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AMARNA-TYPE HOUSES AT THE MALQATA PALACE-CITY¹

Takaharu ENDO

ABSTRACT

An interim report on the re-excavation of the Amarna-type houses at Malqata by the Waseda University expedition party in Tokyo is described in this paper. The buildings, located to the west of the king's main palace, are comprised of three independent houses in a row. The basic structure of the tripartite plan is clearly visible for each house. In the rectangular plan, a square hall is located at the centre of each house, with an entrance doorway to the northeast side, and a bedchamber with a raised alcove is located at the southwest corner, similar to the large-sized standard Amarna-type houses.

However, despite these overall similarities, the buildings present some architectural differences from the standard Amarna-type house; for instance, the omission of a porch with a stairway, a change of floor levels gradually elevating from the entrance to the central room, and, regarding House A, an installation of a magnificent lustration-slab with column bases in the central room should be noted. As it is evident that these three houses were built before the capital was transferred from Thebes to Amarna, they can be regarded as forerunners of the high-ranked houses erected in the city of Akhenaten. A study on these buildings would further contribute to research on the origins of this house-type and to the field of ancient Egyptian architecture.

INTRODUCTION

A ruined palace-city of Amenhotep III,² comprised of various structures including several palaces, a temple of Amen, a large platform, and houses for palace attendants, is preserved at Malqata, in the desert on the west bank of Thebes, approximately 3 km to the southwest of Medinet Habu (Fig. 1).³ The initial excavation work on site was conducted by J. Daressy in 1888,⁴ which was almost contemporaneous with the first exploration by W. M. F. Petrie at the similar Amarna palace-city of Akhenaten.⁵ After his partial excavation, the western part of the main palace was explored by a young American, R. de P. Tytus, with Percy E. Newberry,⁶ under the inspection of H. Carter in 1901-02.⁷ However, the most informative archaeological context on the ruins has been provided by the continuous investigations of the Metropolitan Museum of Art in New York through the

clearance work of the vast site in 1910-20.⁸ Subsequently, in the 1970s, the University Museum of the University of Pennsylvania resumed its excavations there, mainly concentrating on excavating the embankment of the artificial lake, "Birket Habu."⁹ Currently, two final reports have been published dealing with the newly found pottery and inscriptions.¹⁰

During the interim period, an excavation at south Malqata, conducted by the expedition mission of Waseda University in Tokyo, was started in 1972 in order to clarify the characteristics of the site, and the first major step towards this goal occurred in 1974 with the discovery of a desert altar with a painted stairway on whose steps foreign captives and pairs of bows were depicted alternately.¹¹ In view of the artistic style of the painted decoration and the presence of stamped bricks bearing the name of Amenhotep III, this mudbrick building, denuded

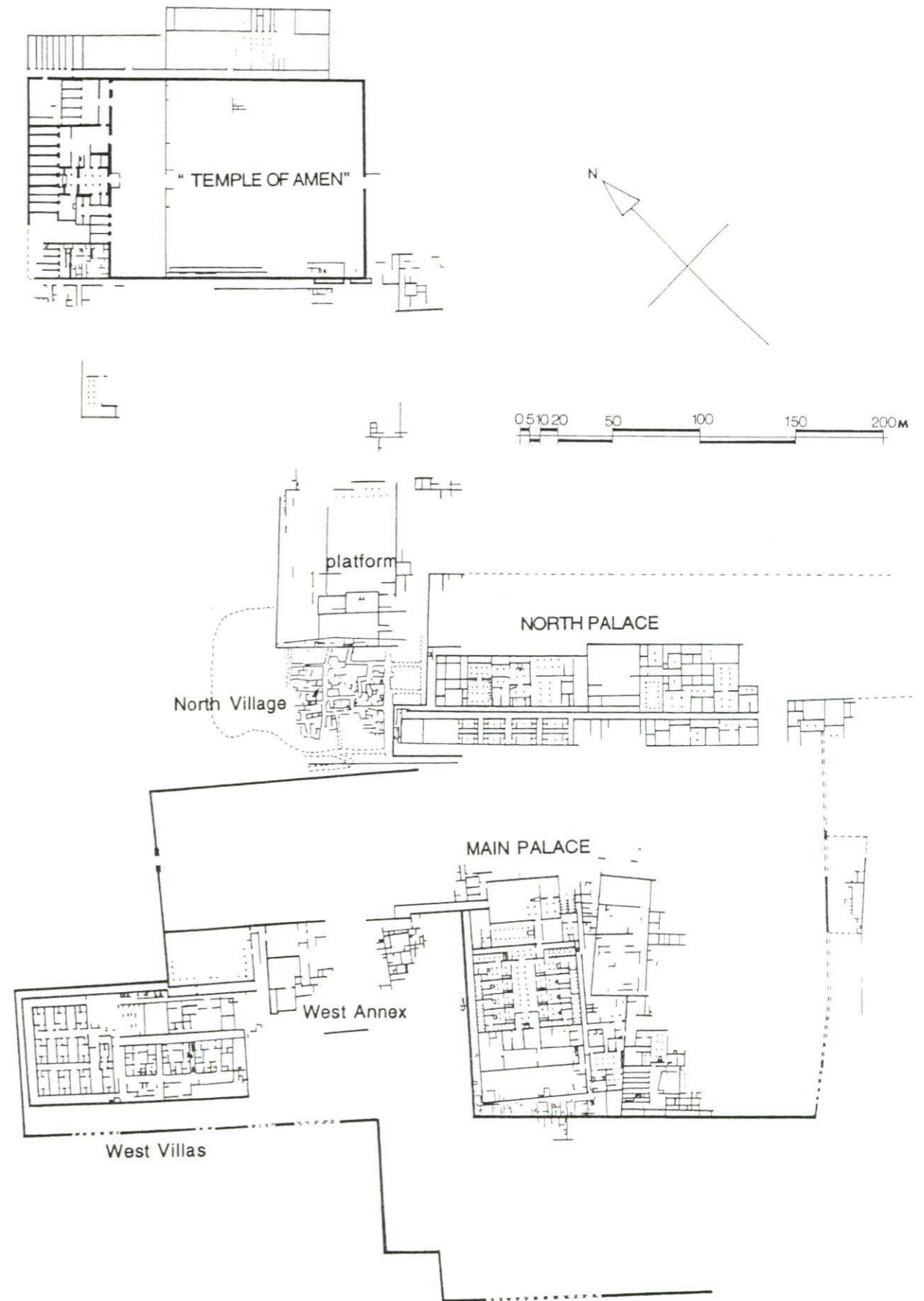


FIGURE 1 Plan of the Malqata palace (After Takeshi Nakagawa et al., eds., *Studies on the Palace of Malqata*, Fig. 2-1-1.2)

