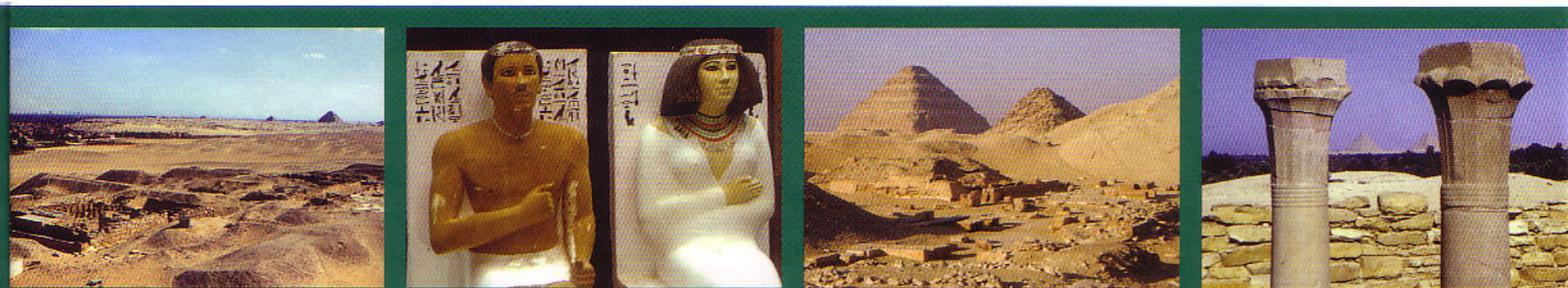


THE OLD KINGDOM ART AND ARCHAEOLOGY

Proceedings of the Conference



Prague, May 31 – June 4, 2004

Miroslav Bárta
editor

THE OLD KINGDOM ART AND ARCHAEOLOGY

PROCEEDINGS OF THE CONFERENCE HELD IN PRAGUE,
MAY 31 – JUNE 4, 2004

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Foreword

It is with pleasure that after more than two years the publication of the lectures held during the conference on the Old Kingdom Art and Archaeology in Prague in the year 2004 (May 3 – June 4) has been made possible.

The conference held in Prague continued the tradition of previous meetings by being dedicated to the same subject: art and its dating in the Old Kingdom of Egypt: the period that forms the first apogee of the developing Egyptian state. The tradition of these irregular meetings was established in 1991 by Hourig Sourouzian and Rainer Stadelmann, at that time the Director of the German Archaeological Institute in Cairo, who organised the first conference.¹ The second meeting also took place in Cairo, at this time the place of the venue was the French Institute of Oriental Archaeology and the conference, held on November 10–13, 1994, was organised by its director Nicolas Grimal.² The penultimate meeting took place in Paris, France, on April 3–4, 1998, and was organised by Christiane Ziegler, Chief Conservator of Egyptian Antiquities in the Louvre.³

The present volume continues a well-established and successful tradition of post-conference publications. As such, it makes available most of the contributions that were presented during the conference in Prague. It was mainly the scientific profile of the Czech Institute of Egyptology that led us to substantially widen the scope of the conference in 2004. The total of thirty-three contributions presented in this volume cover various aspects connected to Old Kingdom culture, not only its art, but also its archaeology and architecture, selected administrative problems, iconography, texts and the latest, often first time published results of ongoing excavations. From the list of contributions it becomes evident that natural sciences and their application in the widest sense receive general acceptance and support from among Egyptologists. It is one of the few aspects that can in the future significantly enhance our understanding of specific issues connected to the Old Kingdom art and archaeology.

Eng. Marta Štrachová carefully edited the manuscript and was essential in producing this volume. The advice and guidance of Eng. Jolana Malátková also proved indispensable. The Czech Academy of Sciences is to be thanked for the production of the book. Last but not least, it was Prof. Dr. Jean Leclant, Secrétaire perpétuel de l'Académie des Inscriptions et Belles-Lettres, Paris, and the chair of the European branch of the Fondation Michela Schiff Giorgini, and Prof. Dr. David Silverman, University of Pennsylvania, chair of the North American branch of the the Fondation Michela Schiff Giorgini and the respective committees that approved this publication and agreed to support it financially.

Miroslav Bárta

¹ The conference was held in the German Archaeological Institute, Cairo, on October 29–30, and the proceedings published in 1995 in the volume *Kunst des Alten Reiches. Symposium des Deutschen Archäologischen Institut Kairo am 29. und 30. Oktober 1991*, Deutsches Archäologisches Institut, Abteilung Kairo, Sonderschrift 28, Mainz am Rhein.

² N. Grimal, ed., *Lex critères de datation stylistiques à l'Ancien Empire*, Bibliothèque d'Étude 120 (Cairo, 1998).

³ Ch. Ziegler, N. Palayret, eds., *L'Art de l'Ancien Empire égyptien. Actes du colloque organisé au Musée du Louvre par le Service culturel les 3 et 4 avril 1998* (Paris, 1999).

Bibliography

Abbreviations for journals, series and monographs used throughout the volume follow the system of *Lexikon der Ägyptologie* (cf. *Lexikon der Ägyptologie, Band VII. Nachträge, Korrekturen und Indices*, founded by W. Helck and E. Otto, edited by W. Helck and W. Westendorf, Wiesbaden 1992, XIV–XXXVIII).

The following additional abbreviations are also used:

ACER – *The Australian Centre for Egyptology: Reports*, Sydney;

AOS – *American Oriental Society*, Michigan;

BSAK – *Studien zur altägyptischen Kultur, Beihefte*, Hamburg;

CA – *Current Anthropology*, Chicago, Illinois;

Hannig, *Handwörterbuch* – R. Hannig, *Die Sprache der Pharaonen. Großes Handwörterbuch Ägyptisch-Deutsch (2800–950 v. Chr.)*, Mainz 1995;

Harpur, *DETOK* – Y. Harpur, *Decoration in Egyptian Tombs of the Old Kingdom. Studies in Orientation and Scene Content*, London and New York 1988;

Harvey, *WSOK* – J. Harvey, *Wooden Statues of the Old Kingdom. A Typological Study, Egyptological Memoirs 2*, Leiden 2001;

KAW – *Kulturgeschichte der Antiken Welt*, Mainz am Rhein;

LingAeg – *Lingea Aegyptia, Journal of Egyptian language Studies*, Göttingen;

OrMonsp – *Orientalia Monspeliensia*, Montpellier;

PAM – *Polish Archaeology in the Mediterranean*, Warsaw;

SAGA – *Studien zur Archäologie und Geschichte Altägyptens*, Heidelberg;

WES – *Warsaw Egyptological Studies*, Warsaw.

Two enigmatic circular mud brick structures in the Western Field at Giza

A preliminary report*

Stephen R. Phillips

I. Introduction

The Cairo University-Brown University Expedition returned to the Abu-Bakr Cemetery complex in the Western Field at Giza for its fourth season of fieldwork between January 2 and February 4, 2004.

To date, the project has expanded considerably our knowledge of the archaeological plan of the northwest area Giza plateau, first mapped by Lepsius in the early 1840's. The project's four seasons of fieldwork have produced over 13,000 survey points (*fig. 1*), representing approximately 65% of the visible structures on this roughly 380 × 220 m site occupying the far northwest section of the Western Field (*fig. 2*). Three tombs numbered originally by Lepsius, Ipi (LG-19), and Persen and Irukaukhufu (LG-20 & 21, respectively),¹ then excavated by Prof. Dr. Abdel-Moneim Abu-Bakr, and presently undergoing re-clearing, mapping, and recording by the current project, together form a dominating tomb complex occupying the southwest portion of the Expedition's survey area (*figs. 3, 4*). Although the archaeological and epigraphic analysis of this complex and its relationship to the history of the site as a whole is ongoing, an enigmatic, and perhaps unique, pair of circular mud brick and limestone block structures were re-cleared in 2004, prompting this preliminary report.

II. Site history

Working from east to west, employing at times some 200 workers, half of whom were *quftis*, Prof. Dr. Abu-Bakr excavated this roughly eight-acre site from the late 1940's to the 1970's. While a firmer dating of the site is a mission of the present project, preliminary analysis of architecture, iconography, and pottery seem to support working dates of the Fifth – early Sixth Dynasty for this portion of the Western Field.²

Prof. Dr. Abu-Bakr was able to publish only a portion of his excavations prior to his death in 1976.³ Since the close of his excavations, conservation work to preserve and protect the decorated mastabas and rock-cut tombs continued, and continues today, under the auspices of the Supreme Council of Antiquities. Part of the mission

* The author thanks Prof. Dr. Tohfa Handoussa of Cairo University and Dr. Edward Brovarski of Brown University, co-directors of the expedition, for inviting me to participate in the project and for encouraging me to present this preliminary report on one aspect of the 2004 field season. The author also thanks Dr. E. Brovarski, Dr. D. P. Silverman, and M. D. Adams for their early readings of the report and helpful comments. Aspects of this report were incorporated into the 'Preliminary Report on the Fourth Field Season of the Cairo University-Brown University Expedition at Giza, 2004' (forthcoming).

¹ *LD Text*, I, 44–45; see also *LD*, II, pl. 14, 82 [e]. *PM III*², 1, 48–49 and pl. VII. Prof. Dr. T. Handoussa and Dr. E. Brovarski are jointly preparing a formal publication of these tombs.

² *Ibid*, dates Ipi (LG-19) to the Fifth Dynasty or later, Persen (LG-20, 21) to probably earlier Fifth Dynasty, and other tombs in the Abu-Bakr cemetery complex to dates ranging from the middle of the Fifth Dynasty (e.g., Neferi), to the Sixth Dynasty (e.g., Akhtihotep).

³ See A.-M. Abu-Bakr, *Excavations at Giza, 1949–1950* (Cairo, 1953). In this volume, which includes a chapter by A. Badawy on 'Brick Vaults and Domes in the Giza Necropolis', Prof. Dr. Abu-Bakr published 17 of the mastabas and/or rock-cut tombs located in the eastern and south-central areas of the site; also, for a synopsis of the history of excavations in the cemeteries at Giza, cf. P. Der Manuelian, 'The Tombs of the High Officials at Giza', in Z. Hawass, ed., *Treasures of the Pyramids* (Verchelli, 2003), 193.

of the Cairo University-Brown University Expedition is to record the scenes and inscriptions in the tombs that Prof. Abu-Bakr found and the relief blocks from these tombs stored in the Cairo University magazine at Giza.

