

MYCERINUS

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THE TEMPLES OF THE THIRD PYRAMID AT GIZA

BY

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TO
THE MEMORY OF
GARDINER MARTIN LANE
AND
ORIC BATES

PREFACE

THE present volume is the first of the series of final reports on the excavations at Giza made by the Joint Egyptian Expedition of Harvard University and the Boston Museum of Fine Arts. The chapters on stone vessels and pottery are intended as an introduction to the vessels dealt with in the succeeding volumes.

I wish to acknowledge the services of Mr. Ashton Sanborn and in particular of Mr. Dows Dunham in seeing the publication through the press under great difficulties. The actual excavations of the Mycerinus temples were recorded by the following members of the expedition and myself:

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GEORGE A. REISNER

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MYCERINUS VALLEY TEMPLE

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ABBREVIATIONS

MATERIALS

c.b.	crude-brick (unbaked mud)
1st	limestone
alab.	alabaster

TEMPLES

MPT	Mycerinus Pyramid Temple
MPT (1) to MPT (39)	indicates the room of the Pyramid Temple as marked on Plate I
MVT	Mycerinus Valley Temple
MVT (III)	MVT, the first c.b. temple, built by Shepseskaf
MVT (III-1), etc.	rooms in MVT (III)
MVT (1), etc.	also indicates the room in MVT (III)
MVT (II)	MVT, the second temple, built by Pepy II (?)
MVT (II-1), etc.	rooms in MVT (II)
MVT (I)	MVT, the crude-brick houses of the pyramid city
MVT (I-1), etc.	the rooms of MVT (I)
MVT (court)	the great open court of MVT (III) and MVT (II)
MQT	Mycerinus Queen's Temple
MQT (1), etc.	rooms in MQT

GIZA PYRAMIDS

G I	First Pyramid, Cheops
G I-a	First queen's pyramid, east of First Pyramid, Cheops
G I-b	Second queen's pyramid
G I-c	Third queen's pyramid
G II	Pyramid of Chephren
G III	Pyramid of Mycerinus
G III-a	Easternmost of three queen's pyramids south of G III
G III-b	Middle pyramid of same row
G III-c	Westernmost pyramid of same row

POTTERY

BP	black polished ware with black or dark grey body
Db.W	drab ware
FRW	fine red ware (well levigated clay, burned hard)
KW	greenish-drab ware, similar to modern Keneh Ware
RP	red polished red ware (RW), with pebble burnished red wash
RW	ordinary red or brown ware, with color both on surface and on break varying with degree of heat used in baking; often wholly or partially covered with red wash. The coarser mixtures are often called "coarse RW" or "mud ware"
w.m.	wheel-made
w.s.	wet smoothed

MYCERINUS

CHAPTER I

INTRODUCTION

1. THE ROYAL CEMETERY AT GIZA

THE pyramids of the Fourth Egyptian Dynasty stand on an isolated plateau of coarse nummulitic limestone, on the edge of the desert, about five miles west of the village of Giza. The three largest pyramids, standing in line and visible for many miles up and down the Nile valley, have held the eyes of travellers ever since they were built, and at the present time their appearance is probably better known than that of any other ancient monument. In popular imagination the Great Sphinx is part of the scene, although it is not visible from a distance. The nearer view reveals the granite temple beside the Sphinx, the smaller pyramids, the tombs of the courtiers of the Fourth Dynasty, and those of the priestly officials of the Fifth and Sixth Dynasties. The whole forms the royal cemetery of the Fourth Dynasty and consists chronologically of three similar parts, each associated with the name of one of the three kings, Cheops, Chephren, and Mycerinus, who were buried in the three large pyramids.

So far as our present evidence indicates, the first tomb on the plateau was that of Cheops, and consisted of:

- (1) The pyramid itself.
- (2) The pyramid temple abutting on the valley face (the eastern face) of the pyramid.
- (3) An enclosing wall bounding a small area around the pyramid.
- (4) A causeway on which stood a covered corridor connecting the entrance of the pyramid temple with the valley temple.
- (5) The valley or portal temple, built on the margin of the desert.

All the tombs of the kings of Dynasties IV and V consisted of these five parts. A special feature, however, is presented by the Great Sphinx, which lies at the eastern end of the causeway of the Second Pyramid, on the north near the valley temple of that pyramid. The human-headed Egyptian sphinx is always a representation of the reigning monarch with the body of a lion. At Abu Sîr, in the lower part of the causeway corridor, at least eight royal sphinxes were pictured in relief, facing the valley and trampling foreign enemies, and similar sphinxes were on the walls of the exit room of the valley temple of Sahura. The Great Sphinx at Giza was carved in a ridge of the native rock left isolated when the surrounding stone was removed by the quarrymen, probably those of Cheops, and may well have been the first of the sphinxes, whether in relief or in the round, used to guard the precincts of royal tombs or of the temples of the gods. The Great Sphinx belongs to the complex of the Second Pyramid, and was obviously conceived as the guardian of that complex. Former doubts as to the date of the Sphinx, based on the type of headdress and the style of the work, have now been removed by the headdress of the alabaster head of Mycerinus (statue 22), and by the addition of the statues of Mycerinus to those of Chephren as examples of the style of the sculpture of Dynasty IV. All these facts make it perfectly clear that the face of the Great Sphinx is a portrait of Chephren.

During the first six dynasties, the custom prevailed of making the tombs of the other members of the royal family and of the great courtiers near the tomb of the king of their time. Thus, associated with the tomb of Cheops, three small pyramids stand in front of its eastern face south of the pyramid temple; a number of mastabas, on the east and south; and a field of mastabas in regular lines divided by streets, on the west of the pyramid. The three small pyramids are clearly tombs of the most important members of the family of Cheops, probably queens. Some of the mastaba tombs also belonged to members of the royal family, and others to favorites of the Court. These tombs form the royal cemetery and are, in construction, contemporary with the reign of Cheops and the early part of the reign of Chephren. But the cemetery of Cheops did not end with the royal mastabas. The services in the temples of the king and in the chapels of the royal mastabas were maintained by landed endowments entrusted to certain priestly officials and their heirs. These officials appear to have had complete control of the

cemetery maintained by the endowments. At any rate, they built their own tombs in the streets of the royal cemetery. The pyramids of Chephren and Mycerinus also have associated with them small pyramids, royal mastabas, and tombs of priestly officials. Thus the pyramid plateau at Giza contains three royal cemeteries, each associated with one of the three kings buried there, and each consisting of:

- (1) The king's pyramid, including the five parts noted above.
- (2) The pyramids of favorite members of the royal family, probably queens.
- (3) The mastaba tombs of other persons of the blood royal, or of the Court.
- (4) The mastaba tombs of the priestly officials who controlled the funerary endowments.

There is one other king's pyramid at Giza — the unfinished pyramid southeast of the Chephren pyramid. Beside it on the northeast is a small cemetery; but it is as yet uncertain whether the unfinished pyramid with the adjacent cemetery is to be reckoned as a fourth part of the whole site. After Cheops had built his pyramid, only two of the kings of Dynasty IV, Radedef and Shepseskaf, avoided the Giza site. Their royal cemeteries are at Abu Roash, a few miles to the north, and Dahshur, about eight miles to the south.

The bulk of the evidence preserved to us of the arts, the crafts, and the culture of Dynasty IV, one of the great creative periods of Egyptian civilization, was contained in the royal cemetery at Giza. The pyramids and other tombs of this place have, therefore, attracted the researches of a series of modern scholars, Vyse, Mariette, Lepsius, and Professor Petrie, as well as the attention of several generations of illicit excavators serving the market created by the demands of European and American museums for statues and reliefs. Of quite a different character was the interest excited by the supposed mysteries of the pyramids in the group of writers led by Piazzzi Smyth, whose disquisitions have never had any archaeological value and need no further mention.

In 1902 the Egyptian Department of Antiquities granted the Giza site to three expeditions — an American, a German, and an Italian — with instructions to them to agree among themselves as to the limits of their concessions. A conference was held, attended by Dr. Borchardt acting on behalf of Professor Steindorff of Leipzig, Professor Schiaparelli of the Turin Museum, and myself, at that time director of the Hearst Expedition of the University of California, and an agreement was made dividing the whole pyramid field. The pyramid of Chephren was included in Professor Steindorff's territory, and the pyramid of Mycerinus in my territory. The Hearst Expedition came to an end in 1905, and the organization was taken over by the Joint Egyptian Expedition of Harvard University and the Boston Museum of Fine Arts. After a few years Professor Schiaparelli resigned his concession, and it was granted to me. All the early work of our expedition had been in the northern third of the cemetery which lies west of the Cheops Pyramid, and the first year of the Harvard-Boston work was devoted to continuing these excavations. It was not until December, 1906, that I began the examination of the Third Pyramid.

In 1906-07, assisted by Mr. C. M. Firth, I cleared the temple against the eastern face of the Third Pyramid, and part of the cemetery of mastabas to the southeast of the temple. In the summer of 1908, with Mr. Oric Bates as field director, the excavation of the valley temple was begun, and in 1909-10 it was completed by myself and Mr. C. S. Fisher. In the latter season, the chapels of two of the three small pyramids were excavated. In January, 1914, I cleared out the tombs in the quarry south of the temple, and finally, in 1923, the chapel of the remaining small pyramid. Thus we have excavated the precincts of the Third Pyramid, not the pyramid itself, and these precincts consist of:

- (1) The pyramid temple.
- (2) The causeway leading down to the valley.
- (3) The valley or portal temple at the lower end of the causeway.
- (4) The chapels of the three small pyramids beside the Third Pyramid.
- (5) The adjacent field of mastaba tombs belonging to the funerary priests and officials of Mycerinus.

2. THE IDENTIFICATION OF THE THIRD PYRAMID

The identification of the Third Pyramid at Giza, the smallest of the three large pyramids, as the tomb of Mycerinus was still a matter of tradition, if not of record, in the time of Herodotus (II, 134). Diodorus Siculus also ascribed the Third Pyramid to Mycerinus (I, 64, 7). The opinions of later

writers went astray until modern times, when Sandys (1610) and Greaves (1638–39) each independently repeated the statement of Herodotus. In 1837 Howard Vyse, during his excavation of the burial chambers of the Third Pyramid, found an anthropoid wooden coffin inscribed with the name of Mycerinus.¹ Just a month previously he had found the name of Mycerinus written in red paint on the roof of the burial chamber of (III-*b*), the middle one of the three small pyramids south of the Third Pyramid (*loc. cit.*, p. 48). The wooden coffin itself appears to be a restoration of Dynasty XXVI, or later, and thus the proof is clear that at that time the Third Pyramid was still known as the tomb of Mycerinus. Since the discoveries of Vyse, no doubt has existed that Mycerinus was the builder of the Third Pyramid, as recorded by Herodotus; and the results of the excavations presented in this volume fully confirm that identification. The inscriptions found on the statues and stelae in the pyramid temples and on the walls of the adjacent mastaba tombs, unassisted, prove definitely that the Third Pyramid was the tomb of Mycerinus.

The name of the Third Pyramid was meaning "Mycerinus is divine."

This was first recognized from the inscriptions of the funerary priests Tepy-em-ankh² and Debehen.³ The royal decrees found in the Mycerinus temples, as well as the titles of the priests buried in the adjoining cemetery, establish the name of the pyramid beyond doubt. The Debehen inscription is of especial interest, as it contains the following lines, probably written by the son of Debehen:

This tomb Mycerinus caused to be made for my father, while His Majesty was on the road to the pyramid-plateau, in order to see the work being done on the pyramid (named) Mycerinus-is-divine. His Majesty commanded to come the commander of the boats and the great master craftsman (high priest of Memphis) and the craftsmen.

The rest of the text is not clear in details, but Mycerinus ordered a detail of fifty workmen from the pyramid shops to excavate and decorate the tomb of Debehen, and justified the opening phrase that Mycerinus gave the tomb.⁴ The interest for the present purpose is the contemporary statement that the Third Pyramid was called "Mycerinus-is-divine" and was being constructed in the lifetime of the king under his occasional personal inspection.⁵

¹ Vyse, *The Pyramids of Gizeh*, II, 93.

² Mariette, *Mastabas*, p. 198.

³ Lepsius, *Denkmaeler*, II, 37*b*; Sethe, *Urkunden* I, 18; and translation, Breasted, *Ancient Records*, I, 211, 212.

⁴ See Appendix A.

⁵ The tomb of Debehen is now used as a mosque, called "Sheikh Hamid," much frequented on Fridays by women-folk of the adjacent villages.

CHAPTER II

THE MYCERINUS PYRAMID TEMPLE

1. INTRODUCTION

ON the valley face of the Third Pyramid is a large temple, such as was built for every king's tomb, designed for the offering service of the king after his death. One of the best established facts of Egyptian religion is the belief in the existence after death of the soul or shade of the man, bearing his form and afflicted with the physical necessities of life on earth. In order to supply these necessities, among other provisions, periodical offerings were made at the tomb and magic formulas recited with or without offerings. For this purpose every tomb, private or royal, contained an offering place on the valley side, that is, toward the inhabited fields. In tombs on the east bank of the river, the offering place was on the west side of the tomb, while on the western bank, as at Giza, it was on the east side. In the little mud and rubble graves of poor men in the *wady* north of the plateau, the offering place was only a small niche in the eastern wall, with a low mud ridge enclosing a small space which, in one tomb, measured only 100 by 30 centimeters. At the Third Pyramid, the offering place was a great temple, the body of which covered an area of about 3,850 square meters. But functionally the mud-enclosed niche and the great temple were both offering places for the dead. Indeed, one may go a step further and say that functionally the temples of the gods served chiefly also for the receipt of offerings. One of the most usual prayers, or magic recitations for the dead, is that they may share in the offerings which come forth upon the tables of the gods. The king was a god, and the line between humanity and divinity was not sharply drawn. In the temple of the god, his statue was the abiding-place of the divinity; and in the funerary chapel, the statue of the king served the same purpose for the *ka* of the king. Even in the better graves of officials, one of the commonest features is a small closed room, called a *serdab*, connected with the offering room by a narrow slot and containing statues of the man and his family. Such in character was the pyramid temple of Mycerinus — an offering place in which provision was made for the shade of the dead king by periodical presentations of food and drink, and by magic recitations before the image of the king or in the symbolic entrance to the tomb.

For convenience of reference, the parts of the temple, as revealed by our excavations, are enumerated here.¹

	Construction Period
(1) <i>Causeway corridor</i> , western end of mud-brick corridor on causeway from valley	II
<i>Causeway</i> , massive limestone	I
(2) <i>Entrance doorway</i> , entrance from causeway corridor to entrance corridor, mud brick	II
(3) <i>Entrance corridor</i> , limestone core walls cased with mud brick inside and outside	I II
(4) <i>Courtyard doorway</i> , entrance from entrance corridor to courtyard, mud brick	II
(5) <i>Courtyard</i> , paved offering court, limestone core walls cased with niched wall of mud brick	I II
(6) <i>Mud-brick screen and screen doorway</i> , separating portico from courtyard	III
(7) <i>Portico</i> , with pillars ("breiter Raum")	I
(8) <i>Outer offering room</i> ("tiefer Raum")	I
(9) <i>Mud-brick room in unfinished passage</i> from portico to unfinished part (10)	IV
(10) <i>Unfinished part</i>	I
(11) <i>Rubble walls forming room</i> in SE corner of unfinished part (10)	I
(12) <i>Doorway to northern corridor</i> (13)	I II
(13) <i>Northern corridor</i>	I II
(14) <i>Doorway to magazine corridor</i> (15)	I II IV
(15) <i>Magazine corridor</i>	I II III
(16) <i>Magazine</i> , easternmost	I II III
(17) <i>Magazine</i> , second from east	I II III
(18) <i>Magazine</i> , third from east	I II III
(19) <i>Magazine</i> , fourth from east	I II III

¹ See Plan and sections on Pls. I, II, and III.

	Construction Period
(20) <i>Magazine, westernmost</i>	I II III
(21) <i>Doorway to stairway corridor (22)</i>	I II IV
(22) <i>Stairway corridor</i>	I II
(23) <i>Stairway to roof</i>	I II
(24) <i>Southern storeroom</i>	I II
(25) <i>Doorway to inner temple</i>	I II IV
(26) <i>Anteroom of inner temple</i>	IV
(27) <i>Hall of pillars</i>	IV
(28) <i>Sloping corridor of inner temple</i>	IV
(29) <i>Inner offering room</i>	
Granite pavement	I
(a) <i>Inner corridor</i>	II
(b) <i>Main offering room</i>	II
(30) <i>Unfinished corridor of inner temple</i>	IV
(31) <i>Unfinished magazine of inner temple, northernmost</i>	IV
(32) <i>Unfinished magazine of inner temple, second from north</i>	IV
(33) <i>Unfinished magazine of inner temple, third from north</i>	IV
(34) <i>Unfinished magazine of inner temple, southernmost on east</i>	IV
(35) <i>Space between (34) and pyramid</i>	IV
(36) <i>Room in pyramid enclosure (37)</i>	IV
(37) <i>Pyramid enclosure</i>	II
(38) <i>Room on massive wall between courtyard and magazines</i>	IV (?)
(39) <i>Room on massive wall between courtyard and magazines</i>	IV (?)

PERIODS

- I. *Mycerinus*. Foundation platform, core walls of outer temple, unfinished granite casing, granite floor in inner offering room (29).
- II. *Shepseskaf*. Crude-brick casing of whole temple, limestone pavement in court (5), crude-brick magazines, destroyed inner temple of crude brick, and the crude-brick enclosing wall of the pyramid; probably also the kernel of the inner temple of limestone (29).
- III. *Dynasty V*. The screen wall of crude brick in front of the portico, and some of the minor repairs in the magazines.
- IV. *Dynasty VI*. The inner temple of limestone, except the kernel (29); the door blocks in doorways (14) and (21), and the rubble rooms (36), (38), and (39).

