. The appearances of these houses, called 'strip houses' in chapter I,[4] tend to be associated with sites of an official nature, being found at el-Malqata, to house the harim ladies, at al-Amarna, both in the workmen's village and in other parts of the actual city, at Deir el-Medina, at Medinet Habu for the harim and at Karnak, as housing for priests. It seems likely that the use of this type of house on such sites, particularly at the workmen's villages and Karnak, where there was economy of space and materials with, for instance, shared dividing walls, indicates that strip houses contained the basic necessities for an Egyptian home. The strip house consisted of three parts - a front room, a main central one, and the back sections, which was often divided into two parts, for cooking and sleeping. The importance of the central area was stressed by the presence of at least one column - in the harim quarters at el-Malqata two houses had four pillars in the central room - and some sort of raised bench, which could be used for sitting on during the day and sleeping at night. It has generally been believed that the presence of the columns meant that the level of the roof of the central room was higher than the two sections on either side, and it is probable that at el-Malqata and Medinet Habu, and in some of the later houses at Deir el-Medina, this was

the situation. However, owing to the discoveries at Karnak, which proved conclusively that there the central room only had a half roof, allowing light in without the problems of building a higher roof and having windows, and with the benefit of keeping most of the room shaded all day, it should seriously be questioned whether this was not the situation also at el-Amarna and in the early houses at Deir el-Medina, which would mean that the function of the column was to suport the edge of the roof.

The front room in strip houses was the one which could be most individual and was used variously as a stall for animals, an extra kitchen, or even for shops at Deir el-Medina.[5] At the workmen's villages, particularly Deir el-Medina, this was normally the place where a household shrine was placed, although there were sometimes also simple wall shrines in the central room.

It would be interesting to know when this type of house developed and whether it had an independent existence outside official sites. The four houses of the XXV - XXVI dynasty at Medinet Habu would tend to suggest that the latter situation pertained, but it would be more convicing if further examples were found in towns and villages which were unconnected with officialdom. Similarly, excavation holds the key to the first question - when the houses developed - and it would be of great

interest to know when Egyptian society had become systematized to such an extent that social requirements could be satisfied by such a compact house.

Before moving on to summarize the other types of house mentioned in chapter I, it might be interesting to consider how the Egyptians themselves regarded their houses and how, if at all, this was reflected in the actual buildings. Although written many centuries later, in the 1st century BC, this comment of Diodorus Siculus is very revealing concerning the relative importance which the Egyptians attached to their houses and tombs:-[6]

> They call the houses of the living inns, because for a small space we inhabit these; but the sepulchres of the dead they name eternal mansions, because they continue with the gods for an infinite space. Wherefore in the structures of their house, they are little solicitous, but in exquistely adorning their sepulchres, they think no cost sufficient.

There is virtually no contemporary evidence as to how the Egyptians thought of this matter, but from the few sources there are it would seem that wealthy Egyptians regarded their homes as a haven of peace, particularly if in the country, but liked them to be luxuriously decorated. There is the testimony of a certain Ra'ia who owned a country house near the Nile and wrote:-[7]

> Ra'ia has built a goodly villa which is opposite Edjo. He built it on the verge (of the river) as a

> work of eternity and planted with trees on every side of it. A channel is dug in front of it and sleep is broken (only) by the plash of the wave. One does not become tired at the sight of it; one is gay at its portal and drunk in its halls. Fine door posts of limestone, inscribed and carved with chisel; fine portals hewn anew and walls inlaid with lapis lazuli.

