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Excavations Around Mycerinus Pyramid Complex

By ABDEL-AZIZ SALEH

(Taf. 19—34)

The concession undertaken by the University of Cairo, in Giza Necropolis, through the seasons 1971—1972, covers the extensive area adjoining the Pyramid Complex of Mycerinus, as well as the near-by cemetery. Exclusive of what was formerly cleared out by the Boston Expedition in the nearest location, the present site of excavations extends southwards of the Third Pyramid as far as the range of desert cliffs behind, and further eastwards down to the present Moslem burial-ground of Nazlit el-Samman village. The area facing the northern front of the Pyramid is left to be dealt with by the Egyptian Department of Antiquities.

The primary intention has been to investigate both sides of the causeway leading up to the Third Pyramid, with regard to any funerary and secular buildings that may date from the Old Kingdom. Attention has been focused primarily on the southern side.

The Approach:

About 73 metres just towards the south of the westerly quarter of the causeway, there has been discovered a massive stone foundation roughly designed like the upside-down form of the letter "L". Another smaller one, probably of the same design, was laid just to the north-west of the former (see fig. 1). Both were constructed of fragments of broken rocks and rubble joined with tafl-clay mortar, their gently sloping sides being faced with a clay coat. The original function of these foundations is still not clear. But for the moment, let us put forward the theory that the larger one in particular seems to have served first as an embankment. The reasons will be presented later on.

The main branch of the first embankment is 206.80 metres in length and 2.90 metres in width (pl. 19a—b). It crosses the desert plateau in a north-south direction. No clearly finished top surface being found, and naturally one has no means of ascertaining how high the construction had been. However, the surviving lateral depth varies from about 65 cm to nearly 200 cm, conformable to the sloping surface of the desert plateau, from north to south. Although it is nearer to the causeway of the Third Pyramid, this branch of the embankment, when viewed from its end, appears as being roughly perpendicular to the right quarter of the southern face of the Second Pyramid, in spite of its lying at some distance away (pl. 19a).

A small but noteworthy rectangular structure has its site against the western side of this branch, being situated at roughly one-third of its whole length. It is a rhomboid construction, measuring $2.60 \times 1.60 \times 1.03$ metres, built of dressed limestone laid in a pinkish mixture of mortar typical of that used in the Old Kingdom buildings. The interior was filled with débris, and on the top the surface was built of rough stones. Doubts are entertained as to its purpose, though it gives the impression of being an altar in the open air.

The main branch of embankment in question starts northerly with a slight curve on the right side, and bends southerly with a pronounced curve whence it joins the minor section of the

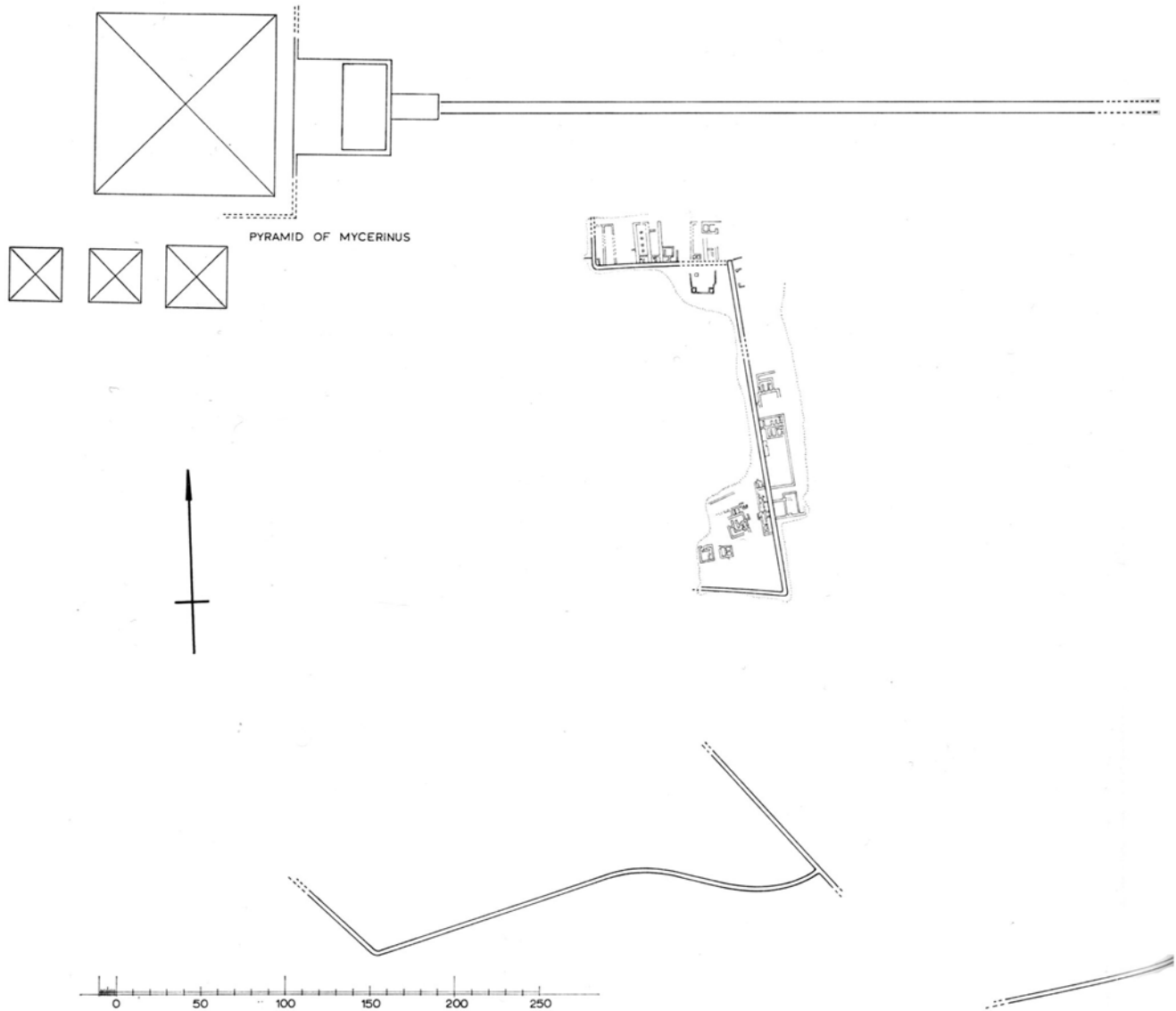


Fig. 1. General Plan

L-shaped construction. The excavated portion of the latter crosses the desert obliquely from south-east to north-west for 49.50 metres. Its continuation can still be seen under heavy heaps of rubbish which have not yet been cleared away. The surviving lateral height rises approximately between 1.00; 2.00 and 2.50 metres. The construction has a pronounced batter on the outer face and a slightly smaller one on the inner, with the result that while the least width at the base is about 2.45 metres, the width at the top is reduced to about 2.20 metres. On the outside, small, rough sloping-faced additions of rubble and earth were piled up so as to strengthen the lower parts of the construction. Another device was made against the inside face. Series of low parallel rows of stones were laid out at roughly regular intervals at nearly right angles to the wall. Interestingly enough, they were built of rough blocks of alabaster to

about 40 cm height above the surface of the desert, and were filled with rubbish, to give increased strength to the building.

As pointed out above, just north-west of the first large embankment, a smaller one of nearly the same L-shaped type (B) is brought into view. The construction is made of untrimmed fragments of rocks in the design of that already described. The surviving remains vary in height between 50 cm and 100 cm above the ground, and from 2.20 to 2.40 metres in breadth. The slightly sloping sides are coated with hard-set of clay (pl. 20c—e). The larger wing starts very near to the beginning of the first embankment and extends through a small obtuse angle (100 degrees) for some eighty metres westwards. Then it runs through a slight curve leading to a higher level of ground,¹⁾ in conjunction with the smaller wing which runs northwards for only twenty-five metres, where it ceases under a pile of rubbish. As it stands, this construction is smaller and less well preserved than the former. But, it is impossible to guess the actual length of its rest, that is to say, whether or not it had ever extended to the main causeway of the Third Pyramid.²⁾

The Industrial Settlement:

More significant still, is the discovery of a considerable part of an ancient settlement attached to the two sets of embankments described above. About fifteen scattered buildings have been unearthed within an area of over three acres in the desert plain. Their number is expected to increase in future seasons. Owing to limits of space, we shall describe only their main characteristics.

The walls of these buildings are of random rubble set in *tafl*-mortar (pl. 21), contrary to the Egyptian custom of building domestic architecture of sun-dried brick. The reason is clear. An abundance of the rubble building material seems to have been left behind here after stones for the pyramids and the temples had been quarried. This stone material was easily brought to the spot, whereas the muddy ground—of which brick was made—was some distance away in the valley below.

As can be seen from the general plan of the settlement, the buildings were not alike, that is to say they did not adhere strictly to a regular layout. For instance, they stood in separate groups; the number and arrangement of rooms were different. Doorways were positioned in various ways. One thing, however, is certain, the buildings were, on the whole, clearly planned. Although the upper portions of the walls were generally denuded, some walls are preserved to a considerable height. The remaining parts vary from about 20 cm from the far north up to almost 2 metres on the far south-west. Probably due to its being situated on a comparatively high level not far from the much-frequented causeway, the former quarter became almost totally ruined. The latter, which was set rather further away on a lower level at the foot of the desert hills, i.e. in a little-frequented spot, was protected against thorough destruction under some-

¹⁾ When we began working on this spot, all that appeared out of a small heap of sand was a slope-sided rectangular construction of rubble coated with clay, which conveyed the impression of an archaic mastaba when viewed from the front. This view gained probability when we found two little rubble partitions of only 15 cm in height, and a small courtyard, in front of the eastern face of the construction. A narrow drain about ten metres long ran between the right side of this building and a nearby vertical rubble wall. On the top of this latter, there were seen thin layers of crude decayed bricks, perhaps of later poor buildings which were built on the ruins of some previous ones. The first idea of an archaic mastaba was soon rejected after going on with the discovery, but the purpose of the long drain is still difficult to establish.

²⁾ See also pp. 76-77 for more embankments discovered by us in the near-by area.

thing like two metres of sand and rubbish. The remaining walls of the buildings scattered between the two extremities vary from 40 to 100 cm in height (pl. 21a—d).

One of the largest units excavated in the northern quarter is a rectangular hall, measuring 15×5.50 metres, plus small pieces annexed to its two ends (pl. 22b—c). The remaining parts of the walls are only about 20 cm high, but their width is something between 170 and 185 cm. More or less along the axis of this hall, two square bases are found rising about 20 to 25 cm above the floor level and are spaced about 2.60 metres apart. When complete, each measured some 110×110 cm with a slight batter which reduces the dimensions at the top to about 100×100 cm. One or two more were nearby. They were built in rubble, with levelled upper surfaces and clay-coated sides (pl. 22c). It seems likely that they were bases for pillars made either of wood or built of brick, to uphold a roof of a considerable size. Probably, the thickness of the pillar itself was not great, and the big rubble base must have served as a support for the pillar and a convenient seat for someone who may use the lower part of the pillar for reclining while doing his work, e.g. writing or supervising, etc. The remarkable features of this building, lying too near to the causeway of the Mycerinus Pyramid, raise the high probability that it was not an ordinary dwelling-place, but rather served as a public office. On either side, lay other spacious units, presumably magazines for storing dry provisions (see further below pp. 141f.).

As mentioned above, the other buildings are of different shapes and sizes. Some exceed the others either in size or in number of rooms. Five buildings contain four rooms each, while others have 6, 7, 8 or 9 pieces. The rooms are of different dimensions, some being as much as 6.5 and 7.5 metres long, others measuring only some 3×2 metres, while the rest are even smaller. The walls, both inside and outside, were covered with coarse mortar of *tafl*, over which was a mud coat about 2—5 cm thick. The inner surfaces were mostly plastered white (pl. 21). However, fragments of bright crimson plaster and a few patches of red or grey or black lead paint can also be seen here and there. In addition to the *tafl*-plastering, the mud coat and the whitening of the inner surfaces of the walls, their lower parts, or skirts, sometimes retain their original decoration, being simply narrow horizontal bands of black, white and red paint, in the manner of the Old Kingdom mural decorations. Moreover, certain parts of the outer faces of the walls still preserve a layer of hard yellow plaster. The floors of the rooms and their forecourts were paved with a gravelled bed, and a coat of hard clay approximately 10 cm thick. However, a certain number were distinguishably paved with smooth white blocks with rosy streaks like alabaster.