2. PREVIOUS REPORTS ON THE MYCERINUS PYRAMID TEMPLE

Neither Herodotus nor any other classical writer mentions the temples of the pyramids. The reference of Herodotus to the ration list of the pyramid of Cheops, said to be written in Egyptian "on the pyramid," cannot refer to the walls of the temple, as these were not inscribed in the temples of either Chephren or Mycerinus, and apparently not in the temple of Cheops. The description, however, would fit exactly an offering stela such as appears to have been set up against the eastern face of the Third Pyramid, in the innermost room of the temple. Except for this ration list of Herodotus, the first recognition of the existence of a temple which I have found is by Professor Greaves, who visited the pyramids in 1637.¹ Incidentally, in attempting to account for the statement of Herodotus that the Third Pyramid was built of "Ethiopick marble," Greaves says:

Though it cannot be denied, but close by, on the east side of it, there are the ruins of a pile of building, with a sad and dusky colour, much like that we described in passing to the second Pyramid, which might be the ground and occasion of this error.

The buildings which Greaves saw "in passing to the second Pyramid" were the mastaba tombs of nummulitic limestone on the west of the First Pyramid. As for the question which Greaves is discussing, the Third Pyramid was cased with Assuan granite — "Ethiopick marble" — for about twenty-four courses from the bottom, and with white limestone for the remainder of the height. Greaves saw only the core, which is of local limestone, and did not notice the granite at the base. But although he saw the ruins of the temple, and probably those of the Second Pyramid temple as well, he did not recognize the character of these buildings. According to Vyse (*Pyramids of Gizeh*, II, 217), Thevenot in 1655

¹ Greaves, *Pyramidographia*, p. 647b.

noted the temples of all three pyramids, and in 1755 Fourmont mentioned those of the Second and Third Pyramids (*op. cit.*, p. 253). Vyse writes that Fourmont considered the temple of the Third Pyramid "the most perfect," and quotes him as saying that in it, "on trouve quatre piliers, qui, sans doute, soutenoient une voûte, dont l'idole étoit couverte, et on tournoit autour de ces piliers comme par une espèce de collatérale."

Fourmont also appears to have noted quite correctly the massive blocks of which the temple was built. It is unfortunate that he does not mention the material of which the pillars were made, as he thus leaves it in doubt whether he saw the pillars of the portico ([7] of our plan), or those of the hall of pillars (27). Denon in 1799 (*op. cit.*, p. 265), and Jomard in 1801 (*op. cit.*, p. 277), also mention in general terms the Mycerinus pyramid temple. The attention of ancient and of modern travellers was fixed by the pyramids themselves, and the meagre mentions of the temples were merely incidental.

Howard Vyse was the first to undertake excavations in the Mycerinus pyramid temple, and even he was looking for the entrance to the pyramid. In *The Pyramids of Gizeh*, I, 150, he mentions that two workmen engaged "at the excavations in the Third Pyramid" were paid off; and that excavations were being carried out on February 13 (1837), in the pyramid temple and between the temple and the pyramid, on which day,

the greater part of the people were sent with the two janissaries to clear the space between the eastern front of the Third Pyramid and the ruins of the temple; and likewise to excavate the *adytum* of the latter building, in the hope of finding an entrance into the pyramid (p. 154).

These excavations were continued on February 14 to 17. On the 14th, "Some bones, and a skeleton, probably of a common Arab, wrapped in coarse linen, were found amongst the stones near the Third Pyramid." On the 15th:

Litter and decayed forage were taken out from the place where the bones were discovered, at the Third Pyramid. The *Adytum*¹ of the temple was cleared to its rocky foundation; it was seventeen feet below the top of the present wall, and was stained in places with red cement in which a pavement had been laid: no pavement or lining, however, remained, nor were any inscriptions or sculpture visible upon the enormous blocks, with which it was built; but a shallow square had been cut in the centre of the western side, and slight indications of pedestals appeared on the floor.

On the 16th, the work between the temple and the pyramid is mentioned (p. 157), but no details are given. On the 17th, "I gave up the operation between this pyramid and the temple on account of the great difficulty and danger attending the removal of the granite blocks, and of the little probability that existed of finding an entrance, at all events from the temple" (p. 161).

Lepsius's plan of the temple was made from the tops of the stone walls as visible in his time (1842-43), apparently unchanged when we began work.² Thus the only excavations of which a record has been preserved are those of Vyse. But the accounts of the Arab writers contain many tales of the plundering and destruction of the pyramids, and some of these actions probably affected the inner part of the temple of the Third Pyramid. In particular, Abd-el-Lateef of Baghdad (born about 1162 A.D.) describes from personal observation the attempt of Melek-el-Azeez Othman ibn Yusef to destroy the "red pyramid," which I take to be the pyramid of Mycerinus.

3. THE MYCERINUS PYRAMID TEMPLE AT THE BEGINNING OF OUR EXCAVATIONS

When the excavation of the temple of the Third Pyramid began, the part adjoining the pyramid lay under irregular heaps of limestone débris in which only a few red granite blocks were visible, while the outer court and corridor contained a shallow deposit of hard débris.³ There was very little sand except on the western side of the court. In the middle of the court there was a pile of débris thrown out from Vyse's excavation of the large offering niche.⁴ The walls of the outer court stood up high and clear, but were broken away at the northeast and southeast corners.

The surface of the walls inside showed three irregular lines of sand erosion (Pl. 3 *a* and *e*). The lowest of these was on a level with the irregular surface then visible, and had been eroded by the sand blown

¹ Vyse's "*adytum*" is (8) on our plan.

³ See Pls. 1 *a.* and 2 *a.*

² See Pl. 1 *a.*

⁴ See Vyse, *The Pyramids of Gizeh*, I, 156.

along the surface. Sand erosion on vertical surfaces at the pyramids appears without exception to start in this manner. When, however, a hole has once been hollowed out, the erosion continues by the rotary wind-driven movement of the grains of sand in the hole, even when for some cause or other the surface of the sand is lowered. I have noted the complete perforation of many limestone blocks a meter thick by sand erosion in this manner. But the lowest line of erosion in the temple was not so serious as the two upper lines. The highest was about on a level with the third course in the wall, and the middle line was on a level with the second course. It was clear that the court had once been filled with sand nearly to the top of the wall, and the highest erosion had been caused by the sand drifting across the surface at this level. Then a block or two at each corner had been removed and the sand drifted out, forming a new surface about on a level with the top of the second course. Here the middle line of erosion was formed. Again blocks seem to have been removed at the corners, and the sand drifted out to the surface observed when our excavations began — the third and lowest line of erosion.

The only definite evidence of recent disturbance of the débris in the temple was the mound in the portico (7) made by Vyse in clearing the "adytum" (8). No distinct traces were observable of his excavations between the "adytum" and the pyramid. This excavation was probably a hole over the western part of room (27) and the eastern part of room (29), which had been filled in since Vyse's time by the fall of débris from about it and by the wash of rain water.


4. THE PROGRESS OF OUR EXCAVATIONS AT THE MYCERINUS PYRAMID TEMPLE, 1906-1907

(A) PRELIMINARY EXAMINATION

Before beginning the work, it was necessary to find a place on which the débris might be deposited without fear of covering anything of importance. Manifestly the most convenient exit for the field railway was through either the northeastern or the southeastern corner of the court, where the wall was broken down. Turning to the southeastern corner, the quarry south of the temple appeared to offer a convenient site for the dump heap. The examination of the quarry was therefore the first undertaken.

On December 5, 1906, the examination of the quarry began. The sand sloped steeply from the eastern, northern, and western edges which were high, towards the lower southern edge. In the middle we sank two holes about twenty meters apart to a depth of about two meters, and began two trenches, one in the middle of the northern end of the quarry, and one in the middle of the western face. As soon as the trenches had revealed the character of the site, the two holes in the middle were abandoned without reaching rock, although, when the work was resumed in January 1913, the rock was found only about 60 cm. lower than the bottom of the holes made in 1906. The upper deposit in the quarry was clean drift sand; the only objects encountered were two badly mummified burials of the Roman Period, extended on the back, head west. These were just under the surface.

The western trench showed a series of three quarry terraces made in cutting stone, but these were all bare of any subsequent cutting or structure. The northern trench began just below a mastaba standing above the edge of the quarry and, descending through drift sand to a depth of seven or eight meters, revealed three quarry terraces occupied by mastabas. These mastabas were poor ones of the Fifth

Dynasty types, and bore inscriptions with the titles of funerary priests of the pyramid 

In the sand were found fragments of a limestone statuette (incomplete), and potsherds of red polished bowls with recurved rim and of coarse red jars. It was thus clear that the quarry contained ancient monuments and was not a suitable place for the dump heap.¹

A casual examination of the ground southeast of the temple and south of the causeway showed that this part was also occupied by mastabas, which on excavation later proved likewise to be tombs of the priests of Mycerinus. So it was necessary to turn to the area northeast of the pyramid temple.

Trenches were laid out cutting the deposits along the line of the proposed embankment, and eastwards, and along the eastern face of the northeastern corner of the temple. The débris over the whole area right up to the temple foundations consisted of limestone chips, with a small amount of dust, dirt,

¹ The excavation of the quarry cemetery was resumed in January 1913, and the whole will be dealt with in another place.

and potsherds. In the easternmost trenches, a decayed mud-brick wall was found running east and west, not sufficiently preserved to determine whether it was a retaining wall, or one side of an inclined plane, or simply a house wall. Over this whole region the limestone chips lay in a nearly uniform layer and appeared undisturbed since their deposition. The layer probably consisted of the masons' débris from the temple and the pyramid, thrown out when the work was nearing completion. Here, then, it was resolved to run out the débris from the temple.

As, however, the trench along the eastern face of the northeastern corner of the temple had been begun, it was carried to completion. The foundations and the rock were laid bare around the whole corner. The foundations of the temple consisted of two courses of enormous undressed blocks extending about six meters beyond the temple wall. The lower course was about 150 cm. high; the upper course 130 cm. The largest block was 450 cm. long. The lower course rested on the native rock, which had been scraped and dressed to receive it. As the débris along the face was limestone chips, without trace of a construction trench, the rock must have been cleared, if it was not already bare, previous to the building of the temple. No trace of any foundation deposit was discovered, or could even be looked for without cutting at random through the massive foundations or pulling down the temple.

(B) RAILWAY SYSTEM IN THE GREAT COURT (5)

On December 25, 1906, the work of clearing the court of the temple was begun. The rails were laid in a double track connected by two turn-tables, joined by a cross rail, placed near the middle of the court, and by another pair of tables placed at the end of the dump. Thus a circuit was established, the loaded cars running out on the eastern line, tipping their contents at the dump, and returning empty on the western line. From the turn-tables in the center of the court, lines radiated to switches which reached the actual excavations. Thus each loading point had two rail-heads projecting from a switch connected with a turn-table. While a car on one rail-head was being loaded, an empty car was pushed into place on the other rail-head. The empty cars waited on the main western line north of the turn-tables and were shoved into every loading line as soon as it became vacant. Thus there was no delay or confusion in the car service. The difficulty was at the other end — the dump. Here rails were laid out from the turn-tables to the growing end of the dump, and every few hours the tables had to be shifted forwards by inserting two-meter lengths of rails. The men with practice were able to make this shift in less than five minutes, during which time the cars tipped the débris down the side of the dump and ran back on the same line. This system we have found most advantageous for all distances over fifty or sixty meters. For short distances, a single line with switches at both ends is sufficient to serve small gangs not exceeding twenty or thirty men. For each additional gang, an additional short line should be laid. The great desideratum is to bring the cars to the very point of excavation for loading, and to prevent any interruption in the loading.

(C) EXCAVATION OF ROOMS (1) TO (11)¹

Along the southern side of the court a strip was measured off ten meters in width and divided into sections five meters long. Each section was assigned to a single small gang with one responsible working foreman. The preliminary examination showed that the top débris consisted of sand and rubbish about 10 to 20 centimeters deep, resting on a hard irregular surface of mud débris. The work began by removing the top débris from the mud surface over the whole strip. At the same time, two small gangs were put to work, one on rooms (7) southern end, (9), (11), and the massive walls between; the other on room (8) (Vyse's "adytum"), and on Vyse's dump heap in room (7). These rooms contained mainly sand mixed with chips, stones, dirt, and other débris. After the mud surface in the court was cleared, the mud débris was cut out, revealing a pavement of small limestone slabs and a niched casing wall of mud brick around the inside of the temple walls. This procedure of clearing away the sand and loose débris before cutting out the hard débris was carried out strip by strip until the court and the entrance corridor and the rooms were cleared to the pavement, or to the underlying foundation platform. On

¹ The numbers in parentheses correspond to those on the Plan.

January 20, 1907, the excavation of the court (5), the entrance corridor (2), (3), the portico (7), the outer offering room (8), and the unfinished southern part (9), (10), (11), was completed.

(D) EXCAVATION OF THE NORTHERN MAGAZINES (12) TO (24)

In the meantime the excavation of the northern magazines, rooms (12) to (24), had begun on January 11. On account of the height of the walls, it was not possible to attack this part from the court. An examination was therefore made on January 10 and 11 of the ground directly north of the inner sanctuary. The trenches revealed a light layer of débris, mainly chips, on the foundation platform, which extended northwards in this direction beyond the pyramid. A turn-table was therefore placed above what afterwards proved to be the northern wall of room (21). From this table, the loading line ran east over the part to be excavated, and the dumping line ran north to form a new embankment parallel to the eastern face of the pyramid. In the magazines, rooms (12) to (24), no surface of mud débris was found, but only a soft sandy deposit mixed with organic matter (decayed wood), which went nearly to the bottom of the rooms. On the 26th of January this part was clear.

(E) EXCAVATION OF THE INNER TEMPLE, ROOMS (25) TO (37)

On January 26, the clearing of the upper débris over the inner temple was begun. Trenches cut south of the place showed sufficient area for a small dump on the south between the temple and the nearest building (the mud-brick temple of Pyramid III-*a*). Another short line was run out, therefore, to the south, while the northern line was continued as before, thus attacking the débris from two sides. It was soon apparent that the débris, consisting of limestone chips, covered a number of displaced and broken granite casing blocks, and by February 12, a tangled mass of these granite blocks was exposed, covering the whole inner part of the temple, except above room (27).

The removal of these casing stones presented great difficulties. After several days of painful experiments by Mr. Firth and myself, we made up two special gangs of about eighteen men each, selecting the strongest, for the purpose of removing the stones, while the rest were employed on clearing away the dirt and débris underneath and between the stones. The implements used in moving the stones were:

- 12 hard wood beams, 3 × 3 inches, and 4 meters long.
- 4 hard wood beams, 4 × 4 inches, and 4 meters long
- 4 heavy iron crowbars, 2 meters long.
- 10 iron rollers, 2 inches in diameter, and 1 meter long.
- 4 short hard wood boards.
- 3 ropes, 1 inch in diameter, and 20 meters long.
- 2 ordinary light railroad trucks (Arthur Koepfel, Giessen) from which we removed the upright support on one end. Two short wooden beams were laid lengthwise side by side on top to form a platform.

The railway was brought in to the nearest possible point (two to ten meters), and a truck rolled to the point on the line nearest the block to be moved. A double line of beams was laid with one end resting on the edge of the truck and the other terminating just under the block. The block was then loosened and levered on to the line of beams; rollers were inserted between the block and the beams by levering up the side of the block; and the block was then pulled over the rollers with ropes and pried along with levers, until it was on the platform of the truck. The truck was then shoved out along the railway to the end of the dump heap, and the block tipped over the edge. Only three of the stones, which weighed over seven tons apiece, were too heavy, not for the truck, but for the rails. The track spread, letting the truck down on the ground. These three stones were rolled out on rollers on a line of beams laid all the way to the dump.¹

On March 10, twenty-two men were given permission to return to Keft for work in the fields, and I continued with about sixty workmen. By March 17, the work of moving the blocks was practically done, and it was possible to begin clearing the sand and dirt from the chambers underneath.

¹ I cannot avoid recording the spirit in which the men performed this difficult and unaccustomed work. Although no serious accidents happened, hardly a man escaped abrasions and minor injuries. The surface of the granite was very hard on the hands; yet each gang was taking out a two- to five-ton block in half an hour, when the stone was once loosened from the mass.

On March 27, the inner temple was finished, and I began clearing the spaces north and south of it, as far out as the north and south walls of the outer temple. On the north side, the clearing was continued eastward along the mud-brick casing wall of the northern face of the outer temple.

On April 15, the force of workmen was reduced to thirty-five men and boys occupied in the final clearing up. On the 30th, the season of 1906-07 came to an end.

5. THE DEPOSITS OF DÉBRIS IN THE MYCERINUS PYRAMID TEMPLE AND THE OBJECTS FOUND IN THEM

(A) THE DÉBRIS IN THE GREAT COURT (5), AND IN THE ENTRANCE CORRIDOR (1) TO (4)

The débris overlying the floors varied greatly in the different parts of the temple. The upper deposits of sand in the great court and in the entrance corridor, having at one time reached as high as the top of the stone walls, had been considerably reduced by the action of the wind, as described above (Section 3). In general, there was a floor layer of weather-packed mud débris from 40 to 120 cm. deep, penetrated at certain places by excavations made after the deposit was formed. Over this floor débris, and filling the later penetrations, there was a deposit of sand varying in depth inversely in proportion to its exposure to the wind. The surface of the sand was covered with a light layer of surface débris, consisting of sand mixed with limestone chips.