Despite these words of Ra'ia that his house was 'a work of eternity', it is usually believed that the sentiment mentioned by Diodorus was more representative of the beliefs of the Egyptians. An easy afterlife was wished for by everyone, and since it was an eternal continuation of the present world, people wished it to be as comfortable as possible. Since the human condition was only a means to an end, as Diodurus comments, homes were built of less enduring material than tombs or the homes of the gods on earth, being constructed of mud brick rather than stone. This philosophy prevailed throughout the social scale, with even royal palaces basically being built of brick, even though their trimmings and decoration could be of a more elaborate nature than those of more lowly householders. These ideological considerations apart, mud brick was a more practical material to build houses in than stone, as it was cheaper and far more readily available, provided a cool building, which lasted quite adequately and alterations could be carried out with little trouble. Since stone quarries were originally a royal monopoly, having stone fittings in a house was a sign of importance, and some houses, particularly at el-Amarna, had stone windows and door surrounds indicating that it cannot then have been too difficult to obtain stone. Other houses, such as many

at Deir el-Medina, had stone column bases and often stone rubble forming the lower part of the walls, but since this was an official site and supplies of stone were close by, this is not surprising.

As a direct result of the ideology mentioned above, it follows that originally each person constructed his own home, without any regard for what would happen to it once he himself was dead. Hence each king would build his own palace, and it was unusual for his successor to inhabit it regularly. Exactly to what extent this theory was carried out lower down the social scale is unknown - presumably economics played a much more significant part than with the pharaohs - and there seems to be conclusive evidence to the contrary, that houses were handed down as part of one's inheritance. This is clear from documents found at Deir el-Medina, some of which deal with a disputed will, in which property of varying types was a part.[8] In subsequent periods, both archaeology and documentation show that houses continued in use for many years, with considerable alteration, probably connected with changes in owership. It is unkown how the Egyptians regarded abandoned or neglected properties; if one follows their presumed philosophy, then they should have left them, but one wonders whether necessity ever forced them to take them over. In this context, there is an interesting reference to the dwelling of a XII dynasty priest at Karnak, which was

restored by another high priest, Roy, during the reign of Merneptah. He writes:-[9]

> I found this house in complete ruin; its walls falling, the woodwork wretched, the doorposts of wood perishing, the paint (faded). I (laid it out) with increase throughout, heightened and widened and (established). I made its door posts of sandstone, I mounted upon them doors of real cedar ... I made it a better work than before, for the protection (of the servants) of Amun, lord of gods.

Leaving aside these ideological aspects of Egyptian houses, a few remarks about the types of houses which appear to have been in use through the pharaonic period are necessary before moving on to those of the hellenistic period. The basic strip house has been discussed above, and it has been seen that its use prevailed in places of an official nature, but that it did occur in a normal town situation as well. A feature that argues against its being only for official use is that the form of the strip house provided the basis for the larger houses and mansions at 'Kahun' and el-Amarna and the town houses of Medinet Habu. This is most clearly seen in the mansions at el-Amarna, where each mansion consists of three such houses, each retaining their individuality and division into three parts. Access between each part is normally kept to a minimum, although in some of the largest houses such as that belonging to the vizir Nakht, there are more entrances between the central sections. Although it is clear how the mansions are formed, there was some

alteration to the original strip houses, often involving the front sections of the smaller houses, which could be expanded into the 'west loggias' with wide windows and columns, or reception rooms at the entrance to the house. The third strip house, which normally formed the women's quarters and sleeping area in the mansions, was the one which suffered most changes from the standard plan, but even so its origins were still obvious.

The fact that the master's quarters in the huge domains at 'Kahun' were formed from these strip houses is particularly interesting, since strip houses did not constitute the homes of the workmen at this site, although their houses are not unrelated to them in type. The use of the strip house shows that they were already a well-established kind of building by the XII dynasty, and the quarters in the estates reveal themselves to be clear ancestors of the el-Amarna mansions.

The Amarna type of mansion appears to have continued in use long after the site at el-Amarna had been abandoned as is evidenced by some houses at Medinet Habu, like that of Butehamun, which, although badly ruined and only very fragmentarily planned, reveals some characteristics of the mansions. Others within the body of the XXIV dynasty town are more complete and also show recognizeable features.

