The Pyramid of El-Lahun

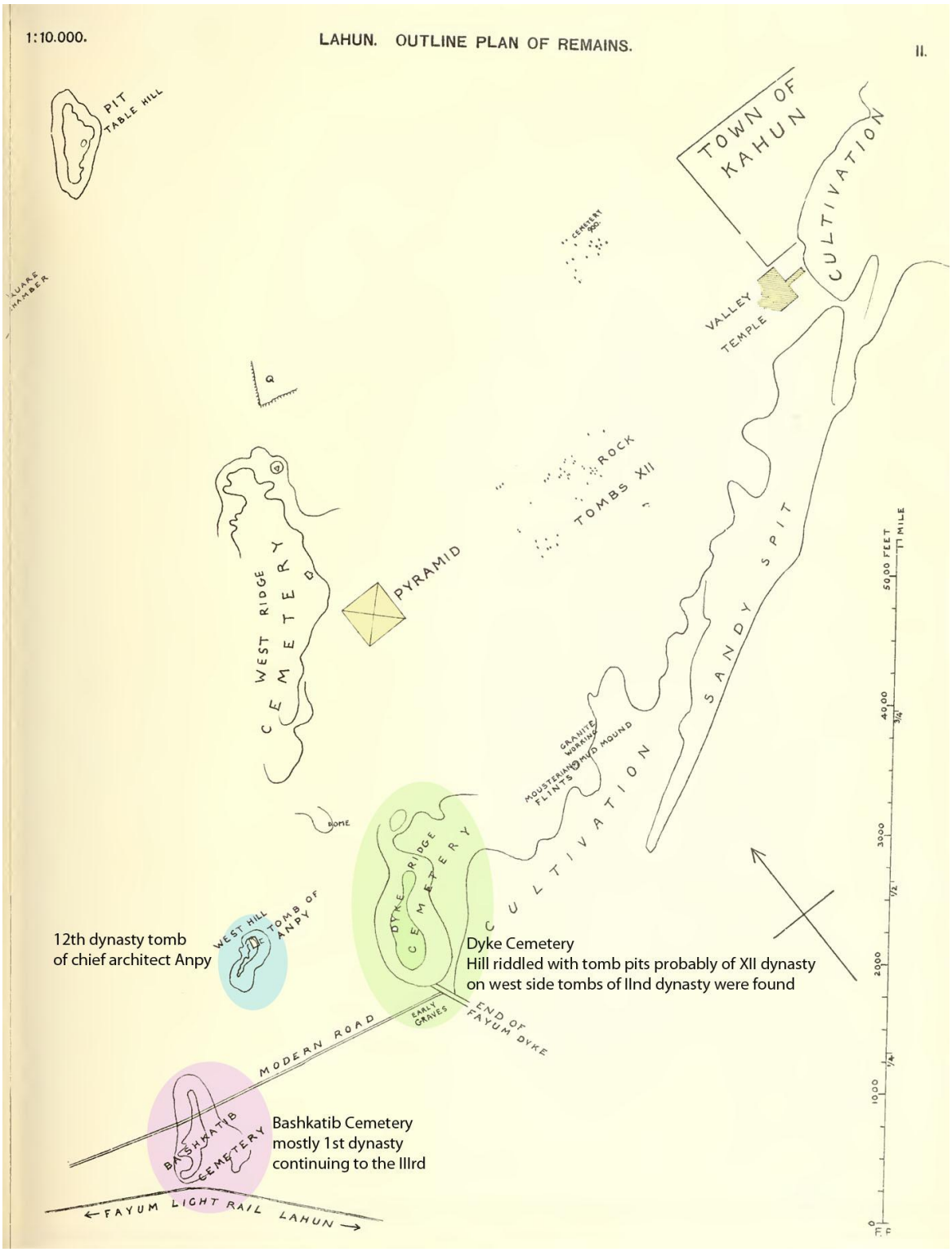
A Layman's guide

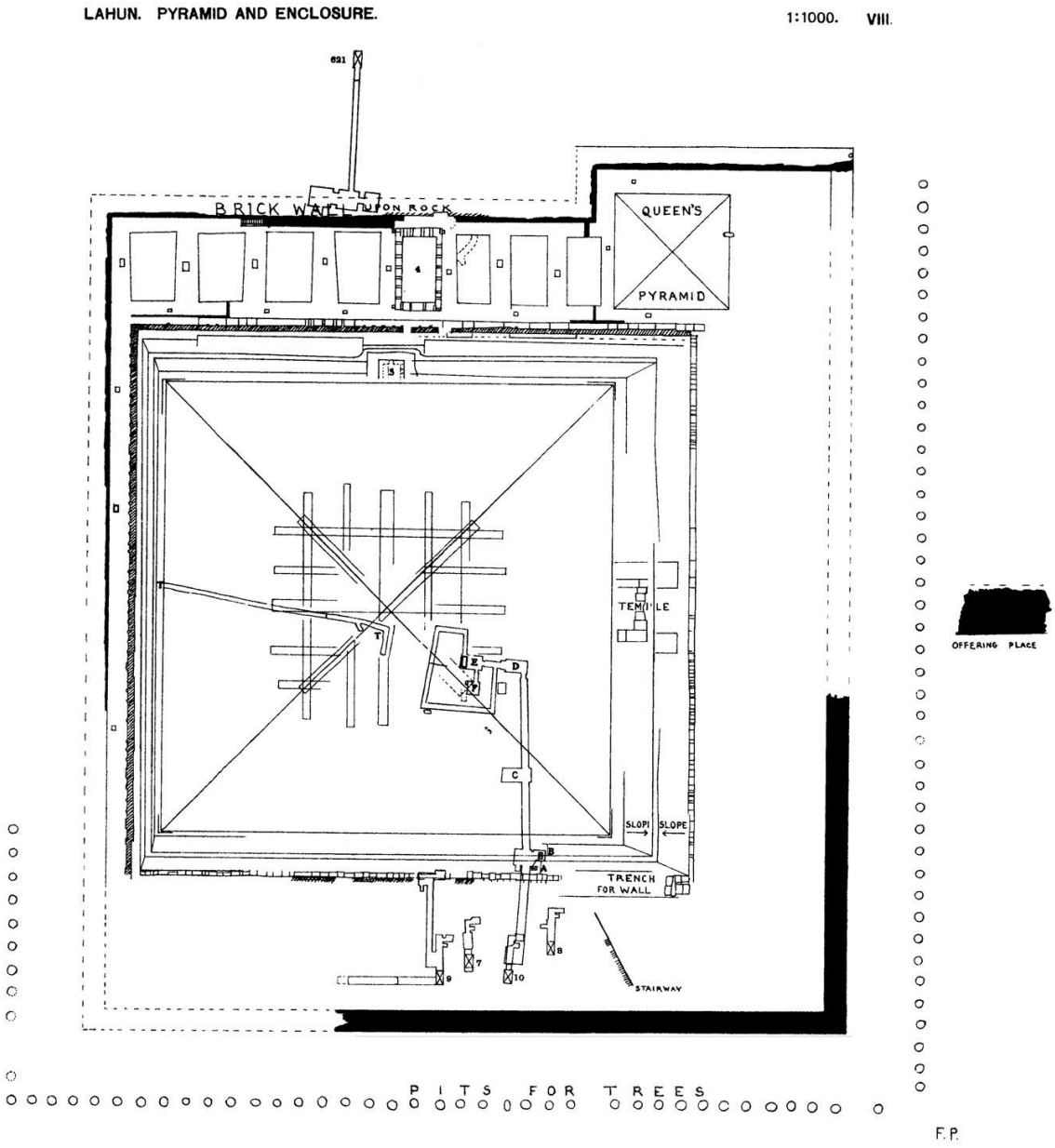
Keith Hamilton 02 May 2019

The pyramid of El-Lahun has been attributed to Senusret II (sometimes spelled as Senwosret or Usertesen) a king of the 12th dynasty, who reigned around 19 years (1897-1878 BC)[1]. The location of the pyramid is at the entrance to the Fayum, and it is the first of the mud brick pyramids that we see in the Middle Kingdom; its nearest pyramid neighbour is the mud brick pyramid at Hawara, built by his grandson Amenemhet III.

Like so many sites in Egypt the site appears to have a much earlier history, stretching back to the 1st dynasty. In Petrie's map of the area[2], overleaf, I have highlighted some of these earlier cemeteries. From Petrie's report we also have burials from possibly the 18th dynasty and the Roman era; he also mentions the Dameshquin graves of late old kingdom or IXth dynasty age.

[1] Chronicle of the Pharaohs, P.Clayton, pg 78
[2] Lahun II, 1920, plate II


1:10.000.
LAHUN. OUTLINE PLAN OF REMAINS.
II.
PIT
TABLE HILL
TOWN OF KAHUN
CULTIVATION
CEMETERY 900
VALLEY TEMPLE
Q
ROCK
TOMBS XII
WEST RIDGE CEMETERY D
PYRAMID
SANDY SPIT
GRANITE WORKING
MOUSTERIAN FLINTS
MUD MOUND
BONE
CULTIVATION
DYKE RIDGE CEMETERY
WEST HILL
TOMB OF ANPY
MODERN ROAD
EARLY GRAVES
END OF FAYUM DYKE
BASHKATIB CEMETERY
FAYUM LIGHT RAIL
LAHUN
5000 FEET
1 MILE
4000
3000
2000
1000
0
12th dynasty tomb
of chief architect Anpy
Dyke Cemetery
Hill riddled with tomb pits probably of XII dynasty
on west side tombs of IInd dynasty were found
Bashkatib Cemetery
mostly 1st dynasty
continuing to the IIIrd



For the purposes of this guide, I will be predominantly describing the features shown above in Petrie's more detailed drawing[3] of the Lahun pyramid complex. The Middle Kingdom pyramids display great variety in design and layout; as well as being the first mud brick pyramid it also departs from the normal northern entrance passage, to be replaced with a southern entrance. Subsequent Middle Kingdom pyramids would also omit a northern entrance, and it has been suggested that this change was an attempt to deter tomb robbers.

[3] Lahun II, 1920, plate VIII

Exploration

Though the pyramid had been noticed by Lepsius and others, major excavations on the pyramid complex would commence in 1889 under the direction of Petrie. In this first season, the entrance to the pyramid was discovered. The results of this first season were published in *'Illahun, Kahun and Gurob, 1891'*. The next season would be in the winter of 1913-14, which was interrupted by the First World War; in this season the treasure of Lahun was discovered in one of the shaft tombs, found inside the outer brick enclosure wall. Publication of the treasure would wait until after the war, and is found in *'Lahun I, the Treasure, 1920'*. The last season was during 1920-21 which provided more information on the pyramid complex and amalgamated some of the findings of the previous seasons; these findings were published in *'Lahun II, 1923*. The above publications are the primary resources on the Lahun pyramid complex.

Unlike the nearby Hawara pyramid which is inaccessible due to ground water issues, the Lahun pyramid has no such issues, so I was surprised that no further exploration of the pyramid had been undertaken in more modern times. As far as I am aware the only exploration in more modern times is by Dieter Arnold, who with the photographer Adela Oppenheim, were kindly provided access by Zahi Hawass for a short visit on the 24th September 2008: this brief visit would lead to an article by Dieter Arnold in Sokar magazine.[4]

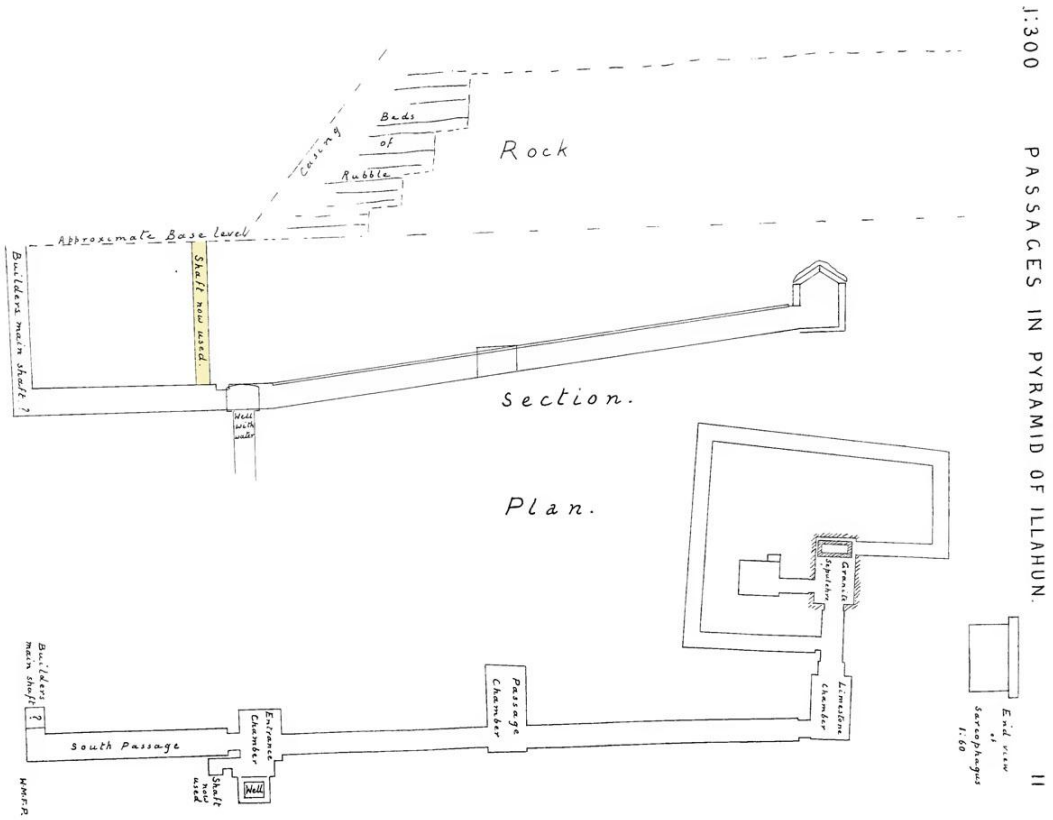
This layman's guide is based on the above publications. I am most grateful to Dieter Arnold and Adela Oppenheim for the use of their images; also gratitude to Olga Kozlova *(Isida Project[5])* and Colin Reader for the use of their images. Needless to say, any conclusions/ideas I make in this guide are mine alone.

Entrance to the Pyramid

In Petrie's first season he spent several months, without success, in finding the entrance to the pyramid. He would observe much ancient tunnelling on the pyramids north side, many of which he would clear in the hope of finding an entrance. Petrie would make extensive clearances around the pyramid, he states;

[4] Sokar, Nr32, 2016. pages 52-65
[5] www.isida-project.ucoz.com

"The case seemed almost hopeless; after some months of clearances we could not reach the chamber hollow either in the tunnels, on the top of the rock base, nor could we find any sign of an entrance on the outside. I had however made a clearing near the S.E. corner on the ground level, to find the position of the pavement ; and having found an edge of rock, part of the pavement bed, I made the men track it along, greatly against their wills. We came on a pit on the S. side, but it was so far out from the pyramid that it hardly seemed likely to be more than one of the many rock shafts of tombs, which abound near the pyramid. As I was just leaving I did not therefore push on with it; but I commended it to Mr. Fraser, when he took charge of the place in my absence, as a possible entrance; or, if not that, a tomb which had better be examined. He opened it, and at about 40 feet down found a doorway on the north side which led up to the pyramid."[6]



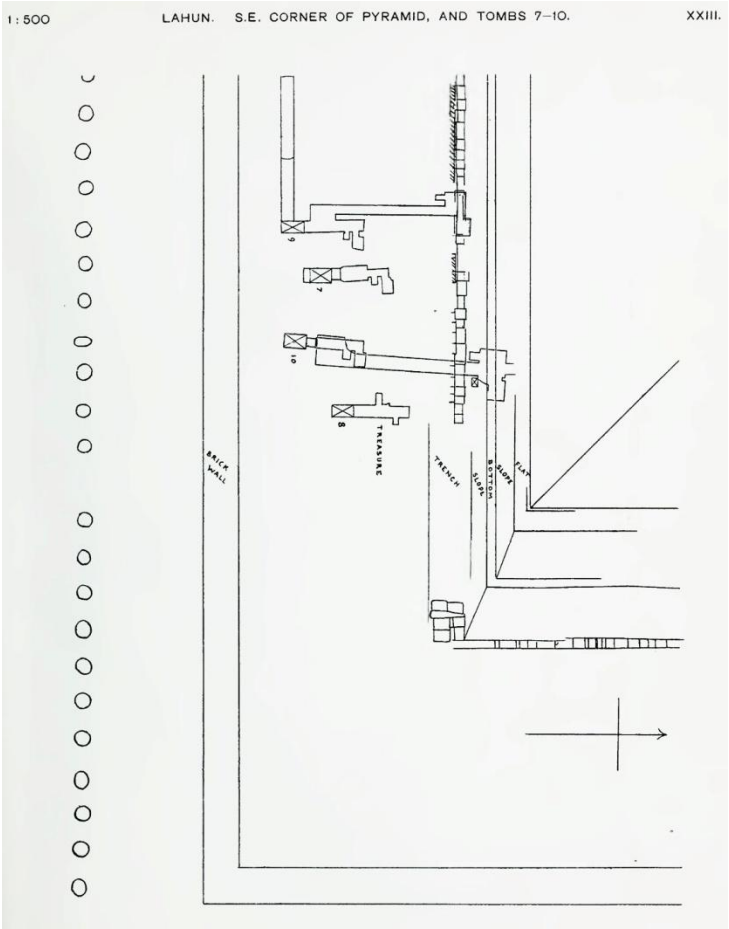
Above we have Petrie's drawing of the subterranean passages and chambers, as known in his first season; the highlighted shaft is the one that Mr Fraser cleared. The makeup of the main shaft further south was not known at this time, but it was clear that Fraser's shaft was not large enough to accommodate the sarcophagus or other large items of masonry. At this time Petrie could only crawl along the south

[6] Illahun, Kahun and Gurob, 1891. Page 1

passage to the main shaft where he was confronted with a mass of blocks of stone and chips: he states,

"Here then is probably the main shaft; but though I cleared much of the ground on the surface, which is encumbered with several feet thick of original banked-up chips, I could not find the top entrance."[7]

The clearance of the main shaft would come some 24 years later on the eve of the First World War, and in this shaft they discovered tomb 10. In close proximity to the main shaft/tomb 10 were discovered three similar shafts, containing very similar tomb architecture; these were named tombs, 7, 8 & 9. Tomb 8 contained the Lahun treasure, and was found east of tomb 10; tomb 9 was found farthest west and between tomb 10 and 9 was found tomb 7.



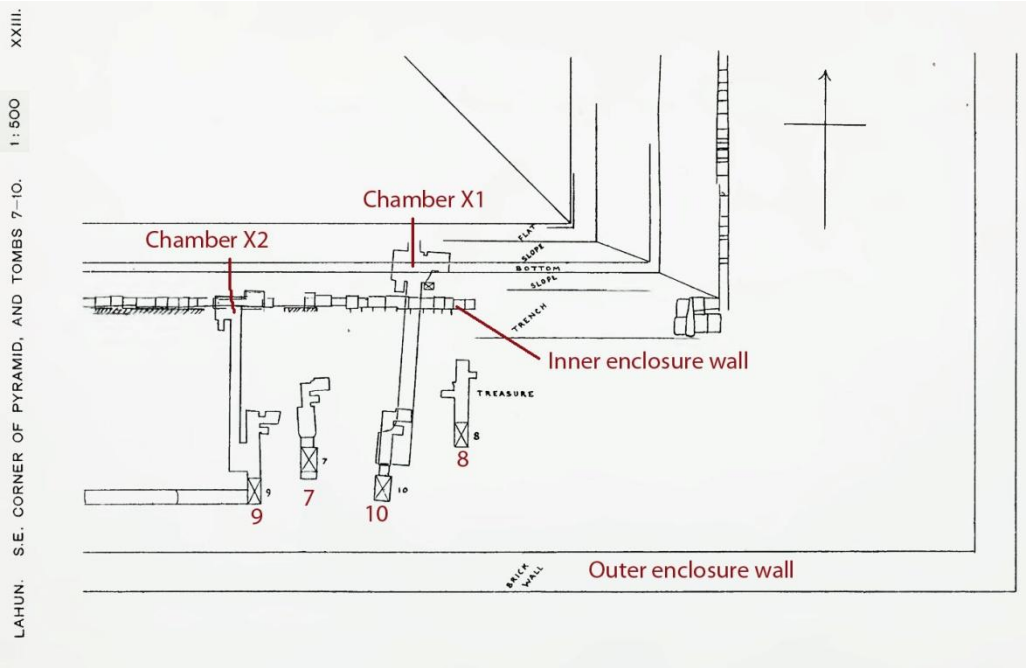
Location of the 4 shaft tombs on the south side of the pyramid, access to the pyramid is via shaft tomb 10.

[7] Illahun, Kahun and Gurob, 1891. Page 2

Though Mr Fraser cleared the much smaller secondary shaft and entered the pyramid, he appears not to have made a written account of his work; what he may have found in the stratigraphy of this 40 feet deep shaft is not known. The only other mention of Mr Fraser and what he may have done is the following statement by Petrie;

"The survey of the pyramid is unfortunately incomplete. The sepulchre and adjoining chambers, and the sarcophagus are completely measured; the passages are tolerably done by Mr. Fraser's measures, but the south end of the passage and details of the water well are doubtful."[8]

Fraser's shaft would lead to a chamber at the end of the south passage, and before the main subterranean passage inclines upwards. This chamber is very similar in design to a chamber found at the end of an extension to shaft tomb 9, and it appears the intent is that both should be inside the inner enclosure wall. Later in this guide I will suggest that these two chambers and Fraser's shaft might be later additions and not contemporary to the original structure, and I will annotate these two chambers as X1 & X2.