The surface débris in the courtyard contained fragments of potsherds, stone vessels, stone statues, Roman amulets, Arab coins, and several modern objects including a bone knitting needle. The potsherds were of coarse red jars (type IV), red polished bowls (types XXXIII and XXXIX), and large mud pots (type XXV), of the Old Kingdom, and some fragments of the Roman Period. The whole deposit was manifestly an accumulation of all periods. The Old Kingdom objects were, no doubt, originally on the mud surface or dragged out of the mud débris by later excavations. The Roman objects had been with burials of the Roman Period or dropped on the surface of the sand of that period. The Arab objects had mostly been dropped on the sand surface of the Moslem Period. When the sand was blown out through the breaks in the corners, the heavier objects sifted down to form the mixed accumulation which I have called the modern surface débris. The modern objects had been, of course, dropped on the surface.

In the western part of the court, in front of the entrance to corridor (13), a hole filled with sand was found descending through the foundation platform to rock. The mud débris did not cover this hole. A similar hole was found just inside the doorway of the entrance corridor (2), also filled with sand. In the latter were found fragments of green-glazed pottery of unquestionable Arabic date. Both of these holes were penetrations made by Arab treasure-hunters, probably of the same period as the destructive work on the pyramid — 12th to 13th century A.D. There was another penetration through the place of the drainage basin in the middle of the court north of the causeway, but this was filled with harder packed débris, and the date was uncertain. Treasure-hunters through a long period of time regarded the offering or drainage basins as coverings over concealed treasure, both in the pyramid temples and in the mastaba cemeteries. The basin in the court must, therefore, have been visible when the penetration was made, and thus the penetration took place either before the court was entirely filled with sand, or after the sand had blown out. The Arab treasure-hunters seem very often to have selected the places for their pits at random.

In the northwestern corner of the court the old drift sand lay undisturbed, protected from the action of the wind by high walls on the west and north. In this deposit close to the wall was a badly decayed burial extended on the back, head south. With it were three pottery vessels, amulets, and beads, like those found later with burials of the Roman Period in the room of pillars.

The amulets were as follows:

- 06-12-1. Uraeus with arms, hands under chin; blue faience, h. 35 mm.
2. Sacred eye, open work, blue faience, length 35 mm.
3. Sacred eye, blue faience, length 15 mm.
4. Three plaques with sacred eye on both sides, blue faience, length 10 mm.
5. Nine small rough sacred eyes, greenish faience, length 8 to 10 mm.
6. Two rough Bes figures; greenish faience, h. 22 and 17 mm.

7. Two *menat*-amulets, greenish faience, h. 18 and 17 mm.
8. Two split cowrie shells.
9. Eleven imitation split cowrie shells, white faience, length 10 mm.
10. Two bronze rings with small high bezels.
11. Various blue-glazed beads: barrel-shaped, long thin cylindrical, short thin cylindrical, thick cylindrical, disc beads, triple disc beads, small ball beads, one large ball bead.
12. Tall jar, slender pendant form with wide mouth and roll-rim, with two loop-handles just under rim, hard red-brown ware, height, 64 cm., diam., mouth, 18 cm.; diam., lower part of body, 24 cm.
13. Deep bowl, contracted mouth with roll-rim, tapering base; height, 12.5 cm.; diam., mouth, 13 cm.; diam., body, 17 cm.; red ware.
14. Shallow pan, round bottom, diam., 28 cm.; height, 8 cm.; red ware; three holes bored in rim on one side close together.

This burial was without doubt of the Roman Period like the burials in (27), and while the walls of the grave could not be traced, it was clearly a pit-grave sunk in the sand. Thus this drift sand in the corner had not been disturbed since the Roman Period. Underneath, the mud-brick casing was broken,

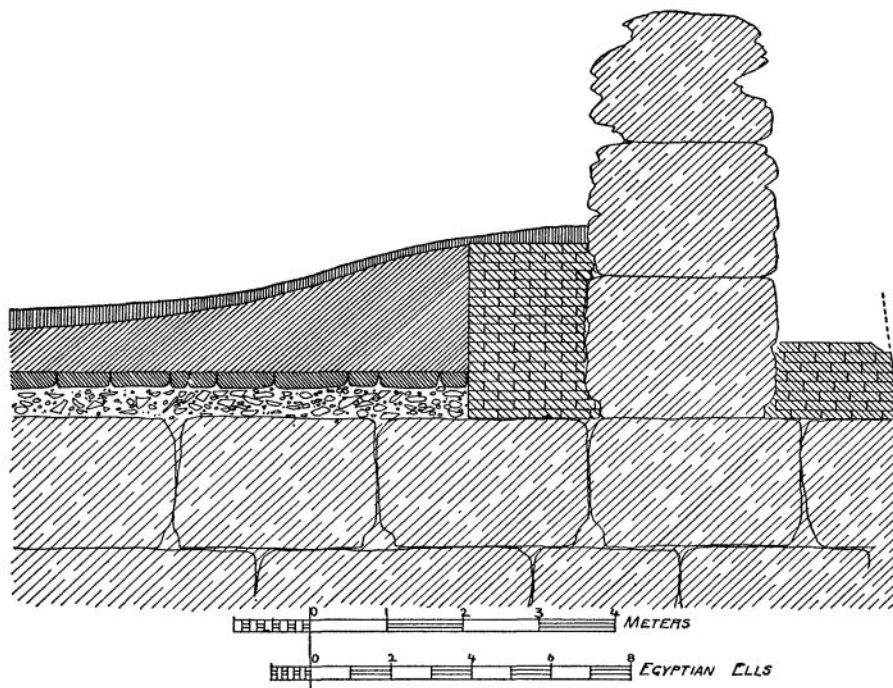


FIGURE 1

DÉBRIS IN GREAT COURT, MUD WALL WELL PRESERVED, SECTION

and blocks of the unfinished granite casing had been removed. The removal of the granite casing had, therefore, taken place, in part at least, previous to the Roman Period and probably previous to the filling up of the court with sand.

In the entrance corridor (3), the same layers of débris were met as in the court; but near the middle of the south wall in a sort of crevice, about 60 cm. below the present surface, a small red pot was found (07-1-1), January 9, which contained three silver Athenian coins (07-1-2, Pl. 21 e) of the period 500-400 B.C.¹ It would be idle to conjecture how these coins came to the place in which they were found.

Just outside the doorway to the entrance corridor on the north was the lower part of an inscribed stone, in a pile of débris of mixed sand and limestone chips (Pl. 3 b), with a substratum of decayed mud brick.

- 07-1-21. Lower part of a limestone stela, top broken off, upper part badly weathered. Bears the ends of eight vertical lines (Pl. 19 d).

This stela is of the style of 07-1-3 and 4, and is probably to be ascribed to Shepseskaf.

Beyond the entrance there was a doorway through each wall of the causeway corridor, and outside these doorways, especially at the north, there was a great deposit of little model offering vessels of

¹ Head, *Hist. num.*, pp. 270-274.

ordinary red pottery (Pl. 20*f*). Thousands of these models had been cast aside here, manifestly on the ground level of the Old Kingdom. They were about 120 cm. below the floor of the corridor, nearly on a level with the foot of the mud-brick casing and covered with almost a meter of débris of decay — limestone, gravel, sand, and dirt.

The layer of mud débris which covered the floor of the court and the corridor sloped in most places from the top of the mud casing walls, as now preserved, towards the middle of the court or corridor, where it was about 40 to 60 cm. deep (see Fig. 1). At the places, however, in which the mud-brick wall was broken or very low, the mud débris extended to the stone core wall (see Fig. 2). In these places the deposit was only a little deeper than in the middle of the court (Pl. 3*a*). The surface was washed by

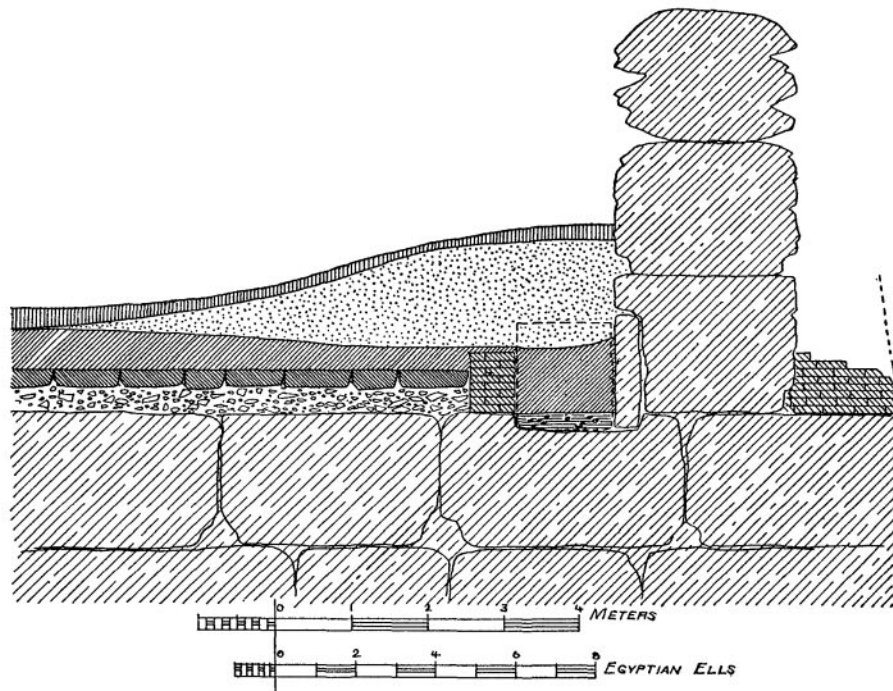


FIGURE 2

DÉBRIS IN GREAT COURT, LOW MUD WALL WHERE GRANITE BLOCK HAS BEEN REMOVED, SECTION

rain, and the deposit, mixed as it was with sand, was manifestly disintegrated débris from the mud-brick casing walls, packed by weathering.

On cutting out the mud débris, it was found comparatively free of objects, both in the court and in the entrance corridor. A very few fragments of pottery, stone vessels, and stone statues were encountered, all of the Old Kingdom. Fragments of black granite occurred also, especially near the walls; and, when the débris was entirely removed, it was seen that the heavy core walls had been partially cased with black granite blocks. This granite casing had never been finished, but a mud-brick casing had been put on, 15 to 20 cm. wider than the granite casing and completely covering up the granite blocks. The mud casing, where it concealed the unfinished casing, had been pulled down, and the granite blocks taken out, before the mud deposit on the floor was formed (Fig. 2 and Pl. 4*c*). Thus, this destruction took place not only before the court filled with sand (see page 33), but before the mud layer was deposited. On the floor where the granite casing blocks had been taken out, was hard-packed débris a few centimeters deep consisting of small limestone chips, fragments of granite, and dirt, showing a trodden surface.

(B) THE DÉBRIS IN THE PORTICO (7) AND THE OUTER OFFERING ROOM (8)

The débris in the portico and the outer offering room presented an entirely different condition from that in the great court and the entrance corridor. This part was divided from the court by the thick screen wall of mud brick. The offering room (8) had been completely cleared out by Vyse¹ and the floor was covered with a shallow layer of sand and stone chips accumulated since 1837. The débris

¹ See p. 8, *supra*.

removed by Vyse from the offering room lay over the deposits in the middle of the portico, as they had existed in his time. Thus over practically the whole of the portico the *débris*, consisting of sand and broken stones, remained as it was in 1837. Nevertheless it had been much disturbed, except in the southern end. The pavement had been torn up, and the pillars and casing stones removed. The greater part of the screen wall had also been removed in the course of this destruction, and the hole dug by treasure-hunters in the northwestern part of the court extended into the northern end of the portico. It was only behind the remaining southern end of the screen wall that the pavement and more ancient deposits of hard *débris* were found intact. Here was a deposit of decayed mud mixed with sand similar to that in the court and covered with a deep deposit of drift sand.

In the disturbed *débris*, in the middle of the portico (7), we found a number of inscribed fragments of limestone, as follows:

- 07-1-3. Seven adjoining fragments of a round-topped stela bearing a decree of Shepseskaf, dated in his second or third year; Pl. 19 *b*.
- 4. Fragment from the left side of a limestone stela, apparently part of the stela of Shepseskaf (07-1-3, above); Pl. 19 *e*.
- 5 to 20. Fragments of two limestone stelae, both decrees, one of which was probably by Mernera (see 07-1-20). The fragments 07-1-7, 13, 14, 16, and perhaps 19, appear to belong to the one decree, which has a narrow border at the bottom (Pl. 19 *e* and *i*); 07-1-5, 6, 8, 15, 17, and 18, to the other, which has a broad border below (Pl. 19 *g*). 07-1-20, which has the Horus-name, Ankh-khauw (Mernera), may belong to either (Pl. 19 *h*).

There were also found a number of fragments, usually small, of statues of alabaster and slate, of stone vessels, and of potsherds. These were of the same types as those found in the magazines and inner temple, but were too fragmentary to be drawn.

(C) THE UNFINISHED SOUTHERN MAGAZINES (9), (10), (11)

The floor *débris* in room (9), which was lined with mud-brick walls, and in (10) around the western doorway of (9), was a deposit of sand mixed with decayed mud brick, charcoal, and ashes, reaching about 50 cm. above the pavement in the southern end of the portico. The mud-brick walls in room (9) were not bonded with the casing walls of the court or portico and were apparently of later date like the screen wall. The doorways into the southern end of the portico, and westward into room (10), show that the room was used during the time that the temple service was still maintained. Room (10) was filled for the greater part with a rough construction platform, which was covered with *débris* of decay and sand. The eastern part of room (10), which contains the rough rubble room (11), was filled with sand, except for a light deposit of darker *débris* on the floor. The floor *débris* in room (9), and that heaped about the western doorway in (10), looked as if it consisted of sweepings and other rubbish thrown out from time to time by the temple servants. The dark floor *débris* in (10) and (11) seemed to have been scattered, partly by wind and weather, from the heap of sweepings. In this rubbish, mainly in room (9) and around its western doorway, fragments of the following objects were found:

On December 25, 1906:

- 06-12-15. Fragment of alabaster offering table, type XII*b*.
- 16. Fragment of alabaster offering table, type XII*b*.
- 17. Fragment of alabaster slab (very smooth).
- 18. Fragment of diorite, thick bowl, type X*c*.
- 19. Fragment of diorite, thin bowl, type X*c*.
- 20. Fragment of slate cup, type IX*a* (1).
- 21. Two blue faience beads, long tubular form.
- 22. Fragments of copper, including part of a tube.
- 27. Potsherds of Old Kingdom types:
 - coarse red jars, type IV;
 - ribbed two-handled red jars, type Mastaba I-1;
 - two-handled jars of red ware with white slip, type Mastaba I-2;
 - red-polished jars with spout, type XXXV;
 - red-polished bowl with spout, type XXXVI;
 - small model dishes of red ware, types XLIII and XLIV;

On December 29, 1906:

- 96-12-28. Fragment of alabaster statue.
- 29. Fragment of slate statue.
- 30. Fragment of copper statue.

There were numerous other fragments of stone vessels of the same materials and forms as those noted above.

The rest of room (10) showed no trace of any activity later than the building of the temple. In the southeastern corner there was a small rubble enclosure or room, (11; Pl. 9 *b*), mud plastered. Diagonally across from the southwestern corner of the massive core wall of the portico to the middle of the southern wall of room (10) ran a rubble retaining wall about 80 cm. high; and the space within this retaining

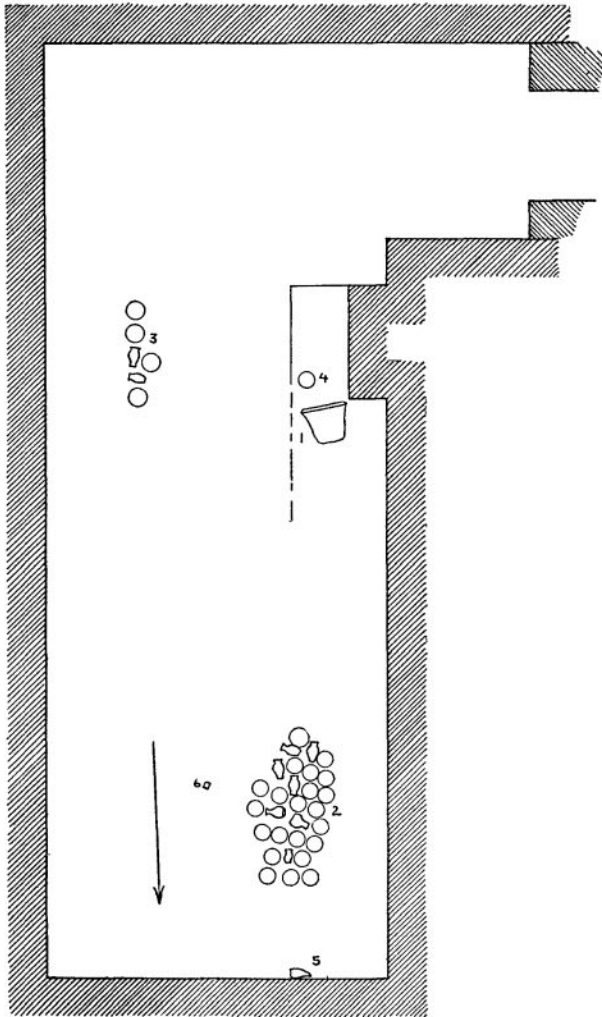


FIGURE 3
ROOM 16, PLAN. SCALE $\frac{1}{40}$

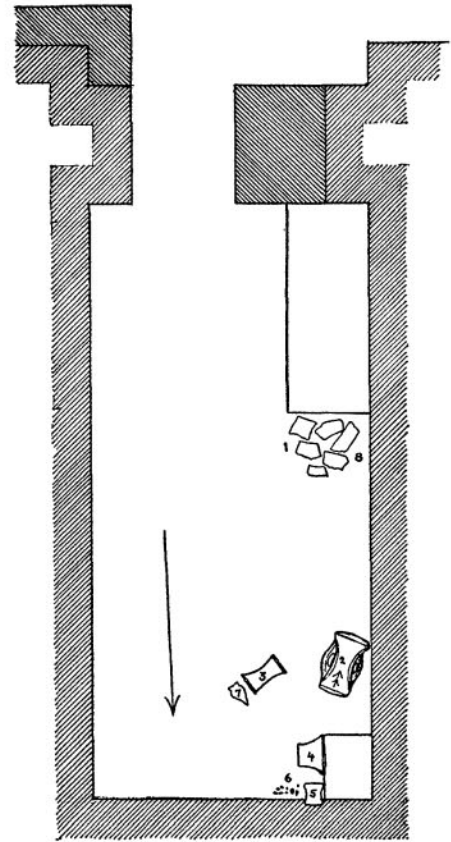


FIGURE 4
ROOM 17, PLAN. SCALE $\frac{1}{40}$

wall was filled with two layers of packed material forming foundation platforms for the construction of the northern wall of the room. The lower layer consisted of hard packed limestone rubbish, gravel, and a number of disused granite hammer-stones. It reached to the top of the first course of the core wall. The upper layer consisted of worn limestone boulders with a packed surface of rubbish and reached to the top of the second course of the core wall. This apartment was situated on the knoll of rock so that the surface of the bed-rock was 90 cm. higher than the bottom of the first course of the northern core wall, and the northern core wall was built in a trench sunk in the rock. The rock had never been cut away and formed the basis of the lower construction platform. After the second course had been set and before the second construction platform of worn boulders was built, the inner surface of the second course of the core walls was marked on all sides by red leveling lines used as guiding lines in the construction (Pl. XI, Nos. xviii, xix). There were three of these lines, 51-52 cm. apart, evidently

intended to be one Egyptian ell (52.5 cm.), and on the southern wall they were marked in two places with red pendent triangles and the words, "five ells," "six ells," and "seven ells."

