# Old Kingdom, New Perspectives

## Egyptian Art and Archaeology

### 2750–2150 BC

edited by

Nigel Strudwick and Helen Strudwick

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# Contents

# Foreword

There can be no academic subject for which the general public has such an inexhaustible appetite as Egyptology, and no period more so than the age of the pyramids. But the popular writings in this area are notoriously variable. While there is no shortage of reliable and accessible surveys by leading scholars in the field, neither does one have to look far on book lists to find an abundance of 'pyramidology' and other nonsense which also finds a wide audience. It was therefore a very welcome opportunity that arose when Helen Strudwick proposed that the 2009 Old Kingdom Art and Archaeology conference be held at the Fitzwilliam Museum in Cambridge so as to coincide with our annual Glanville Lecture on Egyptology, thus bringing the fruits of recent excavation and research by leading scholars to a wide general audience. The resulting event, held on 20–23 May 2009, consisted of a three-day meeting of specialist researchers, followed by a day of talks by some of the foremost experts in the Old Kingdom, to which the public was also invited, all culminating that evening in the Glanville Lecture delivered by Dr Jaromir Malek on 'A city on the move: Egypt's capital in the Old Kingdom'. This volume publishes all but three of the twenty-seven papers presented at the conference, plus one additional offering.

The Fitzwilliam Museum is fortunate to have one of the most important collections of Egyptian antiquities in the UK and thus provides a very appropriate setting for the OKAA conference. The earliest Egyptian object to arrive – a very fine Third Intermediate Period coffin

set – was given in 1822, only six years after the bequest of Viscount Fitzwilliam created the museum, and a quarter century before the building erected to house its collections first opened its doors. Since then the Museum's Egyptian collection has grown to nearly 17,000 objects, of which some one thousand are on display. The Egyptian galleries were refurbished in 2006 and remain the most popular in the museum.

Stephen Glanville, after whom the lecture is named, was Professor of Egyptology at Cambridge (1946–1956), as well as being Chairman of the Fitzwilliam's Syndicate and Honorary Keeper of Antiquities. Glanville saw it as essential that the Museum's Egyptian collections were actively used in teaching – as is still the case today – and that they continue to grow through acquisition. His commitment to engaging the public in the fascinating discoveries of professional Egyptologists has been continued by the Museum by the holding of a lecture bearing his name since 1977. We were delighted that Jaromir Malek accepted the invitation to give the 2009 lecture; and that so many distinguished scholars of Old Kingdom Egypt were able to attend the conference with which it was paired.

Special thanks are due to Helen Strudwick, at the time Senior Assistant Keeper, Antiquities, and Nigel Strudwick, the organisers of the conference, who have also edited the papers published here.

Timothy Potts
Director
The Fitzwilliam Museum
Cambridge

# Introduction

This volume presents twenty-five of the twenty-seven papers presented at the 2009 Conference Old Kingdom Art and Archaeology, generously hosted by the Fitzwilliam Museum in Cambridge. The history of these Old Kingdom meetings was admirably summarised by Miroslav Bárta in his Foreword to the proceedings of the 2004 conference, held in Prague, and it would be superfluous to repeat it here. The contents of the present volume show the wide range of subjects which this research group now embraces, from the Pyramid Texts through site reports, from the analysis of statue orientation to attempts to study the spatial arrangement of Old Kingdom cemeteries. Some of the papers are substantially the same as those presented at the meeting, but the editors have encouraged authors, where they feel it is necessary, to expand upon their ideas and to take them beyond the limited range of material which can be presented in a twenty-minute talk. One further paper which could not be presented at the conference is also included.

We were delighted to welcome to Cambridge colleagues from all over the Egyptological world, and they fairly represent where the Old Kingdom is studied most. We are delighted to be able to include the paper from Abdou el-Kerety (better known to his friends and colleagues as Hatem); visa problems meant that he was regrettably unable to be present at the conference, despite our best efforts with the UK authorities, but his contribution was read and appreciated in his absence. The paper of Gabriele Pieke could not be presented at the conference but we are happy to be able to include it. The longest paper presented here is by Mark Lehner and his co-authors and is a report on progress of his excavations at Giza; this has turned into a

substantial publication and analysis and it is a great pleasure to be able to include it in this volume.

The final day of the conference was open to the public, focusing more particularly on papers relating to the archaeology and monuments of the Memphite region. This, and indeed the conference as a whole, formed a precursor to the thirty-third Stephen Glanville Memorial Lecture. This annual event, hosted by the Fitzwilliam Museum, has been an important fixture in the Cambridge and UK Egyptological calendar since 1977. In 2009, the Lecture was given by Dr Jaromir Malek on the subject 'A city on the move: Egypt's capital in the Old Kingdom'.

The editors would like to thank many persons without whose help and assistance the 2009 Old Kingdom Art and Archaeology meeting could not have taken place. First and foremost, we are deeply indebted to Dr Timothy Potts and all the staff of the Fitzwilliam Museum for enabling the events to take place so successfully, and for ensuring the efficient operation of everything from computer projectors through to the teas and coffees which sustained us. We also thank our colleagues whose enlightening papers and discussion made the meeting the success it was, and we acknowledge their efforts in enabling the completion of the manuscript just over two years since the meeting.

We are delighted to acknowledge the help and assistance offered by Oxbow Books in taking this publication into their archaeological series. To our editor, Clare Litt, and the head of production, Val Lamb, go our profound thanks for their advice and support.

Nigel Strudwick
Helen Strudwick

# Village, town and barracks:
# a fourth dynasty settlement at
# Heit el-Ghurab, Giza

## Ana Tavares

The Giza Plateau Mapping Project (GPMP)[1] evolved from its beginnings in surveying and mapping the landscape at Giza into a large-scale settlement excavation in the area known as Heit el-Ghurab ('Wall of the Crow').[2] The site is named after its most distinguishing feature, a 10 m tall, 200 m long stone wall, below the eastern edge of the southern Giza escarpment (el-Gebel el-Qibly). Twenty years of excavation salvaged an extensive area of fourth dynasty settlement dated to the reigns of Khafre and Menkaure.[3] The town was abandoned and dismantled when the Giza pyramid building projects came to an end. Soon thereafter, forces of erosion cut what is essentially a horizontal section through the site before it was buried by a thick layer of sand.[4] There seems to have been no further occupation at the site until its use as a burial ground starting from the

25th dynasty and continuing until Roman times (second century AD).[5]

Three distinct urban areas (Galleries, Eastern Town and Western Town) comprise the fourth dynasty settlement. Their distinctness is reflected in the urban layout, size and design of structures,[6] and by the patterns emerging in the distributions of faunal, botanical, lithic and ceramic material.[7] These distinct urban areas are linked by streets, gates and enclosure walls.[8] While excavating and recording, and for ease of reference, Lehner named structures and parts of

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[1]  The Heit el-Ghurab site is extensively published in preliminary reports and articles. This text is essentially a bibliographical summary of the team's publications. A number of publications, including *AERAGRAM* and the Ancient Egypt Research Associates (AERA) *Giza Occasional Papers* (henceforth GOP) are available for download on the project's web site http://www.aeraweb.org/ (accessed 18 October 2010).