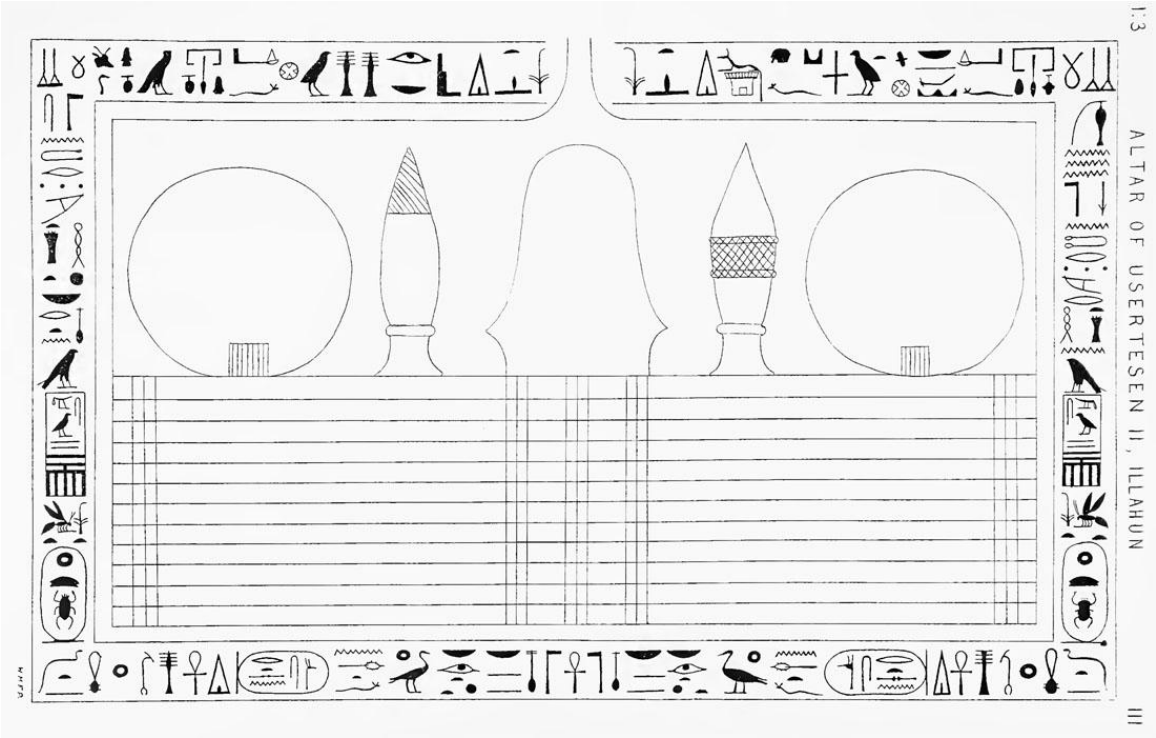


Above I have amended the previous image, to highlight similar chambers X1 & X2

[8] Ibid, page 2

In X1 a well had been dug in the eastern part of the chamber. Leaving X1 we have the start of a long inclined passage; approximately midway along its length a large passage chamber was found. Beyond this, the inclined passage terminated at the limestone chamber, this chamber like the previous chamber is orientated east-west: a passage leads west out of the limestone chamber and leads to the granite lined burial chamber, however, an opening on the south wall of this passage leads to a circuitous passage that provides another means of entry into the burial chamber in the NW corner and facing the north end of the sarcophagus. In the south wall of the burial chamber a short passage opens into a further chamber (see plan on page 7).

I will return later to provide more detail on the subterranean chambers and passages. The finds in the pyramid this first season of 1889/90 consisted of the Kings alabaster offering table, found by Mr Fraser standing on its end in front of the granite sarcophagus (that was missing a lid); it was quite uninjured and weighed about 4 hundredweight or 200kg. Mr Fraser had the difficult job in manoeuvring this table up the shaft that he cleared. The only other finds Petrie reports in this first season was broken pottery strewn about in the limestone chamber, *"all apparently of the XIIth dynasty,"*.



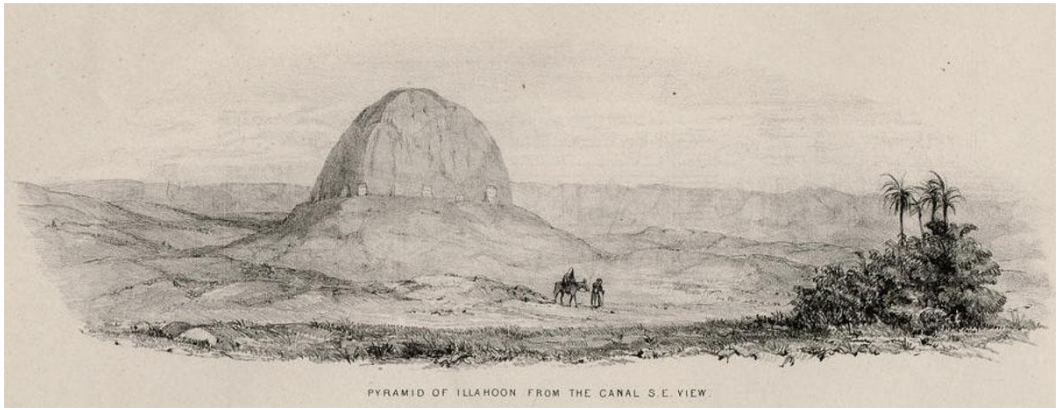
Petrie's drawing of the Offering table

At this early stage of exploration Petrie appears not to be wholly convinced that this was the burial chamber, he says;

"Strange to say, there is not a trace of a coffin, or a lid to the sarcophagus; and, indeed, as this chamber is not under the middle of the pyramid, it may be questioned whether the real interment is not yet to be reached by some other passage."[9]

Before I return to look in more detail at the subterranean aspects of the complex, I feel it is beneficial to explore the above ground aspects of the complex first.

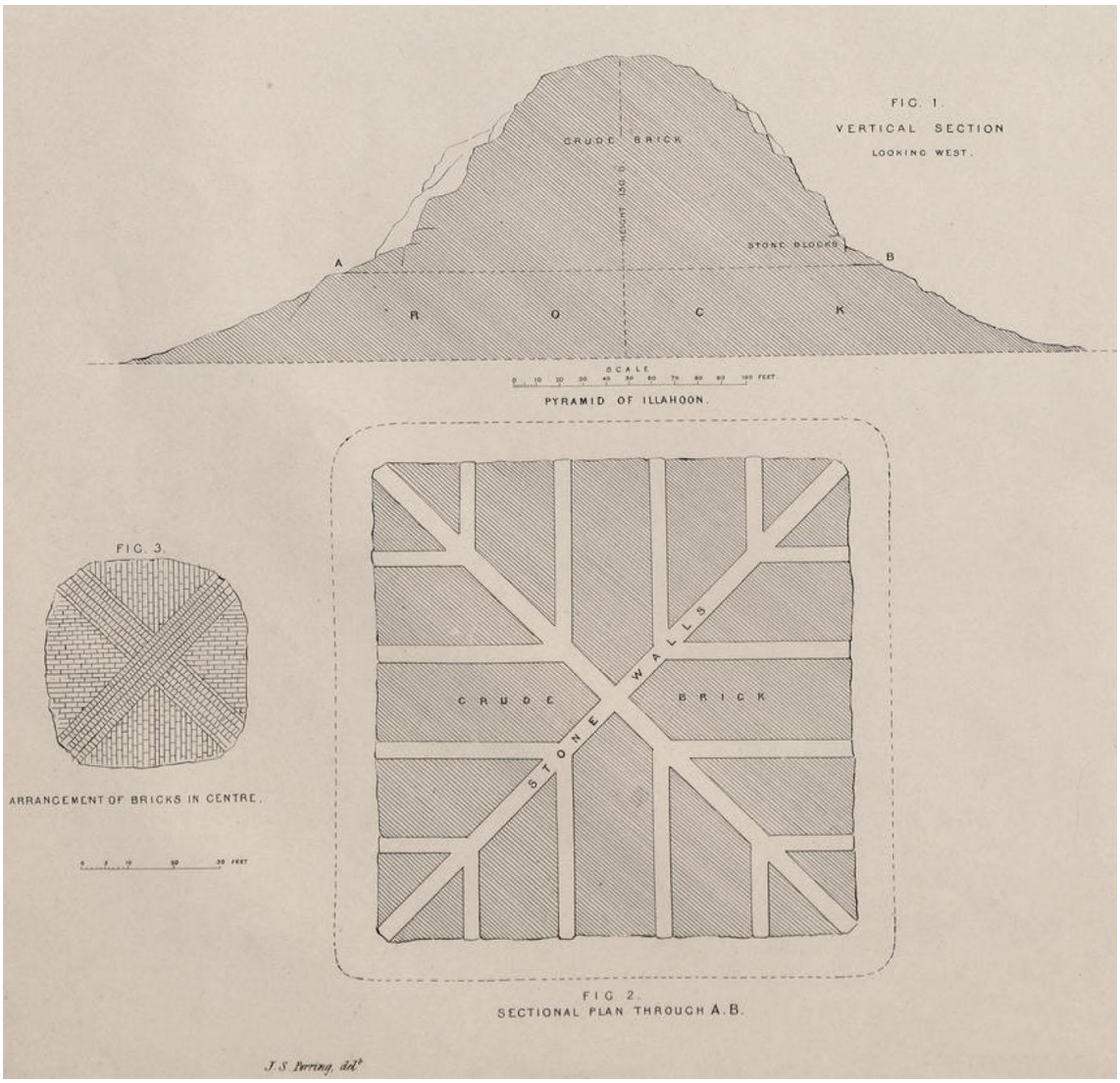
The Exterior



In this early depiction of the Lahun pyramid[10] we can see some of the large masonry jutting out of the mass of mud brick. This large masonry rested on a rocky knoll about 40 feet high. Perring thought that these large blocks of masonry radiated out from the centre of the pyramid and helped to retain the mud brick elements. The mud bricks Perring measured as 16&5/8 by 8&3/8 inches with a thickness of 5&1/8, he states;

"*They are formed of Nile earth mixed up with various proportions of chopped straw, and have been marked with fingers on the upper surface, in the same manner as those in the pyramid of Dashoor. As high as the stone walls extend, they are laid in mortar, above them, in loose gravel."*[11]

[9] Ten Years Digging in Egypt, 1893, 2nd edition, page 109
[10] Pyramids of Giza, Part III, 1837, J.S.Perring, plate XVIII
[11] Ibid, pg 20



Above we have Perring's drawing[12] of how he saw the arrangement of the masonry walls and brick. Petrie's drawing on page 3 shows a slightly different layout for these stone walls. Petrie's opinion on the stone walls;

"Above the natural rock mass the pyramid was of mud brick, with a gridiron of massive walls of limestone in the lower part. These were doubtless to give firm support to the stone casing, and prevent its being shifted by a settlement of the brickwork. These lines of stone work have been much cut away for stone, until the brickwork above was too dangerous to undermine it further. The present ends of the five walls parallel to each face are marked on the plan, with the two thicker diagonal walls. The central axis of the pyramid is within the breadth of both the parallel and diagonal walls. It seems very probable that there was another wall

[12] Ibid, plate XVIII

outside of these on each face into which they were bonded, and this was the actual backing of the casing."[13]

Two examples of diagonal brick walls laid on stone walls

[13] Lahun II, 1923, page 3

View of pyramids north side, with large masonry walls visible; note in foreground the solid rock cores of the mastaba's.

The Lahun site is highest on the north-west and slopes down to the south-east. The rocky knoll that forms the lower part of the pyramid has been isolated by trenching around the pyramid; during the trenching of the north side, rocky cores were left isolated for the mastaba's. Just north of these mastaba's the face of the rock scarp was covered with mud brick up to 20 feet high at the NW corner; Petrie further states,

"Besides this scarp wall there was a built wall along the east side of the pyramid, of which the rock trench of the foundation remains; and also a wall along the south, which served as a retaining wall, being banked up along the inside with chips, so as to form a level platform around the pyramid."[14]

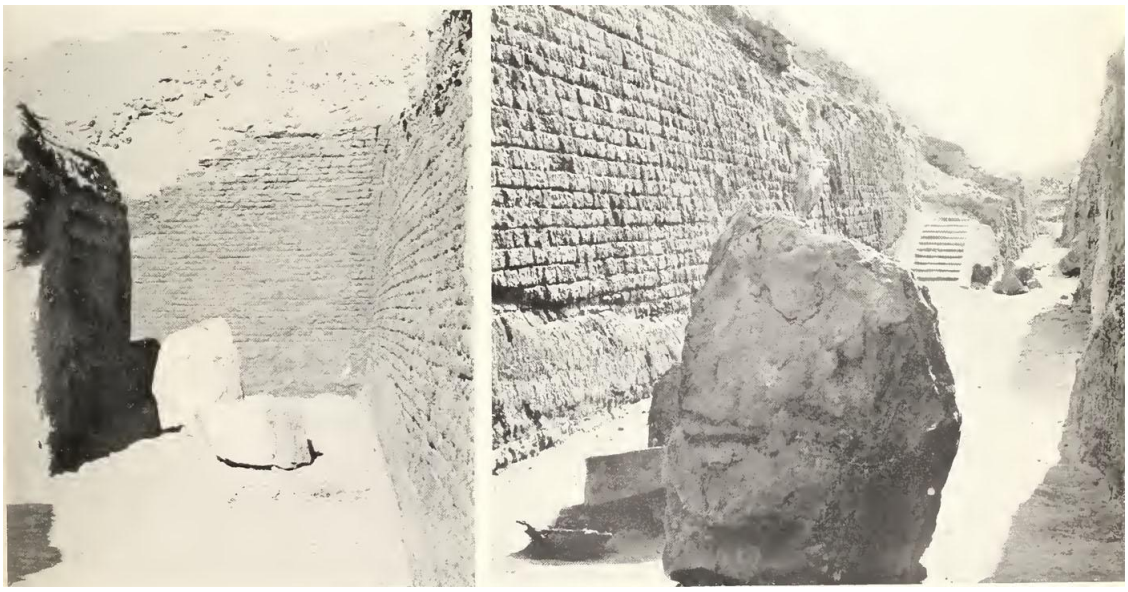
[14] Illahun, Kahun and Gurob, 1891. Page 4

In the above image[15] we can see the unearthed rocky mastaba cores. On the left we see the crisp NW corner of the scarp that was faced with mud brick to a height of about 20 feet (6m). On the far right we can see the remains of what is commonly termed the Queens pyramid; however, it has to be stressed that no burial chambers were found under any of these constructions. A total of eight rock mastaba cores were isolated, and only one showed indications that it had been cased with fine stone; this being the 4th core from the small pyramid. Petrie would state;

"It would seem certain that there has been a burial associated with the cased mastaba, even if the others were left unappropriated; yet none of the attempts which are described above have led to any such burial being found. It has been suggested that the tomb 621, the sepulchre of which comes under the wall close to the mastabas, may be that belonging to the cased mastaba, and the pyramid may have been for the worship of a queen buried in one of the tombs 7 to 10 on the south."[16]

In the above image, one can make out shaft openings in between the mastaba cores; Petrie would say of these, "*The square pits between the mastabas, and along the passage south of them, were for catching rain- fall, as the ground slopes down to them. Where they are cut in marl they have been lined with limestone slabs."*[17]

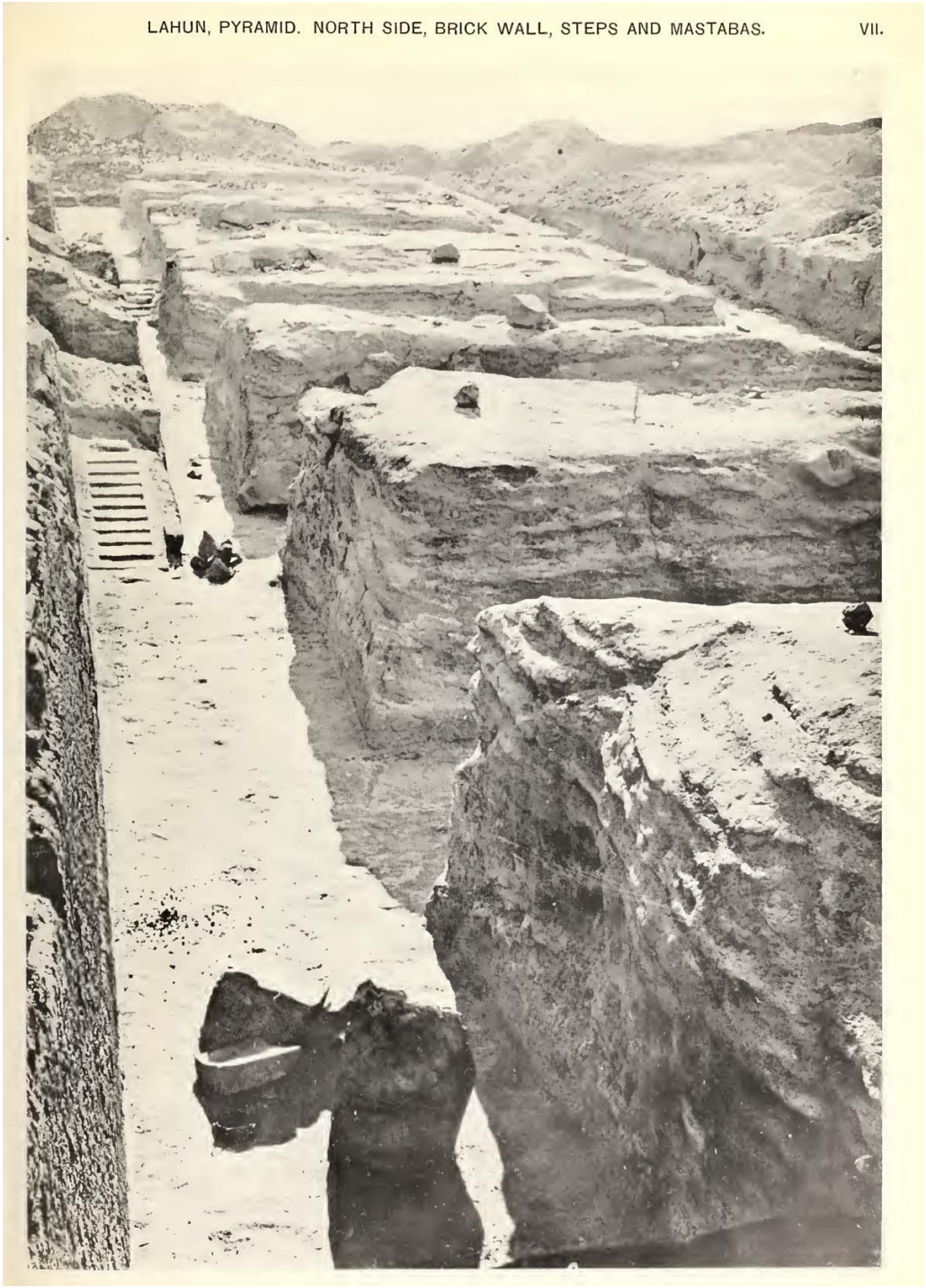
[15] Lahun II, 1923, plate X
[16] Ibid, page 10
[17] Ibid, page 10



The left view shows the brick faced NW corner, the right view shows a portion of the brick faced north wall of the scarp; also visible are remnants of stones steps that gave access to the mastaba area. Guy Brunton would report;

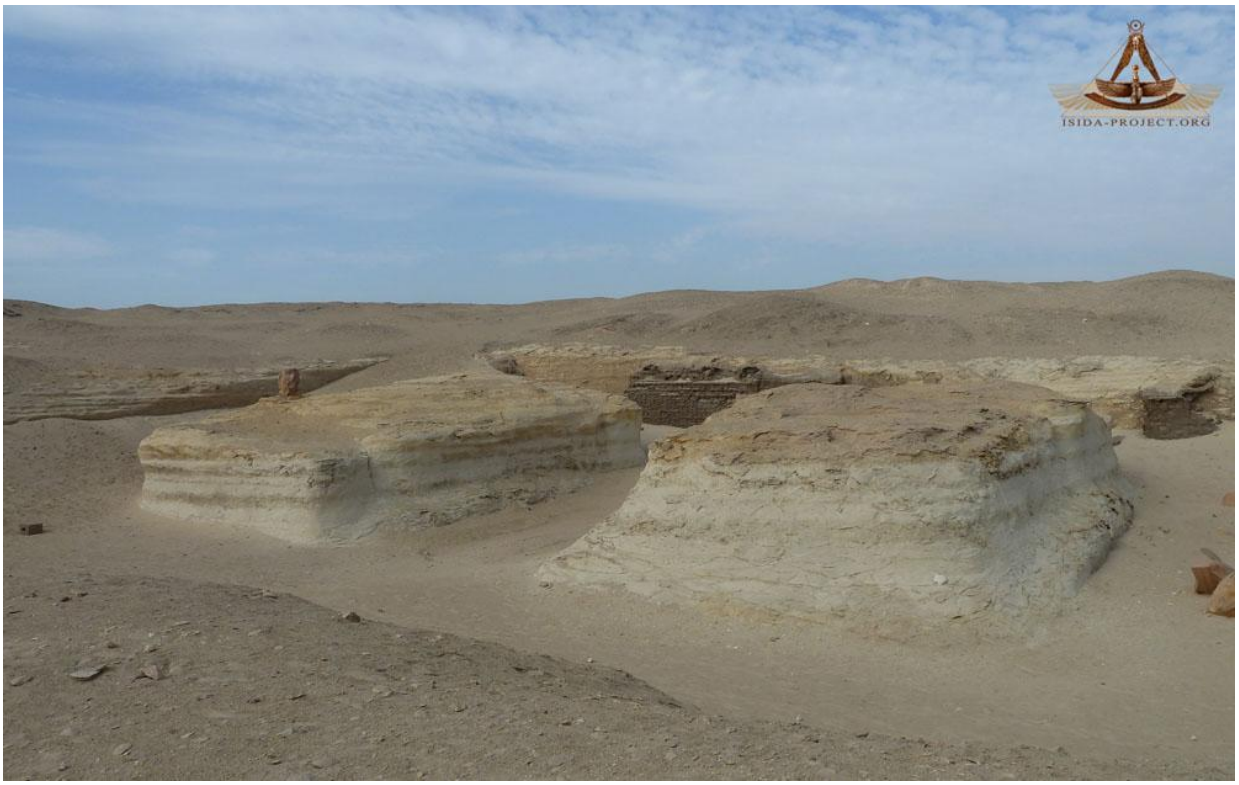
"The wall where it faced the rock scarp was built with layers of reeds, mainly laid at right angles to the length of the wall, between every four corners of bricks. Where the wall remained in its lower courses at the south-east corner under the chips there were no layers of reeds. They were perhaps inserted to drain away moisture running down between the rock-face and the bricks. The wall was covered with a facing of white plaster." [18]

[18] Ibid, page 11

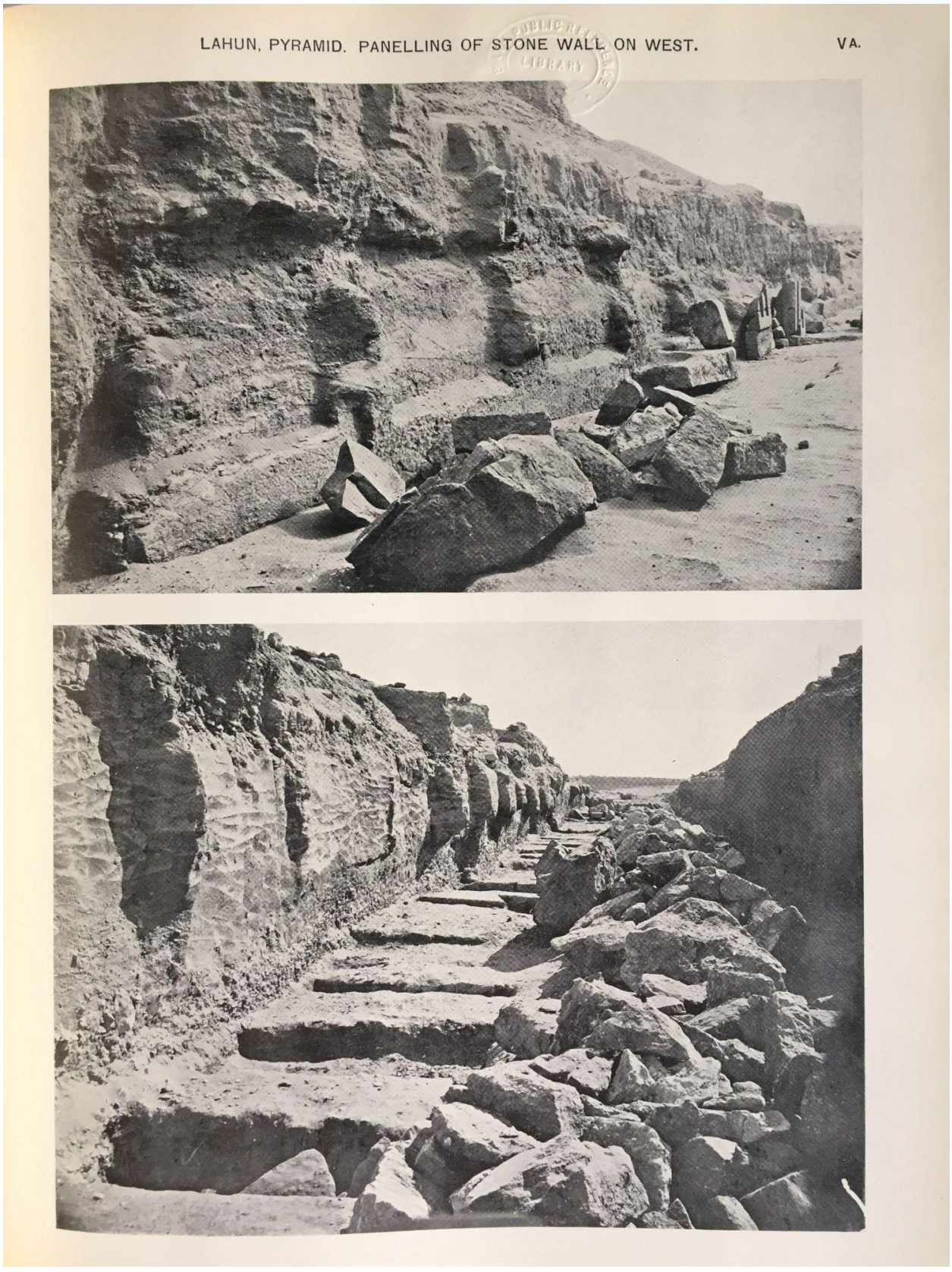


View of mastaba cores and stairs, looking east, with small pyramid in the background[19]

[19] Ibid, plate VII



Above, looking toward NW corner of scarp, some brick is still visible. Below, a possible searchers tunnel has been cut through one of the cores

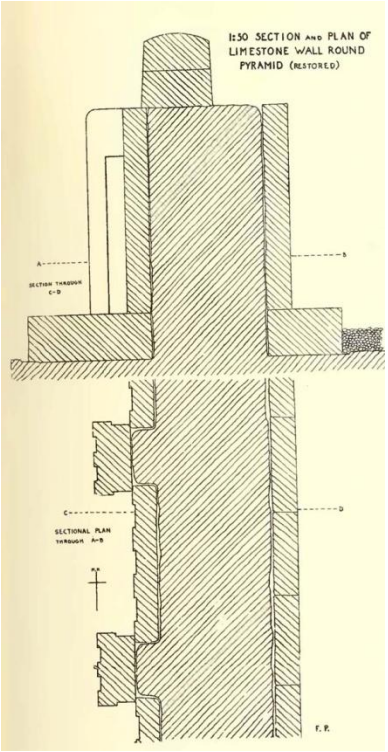


Views of west rock wall

In the previous image[20] we can see surviving buttresses of the west rock wall; Petrie's description of this image,

"Plate VA is of the rock-cut wall with buttresses left, which were cased over with fine stone, of which some blocks remain. The bars of paving in the lower view were to carry the ends of the paving blocks, so as to insure that they did not rock."[21]

This decorated stone wall is part of the stone inner enclosure wall that surrounds the pyramid (see plan on page 3, both the stone inner wall and outer brick enclosure wall are closest to the pyramid on the west side; distances to the walls from the pyramid are not provided in the reports).