Room (11), in the southeastern corner, was a temporary structure erected probably by the workmen of Shepseskaf as a shelter. It was built over a layer of granite powder resulting from the dressing of granite in the time of Mycerinus.

(D) THE DÉBRIS IN THE NORTHERN MAGAZINES (12) TO (25)

The northern magazines and their corridors (12) to (25), being protected by high walls, contained débris different from that hitherto described. The surface was covered with weathered stone chips and pebbles overlying a deposit of drift sand about 60 cm. deep, which reached to the top of the mud-brick walls. High up in this sand, over the middle of room (15), a large fragment was found of the thigh of a seated alabaster statue (07-1-22); but otherwise it contained only a few scattered bits of pottery. In rooms (16) to (18), and the eastern end of (15), under the upper layer of sand, there were three strata of débris:

Above, a stratum of mud (decayed mud brick) and limestone chips, about 150 cm. deep;

Second, a stratum of limestone chips and sand with a few patches of ashes and mud;

Below, a floor deposit of ashes, charcoal, mud, and decayed organic matter.

The floor deposit contained the objects enumerated below, which represented the original contents of the room, and was produced by the early plundering, the destruction of the wooden loft, and the roof, and the first period of decay of the mud-brick walls. The middle stratum of chips and sand was produced by decay after the fall of the roof; and the top stratum was produced by the gradual decay of the mud-brick walls above its top, accompanied by falls of chips from the stone walls.

The objects found in the floor débris, and manifestly part of the original contents of the room, were:

In Room 16 (see Fig. 3)

- | | | |
|----------|------------|---|
| 07-1-23. | 16: 1. | Flaring pot of mud ware, type XXV. |
| 24. | 16: 2, 3. | Forty or more model jars and saucers of ordinary red ware, types XLIII and XLIV. |
| 25. | 16: 4. | Blunt cone of plaster, Pl. 20 <i>i</i> , 1. |
| 26. | 16: 5. | Half of a rough knife of black flint (Photo. B 196, 1/2), like Pl. 18 <i>d</i> , 6. |
| 27. | 16: 6. | Small lump of copper ore, about 2 cu. cm. in size. |
| 28. | 16: 7-10. | Fragments of four rough flint knives (Photo. B 196 and B 197). |
| 29. | 16: 11. | Flint scraper (Photo. B 196 and B 197, 2/5). |
| 30. | 16: 12-14. | Three flint flakes, two broken (Photo. B 196 and B 197). |

In Room 17 (see Fig. 4)

- | | | |
|----------|---------|---|
| 07-1-31. | 17: 1. | Broken flaring pot of mud ware, type XXV. |
| 32. | 17: 2. | Large stone hammer of black granite, with two handles, worn by use; the ends bruised as if by pounding; Pl. 20 <i>a</i> , <i>b</i> , <i>c</i> . |
| 33. | 17: 3. | Tall stand of red pottery, red wash, type XXII-I. |
| 34. | 17: 4. | Flower-pot, type XXV. |
| 35. | 17: 5. | Bowl-stand of red ware, red wash, type XXIII. |
| 36. | 17: 6. | Charcoal, two handfuls. |
| 37. | 17: 7. | Small jar with pointed base, red ware, type XVI-3. |
| 38. | 17: 8. | Fragments of two large trays of red ware, type XLII. |
| 39. | 17: 9. | About fifty small models of jars and dishes of red ware, types XLIII and XLIV, like Pl. 20 <i>f</i> . |
| 40. | 17: 10. | Flint knife, Pl. 18 <i>a-b</i> , 3. |
| 41. | 17: 11. | Fragments of five other flint knives, Pl. 18 <i>a-b</i> , 2, 7, 9, 11, 12. |
| 42. | 17: 12. | Flint scraper, Pl. 18 <i>a-b</i> , 10. |
| 43. | 17: 13. | Fragments of five flint flakes, Pl. 18 <i>a-b</i> , 1, 4, 5, 6, 8. |

In Room 18 (see Fig. 5)

- | | | |
|----------|--------|---|
| 07-1-44. | 18: 1. | Limestone disc with knob handle (muller?). |
| 45. | 18: 2. | Blunt cone of plaster, Pl. 20 <i>i</i> , 3. |
| 46. | 18: 3. | Fragment of flint knife, Pl. 18 <i>d</i> , 6. |
| 47. | 18: 4. | Fragment of flint knife (Photo. B 200, 4). |

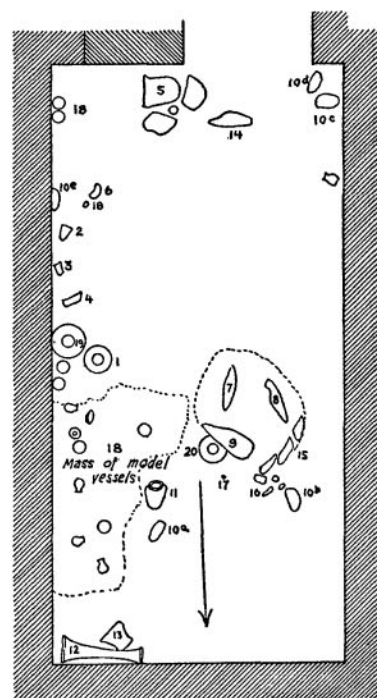


FIGURE 5

ROOM 18, PLAN. SCALE $\frac{1}{40}$

- 07-1-48. 18: 5. Seven long tubular beads of faience, three black and four blue.
 49. 18: 6. Fragment of rough flint knife (Photo. B 200, 1).
 50. 18: 7. Broad rough flint knife, Pl. 18 *d*, 3.
 51. 18: 8. Rough flint knife, handled type, Pl. 18 *d*, 4.
 52. 18: 9. Jar with pointed base, red ware, type IV-1.
 53. 18: 10. Fifteen bivalve shells (disjointed halves). Pl. 20 *h*. In one, a mass of powdered blue crystalline coloring matter.
 54. 18: 10. A mass of oxidized fragments of copper chisels and drills, mixed with shells in SW corner.
 55. 18: 11. Small jar of red ware, red wash, type XVIII-3.
 56. 18: 12. Tall bowl-stand of red ware, red wash, type XXII-1.
 57. 18: 13. Low bowl-stand of red ware, red wash, type XXII-2.
 58. 18: 14. Rough flint knife, handled type, tip and handle damaged, Pl. 18 *d*, 5.
 59. 18: 15. Fragment of decayed wooden board, about 30 cm. long.
 60. 18: 16. Fragments of jars of coarse red ware, type IV.
 61. 18: 17. Jar-stopper of mud, no seal impression.
 62. 18: 18. About fifty small models of jars and dishes of red-brown ware, red wash, Pl. 20 *f*.
 63. 18: 19. Bowl of red-brown ware, red wash, type XXXIX-I.
 64. 18: 20. Stack of eight pottery models, type XLIV.
 65. 18: 21. Broad rough flint knife, handled type, Pl. 18 *d*, 2.
 66. 18: 22. Similar broad flint knife, handled type (Photo. B 200, 2).
 67. 18: 23. Broken flint knife, handled type, (Photo. B 200, 3).
 68. 18: 24. Narrow rough flint knife, handled type Pl. 18 *d*, 1.
 69. 18: 25. Fragment of flint knife (Photo. B 200, 1.)

In rooms (19) and (20) the original deposits, as in (16) to (18), had been cleared out, the wall between (19) and (20) entirely destroyed, and a hole broken through the foundation platform, like those dug by Arab treasure-seekers elsewhere. The rooms were filled with drift sand, and the only trace of older débris was along the eastern wall of (19), where a few fragments of broken flint knives were found. In the lowest course of the northern wall of room (20), a well-cut hole, probably a drain, led through to the outside. In this hole, embedded in sand, we found fragments of the shoulder and body of the large alabaster statue of Mycerinus (07-1-70, 71, 72), and one fragment from the body of the smaller alabaster statue (07-1-73). Outside this hole, in the wall, other fragments of these statues were found. (See page 22.)

In the magazine corridor (15), the débris was different from that of any of the rooms (16) to (20) — a mixture of sand, limestone chips, fragments of alabaster statues, with a shallow layer of mud débris. Apparently the mass had been thrown into the corridor. Perhaps the Arabs who dug out rooms (19) and (20) first dug along this corridor and threw back the dirt from the later excavations into (15). The fragments found in (15) were as follows: (see Fig. 7).

- 07-1-74. 15: 1. Fragment, hips of smaller alabaster statue.
 75. 15: 2. Piece of feet of smaller alabaster statue, Pl. 16 *b*.
 76. 15: 3. Fragment of basis of smaller alabaster statue, Pl. 16 *b*.
 77. 15: 4. Fragment of large alabaster statue, the knees, Pl. 16 *a*.
 78. 15: 5. Fragments of handled jar, not previous in date to the Christian era, red ware. Found under 15: 1.
 79. 15: 6. Fragments of apron, etc., of smaller alabaster statue.

In the western end, in a hole through the floor:

- 07-1-80. 15: 7. Fragment of a flint wand, inscribed, "Mother of the king, Nebty-kha-merer" (probably the mother of Mycerinus), Pl. 19 *a*.

In the outer corridor (13), the débris was sand, limestone chips, and mud, and appeared also to have been disturbed nearly to the floor. The quarrymen who took out the black granite blocks of the unfinished casing of the court had also discovered the four blocks in the north wall of the corridor and had stripped the mud-brick casing from them as a preliminary to taking these also. But for some reason they desisted. Behind the crude-brick casing of the southern wall of this corridor, we found in 1924 two courses of unfinished granite casing, which we exposed by removing the crude-brick covering. All of these granite blocks bore inscriptions in red or black paint.

In rooms (21), (22), (23), and (24), the débris was sand, with large patches of mud, and presented a somewhat similar appearance to the undisturbed rooms (16) to (18). In (22), before the stairway (23), there were several mud fragments with seal impressions:

- 07-1-81. 22: 1. Lump of mud, round-topped, flat-bottomed, with marks of double strings crossing bottom at right angles; marks of two knots. Was attached to wooden surface, door or box. Covered with seal impressions in which the lower part of frame of Horus-name is visible, but hieroglyphics are illegible — perhaps Iset-ib-tauwy (Neweserra), Pl. 17 *a*, 6.
82. 22: 2. Lump of mud, with string mark; from a lock (?). Two impressions of cylinder-seal of Isesy, end of Dynasty V. Pl. 17 *a*, 7.
83. 22: 3. Lump of mud with string mark (jar seal?). Part of an impression of an official seal of Mycerinus, but the name (in a cartouche) is obscured by overlapping of impressions, Pl. 17 *b*, 6.
84. 22: 4. Fragment of mud, with the impression of an official seal of Sehetep-tauwy (Teti, of Dynasty VI), Pl. 17 *b*, 5.
85. 22: 5. Apparently part of 07-1-84 (Teti, of Dynasty VI), Pl. 17 *b*, 4.
86. 22: 6. Lump of mud with string mark, seal impression with illegible Horus-name, Pl. 17 *a*, 5. probably Isesy.
87. 22: 7. Lump of mud with string mark, with seal impression of official of Mery-tauwy (Pepy I), Pl. 17 *a*, 1.
88. 22: 8. Eight illegible fragment, Pl. 17 *a*, 2, 3, 4 and *b* 1, 2, 3, 7, 8.

These lumps of mud, relics of sealings by officials of Mycerinus, Neweserra, Isesy, Teti, and Pepy I were in the original floor débris and can hardly have been far from the place where they were used. Some of them may have been seals placed on the door which formerly swung in doorway (21), before it was blocked up.

(E) THE DÉBRIS IN THE INNER TEMPLE, ROOMS (26) TO (35)

The part of the temple which lies between the rooms already discussed and the pyramid itself rested under a tangled mass of granite casing blocks. These were covered with heaps of limestone rubbish, and the interstices between the blocks were filled with the same material. When the blocks and the limestone rubbish had been cleared away, the débris underneath, mostly drift sand, was found not to be in uniform layers. All over the region of the room paved with granite, (29), the older layers of sand had been cleared away to the floor, and on the south of this room the old layer of hard débris had been exposed. The southern wall of (29) had been pulled down, and many of the blocks were found piled up on the old hard débris to the south. The granite floor had been partly taken up, and many of the blocks showed chisel marks made for splitting the granite. This disturbed area had been again filled with drift sand. In the sand were found a number of iron or steel chisels (Pl. 21 *f*), a few iron bands, and one stick (07-2-1). The stick had served as a handle for a rectangular iron frame, which had been used to hold the chisel while it was struck with a hammer. These objects were, of course, all Arabic.

The rooms (26), (27), and (28) were found filled with sand. Where the roof was broken in (27), the upper layers had been disturbed, but under that part of the roof which was still intact the surface was practically undisturbed. There was a space of between 80 and 90 centimeters between the roof and the sand. On the surface of sand in room (27 *t*) we found nine Arabic bronze coins (07-2-2 to 10, Pl. 21 *f*, upper two rows). These had apparently been dropped by one of the quarrymen, or treasure-hunters, who may have been exploring the place, or had crawled in to sleep there. In room (28), on the same surface, a fire had been built, blackening the wall. The coins were pronounced by Professor Moritz, then director of the Khedivial Library, to be of the period of the Eiyubides, the latter part of the twelfth and early part of the thirteenth century A.D.; that is, they correspond in date with the destructive works described by Abd-el-Lateef. (See p. 8.) Thus it is clear that the rooms in this part of the temple stood nearly full of sand in the twelfth century A.D. When the rooms were opened by us, the sand lay still undisturbed in all three rooms, except for the top layer under the break in the roof of (28). Clearing this sand away, we found room (27) stacked with eighty-seven poorly preserved mummified burials. The bodies had all been wrapped in many layers of cloth, and some of them showed traces of gilded and painted plaster on the outer covering. A number of bodies had been further protected with a layer of heavy reeds made

into a sort of mat tied with strings at intervals of about 10 cm. These reeds were sometimes between two layers of the wrappings, as in burial 56. Other bodies were fastened to a board, or had a pole inside the wrappings behind. A number of bodies, 56, 80 to 86, were in wooden coffins of anthropoid form, with mortised joints at the shoulders, head, and feet. Five wooden masks were found in the débris, besides boards from coffins. But all the wood was badly rotted. It was clear that the room had been stacked full of mummies, in coffins, in reed cases, and often, no doubt, merely in their wrappings. The mass decayed and settled down on itself, causing a certain amount of disturbance; sand partly filled the room, and then came the plunderers who pulled the upper bodies about. Finally, the room filled again with sand long before the Arab quarrymen dropped the thirteenth-century coins on the surface in (27 X).