Prof. Dr. Abu-Bakr also made what may be a unique architectural discovery, a pair of circular, perhaps domed, mud brick and hewn limestone block structures built directly against the south wall of the limestone block mastaba of Ipi (LG-19). Except for a brief mention in the archaeological literature, it has received no attention.⁴ Prof. Dr. Abu-Bakr provided a sketch (*fig. 5*), briefly described the two structures, and identified them as ‘cage du hyène’⁵ based upon his interpretation of their form vis-à-vis the depiction of hyenas as funerary offerings, for example, in the nearby mortuary chapel of Persen (LG-20, 21),⁶ as well as elsewhere at Giza.⁷

In 2004, the Expedition re-cleared these two structures for the purpose of survey and initial archaeological analysis (map detail, *fig. 4*). If the work begun in 2004 and that of upcoming seasons should support Prof. Dr. Abu-Bakr’s suggestion identifying these structures as ‘hyena cages’, they would be the first, and to this point the only, known examples of such a kind in ancient Egypt.

III. Description of the ‘Cage du Hyène’ structures

The two circular structures are constructed of unbaked mud bricks and hewn limestone blocks (*fig. 6*).⁸ They stand side-by-side, each essentially a mirror image of the other, directly against the south wall of the limestone mastaba of Ipi (LG-19). The easternmost structure is the best preserved of the two. The westernmost, being more exposed to west-to-east wind and weather degradation, is in the worst state of preservation, having lost nearly all of its western and northern sides. Each structure has two ‘accesses’, built of hewn limestone blocks forming floored passageways, and they appear to have had originally, roofs, based upon surviving blocks (*figs. 7, 8*). While each structure is a mirror image of the other and nearly identical, there are differences in construction, perhaps reflecting different construction times and/or uses. For recording purposes, the two structures have been designated as ABC-69a (the easternmost) and ABC-69b (the westernmost).⁹

Structure ABC-69a

ABC-69a is centered on the mid-line of the south wall of the mastaba of Ipi (LG-19). It is constructed of sun dried mud brick walls, averaging 90 cm thick, with what may be an interior flooring of limestone paving stones, set upon the ground. The interior diameter of the structure, while not perfectly round, is about 290 cm. The surviving northern wall segment, that portion directly against the south wall of the mastaba of Ipi, retains a height of about 110 cm, or five courses of mud brick, apparently deflated one course from the time of Prof. Dr. Abu-Bakr’s sketch (*fig. 5*). Brick size is quite large, averaging 60 cm long, 30 cm wide and 20 cm thick.¹⁰ The

⁴ See A.-M. Abou-Bakr, ‘Découvertes Récentes au Cimetière Occidental de la Nécropole de Guizeh’, *La Revue du Caire* 33, n. 175 (1954): 47–48; see also, J. Leclant, ‘Fouilles et Travaux en Égypte, 1950–1951’, *Orientalia* 21, no. 2, n. s. (1952): 241 and figure 17 for a photograph of the structures ca. 1950–51.

⁵ Abu-Bakr, *La Revue du Caire* 33, p. 175

⁶ The hyena depicted in the mortuary chapel of Persen is located on the west face of the east wall (*LD Ergänzung*, pl. viii; *PM III*¹, 49 [1], pl. XXIV), thus it is shown being led towards a depiction of Persen and his wife, approaching the north from the south (in fact, approaching the entrance door of the chapel itself), the south being where the ‘cage du hyène’ structures are located geographically in relation to the mastaba of Persen (see *figs. 3, 4, 11*).

⁷ There are at least 35 known depictions of hyenas at Giza. For a detailed list, see S. Ikram, ‘The Iconography of the Hyena in Ancient Egyptian Art’, *MDAIK* 57 (2001): 135–137, and Table 2.

⁸ Richard L. Cook, project draftsman and surveyor, recorded additional descriptions, prepared architectural drawings, and made additional measurements of the two structures.

⁹ ‘ABC’ denotes ‘Abu Bakr Cemetery’ and ‘69a & 69b’ are loci.

¹⁰ Bricks of such size are uncommon. A. J. Spencer, *Brick Architecture in Ancient Egypt* (Warminster, 1979), 144, also p. 27, notes that bricks of such a size would have been impractical for general

eastern, western and southern walls are eroded down to only one or two courses in most places. The walls are constructed in a manner consisting of one brick laid in a circular arrangement to form the enclosure with another row of bricks abutting the sides of the circular-oriented bricks. Thus, the thickness of the walls equals one width and one length of brick size. The brick bond here appears to correspond to the CX₁ brick bond of the corpus set forth by Dr. A. J. Spencer.¹¹ The circular arrangement of the bricks naturally created wedge-shaped joints between the bricks, such as those found in vaulting.¹² These joints were filled, mostly on the exterior courses, by mud brick of the same thickness as the other bricks that had probably been cut-down to, or were perhaps made specifically as,¹³ wedge shapes sized to fill the gap they were intended to fill. Additional joint-filling material, including where the two structures converge at the wall of Ipi (LG-19, fig. 9), consists of mud, sand, and/or desert gravels. No evidence survives to indicate whether or not the interior or exterior walls were once plastered.

Although both structures are now open to the sky, it is possible that the two perhaps had domes or vaulting originally. Surviving walls in both structures appear to rise vertically for the first two courses, above which is an inward-pitch (cf., fig. 5). We used a Johnson Angle Locater® inside structure ABC-69b, and recorded an inward-pitch of 15° on a section of the third-course bricks on its eastern wall. The state of preservation of both structures prevents us from concluding definitively that domes did exist at their tops. The angle measurements we obtained imply that such was perhaps the case. In general, however, domed architecture in ancient Egypt was not common,¹⁴ nor was fully circular architecture.¹⁵

use, and thus were perhaps produced for specific endeavors; also noted, *ibid.*, the largest brick size recorded in buildings, occurring at Saqqara and Nagada, is 53 cm. Bricks of similar size, 61 × 30.5 × 11.5 cm, are attested at Abydos lying in the sand under the Eighteenth Dynasty wall of Thutmose III, apparently not, however, actually as part of a built wall; see Petrie, *Abydos* II, 50, 52. Spencer, *Brick Architecture*, 27, further notes bricks of a similar size, albeit somewhat smaller, 52–53 × 26 × 19 cm, at Saqqara, occurring in an unnumbered mastaba found to the west of the mastaba of Mereruka, and also in the nearby tomb of Kaemheset. See also, 'Preliminary Report on the Fourth Field Season of the Cairo University-Brown University Expedition at Giza, 2004' (forthcoming); in 2004, the eastern wall of an anonymous mud brick mastaba abutting the north wall of Persen (LG-20, 21), was re-cleared for survey (fig. 1) and preliminary recording. Although the wall is eroded, the brick sizes obtained averaged 60 × 30 × 20 cm.

¹¹ Spencer, *Brick Architecture*, 137 and pl. 20, see also 135–139.

¹² *Ibid.*, 141–142; also 123–127.

¹³ *Ibid.*

¹⁴ *Ibid.*, 126; note, however, that two tombs at Giza, those of Seneb and Neferi, had domes, but these domes surmounted square mortuary chapel walls and were not built as freestanding structures. See also for occurrences of domes over shafts at Riqqeh, a dome employing pendentives at Thebes, domes of the Late and Roman Periods, and for Coptic domed roofing. For the tomb of Seneb, see Junker, *Giza* V, 25, fig. 3. For the tomb of Neferi, see Abu-Bakr, *Excavations at Giza, 1949–1950*, 39–67, and A. Badawy, in *ibid.*, 139; also, N. Cherpion, *Mastabas et Hypogées d'Ancien Empire: Le Problème de la Datation* (Brussels, 1989), 97–98. A. Badawy, *A History of Egyptian Architecture, Vol. 1* (London, 1990 [1954]), 189, describes brick vaults and domes, surmounting square walls, as having covered chapels and corridors of Old Kingdom tombs. H. Frankfort, 'The Cemeteries of Abydos: Work of the Season 1925–26', *JEA* 16 (1930): 216 and pl. XXXII, reported a possibly domed Fifth Dynasty serdab at Abydos, however, when discovered it was not fully closed. Clarke, Engelbach, *Ancient Egyptian Architecture*, discuss arches and relieving arches, but not domes. U. Hölscher, *Excavations at Ancient Thebes 1930/31* (Chicago, 1932), 47–53, notes a late Roman period tomb covered at surface level by a mud brick dome. For arches and relieving arches in stone masonry, see D. Arnold, *Building in Egypt: Pharaonic Stone Masonry* (New York, 1991); see also B. Kemp, 'Soil (Including Mud brick Architecture)', in P. T. Nicholson, I. Shaw, eds., *Ancient Egyptian Materials and Technology* (Cambridge, 2000), 93–96, figs. 3.8, 3.9[d], 3.10. P. Lacovara, 'Bricks and Brick Architecture', in D. Redford, ed., *The Oxford Encyclopedia of Ancient Egypt* (New York, 2001), 198–200, notes the use of corbelled vaults in true domes in the Old Kingdom; in the same volume, D. Arnold, 'Architecture', in Redford, ed., *The Oxford Encyclopedia of Ancient Egypt*, 113–125, does not note domes. Prof. Dr. Z. Hawass and his colleagues report corbelled-domed tombs, 'beehive'-domed tombs, and an 'egg-shaped' domed tomb at the workmen's cemetery at Giza; cf., G. Reeder, 'On Site at the Giza Plateau', *KMT* 2, no. 4 (1991–92), 39–44; also, for »

Structure ABC-69a was filled with a 65 cm layer of deflated mud brick, loose soil backfill and wind-blown sand. Re-clearing was conducted which included the retention of both sifted and un-sifted soil samples for later analysis, and the retention of flora and faunal remains. At the southwest side in the structure a basin with a channel passing through the wall into the interior was exposed (figs. 9, 10), consisting of a single block of carved, white limestone measuring about 42 × 36 cm at the base, 31 × 31 cm at the top and 23 cm in height. The basin hollowed into the top of this block measures some 30 × 26 cm at the top, 26 × 21 cm at the bottom, and is about 10 cm deep. Richard Cook estimates its liquid capacity at about 5–6 liters. The sketch of this structure drawn by Prof. Dr. Abu Bakr (fig. 5) depicts what appears to be a nearly identical feature passing through the southwest wall of structure ABC-69a,¹⁶ in a position that would place it in a direct line with the basin feature (not visible in his sketch) on the inside. At the bottom of the interior, an approximately 5–10 cm thick ‘living floor’ layer of hard-packed mud was exposed. Test cleaning of an area of this layer was undertaken just inside the structure at the entrance to the south-oriented limestone block passageway. A 70 × 30 cm section of this single layer of hard-packed orange-brown sandy soil mixture was cleared until the upper surface of a limestone block was exposed at a depth of about 8 cm. The edges of two more laid-in limestone blocks were also revealed likely indicating the interior has a complete floor. This will be corroborated when re-clearing is recommenced next season. An incomplete mammalian skeleton was partially revealed *in situ* embedded in this layer, lying against the base of the limestone basin. Regrettably, the cranium is not extant. Additional animal bones, some of which bear forensic signs of carnivorous gnawing,¹⁷ as well as at least one carnassial tooth, were recovered, or partly uncovered, throughout the interior of the structure at or near the lowest levels of the fill deposit, as well as at or within the ‘living floor’ layer. Again, these finds were made at the end of the season; so that proper zooarchaeological and archaeological analyses can be carried out, the skeleton and additional embedded remains in the lowest layer, the hard-packed ‘living floor’, were covered, re-buried, and left *in situ* for further investigation beginning with the next season, while the recovered soil and faunal samples were placed in storage.