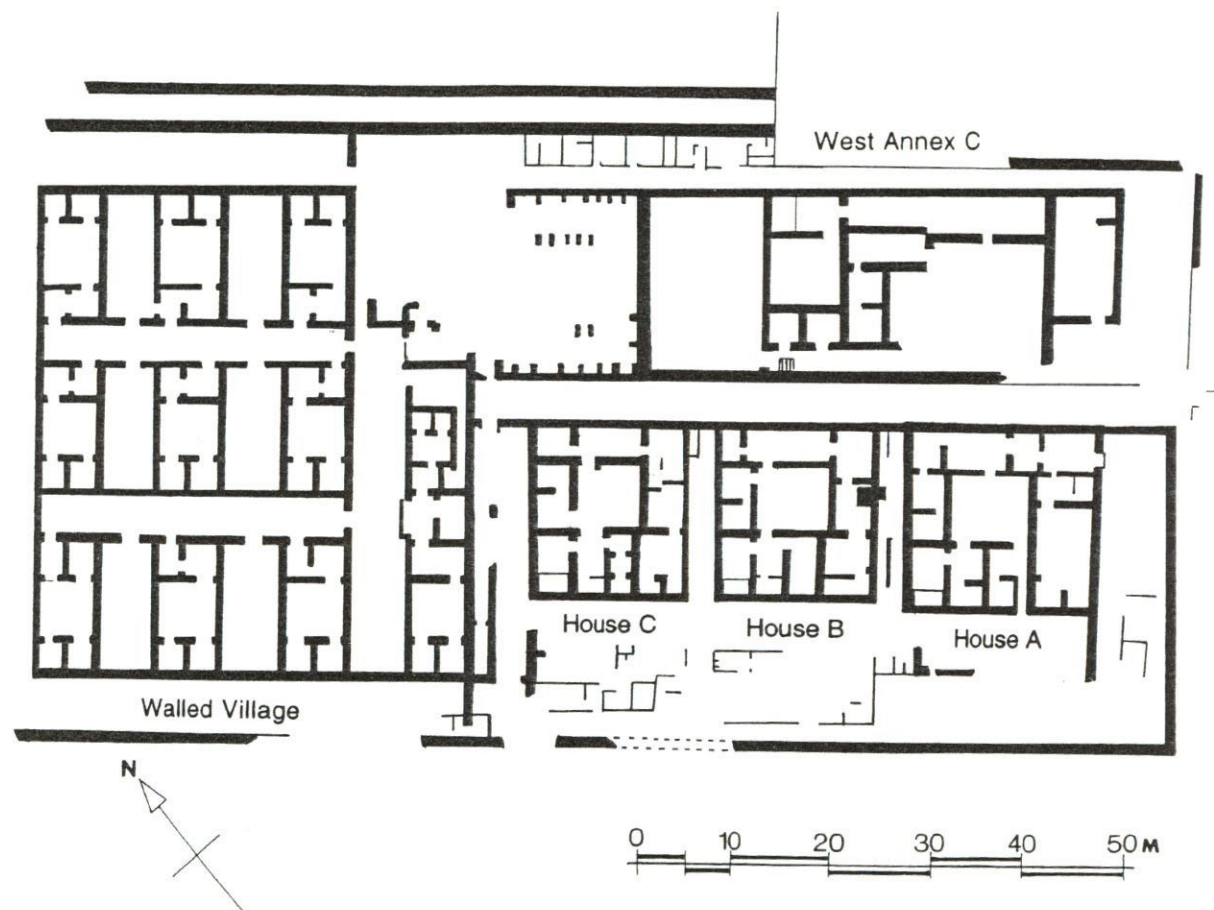


FIGURE 2 Plan of the West Villas at Malqata palace (After P. Lacovara, *The New Kingdom Royal City*, Fig. 40; reproduced from unpublished material at the Metropolitan Museum of Art)

at a sand mound "Kom al-Samak," has been dated to the late 18th Dynasty, compelling the excavators to reconsider the peripheral structure of the palace-city founded by Amenhotep III.

Fortunately, from 1985, the Waseda University mission was granted permission from the Egyptian Antiquities Organization (now Supreme Council of Antiquities) to re-excavate the site of the Malqata palace. In order to study the architectural features of the major portion of the palace and compare the decorative motifs found on the desert altar with those of the palace *per se*, several rooms at the main palace,¹² including

the great columned hall (Room H), the king's bedchamber, and a suite of harem rooms,¹³ were re-excavated under the direction of Dr. Yasutada Watanabe, an architectural historian in the Department of Architecture at Waseda University and former project leader. Numerous fragments of the paintings on walls and ceilings have been recovered from each room, and their recording and reassembly have been progressing in preparation for publishing a complete series of catalogues under the supervision of Professor Sakuji Yoshimura at Waseda University, an art historian and succeeding project leader. The first volume of the series is planned for publication in

the near future and will deal with the painted plaster found at Room B.

Concerning the three Amarna-type houses located to the west of the main palace (Fig. 2; Pl. XI),¹⁴ a reconnaissance was carried out during the 1985–86 season by the site director, Professor Hisashi Goto, Japan Women's University of Tokyo, and a sketch plan was produced. Close observations and detailed measurement work for obtaining further architectural information on House A, the easternmost house of the three, were subsequently carried out, and a detailed plan showing the arrangement of bricks was drawn to a scale of 1:50 under the supervision of Professor Takeshi Nakagawa at Waseda University. These results have already been partially published;¹⁵ however, most of the architectural drawings are still unpublished. In 1996, I had a chance to observe these Amarna-type houses when visiting the Japanese mission working on the re-clearance at the royal tomb of Amenhotep III, and I was able to check the plan and sections against the remains of the houses.

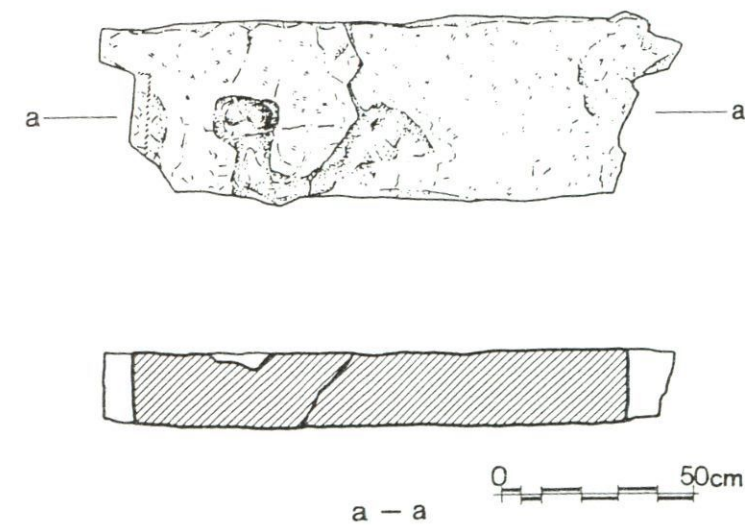


FIGURE 4 A limestone threshold found between Areas 1 and 6

Thanks are due to Professor Sakuji Yoshimura, the general director of the Waseda University mission, for allowing me to use unpublished material to write this report. Also, thanks go to Jiro Kondo, the site director at the tomb of Amenhotep III and lecturer at Waseda University, for his cooperation and practical support at the site, which made my field research possible. I would like to express gratitude to Associate Professor Shin-ichi Nishimoto for reading through the draft of this paper and providing valuable information and to thank Hiroyuki Kashiwagi, my senior colleague at the Department of Architecture, for his informative suggestions. The English text was proofread by Mike Jacobs, to whom I would also like to express my appreciation.

THE CURRENT STATE OF THE AMARNA-TYPE HOUSES AT MALQATA

Three independent structures, quite similar to the standard Amarna-type house,¹⁶ have been designated Houses A, B, and C, from east to west, by the previous excavators, of the Metropolitan Museum of Art. The ground level of this area gently slopes upwards from northeast to southwest, and the three houses have been contoured to follow the site topographically, as seen in the sections (Fig. 3). All these houses seem to have been built to about the same size in plan, apart from the case of House A, in which the dimensions are slightly larger than the others (18.5 metres across the north-south width and 19.4 metres along the east-west length).¹⁷ The basic structure of the tripartite plan is clearly visible for each house, as observed at Amarna.¹⁸ In the rectangular plan, a square hall is located at the centre of each house, with an entrance doorway to the northeast side, and a bedchamber with a raised alcove is located at the southwest corner, similar to the large-sized standard Amarna-type houses. With respect to a study exploring the origins of this type of house, these houses at Malqata would be highly noteworthy, as parallel