[2]  M. Lehner, 'Introduction', in M. Lehner and W. Wetterstrom (eds), *Project History, Survey, Ceramics, and the Main Street and Gallery III.4 Operations* (AERA Giza Reports 1; Boston 2007), 3–50.

[3]  The only inscribed material retrieved at the site consists of mud sealings some of which can be dated to the reigns of Khafre and Menkaure: J. Nolan, *Mud Sealings and Fourth Dynasty Administration At Giza* (PhD dissertation, Dept. of Near Eastern Languages and Civilizations, The University of Chicago, June 2010). The ceramics material confirms a mid-fourth dynasty date, A. Wodzińska 'Preliminary Ceramic report', in Lehner and Wetterstrom (eds), *Giza Reports* 1, 283–342.

[4]  Lehner in Lehner and Wetterstrom (eds), *Giza Reports* 1, 27, 39–40.

[5]  J. Kaiser, 'Mapping Late Period Burials' in M. Lehner, M. Kamel and A. Tavares (eds), *Giza Plateau Mapping Project, Season 2005, Preliminary Report* (GOP 2; Boston 2006), 77–79. For the dating of the burials I thank Sabine Laemmel (personal communication 2010).

[6]  Lehner in Lehner and Wetterstrom (eds), *Giza Reports* 1, 43–50.

[7]  M. Lehner, 'Life Stories of the Pyramid City Unfold', *AERAGRAM* (2003) 6.2, 1–5; R. Redding, 'Gallery III.4 faunal remains', in Lehner and Wetterstrom (eds), *Giza Reports* 1, 263–269; R. Redding, 'Status and Diet at the Workers' Town, Giza, Egypt' in D. Campana, P. Crabtree, S. deFrance, J. Lev-Tov, and A. Choyke (eds), *Anthropological Approaches to Zooarchaeology: Colonialism, Complexity and Animal Transformations* (Oxford 2010 forthcoming); Wodzińska, in Lehner and Wetterstrom (eds), *Giza Reports* 1, 283–342; M.A. Murray 'Feeding the Town: New Evidence from the Complex of the Giza Pyramid Builders', *General Anthropology* 11 (2005), 1–8.

[8]  M. Lehner and A. Tavares, 'Walls, Ways and Stratigraphy: Signs of Social Control in an Urban Footprint at Giza', in M. Bietak, E. Czerny and I. Forstner-Müller (eds), *Cities and Urbanism in Ancient Egypt. Papers from a workshop in November 2006 at the Austrian Academy of Sciences* (UZK 35; Vienna forthcoming). Enclosure walls are important defining elements in settlements: B. Kemp, *Ancient Egypt: Anatomy of a Civilisation* (New York 2006), 194–197, B. Kemp, 'Egypt's Invisible Walls', in *CAJ* 14 (2004), 259–260; N. Moeller, 'Evidence for Urban Walling in the Third Millennium BC', in *CAJ* 14 (2004), 261–265.

the settlement as Galleries, Royal Administrative Building, Main Street, Eastern and Western Towns, and so on. These are working designations and do not necessarily define the original function of the structures or areas. A plan of the site will found as Plate 14.

## Barracks

The central part of the settlement is a set of four blocks of 'Galleries', laid out orthogonally and separated by three broad (10 cubits wide) and straight roads running east–west. The southern blocks are built back to back, creating a massive structure with north–south walls running for 70 m. The central road, Main Street, separates Gallery Set II from Gallery Set III and leads to the only known gate in an enclosure wall.[9] We have excavated one unit (Gallery III.4) in its entirety, and have found that it has a central low bench running along its length into which stone bases, probably for slender wooden columns, are sometimes embedded at regular intervals close to five cubits. The main space is divided in two and has a series of bed platforms across the width, with a 'house' at the back, possibly for an overseer.[10] Lehner has hypothesised that a royal guard (*nfrw*), rather than just workers, might have been housed in the Galleries.[11] Material culture excavated from the barracks indicates that the site was centrally provisioned. There are parallels in the material culture (pottery, finds, botany and faunal remains) of other centrally provisioned fourth dynasty sites, such as Sheikh Said and Wadi Garawi which housed a workforce for quarry and damn construction work respectively.[12]

## The Royal Administrative Building (RAB)

A thick, and presumably tall, masonry wall separated this large building from the Galleries and from the Eastern Town. In the later phase of the complex, when the structure was remodelled and the silos were built in a sunken courtyard at the back of the building, a double masonry wall forming a covered and secure street surrounded the entire complex.[13] Access to this building and to the magazines that

lined up on the west was strictly controlled. The enclosure wall, running south from the Wall of the Crow, curves to the east separating the southern end of the Gallery Complex from the northern part of the Western Town. It then turns twice at 90 degree angles, firstly north and then east, around the perimeter of the RAB creating an enclosed street. The southern end of the RAB building has not yet been recorded as it lies below the modern Abu Hol sports club. The RAB Street was accessible through an opening at the north-east corner of the RAB enclosure presumably the back of this layout, and this access point also controlled access to the Western Town.[14]

## Village

The Eastern Town shows a more self-organised urban pattern, with small courts and chambers comprising houses that are smaller than those in the Western Town. We excavated one small urban estate; a core house surrounded by courts covering an area around 100 square metres. Non-orthogonal, small streets and passages characterise this part of the settlement, which contains small hearths and silos. The analysis of material culture from the Eastern Town reflects a village economy, with higher density and variety of plant items and evidence of pig raising.[15] This town extend eastwards under the modern town of Nazlet es-Samman.[16]

## The Western Town

The Western Town is an area of large houses and production units to the south and west of the site. The houses here are very large. House Unit 1 covers an area of 400 m². In this house we have recorded 21 rooms. A very private bedroom at its core includes a double bed platform and painted plastered walls. The other rooms of this house contain storage bins, pedestals and a bakery at the south-eastern corner.[17] To the southeast we have recorded another house,

[9]   M. Lehner, 'The Pyramid Age Settlement of the Southern Mount at Giza', *JARCE* 39 (2002), 27–74.

[10]   A. Abd el-Aziz, 'Main Street Excavations', in Lehner and Wetterstrom (eds), *Giza Reports* 1, 109–140.

[11]   M. Lehner, '*Zau* of What? The Royal Guard?', *AERAGRAM* 7.1 (2004), 14–15.