The date of these burials was fixed by three coins, one of which was found in the hand of the body numbered 23. The others were in the lower débris, along with the usual beads and amulets. These

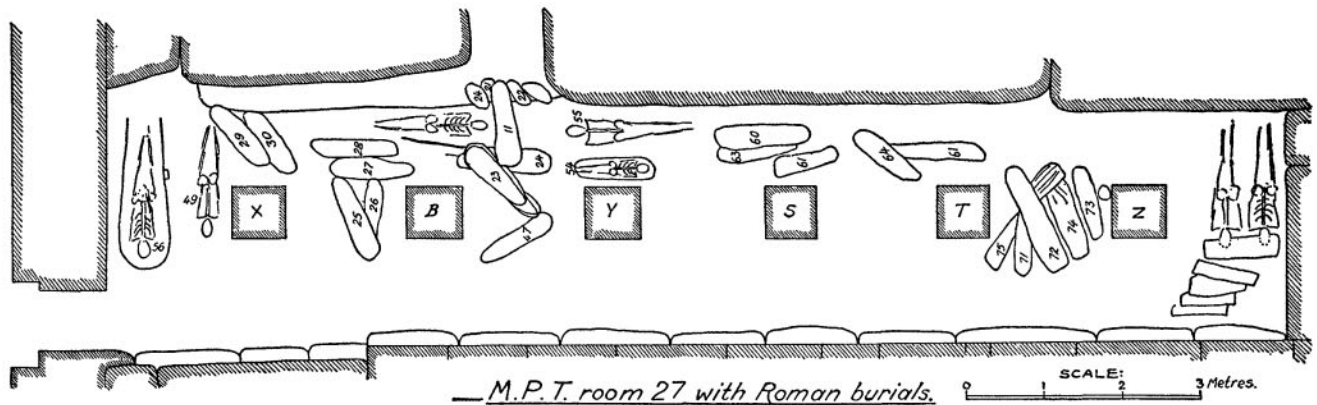


FIGURE 6

coins (Pl. 22 e) were examined by Dr. Grenfell and Dr. Hunt, and, while badly worn, were said by them to be quite certainly Roman, of the period between 50 and 150 A.D. The color of the glaze and the forms of many of the amulets, as also of the pottery, confirm this date. We can, therefore, only assume that the beautifully glazed, bright blue amulets, which one might easily mistake for New Kingdom in date, and the scarabs, are all of the Roman Period, at any rate so far as their use is concerned. Of course, it is possible that some of the scarabs were of earlier manufacture, found in excavations during the Roman Period and re-used as amulets.¹

Below the mass of mummies was a floor débris from 40 to 80 cm. deep. The upper part was sandy, stained black from the decay of the mummies above it; the lower part below the old floor was hard packed limestone débris. In the lower hard débris were found a number of objects of Old Kingdom date, as follows:

Beside the west wall, opposite the first pillar:

07-2-121. Fragment of a diorite bowl, type Xc, diam. ca. 24 cm., Pl. 21 b.

About 100 cm. northeast of 07-2-120:

07-2-122. Greater part of a diorite bowl, discolored by mummy decay, diam. ca. 22 cm., type Xc, Pl. 21 c.

123. Nearly complete diorite cup, diam. 15 cm. type Xa (4). Pl. 21 a. One piece of this was with 07-2-125 to 129, near the north wall.

124. Two pieces of a diorite bowl, diam. 19 cm., type Xc, Photo. C 475 below.

Near the north wall, in the middle:

07-2-125. Fragment of a squat jar of fine white alabaster, type Vc(2). Photo. C 474 middle.

126. Greater part of a bowl of fine white marble, type Xa. Photo. C 474 right.

127. Small bowl (saucer) of fine dark-veined white marble, in two pieces, one found in room (28), type IXa (1). Pl. 21 d, 1/3, 2/4.

128. Fragment of a small model cup of crystal, type Xa(3). Photo. C 474 left.

129. Fragment of a cylindrical jar of alabaster, type Id(2). Photo. C 474 left.

Against north wall, in northeast corner of room:

07-2-130. Three pots of soft-baked mud ware, type XXV, Fig. 71.

¹ The detailed descriptions of the burials 1 to 87 and of the objects Reg. nos. 07-2-11 to 07-2-120, having no specific bearing on the history of the temple, are given in Appendix B.

Room (26), a sort of vestibule, north of (27), was filled with drift sand to the roof. On clearing out the sand, a stair was found descending from the surface level of the drift sand outside on the north, through the northern door of (26) to the floor. The stair had evidently given access to (27) at the time the Roman burials were made. On the western side of the room, on sand, lay two skulls and some scattered human bones. With these were found the following:

- 07-2-131. Figure of a god with double crown, right foot and lower left leg gone, green faience. H. 91 mm. Photo. C 411.
 132. Bottle amulet of blue faience. H. 25 mm. Photo. C 411.
 133. Amulet, obscure form, rudely cut, blue faience. H. 22 mm. Photo. C 411.
 134. Eleven cylindrical beads of blue-green faience. L. 17 mm.-21 mm. Photo. C 411.

Under the bones was an irregular hole (360 × 136 cm.) broken in the stone pavement of the room to a depth of about 50 cm. In the doorway to room (28) was a third skull. The western end of the doorway was blocked with rubble.

Room (28) was filled with débris to within 12 cm. of the roof. Over the clean drift sand filling the room, there were in the southern end five upper layers, as follows:

- (1) Rubbish, dirt, granite, and limestone chips, 8 cm.
- (2) Ashes, charcoal, black dirt, 2 cm.
- (3) Straw, sand, and bits of limestone, 4 cm.
- (4) Nearly clean drift sand, 3 cm.
- (5) Sand, organic matter, dark straw, 6 cm.
- (6) Clean drift sand to floor.

The layers 5 and 6 sloped from the southern end away to the north. From the break in the roof on the north a slope of drift sand had sifted in, filling the northern end over layers 5 and 6, and forming, in fact, the continuation of 4. The upper layers extended northwards only about three to four meters from the southern end of the room. Layer 6 had drifted in from the southern entrance. On this, in layer 5, was a mummy, as in room (27), and in the débris above it were beads and amulets (Pl. 23 *h*):

- 07-2-135. Figure of Haroeris, pale blue faience. H. 41 mm.
 136. Upper part of a figure of a cat-headed goddess, blackened green faience. H. 35 mm.
 137. Three figures of Bes, blue-green faience. H. 24 mm., 24 mm., and 23 mm.
 138. Squatting cat, blue faience. H. 17 mm.
 139. A sort of basket amulet, blue faience. H. 17 mm.
 140. Four small rudely made *uzat*-eyes of blue faience. L. 11 mm., 9 mm., 9 mm., 9 mm.
 141. Plaque with *uzat*-eye in relief on one side, and incised on the other, green faience. L. 9 mm.
 142. *Menat*-amulet, blue faience. H. 17 mm.
 143. Double lion (?) amulet, blue faience. L. 19 mm.
 144. Carnelian pendant, pomegranate. H. 16 mm.
 145. Five imitation split cowries of whitish faience. L. ca. 13 mm.
 146. Three imitation split cowries of shell. L. ca. 12 mm.
 147. Lot of blue-glazed beads — cylindrical, spherical, annular. Also one ridged ball-bead, and several small spiral shells.

In the unfinished rooms (30) to (35), the condition was entirely different. When the drift sand was removed, a heap of hard packed limestone — masons' rubbish — was found in each room. This rubbish, which was deepest in room (30), where in the middle it nearly reached the roof, had obviously formed a construction plane used in building the walls and setting the roof slabs, although part of it came from the dressing work already carried out in the rooms themselves. In the débris were only a few potsherds of the ordinary coarse red jars, (type IV), except in room (32), where some fragments of a diorite vessel (type *Xa*) and of oxidized copper, or bronze, were found in the débris. These rooms, left unfinished, had been undisturbed since the period of their construction.

(F) ROOM (36) AND THE TEMPLE ENCLOSURE (37)

North of the inner temple, in rooms (36) and (37), the modern surface presented a continuation of the weathered limestone chips and sand in which were embedded the granite blocks. Below this was a very irregular deposit of sand, filling the depressions. The surface of the sand corresponded with the

lowest erosion line, a heavy one, on the adjacent limestone walls. This surface was broken by a hole opposite rooms (26) west, (28), and (30); and in this hole lay the roofing stones from the northern ends of those rooms, where they had been cast down by treasure-hunters. Through the sand in room (36) descended the stairway to room (26), and the surface of the Roman Period was the surface of sand at the top of the stairway. With the exception of the hole referred to above, the sand was clean and rested on a surface of decay composed of hard mud, sand, and rubble. This mud bank was continuous all over the area north of the temple, even close up to the pyramid (Pl. 8 *a*), and differed clearly in consistency from the mud banks in which were embedded the great mud-brick enclosing wall of the pyramid and the casing wall north of the outer part of the temple. It seemed as if the remains of a mud-brick structure had been dumped here.

In the mud débris in room (37) north, were found fragments of stone vessels and statues, as well as some pottery. In the limestone rubbish and sand just under the granite layer were:

- 07-4-1. Fragments of a New Kingdom pot decorated with horizontal black and red bands and black spots.
2. Large pot (flower-pot form) of mud ware. Type XXV, H. 36 cm. Fig. 71. Photo. C 497, 498.
3. Squat jar of alabaster, with rim a separate piece. Type Vc (2). Pl. 21 *d*, on left.
4. Small saucer, with collar rim, of alabaster. Type XIc (2). Pl. 21 *d*, middle.
5. Lid of a kohl pot of Dynasty VI form (i.e., cylindrical). Pl. 21 *d*, middle below.
6. Small model cup of alabaster (in seven pieces, but complete). Photo. C 473.
7. Two fragments of model dish of alabaster. Photo. C 473.
8. Two fragments of rough model dish of alabaster. Photo. C 473.

South of the inner part of the temple in room (37) south, the top layer was granite blocks, a limestone casing block from the pyramid, limestone rubbish, and sand, as all along the eastern face of the pyramid. Under this was sand, covering a mass of limestone blocks which had apparently been taken from the walls of room (29). These blocks lay on a hard bank of mud, sand, and rubbish, in the eastern side of which was embedded a construction plane of worn lumps of limestone. This plane rested against the west wall of the outer temple and led up to the roof of room (27).

(G) FRAGMENTS OF STATUES FOUND NORTH OF ROOM (20)

All around the outer temple the crude-brick wall of Shepseskaf had been weathered away to within 30-100 cm. of its foundations. The decayed mud had been spread by rain and wind to form a bank, the surface of which sloped from the top of the casing wall, as preserved, outward to the old desert surface. On this mud surface of decay lay a stratum of drift sand, with a few centimeters of surface débris composed largely of fragments of limestone fallen from the decaying walls of the first temple. Some fragments of statues were found in mud débris (Pl. 8 *a*, *c*, *d*) in a hole in the casing wall opposite the magazines (19) and (20). Here the modern surface touched the northern face of the limestone core wall on a level with the bottom of the second course, and was marked by an erosion line as elsewhere. A second and a third line of erosion, one near the top of the second course and the other in the bottom of the first course, were much deeper than the lowest line. The surface débris was shallow near the wall, about 15-20 cm. of sand covered with small limestone chips and pebbles, but grew deeper toward the north, reaching a depth of 60-80 cm. on the edge of our excavations, four meters from the wall. Under the sand was the usual bank of mud débris sloping down to the north, in which was embedded the old casing wall, preserved here to a height of about 50 cm.

Beginning with the drain-hole cut through the bottom of the northern wall of room (20), a wide irregular trench had been cut through the crude-brick casing wall to a point about four meters north. This trench was filled with loose mud débris and sand mixed together. Evidently the persons (Arabs) who had caused the damage in room (20), looking for treasure, had discovered the drain and had worked their way through the hole and into the débris outside for four meters before they abandoned the search. In the disturbed débris in this trench was found a group of fragments of alabaster statues (Fig. 7):

- 07-4-9. Head of the larger alabaster statue of Mycerinus (Pls. 14, 15).
10. Left shoulder of the larger alabaster statue.
11. Fragment of body of smaller alabaster statue (Pl. 16 *b-d*).
12. Fragment of body of smaller alabaster statue.

These were about three meters from the drain-hole, just inside the face of the casing wall. Nearer the drain were:

- 07-4-13. Fragment from the body of the larger alabaster statue.
- 14. A large potsherd (type III?).

Under the débris in which these fragments were embedded, we found traces of a drain-trench cut in the foundation platform and leading out to the north. This drain-trench had probably been roofed with stone, and had suggested to the ignorant treasure-seekers the possibilities which had drawn them in this direction. It seems to me evident that the fragments found outside room (20) had been dragged out by these same men through the drain-hole. I conclude that the presence of the statues in room (20)

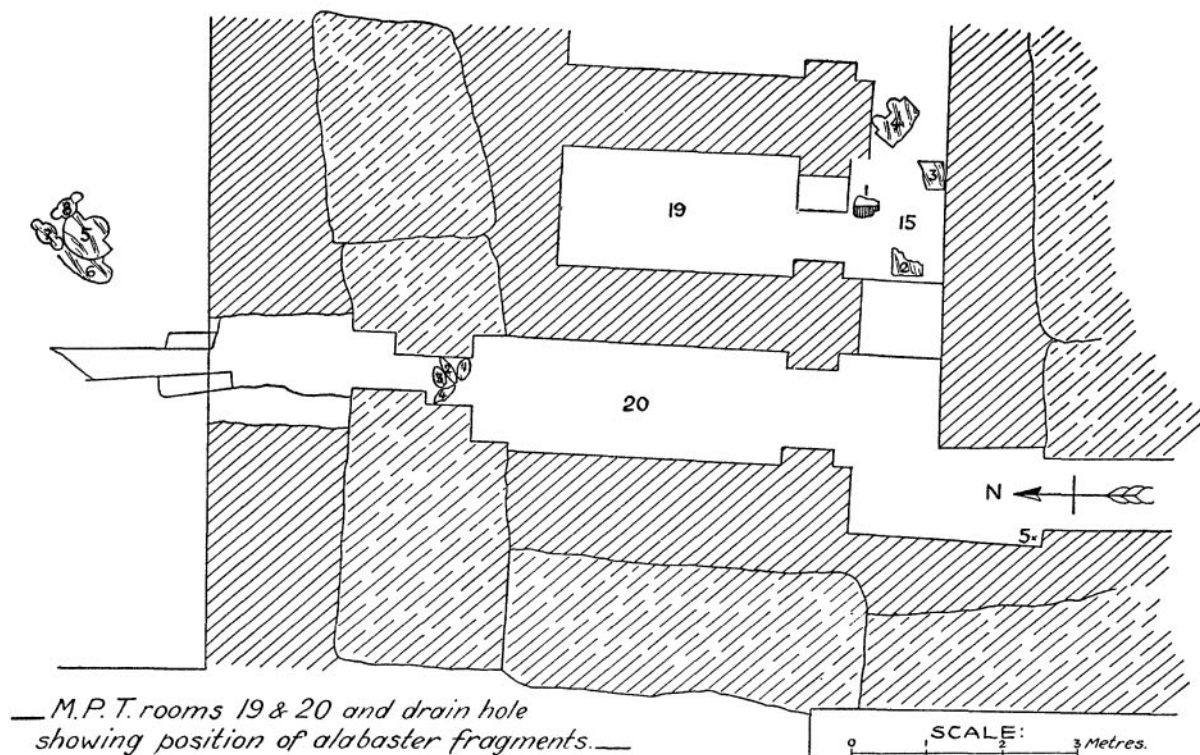


FIGURE 7

suggested to them the existence of a hidden treasure, in accordance with the usual Arabic stories of finding a "guardian" over a great treasure. They first tried the drain-hole in front of which the statues stood; they then broke through into room (19); they smashed the two statues, throwing the fragments over into corridor (15), or dragging them out through the drain; and finally, they cut down through the foundation platform, before abandoning the search.

All the fragments of statues found in and near the northern magazines fitted on these two alabaster statues, and there can be no doubt that the centre of their distribution was the disturbed area in magazines (19) and (20). From the character of the remains on the floor of (19), near the east wall, that room appears to have been a magazine, like (16) to (18). The two statues seem therefore to have stood, prior to their destruction, in room (20). The room was wide enough to have contained the two statues, even if they stood side by side facing the door. Room (20) was of slightly different form from the other magazines (16) to (19). There was no mud-brick wall across the northern end, and a vertical niche of rectangular cross-section, the width of the room, had been cut in the limestone core wall to form the northern end of the room. Thus room (20) was 128 cm. longer than the parallel rooms (16) to (19). The eastern and western interior faces of room (20) were built flush with the sides of the niche in the rock, and the faces of the niche were plastered white, like the mud-brick surfaces of the room. At a level about 95 cm. above the floor of the room, a horizontal ledge was cut in the northern and western sides of the niche (Pl. 8b), and on this ledge and partly on the slope of the eastern wall a stone slab had once rested, whose thickness was shown by the interruption of the plaster to have been 15 cm. In the west wall of the niche the ledge turns down at right angles, and the plaster indicates that a second slab, 15 to 30 cm. in height,

was set upright in front of the horizontal slab, thus forming a slab-altar like that in the hall of niches, room (9), of the Queen's temple, Pyramid III-*a*. Below the horizontal slab, by analogy, a rectangular libation basin for blood, water, or milk, should have stood as in the temple of III-*a*. Directly behind this place below the horizontal slab, a rectangular hole was cut through the northern core wall to the small covered drain which runs away below the mud-brick casing wall to a point outside that wall. Thus it is possible that the hole in the wall, in spite of its large size, was intended merely to take the spill from the libation basin in room (20). The niche, as I have explained, was part of room (20), as shown by the plastering and the adjustment of the mud-brick walls; and the supposition that the vertical niche was a channel for draining off rain water from the roof of this part of the temple is excluded by the relation of the niche to the room and by the slab-altar in the niche.

Room (20), like all these magazines, was open and accessible from the corridor (12), until the doorway, (14), was blocked with crude brick, that is, certainly until after the beginning of Dynasty VI. The walls of room (20) were of the brickwork of the original temple and the relations of the walls to the niche prove that the niche was in the wall when the temple of Shepseskaf was built. The use of the room as a libation chamber must therefore date from the time of that temple. But some explanation is required for this special use of one room in a row of magazines. I therefore conclude that the statues, or at any rate one of them, were already placed in this room by Shepseskaf, probably against the western wall facing east, close to the libation basin. Whether both statues were placed in the room by Shepseskaf, or whether one of them was originally outside, perhaps in the portico, and placed here later, must remain unanswered.

(H) HISTORY OF THE DEPOSIT OF THE DÉBRIS

The series of events by which the débris in the inner temple was deposited, may be summed up as follows:

1. Before the first century A.D., the floor had been broken up in rooms (26), (27), and (28) by earlier treasure-hunters, and in the débris left by these people were fragments of pottery, stone vessels, and statues of the Old Kingdom.