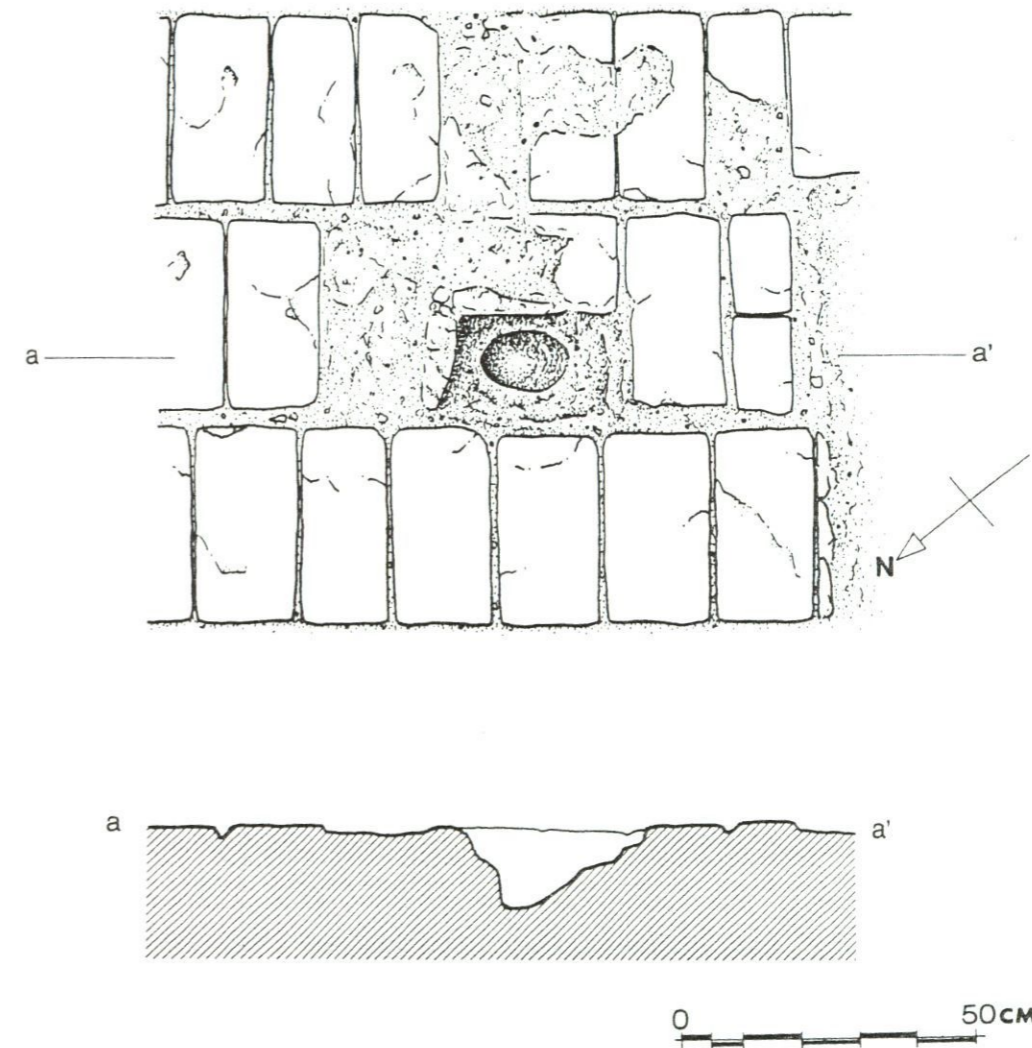
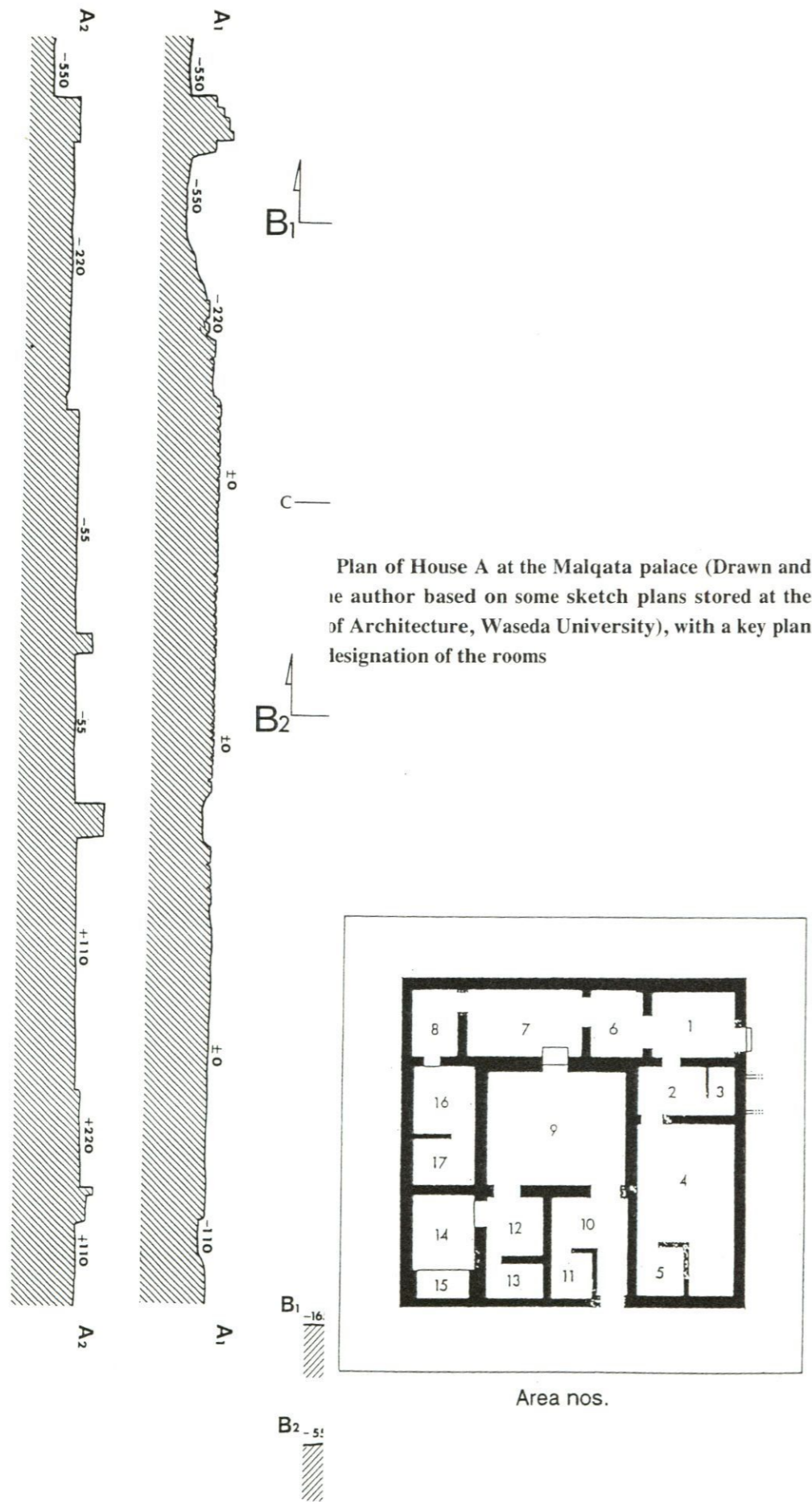


FIGURE 5 A small depression detected at the centre of the central room (see Fig. 3, b)

structures outside of Amarna are quite rare. As it is evident that these three houses were built before the capital was transferred from Thebes to Amarna, they can be regarded as forerunners of the high-ranked houses erected in the city of Akhenaten.