[12]   G. Dreyer and H. Jaritz 'Die Arbeiterunterkunfte am Sadd al-Kafara', *Mitteilungen des Lichtweiss-Instituts für Wasserbau der Technischen Universität Braunschweig, Braunschweig* 81 (1983), B2–20; G. Dreyer and H. Jaritz, 'Wadi Garawi Dam', in [Ausgrabungen, Forschungsreisen, Geländebegehungen]. Ägypten, *Archiv für Orientforschung* 32 (1985), 128–184, Harco Willems et al., 'An industrial site at al-Shaykh Saʿid/Wadi Zabayda' in *Ä&L* 19, forthcoming.

[13]   F. Sadarangani 'Summary of BB Excavations, 2006–2007' in M.

Lehner, M. Kamel and A. Tavares (eds), *Giza Plateau Mapping Project, Season 2006–2007, Preliminary Report* (GOP 3; Boston 2009), 61–65 with further references, and Lehner, Kamel and Tavares (eds), GOP 2, 43–60.

[14]   M. Lehner and F. Sadarangani, 'Beds for Bowabs in a Pyramid City', in Z. Hawass and J. Richards (eds), *The Archaeology and Art of Ancient Egypt. Essays in Honor of David B O'Connor* II (CSA ASAE 36; Cairo 2007), 59–81.

[15]   Murray, *General Anthropology* 11 (2005), 1–8; Redding, in Lehner and Wetterstrom (eds), *Giza Reports* 1, 263–269; Redding, in Campana et al. (eds), *Anthropological Approaches to Zooarchaeology* (Oxford forthcoming).

[16]   M. Jones, 'A new Old Kingdom settlement near Ausim: report of the archaeological discoveries made in the Barakat Drain Improvements Project', *MDAIK* 51 (1995), 85–98, A. El-Sanussi and M. Jones, 'A site of the Maadi Culture near the Giza Pyramids', *MDAIK* 53 (1997) 241–253.

[17]   M. Lehner, 'Bakery or Brewery in House Unit 1?', in M. Lehner

House Unit 3, which features a central open courtyard with a tree pit.[18] A mounded dump between two of the large houses yielded high numbers of cattle bone and thousands of formal sealings, documenting administration by high-ranking scribes with ties to the vizier's office.[19] Area AA to the west contains the Pedestal Building, founded on a higher level beyond a thick fieldstone and mud-brick wall. This layout may have related to specialised storage in compartments raised upon the pedestals and possibly malt production.[20]

## Early Phase

We do not know if all the elements comprising the Heit el-Ghurab overall site map were contemporary. We have intimations of an early layout of the settlement and we recognise phases of site development.[21] For instance, the northern block of galleries, Gallery Set I, predates the construction of the massive Wall of the Crow that bounds the site on the north. Gallery Set III initially had entrances on the south, which became internal doorways with the construction of Gallery Set IV. The initial layout of the barracks might have consisted of Gallery Sets I, II and III separated by east–west broad streets (see figure A).[22] We have recorded parts of what might have been an early limestone enclosure wall and gate just south of the Chute and southwest of the Main Street gate through the later enclosure wall.[23] In the north-western corner of the large RAB (Complex 2), we excavated an early layout (Complex 2), that was functioned prior to the construction of the enclosure wall. The RAB complex (Complex 1), including the sunken courtyard with large storage silos, was built in a later remodelling of the site. The enclosure wall was likewise built after Complex 1, and it formed with the outer RAB wall a street north and west of the RAB.[24] We have

also recorded parts of an early industrial area, possibly for faience production, to the southeast of the Hypostyle Hall in the area we term EOG, which was later given over to bread production.[25] At the northeast of the site, very large, early mud-brick structures emerged in the sections of the modern machine cuts (BBHT and BBHT2) on the eastern edge of the Galleries Set II and III, both to the south and north of Main Street.[26]

## Giza settlement levels

The general elevation of the top of the Heit el-Ghurab settlement ruins is around 16–17 m asl (Above Sea Level), while the settlement recorded further east under the modern town of Nazlet es-Samman is around 14.70 m asl.[27] Lehner, El-Sanussi and Jones suggest that the Old Kingdom flood plain is around 12–13 m asl in the Giza area, with flood peak maximum at around 14.50 m asl.[28] Lehner sees the modern 18 m contour line as a residual trace of fourth dynasty harbours.[29] The Heit el-Ghurab site is on the desert edge, built on sands and gravels, and to the north built partly on the wadi fan, hence the lowest recorded levels of occupation are around 14.80 to 15.00 m asl. Parts of the site show thick gravel and limestone chip dumped deposits used to level and build-up the surface prior to building.

The Eastern Town seems to have been built on a land spur extending east[30] with the settlement sloping down to the north (N99,130) and to the south (N99,010). To the east of Heit el-Ghurab, under the modern town, the Old Kingdom settlement is estimated to extend over 3 km² and may have consisted of three main conglomerations, spreading ribbon-like on both sides of the Bahr el-Libeini canal.[31] This canal runs along the eastern desert escarpment and has long been thought to indicate a residual Nile

(ed.), Giza Plateau Mapping Project, Season 2009, Preliminary Report (GOP 5; Boston 2011), 131–133; F. Sadarangani and Y. Kawae, 'Soccer Field West, House Unit 1, 2009', in Lehner (ed.), GOP 5, 135–145.

[18]  Lehner, Kamel and Tavares (eds), GOP 2, 74–76.

[19]  J. Nolan and A. Pavlick, 'Impressions from the Past: Seals and Sealings from Pottery Mound' in AERAGRAM 9.1 (2008), 2–4

[20]  M. Lehner 'Enigma of the Pedestal Building: Desert Refrigerator, Malting Machine, or Both?' in S. Ikram and A. Dodson (eds), Beyond the Horizon, Studies in Egyptian Art, Archaeology, and History in Honour of Barry J. Kemp (Cairo 2009), 182–214.

[21]  M. Lehner, 'The Older Phase: A Glimpse of the Early Pyramid Age at Giza', AERAGRAM 3.1 (1999), 8–11.

[22]  Lehner, JARCE 39 (2002), 27–74.

[23]  Recorded by Adel Kellany in a deep probe which descended to 14.66 m asl, see M. Lehner, M. Kamel and A. Tavares, Giza Plateau Mapping Project, Season 2004, Preliminary Report (GOP 1; Boston 2009), 10.

[24]  Sadarangani, in Lehner, Kamel and Tavares (eds), GOP 3, 61–65 with further references, F. Sadarangani 'The Royal Administrative

Building' in M. Lehner and W. Wetterstrom (eds), Giza Reports 2 (Boston forthcoming).

[25]  Lehner, Kamel and Tavares (eds), in GOP 3, 49–59; Lehner, Kamel and Tavares (eds), GOP 2, 35–39. EOG indicates 'East of the Galleries', an area of auxiliary structures extending east from the galleries to the eastern enclosure wall.

[26]  Lehner, Kamel and Tavares (eds), GOP 3, 30–35.

[27]  El-Sanussi and Jones, MDAIK 53 (1997), 241–253.