It is notable that the exterior walls of the buildings are on the average 80—100 cm thick. The inner walls, dividing the rooms, vary in thickness from 50 cm up to 70 cm. Certain buildings were bounded by thicker walls measuring 115 cm, which probably served to form a courtyard enclosed on all its sides, and to separate the groups of buildings from each other. The relatively plain thickness of the outer walls suggests two possibilities. First, in addition to the fact that it was necessary to add strength thereto, it might well have been meant also to lessen heat and damp absorption inside the building, or from within. However, the thickness of the interior and dividing walls need not necessarily be explained by the same assumption. Secondly, the heavy walls might have been used to support a second storey which is now in ruins. But the objection may be raised that no traces of staircases have yet been found. Furthermore, it is hardly likely that one would find two-storeyed buildings in a desert area.

There is one more point not without some interest. Sometimes, the outer edges of the walls were rounded in sections so as to lessen the effects of denudation.

In the buildings, and sometimes in the open, there have been found places intended to hold water-jars and other receptacles serving as store jars of some kind (see also pp. 141—142). Of particular interest is a group of four adjacent circular pits hewn or shaped in stone to hold large pottery jars. Three of these pits still have the well-preserved bottoms of the jars. Their inside is washed with fine white plaster. Some variety in sizes and levels is observed. The diameters are 50, 41, 43 and 60 cm successively. The surviving heights are 36, 39, —, and 40 cm. The above-described construction laid against one of the inside walls of a room, just at the back of the main entrance to the building, is encircled on three sides by a relatively large stone curve (4.75 metres long), divided into two uneven sections (pl. 23 a). It rises only 7.5 cm above the stone ground. The purpose of this ensemble is uncertain. For example, the pottery structure of the jars appears to be not thick enough to stand any such heavy pressure as kneading dough (see further p. 136). They can hardly have served when complete either as store-jars, or as pitchers (Egyptian common Arabic *zir*), for storing the necessary water in this desert district, or even as vats for the preparation of some kind of beer or sweet drink. The only difficulty is that the whitewash inside the jars might have been dissolved by such liquids. However, if the hypothesis of pitchers or vats were confirmed and the semi-oval basin or stone curve with two sections was not connected with a ritual action, the latter might simply have been intended to prevent leakage of liquids when filling up the jars and when taking quantities therefrom for daily consumption. Traces of a somewhat similar construction were discovered in a back room of another building, but this construction is in a very poor condition.

Many buildings are provided with ovens, some of which are not without interest. The simple ones differ in shape: some being circular in their form and others octagonal. They are often constructed of bricks arranged vertically with inner faces which look red as a result of the glowing heat of fire. In a ruined structure—perhaps an open courtyard—something of 14 metres in length—there are remains of twelve circular ovens, spaced close together in one line. They are all quite similar in type and of much the same size, though in different states of preservation. The best measure about 105 cm in diameter on the outside; 60 cm internally; and nearly 30 cm in depth, each. All are open towards the south (pl. 23 c). It is not improbable that the courtyard was a public kitchen (or a cook-shop?) where fresh food was prepared. In ancient Egypt, meat and poultry were commonly roasted on a spit in the open air.

In a certain building there have been found four adjacent fire-places of the octagonal form, set along the back wall of a rear court backed up to the main embankment. Because of the opening which faces the east here, each oven is actually made seven-sided (pl. 23 d). The average width is about 71—75 cm on the outside, and 56 cm on the inside, with a depth of 15 cm. These were used, perhaps, for cooking food, meat and milk.

Of a novel and more advanced type than any of the foregoing, and still more remarkable, are cylindrical or barrel-shaped ovens for baking bread (pl. 24 a—c). They differ not much from those still in use in the modern Egyptian countryside. Each of the best preserved ones is built in a large rubble cube-shaped construction measuring something from 110 to 127 cm high, 130 to 156 cm wide and about 150 cm long. The outer diameter of the upper opening varies from about 104 to 114 cm. The interior sides of the main oven are made of unbaked bricks with inner faces red consequent to the radiating heat of fire. Their inner dimensions are approximately 80—85 cm in diameter, and 55—75 cm in depth down to a narrow flat ledge protruding from all around the inner sides of the oven. This ledge probably served to hold a lower flag made of hard clay, which is now missing. In addition, there is a lower front-aperture for inserting fuel and which probably served to create a draught and also to enable the ashes to be

removed. This is roughly about 26—34 cm long, 37—42 cm wide, 42 cm deep, and about 21—25 cm high above the bottom. No traces of covering or an upper bake-stone have been found. Consequently it is not clear whether the loaves were baked on the lower clay-flag, or placed towards the inner faces where several of them could be baked at a time. Some peoples in the Near East (as in Saudi Arabia) are still in the habit of baking their loaves in a similar manner. But, it may be taken into account that the brick surfaces of the inner faces in our newly excavated ovens were left in the rough. To be honest, this type of oven was a puzzle at the time of its discovery. At first it was difficult to fix its date, as none like it is so far known from the early periods. But the solution came soon (see p. 138—9).

A certain oven among them represents a somewhat different type. Its height is far less than that of the others. The measurements of its outer cylindrical rubble construction are: 170 cm long \times 130 cm wide, by only 25 cm high. The main oven inside was built of bricks set on edge at unequal heights. This device produced a little false arch in the structure with vertical bricks in the middle and oblique ones on both sides. As with the others, the inner faces of the bricks were reddened by the heat of fire. The open top is 88 cm in diameter externally and 55 cm internally. At a little depth from the top, there is a thin ledge, 7 cm in breadth, protruding all around the inner sides of the oven. In comparison with certain ovens still in use in the Egyptian countryside, the effect has been that this ledge was intended to support a flag made of hard clay, on which very thin, flat rounded loaves, slightly lesser in breadth than the flag itself, appear to have been placed for baking. The aperture for stoking (55 \times 40 cm) ends on a level with the pavement of the kitchen.

Three of the excavated buildings have two bread-ovens each. In one of them, mentioned above as possessing a stone structure with four pits for liquid(?) jars, there are two small innermost rooms, each being walled off by a low stone screen. It appears that part of each was used as a kneading trough. This can be guessed by two good-sized oblong slabs constructed of stones above the floor level. The bigger is 140 cm long, 65 cm wide, and 26 cm high. Both might have been in use either as benches for cutting dough or as stands for big vessels, besides offering support to the trough which is now in ruin.

Dating:

Up to this time, we have not come upon inscriptions that would help in fixing the precise date of what has been found. As a matter of fact, when there are no texts on the spot, date-fixing can be only very approximate. The inscribed indication we possess appears in only one fragment of limestone, where it is not absolutely certain. The fragment was found in the rubbish of the settlement. It bears traces of a faded graffito which seems to form part of the prenominal of Khephren within a cartouche. Perhaps, no conclusion of a positive nature for dating can be formed on this indication. It is not unlikely, for instance, that the fragment was inherited from an older age. Nevertheless, there are some reasons to believe in an early date for the finding in general:

1. It seems scarcely accidental that the large embankments already described as well as a set of the largest associated buildings, were constructed so near to the causeway of the Mycerinus Pyramid. To this may be added the condition, hinted at above, as to the conformity of the main branch of the larger L-shaped embankment to the side axis of the southern face of the Second Pyramid, either deliberate or not (pl. 19a).

2. Attention may be called to a close but not exact similarity between our newly-discovered embankments and two embankments built to the east of the Great Pyramid. These latter are spaced 5.40 to 5.70 metres apart, and run in a parallel north-south direction for about 80 metres (pl. 25 a). They were cleared out, some years ago, by the Egyptian Department of Antiquities, but the discovery has not been publicized yet. Like our embankments, they were built of untrimmed fragments of rock, with their sides clay-coated. One of them is 2.50 metres wide and about 2 to 2.30 metres high. The other is smaller in both dimensions. According to one of the excavators, Mr. M. ABDEL-HAFIZ, all that was stumbled across in the rubbish in between were a few inscribed mud seals bearing the names of Cheops. If these embankments were not actually built after the Fourth Dynasty, judging by their relatively stout construction, in addition to the foregoing literal evidence deduced from the mud seals, the other ones in our site cannot, in all probability, be far separated in time from them. Anyhow, they still had a peculiarity of their own. Each was composed of comparatively big sections (10 to 21 metres long) laid on level beds, with slightly sloping sides. Sometimes, straight joints were built between the sections. Undoubtedly this device was copied from the brickwork of giant walls, the best examples of which are furnished by those of el-Kab, Kom el-Sultān and Karnak. These brick-walls were constructed, however, in sections laid alternately on concave and convex, or level, beds. Originally, a considerable portion of the rubble embankments described above, was only one metre wide, but was consolidated later by a wide lateral addition.

To be more sure, we re-investigated a branch wall emerging from the south side of the so-called peribolus walls running around the Third Pyramid area³). It is a long rubble embankment running in a bent line about 90 metres long, by 2 metres thick and between 50 and 120 cm high. Much of the characters of the embankments in our excavations can be seen in it. Its remainder was left untouched by PETRIE under heavy heaps of rubbish. To discover how far it continued in the direction of the Third Pyramid Complex is one of the future tasks.

3. Further evidence that may support the assumption about the Old Kingdom date of the buildings we have unearthed is that their structural effect is found to correspond to some degree to that of the buildings of the Pyramid-City discovered by G. A. REISNER, near the Valley Temple of Mycerinus, as well as of those of the funerary priests cleared out by SELIM HASAN to the east of the tomb of Khentkaus. The resemblance is plain, particularly in design and in the thickness of the walls, in spite of the difference in the building materials. As to the fact that the houses of the so-called Pyramid-City and the priestly settlement were made of mud-bricks and not of rubble like ours, it may be noted that the bricks used in the small partitions inside our newly-excavated buildings, as well as the bricks of the ovens therein, point quite clearly to the brick measurements of the Old Kingdom.

4. Some quantities of pottery vessels and lots of potsherds have been found in and near the buildings, the majority of which are related to the characteristic Old Kingdom types (pl. 33). The pots and shreds, discovered in the settlement, show the same technique and types as those seen in some graves we excavated not far away and which are dated to the Late Old Kingdom (see p. 152). On the whole, the pottery is monochrome. The distinguished types are relatively few. The best is a polished red thin ware, the finely preserved shreds of which display excellent workmanship. Of the same kind is a small spouted jug with a wide mouth and a flat base. The height is 16 cm, the largest diameter is 15 cm and that of the base is 6 cm.

³) Cf. W.M.F. PETRIE, *The Pyramids and Temples of Giza*, 114

Two types, however, predominate, viz:

- (a) A rough pottery with a brown surface, mostly represented in ordinary medium-sized jars with tapering body—a rounded rim and a round-pointed base. This ware is difficult to date precisely, as it is common in different periods. Nevertheless, it may well be equated with the so-termed *Br W* of REISNER-SMITH'S *Giza Corpus*.
- (b) Large pottery jars with a coarse heavy stuff covered with a whitish wash, sometimes on the outside, and largely on the inside.

5. Among the multiplicity of stone blocks next to the embankments and the surrounding buildings, we came upon a large number of red granite blocks, and veined yellow-red calcite (or crystalline calcium) stones which resemble alabaster, though they are not so good (pl. 25 b). The accumulation of granite fragments seems to have resulted from the waste materials of building the cases of the pyramids and temples of the Fourth Dynasty⁴). The alabaster-like blocks appear to have been brought from some near distance, if not from some ancient layers in the local limestone formations of Giza quarries. A variety of this kind occurs near Helwan⁵). A great number of these alabaster-like blocks have been stumbled upon in the southern quarter of the newly-discovered settlement and grouped quite aimlessly in a spacious forecourt facing the minor branch of the main embankment (see further below p. 144).

6. We came across no standing building that can be dated back to later periods in the area of excavations, with the exception of a separate odd-looking structure, at a short distance from the northern extremity of the large embankment. It is a big irregular plot of ground (roughly 12 × 14 metres), lined with a low enclosure of rubble. Just inside the ruined entrance, there are a few steps of brick leading to a subterranean chamber (2.10 × 1.50 metres) built of brickwork in the sandy soil to a depth of about 1.50 metres (pl. 25 c). There are traces of two small rooms (3 × 2.40 metres each) at the two inner corners of the south side of the enclosure. In its general effect, the structure differs greatly from those with which we are concerned. The bricks used in the small rooms are less in size than those of the earlier buildings. Judging from the foregoing description, and from some ribbed-body amphorae and fragments of fine glass found therein, the structure appears to go back to some Graeco-Roman period.