A brief study regarding Houses A-C has been conducted by W. C. Hayes, mainly on the basis of a study of document sealings found at the houses. He described House B as the administrative centre of the palace, not used as a

domestic dwelling house but as an office for the Southern Vizier. Similar houses on either side (Houses A and C) were identified by Hayes as being the offices for the vizier's two most important collaborators, the Chief Treasurer and the king's Chief Steward.¹⁹ Due to heavy rainstorms in 1994-95,²⁰ the site was badly damaged and suffered erosion, with some brick walls being washed away. However, despite lack of information on the buildings proper, his argument could be feasible in view of the intentional arrangement or disposition of the

structures as well as the existence of a rectangular enclosure wall surrounding the three houses. Such an arrangement was never discovered at Amarna. Granaries, gardens, private shrines, and other components were standard in Amarna houses for the rich.²¹

The best preserved of the three is House A, and brick walls remain to about 60 cm in height at top levels. In contrast, House C has only one or two bottom brick courses of the walls in position. The condition of House B is worse than House A, with well-preserved walls standing to a level of about 40 cm. As for the entrance, designated as Area 1 in the plan (Fig. 3), only half the floor of this room has been cleared so far. The dimensions of Area 1 are approximately 3.8×4.5 metres, and a shallow depression for holding a stone threshold has been confirmed at the east side (Fig. 3, a), although this area had been severely damaged by the recent heavy rainstorms. Part of a mudbrick step leading up to the floor level is still preserved on the outside of the entrance. The construction of this main entrance appears to be a simple doorway,²² being dissimilar to the larger Amarna-type houses, where a magnificent porch as a status symbol, with a flight of steps or slope, is normally located at the main entrance.²³

It is interesting to note that the series of Areas 2, 3, 4, and 5, isolated from the central room, is exceedingly similar to the unit plan of the walled village showing the tripartite layout and seems to be almost the same even in size (Fig. 2). In the case of the standard Amarna-type house, these rooms are accessed from a central columned room.

At the west doorway to Area 6, coming from Area 1, a limestone threshold has been preserved in its original position, although broken in two (Fig. 4; Pl. XIIa). It is situated in a shallow depression, and a door pivot can be seen to the north side of this block, which opened the door-

leaf inward to the right.²⁴ As the pivot has been greatly worn, as shown in Fig. 4, it is thought that the door had been used over a considerably long period.

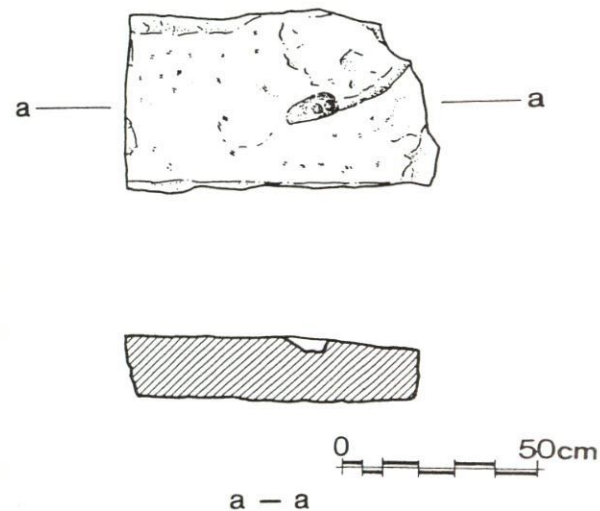


FIGURE 6 A fragment of limestone threshold found in the central room

The entrance leads to the north antechambers, Areas 6 and 7, ca. 3.8×2.7 metres and 3.8×6.6 metres in dimensions, respectively. The doorway threshold between Areas 6 and 7 is missing as with the entrance to the central room. The positioning of the two doorways located to the east and the west sides of Area 6 forms a cranked access from the entrance to Area 7, a device frequently seen in ancient Egyptian architecture. The function of Area 6 might have corresponded to the vestibule between the porch and the north loggia in the standard Amarna-type house in terms of its spatial arrangement.²⁵

In front of the doorway to the central room, a step is preserved constructed from a row of mudbricks (Pl. XIIb) laid to ascend about 10 cm to the central room from Area 7. The paved floor in Area 7 has been partially lost, and a depression

of about 30 cm in depth from the floor level is adjacent to the base of the north wall (Pl. XIb). No traces of columns have been detected. With regard to Area 8, only the top courses of the brick walls could be recorded due to the limitation of time during the stay in Egypt, and the present condition of the area, where the floor is still covered with sand and debris, is visible in Pl. XI.

The dimensions of the central room (Area 9) are approximately 6.3 metres (12 royal cubits) north-south and 7.6 metres (14.5 royal cubits) east-west in internal measurement.²⁶ The average dimensions of the floor bricks are ca. 33.3×16.6 cm, although several bricks may vary

in length between 30 cm and 39 cm. A characteristic arrangement of floor bricks observed along the west wall would be remarkable, but its purpose is uncertain.²⁷

The larger Amarna-type house usually has some columns in the central room, either two columns in a row, or two rows of two columns²⁸ set on stone bases, the diameters of which are slightly less than 1.0 metres; whereas no traces of stone bases were detected on the brick pavement in the central room of House A. At the foot of the rear wall in the room, a rectangular depression is observed (Pl. XIa). Traces of gray lime mortar applied around the edges of this unpaved area are also visible. It would be easy to