It is quite easy to see how the other common type of house found within the pharaonic period could have developed from the strip house. This consisted of rooms ranged around a central courtyard and is the kind of house found in the actual workmen's village at 'Kahun' and at el-Amarna in the city itself. In some strip houses at el-Amarna and those forming quarters either for harim ladies or for other royalty in the palace of Ramesses II at the Ramesseum, another room has been split off from the central one, albeit only a very small one.[10] The clear advantage that this sort of house would have over the strip building is that the central court provided an easy source of light for the other rooms leading from it.

Although the houses from the pharaonic period dealt with in this study represent a minute sample, both numerically and chronologically, of Egyptian pharaonic houses, it is interesting to see that there seems to be a definite standard house - the strip house - which fulfilled the basic needs of Egyptian society, and which was gradually adapted to form other types of house. It is much to be hoped that one day some more houses of the strip kind will be discovered, which can throw further light on the early development of Egyptian housing.

With the onset of the hellenistic period and the influx of foreigners in greater numbers than had previously been known in

Egypt, it is to be expected that there should be some changes in housing. It is regrettable that little is known about houses from the end of the dynastic period, and particularly that a site like Naucratis, where the Greeks had a colony before fully taking over the country, has not been better explored. There are hints from details like the change in brick shape which cause one to suspect that there might have been different types of houses by the Greeks, not only in the XXVI dynasty, but continuing into the Roman era.

The results of the survey of hellenistic houses suggest very strongly that there were two distinct kinds of house, depending on whether the settlement they occurred in was primarily Egyptian or Greek. In the former situation, the houses, although not identical to their pharaonic forerunners, derive from similar origins, whilst those on predominantly Greek sites, if not of foreign design altogether, display non-Egyptian characteristics. The houses of the first category are found on sites like Medinet Habu, later Djeme, Edfu, Elephantine Island and Philae and those described by Roeder at Hermopolis probably come also into this category. Like the pharaonic houses, there are two main types of house - the descendents of the strip houses and those of the mansions, which have been greatly simplified. The strip houses of the hellenistic period had changed in several ways, with the central section becoming a substantial stairwell, thus losing its

social standing of the pharaonic period. The houses had become several storeys tall and tended to taper towards the top, often with walls which were pan bedded. By the hellenistic period, official villages had declined, so the strip houses were not regimented into rows, but could develop freely and tended, at Djeme at least, to cluster in groups round a courtyard, which was shared by several houses. Since many houses there were constructed on the old girdle wall, they could not have a yard and tended to have basements instead. Presumably these are the houses which models, like that from Xois, are intended to show, being of rectangular shape and narrow, at least four storeys in height, and with some decorative pan bedding in the construction of the walls.[11] The house shown in this model does not taper as much as those at Djeme, if at all, and it is unlikely that the house there had as many windows as are represented on the model.

The second kind of house - those probably descended from the mansions - was found at the same sites, but not at Djeme, and it is impossible to know about Hermopolis. The houses are formed from two or three rectangular strips, but these are not usually divided into three parts, as in pharaonic times. This type is most clearly illustrated at Edfu and Elephantine Island, although the Roman houses at Medinet Habu are very similar. It is uncertain how many storeys tall these houses were; at Edfu only the basement levels remain, but there was clearly one other floor

and possibly more. No models of this type are known, which is unfortunate since there is no real means of discovering how they appeared, unless excavation reveals a more complete example.

Even though these houses are the descendents of the pharaonic ones, there have been considerable changes in detail, which are presumably to be linked with fundamental alterations to society. One striking loss is the columned central room, which was the most important part of the pharaonic house, where visitors could be received and which provided a cool and airy centre to the building. In the strip houses of the hellenistic period, this central room contained the staircase, probably throwing the social emphasis of the house into the back part. It is hard to know what happened in the other type, since only basements are known from Edfu, whilst at Elephantine the rooms in these houses had few distinguishing features. Although it is impossible to be certain, one wonders whether this circumstance was at all connected with the way in which whole houses tended not be owned by one person, but rather split up into incredible fractions, so that one could own a 1/16 or even less of a house.[12] Since the different proprietors were often members of the same family, this might not have affected the unity of the building too considerably, but clearly quite frequently the owners or lessees had no connections at all. This feature of hellenistic life is best evidenced for the Faiyum towns and

villages and places like Oxyrhynchus and Hermopolis where considerable excavation has been carried out, but one wonders whether it was more frequent in these places than at sites like Djeme, Edfu and Elephantine.