Entrance and egress for both structures was gained through the limestone block passageways (figs. 5–9). Structure ABC-69a, like its counterpart, has two such features, one long (oriented southeastward), and one short (oriented due south). The surviving portion of the longer southeastern passageway measures approximately 310 cm in length, 50 cm in interior width, and from 50 cm in height closest to the structure, the proximal end, to some 60 cm high at its furthest, distal, point from the structure. The variation in heights is perhaps due to erosion of the limestone. The surviving limestone blocks forming the sidewalls measure between 90–110 cm long, by 50–60 cm high, by 19–20 cm thick. Blocks of similar shape and size were installed on the surface, creating flooring, with the upright blocks set upon them. The eastern wall of the passageway now seems to sit out of position, off the flooring. Whether

example, see Z. Hawass, ‘The Workmen’s Community at Giza’, in M. Bietak, ed., *Haus und Palast im alten Ägypten: Internationales Symposium 8. bis 11. April 1992* (Wien, 1996), 53–67; also, Z. Hawass, ‘Tombs of the Pyramid Builders’, *Archaeology* 50 (1997): 39–43. The structures excavated to date in the worker’s cemetery, however, do not resemble structures ABC-69a & b (discussed further below, Section IV).

¹⁵ D. Arnold, *Encyclopedia of Ancient Egyptian Architecture* (Princeton, 2003), 51; also, references therein for domed pre-historic house structures and for iconographic examples. E. B. Smith, *Egyptian Architecture* (New York, 1938), 19–21, discusses the pre-historic use of circular mud-daub and thatch houses, which later evolved into and/or were replaced by rectangular forms. Circular-domed granaries and silos are attested at Lahun; cf. A. Badawy, *History of Egyptian Architecture*, Vol. II (Berkeley, 1966), 32–35, figures 10–17 and references therein; and also at Medinet Habu, cf., *idem*, *History of Egyptian Architecture*, Vol. III (Berkeley, 1968), 147.

¹⁶ Discussed further below.

¹⁷ For a study on evaluating carnivore marks on bone, see, for example, M. M. Selvaggio, ‘Carnivore Tooth Marks and Stone Tool Butchery Marks on Scavenged Bones: Archaeological Implications’, *Journal of Human Evolution* 27, nos. 1–3 (1994): 215–228.

or not this was a deliberate construction feature or the result of lateral movement over time is unclear. The two upright blocks at the distal end of the passageway, shown in figure 5, are now lying horizontally, having fallen or were moved since the sketch was drawn. The sketch seems to show them in a position to serve as blocking stones at the distal end of the passageway. The last two wall blocks have 13 cm wide notches apparently cut into their upper edges (visible in fig. 3, upper right, also fig. 9). Whether or not these notches are a construction feature, and thus may have functioned in some way with a door or a portcullis,¹⁸ or perhaps as support for a beam to support a roof block,¹⁹ or are simply artifacts in blocks reused from another location, is unclear. The blocks appear to be *in situ*, although the notches are no longer exactly opposite one another, being now some 35 cm off-center. The shifting of the eastern sidewall of the passage from the flooring, however, may be a factor. At the proximal end of the passageway, nearer the structure itself, slots have been cut into each side of the interior wall surface and into the floor slab underneath them, all three of which still align perfectly, forming a contiguous slot, adding to the evidence that this passageway may have once contained at least one, and most likely two or more sliding 'doors' or portcullises (see fig. 8, center, for a similar slot in the easternmost wall block of the shorter, south-oriented, passageway). Roofing blocks no longer survive over this passageway, although two are shown *in situ* and one is shown fallen down in Prof. Abu-Bakr's sketch (fig. 5). At this time, it is unclear how, or if, they might have been arranged once to accommodate functional, or non-functional, sliding doors or portcullises

The second, shorter, south-oriented, centrally located passageway is constructed in a similar manner. It measures some 110 cm in length (just longer than the thickness of the mud brick wall itself), about 60 cm in interior width, and has only two blocks extant that form the sidewalls, the easternmost measuring about 105 cm long, 55 cm high, and 15 cm thick, while the westernmost is about 120 cm long, 55 cm high, and 15 cm thick. Once again, these blocks are set upon limestone flooring blocks. This passageway, too, has slots carved into the interior side of wall blocks, at the end of the passageway away from the structure (visible in figs. 8, 9), adding to the evidence that both passageways once contained doors or portcullises. The flooring slabs are deteriorated badly and do not retain corresponding slots. This passageway is the only one of the four passageways that still retains one of its roofing blocks *in situ* (visible in fig. 8, center, also fig. 9), measuring 90 cm long, 60 cm wide, by 15 cm thick. Measurements taken on other detached blocks associated with ABC-69a & b indicate that at least one, found leaning just inside the entrance to the longer passageway of ABC-69b, and perhaps others, once was a roof block. Whether or not this passageway, like its counterpart in structure ABC-69b, was ever longer than it is now, most likely cannot be determined given the present deflated state of the site.

Structure ABC-69b

ABC-69b is situated against the western side of structure ABC-69a, and likewise directly against the south wall of Ipi (LG-19) (figs. 3, 4, 6, 9). As mentioned earlier, it is badly deteriorated on its northern and western sides, and badly deflated on its southern side. It is essentially a mirror image of ABC-69a, yet it does differ. For instance, its interior is more elliptical, measuring some 230 cm on its north-south axis. Structure ABC-69b is constructed on the deeper bedrock surface; the elevation of the wall base here is some 55 cm lower than that of ABC-69a (see elevation view, fig. 9), vis-à-vis ABC-69a, which appears to have been built upon the hard-packed sandy soil surface overlying the bedrock. Whether this was a result of deliberate site preparation at the time of the original construction or a result of adapting the structure to natural topography at the site is under investigation. The mud brick wall

¹⁸ Cf., Arnold, *Encyclopedia of Architecture*, 179, 'Portcullis', and figure, p. 179, for a discussion and reconstruction of portcullis slabs readied for lowering down slots assisted by rollers, the rollers themselves mounted in notches cut into the top of the sidewall blocks.

¹⁹ Cf. Kemp, in Nicholson, Shaw, eds., *Ancient Egyptian Materials*, 94 and fig. 3.8 [b].

on the eastern side of ABC-69b survives to a height of some 120 cm on the eastern side, where pitch angle measurements were obtained. Brick size varies somewhat, with some bricks measuring the same 60 × 30 × 20 cm as those in ABC-69a, and others being even larger, around 60 × 40 × 30 cm. It is tempting to argue this could perhaps indicate different dates of construction, or different sources of mud bricks, or their reuse from elsewhere; however, such suggestions must be approached with caution.²⁰ The juncture of the east wall of ABC-69b with the west wall of ABC-69a (fig. 9), with the latter built against the former with a fill of sand and stones packing the northern triangularly shaped joint thus created between the two, argues that ABC-69b was probably at least completed first. The construction technique and brick pattern of the walls in this structure is the same as that in ABC-69a, and it was here, as noted, where pitch angle measurements were obtained. Wall thickness, at about 90 cm, is the same as structure ABC-69a. The walls, however, differ from those in ABC-69a in an important respect: they are built upon a foundation ring of hewn limestone blocks, whose thickness ranges from 25–30 cm (see fig. 9). These blocks in turn rest upon bedrock, which here is sloping towards the south. To level the blocks, and thus the walls, a layer of what is now hardened, dark brown, sandy *tafl* was applied between the blocks and the bedrock.

Like its counterpart, structure ABC-69b was filled with a 65–75 cm layer of loose soil backfill and wind-blown sand, which, given the difference in its floor depth, equaled just above surface level. Again, re-clearing was undertaken until the surface levels were exposed. No artifacts, flora, or faunal remains, were found in the fill or elsewhere in the structure. Unlike ABC-69a, which appears to have a limestone block floor, ABC-69b has a natural floor. Unlike ABC-69a, however, this floor has an irregular oblong cavity sunk into its northern and western sectors that reaches a maximum depth of 65 cm, making it at its deepest some 120 cm lower than the floor elevation in ABC-69a (see elevation, fig. 9). It remains unclear if this feature is natural, was created deliberately at the time of construction and thus served a purpose within the structure, or if it was dug out at a later time, i.e., as the result of past digging or previous archaeological excavations. The presence, however, of vertically oriented narrow white lines, or ‘pick-like’ marks, readily visible in some of the side-surfaces of the cavity perhaps favors the latter being the case. A dark-brown deposit of mud brick-like material covers the southern sector of the floor (fig. 9). This side of the structure is exposed directly to the effects of prevailing wind and weathering, this factor, vis-à-vis the depositional pattern off to one side of the wall, likely argues for this feature being a mudflow from the original brickwork.²¹

A single, carved, rectangular slab of white limestone remains *in situ* passing through the southeast side of the mud brick wall (fig. 9). The slab measures some 95 cm long, 35 cm wide (outside) and 20 cm wide (inside), and 15 cm thick. There is a square-shaped basin carved into the upper surface of the larger, outer, portion of the block which in turn transitions into a roughly 8–10 cm wide carved channel running the length of the block. The pitch is towards the interior (fig. 10). The design of the block also seems to match the one depicted in Abu-Bakr’s sketch (fig. 5), shown passing through the wall of structure ABC-69a on a line towards the limestone basin *in situ* within. Although eroded, especially the portion exposed outside the wall, it seems clear that the block *in situ* in ABC-69b served to channel liquid into the interior.