[28]  Jones, MDAIK 51 (1995), 85–98; El-Sanussi and Jones, MDAIK 53 (1997), 241–253; Lehner, Kamel and Tavares (eds), GOP 3, 142.

[29]  Z. Hawass 'The Discovery of the Harbors of Khufu and Khafre at Giza' in C. Berger and B. Mathieu (eds), Études sur l'Ancien Empire et la nécropole de Saqqara dédiées à Jean-Philippe Lauer (Montpellier 1997), 246–250; Z. Hawass and M. Lehner, 'Builders of the Pyramids' in Archaeology (January/February 1997), 30–43.

[30]  Lehner, JARCE 39 (2002), 27–74.

[31]  The Bahr Yusuf and the Bahr el-Libeini are essentially parts of the same waterway: D. Jeffreys, The Survey of Memphis VII. The Hekekyan Papers and other sources for the Survey of Memphis (Excavation Memoir 95; London 2010), 49, 25.

branch.[32] The Eastern and Western Towns do not show substantial depth of occupation, although there is evidence of extensive remodelling within structures. Once the settlement was dismantled and abandoned, the site seems to have suffered severe erosion, as evident in the central area of the Western Town, where an outlying tomb from the Old Kingdom cemetery is built over already eroded and denuded house structures.[33]

The site dips into a low-lying area in the south along the southern limit of the Eastern Town and the eastern edge of the Western Town. This depression seems to extend under part of the modern soccer field (see Plate 14, area designated as Lagoon 1). Surprisingly, there are substantial architectural remains to the south of this low lying area. The structures, named Standing Wall Island, are adjacent to the south-west corner of the modern soccer field and consist of mud-brick and limestone walls preserved to a height of 1.5 m. They have a different alignment than other buildings at the Heit el-Ghurab, which are aligned just 3° west of north while this structure is at 21° west of north.[34]

### What bounded the site at the north-east?

On the north the site is bounded in its later phases by the Wall of the Crow, which abutted an existing second phase of Gallery Set I. A trench off the immediate eastern end of the Wall of the Crow found an earlier phase of the western wall of Gallery Set I, 0.80 m to the east of the last phase.[35] There is no trace of a northern boundary wall on the north-east of the site (except the northern wall of Gallery Set I). Excavations show parts of an eastern boundary wall (area MSE) separating the Galleries from the Eastern Town.[36] Why there was no need to build a northern boundary beyond the western side of Gallery Set I? If Gallery Set I originally extended as far east as Gallery Sets II and III it would have covered an area of 3,500 m². It would form a solid block possibly providing enough of a boundary to the site. Another possibility is that the site was bounded on the north-east by a harbour delivery area.[37]

The settlement ruins disappear in the north-east part of the site (see Plate 14). Deep sondages that we excavated in 2002 within the foundation trench of the modern security wall, to the north of the projected line of Main Street (N99,140), showed no settlement within the usual Old Kingdom horizon around elevation 15–17 m asl. Test trenches in the north-east of the site, designated LNE (see Plate 14, coordinates N99,200–210 and E500,750.5–765.5) revealed at 15.66 m asl a patch of Old Kingdom surface but no architectural remains.[38] The settlement extends southwards (down to N99,010) around the RAB but not into the low-lying area further south (see below and Plate 14). The relocation of the soccer field would enable us to gain a better understanding of the southern part of the site.

The extensive settlement to the south of the Wall of the Crow contrasts with the situation to the north of this wall where there are no built structures, simply ephemeral installations on prepared Old Kingdom surfaces of dumped limestone rubble extending at least 30 m north of the gate in the Wall of the Crow. At the eastern end of this wall, we found the remains of a construction ramp or embankment, designated 'masons' mound.'[39] We also have a contrasting picture on the north-east of the site where there are substantial architectural remains from the early phase in the area immediately east of a large modern backhoe trench (BBHT), but we cannot trace the settlement further north and east (to the east of Gallery Set I and in LNE, the far eastern sondage).[40] After the site was dismantled, and mined for mud-brick and sand, the forces of erosion cut a horizontal section through the settlement. We are still investigating these processes. In the area of the BBHT at 17 m asl we see flood deposits, showing a rippled surface with laminations of sand and fine silts created by floods. The highest silt layers date to the Graeco-Roman period on the basis of embedded pottery sherds.[41]

### What is missing at Heit el-Ghurab?

Certain structures have not been identified at the Heit el-Ghurab site. These are: a water storage area, latrines and middens, and cult structures. We might expect a water storage area, possibly extra-mural near a gate, similar to the *zir* area at the workmen's village at Amarna,[42] or water tanks such as those found at the Khentkaues and Menkaure settlements at Giza.[43] It is possible that water was easily

[32] Jeffreys and Tavares, *MDAIK* 50 (1994), 155, or possibly indicative of the ancient Nile bed: Jeffreys, *The Survey of Memphis* VII, 73, K. Lutley and J. Bunbury, 'The Nile on the Move', *Egyptian Archaeology* 32 (2008), 3–5.

[33] Lehner, Kamel and Tavares (eds), GOP 1, 38–39.

[34] Lehner, Kamel and Tavares (eds), GOP 1, 39–44.

[35] Lehner, *JARCE* 39 (2002), 27–74.

[36] Lehner, *JARCE* 39 (2002), 27–74; Lehner, Kamel and Tavares (eds), GOP 3, 30–40.

[37] G. Goyon, 'Les ports des pyramides et le grand canal de Memphis', *RdE* 23 (1971), 137–153. M. Lehner, 'Valley Complex for a Queen Who Would be King', in *AERAGRAM* 10.2 (2009), 7–9.

[38] Lehner in Lehner and Wetterstrom (eds), *Giza Reports* 1, 37–39

[39] For the work on the north of the Wall of the Crow see Lehner, Kamel and Tavares (eds), GOP 1, 45–54; Lehner, Kamel and Tavares (eds), GOP 2, 21–31; and Lehner, Kamel and Tavares (eds), GOP 3, 12–24.

[40] Lehner, Kamel and Tavares (eds), GOP 3, 30–35.

[41] K. Butzer, ' When the desert was in flood...', *AERAGRAM* 5.1 (2001), 3–5.

[42] A. C. Renfrew, 'Survey of site X2', in B. Kemp, *Amarna Reports* IV (EES OP 5; London 1987), 87–102.

[43] S. Hassan, *Excavations at Giza* IV (Cairo, 1943); M. Lehner, 'Ascending Giza on a Monumental Ramp', in *AERAGRAM* 11.1 (2010), 8–13; D. Driaux, 'The Pyramid Complex of Khentkawes and Menkaure Valley Temple Water Installations: Etat de la question',

available either from a harbour to the northeast of the site[44] or from the main Nile channel which might have flowed only 200 m to the east of the Heit el-Ghurab site.[45] We would expect that provisioning the large workforce with water, at the settlement as well as on the building site, would have required a large investment of people and time.

