

PYRAMID STUDIES
AND OTHER ESSAYS
PRESENTED TO
I. E. S. EDWARDS

Edited by

JOHN BAINES

T. G. H. JAMES

ANTHONY LEAHY

A. F. SHORE

THE EGYPT EXPLORATION SOCIETY

3 DOUGHTY MEWS, LONDON WC1N 2PG

1988

THE DRY MOAT OF THE NETJERYKHET COMPLEX¹

By NABIL SWELIM

THIS paper is presented to Dr I. E. S. Edwards, acknowledging his generous offerings to Egyptology.

Many archaeological sites in Egypt will remain sources of fresh material which will add to, rectify, or change our present knowledge. The Netjerykhet complex does not seem to be confined within the temenos wall, but within a larger area surrounded by a great trench or a Dry Moat. The earliest buildings between them date no earlier than the reign of Userkaf.

Parts of this Dry Moat were unearthed in the course of excavating monuments in the area close to the Netjerykhet complex. Its general layout can be seen on aerial photographs and maps. The similarity of that layout with those of much smaller trenches in which subsidiary burials were found surrounding First-dynasty Open Courts at Abydos, and Royal Tombs at Umm el-Qa'ab, Saqqara and Giza, is striking.² There is another similarity with the layouts of the space between double walls enclosing two Second- and Third-dynasty Open Courts at Abydos and Hieraconpolis, and of a probable third one dating to the Third Dynasty at Saqqara.³ An interesting by-product is a logical explanation for the unusual location of the Upper Temple of Userkaf.

References, a description, and an attempted explanation of the Dry Moat are given below followed by an argument about the Upper Temple of Userkaf.

Reference material

It is necessary to get acquainted with the area under discussion by consulting a plan giving the names and numbers of tombs.⁴ The published aerial photographs of the Netjerykhet complex given below demonstrate the rapid changes which have occurred over the desert surface in the last sixty years. They will be referred to by the name of the authors of the publications in which they appear.

- 1 The aerial survey of Egypt possessed a photograph taken probably before 1924 and published by Capart in *Memphis à l'ombre des Pyramides* (1930), xiv.
- 2 In June 1924 an aerial photograph was taken by the RAF and published by Firth and Quibell in *The Step Pyramid II* (1935), pl. 6, no. 1.
- 3 Another taken by the RAF in December 1927 is found in Lauer's *La Pyramide à degrés II* (1935), pl. II, 1.
- 4 The last two publications furnish us with three different views by Misr Air Works in the spring of 1933 (Firth & Quibell, pls. 6, 2 and 7; Lauer, pl. II, 2).

¹ I am grateful to Mr Ahmed Moussa for consultations concerning some details at the site. The datings in this study follow conclusions in N. Swelim, *Some Problems on the History of the Third Dynasty* (Alexandria, 1983), 224.

² W. M. F. Petrie, *Tombs of the Courtiers and Oxyrhynchos* (London, 1925), pl. XVI, XVII, XVIII; *The Royal Tombs of the First Dynasty*, I (London, 1900), pl. LX, LXI; *The Royal Tombs of the Earliest Dynasties II* (London, 1901), pls. LVIII–LXII; *Gizeh and Rifeh* (London, 1977), pp. 2–6, pls. II, VI; W. B. Emery, *Great Tombs of the First Dynasty I* (Cairo, 1949), II–III (London, 1954–8), *passim*.

³ Gisir el Modir, the large stone enclosure at western Saqqara; cf. Swelim, *op. cit.* 28, 30, 33.

⁴ Convenient examples in PM III², pt 2, plans LVIII, LX, LXI, LXII; A. J. Spencer, 'Researches on the Topography of North Saqqara', *Orientalia* 43 (1974), pl. I; J.-P. Lauer, *Saqqara: the Royal Cemetery of Memphis* (London, 1976), 8, 9; Selim Hassan, *The Mastaba of Neb-Kaw-Her* (Cairo, 1975), General Plan.



- 5 In the *Field Museum of Natural History Bulletin* (Nov. 1981), p. 3, is an aerial photograph by J. H. Breasted Jr. dating to 1933-4.
- 6 Zakaria Goneim published another taken by the Egyptian Air Force in 1951 in *Horus Sekhemkhet* (1957), pl. 1.
- 7 W. B. Emery published in *JEA* 51 (1965), pl. II, 1, an undated aerial photograph of north and central Saqqara (probably taken in the fifties) (pl. 2).

With reference to maps the Dry Moat is certainly verified at several places. Three reference maps can be mentioned:

- a C. R. Lepsius, *Denkmaeler aus Aegypten und Aethiopien* I, Abth. I, Bl. 33, Fig. 1 below.
- b J. de Morgan, *Carte de la nécropole Memphite* (1897), pl. 10.
- c Map of Ministère de l'Habitat et de la Reconstruction, bloc U.T.M. 36-46.661, coupure 36-5-93.1322, Le Caire, H-22, 1:5000 (1978). All measurements given below are made with reference to this map. Fig. 3 below.