The houses from the Faiyum towns, especially those from Karanis, were generally similar to those from Djeme and Elephantine. At Karanis there are two clear types - the strip house as described above, and those which were squarer in shape and divided into two parts.[13] In many ways the strip houses (type I) are very like those several centuries later in date at Djeme, in that they were built of brick, were usually three storeys tall, tapered towards the top, and were normally constructed with pan bedded walls. However, there are also considerable divergences, such as bricks of a different shape - thicker in the Faiyum then elsewhere in Egypt - much greater use of wood in the construction of door, windows and roofs, and the general grouping of houses with their courtyards into insulae, divided up by narrow alleys and streets.

Although the actual type of house seems to be Egyptian in origin, it was adapted apparently only when the Romans arrived in Egypt, as that is when the type first appears at Karanis (though further excavation of the Ptolemaic parts at Karanis could disprove this), and it does seem as though they imported with

them a style of emphasizing, and hence decorating, the doorways and windows. Apart from these constructional changes, including the use of flat roofs rather than vaulted ones as wood was apparently freely available, the differences between the houses at Karanis and Djeme are shown most clearly by internal, more socially related details, like decoration, stands for water jugs, and shrines. The decoration at Karanis was of predominantly Greek style, with paintings of a mixture of Greek and Egyptian figuration, while at Djeme little remained, but it appeared to be very simple.[14] Similarly, the shrines at Karanis were an integral part of one room and were often elaborately ornamented, but at Coptic Djeme such household shrines had disappeared, as religion and its personal demands altered.

The houses at Karanis appear to have been of hybrid origin, being essentially of Egyptian design but with foreign aspects in the construction and internal fittings. An attempt to link definite people with houses at Karanis, if sufficient information exists, might reveal interesting material about the history of individual houses and how successive generations altered a house.

Other houses from Faiyum towns, like those at Philadephia, the earliest layer from Soknopaiou Nesos, the hamlet north of Karanis, and Theadelphia all appear to be of non-Egyptian origin, with several of them being clearly derived from prototypes from

Priene and Delos. Some retained their Greek character more successfully than others, such as house 2 from Theadelphia, clearly showing its allegiance to Delian houses, not only in plan but also in details of construction and decoration. House D6 at Philadelphia appears to have the characteristics of a house from Priene, but they have been considerably restricted in space. Although one would expect to find houses of Greek design in the Faiyum settlements, and it is satisfying that there is clear evidence of their presence at a number of sites and over quite a long time span, it would be a much more difficult problem to know fully all the different types of house which existed during the hellenistic period with the considerable diversification of society which occurred. The loss of knowledge from Alexandria is much to be regretted, where it would be interesting to see the houses of the predominantly Greek, but quite cosmopolitan society, but some information can be gleaned from the tombs. It is unlikely that there would have been many Egyptian-style buildings there, but it would be particularly fascinating to know in what kind of structures the Greeks were housed in other towns scattered throughout the Nile valley, such as Oxyrhynchus and Hermopolis, which had a definite Greek percentage among the population. Clues can be gained from the tombs at Tuna el-Gebel, which have a hybrid flavour like the Faiyum houses, but since only a certain group of people were buried there - those associated with the high priests of Thoth - it can hardly count

as a particularly representative sample. It is greatly to be hoped that a hellenistic settlement outside Alexandria will be properly excavated so that questions about how, if at all, Greeks and Egyptians were segregated in a town, what kind of houses both lived in - a hybrid type like the Faiyum or ones more purely Greek in style - and whether the houses of the Egyptians followed types seen at Elephantine, Edfu and Medinet Habu can be answered.