We would not expect formal latrines at the site[46] but we have excavated outside the enclosure wall in search for a 'toilet' area and middens (dumps of domestic waste). Organic material is not preserved in the main Heit el-Ghurab site and we hoped that desiccated material might be found in the waste dumps on the western edge of the settlement. Here we excavated part of an extensive sherd dump, similar to the widespread dumping to the east of the Galleries, area EOG (East of the Galleries). These deposits in EOG seal the early industrial faience production area, and form a levelling deposit for the conduction of bakeries and pedestals which characterise the later use on the site. Waste was also disposed by being dumped in disused houses or rooms from neighbouring houses. This is the case of the dump designated as Pottery Mound to the south of House Unit 1 in the Western Town.[47]

We have not identified cult structures, such as chapels or house shrines at the Heit el-Ghurab settlement. We might not expect chapels for popular worship before the Middle and New Kingdoms,[48] as earlier periods required intermediaries between the individual and the divine.[49] No

formal cult areas have been identified in other workmen's settlements at Sheikh Sayd, Sadd el-Kafara, elsewhere at Giza[50] or in Middle Kingdom town of Illahun.[51] The lack of inscribed material, paradoxical in a site administering the centralised resources of fourth dynasty Egypt, prevents us from knowing if local matters were settled locally (possibly by a the council such as that at Deir el-Medina that held judicial sessions in the cemetery adjacent to the workmen's village) or were dealt with by the central administration.[52]

## A study of exceptions

The study of Egyptian urbanism has been characterised as a study of exceptions. O'Connor stated that discussions of Egyptian urbanism were based on sites 'decidedly untypical of most Egyptian settlement'.[53] Many settlements were deemed to be unrepresentative of Egyptian urbanism in general. This would include single purpose towns (pyramid towns, workmen's villages, quarry settlements, forts), short-lived towns and new foundations (Tell el-Amarna, Pi-Rameses), towns un-'Egyptian' in character (Tell el-Daba, eastern Delta settlements), and towns with specific topographic constraints (Elephantine).

In fact these 'unusual' settlements might reflect, not just archaeological bias, but the diversity in form and function of ancient Egyptian settlements. Three decades ago Bietak, argued that the 'individual peculiarity' of Egyptian urbanism required a specifically Egyptian classification[54] while Kemp provided an encompassing discussion of the dynamics of Egyptian urbanism.[55] There is an ongoing debate about how to define cities and towns in an ancient Egyptian

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*Giza Plateau Mapping Project, Season 2009, Preliminary Report* (GOP forthcoming).

[44] M. Lehner, M. Kamel and A. Tavares (eds), *Giza Plateau Mapping Project, Season 2008, Preliminary Report* (GOP 4; Boston) 2009, 27–29.

[45] M. Lehner, 'Capital Zone Walk-About 2006: Spot Heights and the Third Millennium Landscape' in Lehner, Kamal and Tavares (eds), GOP 3, 97–151; J. Bunbury, C. Ludley and A. Graham, 'Giza Geomorphological Report' in Lehner, Kamal and Tavares (eds), GOP 3, 158–165, pls 37–42; Lutley and Bunbury, *Egyptian Archaeology* 32 (2008), 3–5.

[46] Bathrooms and toilets are known from the Early Dynastic Period onwards, but communal latrines do not appear before Graeco-Roman times: D. Driaux, *Les aménagements hydrauliques en contexte urbain dans l'Égypte ancienne* (PhD. dissertation, Université Paris IV- Sorbonne, July 2010).

[47] M. Lehner, M. Kamel and A. Tavares, 'Pottery Mound (PM) in the Western Town (SFW)', in Lehner, Kamel and Tavares (eds), GOP 2, 69–73.

[48] Or small shrines such as those overlooking the Valley of the Kings near the 'village de repos', see B. Bruyère *Rapport sur les fouilles de Deir el Médineh, 1934–1935. Troisième partie. Le village, les décharges publiques, la station de repos du col de la Vallée des Rois* (FIFAO 16; Le Caire 1939) and A. I. Sadek, *Popular religion in Egypt during the New Kingdom* (Hildesheim 1987).

[49] J. Assmann, *Ägypten – Theologie und Frömmigkeit einer frühen Hochkultur* (Stuttgart 1984); L. Gablin, 'Private Religion', in T. Wilkinson (ed.), *The Egyptian World* (London and New York, 2010),

325–339; and J. Baines 'Society, Morality and Religious Practice', in B. E. Shafer (ed.), *Religion in Ancient Egypt: gods, myths and personal practice* (London 1991), 123–200.

[50] Selim Hassan, *Excavations at Giza* IV (Cairo, 1943), 35–42, 49–50; G. Reisner, *Mycerinus, The Temples of the Third Pyramid at Giza* (Cambridge, MA, 1931), 34–53; Abdel-Aziz Saleh, 'Excavations around Mycerinus pyramid complex', *MDAIK* 30 (1974), 131–154.

[51] W. M. F. Petrie, *Illahun, Kahun and Gurob* (London 1891), but see O'Connor's discussion of the symbolic role of elite houses D. O'Connor, 'The Elite Houses of Kahun', in J. Phillips (ed.), *Ancient Egypt, the Aegean, and the Near East; studies in honour of Martha Rhoads Bell* II (London 1998), 389–400.

[52] A. G McDowell, *Jurisdiction in the Workmen's Community of Deir el-Medina* (EU 5; Leiden 1990); B. Gunn, 'A sixth dynasty letter from Saqqara', *ASAE* 25 (1925), 242–255,

[53] D. O'Connor, 'The geography of settlement in ancient Egypt', in P. Ucko, R. Tringham and G. Dimbleby (eds), *Man, Settlement and Urbanism* (London, 1972), 681.

[54] M. Bietak, 'Urban archaeology and the "Town Problem" in Ancient Egypt', in K. Weeks (ed.), *Egyptology and the Social Sciences* (Cairo, 1979), 97–144.