Excavations south of the Netjerykhet complex by Selim Hassan, Zaki Saad, Abd el-Salam Hussein, Mohamed Raslan, and Ahmed Moussa,⁵ and by the last west of the complex,⁶ confirm the existence of the Dry Moat.

A description of the Dry Moat

The Dry Moat can be identified on the aerial photographs mentioned above as a canal surrounding the Netjerykhet complex. This canal is filled with sand at some places and greatly disturbed at others. The sand was wind-blown and the disturbance was caused by plunderers and excavators. The plan is that of the hieroglyph , 'battlemented enclosure', or , 'reed shelter in the fields', parallel to the temenos walls of the complex within it. The width of the Dry Moat appears to be uniform everywhere, about 40 metres. I believe that perhaps the depth of the Dry Moat varies according to the topography to maintain a level bed; but it has to be noted that a level pavement of masonry was found at a depth of 26 m at one point (see below p. 20).

The area of the Dry Moat measures roughly 750 × 600 m.⁷ The complex of Netjerykhet is located more to the south and west in the frame created.⁸ The great project is seen unfinished at some places, demonstrating methods used for the earliest rock excavations on such a large scale.

In my description I shall follow the course of the Dry Moat in an anticlockwise direction starting east of the Royal Tombs of the Second Dynasty, where the boat pits of Unas are located. It runs east, north, west, south, and finally east in another channel closer to the complex. Consequently, the Dry Moat runs single on three sides of the complex,

⁵ S. Hassan, *Mastabas of Princess Hemet-Ré and Others* (Cairo, 1975). We are interested in the tomb of Hetep, pp. 53, 57, pl. XXXV, XXXVIII; Z. Y. Saad, 'A preliminary report on the excavations at Saqqara 1939-40', *ASAE* 40 (1940), 692-3; *Royal Excavations at Saqqara and Helwan 1941-1945* (CASA 3, 1947), 55, 66-7, pls. XXXIII-XXXV; M. A. Raslan, 'The Causeway of Ounas Pyramid', *ASAE* 61 (1973), 153, fig. 2; A. M. Moussa and H. Altenmüller, *The Tomb of Nefer and Ka-Hay* (Mainz, 1971), 9-10, fig. 1; id., *Das Grab des Nianchchnum und Chnumhotep* (Mainz, 1977), Tafel, a-b, Abb. 1 (referred to below as the tomb of the two brothers); A. M. Moussa and F. Junge, *Two Tombs of Craftsmen* (Mainz, 1975), 9, 13, 31.

⁶ A. M. Moussa and H. Altenmüller, 'Bericht über die Grabungen des ägyptischen Antikendienstes im Osten der Ptahhotepgruppe in Saqqara im Jahre 1975', *MDAIK* 36 (1980), 320, Abb. 1; to the east of the brick wall A. Moussa has told me that he unearthed what I concluded to be the west side of the west channel (not recorded).

⁷ This is larger than Gisir el Modir, which is 600 × 400 m.

⁸ Thus creating a large rectangle east of the east temenos measuring 670 × 120 m (measured from the inner sides of the Dry Moat). A similar example can be seen on a much smaller scale as a rectangular platform or pavement of masonry on the east side of Mastaba T at Giza which could be royal; Cavington, 'Mastaba Mount Excavations' *ASAE* 6 (1905), 139-218; Petrie, *Gizeh and Rifeh*, 7-8, pl. III, A; Swelim, op. cit. 88-90.

and double on the fourth side (south). I term the five channels the outer south, east, north, west, and inner south channels.

A *The outer south channel*

The outer south channel appears neither on the maps of Lepsius and de Morgan nor on the aerial photographs of Capart, Field Museum, Firth and Lauer, because they show the area before excavating the causeway of Unas. On the aerial photographs taken after that excavation (Goneim and Emery), the outer south channel can be clearly seen. Anticlockwise from west to east it begins at the boat pits of Unas and ends at the tomb of the two brothers. Both places are identified on the map Le Caire H-22.