7. As for the large cylindrical or barrel-shaped ovens built in rubble cubic constructions (see above, pp. 135—6) of which none similar had ever been found from the early periods, the problem is partly solved. The writer and his assistant, Dr. G. A. GABALLA, came across models of ovens to some extent of a similar kind, among the collections of the First Intermediate Period, now in Cairo Museum (pl. 24 d). The latter were, however, mostly covered. Nevertheless, the baking in an roofless oven like ours reminds us of what was said in the Satire on the Trades, which appears to date back to the Heracleopolitan Period or the Middle Kingdom: "The baker is always baking. When he puts his loaves on the fire, his head goes right into the oven and his son has to hold on hard to his feet—if he slips from his grasp he will tumble right into the oven."⁶) Now, if it is proved correct that our newly-excavated ovens date from the Old King-

⁴) W. M. F. PETRIE mentioned similar fragments which covered the whole surface of the plain to the south of the Great Pyramid. He suggested that some costly building had been sited somewhere in the area, though no ground for such a building could be traced. (*Gizeh and Rifeh*, 9).

⁵) To CHR. DESROCHES NOBLECOURT, I owe the suggestion that this kind of alabaster resembles that of which the colossal seated figure of Mycerinus—now in Boston—was fashioned.

⁶) H. BRUNNER, *Die Lehre des Cheti, Sobnes des Duatf*, Glückstadt 1944.

dom, as it appears most probable, this will modify the belief prevailing at present as to the introduction of the barrel-shaped oven at the beginning of the New Kingdom, where a number of pictures of ovens appears nearly analogous thereto⁷).

8. Specimens of ashes and charcoal, surviving from the last fires in certain ovens, are preliminarily dated back, by Radio-Carbon—14 Test, to about 4660 years, with ± 150 years either side. Assuming the *Terminus poste quem*, the close period of occupation in the settlement would be roughly contemporaneous with the Late Old Kingdom. The test was performed by Dr. SALEH A. SALEH, Director of the Scientific Research Laboratories of the Egyptian Department of Antiquities, and his vice-rector Dr. SHAWKY MEGALLI.

Dr. SALEH kindly delivered the following report:

Description:

The material is completely black in colour, having an obvious wooden texture and an appearance of a carbonized wood or of a plant charcoal. These features may be original or due to effect of time, the first assumption is more reasonable as the material represents the remnant of the furnace fuel.

The sample has 6 cm in length, about 3 cm maximum cross-section, and about 10 gms in weight.

Treatment:

The material has been digested with 10% hydrochloric acid for half an hour, filtered and washed with distilled water until it was free from chlorine, then dried at 105°C.

Its carbon content has been transformed into carbon dioxide by burning it in an oxygen current, where a very small amount of ash is left. The obtained carbon dioxide after chemical purification is stored in one of the containers of the high vacuum apparatus for two weeks to get rid of other radioactivities rather than C-14.

Dating:

The proportional counter of the electronic counting apparatus is then filled with the carbon dioxide of the material. The date of the material as calculated from the data obtained is as follows:

i. e. 4660 \pm 150 years

S. A. SALEH

In spite of all the preceding survey of evidence, the writer finds it still too early to prove conclusively any precise dating before a thorough discovery is completed, lest something beyond expectation should crop suddenly up.

Indeed, some points still have to wait for a solution, e. g. the real object of the large L-shaped stone foundations described so far as embankments, and the surrounding buildings. Respecting the former, three conjectures can be presented here:

(a) They may have been bases of massive walls enclosing a large populated city. But this does not appear feasible. For one thing, the overall picture of the foundations does not give the impression of the usual type employed in planning city walls in Ancient Egypt. The ensemble is neither rectangular nor square nor oval, but is roughly shaped like an incomplete S. Secondly, the siting of the foundations with regard to the positioning of the associated buildings does not define an actually protected city. As it stands at present, particularly in the case of the main branch of the large L-shaped foundation, the buildings were set on three sides of it, i. e. North, West and East, and not confined to one side only. Strictly speaking, it can be argued that this may be explained as due to later expansion, where various outbuildings were annexed on

⁷ Cf. MAX WÄHREN, *Brot und Gebäck im Leben und Glauben der alten Ägypter*, Bern 1963, and older bibliography.

the exterior sides to the east and north of the main walls. Nevertheless, it seems too fanciful to imagine that a big city, so densely populated and thickly walled, could be founded in a desert surrounding.

(b) It may be that every branch of the foundations was an axial street separating two rows of buildings in an inhabited area. But this alternative theory seems also untenable. The floor planes of the buildings were mostly lower than that of the level of the adjoining foundation. A number of these buildings made use of the lateral depth of the adjacent foundation as a rear wall. This, perhaps, indicates that they were built later and not at the time of constructing the foundations.

(c) Finally, it appears quite reasonable to assume that these foundations started to serve as embankments for transporting blocks of stone—either on sleds or otherwise⁸⁾—from the local quarries to the ramps leading up to the main buildings of the pyramid and the associated annexes under construction⁹⁾. If this is so, it will constitute one of the rare bits of evidence we have for such an object.¹⁰⁾

An objection may be raised that the material with which the embankments in question were constructed was not solid enough to bear very heavy loads. But it can be taken into account that despite their modest structure, these embankments would really be a better ground for the purpose than dragging the blocks a long distance from the quarry across the desert tracks on the surface of the soft grains of sand. At least some stones of the Third Pyramid are not very massive. It has been suggested, and there is nothing to contradict this—that the causeway proper was likewise employed during the time of building the pyramid for dragging stones, before it was entirely paved and walled to take its final shape.¹¹⁾

Turning back to the new excavated embankments in our site, the next stage seems to have been this. Not very long after fulfilling their practical basic function, it was decided to make use of them for some other purpose and to found a settlement thereabouts.

To be honest, the word “settlement” has been intentionally used here for the area discovered to avoid the, false, impression that would be created by the commonly used term “city”. As it stands at present, the landscape almost covers about seven acres which, with its total population, would constitute a small quarter in a modest town by modern standards. But it is a fact that the site has only been partially excavated. The extension towards the west and the north is not up to now clearly defined, and the inner area covering nearly four acres must be cleared out to ascertain the real extent to which the past flourished therein. Already, even within the

⁸⁾ In Tura quarries there is a scene of a block mounted on a sled drawn by a team of oxen. It appears to date back to the reign of Amasis I of the XVIIIth Dynasty (S. CLARKE and R. ENGELBACH, *Ancient Egyptian Masonry*, Oxford 1930, 89, fig. 84).

⁹⁾ According to PETRIE, in the whole area between the building of the pyramids and the ridge of cliffs to the south, there existed a bed of good stone which had all been quarried out for the pyramids (*Gizeh and Rifeh*, 9). G. A. REISNER supposed that the blocks of Mycerinus buildings were mostly obtained from the quarries situated directly south-east of his pyramid. For the Second Pyramid, there were probably some smaller quarries south of it and along the edge of the upper terrace of the promontory. (*A History of the Giza Necropolis*, 12). In support of these ideas, it happened that we came across a worked edge of a good limestone quarry which seems to have been used down to a comparatively recent date. It lies just south of the causeway of the Third Pyramid, roughly in the middle of its whole length.

¹⁰⁾ A number of embankments of a considerable size, which seemed to facilitate the transport of the blocks from the quarries to the Nile, were traced at Aswan and Hatnub (S. CLARKE and R. ENGELBACH, *op.cit.* 20, 23).

¹¹⁾ I. E. S. EDWARDS, *The Pyramids of Egypt*, 158.

bounds about which we are now speaking, the settlement may be actually considered more than a poor class district. The layout of its buildings surpassed in many ways that of the modest barrack galleries for the stone-labourers of the Second Pyramid, formerly discovered by W. M. F. PETRIE.¹²⁾

In contrast to the so-called Pyramid Cities attached to the valley temples on the edge of the cultivated land, our settlement was built some distance up on the lofty desert plain. A somewhat similar kind of place may be seen in the ruins of houses adjacent to the walls of the funerary temple of Neferirkarē, and also at Saqqara near the funerary temple of Queen Neith, the wife of Pepi II.¹³⁾

It may be concluded that the newly-discovered settlement was not fundamentally used for the habitation of priests or otherwise, but for some essential industrial activity. The occurrence of so many varieties of big ovens in such a small district points quite clearly to the fact that they were employed for another particular purpose far more than for supplying the needs of a small number of occupants. As mentioned above, there were at least three buildings containing two big cylindrical or barrel-shaped bread-ovens each. It has also been stated before that in one building were discovered a group of four adjacent fire-places set in a rear court, where the building backed up to the large embankment, probably serving as a kitchen. A row of not less than twelve wide circular fire-places, situated close together alongside a courtyard, possibly formed a public kitchen.

Some units of the buildings look suitable as store-rooms or workshops more than as lodging-rooms. A certain number of small units were even placed side by side or back to back without visible openings on either side to link them together (pl. 26a).

A number of remarkable blocks of impressive dimensions and composed only of a few spacious units may have served as official buildings. Reference has already been made above to the tracing of a vast hall in the northern quarter of the settlement, with at least two pillar-bases (pl. 22b-c). Their main outlines are mostly clear, though the inner partitions could not be entirely followed up in detail. However, it seems that a northern entrance gave access to it through a porter's room and an oblong ante-chamber with one pillar or two. At the back of the hall, there were a few secondary rooms backed up to the main branch of the smaller embankment. The surviving height of their walls varies from 20 to 38 cm. Probably, in the central big hall, the scribes had to sit and control the movements of goods and those in charge of them. The back rooms were possibly the archives.

On both sides of this scribes' hall at unequal intervals, there were good grounds for a set of big identical buildings. Nothing of the structures survive, save the foundations. But as one can judge from their ground outlines, the features in common were: (a) the strict oblong plan; (b) the large space which measures something like 24 metres for some of them; (c) the great thickness of the walls, varying between 100 and 160 cm; (d) the numerous sets of storage pits spaced more or less alongside; and (e) the condition that no entrances could be traced (cf. the plan fig. 2 and pl. 26b).

With these considerations in mind, the constructions give the impression of having been large magazines attached to an official complex. A few real difficulties may stand, however, against the possibility that they were granaries of that common kind where the corn was poured

¹²⁾ PETRIE, *The Pyramids and Temples of Giza*, 101—103; HÖLSCHER, *Grabdenkmal des Chephren*, 70.

¹³⁾ I. E. S. EDWARDS, *The Pyramids of Egypt*, 186. Note also that the settlement of the working class at Amarna lies on the plain near the northern group of the rock-tombs. So does the village of Deir el-Medinah.

in through the top and withdrawn through window-like doors at some distance from the ground level. Evidence of a similar construction made up of random stones is lacking. The custom was to build granaries of this sort only in mud-brick. On the other hand, the only compartments that could be traced inside the magazines in question lay at the very back. In one of them was found a low rubble platform (185 cm long) plastered with clay. Perhaps it served as a sitting-bench rather than an alcove for a bed.

Therefore, if it is confirmed that these buildings can be dated from the Old Kingdom, the location of the whole ensemble, which is not more than 200 metres from the funerary temple of Mycerinus, is a factor not to be entirely over-looked. It is reasonable to assume that the buildings of the settlement were devoted to provide the food offerings for that temple. It seems a plain fact that it was more desirable to have the habitations near the valley temple, where the distance was not too far from the cultivation and the river bank. But although the valley temple was of consequence, the fact is that its rites and services were periodically and seasonably performed. The funerary temple was entitled to the most continuous attention so as to provide fresh offerings needed to maintain the daily ritual services for the dead king and the tombs of his courtiers. The preparation of these offerings barely required more than ovens, water jars, bins for grain and ordinary reservoirs of pottery for keeping the goods required.

No wonder that two settlements were founded to serve one pyramid. In this respect we may recollect the Decree of Pepi I, at Dahshur, which alluded to two cities for the actual burial-pyramid of Snefru,¹⁴) perhaps rather than for his two pyramids.

In the light of the assumption that these buildings were used for preparing offerings and storing goods for these offerings more than for lodging, we can understand their being empty of household materials or domestic objects, at least up to the present stage of excavations.

This supposition, however, does not refute the possibility that the settlement might have contained as well a few dwellings to house some of the people who were in charge of the workshops and the offering requirements. Perhaps it was most convenient for them to be close to their work.