As in ABC-69a, entrance and egress for ABC-69b was gained through two limestone block passageways (figs. 6, 9), situated here in mirror image to those in

²⁰ The use of brick sizes as dating criteria or in assessing construction sequences is problematic. See, for example, the discussion by Kemp, in Nicholson, Shaw, eds., *Ancient Egyptian Materials*, 84–88, and his caution, 85, ‘Although this approach is attractive, there is little reason for thinking it to have much value’. Arnold, *Encyclopedia of Architecture*, 36, concurs with B. Kemp. Also, however, see Spencer, *Brick Architecture*, 147–148, and pls. 41–44.

²¹ See A. J. Spencer, ‘Mudbrick in Upper and Lower Egypt’, in C. Eyre, A. Leahy, L. M. Leahy, eds., *The Unbroken Reed: Studies in the Culture and Heritage of Ancient Egypt in Honor of A. F. Shore* (London, 1994), 319 and fig. 3, for an example at Tell el-Balamun.

the former. The longer, southwest oriented, passageway measures about 250 cm long, 50 cm wide, and 50 cm high. This passageway, like its counterparts, has a flooring of hewn limestone blocks, although here many are lost and none of those that do survive still retain slots. Only one wall block remains along the northwest side of the passageway. The largest wall block surviving on the southeast side measures 105 cm long, 50 cm high, and 15 cm thick, similar to its counterparts in the southeast passageway of ABC-69a. It also retains a carved, 10 cm wide, slot like its counterparts elsewhere. As noted, one apparent roof block was found lying in the interior of the structure, just inside the passageway, which was moved temporarily to the northern portion of the interior for its protection (visible in *fig. 9*). At the distal end of this passageway, an apparent blocking stone remains *in situ* (*fig. 9*). The block is positioned upright and is reinforced by two large stones placed against its outer surface. A temenos wall, now composed of only limestone cobbles, encloses the west and south sides of the Ipi-Persen mastaba complex (*figs. 3, 4*). This passageway, unlike the southeast passageway of ABC-69a, terminates within, instead of beyond, this southern temenos wall.

As in ABC-69a, a shorter limestone block passageway is built on the south side of the structure. Its construction is similar to its counterpart in ABC-69a, being some 50 cm interior width and 50–60 cm high, although it is longer, at 160 cm. The slabs forming the east wall are decayed badly, and now measure between 50–60 cm in length at their bases. Limestone floor slabs likewise remain *in situ*, but none retain carved slots. The distal slab of the western wall of the passageway retains a single 5 cm wide carved slot; the slab opposite is heavily decayed and retains no such trace. The proximal block on the eastern wall of the passageway retains a single 8–10 cm vertical slot. The slot contains traces of pinkish colored *tafl*-plaster or mortar; whether or not this indicates something was once affixed here, or the surface was smoothed to facilitate operating a sliding door, or if this is an artifact from an earlier use of the block elsewhere, remains under study. The slab opposite likewise is heavily eroded and retains no such trace. Again, whether or not this passageway, like its counterpart in structure ABC-69a, was ever longer than it is now most likely cannot be determined due to the present deflated state of the site.

IV. Discussion

Structures ABC-69a and ABC-69b are enigmatic. The archaeological data obtained about them to date, it must be reiterated, is preliminary in nature and subject to change. The information gathered to date does, however, open avenues of investigation and, hopefully, creates paths for further discussion.

Prof. Dr. Abu-Bakr offered the suggestion that these two structures were ‘cage du hyène’.²² While this suggestion may yet be borne out, it must, at this point, remain for now just that, a possibility. Data gathered to date does not yet indicate what precisely these two structures were; however, it is sufficient to begin putting them into a context broader than just description. Perhaps by evaluating several possibilities of what they may have been, what they actually were can begin to come to light.

Given the location, in a cemetery, and their construction adjoining a mastaba, itself a part of a larger mastaba complex, that of Persen (LG-20, 21), an obvious suggestion could be made that these structures were tombs. If nothing else, data gathered to date appears to argue against this suggestion. If in fact they were domed once, combined with being freestanding circular structures, with two floored and roofed, hewn limestone block passageways each, such a configuration alone would make them uncommon, if not unique, among ancient Egypt’s mortuary structures (*fig. 1*). As mentioned above (note 14) there are domed, beehive-shaped, and egg-shaped tombs being uncovered elsewhere at Giza, in the Workmen’s Cemetery. In

²² Abu-Bakr, *Excavations at Giza, 1949–1950*.

the lower sector of that cemetery, there are in fact a number of simple, two to six feet high, domed mud brick tombs. These are quite different, however, from structures ABC-69a & b.²³ In terms of mud brick construction technique, the two structures resemble superficially a circular serdab at Abydos reported by Frankfort.²⁴ Like the Workmen's tombs, however, the absence of above ground passageways or a serviceable interior basin makes the Abydos serdab quite different from the two Abu-Bakr Cemetery structures, certainly in form, and perhaps in function.²⁵ The preponderance of uncommon, apparently non-mortuary, features, configured as found in ABC-69a & b, favors an argument against these structures ever having functioned as tombs.²⁶

Other well-attested examples of rounded or ovoid structures in ancient Egypt are granaries, or silos.²⁷ Again, however, data available to date on structures ABC-69a & b argues against this suggestion. D. Arnold²⁸ notes that granaries and silos occur primarily in settlement and temple contexts, which is clearly not the case here. The construction techniques of granaries and silos, vis-à-vis structures ABC-69a & b, highlight their differences, not their similarities.²⁹ An exhaustive discussion of granaries and silos per se is not included in this report; however, the examples cited exhibit different configurations of features than those found in structures ABC-69a & b.

Beehive-shaped mudbrick structures that functioned as either silos and/or tombs are attested at the pyramid complex of Amenemhat I at Lisht. These constructions, however, are associated with the remains of a later, Twenty-second Dynasty onwards, village complex built around the base and upon the flanks of the earlier Twelfth Dynasty pyramid. These structures served to store a variety of materials, including jars of dried lizards, wrapped iguanas, the bones of large animals, and three of them bore multiple human burials arranged in single pits dug into the floor.³⁰ The shape of the structures at Lisht mimics the building technique found in structures ABC-69a & b at Giza, a testament to the utility of the general

²³ See Hawass, *Archaeology* 50 (1997): 39–41, for a description and photographs. Here, the domed mud brick tombs cover simple rectangular grave pits, no evidence for which exists in either ABC-69a or b. Similarly, none of the domed tombs in the Workmen's Cemetery have dual limestone block passageways or carved limestone block 'water systems', as are found in ABC-69a & b. The other dome-like tombs differ significantly in raw materials (e.g., limestone block walls), overall design, and construction techniques (e.g., corbelling).

²⁴ See above, note 14.

²⁵ For examples of offering basins attested in private tombs, see, for example, A. Moret, *Catalogue Général des Antiquités Égyptiennes du Musée du Caire, Denkmäler des Alten Reiches III, Monuments de l'Ancien Empire III, Autels, Bassins et Tables d'Offrandes* (Cairo, 1978, edited and revised by D. Abou-Ghazi), also, see D. Abou-Ghazi, *Catalogue Général des Antiquités Égyptiennes du Musée du Caire, Denkmäler des Alten Reiches III, Alters and Offering Tables* (Cairo, 1980); also, a limestone libation basin was found in a purification room in the pyramid temple of Khentkawes at Abusir; see, M. Verner, *Abusir III. The Pyramid Complex of Khentkaus* (Prague, 2001), 30 and pl. 8, fig. 38.

²⁶ See also, Spencer, *Brick Architecture*, 10–58, for other examples of mud brick funerary architecture, none of which repeat the design found in ABC-69a & b.

²⁷ Cf., Badawy, *Architecture*, Vols. I–III, for examples of granaries and silos spanning ancient Egyptian history; see also, for example, Smith, *Sculpture*, 14, 20, 204, 208–09, to name but two.

²⁸ Arnold, *Encyclopedia of Architecture*, 99–100.

²⁹ D. Arnold, *ibid.*, notes that in the Old Kingdom, granaries usually were long, vaulted chambers arranged in long rows, and from the Middle Kingdom they are known in groups of 'three rows of three interconnected chambers, probably with vaulted roofs'. Further, from the Middle Kingdom onwards, they are attested as 'freestanding beehive-shaped cupolas of brick often built in groups and constructed of rows of brick corbelling... their floors sunk slightly below ground level... openings for filling at the apex were accessible via ladder or stairs'.

³⁰ A. C. Mace, 'The Egyptian Expedition: The Pyramid of Amenemhat', *BMMA* III (1908): 184–186 and fig. 5; in the same volume, see also 84, fig. 2. Also, *idem*, 'Excavations at the North Pyramid at Lisht', *BMMA* X (1914): 207–210. See also, *idem*, 'The Egyptian Expedition, 1920–21', *BMMA* XVI (1921): 8, fig. 6; and, *idem*, 'Excavations at Lisht', *BMMA* XVII (1922): 13–16, and fig. 9, 15–17.

design, with an important difference, however – the Lisht structures do not have slotted, dual limestone entrance passageways.

Additional occurrences of circular or ovoid structures in ancient Egypt are ovens and pottery kilns. The very location of structures ABC-69a & b alone, in an isolated sector of the Western Field and directly against a limestone mastaba wall, likely argues that they functioned as neither ovens nor kilns. Food production areas, including bakery facilities with ovens, are attested elsewhere at Giza; however, these occur in a settlement context, the village of the pyramid workers.³¹ Pottery manufacture, including kiln facilities, is attested in a funerary context, albeit not in the actual cemetery, at the pyramid temple of Khentkawes at Abusir, however, its presence in such a context is considered ‘surprising’.³² Pottery kilns are well attested elsewhere in ancient Egypt, for example, those excavated in building Q48.4 at Amarna. When comparing these with structures ABC-69a & b, however, significant differences emerge.³³ For example, the Amarna kilns were sunk into the ground, unlike ABC-69a, and although ABC-69b has a cavity sunk into the ground in one sector, it is unclear whether or not this feature is ancient or modern. The mudbrick bonding pattern in the Amarna kilns differs from that in ABC-69a & b, as do brick sizes.³⁴ More importantly, the lengthy limestone block passageways of both ABC-69a & b are not present on the Amarna kilns, which instead possess single stoke holes. That structures ABC-69a & b did not function as ovens or kilns is perhaps best evidenced by the fact that neither structure was found to contain evidence of burning or heat; for example, ash deposits were not encountered, mud bricks do not exhibit signs of burning, nor do the limestone walls of the adjacent mastabas; bones, many of them small and fragmentary, some recovered embedded in the ‘living floor’ layer inside ABC-69a, were not burnt, and the portion of the limestone block floor in ABC-69a exposed in the 2004 season did not appear burnt.