2. In the first and second centuries A.D., the roof was still intact over (26), (27), and (28), and the rooms contained only so much sand as would run in through the outer doors. The corridor (13) was sanded up, as well as (36) and (37), nearly to the top of the roof. The roof was no doubt exposed, and so rendered the discovery of the rooms easy. The sand was dug away from the northern door of (26), and a rough stair built to give access to the rooms, which were then utilized as a communal burial place.

3. The great damage was done by the Arabs who broke stone and sought treasure. The southern wall of room (34), its limestone walls, and part of the roof of (27), were broken down and removed. Incidentally, the upper layers of mummies in the room were overhauled. The granite floor of room (29) was partly taken up. When this disturbance had been covered with sand and débris, the attempted destruction of the pyramid appears to have taken place. The upper courses of the granite casing were pulled down, and the blocks split up during the process. The whole inner part of the temple and the base of the pyramid were encumbered with this débris. Some pieces of granite had rotted so that they fell to pieces under the blows of an iron hammer. Underneath there were patches of fine gray powder, which at first were mistaken for ashes, but were soon seen to be decayed granite. Over all this tangled mass of granite was a deposit of limestone débris like that on all four faces of all the pyramids. But this had been disturbed, perhaps recently.¹

6. DESCRIPTION OF THE TEMPLE AS AT PRESENT EXCAVATED

(PLAN PL. I, SECTIONS PL. II.)

The site of the temple and the pyramid is a ridge of limestone thrown out from the southern side of the mass of rock which forms the great plateau of the Pyramids (see Pl. 1, *a* and *b*). Between the Second and Third Pyramids there is a basin, hollowed apparently by the drainage of the higher part of the plateau which lies west of the Second Pyramid. South of the ridge of the Third Pyramid, a deep *wady* descends

¹ See Vyse, *Pyramids of Gizeh*, I, pp. 150 ff.

to the Nile valley. The site of the pyramid is broad and comparatively flat, requiring no foundation for the masonry; but under the temple the ridge grows narrow, with a knoll of rock under the southwestern quarter of the court, rooms (8) and (10), and the greater part of the portico. In addition to the slope of the limestone stratum to the east, north, and south, there is a sharp fall skirting the knoll on the east and north. The slope of the rock under the temple has been equalized by a platform of enormous blocks of local limestone, varying from five to twenty tons in weight, loosely fitted together without dressing. At the northeastern corner of the temple, *the foundation platform* is three courses deep; at the southeastern, only one; and over the area of the knoll, the massive walls of the temple rest on the rock itself, which has been cut down inside the rooms to admit a pavement about level with the floor of the great court.

The *causeway* toward the valley is structurally a continuation of the foundation platform and runs eastward down the slope to the valley temple, where it joins the foundations of that temple.

The *approach* to the temple (Pl. I, 1) was through a corridor of crude brick built on the causeway, with walls plastered white inside and out (Pl. 5, *a, b*), and a roof of wooden logs. Just before the entrance doorway of the temple the corridor widens to form a sort of hall and the corridor walls were broken on each side by a doorway giving exit north and south. Around the outside of these exits on each side was a rubbish heap, evidently thrown out from the temple, consisting of thousands of small offering vessels, together with some potsherds of larger coarse vessels.

The *entrance doorway* (Pl. I, 2) was built of crude brick in continuation of the casing of the temple. The walls of the causeway corridor were built against the crude-brick masonry of the temple casing. The threshold of the doorway was a single slab of limestone (Pl. 3 *b*). The weatherworn limestone stela (Reg. 07-1-21) was in the débris in the northwest corner of the causeway corridor, and probably stood either as a jamb in the doorway of the temple, or just outside it. The doorway opened into the *entrance corridor* (Pl. I, 3), with plain casing walls of crude brick built against the old limestone core wall, and plastered white. At the western end, on the north side, there was a block of stone in which a niche was cut, the purpose of which was obscure. The masonry on the opposite side was destroyed, but there was possibly a similar stone niche on the south. A straight *doorway* (Pl. I, 4) led from the entrance corridor to the great open court (Pl. 3 *e*).

The *great open court* (Plan I, 5) is 85 ells (44.60 meters) across from north to south, measured between the faces of the mud-brick casing walls. There was no trace of columns, and the court was obviously open to the sky (Pls. 3 *a, e*; 4 *a, b, d*). The white plastered crude-brick walls presented a series of niches on all the faces — three simple rectangular niches, and then a compound niche, in regular alternation. This system of niches, to which brickwork lends itself so readily, is known from the First Dynasty down, and when fully preserved, the niches are roofed with logs of wood, or stone imitations of logs. The niches appear thus to represent doorways roofed with wooden logs such as are found in the tombs of the First Dynasty. In the Mycerinus temple these niches must have had a considerable height, and it is not clear how the wall was finished at the top. The only niched walls comparable in height were in the mastaba tombs of the pyramid cemetery, and these were finished with an entablature, above which the wall continued plain to the roof.

By analogy with other contemporary chapels, the court should have contained a stone basin. These basins have no fixed position, but are usually near the center of the court. In the Mycerinus Queen's temple (Pyramid III-*a*), it is in the centre; but in the Mycerinus valley temple it is four meters south of the centre. In the court of the pyramid temple there is a sunken place in the pavement north of the centre, where I judge the basin to have stood. Probably it was exposed and removed in a search for subterranean treasure.

The pavement of the court consisted of limestone slabs laid on a bed of mud which rested on the foundation platform. A *pathway*, 2.5 ells (131 cm.) wide, crosses the court from the entrance corridor to the portico (see Pl. 3 *e*). It is of yellow limestone slabs and is quite level from end to end; but the pavement of the court slopes from all sides toward the centre, in order to facilitate the drainage of rain water, and thus sinks in the centre to a level about ten centimeters below the level of the pathway. At the lowest point in the pavement of the court, a small drainage trench crosses the middle of the

pathway from north to south, and discharges on each side into a small hole in the pavement. The difference in level between the pathway and the pavement was compensated on each side by an embankment of stone slabs, which increased in width from nothing at the two ends to about 20 cm. at the middle. By means of this pathway, a man might cross the wet court dryshod.

The crude-brick casing of the great open court had been originally interrupted on the western side by the wide opening formed by the portico; but when excavated, this opening was found closed by a thick *screen wall* (6) of crude brick, shutting off the view of the portico from the court (Pl. 4 *a*). Its ends were built against the casing wall of the court, which proves that this screen wall was of later construction. In the middle of the screen was a doorway, shown by marks on the floor to have been cased on each side with stone or wooden slabs, probably limestone, and closed by a wooden door.

The *portico* (Pl. I, 7) and the *outer offering room* (8) both bore on their floors and walls the emplacement marks of a granite casing, which had reached to the tops of the walls (Pls. 3 *c, d*; 4 *a, d*). The blocks of red granite with dressed surfaces found in these two rooms proved that this casing had been completely finished and was of red granite. The pillars in the portico, shown by the empty sockets, appear to have been also of red granite, as at the Chephren Valley Temple. A lintel-block of red granite, with an upper socket for the door-post, was found in the portico and probably formed the roof of the doorway between the portico and the offering room. The roofs of the two rooms were, no doubt, likewise of red granite. The emplacement marks of the casing at the western end of the offering room indicated a niche in the granite casing in that wall.

Returning to the screen wall, a passage led westward from the southern end of the portico through room (9), which was cased in crude brick, to the large unfinished apartment (10). This apartment contained a construction platform of rubble, and in the southeastern corner a rough rubble room (11), which had perhaps been a shelter for the workmen (Pl. 9 *b*). This room was later, however, than the time of Mycerinus himself, when the granite blocks were being worked, for it is built on débris which contained at a depth of about 30 cm. a layer (about 20 cm. thick) of powdered granite resulting from the dressing process used on the casing blocks. Apparently some of the granite casing blocks had been rough dressed in this place preliminary to setting in the walls.

Opposite this to the north lies the path taken by the offering procession. Passing northwards behind, or west of, the screen wall, it turned west into the corridor (13), to its western end (Pls. 4 *b, d*; 5 *c, d*; 6 *a, b, c*). Here were three doorways, one (14) to the northern magazine, one (21) to the southern magazine (and stairway to the roof), and the third (25) to the inner temple. During the last period of occupation, the doorways right and left to the magazines were closed with rough walls of crude brick; but the doorway (25) to the west was open, leading to the inner temple of limestone. The magazines and corridors to this point were cased with white plastered crude brick; the walls of the inner temple were of limestone.

The doorway (25) gave access to the inner temple of limestone. This limestone temple consisted of two parts, a kernel structure containing the inner offering room and its approach (29), and a later addition formed by rooms (26) to (28), and (30) to (35), of which (27) and (30) to (34) had never been finished. The doorway (25) opened into the *anteroom* (26), which had a single square pillar supporting the roof. The anteroom had in the right end of each of its four walls a doorway which had been closed by a wooden door of the usual type. On the east was the doorway (25) by which the procession entered from the outer temple; on the north, the doorway led into the exterior room (36), and through this to the pyramid enclosure. The doorway on the south led into the unfinished *hall of pillars* (27), and the doorway on the west (Pl. 9 *c*) led to the *sloping corridor* (28) (Pl. 9 *d*), and so on to the *inner offering room* (29) (Pls. 10, 11). A pathway had been worn in the stone pavement of the anteroom by the procession passing to the right of the pillar into the sloping corridor. The stone paved floor of the corridor (28) rose in a slope from the level of the floor of the anteroom to the higher level of the granite pavement in the inner offering room. The sloping corridor had a doorway in the west wall directly opposite the entrance from the anteroom, and this doorway led into an unfinished corridor (30), running north and south parallel to the sloping corridor itself. From the unfinished corridor (30), four doorways opened into four unfinished magazines (31) to (34). Magazines (33) and (34) had each a stone shelf. In (33)

the floor of the shelf was on a level with the floor of the room numbered (35), which was in fact merely an enlargement of the shelf of (33). Room (35) was high up, having been built in the thickness of the back wall which, abutting on the pyramid, widened upward with the slope of the pyramid. Magazine (34) was built against the wall of the kernel in the L, and had new walls only on the west and the north. The stone shelf was supported, as in (33), by grooves cut in the walls. All these rooms had been roofed with stone slabs, still well preserved.

The wooden blocks for the sockets of the door-posts were already in place, but only a beginning had been made with dressing the walls in (30), and the rooms were still half full of the masons' débris, which formed, I judge, the basis of the construction platform. The heights of the shelves and the roofs proved that the floors of the unfinished rooms (30) to (34) were intended to be about on a level with the floor in the anteroom (26), or about 90 cm. lower than the top of the granite pavement in (29).

The *hall of pillars* (27), which was perhaps intended for a statue room, was also unfinished. The western wall was formed by the older eastern wall of the kernel structure (29) for a distance of 13.40 m. from the exterior of the southern wall, and beyond that point the remaining 3.40 m. was taken by the

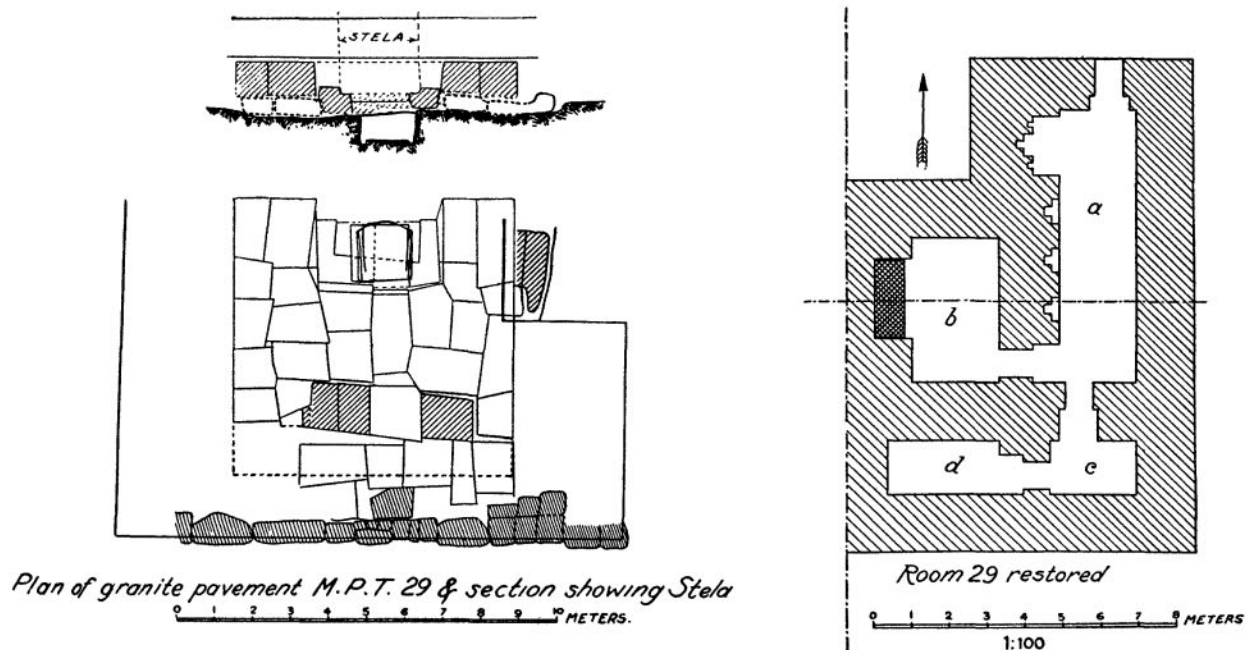


FIGURE 8

FIGURE 9

later wall (the eastern wall) of the corridor (28). The old wall was dressed to about the floor level of the granite pavement, but below that had been left rough. The eastern wall of the hall of pillars was formed by the massive limestone core wall of the outer temple. On this a beginning had been made at dressing the face from the top down, but the work had made little progress. The walls specially constructed to form the hall of pillars — that is, the southern wall, the northern wall, and the northern end of the western wall — were still undressed. It is improbable that the pavement, which would have been of stone, was ever laid.

The *inner offering room* (29) was an older L-shaped structure of Turah limestone, which formed the kernel of the inner temple (Pls. 10, 11). This L-shaped kernel was built around and over a massive red granite pavement 7.35 m. wide (north and south), by 6.30+ m. long (east and west), which clearly belonged to the work of Mycerinus. The upper surface of the pavement was at level 63.14 m., 12 centimeters lower than the top of the first course of the pyramid casing. The surface of the rock was about 140 to 160 cm. lower, and had been dressed in emplacements to take the limestone slabs which almost everywhere intervened between the rock and the granite. The eastern side of the pavement had been torn up by the Arab quarrymen and the eastern edge of the pavement could not be exactly determined, because the outer line of the emplacements was quite irregular, not coincident with the edges of the pavement where both were preserved. Nevertheless, I have no doubt that the granite pavement had been finished to a straight line on the east and was nearly square, measuring about 7.35×7.40 m.

(see Fig. 8). The east-to-west axis of the pavement was approximately in the east-to-west axis of the temple and the pyramid. Adjoining the face of the pyramid, two granite blocks sat with their upper surfaces about 50 cm. below the floor of the pavement, and in their upper surfaces an emplacement had been cut which was 208 cm. wide (north to south), and 50 to 70 cm. thick (east to west). The bottom of this emplacement sloped slightly downward toward the pyramid and had manifestly once contained a large upright stone, certainly a stela, probably of granite, but possibly of alabaster. The stela was, of course, missing, and the three or four granite paving blocks which adjoined the stela had also been removed. The paving block on the north, however, had not been taken away but only turned up out of place, and was found by us leaning against the face of the pyramid. Whether the stela was removed by the Arab quarrymen or previously, the Arabs had cut each of the two granite emplacement stones in half with their steel chisels, and had either cut a hole or enlarged an emplacement in the limestone rock which underlay these two blocks. In any case, they had attempted to cut under the casing of the pyramid in a manifest search for hidden treasure.

As stated above, the L-shaped structure of Turah limestone had been built against and over the massive granite pavement of Mycerinus. The foundations of the exterior wall were preserved on the south, east, and north, together with the greater part of the first course and parts of the second course. The wall which formed the entrant angle of the L was preserved on the east, and securely fixed on the north by the ends of the walls of the later rooms (34) and (35), which had been built against it. The upper part of the exterior wall above the first course, and the whole of the internal dividing walls which stood on the granite pavement, had been removed, probably for the sake of their fine white limestone, while the surrounding walls of local nummulitic limestone had been spared. As a result of this destruction, the plan of the rooms of the kernel structure could not be traced. There are, however, one or two valuable indications of the plan (see Fig. 9):

- (a) In the débris south of the inner temple were several large roofing slabs of Turah limestone, which manifestly came from the kernel structure. Three of these have the following measurements:
- (1) 231×142 cm. \times 47 cm. thick.
 - (2) 236×130 cm. \times 50 cm. thick.
 - (3) 295×140 cm. \times 50 cm. thick.

These indicate two different widths for the rooms — one of about 200 to 210 cm. and the other of about 250 to 260 cm.

- (b) Along with these roofing slabs was a niched stone which must have stood upright as do the stones in the niches of the mastabas of Dynasty IV.
- (4) 282×109 cm. \times 73 cm. thick.
- Niche, 21 cm. wide by 23 cm. deep.

Therefore, at least one large niche must be provided for in the reconstruction. By the analogy of the temples of the small pyramids, III-*a* and III-*c*, this niche would be in a long corridor east of the inner offering room.

- (c) The kernel was built about the stela (208×50 to 70 cm.), and the form of the inner offering room must be calculated with regard to the size and place of that stela.
- (d) The interior face of the southern wall is preserved with an interior SE and an interior SW angle. This face presents a projection, probably a door-jamb, 71 cm. long, placed 228 cm. from the SE angle and 355 from the SW angle.
- (e) The width of the entrance doorway from room (28) is visible and its internal lines seem to be indicated, but not beyond a doubt.
- (f) The L-form of the building, which is certain from the outline of the external wall, must be taken into account. The internal lines, as indicated by *a*, *d*, *e*, above, indicate that the western wall of the L was considerably thicker than the other walls of the structure (150 cm.).