Actually, there were a few private houses with accommodations of their own. Each one has a single bedroom distinguished as such by its platform or alcove raised above the level of the floor for the bed (pl. 27a). This measures something between 170—185 cm long, 90—105 cm wide, and gradually decreasing from 20 to 5 cm high according to its sloping surface.¹⁵) Sometimes a low dais adjoins the bed-alcove, possibly for keeping the owner's chair. Its dimensions are 77 cm long, 65 cm wide and 8 cm high. In one case, there is found a small basin (50 × 90 cm) built in brickwork seemingly for ablutions. Often, the bedroom is located between two rooms parallel to it in one line and opens from a corridor running the width of the house.¹⁶) An ante-chamber has its place between the corridor and the doorway facing the forecourt or lane. In one house, a big hall with a separate entrance is found preceding the set of private rooms.¹⁷) This might have been a reception hall for guests or the place where the owner

¹⁴) L. BORCHARDT, *ZAS*, 42, 1.

¹⁵) It may be that the wife used to share her husband's bedroom, or, rather, that the permanent occupation was restricted to the man.

¹⁶) This was usually intended for security and also to retain the heat in winter and to keep the sunlight off from the bedroom walls in summer. cf. W.S. SMITH, *The Art and Architecture of Ancient Egypt*, 202.

¹⁷) The purpose was perhaps to ensure more strict privacy for the private rooms. *Ibid.*, 97.

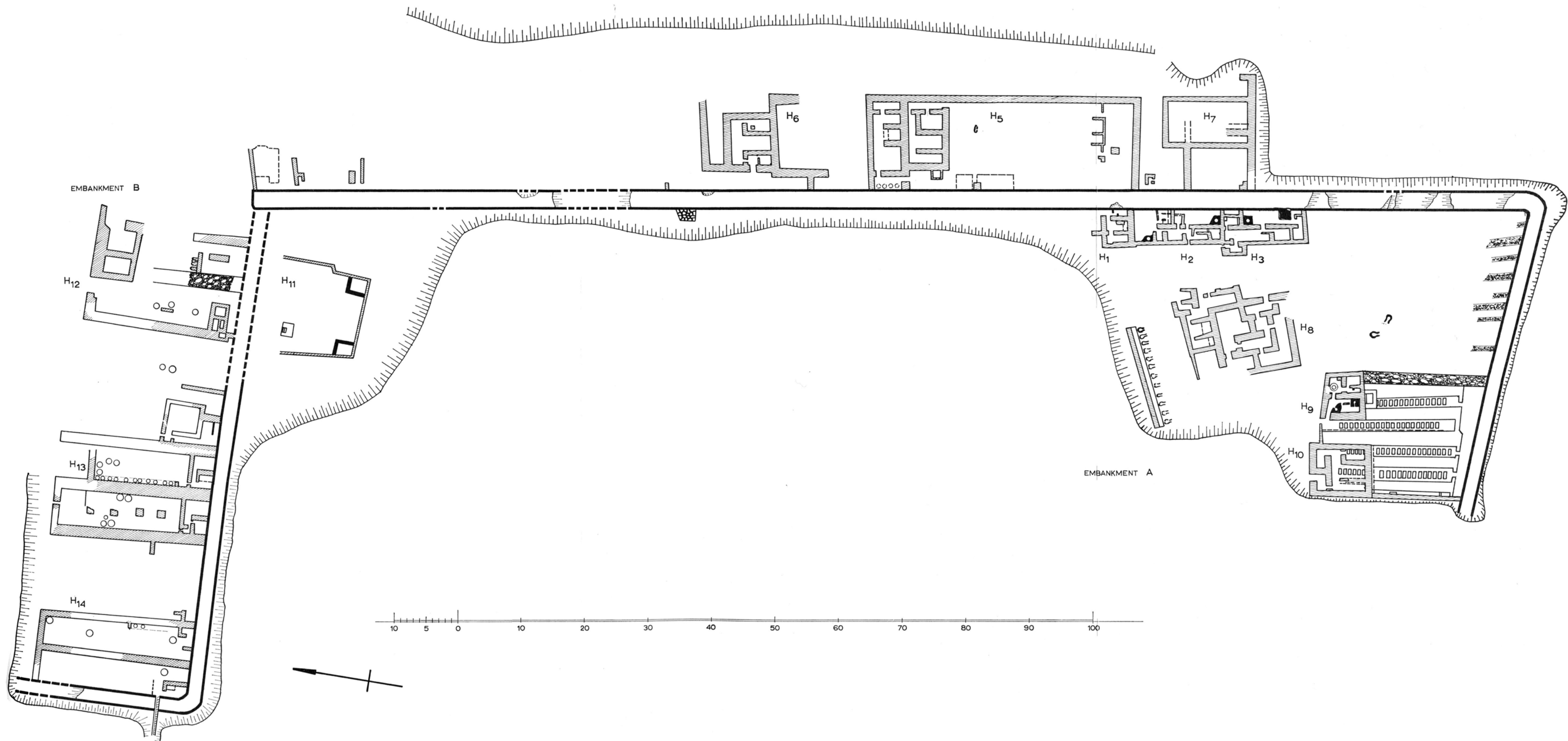


Fig. 2. Plan of Embankments A and B and adjoining buildings

made up his accounts. In so far as the ruins allow one to judge, it seemed that a portico was placed in the foreground of the whole ensemble, possibly supported by means of two columns.¹⁸⁾

In two buildings, a small room was set back probably serving as a fold where a few long-legged sheep or goats were kept for milking (pl. 27b). This seems to be indicated by the presence of a narrow oblong trough in each, one measuring 145 × 20 cm and the other 125 × 20 cm. Each was constructed along an inside wall, at a height of 75 cm for the former, and only 45 cm for the latter, above the ground. In the better-preserved one of the two folds, a small manger (70 × 60 × 50 cm) was built at a corner on the floor, perhaps for corn or grass. Moreover, a narrow space (220 cm long × 65 cm wide) was partitioned off from the rest of the fold with a screen wall, one metre high, plastered on both sides. At its lower part, there is a small vaulted aperture 33 cm wide × 42 cm high. One possible interpretation may be that the partition served as an aviary for keeping poultry, and the lower aperture seems to allow the geese, ducks and probably rabbits too, to be brought out for feeding or for slaughter.¹⁹⁾ Interestingly enough, there were vertical rounded slots in the thick gypsum-coat covering the side jambs of the entrance of the fold, which were apparently intended for holding a flap-door composed of a single valve of wood lowered into position by pressing on the top, perhaps to stop the issue of the animals. This device calls to mind the stone portcullises in the Third Pyramid and presumably in the Great Pyramid too²⁰⁾. But the case here differs from others found in the buildings of the settlement, where the doorway mostly had a threshold composed of a stone slab with a socket to hold a wooden door opening inwards or outwards.

As cited above (pp. 135, 141), numerous pits were occasionally found inside the buildings and sometimes in the open. The medium-sized ones appear to be intended for maintaining storage bins for grain (pl. 26b). They vary between 55—60—70—85 cm in diameter and from 25 to 35 cm in depth.

Apart from these, a small fine jar was embedded in the mud-plastered floor of a room, up to the brim, the mouth being covered with a circular lid. It appears to have contained tiny articles of the owner. Close to it lay a rectangular small cell (40 × 40 × 18 cm), lined with rough stones set vertically in clay, perhaps to form a container for some object.

By contrast, there were much bigger and deeper shapeless holes in the open which appear to have been used for dumping the waste materials from the buildings.

As pointed out before, the top parts of all the walls were generally denuded. This factor rendered it impossible to decide whether the buildings were covered with roofs or were roofless. Assuming the former, we cannot say with certainty whether the roofs were laid horizontally or in some vaulted shape. Again it is difficult to say if they had wooden or stone roofing, or if they were simply thatched with reeds or matting or whatever other light materials were at hand. No indications for such materials could be traced.

¹⁸⁾ Against the north side of the outer hall or ante-room of this building, just at the back of the entrance, lie a couple of stone blocks, being set firmly on the ground, at an interval of 30 cm apart from each other. Each is 35 cm long, 20 cm wide and 35 cm high. The whole upper surface was finely coated with gypsum plaster 15 mm thick. It does seem difficult to guess the object of these modest pieces of furniture. They can neither be considered as seats for a porter, nor could they be taken to have served as the stands of a couch for a woman in travail. The dimensions would allow only a dwarf to rest in ease.

¹⁹⁾ Perhaps also to bring the birds eggs out of it. This interpretation seems more plausible than to assume that the space served simply to store some kind of stalks. Also, the occupants seemed to have concerned themselves little with breeding big animals in their buildings. The sacrificial animals needed for the funerary temple offerings could have been brought over at one time from the farm endowments on the neighbouring agricultural land. Perhaps the permanent labourers in the area were entitled to receive portions of the meat thereof.

²⁰⁾ EDWARDS, *op.cit.*, 162.

The only clues we have to the roofing of some buildings are:

First, a small platform composed of a few steps of bricks was found in a bedroom (see pl. 27a)—possibly the base of a pillar of wood or of brick to support the ceiling of at least a part of the room leaving the other part open to the sky.

Secondly, the discovery hinted at so far of a row of two or more square bases of rubble and clay set along the axis of the scribes' hall in the northern quarter of the settlement (pl. 22b—c). They rise about 10 cm above the level ground and may have added strength to large pillars so as to support a ceiling of considerable size.

Thirdly, it has been observed that the upper portion of a certain side wall of a room which is comparatively the better-preserved one in the area inclines very slightly inward towards the top (pl. 27c). The inner face is about 220 cm high, while the outer one is nearly 230 cm and may originally have been up to 240 cm. No cracks were seen in the interior corner in the masonry. These features may give the impression that some kind of vaulting was the objective, although the notion of building vaults in rubble in early times is still a debatable point.

However, the insufficiency of evidence prevents us from giving any affirmative word. Be that as it may, it is clear from the total absence of any staircase that the roof was not given much concern.

Definite evidence of windows is as scanty as in the case of roofing. Not a single frame has been found. This may be explained by the assumption that small clay-lined apertures in the lofty parts of the walls, now ruined, were only protected by large rags (like sackcloth). It can be explained too by the supposition that the wooden parts of the windows as well as the other wooden parts of doors and pillars were subjected to gradual decay and theft, if they were not carried off by the settlers themselves when they moved about taking all their woodwork with them.

Occasionally at least, some of those who were in charge of the settlement must have satisfied their interest in other affairs apart from the labouring tasks strictly connected with the the offering requirements. One may recall to notice the abnormally great quantity of alabaster-like blocks which cropped up in a haphazard fashion on the exposed forecourt facing the minor wing of the large L-shaped embankment (see p. 138, pl. 25b). It seems not improbable that here was once an atelier area occupied by artisans of some sort. Unfortunately, the only worked alabaster piece so far found is an irregular heavy base of a monolithic column, measuring approximately 150 × 100 × 100 cm (pl. 27d). Only the top surface was finely dressed to a depth of 15 cm and fashioned to be circular in plan. Its main diameter tapers from 78 down to 84 cm. In its centre, a small hole 15 cm in diameter and 4 cm in depth had to be cut with sloping sides, probably to facilitate the insertion of the butt of the column. Examples of this type of column-bases can be seen in the north pyramid temple of the Vth Dynasty at Abusir.²¹⁾ Another peculiarity is that one side of the upper circle of the base was evenly truncated to about 14 cm in breadth and 5 cm in depth, in a manner that calls to mind the form of the bases of columns used to flank the central aisle of the hypostyle hall in the great Egyptian temples. The other faces of the block were left in the rough as if the work had partly been abandoned on the spot.²²⁾ Another shapeless

²¹⁾ Cf. S. CLARKE and R. ENGELBACH, *op.cit.*, fig. 139.

²²⁾ There is also the suggestion that the block was taken from some other ruined building.

block is interesting on account of a fine figure of a big ape drawn on one of the sides in red ochre. A few unrecognizable red sketches or figures were seen also on at least three other blocks of alabaster.