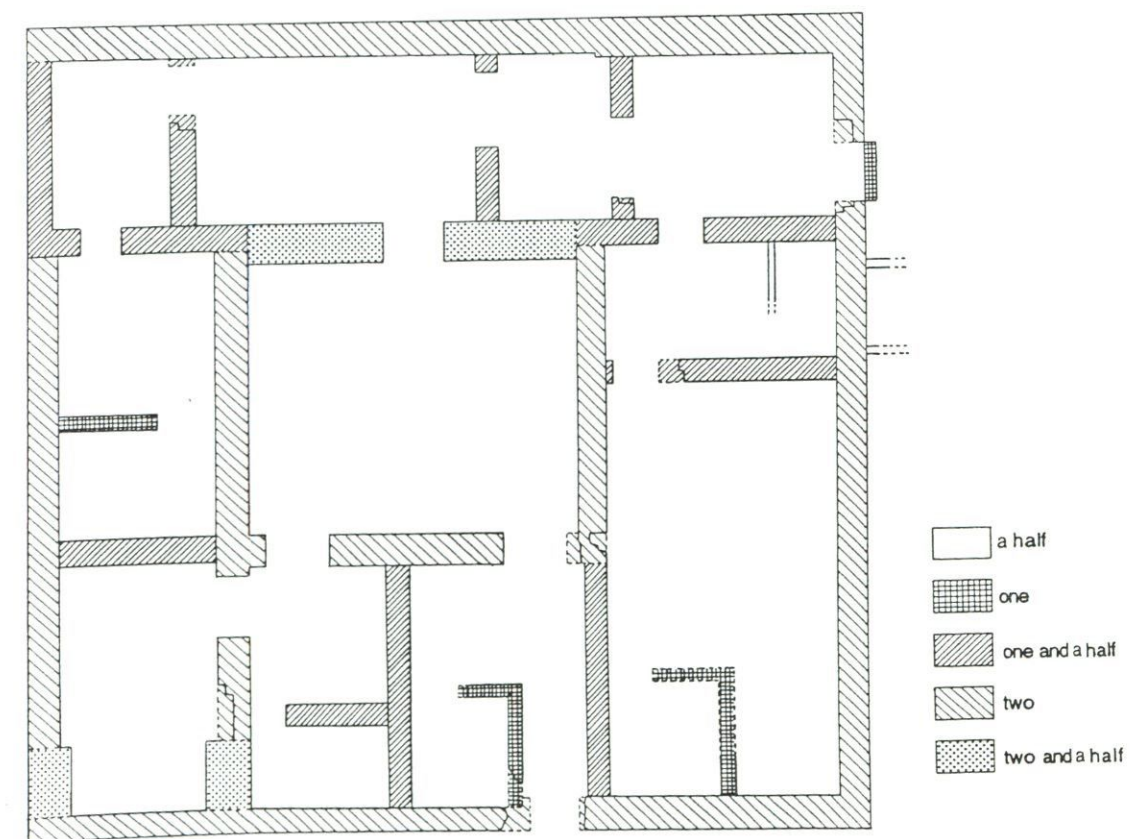


FIGURE 7 Diagram sketch of House A, showing the wall thickness

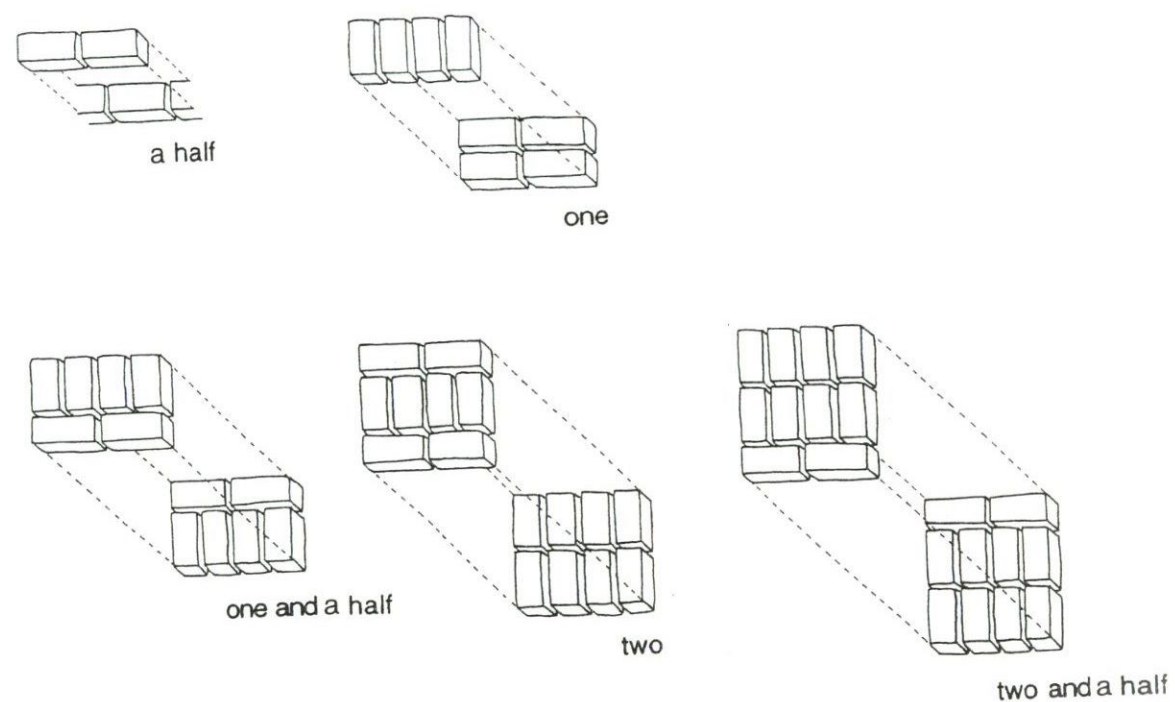


FIGURE 8 Types of brick bonding at House A (Reproduced from a sketch stored at the Department of Architecture, Waseda University)

identify this sort of depression as caused by a large stone slab once having been installed there, probably formed by a lustration-slab as often found in the columned central halls of the Amarna-type houses, and completely removed later, presumably for the purpose of reuse. This explanation seems to be supported by the presence of tool marks preserved on the floor at the northwest corner of the lustration-slab traces (Pl. XIIIa), perhaps incised during the course of extracting the stone blocks. However, its supposed size, ca. 2.0×3.5 metres judging from the dimensions of the depression, is extraordinary and occupies much surface area of the room. The common size of lustration-slabs in the houses at Amarna is supposed to be about 1.0×1.5 metres, and seemingly not dependent upon the size of the central room.²⁹

For the interior of the central room, a reconstruction of an open square room, complete with a large lustration-slab to the rear, might be possible; but to my knowledge no parallel to this kind of house-type has been reported. As an alternative approach, I would like to propose the original as being a roofed room with a lustration-slab resting on two stone bases with columns. As this room spans 6.25 metres, it appears too long to be spanned by one single wood beam,³⁰ and a support system not setting stone bases directly on the floor pavement needs to be considered. One interesting example has been found to the north of the Great Aten temple at Amarna called "The Hall of Foreign Tribute" by British excavators.³¹ The south-eastern block of the Hall has a very large lustration-slab, ca. 2.6×4.5 metres, and the two columns supporting the roof are rested upon it. At the aforementioned depression

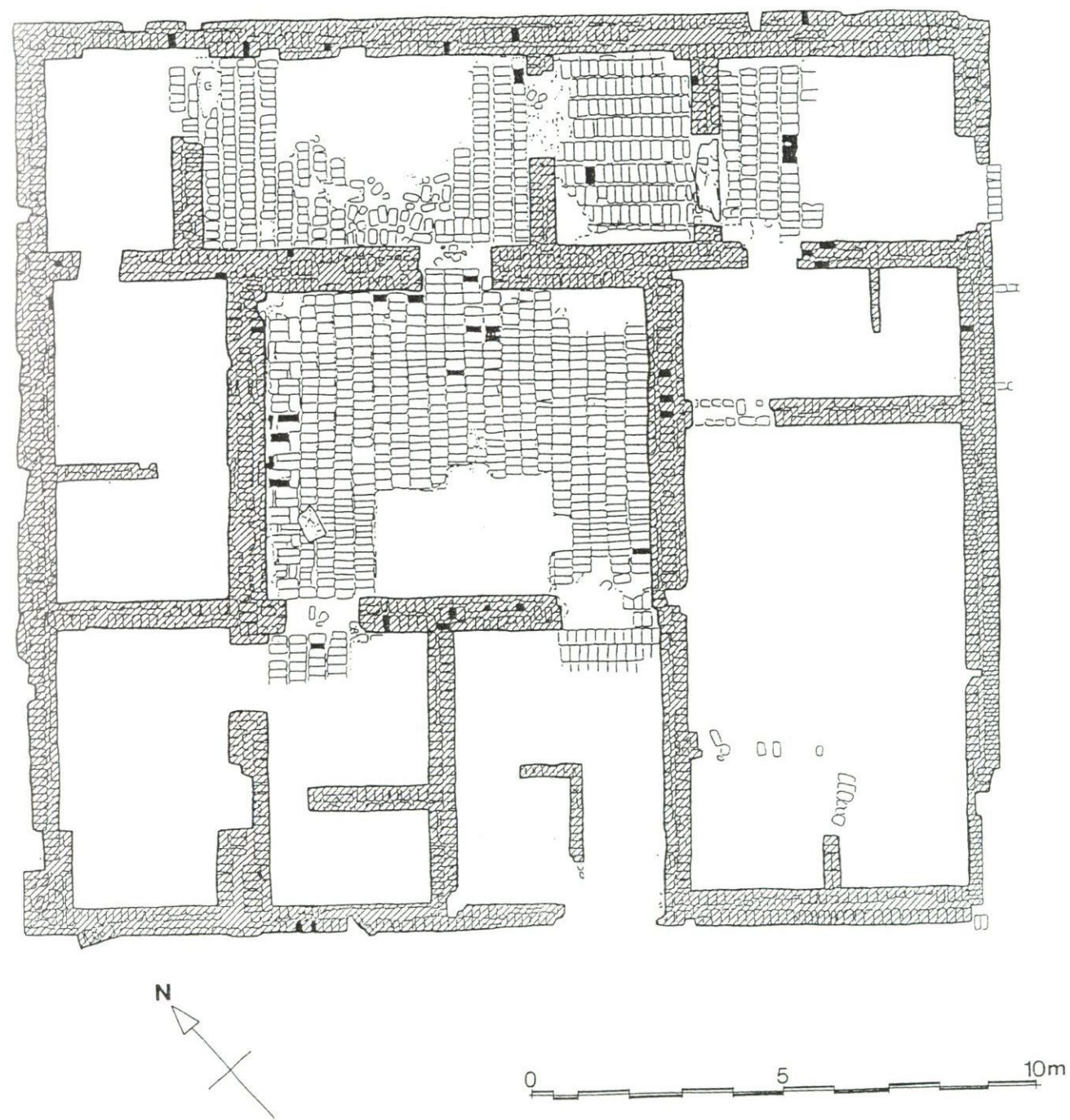


FIGURE 9 Plan of House A showing the distribution of stamped bricks with the name of Amenhotep III

in the central room at House A, traces that may indicate the presence of a projection in front of the lustration-slab are also visible. A small step ascending to the lustration-slab might be reconstructed. An oval depression, 17 cm in diameter and 14 cm in depth, was also observed almost at the centre of the room (Figs. 3, b; 5; Pl. XIIIb). However, this is too small to be regarded as a hole for accepting a stone base. Judging by its position in the room, this could well be the site of a brazier but I cannot say for sure as sufficient proof is yet forthcoming.