A study of housing is interesting in itself only to a limited degree; some points, such as the apparent difference in brick size between Greek settlements and those in the rest of Egypt, and again the possibility of a half roof in a certain type of house, can be revealed only by a detailed examination of the evidence, but overall one must be aware that a house is only a vehicle for human use and that it is human needs and peculiarities which fashion buildings.

Future work concerning houses can be neatly divided into two groups - that extending the purely archaeological knowledge and, secondly, that linking the structures with their inhabitants. It is much to be hoped that settlement archaeology will continue to receive increased attention among Egyptologists, as daily life is perhaps a rather neglected area at present. As mentioned above, it is greatly to be hoped that a hellenistic site from Upper Egypt might be more closely investigated and also more work done

on settlements in the Delta, but further work also needs to be done on ordinary pharaonic sites to enable one to be more certain of the types of house the average farmer or craftsman inhabited. More attention needs to be given to construction details as the actual way Egyptian houses were built is little researched. The large gap between the end of the New Kingdom and the start of the hellenistic era also needs closer examination, as apart from Medinet Habu and the priests' houses at Karnak very little is known about houses from this period, and it is quite probable that the emphasis in housing gradually changed, leading to the types of house fround at Edfu and Elephantine. It would also be interesting to extend the study forward to moderntimes, incorporating the valuable work of Lozach and Hug, and to see how the advent of Islam changed the fundamental housing types already established in Egypt. Similarly, useful work could be done on the Nubian sites excavated in the 1960s to see how well they fit into the pattern.

The most interesting area for research, though, is the matching together of excavated structures and their inhabitants. Egyptologists are fortunate in having a far greater wealth of documentary material preserved than archaeologists working in many other parts of the world, and this, together with funerary evidence, like tomb paintings and models, provides them with an opportunity to gain a more complete picture of domestic life than

is possible elsewhere. Work has already been done on the workmen's community at Deir el-Medina, but in the one major study that has so far resulted the houses themselves have been largely ignored.[15] Clearly it is impossible to hope that one could connect specific houses with people for more than a few generations, but already the houses of one or two persons have been identified, like that of Sennedjem in S.O. VI and that of Harshire, probably the great grandfather of Butehamun, in S.O. II.[16] From close scrutiny of Bruyère's report, other tentative links are possible, and with a detailed knowledge of the documentation, histories of certain houses must remain a possibility.

The ultimate purpose of such work is to enable a more certain impression to be developed of the types of houses inhabited by different social groups. Already, at least for the pharaonic period, one has a relatively good idea, since there are examples of houses from royal palaces to royal workmen, with several stages in between. As already mentioned, the types of houses do not appear to have varied greatly, with wealth being displayed more by way of luxurious trappings and decorations than by size of house, so that the domestic quarters of the royal palace at el-Amarna appear only slightly larger than the house of the vizir Nakht, which was significantly more sizeable than many other houses there. A site like el-Amarna provides an excellent

opportunity for linking housing with social rank and for understanding the layout of an Egyptian town. The evidence from the hellenistic period is more diffuse and much work needs to be done to reach the same level of understanding as for the pharaonic era, but researches into the hellenistic period are fortunate in having many documents, which reveal details that archaeology alone cannot isolate. With Luckhard's work providing the basis, it would be very worthwhile to update one's knowledge of the house in the hellenistic period, using the results of both archaeology and documentation.[17]

This study is clearly incomplete in several respects; it has not dealt at all with the dependencies of a house, such as courtyards nor with the furnishings inside, both of which need to be considered to build up a more complete knowledge of Egyptian houses at all periods. It has, however, shown that detailed study of the buildings themselves and their component structural parts can reveal information which may form the basis for future work.



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