The next interesting discovery in the same area facing the minor branch of the large embankment includes a number of features whose relationship is still not clear. After removing a mound of draft sand of about four metres deep, we came upon a rough layer of hard clay corresponding to the floor level of the adjoining block of buildings on the south-west side of the settlement. Going beneath this clay-coated ground, we discovered four parallel rows of long shallow trenches sloping down slightly in a north-south direction, perpendicularly to the outside back walls of two buildings, but at a little lower level (pls. 28—29). Each is about 19 metres long and 1.50 metres wide, flanked by rubble platforms approximately 1.20 to 2.00 metres in width and about 20 to 30 cm in height. In each trench there remains a series of small low rectangular structures of rubble, with their surfaces and sides levelled up with tuff-clay. They amount to 14, 20, 20 and 18 successively from east to west, and may be tentatively called daises, bases, pedestals, platforms, tables, benches and the like. But let us be content for the moment with the simple designation "rectangles". The average dimensions are 95 to 110 cm long by 57 to 65 cm wide. The height varies from 15 to 40 cm, conformable to the sloping ground. They were built at roughly regular intervals (nearly 20 to 23 cm) on the surface of the desert sand. On either side of each row there seems to be a sort of narrow slot or trough coated with clay, running the length of the trenches as if to allow small quantities of liquids or otherwise to flow off.²³) Each of three of the trenches terminates in a little exposed compartment (1.32 × 2.14; 1.00 × 2.18, and 1.68 × 2.30 metres) preceding the access to the trench, or possibly the exit facing south (pl. 29a). The fourth trench, however, was closed.

The rubble rectangles continued northwards towards the two adjoining buildings (9—10.) As a result of going down to below the floor level in one of these buildings, it has been detected that one of its standing walls partly rested upon a number of the rubble rectangles made horizontally as if they were foundation-supports. This might mean, that the rectangles were of a slightly earlier date.

Moreover, the ground immediately below the plastered floor of a certain room in the other building (9) was found to be of a different character. It was a fairly tenacious and finely levelled pavement made of alluvial soil. About the middle of this pavement was discovered a circular basin countersunk and plastered with the same fine coat of mud (pl. 29d). The diameter is 50 cm internally and 70 cm externally, while the depth is about 23 cm. Close by, against a side-wall, there appeared also what may be a low shelf of brick just 20 cm high above the floor, and 30 cm long. In the inner face of the northern wall of the same room there is a little niche of rubble, facing south. It is one metre high with a pair of inner jambs, which measure 100 cm and 70 cm successively in width.²⁴) In a second room there appears a rectangular pit lined with bricks, low down in the floor. It is approximately 30 × 30 × 10 cm. The domestic or ritual significance of this combination of objects is an unsettled matter. For example, the first room and cult seemed connected as bath for ceremonial washing; but flowing water might damage mud-coated surfaces, especially those of the receptacle in the floor. Moreover, it is difficult to explain why the new builder did not destroy completely the subterranean struc-

²³) One objection, however, is that the clay coat on the inner sides of the trough would have easily been melted by such liquids.

²⁴) See for shallow niches found in Tell el-Amarna houses: *JEA* VII, 171.

tures and was content with covering them partially with a layer of sand, mostly 20 cm thick, perhaps to level the unevenness underneath the newly-plastered floor. At any rate, if the latter covering was not a partial restoration during the course of the owner's life—and the objects under question actually predated the existing buildings—the gap of time would probably not be very wide. We did not intend, however, to mutilate any more portions of the standing buildings by excavating beneath them.

Turning back to the trenches with at least seventy-two rubble rectangles illustrated above, it can be said that although they are of modest structure, their discovery is unquestionably of importance, as nothing similar to them to my knowledge had thus far been found. But, the real function of this group of constructions is also a puzzle. Nevertheless, if their varied features are grasped, one can tentatively put forward the assumption that they had served some secular object rather than a religious purpose. They cannot be explained, for instance, as having supplemented a shrine or a tomb of importance, as offering tables, or platforms in a slaughter-house, or even tumuli surmounting little graves of attendants, or the like. Their relatively secluded location and the absence so far of any tomb or sanctuary of importance on the spot stand against such a suggestion.

The overall picture of the ensemble described detects rather a practical and utilitarian character. But what exactly were the rectangles for? The architectural purpose inferred so far from their being found partly running underneath a certain wall in the nearest building seemed at first plausible. But this would soon be countered by the fact that some other rectangles passed right underneath a plain ground in the same building where walls should have been (pl. 29b). One can also rule out the naive supposition that the rubble rectangles had served simply as boards for the baking or the fermentation of some sort of local bread in the hot sun. Also, the conditions exclude the assumption that there were magazines in the open where numerous boxes or blocks were kept on the rubble rectangles.

Can we assume that they were used for some wet object including, or soaked with, water or any other liquid? And if so, can one suppose that they were work-tables required in the squeezing or hammering process of manufacturing papyrus sheets or flax stems, or even the tanning of hides? In actual fact the ground thereabouts betrays no remnants of such materials. Only a few potsherds and small littered amounts of ashes were found. Moreover, the spaces around the rectangles are, it appears, too narrow to allow any number of labourers to sit or squat in comfort. At most, the little spaces would only allow them to stand or stoop while working.

There are still other possibilities. A short distance away, traces of a green substance, perhaps the compound of copper called malachite, were visible in three shallow cavities of which one measures $75 \times 65 \times 15$ cm and another $30 \times 20 \times 10$ cm, while the third is featureless. Some of the comparatively hard-surfaced pieces of malachite retained traces on the back of a white mortar, perhaps the plaster in which they had been set, or else the plaster applied to the inner sides of the cavities. A little further away in the open, there were also discovered two big circular ovens or hearths built of mud-bricks which bore traces of being little heated from the inside (pl. 30a). They were spaced about 2.40 metres apart. Both are nearly alike in diameter, 70 cm on the inside and 100 to 120 cm on the outside. The average surviving height is 20 to 35 cm. Thus, they vary to some extent from the other ovens found in the site. One of them opens to the south, and the other opens westerly. The preliminary examination of a fair amount of ashes found inside and littered thereabouts failed to reveal any speciality. Only traces of red ochre were found on the inside floor level of one oven.

The function of these ovens seems to have been industrial rather than simply for cooking food. The occurrence of the malachite and ochre, nearby and within, may lead to the assumption that they were utilized for making some kind of faience or baking glazed objects, both of which were to the liking of the rich and the ordinary people as well. However, nearby there were no traces of the quartz-chips frequently used as a body material for making faience, beads, amulets, vases and figurines. Nor were there found any waste of these objects. All that remained nearby were the big alabaster blocks already mentioned.

On the other hand, it may be assumed that the two brick circular constructions in question might represent the bottoms of kilns for heating or parching of cereal grains. The position of the lower front-openings would suggest this. It was not the custom to build the opening of an extensive oven nearly perpendicular to the opening of the other, lest those who squat between the ovens would be exposed to the intense heat of the fire. A less likely assumption is that they served for firing ordinary pottery jars.

Some trenches in the exposed forecourt lying between the embankment wall and both the trenches and the two hearths revealed a probable older work in the area. By going through the sandy ground to a depth varying from 50 cm to 140 cm according to the steep sloping of the plateau from east to west, there was found that the irregularities in the bed-rock had been evened out or hammer-dressed at one time for an uncertain object. One possible purpose might be to provide a plain drying floor or the like.

At any rate it is evident that the excavations have not come to an end and there is still much to be done. Perhaps when more of the area is cleared out this will bring us yet some steps nearer to the final solutions of these problems in all their details.

* * *

Probably some successive generations of occupants inhabited the settlement. One may recall to mind the probability illustrated above (p. 145), that still older constructions might have partly furnished the foundations of some existing buildings. Moreover, there have been found a few fragments of coloured plaster in the buildings, displaying a later coat of plaster covering an older one. Also, the remarkable variety of the oven types in the area may be of both utilitarian and chronological significance. All of this suggests, perhaps, a fairly long period of occupation. One would not be far from the truth in believing that the settlement continued to be used down to the Late Old Kingdom. By the beginning of the First Intermediate Period, the buildings were, perhaps, gradually abandoned by their owners. The outbreak of the dreadful revolution at the end of the Old Kingdom must have brought the rites of the pyramid temples to an end. And consequently, the labours in the settlement were brought also to an unhappy close. The scanty inscriptional and architectural evidence available in the area of the Third Pyramid temples and the associated cemetery, after the decline of the VIth Dynasty, accords exactly with this view. After its abandonment, the settlement seems never to have been resettled, but left deserted to the realm of sand and sun.

More Embankments:

On the slopes of the foot of the nearest hills bounding the desert depression from the south, there has been uncovered an irregular series of three joined embankments which were followed by us for some 450 metres long in all. Their first short side is going up from north

to south for a length of 65 metres (C). The second long one runs from east to west for about 300 metres (D). Afterwards it turns gently with a fair curve to a north-south sloping direction (pl. 30b) for nearly 50 metres until it disappears under huge amounts of sand (E). However, there is a certain part of it not so far discovered, and future excavations will, perhaps, follow it further. It was probably orientated towards the Mycerinus Pyramid Complex.

This chain of embankments in the manner of those described before was constructed of broken rocks and rubble. The two sides were coated with *tafl*-clay. The average width is about 2 to 2.20 metres. The survival lateral depth in some parts is one metre and less in others. So, they are smaller in width, and depth than the lower embankments; and they are less well preserved. The plane of these embankments slopes slightly towards the wady, either corresponding to the slopes of the hill-sides, or as a result of denudation by wind and weather. Furthermore, at the southern end of the first ascending wing of these embankments, a minor auxiliary one of about 30 metres long came to light facing south, and then disappeared. It is not known where it goes beyond.

Besides this group of embankments, there has now been cleared out a fourth (or fifth) one set up on the top surface of a nearby hill (F). It is traceable for a distance of 119 metres from east to west. Its width is 3 metres, and it was built after the other embankments. In point of fact, this lofty embankment alone was formerly shown on J. S. PERRING's plan of the Giza area, dated 1837, and was alluded to as "Foundation". We could not define exactly whether at one time it joined the minor branch embankment just mentioned above as going up towards the south. The area between them is still not excavated.

Some hypotheses already brought forward to explain the object of the lower L-shaped embankments may be applied as well to those on the slopes of the hill-sides. They may be foundations of boundary walls laid for the back side of the big City of the Dead at Giza. In this respect, they are to be distinguished from the so-called (by W. M. F. PETRIE) peribolus walls bounding the Third Pyramid area. Alternatively, they could have been footings for defensive walls sheltering an inhabited city—of which its entity has not yet been disclosed—against possible raids made by nomads, robbers and wild animals, as well as against the blowing of violent sand-storms. In this case, the fourth lofty defensive wall might have been built to control the plateau top. However, the site of the settlement we have discovered lies, strictly speaking, outside the scope of these suggested defensive walls, and situated further east in the desert plain below.

It may be still more probable that they were used in transporting moderate-sized blocks from the adjacent quarries. Beside them were occasionally found heavy piles of broken stone-chips left after quarrying and dressing building stones before transporting them. It is not improbable that some of these heaps were accumulated intentionally against certain sides of the embankments to prevent their crumbling away.

Finally, it should be recorded here that in the course of investigating the site, we also cleared out approximately fifty metres of the foundation of the brick walls flanking the Third Pyramid causeway, roughly situated in the middle of its length. The bricks are typical of those used in the official architecture of the Old Kingdom, their measurements being $40 \times 20 \times 10$ cm.

The Burials:

Tombs also had a significant rôle in the present discoveries. We took to examine the rocky face of the plateau quite close to the south-eastern side of the funerary temple of Mycerinus. Here three planes of burials, each above the other, came into view. The uppermost con-

tained numerous modest shafts from various periods. These were mostly rifled, though in several cases the entrance to the burial-chamber was found to be still blocked by an intact stone barrier. Below, were tombs of the second half of the Old Kingdom, grouped roughly at two levels. On the higher level of these, there were unfinished rock-cut tombs. On the lowest level, we were able to clear two built mastabas (pl. 31a). The first belongs to a person called Ḥesy. It lies at a short distance south-east of the previously cleared mastabas of Ankhnebef and Pareḥu. The tomb-chapel, built of limestone, is roughly square in plan, approximately 7.30 by 6.30 metres. The outer wall surfaces were comparatively smoothly dressed, while the inside surfaces were left rough. Two small obelisks of limestone were set on either side of the entrance; and one of these, 50 cm in height, has survived. A doorway, 55 cm wide, in the northern part of the eastern façade gave access to a horizontal passage leading to the main offering-room, 3.55 metres long and 1.30 metres wide. A few stone slabs comprising part of the roof, are still preserved at a height of two metres. There is a rough false-door in the centre of the western wall, opposite the main entrance. The scene on the panel is in a poor state of preservation, bearing only a damaged representation of the deceased in a standing attitude, and the following short inscription: *hm3ḥw ḥr nṯr-ꜣ3 sꜥ ꜥ-nsw ḥft ḥr . . . Ḥsi* "Honoured before (lit. by) the Great God, scribe of the King's documents in (his?) presence, Ḥesy".²⁵)

A narrow serdab was unsymmetrically placed behind the rear wall, being about one metre to the south of the central false-door. It was badly weathered and had been plundered. Leading out of the offering-room is a second long, narrow chamber, 4 metres long by 1 metre wide. A deep recess or door-niche was set in the inner western wall containing a false-door with a double jamb, which was left uninscribed. The burial shaft lay partly beneath the outer southern corner of the eastern façade.