Now the plans of the crude-brick temples of the small pyramids, as built by Shepseskaf, require as a minimum a main offering room, a secondary offering room or magazine, and a long corridor with niches. The jamb on the interior southern face (*d*) and the lines of the entrance doorway (*e*) indicate a long corridor (29 *a*), along the eastern side of the structure, with a doorway at its southern end leading into a deep narrow room (29 *c*) along the south wall, the secondary offering room or magazine. The western wall of (29 *c*) is fixed by the interior SW angle and by a construction line cut in the limestone pavement. The face of the stela must have projected 40 to 50 cm. eastward of the indicated western wall of (29 *c*); and as stelae are as a rule set back in the wall instead of projecting, I think another

room (29 *d*), must be assumed, with the face of its western wall 50 to 60 cm. eastward of the face of the western wall of (29 *c*). In the temples of the small pyramids, the main offering room, corresponding to (29 *d*), opens on the long corridor ("hall of niches") and is not directly connected with the secondary offering room or magazines corresponding to (29 *c*). The two sizes of roofing slabs seem to indicate that room (29 *d*) was wider than the others; and the thickening of the western wall of the L, that this part of the wall contained a deep compound niche, with an offering table, as in the temple of III-*a*. Within limitations marked by these facts, a number of reconstructions are possible. In Fig. 8, I give what seems to me to be the best interpretation of all the facts.

The *pyramid enclosure* (37) was bounded by a wall of crude brick 2.65 m. thick placed with its inner face about 10 m. from the base line of the pyramid. It probably enclosed the whole pyramid. After the construction of the later inner temple of limestone, the part of the enclosure south of the inner temple was not accessible by any doorway through the southern wall of the temple, and nearly its whole width was blocked by the construction plane of worn boulders used in building the inner temple of nummulitic limestone. The lower part of the surface of the plane, on the west, and the ground to the south of it were found by us littered with limestone roofing and casing blocks as well as with granite casing blocks, or fragments of such stones. The part of the enclosure which was north of the inner temple was accessible from the temple through the northern doorway of the anteroom (26), which led into the small room (36), and thence by another doorway into the enclosure itself (Pl. 9 *e, f*). The ground in this part of the enclosure was covered by a heavy deposit of mud débris and limestone chips.

7. HISTORY OF THE CONSTRUCTION AND DECAY OF THE TEMPLE

Three major building periods are easily discernible in the Mycerinus pyramid temple, and several minor reconstructions:

- I. The massive unfinished temple of Mycerinus.
- II. The crude brick walls which completed this unfinished stone temple; the temple built by Shepseskaf.
- III. The screen wall of crude brick, and various minor walls which are probably to be dated to Dynasty V or Dynasty VI.
- IV. The inner limestone temple, probably to be ascribed to Menera.

(A) THE MASSIVE UNFINISHED TEMPLE OF MYCERINUS

The massive unfinished temple of Mycerinus consisted of the following kinds of masonry:

- (a) The massive masonry of enormous limestone blocks, which forms the foundation platform and the causeway.
- (b) The red granite pavement under room (29) of the inner limestone temple.
- (c) The massive core walls of limestone forming the outer temple.
- (d) The finished red granite casing, the pillars and antae of the portico and outer offering room.
- (e) The unfinished black granite casing of the entrance corridor, the open court, the ends of the portico, the northern corridor (13), and the southern storeroom (24).

The plan of the Mycerinus temple, as revealed by these different kinds of masonry consisted of:

1. Entrance corridor, cased in black granite, room (3).
2. Great open court, cased in black granite, room (5).
3. Portico, cased in red granite with pillars and antae of the same stone, room (7).
4. Outer offering room, cased in red granite, room (8).
5. Northern corridor, cased in black granite, room (13).
6. Space north of corridor (13), in which the crude brick magazines (15) to (20) were afterwards built; intended, no doubt, to be divided into similar magazines by walls of granite or fine limestone.
7. Space south of corridor (13), partly cased in black granite, afterwards cased with crude brick and provided with a stairway of crude brick leading to the roof.
8. Large space, room (10), south of the outer offering room, never used; symmetrical in size and form with the space north of the offering room and perhaps intended to contain the same series of corridors and apartments, rooms (12) to (24).
9. Inner temple of red granite, of which the only indication is the pavement of red granite under room (29), the inner offering room.

These indicated parts supply all the rooms which were functionally necessary for a funerary temple of this period. No two of the pyramid temples of the Old Kingdom are even remotely similar in the details of their plans, and yet all satisfy the same functional requirements, as does this temple of Mycerinus.

(B) THE CRUDE-BRICK TEMPLE OF SHEPSESKAF

When, presumably on the death of Mycerinus, the completion of the original plan for a granite temple was given up, a beginning was made at constructing the temple in Turah limestone. The kernel of the inner temple, rooms (29 *a*), (29 *b*), and (29 *c*), had been built of this fine white stone, in striking contrast to the later walls of nummulitic limestone which surround it. Inasmuch as Turah limestone was used in the upper courses of the pyramid casing, it is more than probable that the kernel of the inner temple was contemporary with the limestone casing of the pyramid and previous in date to the crude brick walls of the outer temple. But the completion of the temple in Turah limestone appears to have proved too great a task; and the use of that stone was abandoned for a much cheaper material — crude brick, which lent itself also to rapid construction.

The portico (7) and the outer offering room (8) were the only parts in which the granite casing had been finished, or so nearly finished that they required no great labor. The entrance corridor, the great open court, the northern corridor (13), the spaces (14) to (20) and (21) to (24), north and south of that corridor, the ends of the portico north and south of the granite casing, and all the outside walls of the temple were cased in crude brick heavily plastered with yellowish mud and coated white. This crude-brick casing covered the unfinished granite casing, hiding it completely from view (Pl. 6). The walls were plain except in the great court, where they were built in the system of niches already described. The doorways, represented in the original structure merely by openings in the core walls, were built also of crude brick and provided with wooden doors hung on posts set in stone sockets below and wooden sockets above. The floors were of beaten mud laid on hard packed limestone débris in all the apartments except the court. In the court a pavement of stone slabs was laid on the mud, probably the same pavement which we found in place. In addition to this work of casing, the following free-standing walls were built also of crude brick:

- (a) The dividing walls in the space north of the corridor (13), which formed the rooms (15) to (20).
- (b) The enclosing wall of the pyramid, which was bonded with the outer casing walls of the temple.
- (c) The walls of the causeway corridor the upper ends of which were built against the casing walls of the temple (Pl. 5 *a*).
- (d) Probably that part of the inner temple which was later occupied by rooms (26) to (28) and (30) to (35).

The inference that the space now occupied by the limestone walls forming rooms (26) to (28), and (30) to (35) was formerly filled with a structure of crude brick contemporaneous with the crude-brick walls of the outer temple, is based on the following considerations:

1. The walls of nummulitic limestone forming rooms (26) to (28) and (30) to (35) were built after the kernel structure of Turah limestone and after the crude brick casing of the outer temple.
 - (a) The walls were built against the kernel and with overhanging ends to correspond with the batter of the older wall.
 - (b) The crude-brick casing wall of the outer temple on the outside of the west wall of the unfinished compartment (10) shows a broken end at a point two meters south of the southern wall of the inner temple; in the break, and against the casing, rests the construction plane leading to the roof of the inner temple (Pl. 2 *b*). The casing wall on the north of the inner temple is broken by the later room (36).
2. The rooms (26) to (28), (30) to (35) were constructed after the plundering of the temple had been begun.
 - (a) Under the floor of room (27), a number of fragments of stone vessels were found, which were of the ceremonial types of the temple furniture, not in daily use (see p. 98).
 - (b) In the construction débris filling rooms (30) to (34), and especially in (33), fragments of similar stone vessels were also found, together with potsherds and fragments of copper which must by association have come also from the temple furniture; this débris had certainly not been disturbed from the time of the construction of these rooms.
3. The rubble-lined pathway leading from the pyramid enclosure to the Queen's temple (Pyramid III-*a*) demands an exit in the southern wall of the inner temple and this exit does not exist in the limestone temple now in place.

4. The inner temple, as it stood at the time of the construction of the crude-brick casing, presents no connecting rooms between the inner offering-place (29 *a*) and (29 *b*), and the outer temple.

The most plausible inference from these facts appears to be that when the crude-brick walls were built in the area around the outer temple, the rooms connecting that temple with the inner offering rooms (29 *a*) and (29 *b*) were also constructed of crude brick.

The crude-brick temple was the first completed temple attached to the pyramid, and I ascribe it therefore to Shepseskaf, the son and probable successor of Mycerinus, and identify it with the "monument" mentioned in the memorial stone of Shepseskaf, which we found in the portico (Pl. 19 *b*). This stela bears the following inscription:

Under the Majesty of the King of Upper and Lower Egypt, Shepseskaf, the Horus, Shepsesy-khet, in the year of the first census of the large and small cattle, he made it as his monument for his father, the King of Upper and Lower Egypt [Menkauwra].

The name *Menkauwra* is not preserved on this fragment; but on another, which to all appearances belongs to the same stela, the name of the pyramid, *Menkauwra-netery*, is plainly written (Pl. 19 *d*). At all events, it is impossible to find any other plausible restoration for the text than the name of Mycerinus.

The crude-brick temple built by Shepseskaf, the first completed temple of the Third Pyramid, consisted, then, of the following apartments:

1. The causeway corridor.
2. The entrance corridor.
3. The great open court.
4. The portico.
5. The northern corridor (13).
6. The magazines (16) to (20) and the magazine corridor (15).
7. The southern storeroom (24), and the stairway to the roof (23).
8. The inner temple of crude brick with a limestone kernel, but of unknown plan and about the size of the later inner temple of limestone.

The plan of the temple of crude brick followed closely the lines of the original stone temple, adding merely the northern magazines, which may in fact have been included in the original plan. The southern apartment (10) was left unfinished. The departure from plan in the inner temple it is impossible to follow because the original plan of the massive temple is only faintly indicated by the granite pavement in room (29), while the inner temple of Shepseskaf has been almost completely destroyed. The kernel of Turah limestone was taken away by Arab quarrymen and the crude-brick walls, probably fallen into decay, were swept away when the later limestone temple was built (by Mernera?). The L-shaped form of the limestone kernel is, however, certain, and this suggests that the plan of the kernel should be reconstructed on the analogy of the temples of the smaller pyramids III-*b* and III-*c*, with a long corridor and a small offering room (see Fig. 7, rooms [29 *a*] and [29 *b*]). The long corridor would correspond to the hall of niches in III-*c*.

(C) THE INNER LIMESTONE TEMPLE OF MERNERA (?)

The second complete form of the temple was that presented after the substitution of the limestone rooms (26) to (28) and (30) to (35) for the corresponding crude-brick parts of the inner temple of Shepseskaf. The old kernel structure of Turah limestone formed the kernel of the new temple. The new walls were built against the old walls, as may be seen from the joints shown in the plan; but they were of local nummulitic limestone, not of white limestone. Thus, when the Arab quarrymen removed the white limestone for sawing into pavement slabs and other purposes, the walls of nummulitic limestone were left practically intact. Most of the roofs even were preserved and the rooms have been described above.

The building of rooms (26) to (28) and (30) to (35), which are as stated of nummulitic limestone, is probably recorded in one or two of the three limestone decrees found in the temple (Pl. 19 *e-i*). One of these bore the name of Mernera and another was probably of Dynasty VI, possibly issued also by Mernera. It may be noted that a decree of Pepy II, the successor of Mernera, was found in the Valley Temple.

These rooms of Dynasty VI are not only of inferior limestone, but they are less carefully built than the kernel structure, and were never completely finished. Only rooms (26) and (28), which provided access to the offering room (29), were finished and showed marks of usage. The rooms (30) to (34) had the walls left rough, almost as when first constructed, and were half filled with the rubbish which formed the construction platform. Room (27) was probably left in a similar condition, but it had been cleared out to provide a place for Roman communal burials, which we found there. The workmanship is no better than that of the ordinary private mastabas built by officials in the Giza cemetery, in Dynasties V and VI; and even if the temple had been finished, it would have been a comparatively inexpensive work for a king to undertake.

The seal impressions (Pl. 17 *a, b*) found in room (22) prove that the temple service was maintained in some degree during the reigns of Neweserra and of Isesy, the latter of whom ruled toward the end of Dynasty V. Nevertheless, it is apparent from the plundering and the decay of the crude-brick inner temple, that the whole Pyramid Temple was neglected like the Valley Temple during Dynasty V. But in Dynasty VI, both these temples, for reasons which now escape us, became the object of a certain amount of pious attention.

(D) MINOR ADDITIONS

Of the minor additions to the temple, the most important is the thick *screen wall* shutting off the portico from the great open court (Pl. 4 *a*). The bricks were about the same size as those of Shepseskaf, but of a blacker color and more uniform in texture. The wall was built on the limestone pavement of the court, and the doorway was symmetrically adjusted to the pathway crossing the court. The sides of the doorway appear to have been cased with limestone or wooden jambs set in grooves in the floor, and the doorway itself had probably been closed by a wooden door, although the sockets were missing. The effect of the screen was to cut off the view from the courtyard of the magnificent portico of red granite; but its purpose was certainly a very practical one for the funerary priests, probably to conceal their proceedings from the gaze of the laity, and to enhance the sanctity of the place. A similar heavy screen wall of crude brick had been built against the front of the portico of the Mycerinus valley temple in its first completed form. A lighter screen wall had also been added to the portico of the Queen's temple (Pyramid III-*a*). All these screen walls appear to have been constructed comparatively early in the history of the temples by the same masons and for a common purpose, and they are probably to be dated to the beginning of Dynasty V.

Room (36) in the pyramid enclosure, around the northern exit from the anteroom (26), is later in date than the limestone temple, but probably not much later, perhaps only a few weeks. The walls are of loosely laid rubble, mud-plastered and coated white, but in the northern doorway and high up in the south wall are small blocks of crude brick. The northern, or outer doorway, contained a stone threshold of three pieces, of which the thin middle piece was elevated to close the space at the bottom of the door, and the inner slab presented a hole for a door-socket on the eastern side. Thus the doorway had been closed by a wooden door, opening inward. The doorway from room (26) had been provided in the original masonry of the later temple; and the dressing of its eastern jamb had been continued northward by cutting back the face of the old limestone core wall to a projection even with the inner face of the northern wall of room (36). Thus a room similar to (36) may have been part of the original plan of the second inner temple (Mernera?), and the room as it now exists may have been built immediately after the finishing of that restoration. The purpose of the room is not very clear except as a connecting room between the temple and the enclosure.

The doorway of crude brick with stone threshold and lintel, which had been inserted in the eastern end of the magazine corridor (15), and thus formed a small square anteroom in front of magazine (16), belongs to the time of occupation, and may be of almost any period previous to the closing of the magazines.

The door-blocks of crude brick inserted in the doorway (14) to the northern magazine corridor (15), and in doorway (21) to the stairway corridor (22), closed to use the northern magazines, the southern storeroom, and the stairway to the roof. The funerary service was still maintained, and the closing of these rooms was perhaps due to the unsafe condition of the wooden roofs of the magazines. The seal

impressions found in room (22) range in date from the latter part of Dynasty V to the time of Tety, the first king of the Dynasty VI. The blocking of the doorways was therefore made in or after the time of Tety. Since the time of Shepseskaf, over one hundred and thirty years had passed, and the roofs may have become insecure. But the long corridor (13) remained in use, so that its roof must either have been still in a sound condition or have been repaired. Thus the possibility remains that the door-blocks in question were inserted at a later date, perhaps in the latest period of the use of the temple.

On the great mass of masonry which separates the northern magazines from the northwestern quarter of the open court, the foundations of two rooms, (38) and (39), were found, built partly of crude brick and partly of rubble. It was quite impossible to fix the date of these walls. They might even have been shelters erected by the Arab workmen who attempted to destroy the pyramid. On the other hand, the stairway in (22) gave access, no doubt, to the roof, and similar stairways gave access to the roofs of the temples of Dynasty V excavated by the Germans at Abu Sîr. The roofs of these temples were used for some purpose — observation of the sun, moon, and stars, for the fixing of times and seasons, habitation for temple servants, or storerooms. And the possibility must remain that rooms (38) and (39) belonged to the Shepseskaf temple and were connected with the object for which access to the roof was provided.