Circular constructions that once apparently were part of a centralized mortuary cult are attested at Abusir, at the mortuary complex of Mernefu, Khekeretnebt, and Neskauhor. In the courtyard area central to the mastabas is an arrangement of four circular mudbrick offering tables, most likely focused on the cult of Khekeretnebt. While the diameters of these structures, from 98 cm to 112 cm, approach those of structures ABC-69a & b, they are all quite low, ranging from only 6 cm to no more than 24 cm high. Their association with a limestone offering table and shallow basins further strengthens an argument that they served a cultic function and thus are quite different from ABC-69a & b.³⁵

At this time, therefore, available data seemingly favors an argument that structures ABC-69a & b were not constructed as tombs, granaries, silos, or kilns. Whether or not these structures could, in some capacity, once have constrained an as yet unidentified type of animal(s), hyenas being among the possibilities, requires further discussion.

That ABC-69a & b were likely animal enclosures, or cages, is paralleled elsewhere, albeit later in time, and in a settlement, not a funerary, context. At the workmen’s village at Amarna, I. Shaw reports animal pens comprising Building

³¹ Cf., M. Lehner, ‘Excavations at Giza 1988–1991: The Location and Importance of the Pyramid Settlement’, *Oriental Institute News and Notes*, no. 135 (1992).

³² Verner, *Abusir III*, 34. See also, M. Verner, ‘Discovery of a Potter’s Workshop in the Pyramid Complex of Khentkaus at Abusir’, in *CCÉ 3* (1992): 55–60. See also, J. Bourriau, P. Nicholson, P. Rose, ‘Pottery’, in Nicholson, Shaw, eds., *Ancient Egyptian Materials*, 137–138.

³³ See P. Nicholson, ‘Report on the 1987 Excavations: The Pottery Kilns in Building Q48.4’, in B. J. Kemp, ed., *Amarna Reports V* (London, 1989), 64–81; in the same volume, see also P. J. Rose, ‘Report on the 1987 Excavations: The Evidence for Pottery Making at Q48.4’, 82–101. For an illustration of a Late Period kiln, cf. C. Hope, *Egyptian Pottery* (Princes Risborough, 1987), 18.

³⁴ Cf., P. Nicholson, in Kemp, ed., *Amarna Reports V*, figs. 3.4, 3.5, 3.6, 3.8; regarding brick sizes in general, see note 21 above.

³⁵ M. Verner, ‘Excavations at Abusir Season 1978/1979: Preliminary Report’, *ZÄS 107* (1980): 167–168, fig. 10.

400.³⁶ One of the pens, Area *x*, includes in its construction a semi-circular limestone block wall, and two of the pens, Areas *ix* and *xi*, include in their construction an inward-pitched, semi-circular, mud brick wall.³⁷ It is unclear if these structures were roofed or not, or if they were covered simply with grasses or matting to provide shade.³⁸ Areas *ix* and *xi* each have a single entrance, measuring 35 cm wide and 67 cm high (reduced to 23 cm by the addition of threshold bricks) for the doorway of Area *ix*, and 34 cm wide for that in Area *xi*.³⁹ It is estimated that the walls of all three semi-circular pens stood to a maximum height of 82 cm, a height, it is suggested, sufficient to allow a person to step over the wall to access or service the interior.⁴⁰ The mud brick walls of the pens are, therefore, some 28 cm lower than the surviving north wall in structure ABC-69a at Giza.⁴¹ Area *vi*, which together with Area *ix*, configures a sector of the building, contained, *in situ*, a limestone feeding/watering trough measuring 70 × 20 cm.⁴² Preliminary analysis of organic remains, coprolites, and parasitic eggs leaves little doubt that Building 400 at Amarna functioned as an animal containment facility, most likely for pig husbandry.⁴³

Elsewhere at the Amarna workmen's village, specifically in Buildings 200,⁴⁴ 250⁴⁵ and 300,⁴⁶ additional animal pens are reported. Area *iv* of Building 300 is a pen made by running a curved, inward-pitched, mudbrick wall from the *gebel* face to an adjoining limestone block wall. This pen, like its counterparts in Building 400, contains a single rectangular doorway (here measuring 35 cm wide and 45 cm high), flanked on the outside by projecting buttresses.⁴⁷ Notably, this doorway retains the remains of traces of wooden poles that once ran between the buttresses, positioned in such a way to suggest that, although they are not definitive proof for the fact, they once may have held a sliding door in place.⁴⁸ Elsewhere at Building 300, Areas *vii* and *viii* together form an outer court with an inner pen, and a rectangular limestone feeding/watering trough was found *in situ* in the court.⁴⁹ The analysis of organic remains recovered in the pen likely indicates that it, also, once had a role in pig husbandry.⁵⁰

Further study will substantiate what structures ABC-69a & b actually were; however, the discussion above suggests several possibilities of what perhaps they were not. Although differences exist between the two Giza structures and the animal pens at Amarna, the similarities between the two supports the earlier suggestion of Prof. Dr. Abu-Bakr that the Giza structures once confined animals. Several factors combine to reinforce this suggestion. The overall size, the circular design, the inward-pitch of the walls (which may indicate the past presence of

³⁶ I. Shaw, 'Report on the 1983 Excavations: The Animal Pens (Building 400)', in B. Kemp, ed., *Amarna Reports I* (London, 1984), 40–59, also figs. 4.1, 4.2, 4.3, 4.4, 4.7.

³⁷ *Ibid.*, 45.

³⁸ *Ibid.*, 42.

³⁹ *Ibid.*, 44–47.

⁴⁰ *Ibid.*, 42.

⁴¹ Brick sizes for these two walls were not included in the report. An comparison of the photographs of the wall of Area *ix* (*ibid.*, figs. 4.3 and 4.4, 45–46), however, *vis-à-vis* the meter stick shown and the surviving number of courses of bricks visible (5–6), suggests that brick size here is smaller than that in structures ABC-69a & b at Giza, perhaps by nearly half.

⁴² *Ibid.*, 45.

⁴³ *Ibid.*, 49–53, 56–59.

⁴⁴ A. Bowmann, 'Report on the 1986 Excavations, Building 200: Animal Pens and Plant Beds', in B. Kemp, ed., *Amarna Reports IV* (London, 1987), 47–54.

⁴⁵ A. Bowmann, 'Report on the 1985 Excavations, Building 250: A Set of Animal Pens', in B. Kemp, ed., *Amarna Reports III* (London, 1986), 34–49.

⁴⁶ L. Hulin, 'Report on the 1985 Excavations, Building 300: A Set of Animal Pens', in *ibid.*, 50–59; see also, L. Heidorn, 'Report on the 1986 Excavations: The Completion of the Main Chapel and Further Examination of Animal Pens 300', in Kemp, ed., *Amarna Reports IV*, 56–69.

⁴⁷ Hulin, *ibid.*, 53–55, fig. 3.4, 3.5.

⁴⁸ *Ibid.*, 55 and fig. 3.5.

⁴⁹ *Ibid.*, 56 and fig. 3.6.

⁵⁰ *Ibid.*, 58.

domes or partial domes), along with the existence of an apparent water supply system into the structures, all parallel aspects of known animal pens at Amarna. The four limestone passageways at Giza each retain evidence of slots, certainly at least capable of holding sliding doors, located at the juncture with the outside wall of each structure. Other extant slots in the walls of the passageways may indicate the one-time presence of additional doors. In a complete state, the small interior dimension of each passageway would make their use by humans impractical, although not impossible (e.g., by children), which, combined with the presence of roofs, floors, and likely doors, bolsters a suggestion that the passageways, like the structures themselves, were designed for use in animal management. The presence of animal bones within ABC-69a does not in and of itself confirm that the structure was an animal enclosure in antiquity; feral dogs and other animals continually frequent the Western Field, inhabiting tombs even today. Beginning next field season, zooarchaeological analysis of the recovered bones, especially those embedded in the 'living floor' layer, will ascertain the species represented and their distribution within the interior.

The domestication of animals in ancient Egypt dates to at least the seventh millennium BCE and a formidable body of literature has been published on the topic.⁵¹ A wide variety of fauna were utilized as foodstuffs: to name a few, avifauna (birds, ducks, geese), bovines (cattle), ovicaprids (goats, sheep), swine, fish, and a plethora of hunted mammals such as antelope, deer, gazelle, hippopotamus, and oryx.⁵² Among these, 'essentials' such as cattle, goats, sheep, pigs and poultry were domesticated.⁵³ The wide variety of animal life interplay in ancient Egyptian life is evidenced at Amarna, for example. In 1982, a preliminary study was made of over 3000 animal bones, collected from the workmen's village and its surroundings from 1979 until then, that revealed the presence of additional mammals such as *Equus asinus* (domestic donkey), *Equus caballus* (domestic horse), *Canis familiaris* (domestic dog), *Vulpes vulpes* (Nile fox), *Gerbillus pyramidum* (greater gerbil), and *Hyaena hyaena* (striped hyena).⁵⁴

By definition, domesticated animals require places to keep them. Large domesticates in numbers of more than a few, such as cattle, require space sufficient to raise, feed, slaughter, and process them, thus in ancient Egypt they were likely purvey of estates.⁵⁵ The location, size, and design of the animal pens at Amarna, discussed above, are such that it was suggested that they not only housed pigs to supply the workmen's village, but the entire city as well.⁵⁶ The design and location of animal containment facilities, such as those at Amarna in particular, can perhaps yield suggestions regarding the occupants of structures ABC-69a & b in general.

The location of ABC-69a & b, in an outlying sector of the Western Field beyond which lays desert, against the southern wall of a pre-existing mastaba and bisecting a temenos wall of a larger mastaba complex, is an enigma in its own right. Distant

⁵¹ Cf. F. Wendorf, R. Schild, *Prehistory of the Nile Valley* (New York, 1976); also, F. Wendorf, 'Early Domestic Cattle in the Eastern Sahara', in *Paleoecology of Africa and the Surrounding Islands*, Vol. 18 (Rotterdam, 1987), 441–448; also P. F. Houlihan, *The Animal World of the Pharaohs* (New York, 1996), 12; see also, S. Ikram, 'Meat Processing', in Nicholson, Shaw, eds., *Ancient Egyptian Materials*, 656; also, A. Gautier, 'The Early to Late Neolithic Archeofaunas from Nabta and Bir Kiseiba', in F. Wendorf & R. Schild, et al., *The Holocene Settlement of the Egyptian Sahara, Volume I: The Archaeology of Nabta Playa* (New York, 2001), 609–635.