An almost square courtyard whose northern and eastern sides were cut into the natural rock had been made in front of the eastern façade of the tomb-chapel. It is impossible to tell whether it was once partly roofed-over or not. Five rectangular shallow-recesses averaging 10 to 20 cm in depth, had been hewn out of the rock in a single line on the northern side which forms at the same time part of a higher rock-cut tomb. Five cavities had also been hollowed out in the courtyard floor, along with a big pit at its southern end, being separated into two divisions. Two more pits were found at the eastern side. It is likely that the stone-cutters themselves had excluded all these from the general design, for they do not seem to be connected with any funerary arrangements such as the embalming processes or the like.

Five metres further on at the same level in the direction of the east, is a less denuded tomb built of coarse, local limestone, and belonging to the lady Pekhernefret and perhaps one of her relatives called Samery. The outside measurements are 11.40 by 5.30 metres. The surviving walls range in height to about 2.30 metres. An entrance 63 cm in width is cut into the eastern façade, and divides the whole construction into two sections: "A", forming the northerly part of the tomb, extends 6.35 metres. Its eastern façade contains only a false-door (55 cm wide) with a double jamb, the panel of which was probably left blank, while the lower lintel was inscribed with the text: "The King's acquaintance Pekhernefret whose pet name is Ibi." The name is engraved once more on the drum. Two texts inscribed on the two inner jambs of the false-door point to the fact that "It was her son who made this tomb (for her), the overseer of the domain, Ankhemka". The remaining inscriptions on the outer jambs entitle the God

²⁵) The two final titles may also be read: *sꜥ ꜥ-nsw (ny) ḥt.f ḥry[wdb]* "Scribe of the King's documents (of) his property, chief of the [distribution of offerings]."

“Osiris”, as “Lord of Bosiris” and “Lord of the West”, probably beseeching his favour for Pekhernefret, “the King’s acquaintance, revered (by) the King”, who is conventionally figured in relief below the texts in a standing attitude while raising a flower to her nose (pl. 31b). A rough courtyard, cut out of the rock, ran along the length of the tomb-façade. For some inexplicable purpose a small oblong recess with a convex base was hollowed out of the rock in its northern inner face.

The section of the tomb that has so far been described also contained two burial shafts, partly constructed out of the rubble core of the mastaba and partly hollowed out in the natural rock to some depth.

Among the objects discovered by us in the disturbed burial-chambers of this tomb were eight fine limestone vases, probably intended to be used as receptacles for the viscera of the dead. Each vase is conically shaped, the lower part tapering into a flat base. The height is 28 to 29.5 cm, and the larger diameter averages between 16 to 19 cm. The mouth is wide and covered with a stone circular lid about 13.5 to 15.5 cm in diameter.

The entrance to the tomb-chapel was recessed back to about 20 cm, leaving a jamb 80 cm wide on either side. The upper lintel (150 cm long by 36 cm high) found in the débris lying in front of the entrance bears a *hotp-di-nesu* formula of Pekhernefret appealing to the gods Anubis and Osiris for a burial in the sacred necropolis, and for daily offerings.

The opening leads into the “B” or southerly section of the tomb, and gives access through a small passageway to a single offering-room, oblong in plan, measuring 3.10 × 1.30 metres. At about 60 cm from its south-eastern corner, a double-jamb false-door is set in. A curious feature of this false-door is that it was built in a slope-sided niche. Consequently, its sides inclined outwards toward the top. Both the outer and inner jambs were inscribed. The mutilated inscriptions entitled to Samery are hardly legible.

There have been found two rectangular libation-tables of limestone on the floor of the chapel. They are of ordinary workmanship. One, 58.5 × 34 × 11.5 cm had the upper face divided into two shallow basin-shaped compartments, one being narrower than the other. The second libation-table 59.5 × 25 × 7 cm had its two shallow basin-shaped depressions set on either side of a big *hetep*-sign sculptured in high relief.

Other miscellaneous monuments were found in the neighbourhood of the burial area that has so far been illustrated. Here another libation-table may be mentioned: it is of uncertain position, being square in shape, 60 × 60 cm, and is carved on the surface with unrecognizable figures of offerings.

Two necklaces of miniature cylindrical faience beads of a mediocre workmanship were picked up loosely from an usurped tomb-chapel. The beads are of different small sizes and range from blue to black or dark blue-green in colour.

The next inscribed piece of interest is a re-used stela. In the position where it was found, it served as a side barrier of some fence or the like, in the open air. It is rectangular in form, 64 cm high × 40 cm wide by 13 cm thick, with a rough rounded top carved on the surface. Its inscriptions consist of four horizontal lines of hieroglyphs finely sculptured in relief. They are crowned with an oblong cartouche of Mycerinus, and the reading runs as follows: “The prophet-priest, beloved of his lord, amiable and acquainted of the King, Ankhnebef” (pl. 31c). It has been found out that the stela was usurped from a certain tomb of the same person’s name, lying at some distance to the south of the funerary temple of Mycerinus. If it really belonged to the Old Kingdom, this stela would be of interest in view of the fact that its combination of the Abydian rounded top motif and the rectangular outer shape is of very rare occurrence in

the Old Kingdom. So was also the existence of the royal cartouche at the top of a stela of a private person.

A fragment of limestone ($25 \times 22 \times 9$ cm), found in the surface débris bears part of the hieroglyphic titles of a lady, reading *mitrt Ḥt-br*. This is a fine example which should be cited among those similar titles referred to by H. JUNKER.²⁶⁾

Finally, here should be mentioned a certain false-door, found in the ruins, which would be of great interest were it not for its mutilated condition. It is of limestone, 130 cm high, 59 cm wide and 12 cm thick. The little legible inscription thereon tells us that the owner was Kameni, the King's acquaintance and overseer of the prophets of the Pyramid of Mycerinus, perhaps of the Late Old Kingdom. Parts of the top and the right side of the false-door were left in an incomplete stage of the relief carving. The hieroglyphs outlined first in black paint are still traceable. Then corrections, presumably by a superior draughtsman, were set out with red ochre which were next to be incised. But for some reason the work was stopped before this final stage of completion. Such examples, at present known from the Old Kingdom, are rare.

The Statuary:

The sculpture consisted of four pieces. The first is a standing limestone pair-stature of an unknown personage and his wife (pl. 32a). The figure of the man is 55 cm high and that of the woman is 52 cm. Both stand on an uninscribed base, approximately $21.5 \times 20.2 \times 4$ cm. This find was discovered broken into thirteen pieces in the drift sand falling in front of the tomb-chapel of Ḥesy. As cited above, this tomb can be dated back to the late Fifth Dynasty or later, on account of the small limestone obelisk still standing outside its entrance. However, it seems equally probable that the pair-stature in question may have been dragged from a ruined serdab of a rock-cut tomb lying on a lofty plain of the plateau ridge.

The figures represent the traditional attitude of standing family coupled-groups of the Old Kingdom. Here the man appears in the more charming features, though he stands in a rigid gesture with the left foot advanced forward. The costume is a tight-fitting short kilt with a pleat in the front, and a narrow simply decorated belt around the waist. On the head the man wears a rounded full wig with tiers of curls concealing the ears and drawn down to either side of the neck. He stretches out his arms hanging down at his sides, and holds his fists closed about two small round objects in the manner of the male statues of the second half of the Old Kingdom.

The woman wears a heavy wig drawn to either side from a central parting and reaching to the shoulders and neck. She wears a long plain tunic. The conventional rendering of the affection uniting husband and wife is expressive. The woman places her right hand on the hanging right arm of the man, while her left arm is flung behind to rest on his shoulder.

From the artistic point of view, the pair-stature is of average quality. According to the Egyptian custom, there is a rear support at the back of the two figures. This is an oblong flat stone slab reaching almost up to their waists. From the back, the figures are somewhat lopsided. This is noticeable in the figure of the man and slightly less in that of the woman (pl. 32b).

The next two pieces were found in the débris filling the shaft of an entirely weathered-away tomb. The first represents part of a seated figure of the King's acquaintance Innefer, as the inscription carved on the base tells us. The body was painted brown, but almost damaged

²⁶⁾ *Giza* V, p. 141 f.

and missing above the waist. The surviving height is 41 cm. The hands, badly broken, rest on the thighs. The right hand lies clenched thumb up, and the left hand rests open with the palm downwards. The base measures $47 \times 24 \times 6.5$ cm.

The third piece is a stone pedestal $35.5 \times 24 \times 10$ cm, retaining two damaged feet of a standing male figure originally of a three-quarter lifesize or smaller.

Lastly, a headless and armless male statuette of fine limestone 8.5 cm high, was recovered from the sand falling in front of the tomb-chapel of Samery. The low base measures 8.6×5 cm.

Varia:

In addition to pottery pots and shreds (see p. 137), there was found a considerable number of pottery and limestone model offering cups, dishes, plates and vessels. They were picked up from the débris filling various disturbed shafts and burial-chambers. Little differences were marked in the shapes of brims, sides, bottoms and bases (pl. 33).

An abnormal quantity of similar small model offering-vessels, cropped up in two surface depressions, perhaps used as dumps of pottery, in between the cleared-out mastabas. It is not clear, however, whether they had been thrown out from the nearest tomb-chapels in ancient times, or were set aside and accumulated therein by some recent excavators.

We may just mention also three alabaster model-vases of the so-called Bastet-jar type. The height is something between 6.5 and 7 cm. There was also a fine cylinder-shaped alabaster model-vase measuring 8.5 cm in height and 3 cm in diameter.

In the category of pottery, attention should also be drawn to a large jar as deserving of interest. It has a ribbed body of brownish-red ware; being oval in shape, and measures 33.5 cm in height and 38 cm in the larger diameter. It has a wide mouth 24.5 cm in diameter, a short neck and a round base. The handles are broken. The lid is incised with a full rounded decoration which shows the imitation of a leaf or other plant forms. It was found out of the bounds of the building area, in the drift sand, something like 100 metres to the west of the tomb of Khentkaus. It may be safely dated to some Roman period.

A few other objects of interest were found in the course of the excavations, none of them being exactly datable. We cite first a pretty little piece of painted limestone which was stumbled across in the settlement. It illustrates the right foot of a lion with its paw and claws. It is not clear whether the figure, when complete, personified a model-sphinx, or else represented a completely leonine animal. Both motifs proved popular in the second half of the Old Kingdom.

Three flakes of sharp flint were found in the rubbish in the northern quarter of the settlement. One of them is complete; the second lacks only a small fragment, while the third was found badly fragmented. They measure 12, 11.5 and 3.5 cm successively.

Heavy oval grinders and hammer-stones of hard sandstone or quartzite, with slightly concave upper surfaces, occasionally appeared in the rubbish of the buildings. They still carry traces of red and green colours.

A stone cylinder-seal was found in the ruins. Unfortunately the designs engraved on its surfaces are still illegible to the writer.

Three copper arrow-heads ranging from 1.5 to 3 cm in length were found in the débris near the eastern auxiliary pyramid at the back of the Pyramid of Mycerinus. An arrow-head of a similar type was mentioned long ago by VYSE as being found upon the pavement near the

centre of the north front of the 3rd pyramid, and was interpreted by him as being 'apparently votive'.²⁷) This explanation is not altogether impossible, but unless we raise the case to the level of a cult, they could simply be remnants of archery practised in some princely hunts of desert game at Giza, during the Old Kingdom or after.

Behind the Third Pyramid:

It is well-known that the funerary boats annexed to the Mycerinus Pyramid have not been discovered up to now. Therefore, it was resolved to investigate afresh the area around this pyramid. In view of the fact that much of what had already been found of the funerary boats of the IVth Dynasty pyramids were eastwardly, we made our way towards the eastern side of the pyramid. It is hardly necessary to point out that this eastern side was divided—by the building of the funerary temple—into two equal halves. The site chosen was northwards characterized by its floor paved with sun-baked bricks, which were not found in the southern half. This floor was partly visible, whereas the rest lay under accumulated rubbish of an average 2 metres in height. We had to remove not only this heavy heap of rubbish, but also many enormous granite blocks which had fallen onto it from the pyramid casing. After having cleared out a somewhat extensive area, measuring roughly 20 by 30 metres, the brick pavement came in sight to a depth of about 50 cm. It is of large bricks characteristic of the Old Kingdom. This was laid upon a bed of gravel averaging between 20—75 cm in thickness. After the process of lifting, there were found underneath megalithic limestone blocks well set and jointed though irregular in their position, and their upper surfaces were utterly rough (pl. 34a—b). However, as nothing was identical with them on the opposite southern side near the funerary temple, it was another encouraging sign.