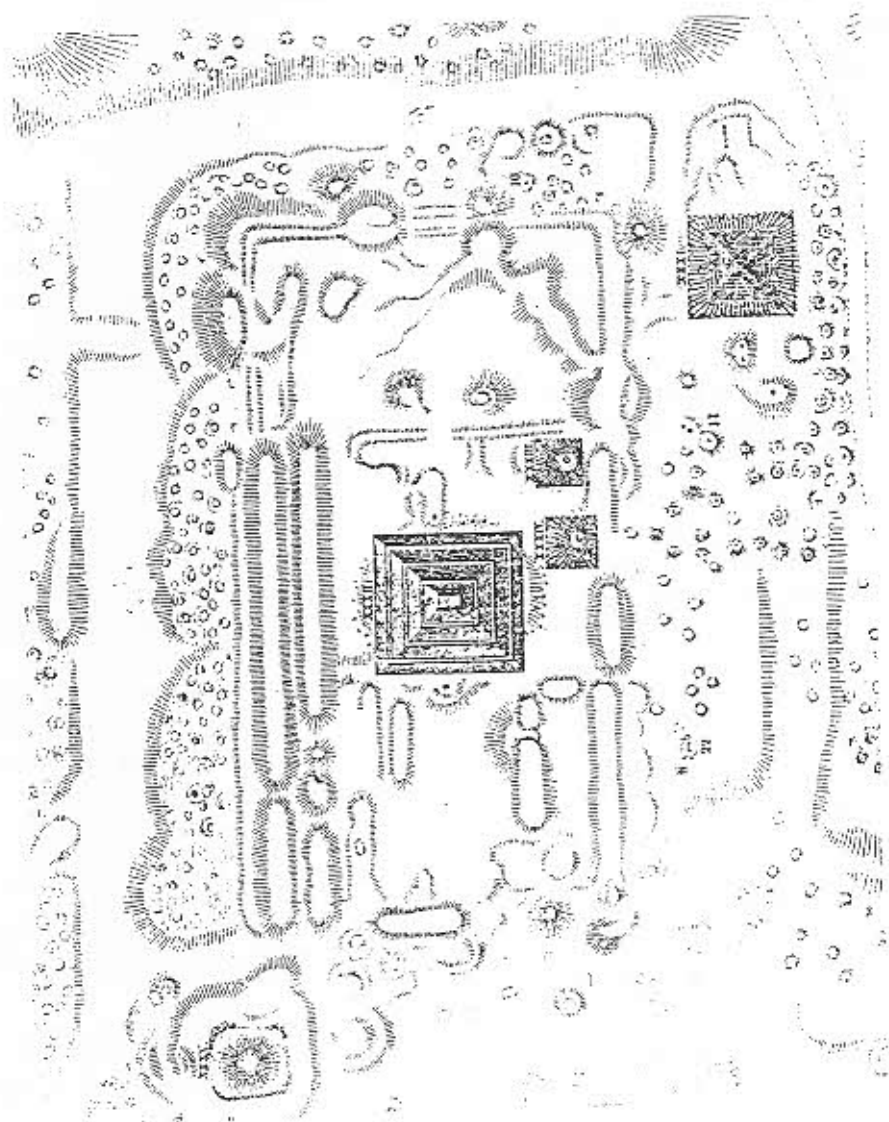


Fig. 1 Lepsius's map

This channel of the Dry Moat was most intensively reused during the Fifth Dynasty. On its bed were built several tombs; in its sides were cut many others. All was cleared and filled in for the construction of the boat pits and causeway of Unas. When the buildings of the causeway were later destroyed, layers of funerary and cultural debris and pavements of compressed mud mixed with limestone chips extended over the whole site.

Excavations conducted to clear the causeway removed those layers over its course; the whole length of the causeway was found built over the bed-rock of the desert surface except for a portion which was built diagonally in the outer south channel on a dike. At a few places along the south side of the dike some unfinished clearances created sections showing the stratified order of the layers, under which parts of the south side of the channel became exposed. In it tombs were tunnelled at three levels and others were found built on the bed of the channel or on accumulated rubble at its bottom. The plan of this partly cleared excavation is triangular, with its sides east of the boat pits across the channel, along the length of the dike, and along the south side of the channel; the last two meet at the area of the tomb of the two brothers almost at the entrance of the tomb of Sekhentiu-Neferseshemtah. A. Moussa and his co-authors thought that the channel was an ancient quarry.⁹

The channel at the area of the boat pits could not have gone much further west, otherwise it would have interfered with the substructure of the easterly Second-dynasty Royal Tomb. Consequently I assume that the channel begins at some point between that royal tomb and the boat pits. The construction in which the boat pits are found and the dike built alongside most probably block the west end of the channel (40 m).

The reconstruction Ahmed Moussa undertook to rebuild the tomb of the two brothers demanded an interruption in the continuity of the causeway of Unas. It can clearly be seen that this tomb is at the east end of the trench. East of it the causeway can be seen in section built over the desert surface, west of it the causeway can be seen in section built over the dike.¹⁰ It must be noted that the rock wall to the east of this tomb is the east side of the east channel and the south-east corner of the Dry Moat is at the tomb of Sekhentiu-Neferseshemtah.

Some of the better known tombs discovered in the triangular area are: Neferherentah, probably built on the bed of the channel east of the boat pits, and the two brothers, partly rock cut in the middle level and partly built outside. Other rock cut tombs are found all along the uncovered parts of the south side of the channel. From west to east are the groups of Irakaptah at the lower level, the newly discovered group of Ni'ankh-nebka¹¹ at the lower level, the group of Nefer and Kahay at the upper level, and the group of Sekhentiu-Neferseshemtah at the middle level.

Although the faces of these rock tombs appear to be placed on terraces which are irregular and confused due to the destruction and total loss of their outer parts, the south side of the channel can be traced as a straight line parallel to the south temenos wall of the Netjerykhet complex.