[55] B. Kemp, The Early Development of Towns in Egypt, *Antiquity* 51 (1977), 185–200 and B. Kemp, 'The City of el-Amarna as a Source for the Study of Urban Society in Ancient Egypt', *World Archaeology* 9 (1977–1978), 123–139.

context.[56] For Wilson specialised urban settlements such as pyramid towns, capitals, and so on, do not constitute 'cities'. Although he does not clearly define 'city', he considers size and longevity as main, determining characteristics.[57] Gordon Childe in his seminal study listed ten criteria that distinguish ancient cities from surrounding towns and villages.[58] Several of his criteria have been corroborated in subsequent urbanism discussion; relative population size, craft specialisation and storage of surplus goods are consistent elements of most definitions of the term 'city'. More recently Hassan proposed a definition applicable to Ancient Egypt based on settlement size, distances and population.[59]

The ancient Egyptian words for 'town' and 'city' were used with a certain flexibility, and do not seem to define rigidly different types of settlement.[60] The words for town, *ḥwt* and *njwt*, refer to a walled settlement with the basic distinction based on shape not on size.[61] At Giza two settlement names are attested; the 'northern Gerget of Khufu' and the 'southern Tjeniu of Khafre'.[62] There are also mentions of the '*ra-she* of Khufu' which may designate a basin.[63] Lehner suggested a hypothetical location for the

### What kind of settlement is the Heit el-Ghurab site?

The Heit el-Ghurab site has been described as a worker's camp.[66] A camp can designate a place for a temporary stay, a set of buildings where people are housed temporarily, for example, as prisoners, refugees, or troops; or describe a site with short-term, removable accommodation. This later definition is not applicable to the Heit el-Ghurab site as it is characterised by very large buildings using up to 185,000 mud-bricks alone in each individual gallery structure.[67] However the central part of the site certainly seems to have been a barracks providing accommodation for a rotating labour force or perhaps for troops.[68] The settlement could be considered 'temporary' to the extent that it seems to have been abandoned and dismantled soon after the completion of the building task.[69] Nevertheless the Heit el-Ghurab site functioned at least for the duration of the reigns of Khafre and Menkaure which is possibly twice as long as the life span of the city of Amarna. Furthermore based on the titles found on mud sealings in the Western Town, an important part of the central administration may have been located here.[70]

The Heit el-Ghurab site has also been described as the

[56] K. Butzer, *Early Hydraulic Civilization in Egypt* (Chicago 1976); P. Lacovara, *The New Kingdom Royal City* (London and New York 1997), chapter 1; Bietak, in Weeks (ed.), *Egyptology and the Social Sciences*, 97–144; Kemp demonstrates that although cities such as Memphis, Thebes, Pi-Ramesse and Amarna are not confined narrowly within rectangular walled enclosures and do not seem to have strict grid or cardinal alignments, they do reflect a degree of order, see B. Kemp, 'Bricks and Metaphor' in 'Were Cities Built as Images?', *CAJ* 10 (2000), 335–346.

[57] J. Wilson, 'Egypt through the New Kingdom. Civilization without Cities', in C. Kraeling and R. Adams (eds), *City Invincible. A Symposium on Urbanization and Cultural Development in the Ancient Near East* (Chicago, 1960), 126.

[58] G. Childe, 'The Urban Revolution', in *Town Planning Review* 21 (1950), 9–16.

[59] F. Hassan, 'Town and village in ancient Egypt: ecology, society and urbanization', in T Shaw, P Sinclair, B Andah and A Okpoko (eds), *The Archaeology of Africa: Foods, Metals and Towns* (London, 1993), 551–569.

[60] Lacovara, *The New Kingdom Royal City*, 17.

[61] Bietak, in Weeks (ed.), *Egyptology and the Social Sciences*, 98–100. Egyptian urbanism is discussed further in H. Smith, 'Society and settlement in ancient Egypt', in Ucko, Tringham and Dimbleby (eds), *Man, Settlement and Urbanism*, 705–719; D. O'Connor, in Ucko, Tringham and Dimbleby (eds), *Man, Settlement and Urbanism*, 681–698; B. Kemp, 'Temple and town in ancient Egypt', in Ucko, Tringham and Dimbleby (eds), *Man, Settlement and Urbanism*, 657–680; S. Seidlmayer, 'Town and State in the Early Old Kingdom: A View from Elephantine', in J. Spencer (ed.), *Aspects of Early Egypt* (London 1996), 108–127.

[62] M. Lehner, 'The Development of the Giza Necropolis. The Khufu Project', *MDAIK* 41 (1985), 133–136, indicating settlements but written without a *njwt* determinative.

[63] J. Berlandini, 'La pyramide "ruinée" de Sakkara-Nord et le roi

Ikaouhor-Menkaouhor', *RdE* 31 (1979), 3–28; J. Yoyotte, 'Le bassin de Djâroukha', *Kêmi* 15 (1959), 23–33. For the *ra-she* as a storage and delivery area around a harbour, R. Stadelmann, 'La ville de pyramide à l'Ancien Empire', in *RdE* 33 (1981), 163–164; Lehner, *MDAIK* 41 (1985), 136.

[64] Lehner, *MDAIK* 41 (1985), 133–136 and graphically shown in M. Lehner, *The Complete Pyramids* (London 1997), figure on pages 230–231.

[65] The eastern settlement in the cultivation was confirmed by subsequent work see El-Sanussi and Jones, *MDAIK* 53 (1997) 241–253, and Lehner, *JARCE* 39 (2002), 27–74. The inferred desert edge settlement was located in 1988 and is the subject of the present article. For the identification of the Heit el-Ghurab settlement with the 'Southern Tjeniu of Khafre' see M. Lehner, 'City on Edge: Gateways to Giza South' Dispatch 1_2011ii17_ML (AERA: GPMP Reports on file).

[66] Kemp, *Anatomy*, 188–190, fig 66.

[67] Heindl estimates a total of 5,088,000 bricks for the total four sets of galleries. G. Heindl, *Methods of reconstructing the worker's house 'Gallery III-4' in the workmen's settlement south of the Wall of the Crow in Giza* (GOP, Boston forthcoming).

[68] Lehner, in *AERAGRAM* 7.1 (2004), 14–15.

[69] Lehner in Lehner and Wetterstrom (eds), *Giza Reports* 1, 46–47. Parts of the site may have functioned later into the fifth dynasty (John Nolan, personal communication).

[70] For evidence of a closed community of important scribes connected with the vizier's office and the royal residence see Nolan and Pavlick, in *AERAGRAM* 9.1 (2008), 2–4, and Nolan, *Mud Sealings*, 323–382.

'largest known pyramid town'.[71] The definition of pyramid towns and the identification of these with excavated settlements remains a source of debate.[72] While Bietak includes settlements housing pyramid builders, craftsmen and officials within the definition of pyramid town,[73] Stadelmann sees pyramid towns as specialised settlements, for those involved in the administration of the funerary cult, which developed around valley temples. Thus he considers that pyramid builders' settlements did not develop into pyramid towns.[74] In his discussion of seventeen Old Kingdom pyramid related settlements Bussmann regards only two of these as pyramid towns.[75] Recent excavation results compel us to refine and modify our understanding of these settlements.[76]

We should also consider that the Heit el-Ghurab site functioned in the wider context of settlements, industrial installations and large stone enclosures at Giza.[77] These included the settlement southeast of Menkaure's pyramid,[78] the structures west of Khafre's Pyramid,[79] the settlement in the Menkaure Valley Temple[80] and the Khentkaues Town.[81] After the reign of Menkaure settlements at Giza

seem to have contracted into smaller areas associated with Pyramid temples. Further investigation is needed for a better understanding of the longevity of these sites beyond the fourth dynasty; however it is clear that the Khentkaues town and the village inside and around the Menkaure Valley Temple continued to function at least until the end of the Old Kingdom.