In the image left we have Petrie's plan and section on how he sees the stone enclosure wall that surrounds the pyramid.

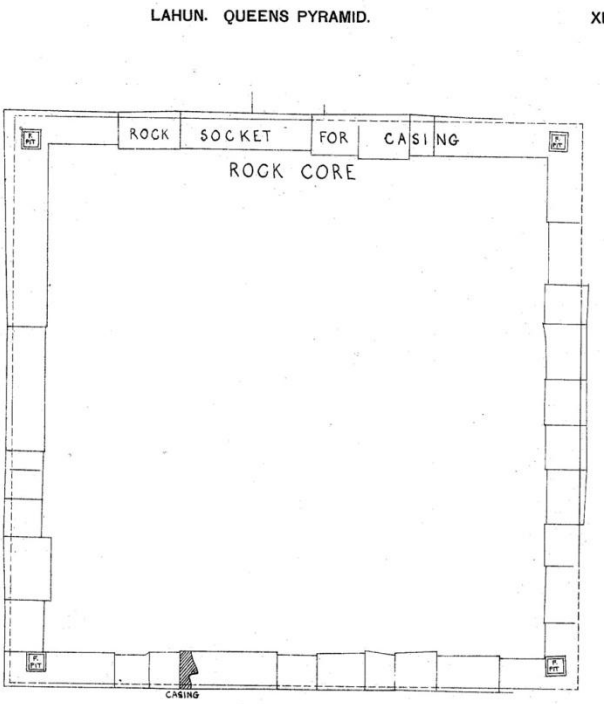
The Queens Pyramid

In the NE corner of the complex we find the remains of the so called Queens pyramid at the end of the row of mastaba cores. Petrie cleared this small pyramid in 1888, and made extensive searches on top and around the pyramid, but failed to find an entrance; he thought,

"Probably there is a well at some distance away from the pyramid, as in the pyramid of Usertesen."

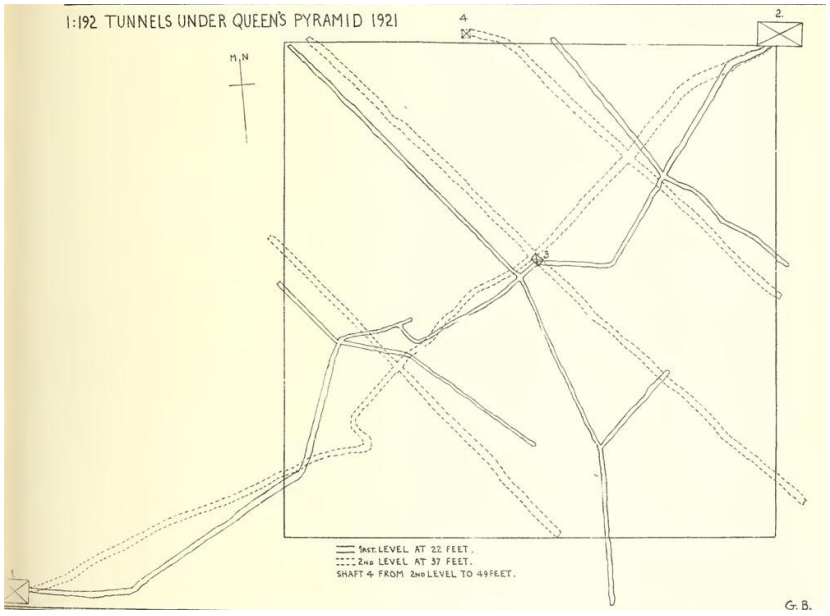
This small pyramid like its larger parent had a rock core in its lower part, though Petrie reports that the brick superstructure had all disappeared. On the north side of the pyramid the remnants of a shrine had been found; among the finds was a fragment of an altar in black granite, along with some fragments of painted walls. One such fragment offered part of a name, and mentioned a princess of both lands: the name Atmu, Petrie compounded this with *neferu,* as it appeared popular with princesses of this dynasty, and suggested Atmuneferu. The rock base of the pyramid was about eighty feet square and the cuttings which marked the limits of the casing varied from the rock base, being from 75 to 86 inches.

[20] Ibid, plate VA
[21] Ibid, page 5



In scouring the ground for an entrance to the pyramid, Petrie found several pits that were cut in the rock, and which would have been covered over by any casing. These are highlighted in Petrie's drawing left[22], he says;

"The most important was at the N.E. corner. Here was a square hole whose corner was 4 ins. N. of N, side and 13 E. of E. side of the rock core. The hole was 36 square at top to receive a slab of stone 7 inches thick ; below that it was 28 square, for a depth of 60 inches. This was filled with clean sand, and near the bottom lay fragments of many vases and saucers, with a model brick of mud, a few green glazed beads, and bones of a calf sacrificed"[23].



In this drawing by Brunton[24] we get an idea of the extensive tunneling that has been carried out throughout the Queens pyramid; yet no chamber was found.

[22] Ibid, plate X!
[23] Illahun, Kahun and Gurob, 1891. Page 5
[24] Lahun II, 1923, plate XXIV

LAHUN, QUEEN'S PYRAMID, FLOOR OF CASING, SOUTH SIDE. XII.

In the view above, looking along the south side, we can see the prepared casing floor and in the foreground one of the pits that held foundation deposits. This small pyramid appears to be about 50 cubits square with a height of about 35 cubits. Petrie reports;

The lengths and azimuths of the sides are in inches:

	N.	E.	S.	W.	mean
length of casing	1071·2	1069·7	1072·3	1073·2	1071·6
azimuth of casing	2° 18′	2° 2′	2° 7′	2° 6′	2° 8′
length of core . .	941·4	948·8	940·4	962·2	948·2

As the paving is 16 thick over the rock floor on which the lines are drawn, the base was 11·5 inward at the paving level, and the mean length of the pyramid side was 1048·6 inches.

The east side of Senusert's pyramid and the west of the Queen's pyramid are parallel, within 1′: the footing lines overlap by 15 inches, so the lines at the paving levels would be 64 inches apart.

The angle of the Queen's pyramid was measured on five arris stones; the largest and best gave 109° 52′, equal to a direct rise of 54° 21′, others fall on each side of this. As the angle directly measured was 54° 15′ the bed plane was horizontal. With this angle and a base of 1048·6 the vertical height would have been 731·0 inches. Perhaps the intended angle was a rise of 7 on base 5, which is 54° 27′ 40″; a variation of 6′ is quite likely.

Outside the Brick Enclosure Wall

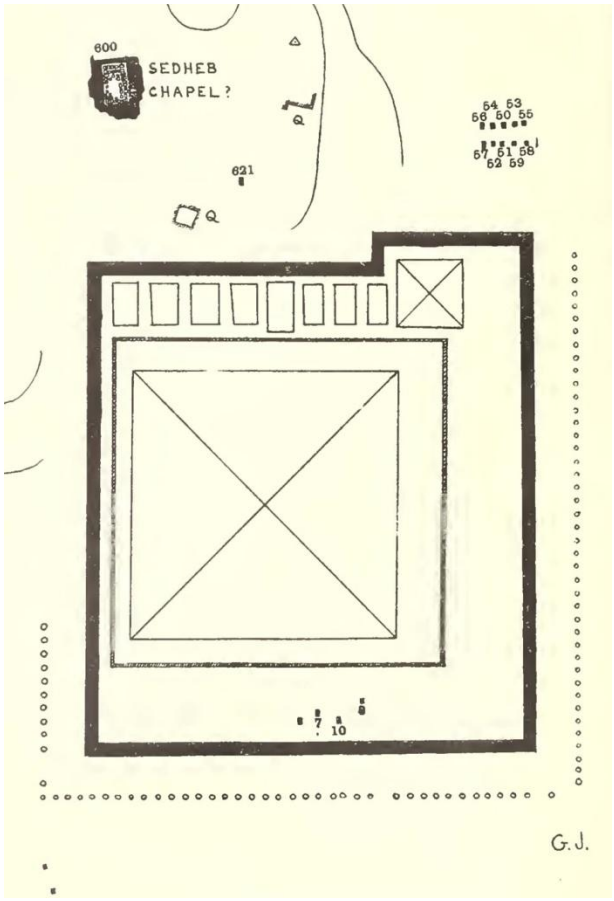
At the top of the image above[25] (south side) we can make out circular depressions, these were found outside the large brick enclosure wall on the east, west and south sides of the pyramid complex. These depressions are the remains of tree pits, and though root samples were sent to Kew gardens for analysis, they were unfortunately unable to identify the samples. The tree pits are spaced 10 cubits apart, and the number on the south total 42 including the corner; on the east the number is 42, excluding the corner, and it was suggested that the number might reflect the 42 nomes. Twelve pits were found on the west, (see Petrie's plan on page 3).

On Petrie's map, page 2, the ruins of what is thought to be a valley temple is located adjacent to Kahun town about three quarters of a mile from the pyramid. There appears to be no causeway from this site to the pyramid, as a line connecting the two sites would run over a group of deep rock cut tomb pits (believed to be 12th dynasty); moreover, the placing of the tree pits on the east side shows no allowance for any causeway. Petrie's description of the valley temple is not very detailed; for those wishing more info, Zoltán Horváth has made a good attempt at deciphering the scant ruins.[26]

[25] Ibid, plate IV
[26] What was the "August Chamber" of El-Lahun, 2006. See Academia.edu

On Petrie's drawing of the pyramid complex (page 3) an area marked, *offering place,* is found outside of the tree pits on the east side; it was too ruined, just a platform of brick was visible. At this site quantities of small pots and limestone lamps were found. Petrie would suggest;

"This seems to have been a place where the poorer people were allowed to come and make their offerings, but the presence of the lamps is curious: this is like the heaps of small offering vases and cups outside of the temple of Menkaura at Gizeh"[27]



In this drawing by Brunton[28] a sizeable structure is to be found, just north of the complex, labeled *Sedheb Chapel.* Its function is not known, though Petrie suggested that it was a chapel in which the king was worshipped after his deification at the Sed-festival. It was a rectangular structure constructed with large blocks of limestone, with a projection on its east side. Extensive brick work around it may have belonged to a path. At each corner, pits for foundation deposits were found. The North West pit was empty, while the others still had their contents; a mixture of various pottery and bull heads.

There are many interesting shafts and finds near the pyramid; too much to list in this guide, we even have a crocodile cemetery located about a mile to the north, though we appear to have some closer as Petrie would state:

"*The skeletons of two very large crocodiles were found buried among the ruins in the pyramid enclosure on the west side. The heads of these are now at the Natural History Museum, South Kensington"*[29].

[27] Lahun II, 1923, page 11
[28] Ibid, plate III
[29] Ibid, page 39

The Base of the Lahun Pyramid

In the above image[30] we get a good cross section of the pyramid base (south side). In the foreground we have the eastern rock wall, which was faced with fine stone (see page 17). This inner enclosure wall can be seen continuing along the south side, and just north of it a person can be seen standing on a narrow pavement (which appears to be the stone foundation blocks that the inner enclosure wall is built on). Next we see a distinct trough in the ground; this sloping trench is steeper on the north than the south. Next we see a rock socket in which the pyramid casing rested; this rock abutment was thought to prevent spread of the pyramid casing, and it varied in depth around the pyramid between 22 and 31 inches.

The sloping trench also surrounded the pyramid and Petrie thought that its function was to act as a sponge for rain water; Petrie states;

"The first security was cutting a socket two feet or more in depth, in which the pyramid was based, so that there was a rock abutment to prevent any spread. Then outside of this a sponge of sand was placed, equal to a third of the whole area of the pyramid, so that an inch of rain on the pyramid would only be three inches of water in the sponge. Held in that way it could do no harm, as it would scarcely

[30] Ibid, plate V

sink through the couple of feet of sand. A layer of rolled desert flints ten inches thick lay over the sand, butting against the edge of the strip of pavement."[31]

The Shaft that Fraser cleared, that allowed access to the pyramid is to be found in this sand filled trench

The size of the pyramid footing at the bottom of the socket is, then, in inches—

	footing	at pavement
N	4217·4	4161·4
E	4230·5	4174·5
S	4224·9	4168·9
W	4225·3	4169·3
		4168·5 ± 1·9

The footing is on an average 25·8 inches below pavement level; and on a slope of 42° 37′ this would shorten the side 56·0 inches from the footing up to the pavement. This length, at the pavement, of 4168·5 is 200 cubits of 20·84 ± 01 inches.

Petrie's dimensions for the base of the Lahun pyramid, suggest a base of 200 cubits or four times the length of the Queens pyramid.

Calculating the height from the angles was a bit more problematic from the available data. The two inserts show Petrie's findings[32]

Regarding the angle of the pyramid, 38 pieces of casing stone were directly measured at top or bottom edge. These show the angle between the face and the bed-plane. At Dahshur the bed-plane is inclined inward from 5° to 10°. Where casing has been removed, the only way to find the angle of slope is by the angle across the arris blocks. Five of these were found; and, calculating from them, the best three give 42° 28′, 30′ and 38′, two inferior give 42° 43′, 44′. Giving half weight to the latter, the mean is 42° 35′ ± 3′. The angle to the bed-plane is on the east 46° 1′ ± 4′, on west 46° 3′ ± 9′; but the angle varies from 44° 59′ to 47° 7′. The tilt of the bedding planes therefore averaged 46° 2′ — 42° 35′ = 3° 27′, varying from 2½° to 4½°. With an angle of 42° 35′ ± 3′, and a base of 4168·5 ± 1·9, the vertical height would be 1915·4 ± 3·5 inches.

The azimuths of the sides are N. 92° 4′, S. 92° 8′, E. 2° 7′, W. 2° 13′, E. of true N.

The azimuth of the main pyramid is in close agreement with the Queens pyramid; however, the casing angles differ significantly.

In the centre of the south side, Brunton reports;

"Among the chips in the centre of the south side there were many small pieces of black granite, which had come from a large pyramid-shaped block. These were doubtless the remains of a capstone, like that of Amenemhat III's pyramid at Dahshur, now in the Cairo Museum."

[31] Ibid, page 4
[32] Ibid, page 3-4

Above we see the foundation remains of a temple[33] that was found in the trench on the east side (see plan page 3); it was discovered in 1889. Petrie states;

"Outside of the pyramid a shrine adjoined it on the east. This had been all destroyed by Ramessu II; and the ground was covered with some feet depth of chips. On turning over all this stuff we recovered many pieces of sculpture; some giving the names of Usertesen II, and others shewing the various offerings with which the walls of this chapel has been adorned. The work was beautifully delicate; and the colours are as bright as when first laid on. The largest slab from here with a cartouche of Usertesen, is now at Ghizeh."[34]

Petrie also records that; "*The two large rock-cut hollows in the outer slope did not bear a structure, as they were covered over by the sand bed and its pebble covering."*[35]

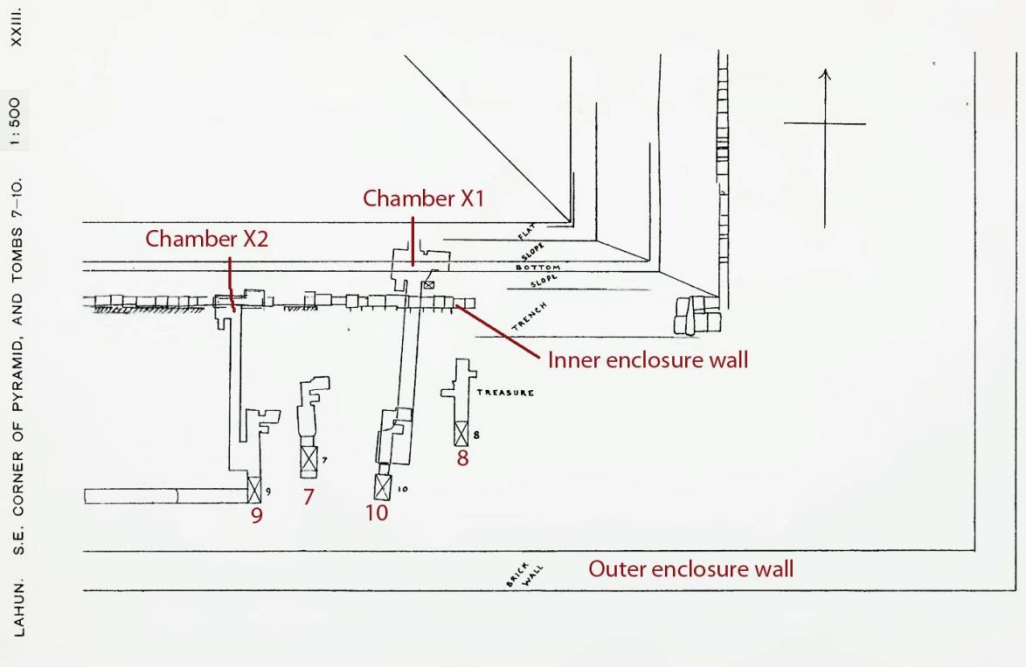
Brunton also reports that two foundation deposits were found in the temple; one in the south east corner, and one on the axis. They were not lid in pits, but pottery laid in the sand. Granite fragments were also found on the site.

The remains of a small shrine was also found on the pyramids north side, nothing remained but rock cuttings for foundations, and fragments of reliefs.

At the S.W. corner of the pyramid a foundation deposit was found, around 3 feet square and 3 ft deep; it was disturbed, but some pottery, model bricks and a leg bone (ox?) was found. No foundation deposits were found at the other corners, and this seemed to match the arrangement that was found by Amenemhat's I pyramid at Lisht.

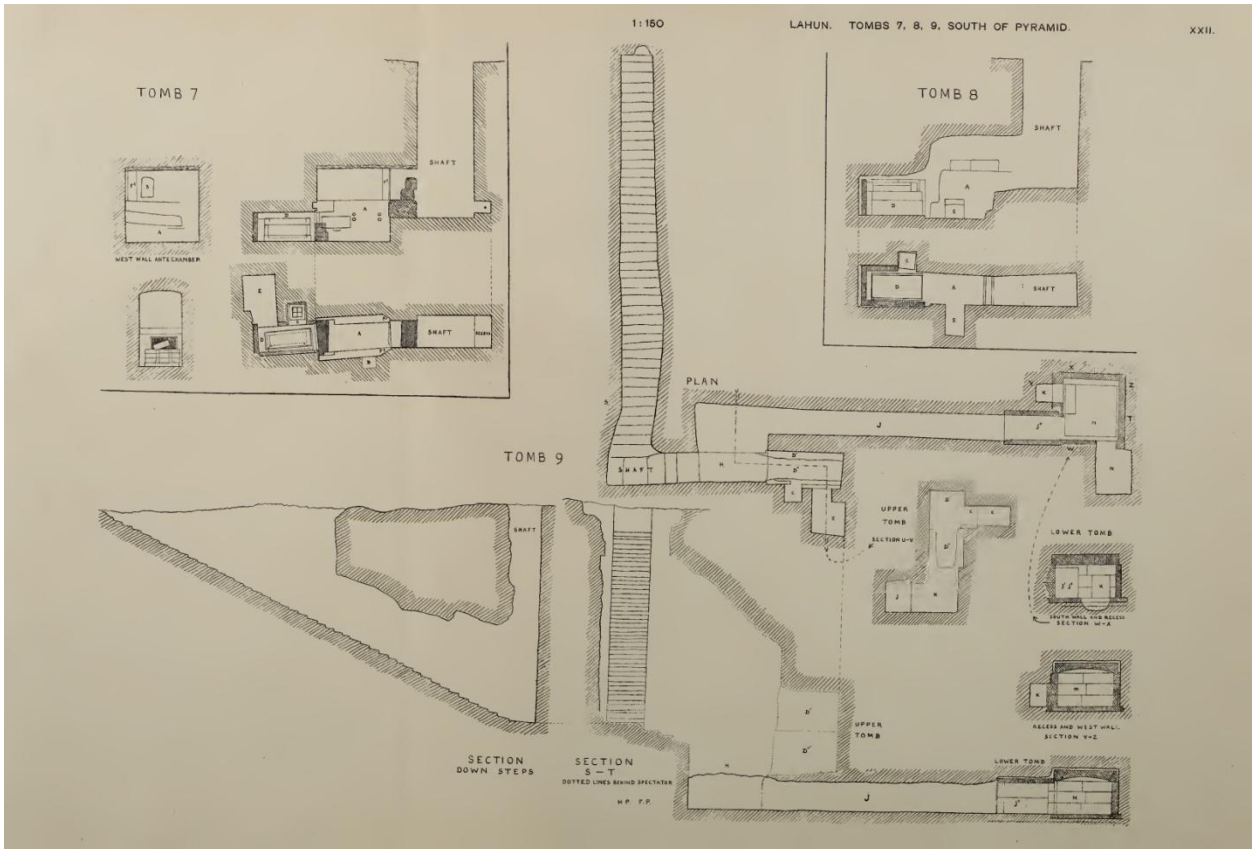
[33] Ibid, plate IV
[34] Illahun, Kahun and Gurob, 1891, pg 4
[35] Lahun II, 1923, pg 5

The Shaft Tombs



The four shaft tombs are all located in the south east quadrant of the pyramid complex, and their positioning appears somewhat random; they also appear to be devoid of any superstructure that might highlight their presence. Located between the inner stone enclosure wall, and the 16 feet thick outer enclosure wall made of brick; extensive clearance and searches appear not to have found any other shaft tombs in the complex. Access to the pyramid can be made via shaft tomb 10: tombs 7, 8, 9 & 10 all demonstrate very similar tomb design. At some time tomb 9 was modified, by creating a staircase entry from the west, and creating a lengthy tunnel to chamber X2, whose design is quite different and has more in common with chamber X1; Fraser's shaft found in the sand filled trench, connects to X1

The primary resource on the shaft tombs is to be found in *'Lahun I, The Treasure'* by Guy Brunton, 1920 (the tombs had been excavated in the 1913-14 season, but the First World War had delayed publication): some supplementary information on the tombs was added in Lahun II. As usual in this era, architectural detail of the tombs is brief, sometimes amounting to only half a page of text; likewise, drawings are somewhat lacking in detail: tombs 7, 8 & 9 fit on one page.