The width of the Dry Moat being roughly 40 m makes it easy for us to determine the other (north) side of the outer south channel. No part of it has hitherto been unearthed. The length of the outer south channel is about 230 m, and the south-east corner of the Dry Moat is about 200 m from the south-east corner of the Netjerykhet complex. The

⁹ See above, n. 5.

¹⁰ See the plates in the publication of the tomb of the two brothers, n. 5 above.

¹¹ By Mr Said El Fiki, who kindly showed me the Cartouches of King Nebka occurring twice in the tomb owner's name.

shortest distance from the temenos wall is about 65 m. The shortest distance from the inner south channel is about 20 m.

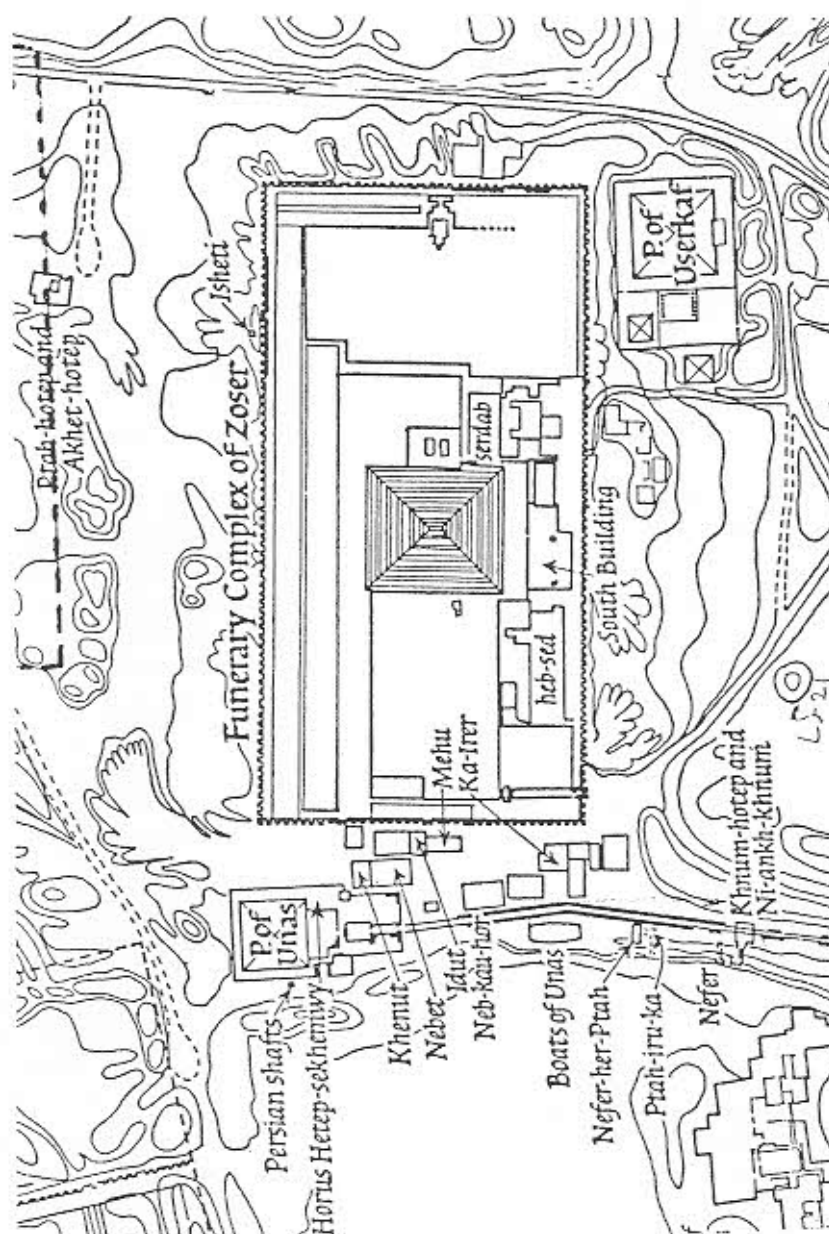


Fig. 2 Map reproduced from Lauer, *Saqqara* (1976)

B The east channel

In spite of knowing where the east channel begins, I can only estimate where it ends. No excavations, as far as I know, have taken place at any place along this channel. On the contrary, archaeological debris was dumped over the channel from the Userkaf, Teti, and other excavations. Nevertheless, on the maps of Lepsius, de Morgan, and Le Caire H-22,

and the aerial photographs published by Capart and Lauer, the northern end of the east channel (the north-east corner of the Dry Moat) can roughly be seen.

The course of the east side of the east channel starts rock cut at the entrance of the tomb of Sekhentiu-Neferseshemtah. The rock wall can be seen east of the tomb of the two brothers. If the line of that wall is extended northwards it coincides with the east side of the sand-filled canal seen on the aerial photographs of Capart and Emery. The two coinciding lines run at a distance of about 10 m west of the pit LS 21. Extending this line further north would reasonably line up with the east side of a pathway seen on all the maps at a distance of approximately 60 m east of the pyramid of Userkaf. The east side of the channel reaches the north-east corner of the Dry Moat at a point estimated in the description of the north channel.