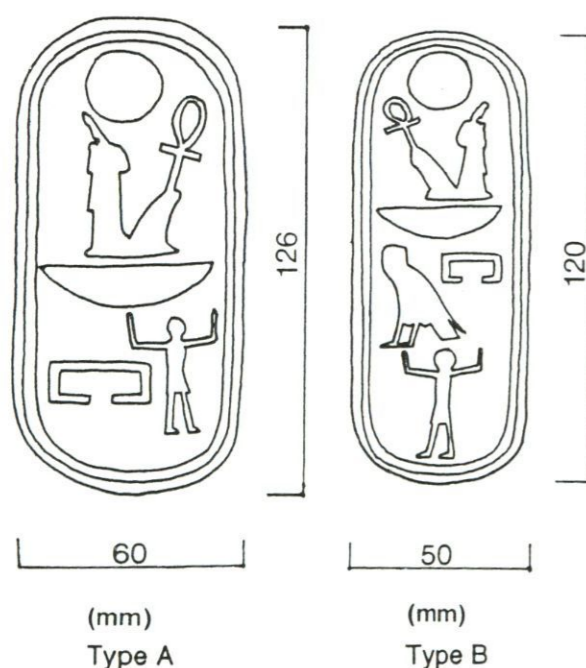


FIGURE 10 Brick stamps found at House A
(Reproduced from a drawing stored at the
Department of Architecture, Waseda University)

A limestone threshold was discovered at the foot of the west wall in its original position (Fig. 3, c; Pl. XIVa), but the doorway has been blocked by bricks. At the southwest corner of the room, a broken limestone threshold with a door pivot (Fig. 6; Pl. XIVb) was also found. It could have been originally positioned in the doorway between the central room and Area 12.

Concerning other areas, the brick arrangements of the top courses were recorded and photographed as well as in the case of Area 8. A bedchamber with a raised alcove can be clearly identified at the southwest corner of the house (Areas 14 and 15).³² The neighbouring small space (Area 13) is believed to be a bathroom or lavatory, but no traces of whitewash applied to the walls for waterproofing nor stone drainage fragments have been found so far.

In respect to the dimensions of bricks used for the house walls, the average size seems to be ca. 34×17×10 cm, which is almost equal to those of the floor bricks. Architecturally, it is remarkable that the half-sized bricks, probably produced by splitting the normal brick, have been used for corner constructions.

The thickness of walls can be divided into five types (Fig. 7), namely the thicknesses of one-half, one, one and one-half, two, and two and one-half brick-lengths; all brick bondings are shown in Fig. 8. The brick walls are composed of alternate courses of headers and stretchers. The thickest walls, two and one-half brick-lengths, are the north wall of the central room and the lateral walls of the bedchamber. A thickness of two bricks has been laid for the central room, except for the north wall, and for most of the exterior walls and a part of the bedchamber.

Large numbers of bricks stamped with the name of Amenhotep III have been found at the top of House A walls. About 40 stamped bricks from the walls and 20 from the floors have been identified in the course of investigations during the 1992–93 season, and the distribution of these is shown in Fig. 9. Though most of stamped bricks have been damaged and are illegible, at least two kinds of stamp, *Nb-m3^ct-R^c (m) pr-h^cy*, have been confirmed so far (Fig. 10; Pl. XV). The size of Stamp A is ca. 126×60 mm, and Stamp B is ca. 120×50 mm. In the description by Hayes of the brick stamps discovered at the main

palace, a similar stamp is reported (Fig. 11).³³ Regarding the distribution of the stamped bricks in the house, any deliberate disposition in the walls and floors seems not to be recognized.³⁴

DISCUSSION

Although, currently, the three houses have not been completely re-excavated, it seems possible to consider some of the architectural features with reference to the standard Amarna-type houses. On the position of the dividing wall of the north antechambers, between Areas 6 and 7 (Fig. 3, d), this is thought to be unusual in the context of the Amarna-type house. Close observations of the wall have failed to detect any traces of changes in building phases. Nevertheless, it should be noted that the large rectangular space comprising Areas 6 and 7 would be identical to the north loggia in the case of the standard Amarna-type house. In the very early construction phase, the dividing wall between Areas 6 and 7 may not have been planned, and a single transverse room in front of the central room could well have been originally intended.

At the central room, a pair of symmetrical doorways to the more private spaces has been provided at the south rear wall. To the contrary, and seemingly curious, is the fact that both the west and east walls have no doorways nor niches, excluding traces indicating the presence of a doorway once opening onto the north side of the west wall. In the larger Amarna-type houses, the niches were usually furnished as a counterpart to the actual doorway on the opposite side.

Although the standard Amarna-type house possesses a staircase for ascending to the roof or a second storey,³⁵ no traces of it have been found in House A. It is known that another square room is frequently located behind the central room in the Amarna-type houses, sometimes with a column and a brazier along with a dais. The British excavators defined this

smaller scale of the main central room as the “Women’s Room,” but recently it has been presumed that it was used as a living room for family members such as children.³⁶ In House A, it is likely that Area 10 (ca. 2.7×4.0 metres and not to square plan) corresponds to such a function, but I contend that such a room would not have been planned for this house.



FIGURE 11 Brick stamp found at the main
palace of Malqata (After W. C. Hayes,
JNES 10 [1951], Fig. 30)

Summing up the features of the three houses at Malqata, the following should be noted in view of the architecture in reference to the Amarna-type houses:

- Omission of living facilities such as kitchen, granary, and others
 - A change of floor levels gradually elevating from the entrance to the central room
 - Omission of a porch and an entrance stairway.
- On House A, further noteworthy points could be added:
- An installation of a magnificent lustration-slab with column bases in the central room
 - Omission of niches in the central room
 - An unusual disposition of the peripheral rooms without direct access from the central room.

As mentioned above, the three Amarna-type houses at Malqata cannot be regarded as normal residences. However, a study on these buildings would further contribute to research on the origins of this house type and to the field of ancient Egyptian architecture. It is hoped that

further reclearance work on the three houses may be carried out to clarify several matters in the light of architectural research.