Drawings for tombs 7, 8 & 9

Tomb 7

The shaft Brunton tells us was well cut in good hard rock to a depth of 26 ft. 8 in (8.13m). At the bottom of the shaft on the south wall a recess was cut across the whole width of the shaft; Brunton would comment that; "*It may be compared with the offering pit in the floor of the shaft of Tomb 10; but this recess contained eight mud bricks placed in a close row side by side on their long edges and slanted over sideways."* I did think that this recess might be a temporary storage space for the sarcophagus lid; however, if the drawings above are accurate, it would appear to be not wide enough (no dimensions are provided in the text to check the accuracy of the drawings).

At the bottom of the shaft three blocking stones were found in position, a small gap at the top, no doubt provided by robbers, allowed access to the antechamber. The antechamber is unlined and it had a vaulted roof cut in the rock; about half way down the east and west walls reduce in width and leave a ledge on both walls. On the upper part of the west wall a niche was cut similar to one found in tomb 10; also on the west wall; "*The lower part of the west wall has a shallow recess or*

loculus, roughly cut, with two grooves for skid poles, showing that it has contained a subsidiary burial, probably of a servant."[36]

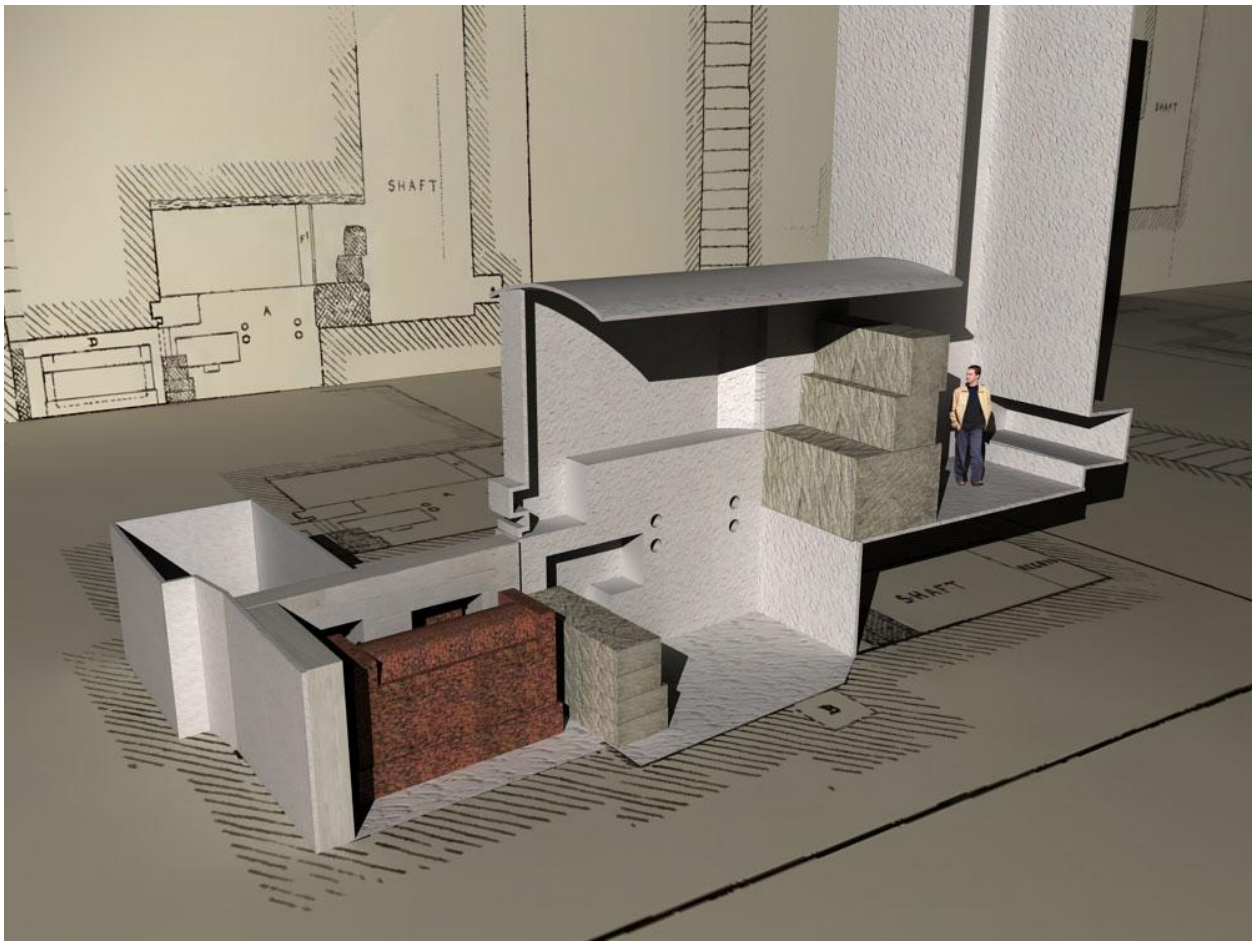
On the east wall of the antechamber, a rectangle cutting with a step at the bottom was observed, as were four round holes, of which Brunton could offer no explanation. The antechamber had been paved, but the blocks had been pulled up and these highlighted three grooves cut in the floor which Brunton thought were used to place the sarcophagus in position. At the north end of the antechamber four limestone blocks remained that would have sealed the sarcophagus chamber.

The sarcophagus chamber was entirely lined with fine white limestone, as was the canopic recess that was found on the east wall. This recess contained a granite chest with a wooden box inside. At the end of the east wall we have an opening into the offering chamber; this chamber was unlined, and when entered it was found clear of debris. It was found to contain broken pottery, along with bones, thought to be funeral offerings.

The sarcophagus and lid were found in perfect condition, the robbers appear to have skewed the sarcophagus somewhat, and lifted the lid to rest against the west wall to gain access. The sarcophagus was typical of what we see in the 12th dynasty; made of pale red granite, it had a decorated plinth with panelling, with the lid consisting of a curved top with raised flat ends. Inside the sarcophagus a sacrum was found along with beads; parts of a female skull were found in the antechamber.

All the items found in the tomb were consistent with the 12th dynasty; nothing suggested that there may have been later intrusive burials. The ledges and holes in the antechamber walls may have been connected in lowering the sarcophagus or lid onto the sarcophagus. The ceiling height of the sarcophagus chamber appears too low to introduce a wooden coffin, so the interment would appear to have been performed in the antechamber. A wooden coffin would be lowered into the sarcophagus and then the granite lid; next the whole assemble would be levered back into the sarcophagus chamber. However, before this operation, the canopic jars would need to have been placed in the canopic box, along with the items for the offering chamber: as the installation of the sarcophagus appears to be an added security feature, as it protects access to both. Whether the now empty antechamber held a secondary role is not clear; though it's probable that further grave goods were brought in and stored in this chamber.

[36] Lahun I, page 11



An impression of tomb 7

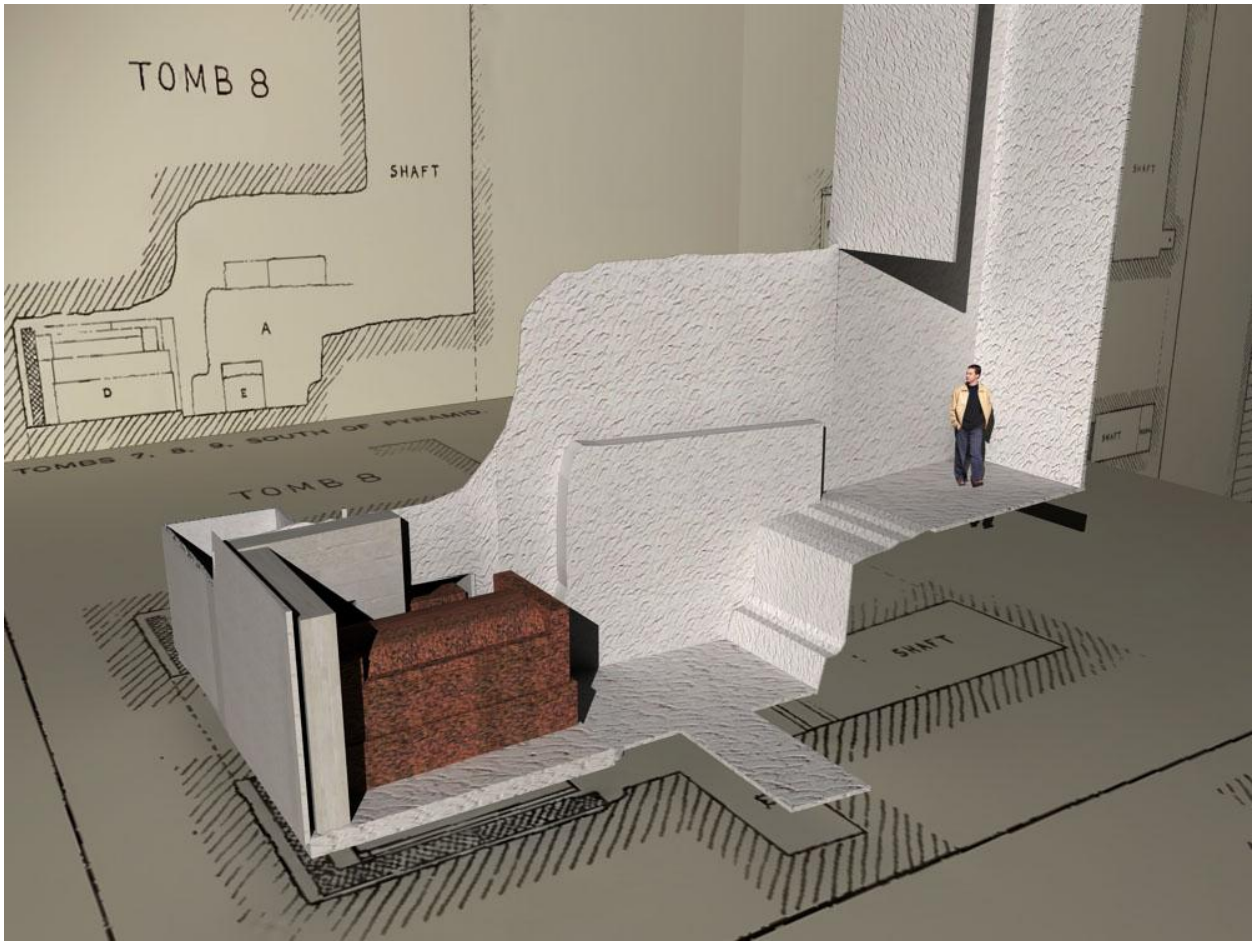
Tomb 8

On tomb 8, Brunton would say; "*This tomb, which is the most easterly of the four, is the roughest in construction. It was used for the burial of a princess under Amenemhat III, at least thirty-eight years after the death of Senusert II, and this will sufficiently account for the want of care taken in its preparation."*[37]

The shaft at 21 ft. 8 in (6.6m) means it is the shallowest of the four tombs. The bottom of the shaft was left quite rough, and there was no recess or pit found. The antechamber, displayed similar features such as the ledges on the wall and niche, though again was left in the rough. The roof throughout the tomb was reported as falling away and in bad condition. If you look at the plan on page 27, you will see

[37] Ibid, pg 12

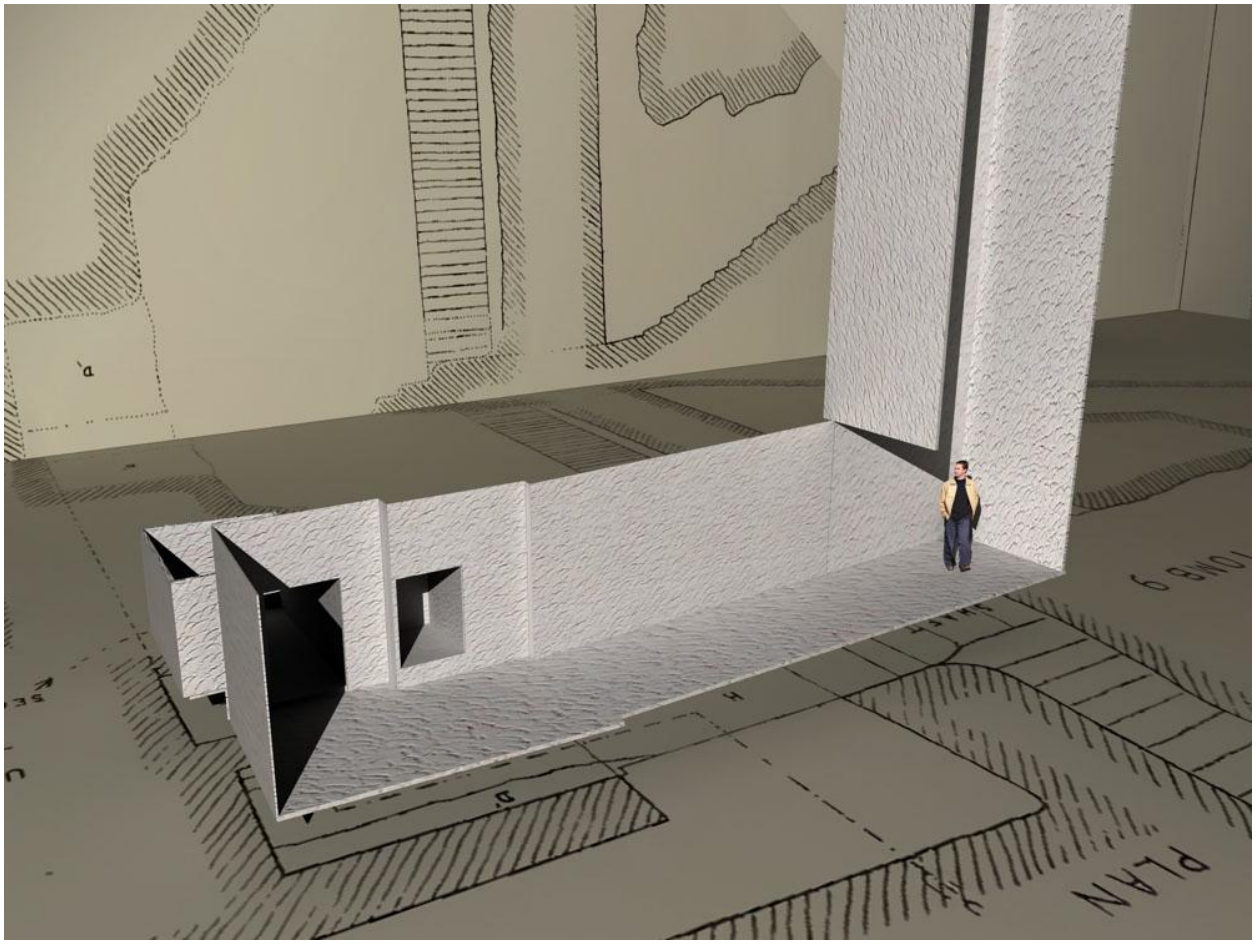
that there is no offering chamber attached to the sarcophagus chamber; however, the offering chamber would be found during further clearance work in 1920.



An impression of tomb 8

In comparison to tomb 7, tomb 8 is fairly poor quality, and this extends to the sarcophagus; although made of red granite, it is described as very poor workmanship, compared to the finished perfection of that found in tomb 7. The robbers having little room, managed to push the lid back against the wall a short distance and then chipped under the edge of the lid enough to admit a small boy into the sarcophagus. Despite the poor quality of the tomb, it was in this tomb that the treasure of Lahun was discovered; in a mud filled recess at the base of the west wall in the antechamber. The canopic chest was of white limestone and the set of canopic jars were all intact and of alabaster; however, the embalmers appear to have skimped in their work, as the jars did not contain viscera, but rather bundles of cedar pitch adulterated with mud.

Tomb 9



An impression of tomb 9, phase one

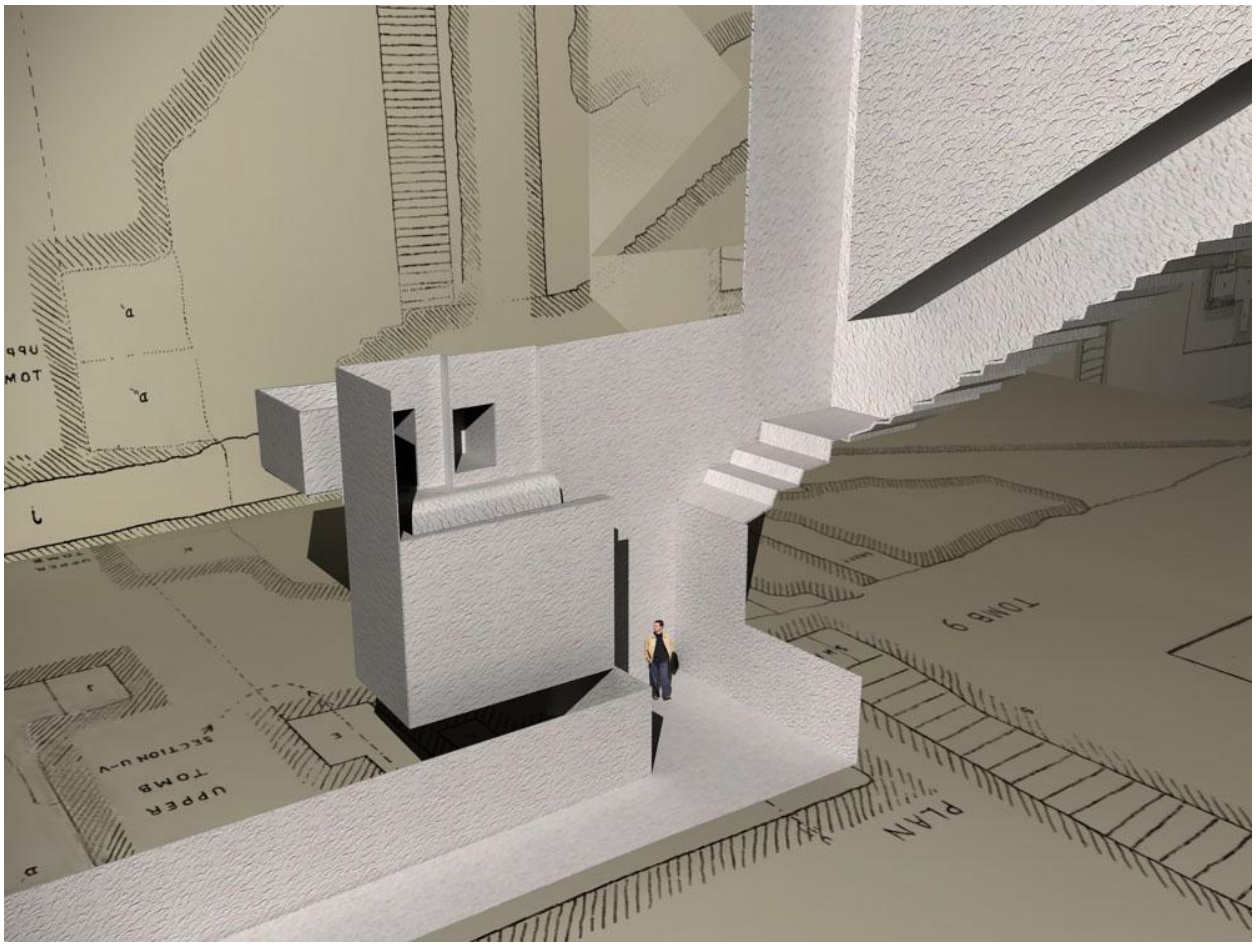
Brunton would say of tomb 9, "*The construction of this tomb is very curious in more than one respect, there being two distinct sets of chambers, and two modes of entrance."*[38] In reviewing the publications it seemed to me that there was a probability that an intrusive modification was added to tomb 9 of unknown date and probably not contemporary to the original pyramid complex. I have therefore broken up this shaft tomb into two phases; phase one above, would follow the similar design elements found in the previous shaft tombs. This shaft was sunk to 36 ft, 5 in. (11.1m).

The standard elements of the sarcophagus chamber are present such as the canopic recess and the offering chamber, though Brinton states, "*It has been prepared to*

[38] Ibud, pg 8

receive its fine limestone walls and floor, and possibly roof as well, but there are no traces of demolition, and it would seem that the masons had never completed their work."[39] No sarcophagus was present, and Brunton reports that not a single object was found in the tomb. It appears therefore that we have a roughed out tomb devoid of its finishing touches; could this be normal procedure? Could a series of shaft tombs be sunk and left in a preliminary state, and only finished when it was certain that person X was allotted to it?