⁵² S. Ikram, *Choice Cuts: Meat Production in Ancient Egypt*, OLA 69 (1995), 40. See also, E. Strouhal, *Life of the Ancient Egyptians* (Norman, 1992), 109–123.

⁵³ Ikram, in Nicholson, Shaw, eds., *Ancient Egyptian Materials*, 656; see also, A. Gautier, 'Fauna, Domesticated', in K. Bard, ed., *Encyclopedia of the Archaeology of Ancient Egypt* (New York, 1998), 300–306.

⁵⁴ H. M. Hecker, 'Preliminary Report on the Faunal Remains from the Workmen's Village', in Kemp, ed., *Amarna Reports I*, 154.

⁵⁵ Cf., Strouhal, *Ancient Egyptians*, 110; also, for example, G. Wenzel, 'Daily Life in the Home-The House as Living Area', in R. Schulz, M. Seidel, eds., *Egypt: World of the Pharaohs* (Cologne, 1998), 399–409.

⁵⁶ Strouhal, *Ancient Egyptians*, 112.

from ready sources of food and a steady supply of water, any animals that were kept in these structures would have required habitual care and maintenance. The reason for keeping animals in this part of the Western Field, or, in fact, anywhere in a cemetery complex, is unclear, an obvious suggestion being for their inclusion in funerary offering rituals. Additionally, another suggestion regarding the location of these structures could be that whatever these animals were, they, like the pigs at Amarna, were best confined away from settlement areas for reason of their life ways and/or their temperament. Such suggestions are certainly possibilities, yet they remain uncorroborated at this time.

The design and construction of ABC-69a & b requires further comment. Not only are these two structures uncommon in their overall design, their overall construction is uncommon in the measures taken to secure whatever lived within them. Unlike the animal pens at Amarna, whose mud brick walls might 'collapse under a person's weight',⁵⁷ the 90 cm thick walls in ABC-69a & b are built with sizeable bricks, 60 × 30 × 20 cm, a size more in keeping with monumental architecture.⁵⁸ The circular design and inward-pitch of these walls, if in fact once forming a dome, or even a partially closed dome, would have curtailed an occupant's ability to escape. Unlike the animal pens at Amarna, whose doorways were mudbrick buttresses against the outer wall of the pen, the dual passageways servicing ABC-69a & b are of limestone block, with roofs, floors, and likely with multiple sliding doors, further adding to each structures' apparently fortress-like strength. Unlike the containment measures required to control pigs, goats, sheep, or fowl, the measures employed to confine the species that once inhabited these structures seemingly reflects a response to a need for a higher level of security.⁵⁹ Among the numerous members of the ancient Egyptian animal world,⁶⁰ several candidates perhaps requiring such restraint measures can be suggested: for example, jackals,⁶¹ hyenas,⁶² and large cats such as cheetahs, jaguars, and lions.⁶³

As noted above, another field season of re-clearing structure ABC-69a, followed by paleobotanical and zooarchaeological analyses of its floral and faunal remains, is required before the earlier suggestion that these structures were 'cage du hyène' can be corroborated. Whether or not this suggestion is even feasible, however, can be addressed.

It has been shown that the hyena, *h.t.*,⁶⁴ is well attested in ancient Egypt, with at least 80 representations recorded spanning the Predynastic period to the New Kingdom.⁶⁵ The hyenas depicted are the striped hyena, *Hyaena hyaena*, whose range includes all of North Africa, parts of East Africa, the whole of the Middle East into South Asia and east India. Environmental interplay between humans and hyenas in Egypt dates back to at least the Middle Pleistocene, as evidenced in the Dakhleh Oasis, for example.⁶⁶ Folktales reflecting cultural associations with hyenas are documented in East Africa and elsewhere in modern times.⁶⁷

⁵⁷ Hulin, in Kemp, ed., *Amarna Reports* III, 55.

⁵⁸ See note 11, above.

⁵⁹ These large mud bricks could have been reused from elsewhere. The inclusion of 'fortified' passageways in the construction plan, however, seemingly argues for the structures having been designed specifically for strength and durability.

⁶⁰ Cf., D. J. Osborn, J. Osbornová, *The Mammals of Ancient Egypt* (Warminster, 1998); also, for example, Ikram, *Choice Cuts*; also, Houlihan, *Animal World of the Pharaohs*; also, P. Germond, *An Egyptian Bestiary* (New York, 2001).

⁶¹ Cf., Osborn, Osbornová, *Mammals*, 55–57.

⁶² *Ibid.*, 97–104; also, S. Ikram, 'Hunting Hyenas in the Middle Kingdom: The Appropriation of Royal Image?', in N. Grimal, A. Kamel, C. M.- Sheikholeslami, eds., *Hommages à Fayza Haikal*, *BdE* 138 (2003), 141–148.

⁶³ *Ibid.*, 113–123.

⁶⁴ R. Hannig, *Ägyptisches Wörterbuch* I (Mainz, 2003), 912. Also, *Wb.* III, 203.

⁶⁵ Ikram, *MDAIK* 57 (2001): 127.

⁶⁶ C. S. Churcher, M. R. Kleindienst, H. P. Schwarcz, 'Faunal Remains from a Middle Pleistocene Lacustrine Marl in Dakhleh Oasis, Egypt: Palaeoenvironmental Reconstructions', *Palaeogeography, Palaeoclimatology, Palaeoecology*, no. 154 (1999): 301–312.

Equipped with a large head and massive, powerful jaws capable of crushing bone, striped hyenas average 60–90 cm in height, 100–120 cm in length, and weight 25–55 kg. They prefer open or rocky terrain to true desert and require a supply of water within 10 km. Hyenas are solitary in nature, with the females dominating males; they are also nocturnal and avoid daylight by staying under rocky overhangs or in crevices. Female hyenas are particularly fierce if protecting young, who are reared in caves, rocky crevices, or holes, dug by their parents. In Egypt, tombs can be usurped as dens. Hyenas are foragers and scavengers whose diet consists of a wide variety of plant and animal life, including insects, reptiles, birds, fruits, vegetables, and human detritus. So well adapted are their digestive systems, hyenas even digest bone. In fact, practically the only thing hyenas cannot digest is hair.⁶⁸

In the Predynastic period, hyenas are depicted in hunt scenes or as wild animals.⁶⁹ In the Middle and New Kingdoms, hyenas are depicted in tomb paintings for the most part as being hunted, pierced by arrows, or being returned as part of a kill.⁷⁰ By far the greatest number of depictions of hyenas occurs in the Old Kingdom; there are at least 52 tombs and one mortuary temple that portray them.⁷¹ These all, however, with the exception of one, a scene in the tomb of the Fifth Dynasty pharaoh Sahura,⁷² depict hyenas being led to the deceased, often on leashes, as offerings, such as that in the tomb chapel of Persen (LG-20, 21) (*fig. 11*),⁷³ being borne on shoulders in a procession, such as in the mastaba of Khafkhufu at Giza,⁷⁴ being carried in the arms of a mortuary priest, such as on the false door of Iteti,⁷⁵ as an item in menu lists, such as that in the tomb of Seshathotep at Giza (*fig. 12*),⁷⁶ or, as is found in the mastabas of Kagemni and Mereruka at Saqqara, with bound legs being force-fed and thus fattened (*fig. 13*).⁷⁷ That hyenas were actually consumed as food during this time period seems quite clear. As noted above, the hyena depicted in the tomb of Seshathotep is included in a menu list of consumable meats, along with fowl and other foodstuffs.⁷⁸ A hyena depicted in the Old Kingdom mastaba of Iymery at Giza is shown tethered next to a young animal, possibly a cow, along with a gazelle. Texts accompanying the scene translate as ‘fattening’ and ‘bringing invocation offerings from the towns of the funerary estate at every festival celebration, every day, forever’,⁷⁹ thereby identifying

⁶⁷ Cf. G. Calame-Griaule, Z. Ligers, ‘l’Homme-Hyène dans la Tradition Soudanaise’, *l’Homme*, Vol. 1, no. 1 (1961): 89–118; also, T. O. Beidelman, ‘Further Adventures of Hyena and Rabbit: The Folktale as a Sociological Model’, *Africa*, Vol. XXXIII, no. 1 (1963): 54–69.

⁶⁸ R. M. Nowak, *Walker’s Mammals of the World*, 6th ed., Vol. I (Baltimore, 1999), 790–91; and, H. Kruuk, ‘Feeding and Social Behavior of the Striped Hyaena’, *East African Wildlife Journal*, Vol. 14, no. 2 (1976): 91–111; also, R. D. Estes, *The Behavior Guide to African Mammals* (Berkeley, 1991): 323–331; also, Osborn, Osbornová, *Mammals*, 97–98; and Ikram, *MDAIK* 57 (2001): 127.

⁶⁹ *Ibid.*, 131–133 and Table 1, 135; also Osborn, Osbornová, *Mammals*, 98.

⁷⁰ See Ikram, *MDAIK* 57 (2001) for a thorough discussion and examples of other representations, also Tables 3 & 4, 138–140.

⁷¹ *Ibid.*, 130.

⁷² In this case, the hyena is shown being hunted, pierced with arrows, suggesting the practice was perhaps still a royal prerogative at the time. See Ikram, *ibid.*, 130–131, and, Ikram, ‘Hunting Hyenas’. Also Osborn, Osbornová, *Mammals*, 97 and 102; and, Borchardt, *Sahure* II, pl. 17.

⁷³ See also, for another example, W. K. Simpson, *The Offering Chapel of Sekhem-Ankh-Ptah in the Museum of Fine Arts, Boston* (Boston, 1976), 11 and pl. X.

⁷⁴ W. K. Simpson, *The Mastabas of Kawab, Khafkhufu I and II, Giza Mastabas 2* (Boston, 1978), 17, pl. XXII (b.), fig. 33.