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NOTES

1. This article is an excerpt of the author's graduation thesis written under the direction of Associate Professor Shin-ichi Nishimoto, entitled *A Study on the Origin of the Amarna-type House* (Submitted to the Department of Architecture at Waseda University, 1995); and an enlarged version of the paper, written in Japanese, by T. Endo et al., "The Amarna-type Houses at Malqata," in the *Annual Meeting of the Architectural Institute in Japan*, Vol. F (Tokyo, 1997), pp. 393–94.
2. Regarding the palace at Malqata in general, see W. Stevenson Smith, with revision by W. K. Simpson, *The Art and Architecture in Ancient Egypt*, 2nd ed. (Harmondsworth, 1981; 1st ed. 1958), pp. 281–95; A. Badawy, *A History of Egyptian Architecture: The Empire, or the New Kingdom* (Berkeley, 1968), pp. 47–54; D. O'Connor, "Malqata," *LÄ* 3, pp. 1173–77; P. Lacovara, "In the Realm of the Sun King: Malkata, Palace-City of Amenhotep III," *Amarna Letters* 3 (San Francisco, 1994), pp. 6–21; P. Lacovara, *The New Kingdom Royal City* (London, 1997), pp. 25–27. Regarding the basic structure of the palace, see E. Uphill, "The concept of the Egyptian palace as a ruling machine," in P. J. Ucko, R. Tringham, and G. W. Dimbleby, eds., *Man, Settlement and Urbanism* (Cambridge, 1972), pp. 721–34; D. O'Connor, "The City and the World: Worldview and Built Forms in the Reign of Amenhotep III," in D. O'Connor and E. H. Cline, eds., *Amenhotep III: Perspectives on His Reign* (Ann Arbor, 1998), pp. 125–72.
3. T. Nakagawa et al., eds., *Studies on the Palace of Malqata. Investigations at the Palace of Malqata, 1985–1988* (in Japanese; with English summary) (Tokyo: Chuo Koron Bijutsu Shuppan, 1993), Fig. 2-1-1.2.
4. M. G. Daressy, "Le Palais d'Aménophis III et le Birket Habou," *ASAE* 4 (1903), pp. 165–70.
5. W. M. F. Petrie, *Tell el-Amarna* (London, 1894).
6. R. de P. Tytus, *A Preliminary Report on the Re-excavation of the Palace of Amenhotep III* (New York, 1903; reprint with additional notes by Charles C. van Siclen III, San Antonio, 1994).
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9. B. J. Kemp and D. O'Connor, "An Ancient Nile Harbour: University Museum Excavations at the Birket Habu," *International Journal of Nautical Archaeology and Underwater Exploration* 3/1 (1974), pp. 101–36.
10. C. Hope, *Excavations at Malkata and the Birket Habu 1971–1974*, vol. 5, *Jar Sealings and Amphorae of the 18th Dynasty* (Warminster, 1977); M. A. Leahy, *Excavations at Malkata and the Birket Habu 1971–1974*, vol. 4, *The Inscriptions* (Warminster, 1978).
11. The Committee for the Archaeological Study in Egypt, ed., *Malkata-south I. Kom el-Samak (Hill of Fish). Archaeological and Architectural Reports* (in Japanese) (Tokyo, 1983); Y. Watanabe and S. Kazuaki, *The Architecture of 'Kom el-Samak' at Malkata-South. A Study of Architectural Restoration* [Studies in Egyptian Culture 5] (Tokyo, 1986); C. M. Zivie, M. Azim, P. Deleuze, J.-C. Golvin, *Le temple de Deir Chelouit IV: Étude*

- architecturale* (Paris, 1992), pp. 14–17; S. Yoshimura, ed., with contributions by K. Isobe, Y. Nagasaki, and J. Kondo, *Studies of the painted plaster from the site of Kom el-Samak at Malqata-South*, I (in Japanese) (Tokyo, 1995).
12. For the position of the room, see B. Porter and R. L. B. Moss, *Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts, Reliefs and Paintings*, vol. 1, *The Theban Necropolis*, part 2, *Royal Tombs and Smaller Cemeteries*, 2nd ed. (Oxford, 1964), Plan XVIII; Nakagawa et al., eds., *Studies on the Palace of Malqata*, Fig. 2-2-1.3.
 13. Shin-ichi Nishimoto, "The Ceiling Paintings of the Harem Rooms at the Palace of Malqata," *GM* 127 (1992), pp. 69–80.
 14. Lacovara, *The New Kingdom*, Fig. 40. I would like to thank Dr. Peter Lacovara, Curator at the Michael C. Carlos Museum, and Dr. Dorothea Arnold, Lila Acheson Wallace Curator in Charge of the Metropolitan Museum's Department of Egyptian Art, for permission to use the plan drawn in 1910s showing the layout of the houses. Concerning the adjacent buildings, Hayes suggests that "Ho.3.W" (West Annex C in Fig. 2) was prepared for the members of Amenhotep III's extensive family, not Akhenaten, and that the walled village was provided for minor officials or palace attendants; see Hayes, *JNES* 10 (1951), p. 35.
 15. Nakagawa et al., eds., *Studies on the Palace of Malqata*, pp. 207–10 (in Japanese), p. 297 (English abstract).
 16. The standard Amarna-type house has been cited in many publications as being the quintessential pre-Roman example of domestic architecture from the Mediterranean world; cf. B. C. Rider, *Ancient Greek Houses* (Chicago, 1964), p. 18. The basic nature of this house type was first established by Petrie, *Tell el-Amarna*, pp. 20–25; and later by H. Rieke, *Der Grundriss des 'Amarna Wohnhauses* (Leipzig, 1932). Subsequently, however, a magnificent volume by L. Borchardt and H. Rieke, *Die Wohnhäuser in Tell el-'Amarna* [WVDOG 91] (Berlin, 1980), was published, in which the plans of over 500 houses at Amarna have been clarified. Book reviews of this volume by B. J. Kemp, "The Character of the South Suburb at Tell el-'Amarna," *MDOG* 113 (1981), pp. 81–97; and J. J. Janssen, "El-Amarna as a residential City," *BiOr* 40 (1983), pp. 273–88, are also most informative. On the basis of the publication, Tietze has analyzed these houses by concentrating on statistical groupings according to parameters such as wall thickness and number of rooms; cf. C. Tietze, "Amarna: Analyse der Wohnhäuser und soziale Struktur der Stadtbewohner," *ZÄS* 112 (1985), pp. 48–84; "Amarna (Teil II): Analyse der ökonomischen Beziehungen der Stadtbewohner," *ZÄS* 113 (1986), pp. 55–78; "Amarna, Wohn- und Lebensverhältnisse in einer ägyptischen Stadt," in M. Bietak, ed., *House and Palace in Ancient Egypt* (Wien, 1996), pp. 231–37. Crocker has carried out a similar study using a database covering most of the residential housing in the main city at Amarna; cf. P. T. Crocker, "Status Symbols in the Architecture of el-'Amarna," *JEA* 71 (1985), pp. 52–65. Regarding overall plans of Amarna, see B. J. Kemp and S. Garfi, *A survey of the Ancient City of el-'Amarna* (London, 1993). It is attested that Amarna houses were suited to prevailing weather conditions by A. Endruweit, *Städtischer Wohnbau in Ägypten: Klimagerechte Lehmbauweise in Amarna* (Berlin, 1994). Much attention has been drawn by many scholars; nevertheless, the origin of this house type is still uncertain. Rieke discusses the evolution of the basic ground plan of the Egyptian houses from the predynastic "Urtyp" to the simple tripartite residence of the New Kingdom, and demonstrates how this basic plan evolved into more complex residences for the elite at Amarna; see H. Rieke, *Der Grundriss des 'Amarna Wohnhauses*, pp. 13–15. H. W. Fairman insists that the Amarna house is fully in keeping with tradition; cf. "Town Planning in Pharaonic Egypt," *The Town Planning Review* 20 (1949), pp. 32–51, esp. p. 42; and F. Arnold suggests that the Kahun houses are forerunners to the standard Amarna house type; cf. "A Study of Egyptian Domestic Buildings," *VA* 5 (1989), pp. 75–93. On the contrary, Lacovara suggests that the Amarna house cannot be regarded as an evolution of the standard Egyptian house, but as a conscious and deliberate borrowing from traditional New Kingdom palatial architecture; cf. Lacovara, *The New Kingdom*, pp. 52–67, esp. p. 60. A few examples similar to the standard Amarna-type house, probably dating to the late 18th Dynasty, have been discovered at Giza in front of the Valley Temple of Chephren and outside the modern town along the road to Luxor airport; cf. U. Hölscher, *Das Grabdenkmal des Königs Chephren* (Leipzig, 1912), pp. 80–87, Fig. 75; Lacovara, *The New Kingdom*, pp. 61 and 62, respectively. One more parallel should be pointed out at Kom el-'Abd, where the typical Amarna house had been changed into a platform for a royal rest-house; cf. B. J. Kemp, "A building of Amenophis III at Kom el-'Abd," *JEA* 63 (1977), pp. 71–82; *Ancient Egypt: Anatomy of a Civilization* (London, 1989), pp. 218–21. It is noteworthy that a bedchamber in the house is almost the same in size as the king's bedroom at the main palace