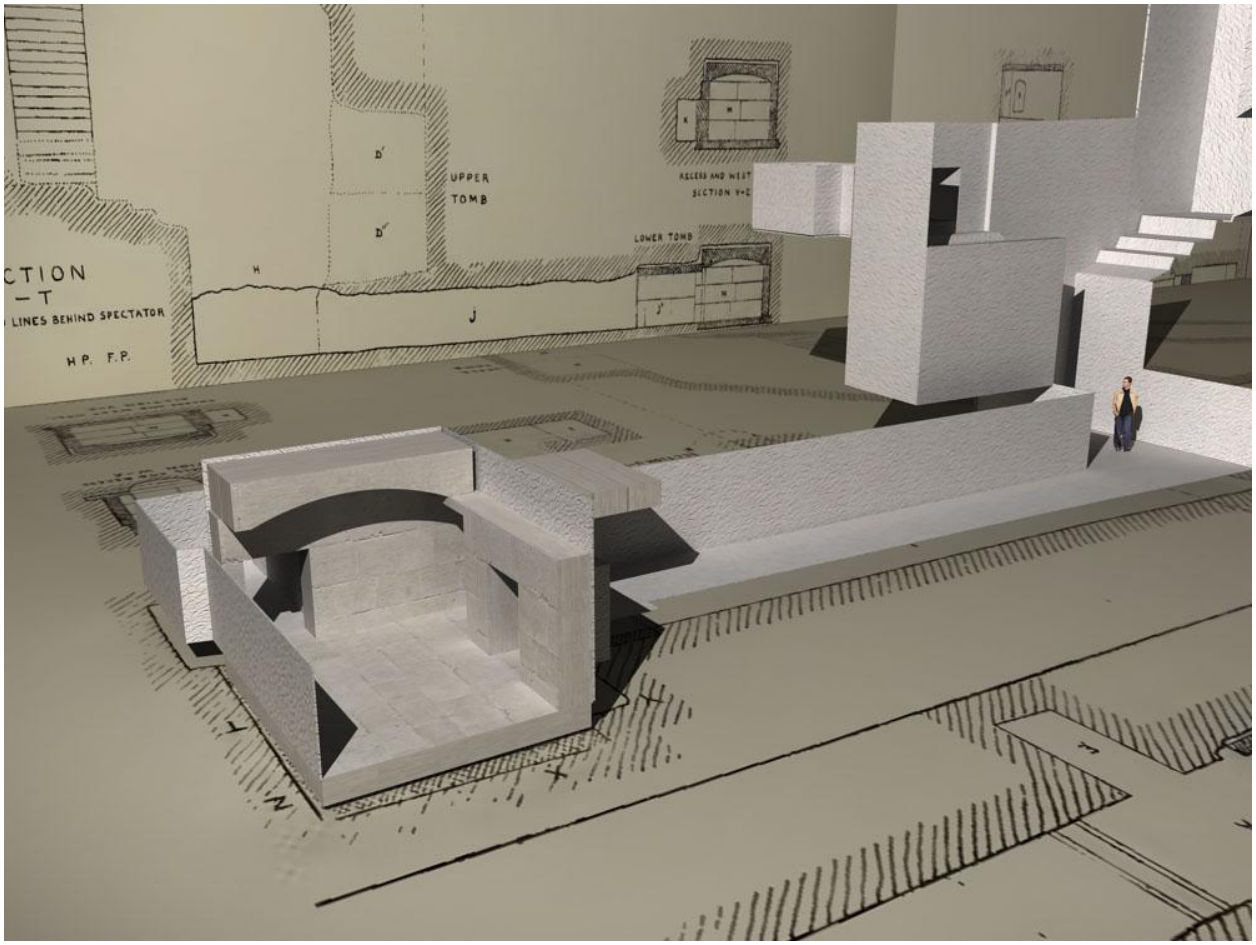
As an unused shaft tomb, was it selected as a useful donor for the next phase?



In the second phase, a stairway from the west was cut in the rock to connect with the base of the initial shaft; Brunton states; "*The shaft was sunk first, and the steps later, as they curve somewhat to the south so as to strike the foot of the shaft."* A sizeable portion of the stairway roof appears to have fallen in (see plans, pg 27). A large excavation in the floor of the original sarcophagus chamber has been made,

[39] Ibid, pg 8

and Brunton commented that the slope of the stairs were they turn north; had it not been interrupted by the secondary shaft, would have coincided with the floor of this excavation. The secondary shaft descends a further 13 feet (3.96m), from the floor of the original sarcophagus chamber; it then enters into a short corridor west and then turns north were it runs for about 40 feet to chamber X2.

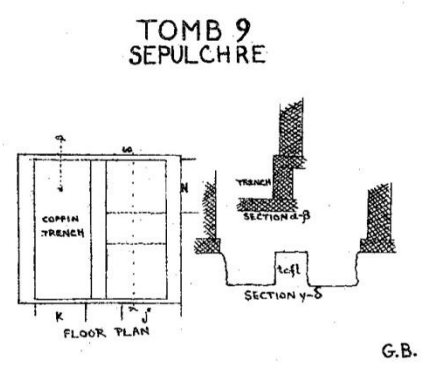


In the view above, we can see the long corridor enter into chamber X2, the walls of this long corridor are reported as being '*slightly smoothed, but not prepared to receive a stone facing'*. If you look at the plan on page 27, you will see that at the end of the corridor, a portion has been lined and roofed in fine white limestone; this area Brunton classifies as an antechamber. From the antechamber we enter into the lined and roofed main chamber (no dimensions are provided in the report); the roofing beams here have been hollowed out to give an arch effect, whereas the antechambers are flat beams. In the south wall a small recess has been made, that Brunton classifies as a canopic recess, and on the east wall an entrance leads into an offering chamber; both were unlined with the walls roughly smoothed.

The main chamber had been paved with limestone slabs resting on the marl; Brunton reports that the water level was 7 inches below the floor. He further states;

"These have been mostly broken up, leaving a ledge all round as shown in the plan. In the S.W. corner is a curious trench cut through the floor and into the rock, as shown in the plan and section."

This chamber would be revisited in 1921, here Brunton states;



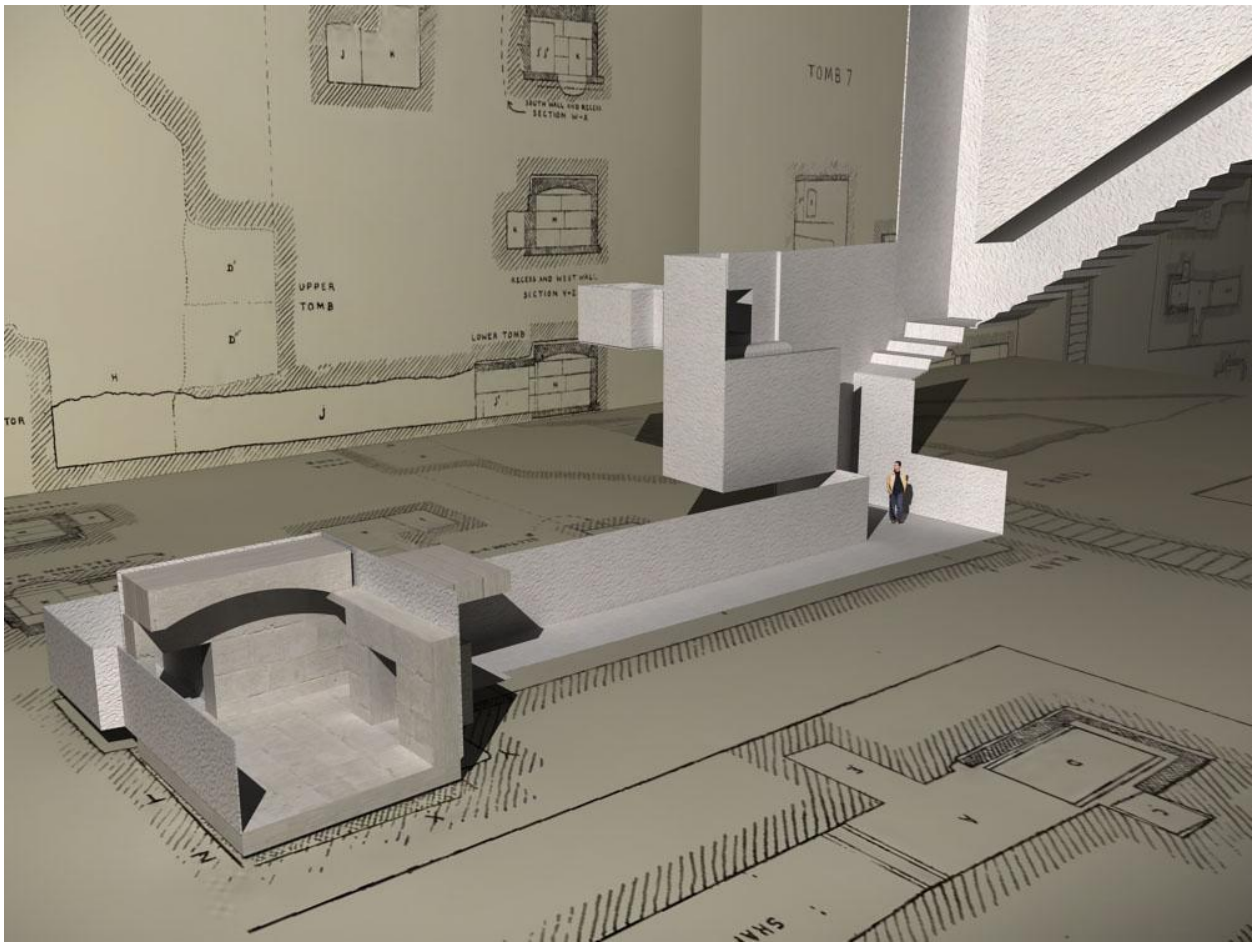
"In tomb 9, the lower tomb was partly replanned. When the original plan was made, the lower tomb was somewhat under water. In 1921 it was quite dry, and it was then seen that the sepulchre had been floored at the passage level in its eastern half, while in the western it dropped to form a sarcophagus trench lined with limestone, see pl. xxii. This was an interesting point as it lent colour to the idea that this was the oldest of the royal tombs, the trench system not being used in any other of these."

Whether this is the oldest tomb is debatable; the impression is that tombs 7, 8 & 9(phase 1) being of similar design, predate X2. Brunton's view;

"The story of its construction seems to be that it was originally intended for a tomb such as Tombs 7 and 8 with shaft, antechambers, main room, and two recesses. Then the excavation of the main stairway was made connecting with the shaft at the level of chamber D'. Before the upper tomb was completed it was decided to construct a second tomb on a lower level, the entrance to which would be through the floor of D', and the stairway was turned north and continued down to the level of D." Desire for secrecy perhaps caused final alteration to be made: viz. the sinking of the secondary shaft H, down to the level of the corridor J', and the running of that corridor to the northward. The only reason I can offer for the length of it is that the lower tomb was intended to be below the inner temenos, the area on the surface which was enclosed by the stone wall round the pyramid. It will be seen in the general plan that the tomb actually comes under the wall itself."[40]

[40] Ibid, pg 9

Brunton would see the excavation in the floor of the sarcophagus chamber (*D′*) as another lower chamber (*D.″*); but this seems to make little sense, the offering chamber and canopic recess had been completed, why lower the floor of *D′* to create a lower floor level, and leave the offering chamber and canopic recess high up near the ceiling. The western stairway also seems superfluous; Tomb 9 appears all complete, just awaiting finishing touches like lining. So how are we to explain this excavation in the floor? It might be that during the beginning of the second phase the secondary shaft did not exist, but that the north turn in the stairs would have led to the bottom of the excavation of *D.″*. This excavation under the sarcophagus chamber floor may have been the start of a corridor that would lead to a chamber under the inner enclosure wall; it might be that they were unhappy with the rock quality here, and hence sunk the secondary shaft, lower and diverted the new corridor slightly to the west. Information on these chambers is very scant in the reports; a more modern forensic analysis is needed; for example, the chisels markings might offer some clues, there might be significant differences in the different phases.



Nothing was found inside chamber X2. The only objects found in the vicinity of tomb 9 were a group of pots and a few blue glazed cat amulets. They were found in the rubbish at the mouth of the stairway tunnel; Brunton thought they might have belonged to a later intrusive burial, but no bones were found. Brunton would say;

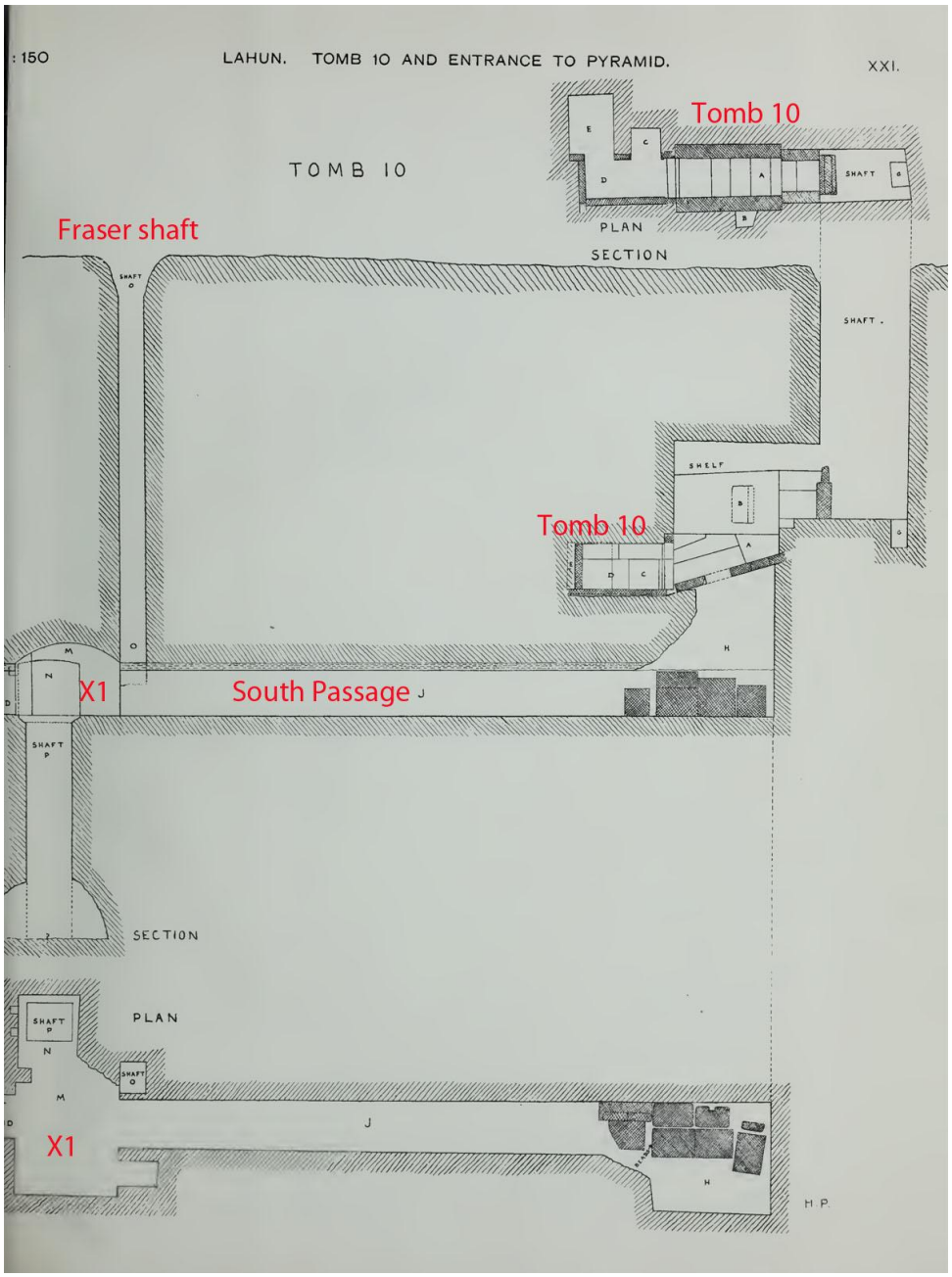
"During the xxiind to the xxvth dynasties the M.K. tombs in the neighbourhood were largely re-used (Petrie, Illahun, p. 25), and fresh tombs made; this interment, judging from the amulets, would belong, then, to the same period. The pottery (pl. xviii, 22-30) is of very varied types; and though most of them agree well with the suggested date, it is surprising to see the form 25, which is not generally found after the xixth dynasty, and is unusual then. As this type is well known in the Middle Kingdom, and as several examples have been found on the site, a re-use in later times would quite possibly explain its presence here. 23 and 24 resemble the xixth dynasty forms (Engelbach, Riqqeh, xxxviii, 75n and 75p); the modified outline agrees with the somewhat later date.

Tomb 10 - The Pyramid Entrance

The shaft of tomb 10, is the only route by which the sarcophagus and large masonry that we find in the pyramid apartments, could have made their way into the pyramid; as Fraser's shaft is too small (unless an unknown shaft exists above the burial chamber, that was cut through the rocky knoll). The first section of the shaft descends 28 ft. 4 in. (7.42m); at the bottom of the shaft a pit was found that held a deposit. A perfect deep dish was found in the pit, and lying on the floor of the shaft, possible calf bones were found, which Brunton thought may have come from the pit.

The shaft led to a partly lined antechamber (a few stones of fine limestone blocks remain that would have sealed the chamber) whose floor was inclined and lower than the shaft floor. This inclined floor was made of limestone blocks that spanned the top of the secondary shaft; one of the floor blocks had been broken in two and fallen into the shaft. Beyond the antechamber, we enter the sarcophagus chamber that was lined, and like the previous tombs held the canopic recess and offering chamber. In the rubbish of tomb 10, a piece of a late wooden anthropoid coffin and feldspar scarab was found. Overleaf we have a section and plan of tomb 10[41]

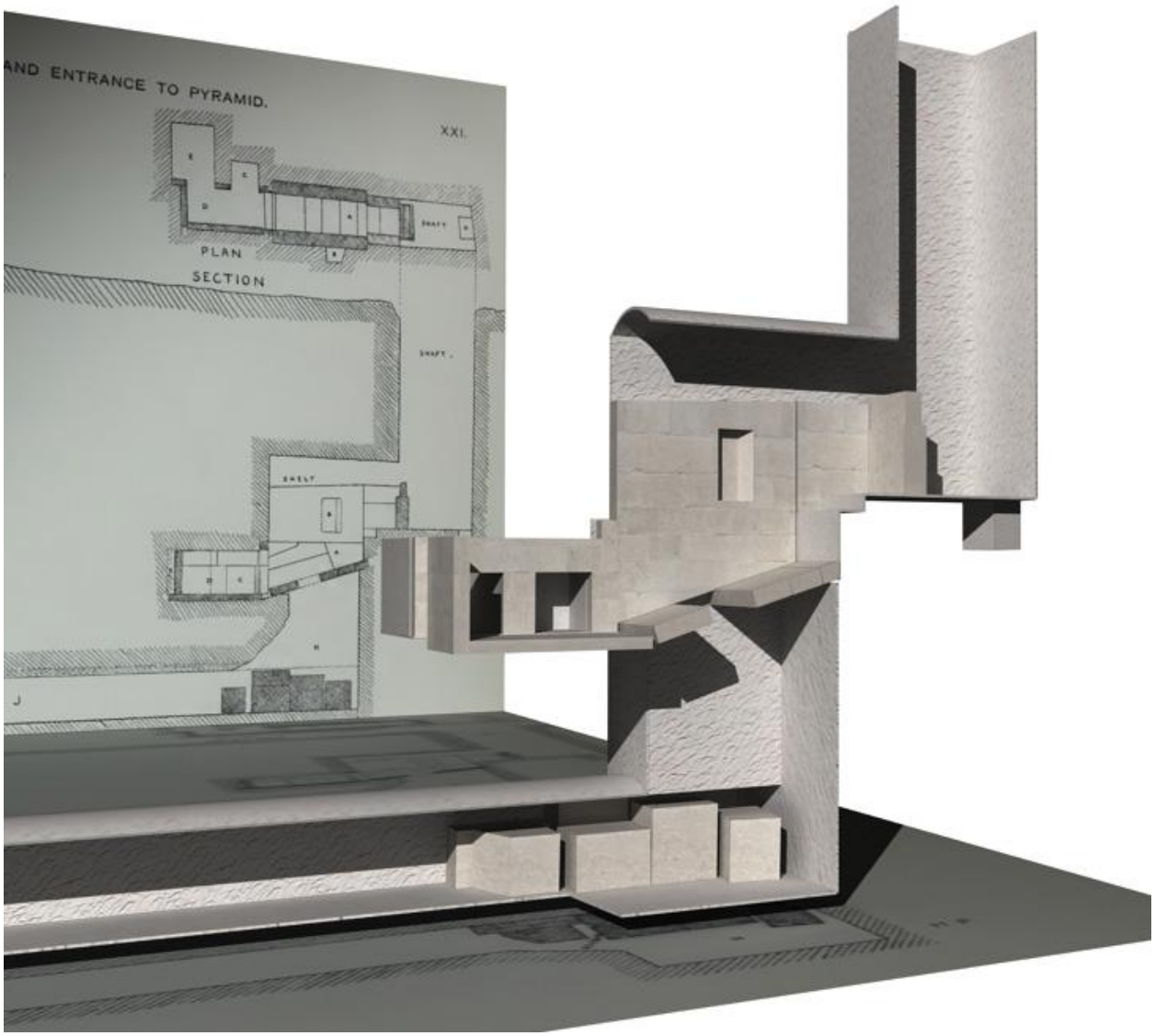
[41] Lahun I, plate XX1



Above we see the large main shaft south of Fraser's shaft; this gave access to the antechamber, whose floor was at a lower level and inclined towards the sarcophagus chamber. Beneath this inclined floor a secondary shaft led down to connect with the south passage, this corridor was positioned east of the above sarcophagus chamber (see plan on page 26) Brunton states;

"All access was prevented by blocking up the southern end of the corridor with limestone blocks of various shapes and sizes. The robbers, however, have easily overcome this resistance by outflanking, i.e. breaking away the corner of the rock

formed by the west wall of the corridor and the south wall of the shaft, as shown on the plan. The corridor J has a vaulted roof, and there are indications that the walls were whitened. It leads to the lower tomb, which is of the same type and arrangement as Tomb 9 (lower), though the dimensions vary somewhat. No attempt has been made to line the walls with cut stone, and hence there is no counterpart to the antechamber E in Tomb 9, which was formed by merely lining part of the corridor. The barrel roofs are exactly the same in arrangement as those of Tomb 9, but cut in the rock instead of in the limestone roofing beams."[42]



[42] Ibid, page 10

Brunton's report of tomb 10 is brief and lacking detail, and indeed, when we get to chamber X1, confusion reigns and I have omitted to do a 3D impression. However, Petrie provides us with a bit more detail on the south passage, he says;

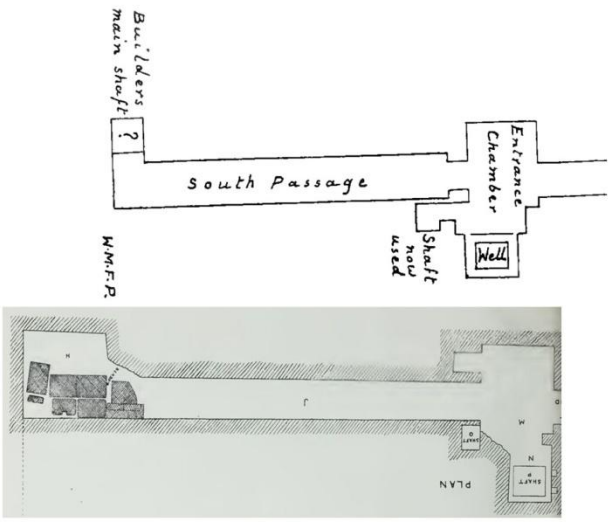
"At the end of the S. passage is a brick wall broken through; beyond that is a mass of blocks of stone and chips, which seem to turn to the west and to rise upward."[43]
(At this time only Fraser's shaft was available for entry, the main shaft was only suspected.)