## A Shifting Capital? [82]

The locations of the necropoleis indicate the whereabouts of contemporary settlement.[83] It is possible that the substantial necropolis at Giza and the near absence of fourth dynasty burials in older cemeteries would have been accompanied by a movement of the settlement and the royal administration. The closest to a 'capital' in the Old Kingdom might have been the royal residence, which is assumed to have been located near the pyramid complex.[84] Thus the Old Kingdom 'capital' might have been a non-nucleated settlement[85] spreading over an area of 30 km and moving with the royal necropolis from Abu Roash to Dahshur. Bard states that the 'Giza settlements do not suggest a functioning state capital'.[86] Nolan's analysis of mud sealings from the Heit el-Ghurab indicates that important aspects of central administration took place here, but he states that this was probably not the location of the main residence.[87] Further discussion of Giza settlements and the location of the Old Kingdom capital would be profitably set within a consideration of the overall urban and landscape context of the 'Capital Zone'.[88]

[71]  K. Bard, 'Royal Cities and Cult Centers, Administrative Towns, and Workmen's Settlements in Ancient Egypt' in J. Marcus and J. A. Sabloff (eds), *The Ancient City. New Perspectives on urbanism in the Old and New World* (Santa Fe 2008), 169.

[72]  W. Helck, 'Bemerkungen zu den Pyramidenstädten im Alten Reich', *MDAIK* 15 (1957), 91–111; R. Stadelmann 'La ville de pyramide à l'Ancien Empire', *RdE* 33 (1981), 67–77; Reisner, *Mycerinus*, 48; Bietak, in Weeks (ed.), *Egyptology and the Social Sciences*, 97–144.

[73]  Bietak, in Weeks (ed.), *Egyptology and the Social Sciences*, 104–105, 130.

[74]  Stadelmann, *RdE* 33 (1981), 67–77; Stadelmann 'Pyramidenstadte' in *LÄ* 1983, 9–14. Bussmann considers that the specialised function of pyramid settlements sets them apart from other Egyptian towns, R. Bussmann, 'Siedlungen im Kontext der Pyramiden des Alten Reiches', *MDAIK* 60 (2004), 39.

[75]  Bussmann, *MDAIK* 60, 34–37.

[76]  Some of the elements that Bard notes as missing from the Giza settlements have now been identified at the Heit el-Ghurab site: Bard, in Marcus and Sabloff (eds), *The Ancient City* 171–172.; for new settlement on the desert edge see N. Alexanian and S. Seidlmayer, 'Die Residenznekropole von Dahschur. Erster Grabungsbericht', in *MDAIK* (2002), 1–28.

[77]  These various elements are concisely summarised by Lehner in M. Lehner, 'Giza. A Contextual Approach to the Pyramids', *Archiv für Orientforschung* 32 (1985), 136–158, especially pages 154–158.

[78]  Saleh, *MDAIK* 30 (1974), 131–154; Abdel-Aziz Saleh, 'Ancient Egyptian House and Palace at Giza and Heliopolis', in M. Bietak (ed.), *Haus und Palast im Alten Ägypten* (Vienna 1996), 185–193.

[79]  W. M. F. Petrie *The pyramids and temples of Gizeh* (London 1883); N. Conard and M. Lehner, 'The 1988/1989 Excavation of Petrie's "Workmen's Barracks" at Giza', *JARCE* 38 (2001), 21–60.

[80]  Reisner, *Mycerinus*, 34–53.

[81]  Hassan *Excavation at Giza* IV; M. Lehner, M. Kamel and A.

Tavares, 'The Khentkawes Town (KKT)', in Lehner, Kamel and Tavares (eds), GOP 2, 11–16; M. Lehner, M. Kamel and A. Tavares, 'The Khentkawes Town (KKT)', in Lehner, Kamel and Tavares (eds), GOP 3, 7–12; M. Lehner, M. Kamel and A. Tavares, 'The Khentkawes Town (KKT)', in Lehner, Kamel and Tavares (eds), GOP 4, 9–46.

[82]  A shifting capital might have been the norm in ancient Egypt: Wilson, in Kraeling and Adams (eds), *City Invincible*, 127. See also M. Raven, 'Aspects of the Memphite Residence as illustrated by the Saqqara New Kingdom necropolis', in R. Gundlach and J. H. Taylor (eds), *Königtum, Staat und Gesellschaft früher Hochkulturen, 4,1: 4. Symposium zur ägyptischen Königsideologie, Egyptian royal residences* (Wiesbaden 2009), 153–164.

[83]  D. Jeffreys and A. Tavares, 'The historic landscape of Early Dynastic Memphis', *MDAIK* 50 (1994), 143–173.

[84]  Stadelmann, *RdE* 33 (1981), 67–77; Lehner, *Complete Pyramids*, 231. Stadelmann considers that royal residences were identical or attached to pyramid towns in the Old Kingdom: R. Stadelmann, *Die ägyptischen Pyramiden. Vom Ziegelbau zum Weltwunder* (Mainz am Rhein 1991), 214–215.

[85]  L. Giddy, 'Memphis and Saqqara during the late Old Kingdom: Some topographical considerations', in C. Berger, G. Clerc et N. Grimal (eds), *Hommages à Jean Leclant* (BdE 106; Le Caire 1994), I, 189–200; Jeffreys and Tavares, *MDAIK* 50 (1994).

[86]  Bard, in Marcus and Sabloff (eds), *The Ancient City*, 172.

[87]  Nolan, *Mud Sealings*, 323.

[88]  Jeffreys, *The Survey of Memphis* VII, 191–196.

## Conclusion

The fourth Dynasty settlement excavated at the Heit el-Ghurab site has revealed a series of distinct urban areas, varying in their layout, size and design of structures as well as in the patterns emerging from the material culture. Although this large, special purpose settlement did not develop into a long-term city it played a pivotal role in the development of the Old Kingdom, revealing as Lehner stated not only how the Egyptians built the pyramids but 'how the pyramids built Egypt'.[89] By participating in the building of the pyramids the ancient Egyptians would have developed a sense of identity and common purpose with the state.[90] The Old Kingdom state is characterised by Kemp as a 'provider state' with pyramid building as a form of state public expenditure.[91] Lehner has discussed

ancient Egypt society in the light of segmentary systems, the Patrimonial Household Model, and complex adaptive systems. He postulates that complexity in ancient Egypt was not derived from centralised decision making, which in itself was not all that complex, but in the connections between households and a fractal replication of household modes of production and organisation.[92] Heit el-Ghurab site lies at the core of this seemingly centralised fourth Dynasty state and has provided a more complex picture of Egyptian settlements.