On the map of Lepsius, a little to the south of the pathway mentioned above, the channel is depicted for the length of 200 m west of where it can be seen on the other references.

The west side of the channel should be parallel to the east side at a distance of about 40 m as one sees on the aerial photographs. The length of the east channel is about 750 m. The closest distance from the east temenos wall is 120 m, and from the pyramid of Userkaf 20 m.

The rectangular area east of the temenos wall enclosed by the Dry Moat (mentioned p. 13, n. 8) was later occupied in its northern part by the pyramid complex of Userkaf, his Queen's pyramid, Late-Period tombs and tombs LS 17, 22-24; D 45-58; E 10-13; F 1-3 and others. In its southern part are the tombs of Simry, Nikauptah, Bebi, Rakhuf, Pehnefer, and Hetep; these form the extension of a group of tombs built over the end of the inner south channel.

C *The north channel*

The north channel of the Dry Moat is clear on all the maps and aerial photographs, as well as on the site. It begins at an intersection of the predetermined lines of the east channel with those of the north channel, which are easily gleaned from references, and it ends by a similar intersection with the west channel. Thus, we are in possession of the two north corners of the Dry Moat. The north-east corner is partly under the debris from the Teti site at a distance of about 200 m from the north-east corner of the Netjerykhet complex, and the north-west corner is on a slightly lower level of the desert at a distance of about 170 m from the north-west corner of the Netjerykhet complex. The shortest distance to the north temenos wall is approximately 70 m. The channel was originally filled with clean wind-blown sand before it became a pathway, then a road, leading to Mariette's house (the present tent rest house).

All the tombs discovered between the north temenos wall of the Nertjerykhet complex and the north channel of the Dry Moat date from the late Fifth Dynasty. These tombs are numbered LS 14, 16; S 906, 909, 911-13, 915, 916 and 78-85. On the map of de Morgan no tombs are recorded in the north channel.

D *The west channel*

The west channel of the Dry Moat is the clearest on all the maps, all the aerial photographs, and on the site. It is filled with clean wind-blown sand and appears almost continuous¹² and regular, from the north-west corner to the south-west corner at a distance of about 40 m north of the north-east corner of the unfinished Step Pyramid

¹² Except for an interruption on the map of Lepsius.

complex of Sekhemkhet. In this channel no tombs appear on the map of de Morgan and none has been found since.



Fig. 3 Part of map Le Caire H-22 (reduced)

Happily the west side of the channel has been determined. Ahmed Moussa, while excavating the group of tombs east of the tomb of Ptahhotep, unearthed a mud brick wall running north-south at a distance of 25 m from it. This wall was built over the edge of a cut in the bed-rock. Ahmed Moussa has told me that this cut was very similar to the one close to the pyramid of Unas (see below: the inner south channel). He cleared 40 m without reaching any limits and did not attempt finding out how deep it went. The

published plan¹³ shows that the orientation of the wall and consequently the cut in the bed-rock is a few degrees east of north, which is the same as the orientation of the Netjerykhet complex, indicating that this cut is parallel to the west temenos wall.

Since the clean wind-blown sand of the west channel is immediately to the east of this group of tombs, it is logical to assume that Ahmed Moussa has unearthed part of the west side of the west channel of the Dry Moat. This enables us to determine the east side of the channel at 40 m east of Ahmed Moussa's discovery. Between the west channel of the Dry Moat and the west temenos wall of the Netjerykhet complex are several tombs dating to the late Fifth Dynasty and the Sixth Dynasty. The shortest distance from the west temenos wall is about 105 m and the distance between the south-west corners of the Dry Moat and the Netjerykhet complex is 150 m.

An enormous amount of debris has been dumped at the area of the south end of the west channel (the south-west corner of the Dry Moat). This material was first dumped at the western end of the inner south channel. The increased dumping caused the mound of debris to turn into the west channel as we see it today.