Here, Petrie describes what he found in the south passage some 24 years earlier than Brunton's above description. No further mention is made of this brick wall in any other report; but it seems clear that a brick wall existed immediately after the blocking stones at the bottom of the shaft. In his report during the season 1889-90, Petrie gives the width of the south passage at about 7 feet (84 inches, or 2.13m); he also states that the height is about 4 feet high (48 inches, or 1.2m), and much encumbered with stone, such that it was difficult to crawl along it. This height appears incorrect as both scale drawings (see pages 5 & 37) suggest that the south passage mirrors the height of the longer inclined passage, which Petrie gives as 74 inches high at the wall or 80 in the middle of the curved roof; maybe the 4 feet was the height above the debris in the south passage. Given that Petrie had to crawl along the south passage, it suggests that this may be the case, as the scale drawings suggest that one should walk upright comfortably. Petrie also says;

"The survey of the pyramid is unfortunately incomplete. The sepulchre and adjoining chambers, and the sarcophagus are completely measured; the passages are tolerably done by Mr. Eraser's measures, but the south end of the passage and details of the water well are doubtful."

Petrie would mention that *"the south passage is 54 at the doorway"*, again this doorway is not shown on Brunton's later plan (page 37) but is in Petrie's plan (page 5). The list of inconsistencies between the two plans only grows, so I will place both plans side by side overleaf to highlight the problem.

[43] Illahun, Kahun and Gurob, 1891, page 2



With the two plans side by side we can see the clear differences. In Petries plan, we have no recess in the south wall of chamber X1. The location of the well is further south, as is Fraser's shaft that suggests a short section heading north to X1. The narrowing of the south passage, before X1 is omitted from Brunton's plan. Which plan reflects the correct layout of X1 is unknown; though the doorway in Petrie's plan would appear to exist as he provides a measure for this at 54 inches. Details for Fraser's shaft amount to stating that the doorway at its bottom is but 31inches wide. Brunton's comment on the shaft;

"It is certainly an afterthought, and no integral part of the plan of Tomb 10, as it does not go down to the same level, and access from the shaft is through a rough hole in its northern wall, with a small drop into the main chamber."[44]

From his drawing (pg 37) we can see how the shaft appears to enter the chamber high up on the south wall; whether a short connecting passage 31 wide exists as per Petrie's drawing is not known, but given that Petrie used this shaft to access the pyramid, I should imagine that he was well accustomed to its layout. Though he does omit the recess in the south wall, maybe obscured by debris?

The curious thing I find about the south passage is that Petrie had to crawl along it with difficulty. Here we have an impressive large passage with a vaulted roof, and which Brunton describes as "there *are indications that the walls were whitened".* Where, therefore has this debris come from? It is not mentioned in the later reports. Petrie gives the south passage as 734 inches long (18.64m), which is probably the distance to the blocking stones. Given the short height he gives for this passage, the top of the debris may have been 32 inches above the true floor, suggesting around 32 cubic metres of material, has been dumped in the passage. However, this is not the only location where we appear to have inexplicable debris; beyond X1 the next chamber we meet is the large passage chamber, of which Petrie says; *"It is heaped up with broken marl from the rock; though where such a quantity has come from it is hard to tell."* (Illahun, Kahun and Gurob, 1891, page 2)

[44] Lahun I, pg 11

From the few measures that Petrie provides of the passage chamber and from his scale drawing, it would appear that its cubic capacity is around 50 cubic metres. Petrie, provides no height measures for this chamber (only wall lengths are given), possibly because of debris: but if we take half[45] of this capacity as debris it amounts to about 25 cubic metres of debris dumped here; and again where has it come from? A possible suspect for the original location of all this debris, may well be in the vicinity of chamber X1; for example, Petrie gives the well as 4 by 5 feet (1.22 x 1.52m) and he states that the water was drained to a depth of 22 feet (6.7m) which roughly agrees with Brunton's scale drawing. These dimensions would generate 12.5 cubic metres of debris; though we cannot be totally sure that the bottom of the well has been reached. But it does highlight a problem that needs to be resolved; it's hard to imagine that the passage chamber and south passage were used as dumps during the original build, but rather the material came from intrusive activity. Was Fraser's shaft dug from the bottom up for example; tool marks in the shaft, might provide a clue here.

It might be the case that X1 like X2 is a possible later intrusive activity, and not contemporary to the original pyramid complex plans. For example, there may have been only one entrance to the pyramid originally, the larger main shaft; any funeral procession would progress along the fine south passage, and if Petrie's doorway exists a chamber may have existed here, prior to the long incline up to the burial apartments: was such a chamber adapted and enlarged to create a new tomb in the form of X1?

Tomb 10 may have been a ruse to deflect robbers, but ultimately they gained access through the inclined floor and circumvented the blocking stones at the bottom of the shaft to loot the pyramid chambers. Did someone at a later date decide to create chamber X1 and create a new shaft? Creating this chamber will obviously create debris, the problem is what to do with it; they could take it up the newly created shaft, or up the main shaft that had been opened by robbers. But why go through this laborious process, when you could simply dump the material along the south passage and provide a bit extra security for your new chamber; likewise the passage chamber a short distance to the north could be a convenient dumping ground.

In clearing the south passage, Brunton reports on various scraps of pottery and two limestone lamps. Also found in a crevice by the blocking stones was a collection of sixteen beads and pieces of gold foil, probably dropped by the robbers in looting

[45] Sokar 32, pg 58,Dieter Arnold says half this chamber was filled with debris

the pyramid. In clearing out X1, Brunton found a considerable amount of pottery typical of the 12th dynasty, though he did find forms more usually found in the 18th and 19th dynasties. [46]

As to the function of the smaller Fraser shaft, Petrie suggested; "*The now-used shaft must therefore have been only a back way, to enable the workmen to pass in and out while the main shaft was blocked with lowering the stonework.*"[47]. But why go to all the effort of providing security at one end, only for all your hard work to be circumvented by another shaft to the north? The blocking of the main shaft can all be accomplished via the main shaft.

In this view looking south we see the two locations of the shafts. The main shaft is inside the outer brick enclosure wall. The smaller Fraser shaft is to be found inside the inner stone enclosure wall, and appears to have been sunk in the sand sponge, which surrounded the pyramid and next to the foundation stones that supported the inner enclosure wall.

[46] Lahun 1, pg 13
[47] Illahun, Kahun and Gurob, 1891, page 2

A closer view of Fraser's shaft; a sad incident is connected with this shaft, Petrie reports, *"The well entrance is so dangerous that a Bedawi boy, who was looking about there after it was opened, fell down the shaft, and was killed on the spot."*[48]

[48] Ibid, pg 1-2

Two views looking into the main shaft; surviving fine limestone lining is visible and what appears to be the break in the inclined limestone paving, now covered with wooden boards.

Petrie provides a few measures for X1, which he calls the *entrance chamber,* he states;

"*The entrance chamber is 132 N. to S., and about 208 to the recess with the water well. This recess is 82 by 102 ins. and the well about 4 feet by 5; it is difficult to reach it owing to a long slope of earth which is above the well. The well itself is full of very salt water up to about the level of the chamber floor. Why such a well should have been made we cannot see. Probably the water level has risen with the rise of Nile deposits, and may have been 15 feet lower when the pyramid was built. The well was therefore perhaps a dry shaft. It may have been either to catch any rain-water running down the shaft above, like the safety wells in the tombs of the kings; or it may have been a water well; or it may lead to some other passages below."*[49]

Brunton, would say, "*It had been sunk in what had originally been intended for an offering chamber, N. It was full of mud and water (the water level being shown in the section); and it was a problem to discover the best way to deal with this."*[50]

If this was originally an offering chamber similar to X2, it would seem strange that a well be sunk in it, of course we cannot be certain that the well is contemporary to X1; after all, we appear to have evidence of access in later periods. For example Brunton mentions pottery finds in the passage chamber, of 18 to 19th dynasty date and two finds of Roman age.[51]

A solution was devised in order to lower the water in the pit, Brunton states;

"Finally we stationed seven or eight pairs of men on wooden platforms which Mr. Engelbach fixed in the shaft, and had a continuous stream of buckets going up to be emptied on the hard, impervious rock at the surface. In the course of the first day the water had fallen 18 feet; and we were glad to find that it did not rise appreciably during the night. Towards the bottom, the sides of the shaft had all fallen in, forming an irregularly-shaped cave, somewhat as shown in the section. The rock had broken away from the dome-like sides of this hollow in large, hard, laminated masses; in fact they continued to fall in as the work progressed. The marks of tooling on the shaft walls do not reach to the lowest edge on all four sides, and I think it is evident that the Egyptians abandoned the shaft owing to the danger of the work. We cannot say for certain that we reached native rock at the

[49] Ibid, pg 2
[50] Lahun I, pg 10
[51] Ibid, pg 13

foot. The workmen were positive, but they may have been deceived by a fallen mass of rock. Both Mr. Engelbach and I thought it inadvisable to continue what seemed a fruitless and dangerous work."[52]

Finds from the well, amounted to some pieces of bones, and wood with iron nails in it, which Brunton thought were no doubt modern (he does not clarify what he means by modern: in the passage chamber Dieter Arnold reports that wooden fragments were sticking out of the debris). In the north wall of the well recess two square holes were found by the ceiling (see plans, pg 37), though no corresponding holes were found on the south wall. Beams may have been inserted in these with their other ends resting on a wooden framework on the south wall, which could then assist in lowering and raising items.

The inclined Passage and Passage Chamber

On leaving chamber X1, the passage inclines towards the burial chamber, and is only interrupted along its route by the passage chamber. Petrie states;

"The passage into the pyramid slopes upward, as will be seen in the section, Pl. II. The whole length slopes 6° 46' from end to end, but the lower part appears to slope rather less, and the upper part more. The axis of this passage is 6° 40' E. of magnetic N., which shews that it is probably very nearly true north."[53]

The axis of the south passage is not known, in some drawings it appears aligned with the inclined passage and others it appears skewed, (in Petrie's drawing, page 3, the south passage appears skewed) Brunton merely says;

"The corridor does not run due north and south, and at first sight it might be thought that the skewness was caused by the desire to connect with the shaft O (Fraser shaft). *But the orientation of all these tombs is irregular, and I am inclined to think that the shaft O was only sunk when it was decided to use Tomb 10 as the pyramid entrance."*[54]

The first part of the inclined passage, Petrie gives as 648 inches on the slope (16.46m), the width is 64 (1.63m), which is less than the southern passage: the height of the walls is 74 (1.88m), and the middle of the curved roof is 80 (2.03m), like the south passage it appears to be designed to traverse comfortably. At the end

[52] Ibid, pg 10-11
[53] Illahun, Kahun and Gurob, 1891, page 2
[54] Lahun I, pg 11

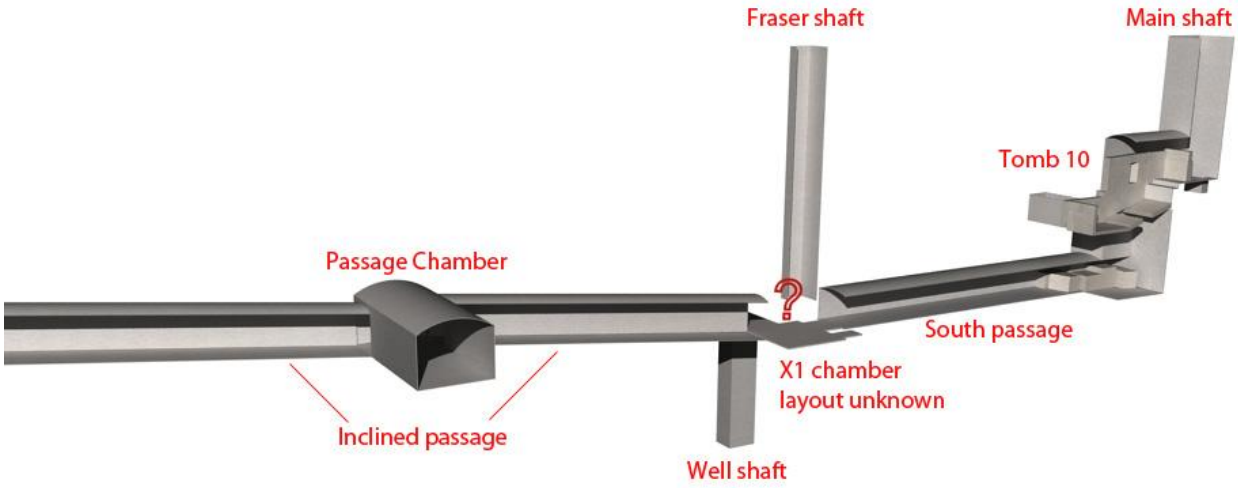
of this first part we enter the passage chamber at its south east corner; Petrie's drawing shows the floor incline through the chamber, other drawings suggest it is level, which is correct I do not know. The only measures that Petrie provides for the passage chamber are*; "The passage chamber is 276 on S., 267 on N., 124 on E., 127 on W,"*[55]. Though Petrie's drawing, and many others shows the passage ceiling to have a flat roof; Dieter Arnold in his Sokar article describes the ceiling as arched and carefully smoothed[56]

In the image above taken from inside the passage chamber, we are looking north at the entrance to the second part of the inclined passage that leads to the main chambers of the pyramid. One can make out the curved profile of the chamber roof in the top right corner. Arnold reports that the walls of the inclined passage are well preserved with a carefully rounded ceiling, and that the debris piled against the east wall of the corridor is not from the ceilings of the passage, and might be related to Brunton's clearances.

[55] Illahun, Kahun and Gurob, 1891, page 2

[56] Sokar 32, pg 58

The second part of the inclined passage Petrie gives as 894 long (22.7m), 76 wide (1.93m; this is 1 foot wider than the first part), 69 high at the wall (1.75m), and 79 to the middle of the curved ceiling (2.0m). The first part heights of 74 and 80 are similar to the second part, though the width from the passage chamber appears a noticeable difference.



The above image, gives a rough idea of the subterranean layout; the marked differences in the plans prevents any reconstruction in the area of chamber X1. The role of the passage chamber is not known; when Petrie entered it in 1890, he found it heaped up with broken marl, and with no idea where it had come from: in Arnold's visit he reports that this chamber was half filled; is this the same spoil noticed by Petrie and has it been examined? Brunton does report some pottery finds in the passage chamber, dating from 18 & 19 dynasties and Roman[57]; but no context is given on how they were found. Were they just surface finds on the spoil, and has all this spoil been carefully gone through?

The Limestone Chamber

At the end of the inclined passage, we find a fine limestone chamber; Petrie states,

"The limestone chamber is cut in the soft marly rock, and lined with blocks of fine limestone. The roof-blocks, and part of the top of the walls, have been broken up, and lie strewing the floor; a damage probably due to the Ramesside masons.[58]

[57] Lahun I, pg 13
[58] Illahun, Kahun and Gurob, 1891, page 2

Petrie provides evidence that Ramesses II (19th dynasty) was responsible for some of the stone robbing from the pyramid; for example, he cites graffiti from the destroyed temple[59]. Arnold suggests a different explanation; he says (my translation),

"Petrie assumed that the missing parts of the wall cladding were removed by stone robbers in Ramesside times. As mentioned above, however, no large objects could leave the pyramid. In addition, the pending wall parts are undamaged and show no sign of demolition. Some blocks are still lying on the ground, covered by fallen or chipped rock. It is clear that the blocks have not fallen down, so they were not installed by the builders."[60]

Arnold suggests an unexpected death of the King as a possible reason to explain the condition of the complex; though he does state,

"Finally, it should be remembered that the reflections made as a result of a brief visit are of a purely theoretical nature, until the interior of the pyramid of Sesostris II at El-Lahun and the tomb 621 are thoroughly cleaned up and, above all, documented and researched."[61]

Arnold suggests that no large objects, such as the missing sarcophagus lid, can be removed through the breach in the floor of tomb 10; however, he also suggests that tomb 10 may not have been created until after the main shaft had been used.[62] In tomb 8, east of tomb 10, Brunton states that the burial of this princess was under Amenemhat III, and at least thirty-eight years after the death of Senusert II[63]. This begs the question, when was tomb 8 constructed? If nearer the time of her death might this suggest that the similar tomb types, 7, 9 & 10 post date the Lahun complex? It may be possible that these shaft tombs are not contemporary; we might have a situation where the main shaft may originally have been simply two offset sections to help in lowering heavy items; this would be the only access into the pyramid. The king's funeral procession would be via this shaft; shortly after, did the scourge of the tomb robbers strike and violate the tomb, and do the shaft tombs date after this event? The Lahun pyramid is like a complex chessboard, with so many permutations to consider; unfortunately until the detailed exploration cited by Arnold is done, it's hard to see a way forward.

[59] Ibid, pg 1
[60] Sokar 32, pg 58
[61] Ibid, pg 65
[62] Ibid, pg 56
[63] Lahun I, pg 12

When one looks at the subterranean complex under the pyramid, and compare it to the huge amount of work, carried out above, it does seem strange that the burial compartments could not be finished. Things appear well advanced above, casing was found, though we do not know the extent of it and the questionable pyramidion fragments; but given the fine stone and brick enclosure walls it does suggest that the casing and hence the pyramid was completed, as its hard to imagine a fine stone enclosure wall being created to surround an unfinished pyramid. Would a successor go to such lengths if the king had died before his complex was finished? The rock cores of the mastaba, might hint at a cessation of activity as only one of these appears to show signs of having been cased, though no chamber was found; where these mastaba's purely symbolic?

If we follow Petrie's view that Ramesses was responsible for robbing the stone from the limestone chamber, it would have to be further processed to a size that the floor of tomb 10 would allow or Fraser's shaft if it was available at this time. Another option is that some of these floor stones were simply lifted and left in tomb 10's chamber, to be replaced by some later pious restoration. It's not noted in the reports how these floor stones are fitted and supported; did the wall lining of the antechamber rest on the floor stones, or where the floor stones inserted between the wall linings? If the floor stones extend under the wall linings, it suggests a permanent closure of the shaft, and if inserted between the wall linings, they may have been fitted after any funeral procession.

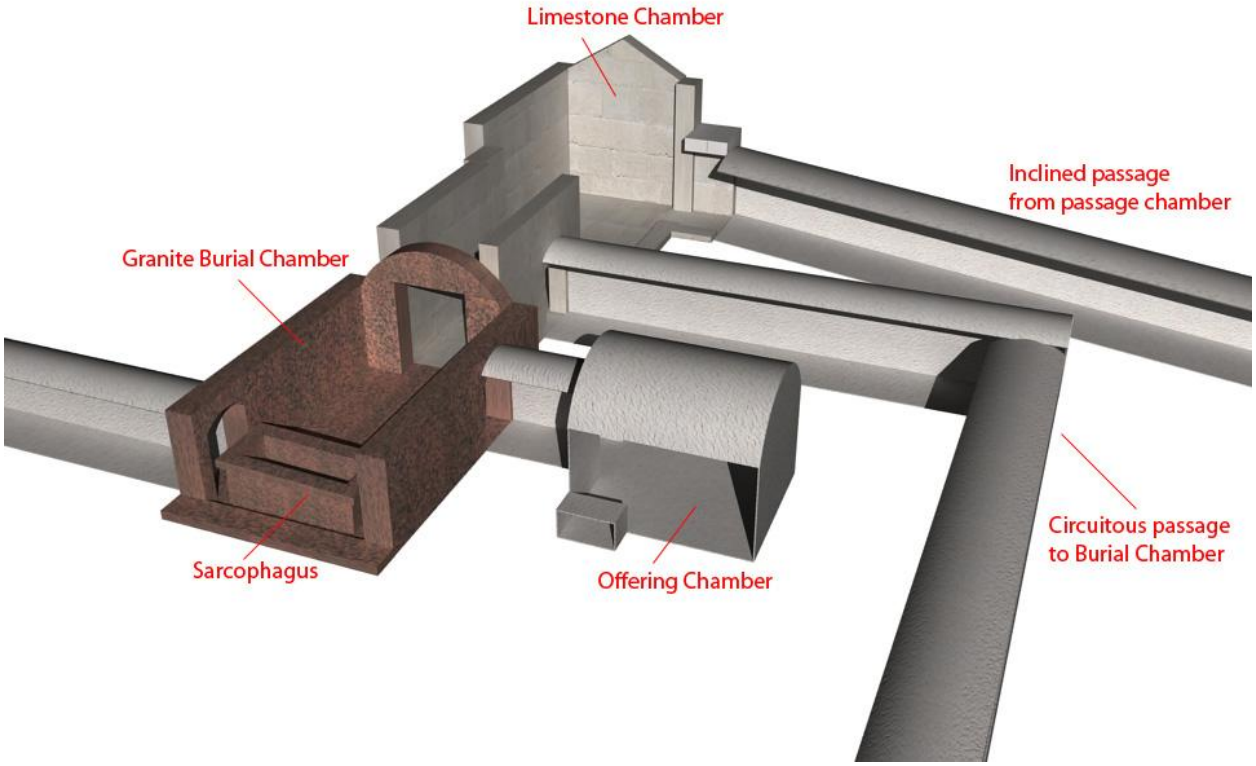
The sarcophagus would appear to have been inserted, before the lining of tomb 10, as the sarcophagus at 50 inches wide appears wider than the narrowest part of the lined walls, unless it was placed on its side. I suspect that the floor stones extended under the wall linings, resting on a shelf cut out of the rock, with the wall linings resting on top of the floor stones: this is due to Brunton's observation[64] when he looked up from the bottom of the shaft, following the robbers passage by the blocking stones; here he looked up and could see half of the broken floor stone, still in position but tilted over. This would make sense if the floor stone extended under the wall lining, as the end would be sandwiched between the shelf and lining; if on the other hand the floor stone was inserted between the linings, one would not expect to see a remnant still in position. If this be so, then it suggests that tomb 10 or linings and floor stones at least were fitted after the use of the main shaft. It's hard to imagine any procession down the small Fraser shaft, which in itself might be a later intrusion, which leads us back to the main shaft, which appears to be the only route for the funeral procession.

[64] Lahun I, pg 10

So what are we to make of tomb 10? Was it a clever ruse to deceive tomb robbers or a later intrusive addition? The princess buried at least 38 years later (could be more) under Amenemhat III (who reigned for about 46 years), could suggest that these shaft tombs might have been additions under his reign. Tomb security appears poor at Lahun, amounting to blocking stones at the bottom of the main shaft, preventing access down the south passage; the shafts would have been backfilled, but ultimately an easy job for tomb robbers, who probably knew the layout and location of the shaft. The Lahun pyramid may have already been violated before Amenemhat came to the throne, could he have restored the burial as best he could and introduced these four shaft tombs, with tomb 10, being a ruse to deflect further attention to the shaft? Certainly Amenemhat took tomb security to a whole different level in the complicated design of his Hawara pyramid. Also of note is the clever design put into tomb security in the four shaft tombs; were the placement of the sarcophagus into its recess, protects the offering chamber and canopic recess, whereas tomb security in the Lahun pyramid seems low key in comparison.

If the above scenario did take place, it's quite likely robbers knew of it and simply robbed the pyramid again. What the restorations or additions to the pyramid is difficult to ascertain; certainly, the pottery finds suggest access was available in 18 & 19 dynasties and possibly Roman; the X1 & X2 chambers along with the well shaft and Fraser's shaft may date from these times.

Returning now to the limestone chamber; the image left, shows the entrance to the chamber from the inclined passage. The inclined passage meets a short leveled corridor made of fine limestone; Petrie reports that the end of the inclined corridor *"is roughly smeared with a thin coat of white plaster, filling up all the roughness";* he also states that the doorway is 54 wide and 70 inches high. This 54 wide seems to match the width that Petrie gives for the doorway at the south passage; as the sarcophagus is 50 wide it allows 4 inches of clearance.