*List of principal excavation abbreviations*

| | |
|---|---|
| BHT | Backhoe Trench |
| BBHT | Big Backhoe Trench |
| BBHT2 | Big Backhoe Trench 2 |
| EOG | East of the Galleries |
| LNE | Leap to the North-East |
| MSE | Main Street East |
| RAB | Royal Administrative Building |

[89] J. Shaw, 'Who built the Pyramids?', *Harvard Magazine* (July/ August, 2003), 42–49, 99.

[90] Participation in a large scale building project leads to identification with the ruler and the city: A. Smith, *The Political Landscape: Constellations of Authority in Early Complex Polities* (Berkeley 2003), 165; T. Pauketat, 'The Tragedy of the Commoners', in M-A. Dobres and J. Robb (eds), *Agency in Archaeology* (London, 2000), 113–139; A. Rapoport, 'Levels of Meaning in the Built Environment', in F. Poyatos (ed.), *Cross-Cultural Perspectives in Nonverbal Communication* (Toronto 1988), 317–336.

[91] Kemp, *Anatomy*, 191–192.

[92] M. Lehner,' Fractal House of Pharaoh: Ancient Egypt as a complex adaptive system, a trial formulation', in T. Kohler and G. Gumerman (eds), *Dynamics in Human and Primate Societies. Agent-based Modeling of Social and Spatial Processes.* (Oxford 2000), 275–353.
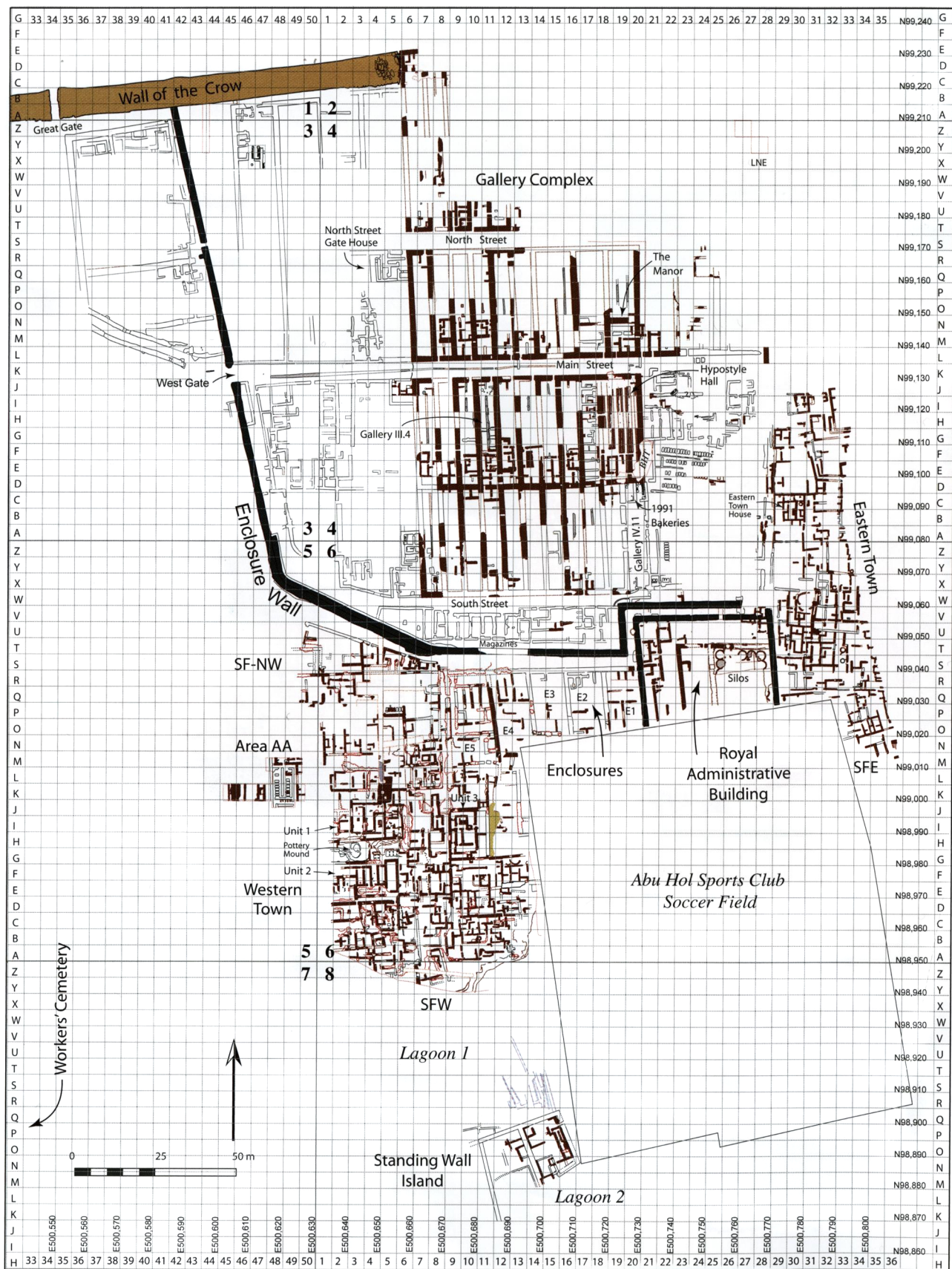
Plate 14: Plan of the Heit el Gurob settlement with areas mentioned in the text (Lehner, "Introduction", 14, Fig. 1.9) (Tavares/Wodińska)

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Recent research on all aspects of the Old Kingdom in Egypt is presented in this volume, ranging through the Pyramid Texts, tomb architecture, ceramics, scene choice and layout, field reports, cemetery layout, tomb and temple statuary. The contributions also show how Egyptology is not stuck in its venerable traditions but that newer forms of technology are being used to great effect by Egyptologists. For example, two papers show how GIS technology can shed light on cemetery arrangement and how 3D scanners can be employed in the process of producing facsimile drawings of reliefs and inscriptions.

The authors cover a wide range of sites and monuments. A large part of the work presented deals with material from the great cemeteries of Saqqara and Giza of the Old Kingdom capital city of Memphis but all the smaller sites are discussed. The book also includes a paper on the architecture of mastabas from the lesser-known site of Abu Roasch. The provinces are by no means overlooked, with articles on material from Deir el-Bersha, el-Sheikh Said and Akhmim. Between them, the authors discuss material from the milieu of the king right down to that which concerned the tomb workmen and those who supplied their basic needs, such as bakers, brewers and potters.

Containing papers presented at a conference at the Fitzwilliam Museum, Cambridge in May 2009, this book continues a series of publications of the latest research presented at previous meetings in Paris, Berlin and Prague.

Helen Strudwick currently works at the Fitzwilliam Museum, Cambridge; Nigel Strudwick has worked at the British Museum and is presently teaching at the University of Memphis. They have carried out fieldwork together at Luxor since 1984 and are the authors of *Thebes in Egypt*.