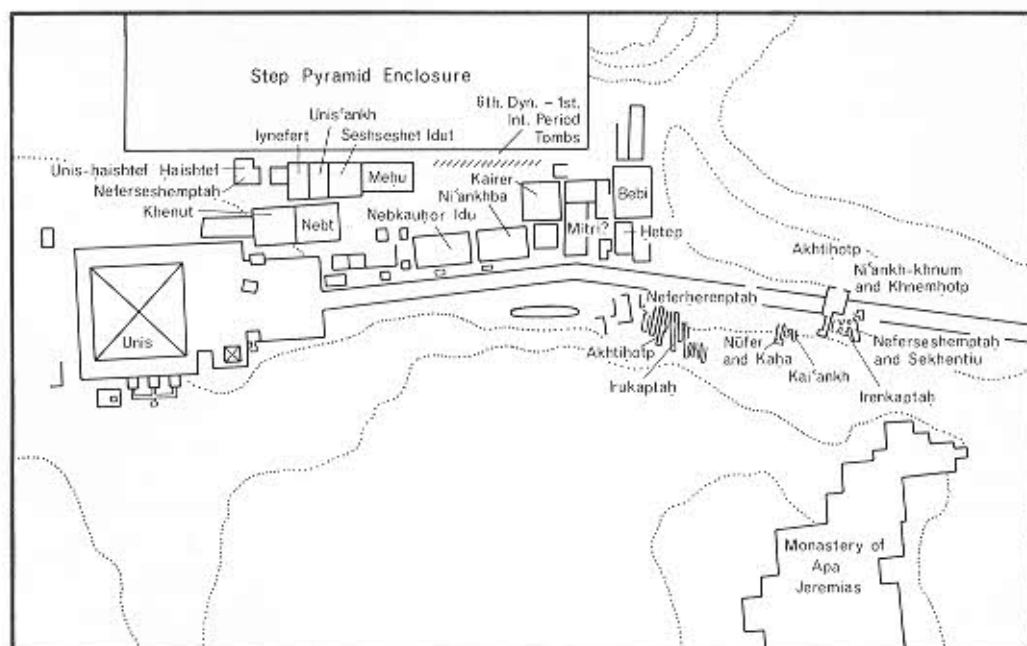


Fig. 4 The area south of the Step Pyramid; adapted from PM III², part 2, plans LXI and LXII.

E The inner south channel

The inner south channel is not seen on the maps of Lepsius and de Morgan, and does not appear on the earlier aerial photographs of Capart, Field Museum, Firth and Lauer. But it is clear on the later aerial photographs of Emery and Gencim, and on the map Le Caire, H-22, because of the major clearance done by Selim Hassan and Zaki Saad in the years 1937-43.

The beginning of the channel at the south-west corner of the Dry Moat extends eastwards as far as the mastaba of Hetep, where it can be seen deep, but narrow and

¹³ See above, n. 6.

unfinished. The north side of the channel is just a few metres from the foundation of the enclosure wall of the Netjerykhet complex.¹⁴ Following the channel from west to east (anticlockwise) we can easily trace its south side along the pyramid of Unas, as far as the mastabas of Khenut and Nebt.¹⁵ East of the latter the cut continues north of the mastabas of Nebkauhor and Ni'ankhba, then cannot be seen under a filling on which the mastaba of Kairer is built. To the east of this mastaba is the tomb of Mitri built partly over the same filling and partly over the rock south of the channel. East of the tomb of Mitri the channel was left unfinished; two independent narrow but deep ancient excavations come in line. They are separated by the tomb of Hetep. The south side of these excavations appears in line with that near Unas and that near Nebkauhor. Moreover the two deep excavations have been connected by tunnelling the bed-rock under the mastaba of Hetep.¹⁶ The cut east of the mastaba of Hetep continues eastwards buried under the sand. Consequently the south side of the inner south channel has been determined with certainty.

The north side of the channel is 40 m north of the south side, very close to the south temenos wall of the Netjerykhet complex. It has partly been cleared to disclose a series of built and rock-cut tombs at two levels at least. The mastabas of Neferseshemptah, Haishtef, Iyefert, Unis'ankh, Idut, and Mehu are built on the same level as Khenut and Nebt, except Neferseshemptah and Mehu, which are built at a lower level, but not on the bed of the channel which perhaps reaches a depth of 26 m.¹⁷ East of the tombs of Mehu and Nebt as far as the tomb of Kairer, where the north and south sides of the channel have been partly cleared, the magnitude of the Dry Moat can be seen. In the north side are rock-cut tombs tunnelled under the south temenos wall dating to the First Intermediate Period. They are the tombs of Iarti, 'Ankhi, Snefruhotp, and Nengem.

An attempt to explain the Dry Moat

Subsidiary burials are found surrounding the tombs and Open Courts of the First Dynasty at Saqqara, Abydos, and Giza. The number of these burials diminishes towards the end of that dynasty, and nothing is known about them subsequently. In the immediate vicinity of the step pyramids of the Third Dynasty at Zawyet el-'Aryan and Maidum, the giant pyramids of the Fourth Dynasty at Dahshur, Abu Rawash, and Giza, and the later pyramids of the Old Kingdom, however, are found contemporary cemeteries of Queens, relatives, nobles... etc. These tombs come sometimes in large numbers. There may be some fundamental differences between the subsidiary and contemporary tomb occupants.

A preliminary medical investigation of some skeletal remains found by The German Archaeological Institute in Cairo, in the subsidiary tombs of cemetery B, Umm el-Qa'ab, Abydos, shows that they belong to young people of the age of seventeen to twenty-five years.¹⁸ Emery had already expressed the opinion that the occupants of

¹⁴ J.-P. Lauer, *Histoire monumentale des Pyramides d'Égypte* I (Cairo, 1962), 182, fig. 55, the channel [C C'] is 40 m wide.

¹⁵ These mastabas have been partly built on the bed-rock and partly built on a filling in the channel, Zaki Saad, *Royal Excavations at Saqqara and Helwan 1941-1945*; a total of 235 m of the south side of the channel were cleared east and west of these mastabas.