Some rough measurements taken suggest that the blocks weigh anything between 10 to 20 tons each. One of their characteristic features is their fine quality which is more faultless even than that of the pyramid stones, taking into account that the latter were apparently subjected to wind and weather. One can readily imagine that these blocks were merely used to fill up deep depressions in the ground. But an objection may be raised that any great quantity of small blocks left behind, or even stone chips, rubble and sand, would provide good filling. The stuff would thereby neither show beneath the ground nor support any considerable weight thereon. In this way, the masons would have saved painstaking labours. And as a result, they might have spared a great amount of good large blocks available for building the causeway and the valley temple left unfinished at the time of Mycerinus' death and completed in brickwork in the reign of Shepseskaf.

An alternative explanation could be gleaned from the fact that the big blocks were brought as close together as possible. They might have served just as a pavement to bank up the pyramid platform, though they missed the last stage of completion and were left in the rough. As a matter of fact, a depression running towards the enclosure of the funerary temple shows the presence of some old work. Long ago PERRING excavated here, coming upon what he considered a substructure of rough megalithic blocks which was to be covered with finer work in order to serve in making a pavement. W.M.F. PETRIE, however, contradicted this view by his conclusion that he found no traces of pavement placed around the pyramid.

What seems even more problematic is the fact that almost all the vertical and horizontal joints between each block and the other were filled up with mortar. Narrow joints, some of

²⁷) *The Pyramids of Egypt* II, 39.

which are of a very little thickness, were filled with pure gypsum mortar as found in the chemical analysis.²⁸⁾ Considerable gaps between the blocks were, however, filled with limestone chips laid in hard-set mortar, where finger-marks were often left by a hand pressing it. It is apparent that the blocks, weighing several tons each, would never move hither and thither, and in consequence the cohesive power of the mortar appears to be of a very little value. Now, does not this imply that filling the little joints, in particular, with gypsum, was meant to give protection to some monuments beneath?

Another persuasive indication is that, besides the normal marks painted by the quarrymen, and the masons' guide lines on the blocks, there were four illustrations of a divine boat often with four strokes close by. Two elaborate pictures of this kind were found on two sides of a big block (pl. 34c); the third one was drawn under a set of small stones arranged beside it. The fourth picture was on one side of a very big block some distance away. It is evident that the divine boat was not of the transport barges the pictures of which may have been in use among the common quarry-marks.

The question arose whether these bits of evidence are really of particular significance. In reality, we had to choose one of two risks: either to pass over the paradox and simply adopt one of the aforementioned alternatives respecting the whole masonry of blocks, that is to consider it a stone-filling or a pavement bearing ordinary quarry-marks. Or we had to go through the deep layers of this enormous masonry until we get the answer to the point or to the contrary. Here we were inclined to the latter, despite the fact that it will naturally require irksome labour. It has been decided that the important clue may be taken from that block mentioned above as bearing two designs of the divine boat, in addition to a third one portrayed nearby, in as much as it appears to be the most persuasive bit of evidence thus far gleaned. It measures approximately $2.10 \times 2.00 \times 1.20$ metres. After the process of lifting, there was found underneath a layer of clay about 10 cm in thickness, laid over a bed of gravel. After the removal of both, there appeared a rough gigantic block, the depth of which is nowhere less than 2.50 metres and whose least width is about two metres. It was partly cut away with much difficulty. Of course, all that we expected to light upon in the process of this investigation, were the stone roof slabs that may cover the rocky pits of the boats. But no traces of such have yet appeared. At this stumbling block, the work is now at an end, but it is hoped that it might continue on a larger scale until the spot will have to tell its tales and unfold its secrets to the full.²⁹⁾

²⁸⁾ A. LUCAS stated that the mortar universally used in Egyptian masonry consisted of gypsum, sand and carbonate lime. This was subject to great variation in different examples. He declared that he had found no lime in Egypt before Roman times. See also S. CLARKE and R. ENGELBACH, *op.cit.* 79.

²⁹⁾ A further attempt was made to investigate the site around the three supplementary pyramids to the south of Mycerinus Pyramid. Previous excavations were made either partially or wholly in two parts of the site, first by VYSE and PETRIE in the north, and secondly by REISNER in the east. We therefore started to clear the south and west portions, and some trenches were made there. It is not possible, however, to define the results until further work is carried on in a future season.

We appreciate the co-operation of the architect Dr. ABDEL-LATIF SABBAAH, who joined the excavators partly for a short time, for drawing plans of the first season excavation.



a) from south to north



b) from north to south with buildings

View of excavation area 1: embankment A



a



b



c



d



e

a) Alabaster blocks strengthening the inner walls of the embankment

b) L-shaped bend joining two wings of embankment A

c) Embankment B, main wing running east-west

d—e) Embankment B northern wing



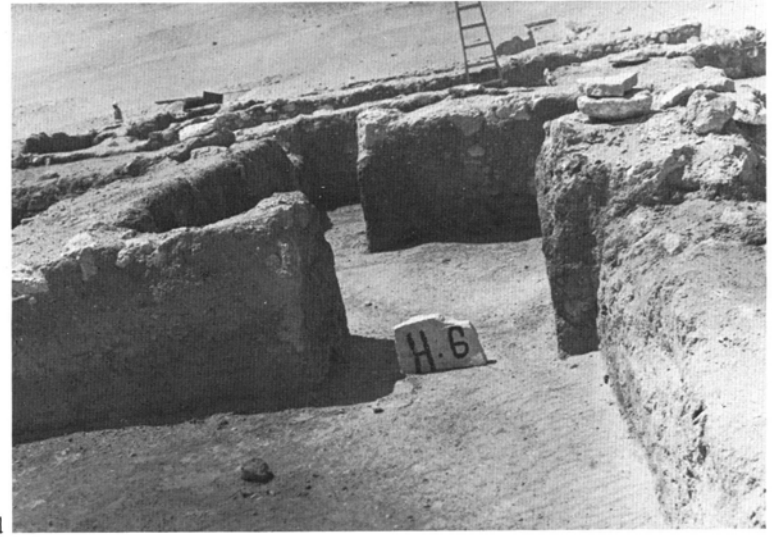
a



b



c



d

a—d) Buildings of random rubble and taffl-clay next to embankment A



a) Ground ruins of magazines in the northern quarter



b



c

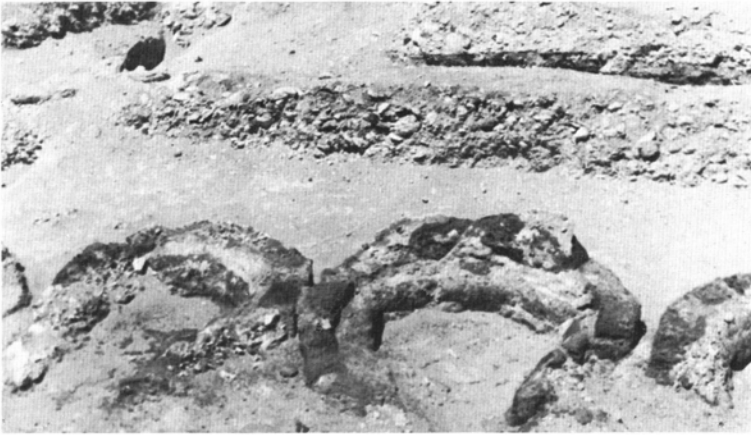
b—c) Pillared hall north of embankment B ("Scribes' hall")



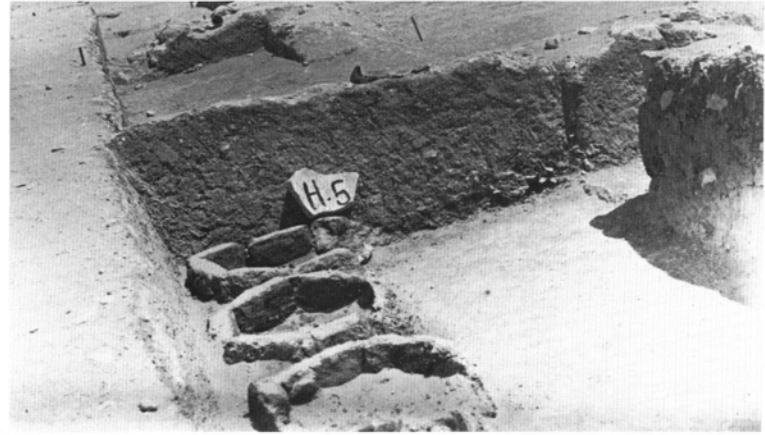
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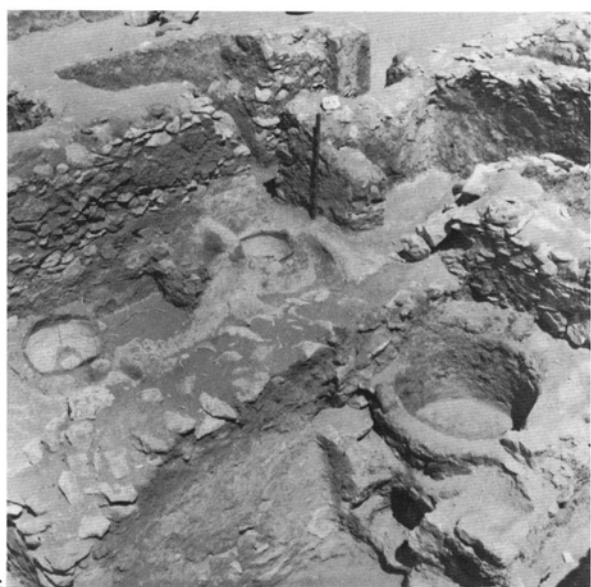
a—d) Jars in stone curve (a), and ovens (b) in courts and workshops along embankment A



a



b

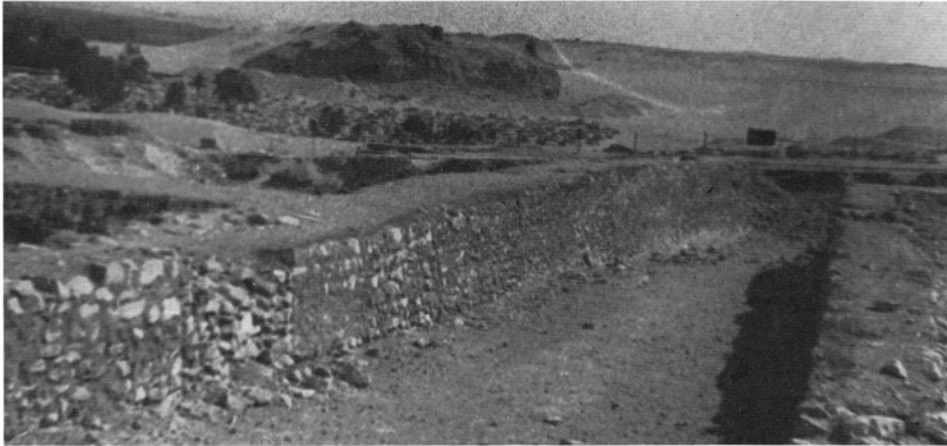


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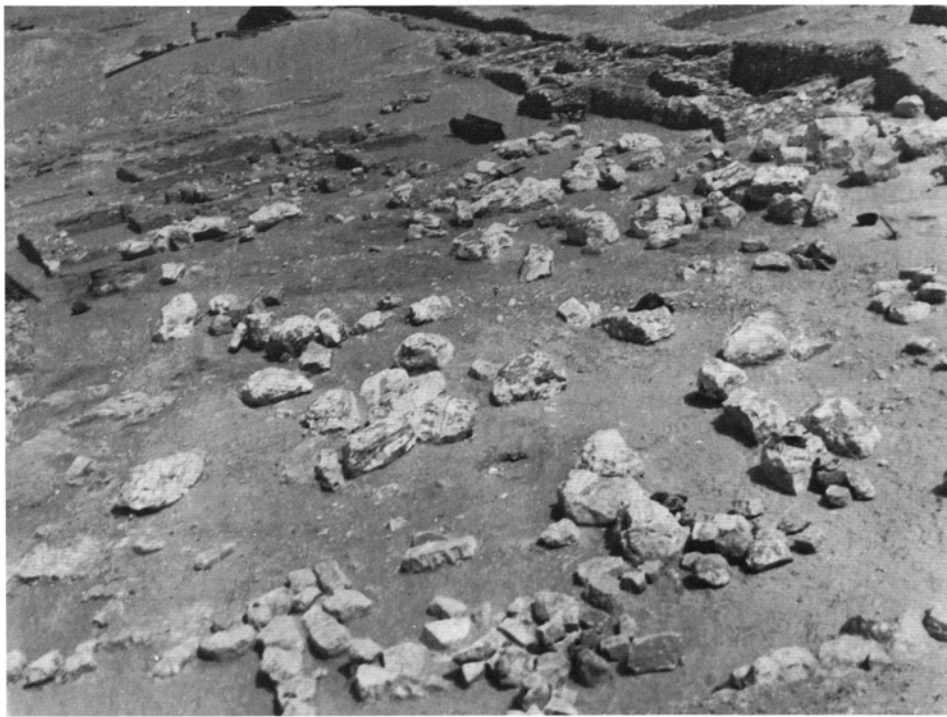