⁷⁵ S. Curto, *Gli Scavi Italiani a el-Ghiza 1903* (Rome, 1963), 39, fig. 7, pl. VII. This false door was excavated by Schiaparelli at Giza and it is located now in the Egyptian Museum, Turin. Also, S. Curto, ‘The Royal Sites: Heliopolis and Giza’, in A. M. Donadoni Roveri, ed., *Egyptian Civilization: Religious Beliefs* (Turin, 1988), 61 and pl. 69.

⁷⁶ See Junker, *Giza* III, 74, fig. 9a.

⁷⁷ See F. von Bissing, *Die Mastaba des Gem-ni-kai*, Vol. 1 (Berlin, 1905), 10–11 and pls. XI, XII; also Klebs, *Reliefs* I, 64–65. See also, Duell, *Mereruka* II, pl. 153.

⁷⁸ See note 74 above and plate VIII, fig. 12, below.

⁷⁹ K. R. Weeks, *Mastabas of Cemetery G 6000 including G 6010 (Neferbaupth); G 6020 (Iymery); G 6030 (Ity); G 6040 (Shepseskafankh), Giza Mastabas 5* (Boston, 1994), 38, for a description of the scene and transliteration of the text, see also fig. 31. A note of appreciation goes to E. Brovarski for bringing this scene to the author’s attention.

this hyena as a food product. The practice of consuming hyenas would make the Egyptians a rarity among ancient peoples in doing so,⁸⁰ however, it is argued that the existence of the practice should not be considered strange.⁸¹ The Old Kingdom depictions of hyenas also often show the animal with its tail, and sometimes its ears, lowered, which, in the wild, are signs of submission.⁸² It is evident, therefore, that in the Old Kingdom at least, an effort was made to domesticate hyenas; whether or not this was an endeavor aimed solely at the consumption of the animal, or for some additional purpose(s), remains under investigation.⁸³

Again, regardless of the reasons for doing so, any attempt at animal domestication creates the need for a means to contain the individuals, certainly the case with hyenas. It must be reiterated once more that structures ABC-69a and ABC-69b are enigmatic, and that the archaeological data obtained about them to date is preliminary in nature, and thus subject to revision and change. The Expedition's forthcoming zooarchaeological investigation of the faunal remains found *in situ* within ABC-69a, and their distribution, could help support, or negate, the suggestion that hyenas were housed in these structures. Archaeological investigation of known hyena occupation sites provides positive precedents.

For example, K. Cruz-Urbe has proposed three broad factors to consider in the initial analysis of animal bone accumulations at hyena sites: the ancient environment, which determines what animals were available at the time; the behavior patterns of the collector(s) of the bones; and, the effects of post-depositional processes.⁸⁴ K. Cruz-Urbe further presents six criteria for distinguishing hyena bone accumulations from those of hominids; carnivore-ungulate ratio, damage to bone surfaces, bone breakage, cranial-postcranial ratio, representations of small, hard bones, and, age profiles.⁸⁵ T. Pickering has restudied these criteria and reduced them to three: carnivore-ungulate ratio, the preserved condition of long bone specimens, and the types of bone surface modifications.⁸⁶ M. M. Selvaggio and J. Wilder have studied bone accumulations and tooth mark patterns where multiple carnivores, including hyenas, occupied the same site, albeit at different times.⁸⁷ The analysis of tooth mark patterns, including those left by hyenas, are certainly applicable to the study of the faunal remains in ABC-69a.

In short, pathways for further study are established, pathways to determine with accuracy whether or not the two structures were cages for hyenas. In the meantime, the examination above of data obtained to date, does, however, certainly leave open the possibility that Prof. Dr. Abu-Bakr may have been correct.

⁸⁰ D. Brothwell & P. Brothwell, *Food in Antiquity: A Survey of the Diet of Early Peoples* (Baltimore, 1998), 37–39. Also Ikram, *Choice Cuts*, 6.

⁸¹ Curto, in Donadoni Roveri, ed., *Egyptian Civilization: Religious Beliefs*, 61.

⁸² Cf., Estes, *Behavior Guide*, 327; also, for references to types and locations of Old Kingdom hyena depictions, see Ikram, *MDAIK* 57 (2001): Table 2, 135–138.

⁸³ Cf., *idem*, *Choice Cuts*, 22–23; Osborn, Osbornová, *Mammals*, 100–101.

⁸⁴ K. Cruz-Urbe, 'Distinguishing Hyena from Hominid Bone Accumulations', *Journal of Field Archaeology* 18, no. 4 (1991): 467–486.

⁸⁵ *Ibid.*, 475–483.

⁸⁶ T. Pickering, 'Reconsideration of Criteria for Differentiating Faunal Assemblages Accumulated by Hyenas and Hominids', *International Journal of Osteoarchaeology* 12 (2002): 127–141.

⁸⁷ M. M. Selvaggio, J. Wilder, 'Identifying the Involvement of Multiple Carnivore Taxa with Archaeological Bone Assemblages', *Journal of Archaeological Science* 28 (2001): 465–470; see also, T. R. Pickering, R. J. Clarke, and J. Moggi-Cecchi, 'Role of Carnivores in the Accumulation of the Sterkfontein Member 4 Hominid Assemblage: A Taphonomic Reassessment of the Complete Hominid Fossil Sample' (1936–1999), *American Journal of Physical Anthropology* 125 (2004): 1–15.



Fig. 2 Satellite view of Giza plateau, showing Abu-Bakr Cemetery (highlighted, upper right; courtesy of Space Imaging, Inc., Ikonos satellite image, 2002)



Fig. 3 Mastaba complex of Ipy (LG-19), Persen and Irukaukhufu (LG-20, 21). Map by J. Gilliland, J. Langford, R. L. Cook, 2004

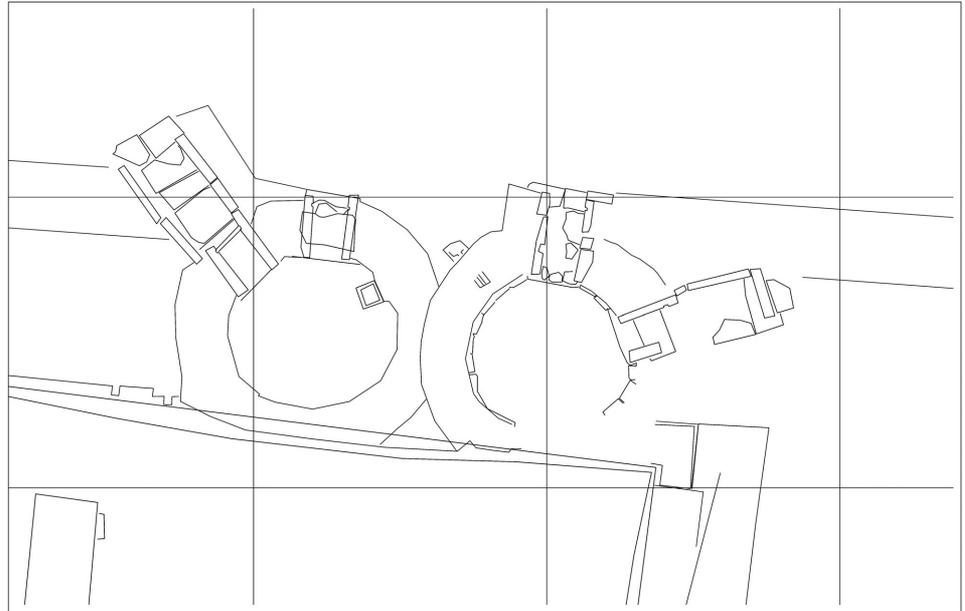


Fig. 4 Survey map detail with circular structures ABC-69a (left) and ABC-69b (right). Map by J. Gilliland, J. Langford, R. L. Cook, 2004

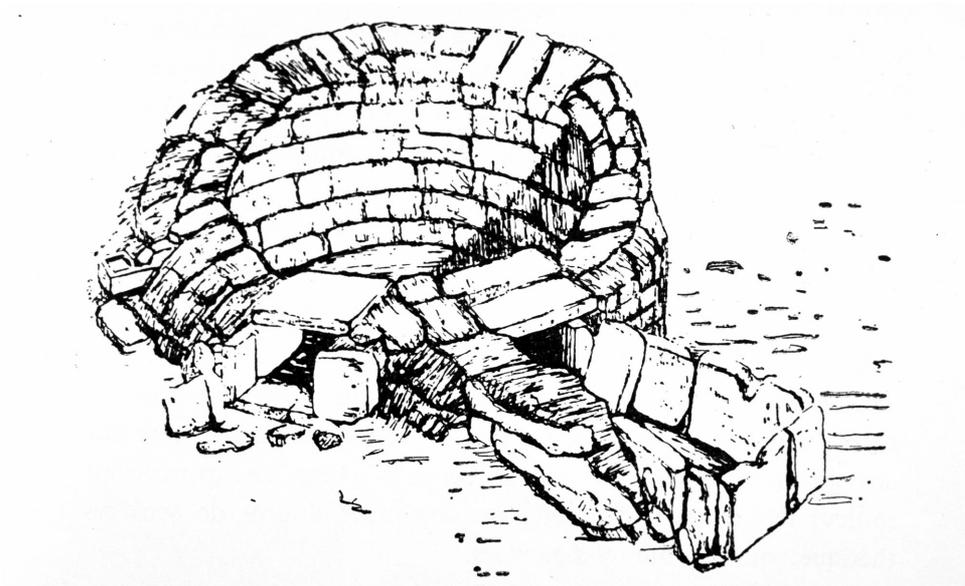


Fig. 5 Sketch of structure ABC-69a, ca. 1950–51 (after Abu-Bakr, *La Revue du Caire* 33 [1954])



Fig. 6 Structures ABC-69a (right) and ABC-69b (left) prior to re-clearing in 2004 (photo by the author)



Fig. 7 Structure ABC-69a after re-clearing in 2004 (photo by the author)



Fig. 8 Passageways, ABC-69a, prior to re-clearing in 2004 (photo by the author)