¹⁶ These unfinished excavations are very similar to those found by Zaki Saad, op. cit. pl. XXXIV, XXXV, at lower levels, most probably illustrating other unfinished parts of the inner south channel.

¹⁷ At that depth Zaki Saad, op. cit., found a pavement of masonry set in mortar which he describes as being of very hard texture. It was removed in quest of an archaic tomb. Unhappily the bed-rock was reached at a depth of 27.5 m and found to be irregular.

¹⁸ Information by Dr Günter Dreyer, to whom I am grateful.

subsidiary tombs of a later date in the First Dynasty were killed by poison.¹⁹ It is worth noting that both Petrie and Emery found that some of the occupants of these subsidiary tombs at Abydos and Saqqara were of much distinction while the others were women servants, dwarfs, dogs... etc.

It would be unreasonable to assume that queens, and young princes of the contemporary tombs (of Zawyet el-^cAryan onwards), were killed at the time of the king's death to be buried in the cemetery surrounding his pyramid. All I can suggest at present is that the burials around the royal tomb persist but the occupants are no longer killed at the time of the king's death.

Following the close of the First Dynasty, very limited archaeological evidence comes from the Second Dynasty. Open Courts and Step Pyramid complexes of the Third Dynasty, at Hieraconpolis, Abu Rawash, and Saqqara, have either been only partly or never investigated. At none of these monuments can we see anything that may fill in the gap between the subsidiary and contemporary tombs.

The burial places of the nobles and courtiers of the reign of Netjerykhet are at a site located at a distance of approximately one kilometre north of his complex. In earlier times some of these people would presumably have been killed and buried in subsidiary tombs, but it seems that the tradition was no longer followed during the Third Dynasty. Consequently the Dry Moat may have been a place where the souls of the nobles and courtiers came from their tombs to serve the soul of Netjerykhet, as B. J. Kemp has suggested concerning his funerary palaces.²⁰ Niches which were found rock-cut by Z. Y. Saad in the south side of the outer south channel may prove to be significant in that respect.

And I may suggest a connection with the fourteen dummy entrances in the temenos wall. At the rock tombs of the First Intermediate Period in the north side of the inner south channel is perhaps the rock core of a ramp leading from the channel bed to the eastern dummy entrance of the south temenos wall. On the other side near the pyramid of Unas, Z. Y. Saad found what appears on the published photograph to be a ramp of masonry along the side of the channel. It can be concluded that the isolation of the Netjerykhet complex by the Dry Moat could never have been absolute, as we can see that there was also a passage between the outer and inner south channels and the probability of other discontinuities in the east channel similar to the one of the west channel as seen on the map of Lepsius. Moreover, the earliest mastabas built between the temenos wall and the Dry Moat, and rock-cut tombs at the lower levels of its sides, must have had some approach which was originally planned for the Dry Moat. If there were such approaches, some of which led to the dummy entrances, then we can see more evidence connected with their rituals—a tradition which reappeared around the royal sarcophagi of the Middle Kingdom. We know nothing concerning the existence of a parallel at the unfinished step pyramid complex of Horus Sekhemkhet at Saqqara. A little later, tombs of relatives, nobles, etc, were built in the immediate vicinity of the royal pyramid. Their bodies as well as their souls can serve the king directly from their tombs; in such cases there was no need for double walls, dry moats, or temenos walls with dummy entrances. This may also be one of the indirect phases of the development of *ushabtis* in the First Intermediate Period. I mention it with reservations.

¹⁹ Emery, *Great Tombs of the First Dynasty* II, 142.

The Upper Temple of Userkaf

In spite of the availability of a great number of sites, the major part of the pyramid complex of Userkaf was located in the northern part of a rectangular area measuring 67×120 m enclosed by the Dry Moat east of the Netjerykhet complex. The Upper Temple was unusually located south of the pyramid due to the existence of the Dry Moat 20 m east of the pyramid. It would have been very difficult to build it in that narrow space east of the pyramid without either reducing the size of the pyramid or filling in the Dry Moat. Both solutions were not considered and the Upper Temple was not built east of the pyramid.