d

a—d) Different types of ovens and model of barrel-shaped oven from the First Intermediate Period



a) Similar embankments east of Cheops Pyramid



b) Alabaster blocks scattered in the southern area of embankment A



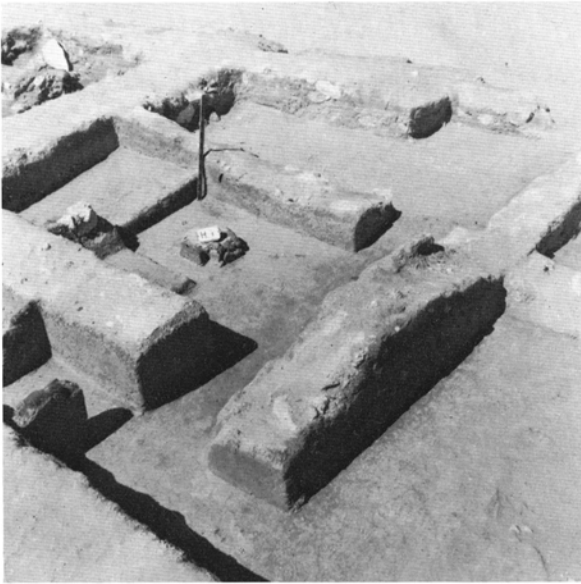
c) Late Roman building



a) Store-rooms



b) Magazine with storage pits beside the pillared "Hall of scribes" (H 13)



a) Private house
with central single bedroom (H 1)



b) Fold and poultry



c) Wall slightly inclining inwards — (middle right)



d) Unfinished alabaster column-base



a



b



c



d

a—d) Rows of rectangles behind buildings 9—10



a) Trench exit overlooking south



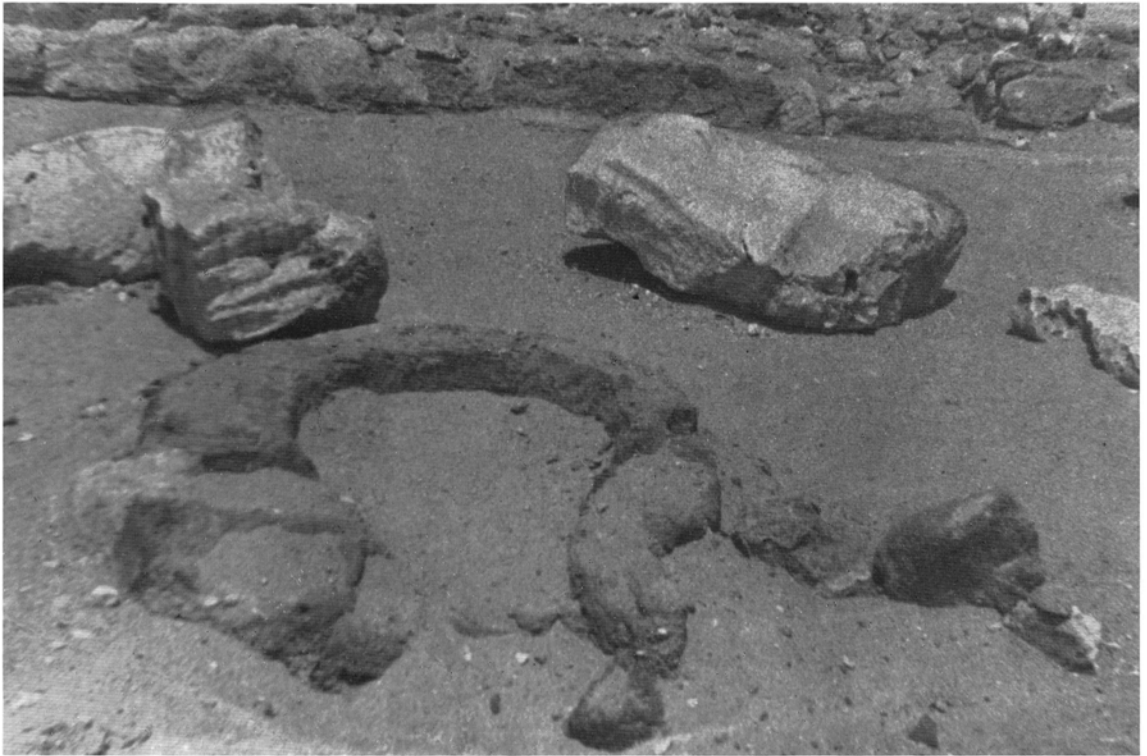
b) Building 10 partly built over the rectangles



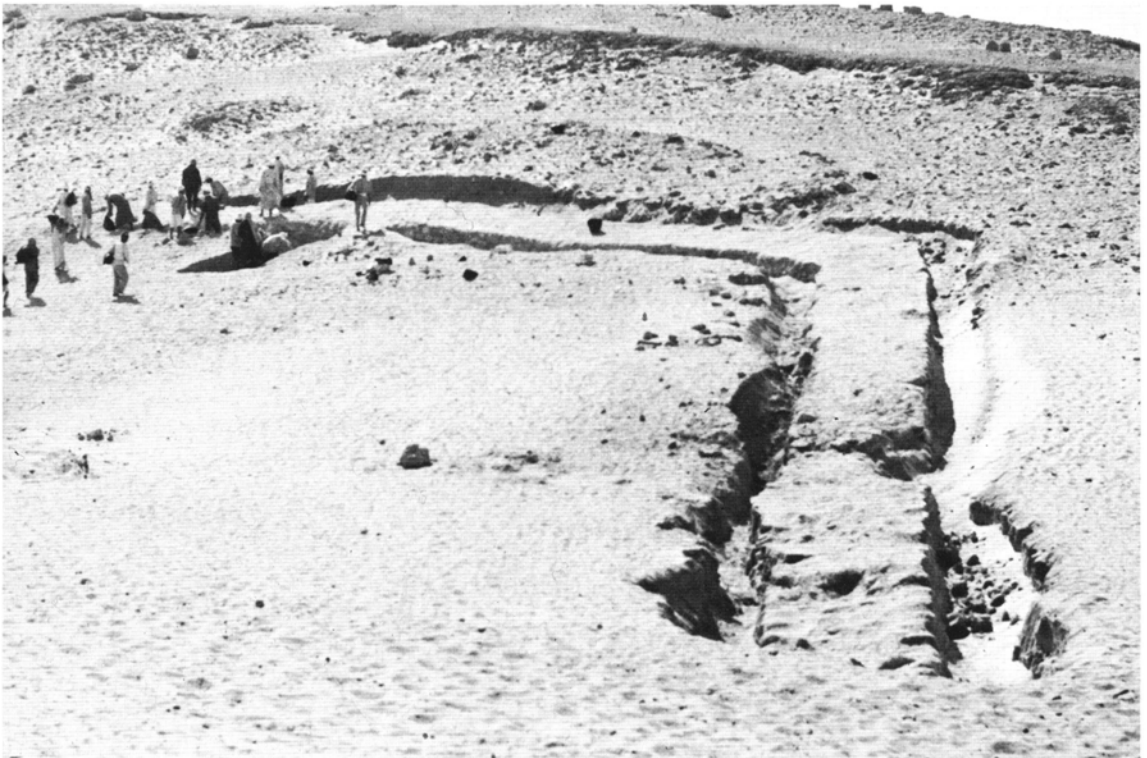
c) Floor partly removed to show earlier pavement



d) Little shelf and a circular basin in the centre of the floor of a room



a) Kiln bottom in the open, east of H 9—10



b) Excavation area II: slightly curved corner of embankments E and F



a) Levels of tombs south-east of the funerary temple of Mycerinus



b) False-door of Pekhernefret



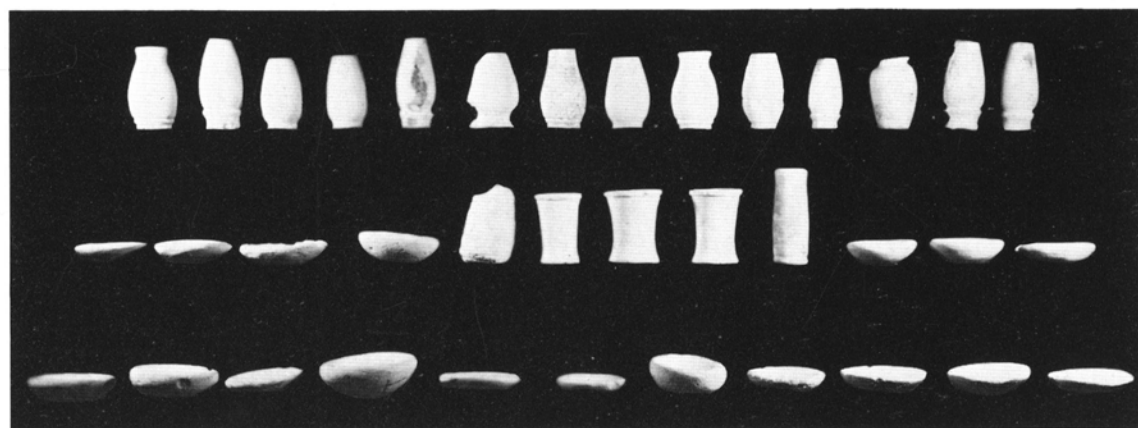
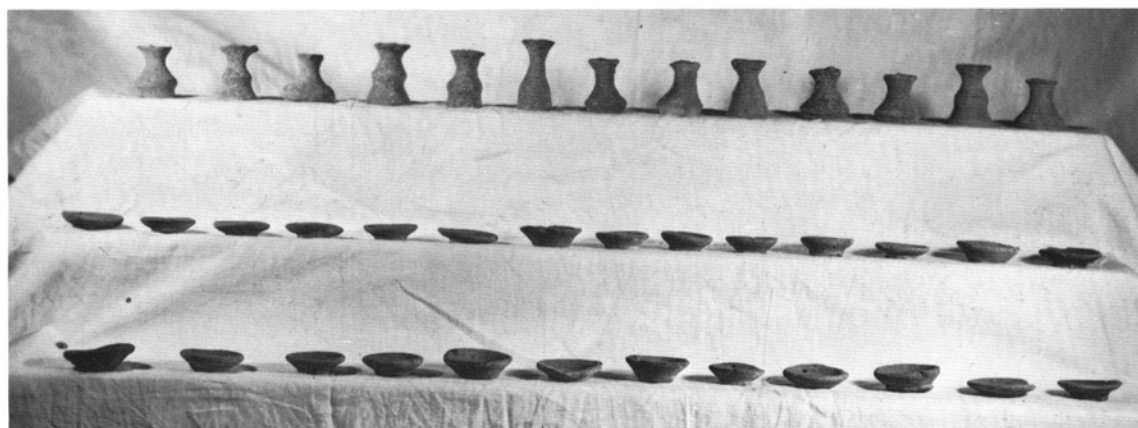
c) Stela of Ankhnebef



a—b) Statue of couple



a—b) Pottery found in debris and buildings of embankments A and B



c—d) Models of offering cups, dishes, plates, and vessels



a—b) Clearing in front of Mycerinus Pyramid
north of funerary temple

c) Red design of a divine boat