- at Malqata (personal observation by the author). Assaad suggests, on the basis of an analysis of representations of houses in the Theban tombs of the New Kingdom, that Amarna-type houses had also existed at Thebes; cf. H. A. Assaad, "The House of Thutnefer and Egyptian Architectural Drawings," *The Ancient World* 6 (1983), pp. 3–20.
17. According to Crocker's database, approximately 65% of the population lived in houses of less than 100 square metres whereas the next increment in size (houses between 100 and 200 square metres) accounts for only about 21%, and a further increment of 100 square metres accounts for as little as 8%. Houses with over 350 square metres are no more than 5% at Amarna, so the size of House A, about 360 square metres, should be particularly noted; cf. P. T. Crocker, *Social and Spatial Groupings among the Domestic Quarters at el-Amarna, Egypt* (unpublished M. Phil. University of Cambridge, 1981); Also see I. Shaw, "Ideal Homes in Ancient Egypt: the Archaeology of Social Aspiration," *Cambridge Archaeological Journal* 2/2 (1992), pp. 147–66, esp. p. 158, Fig. 9.
18. A similar aspect, a reassembled relief scene executed on the Talatat blocks in the Luxor Museum, or a representation on the east wall of the second courtyard at the tomb of Horemheb at Saqqara could be recalled. In the former, three independent houses are depicted, almost similar in plan, but it is noted that one of them is slightly larger than the others like House A; Jean Lauffray, *Cahiers de Karnak VI, 1973–1977* (Le Caire, 1980), pp. 74–87. Traunecker points out that they represent the standard Amarna-house; see C. Traunecker, "Les maisons du domaine d'Aton / Karnak," *CRIPÉL* 10 (1988), pp. 73–93. Gohary suggests a number of scenes on the Talatat from the Karnak temple may show parts of the Sed-Festival of Amenhotep IV / Akhenaten; cf. J. Gohary, *Akhenaten's Sed-Festival at Karnak* (London, 1992), esp. p. 168. At the tomb of Horemheb at Saqqara, five independent houses are depicted, also similar in plan. H. D. Schneider suggests that one of them probably belonged to the great commander Horemheb and they provide us with valuable information as to the appearance of domestic architecture at the end of the 18th Dynasty in the Memphite area; cf. G. T. Martin, *The Memphite Tomb of Horemheb, Commander-in-Chief of Tutankhamun, I* (London, 1989), pp. 104–05, Pl. 125.
19. See Hayes, *JNES* 10 (1951), esp. p. 177.
20. Cf. "Notes and News," *Egyptian Archaeology* 6 (1995), p. 17; C. Leblanc, "Thèbes et les pluies torrentielles," *Memnonia* 6 (1995), pp. 197–214, esp. pp. 206, 212, n. 52.
21. Kemp, *Ancient Egypt*, esp. pp. 296–98.
22. It is noted that House M50.8 has a simple entrance step at the north side; see L. Borchardt and H. Ricke, *Die Wohnhäuser in Tell el-Amarna*, Plan 95. The same identical feature occurs at the so-called Priest's House at the Small Aten Temple at Amarna; I would like to thank B. J. Kemp, McDonald Institute for Archaeological Research, Faculty of Oriental Studies at the University of Cambridge, for providing the information with valuable suggestions on House A.
23. B. J. Kemp, "The City of el-Amarna as a Source for Study of Urban Society in Ancient Egypt," *World Archaeology* 9/2 (1977), p. 133; P. T. Crocker, "Uses of Space in Amarna Architecture: Domestic and Royal Parallels," *Bulletin of the Australian Centre for Egyptology* 3 (1992), p. 12. According to Crocker's database, from the largest 120 houses (of 783), only 15 do not possess an outside porch, and of the top 60, only 4.
24. Attested by many examples in L. Borchardt and H. Ricke, *Die Wohnhäuser in Tell el-Amarna, passim*. Most of doors open inward towards the right; cf. H. G. Fischer, "Egyptian Doors, Inside and Out," in *Egyptian Studies*, vol. 3, *Varia Nova* (New York, 1996), pp. 91–102, esp. p. 91, n. 2.
25. Crocker suggests the function of the vestibule being an outside porch and vestibule as transitional rooms for passing through, in which a person is able to slowly adjust from the heat, dirt, and brightness of the exterior environment to the relative cool, clean, and shade of the interior of the house, and of its central room in particular; cf. Crocker, *JEA* 71 (1985), pp. 57–58.
26. These figures can be converted into 14 small cubits north-south and 17 small cubits east-west. According to the report on the excavation of House P46.33 at Amarna by Bomann, the internal divisions of the house correspond more closely to the use of the short cubit (0.45 metres). She points out that the ancient builder first constructed the outermost rectangular walls and the peripheral rooms surrounding the central hall by using the short cubit, and as the result of this work, the space remaining is the central room; cf. A. Bomann, "Report on the 1987 excavations: the

- excavation of House P46.33," *Amarna Reports* 6 (1995), pp. 22–25. However, it appears to be difficult to apply this interpretation to House A on the basis of a small cubit. (For example, the internal measurement of Area 7 does not correspond to the small cubit nor to the royal cubit).
27. Cf., for example, the brick dais in the central room of House Q46.12; the vestibule of House P47.22; see L. Borchardt and H. Ricke, *Die Wohnhäuser in Tell el-Amarna*, Plans 9, 32, respectively.
28. Only one wooden column is sometimes erected.
29. The largest examples at Amarna are, for instance, seen in House P47.2 (1.45×2.7 metres), and House P45.2 (1.5×1.9 metres); cf. L. Borchardt and H. Ricke, *Die Wohnhäuser in Tell el-Amarna*, Plans 27 and 63, respectively.
30. Suggested by Dr. D. Arnold, Curator of the Egyptian Department in the Metropolitan Museum of Art, by personal communication. I would like to thank him for providing comments on the house.
31. Cf. J. D. S. Pendlebury, *The City of Akhenaten III* (London, 1951), pp. 22–25, Pl. X.
32. The bed alcove is common in large houses at Amarna, but also occurs in other buildings which may not have been normal residences: therefore, some alcoves may have served as rest-rooms (suggested by B. J. Kemp, personal communication).
33. Hayes has reported that there are also slight differences in detail versions; see Hayes, *JNES* 10 (1951), p. 164.
34. A detailed plan showing the distribution of the stamped bricks seems not to have been reported until now. I would like to thank Dr. A. J. Spencer, Assistant Keeper in the Department of Egyptian Antiquities, British Museum, for providing suggestions and information on this problem (personal communication).
35. An internal staircase in the standard Amarna-type house is commonly assumed to lead just to the roof, a useful area for storage and summer sleeping, except for the case of the large houses where an upper room may have lain over the front part of the house. This offered a greater degree of privacy suitable for the important behavioural sphere of womanhood. Recent excavations at Amarna, however, have shown that this upper room may have been far more widespread; cf. Kemp, *Ancient Egypt*, p. 296; "Site formation processes and the reconstruction of house P46.33," *Amarna Reports* 6 (1995), esp. pp. 152–58.
36. Cf. Crocker, *Bulletin of the Australian Centre for Egyptology* 3 (1992), pp. 17–18.