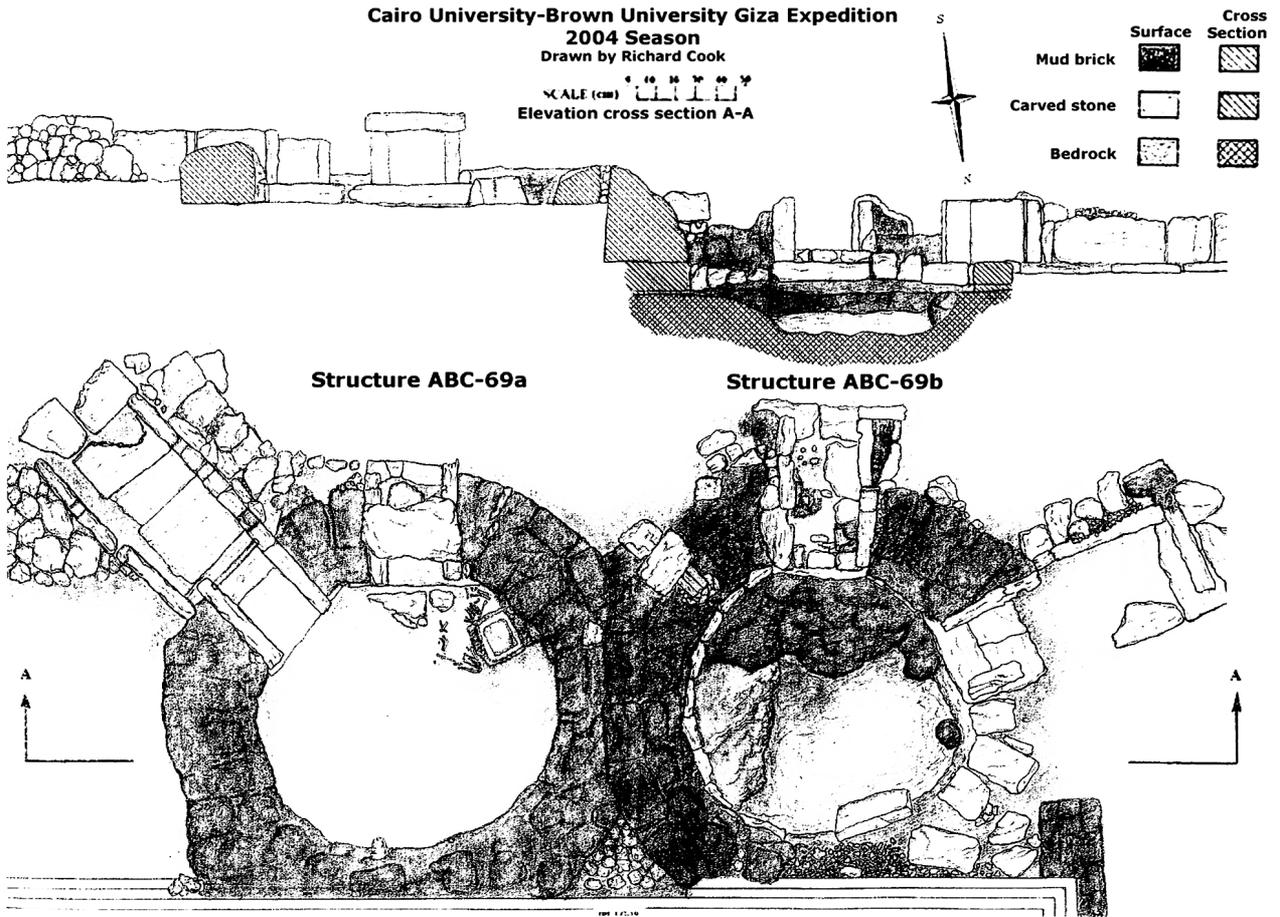


Fig. 9 Plan and elevation, structures ABC-69a (left) and ABC-69b (right). Plan and drawing by R. L. Cook, 2004

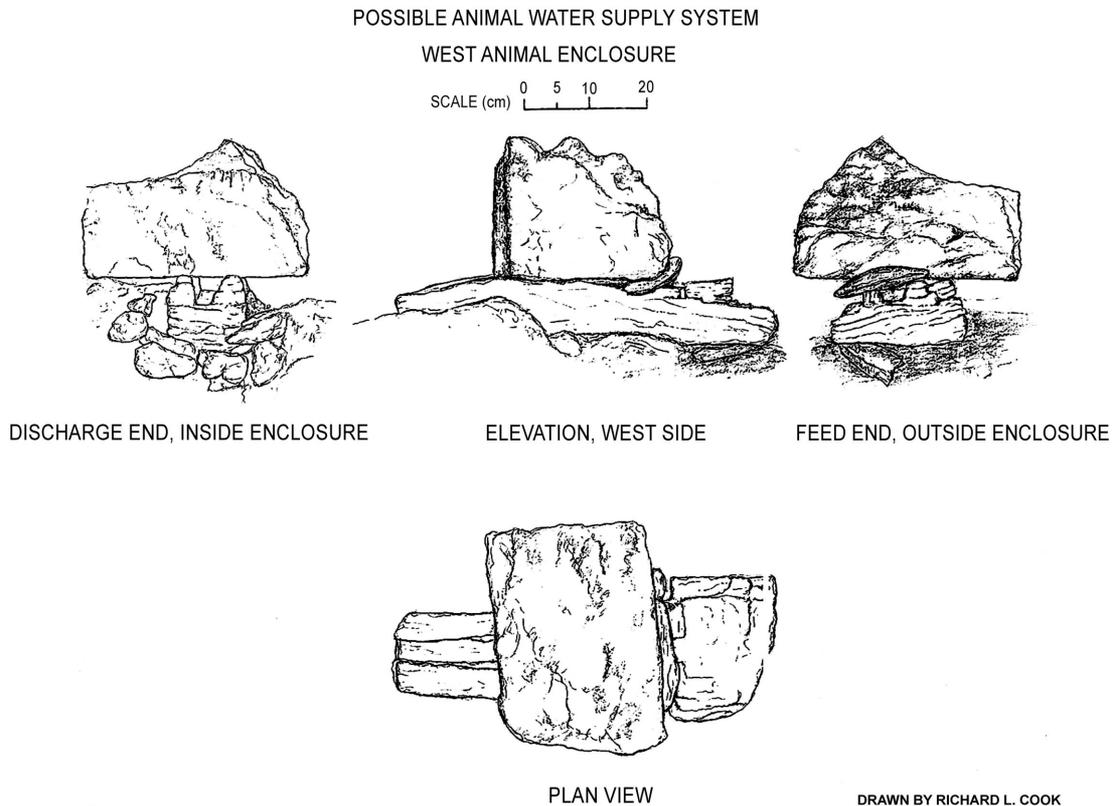


Fig. 10 Limestone water channel feature, structure ABC-69b (drawing by R. L. Cook)



Fig. 11 Hyena brought as an offering, tomb chapel of Persen (LG-20; photo by P. Moses)

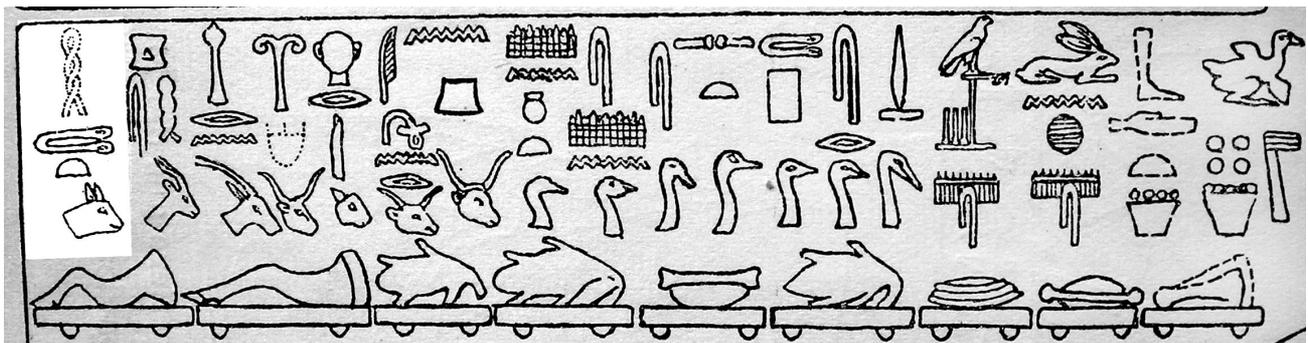


Fig. 12 Hyena in a food list, tomb of Seshathotep (after Junker, *Giza* III, 74, fig. 9a)

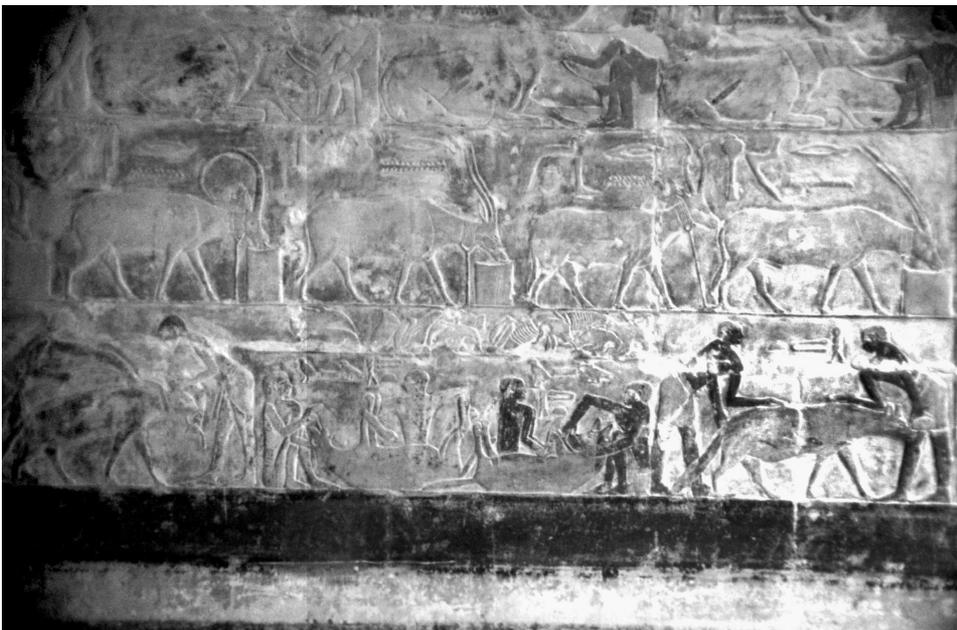


Fig. 13 Force-feeding hyenas, tomb of Mereruka (photo by the author)

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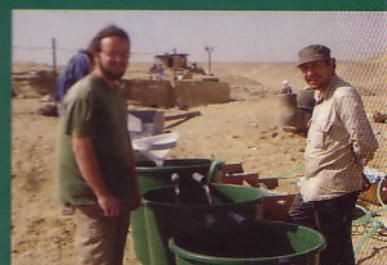
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