I have created the above model (minus roofing beams) to give the reader a better idea of the layout of the main chambers. The inclined passage from the passage chamber enters into the S.E corner of the Limestone chamber; with the larger eastern part of the chamber being roofed by angled beams. From this larger part the walls contract and their height diminish to form a corridor to the granite lined Burial Chamber. On the south wall of this corridor a doorway opens onto a circuitous passage that ends on the north wall of the Burial Chamber, next to the sarcophagus. The more direct route from the limestone corridor, takes us through a large doorway in the east wall of the Burial Chamber: on the south wall of the Burial Chamber a passage leads to an Offering Chamber, and on the west wall a small recess is to be found. The granite Burial Chamber was roofed by large granite beams in a similar manner to that found in Menkaure's pyramid; the limestone corridor is thought to have been roofed by flat beams.

In the above image looking at the east wall of the limestone chamber, we can see the entrance from the inclined passage on the south wall. This entrance is given by Petrie as 70 high (1.78m). As can be seen, a significant amount of debris still remains; how much of this is further deterioration since Petrie's time is not known: what clearances Brunton may have made is not clear, he merely says, *"In 1920 it was decided to make a thorough clearance, or rather turning-over, of the debris in the pyramid rooms and passages."*[65]

The limestone lining is fine white limestone, with some of the blocks being quite sizeable. As previously mentioned, there is a difference of opinion between Petrie and Arnold on the missing limestone lining; I can only add that the images suggest that the linings of the chamber appear to have a smooth finish. I would expect that the linings would have been assembled with an excess stock left on their faces to protect them, and when the chamber lining had been completed they would dress down the walls to their final smooth finish. In Khentkawes lined chamber at Giza, a surviving socle was found on the bedrock floor, left by the masons as they dressed down the lining.[66] Such a tell tale sign may be present in the above limestone chamber, however, the reports provide no information on the floor; I

[65] Lahun II, pg 12
[66] Giza and the Pyramids, 2017, Lehner and Hawass, page 298

would assume that limestone paving has been fitted to the chamber, but now obscured by the extensive debris in the chamber.

In the above image looking west along the limestone chamber, we can see the large doorway that leads into the granite burial chamber, with granite architrave. The arrow points to the doorway that leads to the circuitous passage; again a sizeable amount of debris is to be seen, and the surviving walls appear well finished.

The larger eastern end of the limestone chamber, Petrie states as;

"The chamber is 123.7 E., 122.8 W., 196.7 N., 195.3 E. ; the wall height is 136.2, and the pointed roof rose 37.3 more, according to the piece of the gable end wall which remains, making 173.5 inches in all."[67]

The above measures suggest a chamber plan of 6 by 9.5 cubits, wall height a possible 6.5 cubits, with roof angle around 31 degrees. At the west end the north and south walls contract by a cubit, leaving a space of 4 cubits between the walls (these walls can be seen in the image above). This first contracted part is the start of the corridor that would probably have been roofed with flat stone beams; this

[67] Illahun, Kahun and Gurob, 1891, page 2

first contracted part is two cubits long, wherein the north and south walls contract again about 2 palms, leaving a width of 3 cubits 3 palms and continue for 159.9 (7 & ¾ cubits?), were it meets the granite of the burial chamber, which Petrie gives as 19 inches. Petrie provides no height measures for the corridor walls, but from the images, they appear to be about a cubit less than the walls in the angled chamber. The doorway to the circuitous passage is two cubits wide (no height given, it starts at 34.5 from second contraction) and 16 inches long; this opens into the circuitous passage that is cut in the marly rock. This first part of the circuitous passage heading south is 52 inches wide and travels for 413.4 (2.5 by 20 cubits?); the walls are 70 high at the sides and the curved roof is 79 in the middle. The passage then takes a turn to the west for 698.6 inches; in this part the walls are reduced to 62 at the sides and 72 to the middle of the curved roof; next the passage heads north for 783 inches (38 cubits?), no wall dimensions are given for the remainder of the passage so I assume they mirror the reduced dimensions of the second part. The passage then turns east for 331 inches (16 cubits?), and finally south for 293, were it enters the N.W. corner of the burial chamber

On the orientation of the limestone chamber with the inclined passage, Petrie says;

"The limestone chamber was observed as 10 ½ ° N. of magnetic W., and if so is 4° askew to the passage, and is so drawn here."

Both doorways in the limestone chamber have level tops, with the passages leading from them having curved ceilings; this is in contrast to the two doorways in the granite chamber, which have curved tops. The function of the circuitous passage is not known, but it must have played an important role, given the huge amount of work devoted to its construction: it appears utterly superfluous, and suggests some sort of symbolic motive.

The Granite Chamber

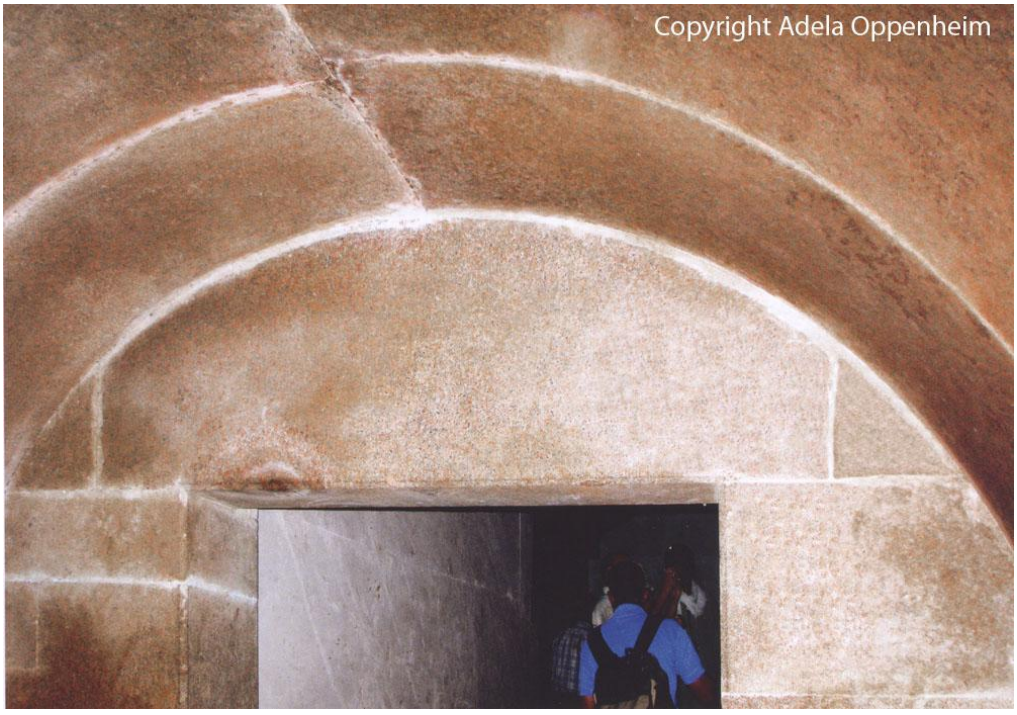
Petrie says of the granite chamber, "*The sepulchre is all of light-red granite, smoothly dressed but not ground or polished. The sides are 123.1 E., 123.7 W., 206.2 N., 206.9 S."*[68]. This appears to be 6 by 10 cubits. The large doorway in the east wall appears to be 3 cubits wide, with 1.5 cubits each side to the wall, height is a possible 4 cubits. A doorway on the south wall leads to an offering chamber; located 32.3 from east wall it is 41.1 wide (2 cubits) and 20.5 long (1 cubit). This doorway leads to a wider passage, 45.2 for a length of 89.0: like the previous

[68] Ibid, pg 3

passages it has a curved roof, 72.8 high in the middle and 62.8 high at the sides. This passage enters what Brunton calls the offering chamber, cut out of the rock, which Petrie gives as 126.4 on E, 129.7 on W, 105.4 on N, 104.2 on S, (a possible 6 by 5 cubits). The chambers east and west walls are 70 high with the curved roof rising to 109.6 inches. In the N.W. corner of the chamber a recess has been cut into the west wall, some 40 by 21 and 20 inches high; Petrie says of this recess,

"This has been cut later, probably by the Ramesside workmen, as it is not smeared with plaster like the chamber, and is hewn with a pick or chisel 1.1 wide, whereas the pyramid hewer's pick was .55 inch wide and much rounder."[69]

Here Petrie suggests later intrusive activity; it would be useful for a more extensive study of chisel marks throughout the complex, which might help in determining the sequence of events.



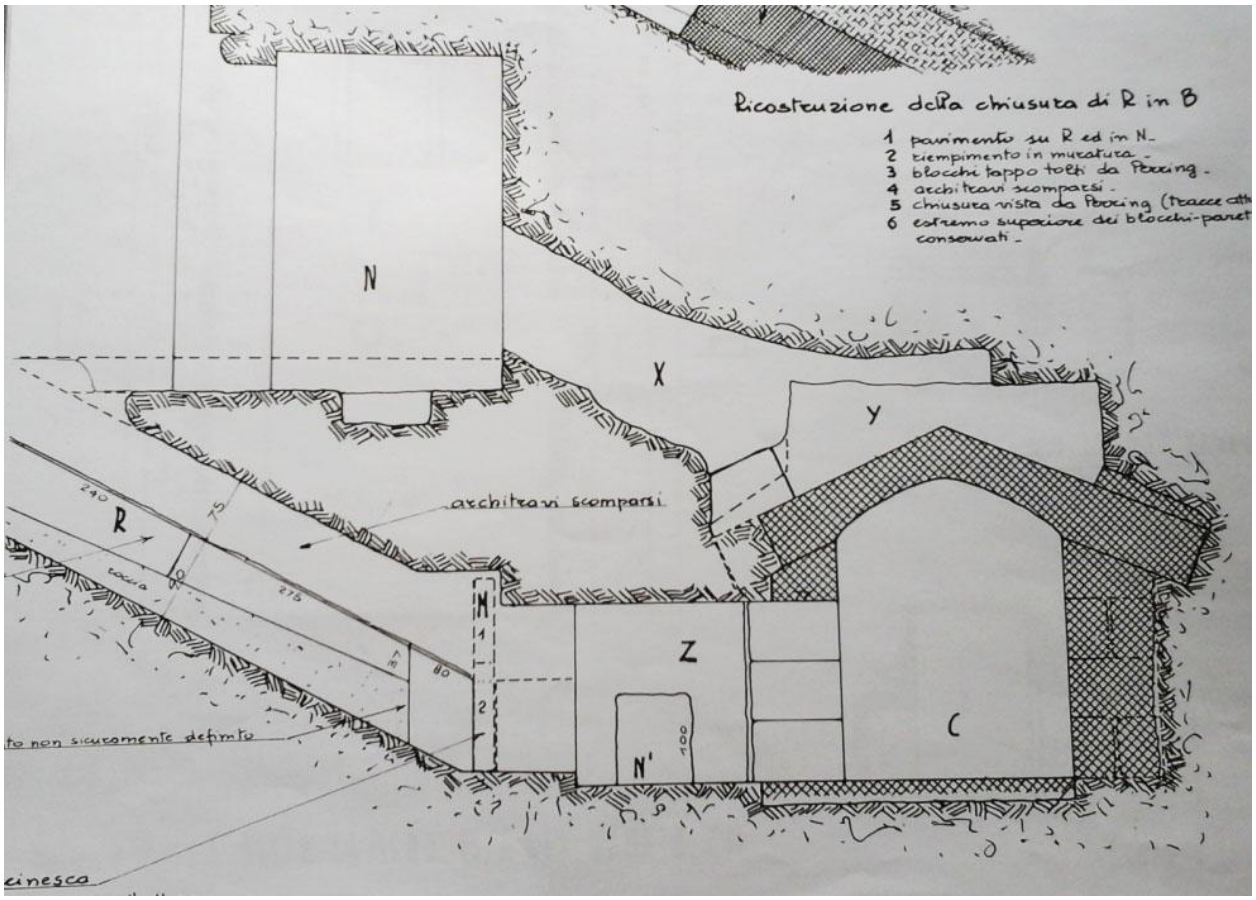
Above, looking east from the granite chamber into the limestone chamber, around the edge of the doorway you can make out a bevel edge, according to Petrie all the doorways in the granite chamber have beveled edges. The granite blocks from the few images I have, appear to show an irregular layout, a mixture of large and small blocks and different course levels. The architrave stone above appears not to be as thick as the wall that it rests on, which Petrie gives as 19 inches; this appears

[69] Ibid, pg 3

confirmed by the image on page 54, were we can see the reverse of the architrave. It is not known if the top of this architrave follows the profile of the roofing beams, and giving support to the beams; or if it is a large rectangular block, that the beams simply abut against. On the granite roofing beams, Petrie says;

"The ceiling is of granite; sloping blocks butt one against the other, and are cut out beneath into a circular curve, which rises 40.8 with a width of 123.3. The upper sides of the blocks are left rough hewn and straight. This construction is exactly like that of the sepulchre of Menkara at Gizeh."

How Petrie determines that "*the upper sides of the blocks are left rough hewn and straight"* is not known, as there appear to be no breaches that would allow one to observe what form they take, and how similar they are in comparison to Menkaure's granite chamber. Below we have Maragioglio and Rinaldi's (M&R) section of Menkaure's granite chamber[70], here we see the layout of the roofing beams and how they have been dressed underneath to create the arch profile.



[70] L'Architettura Delle Piramidi Menfite, Parte VI, 1967, TAV 6

Menkaure's chamber is narrower than Lahun's chamber at 5 cubits (2.64m or 103.9 inches), so if we follow the example in Menkaure's pyramid, the beams would be longer. M&R say of Menkaure's beams;

"The granite beams which appear to be of different height and thickness, are embedded in two large oblique grooves made in the rock along the walls and are held in position by blocks of stone superimposed between their extrados and the rock."[71]

In Menkaure's chamber the wall height to the roof is 2.68m (105.5 inches), whereas Lahun's is only 72 inches (the middle of the ceiling is 112, the main doorway is 81.9, meaning the height of the architrave is about 30 inches to the ceiling: in the image on page 56, you can see the curve of the ceiling beam extend below the top of the door); this extra wall height at Menkaure's probably assists with some clearance issues in relation to the entrance passage. However, at Lahun we have a problem in the form of the passage that leads to the offering chamber; this rock cut passage starts immediately after the granite door at 20.5 inches thick, and Petrie states that the wall of the passage is 62.8 on the side and 72.8 to the middle of the curved ceiling. Therefore the ceiling height equates with the granite wall height which varies from 71.7 to 72.8 inches.[72] This is a major problem, and a design such as we see at Menkaure's would seem to be difficult to replicate at Lahun. The granite walls at Menkaure's are also more substantial, with the long sides being about 1 metre thick (39.4 inches), whereas the north and south doorways at Lahun suggest just 20.5 inches thick (1 cubit). Moreover, the north doorway Petrie gives as 59.6 high in the middle, which only allows some 12.4 inches to the top of the wall; Menkaure has 62cm (24.4 inches) above its doorway.

At Menkaure's the roofing beams were inserted via a passage cut in the rear wall of the upper chamber, but even with this access it is a stupendous feat of engineering to place these beams; how therefore might they have fitted the beams at Lahun?. Arnold brought up this issue of access in his Sokar article and that access should be from above. My model suggests that the apex of the limestone chamber is roughly about 4.5m, below the opening of the main shaft; to this we have to add the rocky core of the pyramid of about 12m, certainly not beyond the capabilities of the ancient Egyptians. Such a shaft is unlikely to be backfilled, adding weight to the ceiling, but more likely, covered with massive pent beams to protect the shaft from the pyramid superstructure. If such an option was taken it

[71] Ibid, pg 42
[72] Illahun, Kahun and Gurob, 1891, page 3

would call into question how the chambers and passages were excavated; for example was it from the inside out? If started from two ends, how would they calculate were to meet? Yet more permutations to throw on the chess board. Arnold has suggested removal of debris above the granite lintel to see if a shaft exists.

If no shaft exists, the beams must have been accessed through the unlined limestone chamber; such beams might be a different design to what we see at Menkaure's, a thin lightweight version (if granite can be called lightweight!) resting on the granite walls with side thrust restrained by the natural rock; and yet, the ancient Egyptians had plenty of experience in installing limestone beams in rock cut chambers and in confined spaces (chamber X2 has sizeable beams introduced as well as tomb 621). If a shaft existed down to the burial chamber, would it not be more logical to introduce material for the limestone lining and even the sarcophagus, before closing the granite ceiling? These two chambers are the only ones to be lined and roofed; with the rest of the substructure shaped and cut from the natural rock.

This method could be used to protect the sarcophagus (in a similar way to the sarcophagus of Khufu and Khafre, which cannot be removed via their passages), as the large passages and main southern shaft, would not need to be as big for the procession of a wooden inner coffin (the internal width of the sarcophagus is only 26.5 inches). The narrowest part of the passage system is 54, some 4 inches more than the sarcophagus, which is 50 inches wide. It would appear that the passage is large enough to transport the granite and limestone elements to their required chambers, and yet, the architect throws in a long 6 degree inclined passage; he must have been popular with the workers! A closer inspection of the passage walls might show marks, highlighting what direction the tunnellers went. Whatever the method, it's yet another example of their mastery in moving heavy stones.

In the view above we can see the somewhat unusual sarcophagus, the north doorway, curved at the top, with beveled edge is visible at the top right. The thickness of the door is about a cubit, and beyond we see part of the circuitous passage. The floor is made of granite; the size of the blocks is not known; Petrie only states,

"The floor is of granite; and, where the door sill has been broken away, a bed of clean sand between the granite and the rock can be seen."[73]

The granite chamber appears to have been cleaned of debris, possibly by Brunton in 1920; he reports that the offering chamber was covered by about 6 inches of dust and debris. In clearing the offering chamber, a uraeus, thought to come from a king's crown was found; also found were a variety of beads. Brunton further states,

"Besides the beads, there were a few tiny pieces of rectangular blue glaze inlay, possibly from a coffin, or from a draught-board: some scraps of grey decomposed

[73] Ibid. Pg 3

material (silver?): a few pieces of copper, with a bent-in rim, from some small vessel: fragments of wood and charcoal; part of a clay sealing (pl. lxiv, 197): the inevitable pieces of gold-leaf: a few human bones, including the femur: and a cowry. The charcoal may indicate that the robbers burnt what they did not require, as at Hawara (Kahun p. 17). The bones are those of a full-grown male, and tall, to judge from the femur. They are now at University College. It is impossible to say whether or not they are Senusert's. The cowry is the only evidence of a later burial, but this is most unlikely, and the bones are probably those of the king."[74]

Petrie would revise his opinion on whether the king had been buried in Lahun, in the same publication, he says;

"There can be no question that Senusert II was buried here, as we found the gold uraeus from his crown in the pyramid in 1920, see pl. xxv."[75]

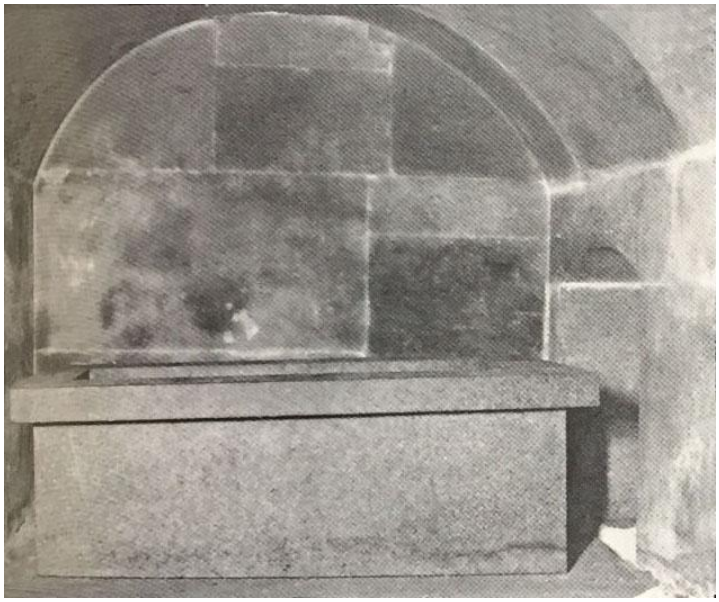
From Brunton's report, these finds all appear to come from the offering chamber, with the offering table being found in the granite chamber. But can we say with confidence that the remains found in the offering chamber are those of Senusert II? For example, the recess in this chamber described by Petrie, as probably cut by Ramesside workman, might suggest an intrusive burial. This could be a canopic recess for an intrusive burial; though Arnold suggests it is too small for a royal canopic box.[76] Canopic rcesses can vary greatly in size, for example a king might expect a sizeable stone box, with an internal wooden box inside holding the canopic vases. Other recesses might be designed for a simple wooden box, and subsequently more reduced in size. In Queen khentkawes tomb at Giza for example, Hassan gives 0.52 x 0.60 x 0.80m for what he suggested was a canopic recess in the burial chamber.[77] For comparison the Lahun recess is 1.0 x 0.53 x 0.50m,

In his reports, Brunton describes pottery finds in the sub structure dating from 12th, 18/19th and 22nd or even Roman. So it would seem that access to the chambers was available over different periods of Egyptian history; some of this activity might be

[74] Lahun II, pg 13
[75] Ibid, pg 7
[76] Sokar 32, pg 62
[77] Excavations at Giza, Vol V, pg 26

by robbers, or restoration efforts (in Menkaure's pyramid we appear to have evidence of Saite era restorations for example). The bones recovered from Lahun could be dated, but like the remains found in the Red pyramid, they appear not to have been dated. A small study on Old Kingdom remains[78] could suggest that the femur found at Lahun, has a 50:50 chance of belonging to the era in question.

The Sarcophagus



This old image of the sarcophagus[79] shows it close to the west wall and northern doorway of the granite lined burial chamber; Petrie states,

"The sarcophagus stands 10.36 at S., 10.66 at N., from W. wall; and 6.38 at E., 6.58 at W., from S. wall."[80]

The above measures might suggest that the sarcophagus still sits on its original spot; as its hard to imagine any robbers taking the time and effort to replace the sarcophagus so equidistant from the chamber walls. One can notice from the above image how the sarcophagus is inclined to the north; the height difference between north and south ends amounts to 3.8 inches. This is hardly down to error, for in measuring the sarcophagus, Petrie states,

"*The accuracy of straightness of edges and planes is still more surprising. The mean error along the top edge is 0.007 inch, on the ends 0.004, from a straight line. The curvature of the planes of the sides is only a hollow of .005 on the east, and a bulge of 0.002 on the west face. The skew of the planes is about the same amount. This is one of the greatest triumphs of accurate work in such a material that has ever been done."*[81] (Though he mentions that the sarcophagi in tomb 7 & 621 are comparable)

[78] Anthropolgie XXXIX/I, pg 15-23, 2001, Identification of Royal Skeletal Remains from Egyptian Pyramids
[79] Lahun II, pl XXV
[80] Illahun, Kahun and Gurob, 1891, page 2
[81] Lahun II, pg 7

11. The granite sarcophagus (xxv, 5) is unique in form, having a wide brim around the top. The dimensions are all in palms of a cubit of 20·623 ± 0·004, agreeing with that of the king's chamber of Khufu's pyramid, 20·632 ± 0·004. There is a slight difference between the values by external and internal measures, as the first is too short and the second too long, owing to correcting errors of work, 20·629 ± 0·008 internal and 20·618 ± 0·004 external. The dimensions are:

		palms	inches	mean scale	error
length	top out.	36	106·116	106·056	+·060
	below...	33	97·165	97·218	—·053
width	top.....	17	50·046	50·082	—·036
	below...	14	41·24	41·244	·00
length	inside...	28	82·495	82·488	+·007
width	.....	9	26·549	26·514	+·035
depth	.....	8	23·56	23·568	—·008

Shown left, are Petrie's dimensions for the sarcophagus[82], the accuracy recorded by Petrie is remarkable. A very long time ago, during my basic engineering training, I was given a very rough metal bar and tasked with making a rectangular test piece, accurate to within 5 thousandths of an inch; using only hand tools, some engineering blue and a surface plate. At the time I found it a difficult and time consuming task; so to see something similar being carried out on such a large object as this sarcophagus, given the added complications of the wide brim, the hollowing out, and slanting bottom, is frankly beyond remarkable; why did they feel the need for this level of accuracy? Tolerances could have been a lot more and would hardly affect the appearance of the sarcophagus.