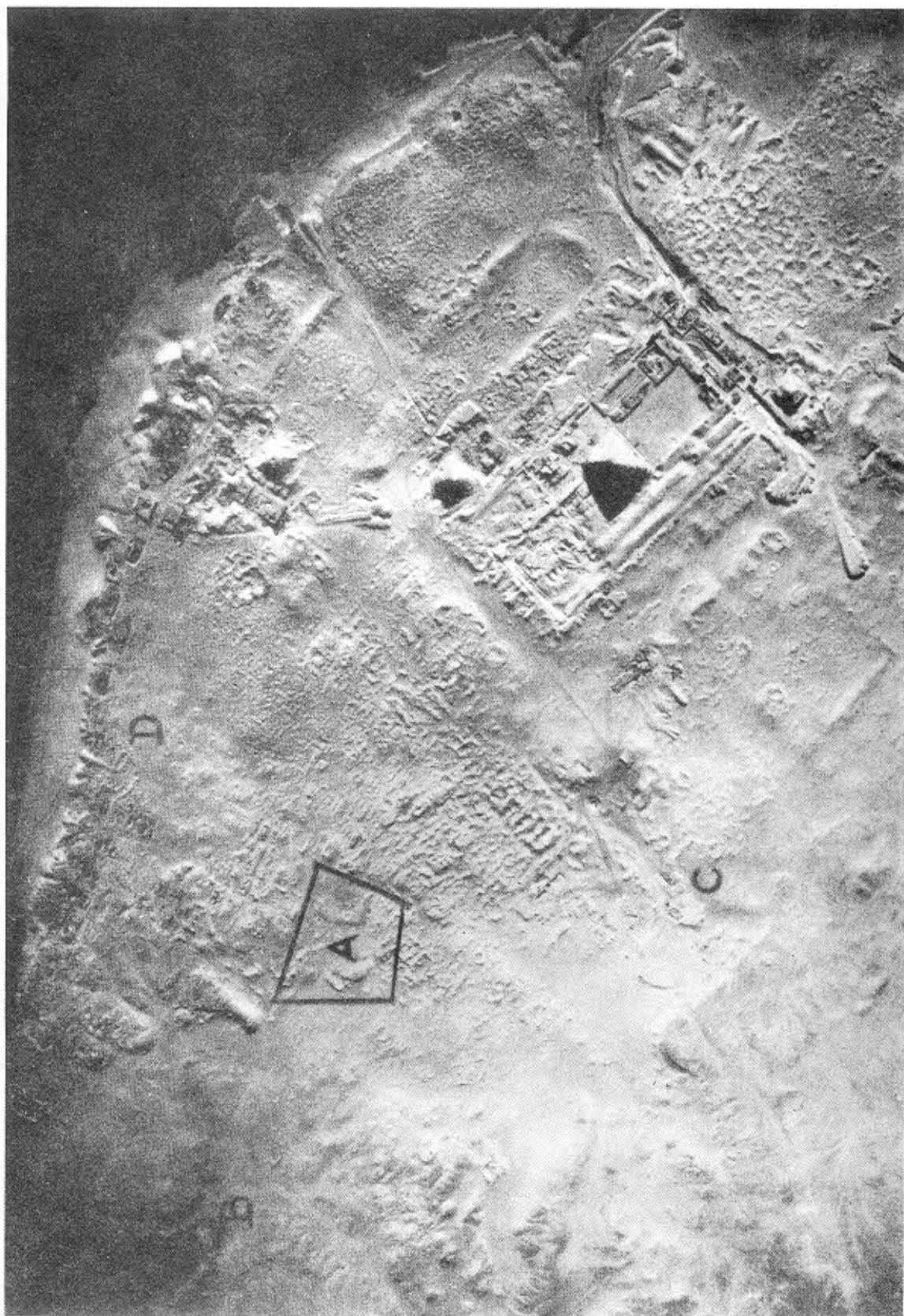
The area between the temenos wall of the Netjerykhet complex and the Dry Moat preserved the isolation of that complex for the remaining years of the Third Dynasty and the whole length of the Fourth Dynasty. It was indeed Userkaf who started the invasion of the area. Perhaps the complex of Userkaf would enjoy the same isolation which was hitherto enjoyed by that of Netjerykhet. Consequently it is not difficult to imagine that the choice of that site for building the pyramid complex had its good reasons; but it would be inappropriate to build a small pyramid following ancestors who built giant ones, and it appears that preserving the Dry Moat was just as important. Consequently it was not filled in at the expense of moving the Upper Temple to the south side of the pyramid against the traditional rules.

East of the Upper Temple of Userkaf is an artificial *wadi*-like depression descending towards the cultivation where its width becomes very great. The only logical path of the causeway of Userkaf would be along it. If this artificial depression and the Dry Moat are not connected the causeway would have to cross the Dry Moat in some way. The method used to cross it would be of interest to investigations connected with other crossings of that era: namely three examples at Giza, where the causeways of Khufu and Khafre, and Heet el-Ghurab bridge over tunnelled or built subways. Userkaf would have had to solve a more difficult problem, because the width of the Dry Moat is 40 m.

Many tombs from the reign of Userkaf and his successors were constructed in the area between the Dry Moat and the Netjerykhet complex. By the reign of Unas the great Dry Moat lost both identity and importance. But the cult of two Third-dynasty kings, Horus Ba and King Nebka, seems to have been preserved in the private names of Ni'ankhba and Ni'ankhnebka, whose tombs are found at the inner and outer south channels. The traditional north-south orientation of the Old Kingdom mastabas seen at all the other sites had been given up for an alignment with the course of the Dry Moat by several builders whose mastabas are oriented east-west, e.g. D70 in the north, and Mehu, Nebkawher, Ni'ankhba, and others in the south.

A great number of additional problems connected with the Dry Moat will not be fully understood before a major archaeological investigation is conducted. This could be a project extending over many years.

SWELIM



Aerial photograph of north and central Saqqara (from *JEA* 51, pl. II, 1)