The depth of the brim Petrie gives as 5.977 with a mean error of 22 thousandths, with the edges neatly beveled. The outside height is 36.4 at north end, reducing to 32.6 at south end. Petrie stated,

"This is indeed a brilliant piece of skill in such an untractable material. It would be desirable to level up the sarcophagus, and then measure it more accurately when the planes are as nearly vertical as may be; for doubtless some errors have come in the course of measuring it in its present slanting position."[83]

Such an operation would also give us a better idea on the accuracy given to the bottom of the sarcophagus. So how are we to explain the slant to the sarcophagus? Did it hold some symbolic function slanting up to the north? Aidan Dodson brought up the suggestion that there may have been an early plan that the sarcophagus was to be partly sunk into the chamber floor.[84]

A strange feature is that there appears to be no lid for the sarcophagus. Arnold in his Sokar article brings up the suggestion that tomb 621 may have been the original

[82] Lahun II, pg 6
[83] Illahun, Kahun and Gurob, 1891, page 4
[84] The Pyramids of Ancient Egypt, 2003, pg 91

royal tomb, to be overbuilt with a pyramid, but that a change of plan occurred, resulting in the kings original sarcophagus being left in 621, as he thought it technically problematic to remove it, and so it was replaced with the strange sarcophagus we see today. Arnold suspected an unexpected death of the king, though admits it is strange that in the 70 day mummification phase that no effort was made to procure a lid. He further states that the protruding edge of the unusual sarcophagus does not show the slightest trace of the use of tools to lift the lid by grave robbers, leading him to the conclusion that a lid was never present.

Given the evidence of the superstructure, the enclosure walls etc, I get the sense that the pyramid was successfully cased and completed; a massive time consuming operation compared to the substructure; surely they had time to complete this small part of the project and provide a lid: the fine work displayed on the sarcophagus doesn't suggest a rush job. There are so many permutations on this site; for example, we appear to have dummy mastaba's and a dummy queens pyramid, as no chambers were found under them; could we have a dummy large pyramid as well, with the king placed in tomb 621? Could a change of plan occur as the main pyramid was well advanced, and a decision made to build a substructure randomly under the south east quadrant of the main pyramid?

Might there never have been an intention for a lid on this unusual sarcophagus? Was it intended that only a fine wooden coffin be inserted, inclined to the north and next to the doorway to the strange circuitous passage. Was a lid omitted to allow the king to journey along this symbolic passage; a journey through the night, and to emerge again from the east?

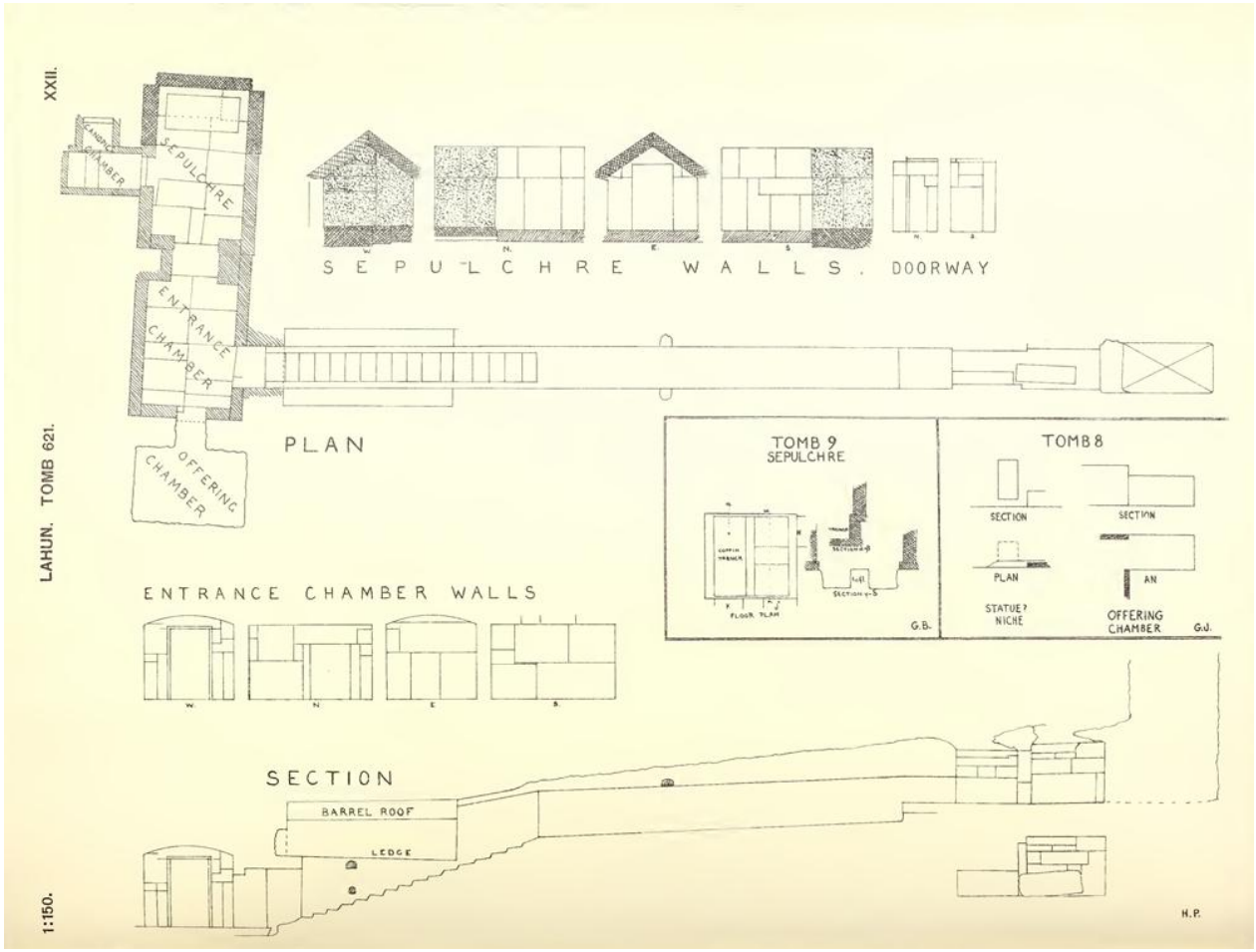
Tomb 621

Tomb 621 is quite a grand tomb, the quality and size of materials clearly suggests a royal tomb; though whose, is unknown. The chambers lie under the north brick enclosure wall (see plan page 3), with an entrance passage from the north. Petrie says;

"It has been suggested that the tomb 621, the sepulchre of which comes under the wall close to the mastabas, may be that belonging to the cased mastaba, and the pyramid may have been for the worship of a queen buried in one of the tombs 7 to 10 on the south."[85]

[85] Lahun II. Pg 10

Brunton would add. "*A small point worthy of mention is that although we searched in the most thorough way, over and over again, we could find no tomb shafts between 607 and the Sed-heb chapel. There were shafts and a mastaba further north, but this area was absolutely virgin. There was no peculiarity in the rock to account for this. It was no worse than that in which 607, 610, and 618 were cut. Now, from this high ground an excellent view is obtained down into the pyramid precincts, especially the row of mastabas. One is tempted to imagine that this region was forbidden to the officials, whose grave-diggers might pry into the secrets of the construction. It was, perhaps, this very possibility of being overlooked that led the architect to place the royal tomb shafts where we found them, south of the pyramid. Tomb 621 is on slightly lower ground, and the work there may have been out of sight: but this was not actually tested by us.*"[86]



Plans for tomb 621, from Lahun II, plate XXII

[86] Ibid, pg 10

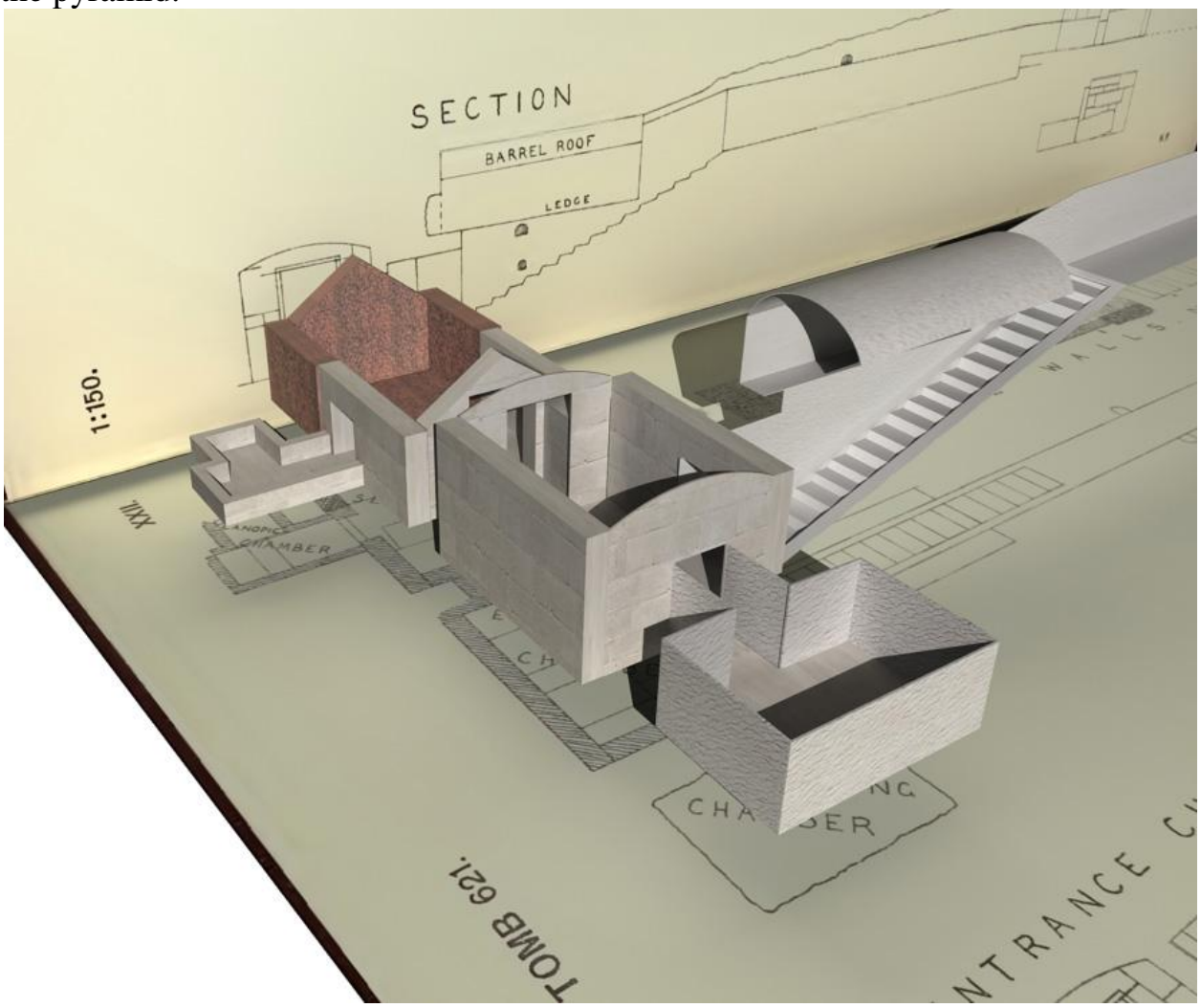
Unfortunately Brunton provides us with scant details on this tomb, he provides no measures, and we have to rely on the small plans on the previous page. Petrie did provide measures for the fine sarcophagus, and a few measures on the chamber that it resides in. Brunton's description of the tomb amounts to the following;

"On plate xxii are given plans and sections of this tomb and its various principal features. The shaft is mainly cut in hard limestone, and descends until the softer marl is reached. At the mouth of it there are signs of brickwork. From the south side runs a long passage cut in marl, unlined, and with a barrel roof largely broken away. The entrance to this consists of two parts, lined and floored with limestone, the outer one somewhat larger than the inner. The flooring extends for a little distance beyond into the passage. In the inner part, which is narrower, a large block has been placed, partly closing the entrance. In the outer part lies a rough block which was evidently intended to be moved in eventually, and so complete the closing. At the end of the passage, a descending flight of 16 rock-hewn steps is reached. These pass down between the two long wide ledges so often seen in the antechambers of this type of tombs. There are roughly squared holes cut in the walls of the staircase, two of which have been carefully filled in again with rock and plaster, showing they were used for constructional purposes. The actual tomb consists of an entrance-chamber, lined everywhere with fine white limestone: an offering chamber leading out of it on the west, cut in rock: the sepulchre itself, lying on the east, lined half with limestone, half with granite: and on the south of that, another room with the canopic recess on the east, both lined with limestone. The offering-chamber has walls beautifully flat, but not plastered, except to repair broken corners."[87]

It is not possible to obtain accurate measures from these small plans; the only measures we have is those provided by Petrie in the burial chamber. Here he gives 206.25 N, 206.35 S, 123.25 E, & 123.4 W[88] (he provides no other measures, except for the sarcophagus and canopic box); this would evidently appear to be 10 by 6 cubits, which is the same size as the burial chamber under the Lahun pyramid. Unlike the Lahun pyramid, the roof styles appear to be reversed, in 621 the burial chamber has an angled ceiling and the limestone entrance chamber appears to have a barrel vault according to the drawings or flat ceiling beams that have a shallow curve carved out of them. If the joint lines are accurate in these drawings, it does suggest sizeable ceiling beams, and therefore we run into the same problem as the chambers under the pyramid, in that, how were they introduced? If these chambers

[87] Lahun II, pg 16-17
[88] Ibid, pg 8

are roofed without a shaft, it could suggest that a shaft would not be needed under the pyramid.



Based on the drawings, I have made a model to give a rough idea of tomb 621 layout. The Limestone entrance chamber might be 8 by 6 cubits. The burial chamber is a mixture of fine limestone and Granite; the west end that held the sarcophagus, possibly 4 by 6 cubits is constructed of granite, the remainder is of limestone. According to the drawings this division of granite and limestone is reflected also in the ceiling beams and floor stones. The height of the canopic chamber and recess is not reported, neither is the form of the ceiling; likewise, the offering chamber to the east, whose passage and ceiling may have been curved. The walls of the Limestone entrance chamber appear significantly taller than the walls of the burial chamber; again similar to the chambers under the pyramid.

Brunton reports that the tomb was half filled with sand, and that it had been rumored that it was recently emptied a few years back. He further reports;

"The condition in which we found the tomb showed only too plainly the handiwork of robbers. Floor blocks and wall blocks had been taken out in many places, and the rock tunnelled into, underneath and behind. A large hole had been excavated under the sarcophagus, and the debris piled in the rooms. On the exposed edge of some of the floor blocks could be seen the quarry marks in red paint. The masons chisel marks, revealed on the roughly dressed parts of the stones, were 7/8 in. wide. This tunnelling into the rock had also been done over the doorway at the foot of the stairs, and in the sides and roof of the entrance from the shaft. In the floor, even, of the offering-chamber, though obviously natural rock, a round hole 2 feet deep had been cut. This was evidently the work of would-be looters. Finding nothing in the tomb they had done their level best to find the hidden treasure which they felt sure must be there. The condition of the sarcophagus and canopic chest are not so easy to account for. The canopic chest lay in the entrance chamber, undamaged, but its lid was smashed into several pieces. The two ends of the sarcophagus had been broken away; pieces of the granite were found at the bottom of the shaft, in the passage and in the entrance-chamber. The lid was intact."[89]

The only image[90] of tomb 621 shows the sarcophagus and upturned lid in front; we can also see the clear division between the granite and limestone ceiling beams. The sarcophagus is a fine piece of work comparable in accuracy to the one in the pyramid, though well decorated and more typical of the time.

Brunton reports a great quantity of XIIth dynasty pottery, mostly sherds. Most of this was found from the bottom of the shaft, along the passage and on the stairs; a little was found in the entrance and offering chambers.

[89] Ibid, pg 17
[90] Ibid, plate XXV

Also, "*At the bottom of the shaft were a male pelvis and femur, two wooden bale-hooks, a rough little ushabti, pieces of a wooden stick 0.7 in. diameter, and pieces of iron tubing, 0.2 in. thick, 1in. diameter internal, with traces of wood inside, and of copper between the layers of iron; also the usual XII. dyn. hammerstones. Along the passage we also found the fragments of a black syenite statue (back of wig), pl. xxi, II, and a scrap of head-dress in diorite. The whole of the debris in the burial chambers was most minutely searched, but not a vestige of wood or bone, not a bead, not a scrap of alabaster, no resin, not even the usual gold foil, rewarded our efforts."*[91]

Brunton notes the similarity in what I term chambers X1 & X2, being found under the inner enclosure wall, and having their canopic recesses to the south of the sepulcher. The superior quality of 621 led him to state,

"It seems then only reasonable to conclude that it was built for a queen: and as no other tomb here can be connected with the small pyramid, we may provisionally allot this one to it."[92]

However, Brunton goes on to suggest that no burial was made in this tomb,

"The next point which seems established is that the tomb was completely prepared for use, but that the interment was never made. The absolute sterility, as it may be called, of the burial-chambers is a clear proof of this: and the presence of such objects as were found can be satisfactorily explained in other ways."[93]

Sterile tombs are not an unusual find, Shepseskaf's giant mastaba for example is bare but for a few pieces of what is believed to have been his sarcophagus, and yet I have seen no suggestions that Shepseskaf was not buried in it. I can only add that the design of this tomb appears a robber's dream; no real awkward obstacles, the stairs and comfortable size of the passage all help the robbers go about their work. There appear to be no signs of incompleteness of the tomb, everything appears finely finish; so it would appear doubtful that such fine work was not used for a burial. Indeed, if we compare 621's burial chamber to the one under the pyramid, we find this also fairly sterile, but for the unusual sarcophagus and offering table; it is the offering chamber that the few finds were found, and given the intrusive

[91] Ibid, pg 17
[92] Ibid, pg 18
[93] Ibid, pg 18

recess described by Petrie here, how much of these small finds can be confidently confirmed as contemporary or intrusive?

13. Another finely wrought granite sarcophagus (xxv, 6) is that in the granite chamber of tomb 621, which lies beneath the north brick wall of the pyramid enclosure. This is of similar accuracy of straightness, having a mean error of 0·008 on one side, and 0·006 on the other side. The ends have been entirely smashed away. The pieces were fitted together again as far as possible, but some are missing. They are now buried. The dimensions will not agree to the palm used for the other sarcophagi; nor do they accord well to any other standard. The nearest simple accord that can be traced is as follows:

		measured		unit	mean scale	errors
length	out	93·458	50	1·8691	94·105	−·647
	in	83·937	45	1·8652	84·694	−·757
width	out	37·969	20	1·8984	37·642	+·327
	in	24·737	13	1·9028	24·467	+·270
height	out	33·040 32·385	17½	1·8880	32·936	+·104
	in	28·854	15	1·9236	28·231	+·623
lid thick		8·55	4½	1·900	8·47	+·08

The errors from a mean unit are so large that its presence is doubtful, the more so as the dimensions are very constant. On opposite sides the length only differs 0·008 outside, and 0·000 inside. The width differs 0·045 inside, and 0·000 outside. The height varies 0·087 inside, and outside differs on the two sides as stated above. The parallelism of sides is therefore well under 0·01 inch. and it seems very unlikely that differences of scale should amount to some tenths of an inch. There is this to be said, that the unit is already known. It is the half palm of the 26 inch cubit, found at Kahun as a measuring rod, and linked with the northern foot of 13·1 inch. The mean unit of 1·8821 inches × 7 = 13·175; the foot varies from 13·1 to 13·4 elsewhere.

The panelling is not very exact; the width of the four whole panels (door and two grooves each side) is 10·53, 10·57, 10·52, and 10·59 inches. The system of the panelling is irregularly adapted to fit the length.

The canopic box of granite is externally by units of measure, for the outer height is 10 palms, being 29·5; and the outside is 31·062 square (variation 0·040 to 0·087), which is 1½ cubit of 20·71; the inside is 25·480 E. and W., 25·320 N. and S., and 22·3 deep.

The granite part of the chamber is fairly accurate; on N. 206·25, on S. 206·35; on E. 123·25 (6 × 20·54), and W. 123·4 (6 × 20·57). The equality of sides was therefore more sought than the exact cubit measure.

Above we have Petrie's measures for the fine sarcohagus in tomb 621 as well as the canopic chest. Strangely while the chest appears to conform to cubit measures, Petrie found the sarcophagus, more related to the northern foot. Petrie was quite versed in the discipline of metrology, having published a book *'Inductive Metrology'* in 1877, long before he first set off to Egypt. I shall leave this mystery to those more versed in the subject.

Certainly much more is to be learned from tomb 621, which like the pyramid itself, is in much need of more detailed investigation than has been done over a century ago.

There is many interesting finds around Lahun, but this guide would be too long to include them all, for example near the mouth of Fraser's shaft, Brunton says;

"Near the mouth of the small shaft which gives access to the pyramid passages a curious discovery was made of rectangular and oval lumps of mud, 4 or 5 in

number, which had been used for growing wheat, the dried blades of which remained in large quantities (pl. xv, 7). The mud cakes show the shape of the vessels from which they were taken. Apparently they were placed here as offerings to the dead king, perhaps to ensure the fertility of crops."[94]

Concluding Remarks

It is very hard to make any coherent sense out of the Lahun complex; I can think of many permutations that might make sense of the available data, but clearly all cannot be correct. Only a more detailed exploration of the complex can reduce these permutations and hopefully provide an outcome that can satisfactorily account for all the observations. However, as I have mentioned previously in other guides, architectural study appears a low priority in Egyptology. When one looks at the vast corpus of material by Egyptology, it surprising how little we have on Egyptian architecture, with only a few individuals such as Dieter Arnold doing great work on the subject. It might be that the makeup of Egyptology is overly geared to the study of language, religion and history; my own background in engineering gears me more to the structures, than the finds found in them, important though those finds are. When it comes to the finds and writings found in Egyptian structures, one can often find detailed accounts of them; though rarely any detailed account of the structure in which they were found.

The Lahun pyramid was entered in 1890, and as far as I am aware, the only entry in modern times is by Arnold in 2008, some 118 years later, do we really have to wait another century before its next visit? Sadly, yes, might be the answer.

[94] Ibid, pg 14