(E) THE DECAY OF THE TEMPLE

The course of decay of the temple appears to have been as follows:

1. Beginning of decay of crude-brick walls in court; plundering of magazines; shattering of some statues; collapse of inner temple of crude brick. Dynasties V and VI.
2. Reconstruction of the crude-brick part of the inner temple in limestone, and general clearance of temple (dump-heap in rooms [9] and [10]); replastering of crude-brick walls. Dynasty VI.
3. Abandonment of temple soon after (within a century) the end of Dynasty VI; collapse of roofs of magazines; decay of crude-brick casing walls and formation of a mud surface of decay in the court and the entrance corridor; the exposure to rainfall would have been sufficient to form this surface within a century after the abandonment of the temple, and would have tended to denude the surface; this is not the surface of decay which we excavated, but an older surface.
4. Removal of the red granite casing and the pillars in the portico and the outer offering room; removal of the black granite casing in the court and the entrance corridor; the blocks in place in the northern wall of corridor (13) were found by burrowing under the intact wall, but not removed; those in the south wall were not found; those in room (24) were found and partly removed; Dr. Hoelscher assigns this removal of hard stone to the time of Ramses II.¹
5. Formation of second surface of decay (that excavated by us) in the court, in which process the holes broken in the crude-brick casing walls during the removal of stone were filled up with mud débris.
6. Drift sand banked up in the space between the pyramid and the outer temple, north of the inner temple, to the tops of the walls and drifted over the whole temple, filling all hollows and especially the great court; depth of sand varied from about one meter in centre of court to three or four metres around the walls; highest line of erosion formed.
7. Used as a cemetery in first to second century A.D.; room (27) cleared out (paved floor already removed?) and made a communal burial place, entered by a stair descending from surface level of sand through northern doorway of (26); isolated burials in court and in Mycerinus quarry.
8. At indeterminable dates, stones were removed from the SE and NE corners of the great court, resulting in the formation of second and third erosion lines as the sand drifted out in two or more separate stages; the last removal may have been made by Arab treasure-seekers and stone cutters.
9. From the eleventh to the thirteenth century A.D. Arab quarrymen and treasure-seekers caused the greatest damage to the temple: the treasure-seekers dug five great holes through the massive stone foundations: (1) in the entrance doorway; (2) in the middle of the court, north of the pathway; (3) in the western part of the court opposite the doorway (12); (4) in room (20); and (5) outside the northern wall of the temple. The quarrymen appear to have been responsible for the destruction of the limestone walls in the inner temple (west wall of [27], walls of [29a] to [29d]); the upper layer of mummies in room (27) were thereby disturbed; the granite pavement in room (29) was partly removed, and a hole cut under the pyramid in the axis of the room; the granite casing of the pyramid was attacked and the blocks cut up for various purposes, one of which was the manufacture of circular milling stones; the white limestone casing was entirely removed, partly before and partly after the granite casing.
10. After the thirteenth century A.D. the temple suffered from the natural decay caused by exposure to wind and weather; aside from the disturbance made by Vyse, the deposits seemed to have been little altered during the last two or three centuries.

¹ See Hoelscher, *Das Grabdenkmal des Königs Chephren*, p. 67.

CHAPTER III

THE MYCERINUS VALLEY TEMPLE

1. DISCOVERY AND EXCAVATION OF THE MYCERINUS VALLEY TEMPLE

(A) VALLEY TEMPLES OF THE OLD KINGDOM

THE valley temple of Mycerinus, unlike the pyramid temple, lay completely buried under sand (Pl. 24 *a*), and had, no doubt, never been seen after Dynasty VI. There is, therefore, no mention of it by any of the early travellers. The excavations at Abu Sîr of the German expedition led by Professor Borchardt and Professor Schaefer, proved that the royal tombs of Dynasty V had portal temples on the edge of the valley, connected by a causeway with the pyramid temple. A comparison of Dynasty V pyramids with the pyramid of Chephren at Giza, led at once to the conclusion that the granite temple by the Sphinx was the valley temple of Chephren. It became a practical certainty, therefore, that the Third Pyramid must also have possessed a valley temple, to be looked for at the end of the causeway, still visible, which led from the entrance of the pyramid temple down to the valley.

(B) SEARCH FOR THE MYCERINUS VALLEY TEMPLE

The search for the Mycerinus valley temple began on June 1, 1908. Mr. Oric Bates was in immediate charge of the work. The causeway, constructed of huge limestone blocks, was similar in appearance to the foundation platform of the pyramid temple, and in fact was structurally a continuation of that platform. At the western end, adjacent to the entrance of the upper temple, remains of a mud-brick corridor had been found on the causeway. The causeway itself could be followed for about half the distance down (*circa* 250 meters) to the Arab cemetery in the valley. Here it had been cut across by the course of a water channel, which still carries off the rain water from the plateau behind the Second Pyramid; and the water had washed out all further traces of the causeway down to rock. Just beyond this washout, the edge of a low rock cliff was visible, and beyond that all the valley was filled with sand (Pl. 2 *a*). The surface of the sand appeared flat, but it really sloped gently toward the cultivation.

In order to determine the probable course of the causeway, a rod was set up in the middle of the entrance of the pyramid temple, and another in the axis of the causeway near where it had been washed away; sighting along these rods, others were planted in a line with them in the sand further east, and at a point nearly 100 meters from the washout, a trench about one meter wide, lettered A, was laid out across the apparent axis of the causeway, and three other parallel trenches (B to D) at intervals of 20 meters.

On June 2, the men began work on these trenches, and very soon reached hard débris in A, B, and C, in which the depth of sand varied from 10 to 50 cm. On the next day, it appeared that this hard débris was the floor-packing which lay on the causeway under the mud-brick corridor which had now disappeared. Traces of mud-brick walls were also found, which seemed to be remains of the corridor. In C, we came on a hole dug by Arab treasure-hunters. It was lined on one side with rubble to keep back the sand and descended along the southern edge of the causeway. This hole, on being cleared, showed the massive blocks of the causeway, and it was obvious that the causeway followed the line presupposed for it.

In the meantime, the men in trench D had gone down about 200 cm. through sand, and had come upon the tops of two parallel mud-brick walls, which were evidently the walls of the causeway corridor. It seemed from this that the temple could not be far distant. On June 4, a fifth trench (E) was laid out, about 40 m. beyond D, also crossing the axis of the causeway. On June 6, in trench E, a mud surface was uncovered at a depth of 350 cm., manifestly a weathered surface resulting from the decay of a mud-brick building (Pl. 25 *a*). It was clear that we were either in the temple, or beyond it.

Thus, by June 7, we had traced the causeway down to a well preserved mud-brick corridor leading toward a mass showing a weathered mud surface. The space between trenches D and E was divided into five working sections (including D and E), and all the men were set to work removing the sand. On account of the level surface of the valley, the disposal of the débris caused great difficulty. However, we put in two lines of railway, laid on a low embankment about 100 cm. high, and ran the débris out well beyond the possible limit of the temple (Pl. 24 b). Here the débris was piled in a wide fan-shaped dump rising slightly toward the south.

As the work proceeded, the causeway corridor of mud-brick was followed eastward until it was interrupted by a north-to-south wall of rubble with a heavy batter on the west face, which was 608 m. from the entrance to the pyramid temple. This was built against the main mass of mud (Pls. 28 a; 29 a), which was level with the top of this wall, but fell away to the west with an irregular water-worn surface. Traces of thick walls could be picked up, but not followed out. Along the rubble wall, where the surface of the mud was within a meter of the modern surface, a number of holes had been dug, such as the *sebbakhin* are wont to make in getting out *sebakh* (nitrogenous fertilizer). On the south of the excavation as made at that date, a large hole was found descending through the mud. It was filled with sand, and one side was lined with a rubble retaining wall after the manner of the Arab treasure-hunters. The hole went down over 5 meters, passing through a heavy platform of large limestone blocks like that at the pyramid temple; and the men there came upon water.

The causeway corridor, unlike the main body of the temple, was immediately cleared to the layer of floor débris. The space between the walls was filled with sand, but near the rubble cross wall referred to above, a mound of hard débris — mud, limestone chips, and gravel — lay over the tops of the walls. We naturally expected to find an entrance to the temple at the end of the corridor, but having dug under the rubble wall, we came upon a blank mud-brick wall (Pl. 29 a). Here it was seen that the corridor turned to the right southward along the back wall of the temple, but the path was blocked by a mud-brick wall, half a brick thick.

On July 7, a strip about 28 × 24 m. had been cleared of sand, including that in the penetrations; and as the carry to the end of the railway was becoming every day more difficult, we decided to clear the walls underlying the surface of decay before proceeding further.

(C) EXCAVATION OF THE INNER PART OF THE TEMPLE, JULY 7 TO 25, 1908

(PLAN ON PLS. VIII, IX AND SECTIONS ON PL. X.)

Up to this time, a number of small objects had been found on the surface or in the sand — small fragments of slate, diorite, and alabaster vessels, and fragments of slate and alabaster statues, a small model basin of copper, a few cylindrical blue-glazed beads, potsherds, some small model pots, a broken bowl of red polished red-brown ware. All these appeared to be of the Old Kingdom. The sand lay in hard fine layers with rainwashed surfaces. There was an occasional line of mud.

July 7. The work of cutting out the mud débris from the rooms was begun, and immediately a complex of walls was revealed. These walls include the rooms afterwards numbered (1), (2), (3), (4), (5), (6), (7), (8), etc. (see Pl. IX). In room (3), in the débris, nearly on the floor, we found on July 9, an unfinished diorite statuette, No. 25 (08-7-1). In the SE corner of room (1), we found many fragments of a slate statuette, one fragment bearing part of the name of Mycerinus.

July 10. On the floor of room (3), a small unfinished statuette of a king (Mycerinus), No. 34, in fine reddish stone (08-7-2). In the débris, a crystal eye set in a copper socket (08-7-3), apparently from a decayed wooden statue.

About 3.30 P.M., in room (4) along the eastern side, the heads were uncovered of a slate triad, No. 10 (Pl. 36 c), that of the nome of Diospolis parva (08-7-4). While clearing the mud from around this triad, half an hour later, a second, No. 9, that of the nome of Hermopolis, the Hare-nome (08-7-5), was discovered about 50 cm. south of the first. About half an hour later, two more, Nos. 11 and 12 (that of the nome of Cynopolis — the Jackal nome; and that of the Theban nome (08-7-6 and 08-7-7), were found in rapid succession on the other side of the narrow corridor just to the north. (Pls. 36 a; 37 a, b). All these were on the floor, but two were tilted slightly from the perpendicular, and all were askew. They were embedded in decayed mud brick mixed with sand. The next day, the triads were completely cleared, photographed in place, and removed to camp. See p. 109.

- July 13. In room (3), in mud débris, practically on floor, an unfinished diorite statuette, No. 26, of Mycerinus (08-7-8). Against the west wall of room (1), the bases of two alabaster statues of Mycerinus, facing east, Nos. 21 and 22 (08-7-9 and 08-7-10). In the southeastern corner of room (1), but practically on the floor, two pieces (feet missing) of a fine red stone statuette of the king, No. 33 (08-7-11). The southern part of this room was piled with fragments, broken from alabaster statues.
- July 14. In room (4), north end (Pl. 61 *c*), practically on floor, three unfinished royal statuettes, Nos. 31 and 37, and a private statuette, No. 43. Two of the royal statuettes were of diorite (08-7-12, 08-7-13) and one of fine hard red stone with thin white streaks (08-7-14). The feet of a small limestone statuette of a woman (08-7-15) and a small bit of gold foil were also found in the débris of this room. In rooms (III-7) and (III-16) the floor was covered with a mass of broken stone vessels. (See p. 178.)
- July 15. In room (III-1), two more bases of alabaster statues of Mycerinus, Nos. 18 and 19 (Pl. 47 *a*), against the west wall north of the door to (III-2), (08-7-16 and 08-7-17). Beside the southern base, an alabaster head with a triple pleated headdress, No. 22 (08-7-18). At the southeastern corner of the northern basis, another alabaster head (08-7-19), the head of No. 18 (08-7-17).
- July 16. In room (III-1), in the middle, an alabaster torso (08-7-20) fits on No. 18. On the north, inside the door, an alabaster head of a prince, No. 23 (08-7-21).
- July 17. In room (III-2), in débris, two parts of a nearly finished diorite statue, No. 38, feet missing (08-7-22) and two pieces of a slate jackal, No. 45 (Pl. 64 *a*). In the western end of the room, the pieces of a built-up offering table covered with a water-worn alabaster slab, and a crude limestone trough, which were not far from their original position (Pl. 61 *a, b*). Beside them on the floor, two unfinished diorite statuettes of Mycerinus, Nos. 29 and 27 (08-7-23 and 08-7-24); a third in two pieces, No. 32 (08-7-25); and the basis of a fourth, No. 39 (08-7-26). In the débris above, a rough flint wand (08-7-27).
- July 18. In room (16), in the southwestern corner, a sort of copper sheath containing the decayed end of a beam (08-7-28).
- July 19. In room (8), a large deposit of broken stone vessels was uncovered on the floor. (See p. 178.) Also five flint flakes (08-7-29). On the southern side of this room, about the middle, in débris resting on the dividing wall, about 40 cm. above the floor, was a decayed shallow pan of copper upside down (Pl. 61 *e, f*). On removing this, a deposit (08-7-30) was found of copper and stone vessels, together with a fine flint wand inscribed with the names of Cheops, and a mass of yellow coloring matter. Underneath were traces of decayed wood, and an oxidized red mineral not unlike iron rust; probably red oxide of copper (it was not attracted by a magnet). These had evidently been in the pan which, with its contents, had been thrown out of room (8) by plunderers and had fallen upside down. The objects included the wand, two model basins of slate, one of haematite, and one of crystal, a model vase of alabaster and one of slate, a model *hes*-vase of copper, two model shouldered jars of copper, and a stack of six model basins of copper (08-7-31 to 08-7-44).
- July 20-25. Clearing sand away in north part of temple. On July 25, 1908, the work was stopped, and owing to my engagements in Nubia and in Palestine, was not resumed for sixteen months.

(D) EXCAVATION OF THE REST OF THE TEMPLE, DECEMBER 3, 1909 TO APRIL 12, 1910

1909

- December 3. The removal of the sand from strip 1, the part south of the previous excavation, was begun. During this and the following seasons, I was assisted by Mr. C. S. Fisher. Under the sand we followed the weathered mud surface as before.
- December 15. Clearing southward, we reached the southern face of a wall running east and west, which appeared to be the southern side of the temple; but the clearing was continued to a line four meters further south, over a mud surface about a meter lower down and sloping away to the south.
- December 17. Working westward, we began clearing the sand from above the western corridor (strip 2). On December 20, the sand having been removed, the clearing of the corridor in continuation of the work of 1908, was begun.
- December 24. The removal of sand from strip 3, immediately east of strip 1, was begun, and continued until finished on December 29.
- December 25-28. The surface of decay of strip 1, the southern part of the sanctuary, had been swept and photographed. The only thing recorded was a deposit containing several basketfuls of fragments from slate and alabaster statues and one small model saucer rudely made of alabaster. This deposit was in the surface of mud over room (III-19).
- December 29. We began cutting out the débris from the western corridor, strip 2, and alongside the southern face of the southern wall (strip 1).
- December 30. At a point about 120 cm. north of the southwestern corner of the temple, and 105 cm. below the top of the wall, in mud débris over the western corridor, we found the head and torso of a red granite statuette, No. 44, of a private man (09-12-1). This was above the foot of the rubble wall (water wall), in the top layer of mud formed by the decay of the mud-brick wall (Dynasty IV). In the same débris was a small copper nail, and a few Old Kingdom potsherds.

December 31. It was seen that the western corridor turned to the east inside the southern wall, and under the rubble wall with its backing of mud brick, but the entrance to the southern corridor was blocked with mud brick (Pl. 29 *b*). Along the southern face of the temple, our trench had reached the foot of the wall, which was founded on hard limestone débris.

1910

- January 1-7. Clearing the sand from the northern wall (strip 4), *sebakh* holes were found, as in 1908, and in two places the men, following the sand into penetrations, came on holes made by the Arab treasure-hunters. In the easternmost of these, a fragment of an alabaster slab was found with the name *Min-nakht* (Pl. 46 *g*).
- January 7. It was now clear from the excavations in strips 3 and 4 that a large open court lay in front of the block of rooms called the sanctuary, and the removal of sand from the northwestern quarter of this court was begun (strip 5; finished January 15).
- January 8. The removal of the mud débris from the southern part of the sanctuary, strip 1, was begun. A number of light mud-brick walls appeared, forming a series of rooms, which rested partly on the temple walls and partly on the débris which filled the rooms of the temple (Pl. 28). There was a small space (*circa* 20 cm.) between the inner face of the southern wall of the temple (Dynasty VI) and the back wall of these rooms. At two places in this space there were mounds of alabaster fragments (on surface of decay of First Temple) (Pl. 29 *c*).
- January 11. In strip 1, many fragments of alabaster statues in mud on south. In room (I-11) (house), a crystal eye set in bronze, a small red pot (type XXXII-3), and a flint flake. In room (I-4), the upper half of an unfinished diorite statuette, No. 30, (10-1-4) of Mycerinus.
- January 12. In room (I-4), level of foot of house walls, head and torso of diorite statuette of Mycerinus, No. 36 (10-1-5). Also lower part of female statuette of grey granite, No. 41 (10-1-6) and fragments of alabaster statuettes, stone vessels, and pottery of types XIX, XXV-4, XXXIII-1, XXXVI, and XXXVII. These were above the decayed temple walls (of Dynasty IV). The houses on the south were cleared to foot of walls.
- January 13-14. Cleared away the house walls in strip 4, above room (III-12). Found fragments of alabaster, including lower part of face of statue, No. 24 *a* (Pl. 64 *b*).
- January 14. Began taking out mud débris below houses in strip 1, southern part of inner temple, rooms (III-19), (III-18), and south exterior corridor (III-21).
- January 15. Finished taking sand from mud surface in NW quarter of court (strip 5). In strip 1 revealed the exterior corridor on south.
- January 16. Under the house walls, in strip 1 on the wide temple walls of Dynasty IV, on south, fragments of bases of alabaster statues with name of Mycerinus, one fragment with name of Chephren, one with name of Shepseskaf (?), and fragment of the lion's paw from a seated statue, No. 46 (10-1-9) (Pl. 64 *c*).
- January 18. Began moving mud débris from houses in NW quarter of court, strip 5. Fragments of statues (including another lion's paw in (I-19), No. 47 (10-1-14) (Pl. 64 *f*), stone vessels, potsherds, and flint chips. In room (III-4), in hole dug by Arab treasure-hunters, at a depth of about 100 cm. below the floor of the room, exposed heads of a slate statue, king and queen, No. 17 (10-1-16) (Pl. 54).
- January 19. In (III-4), cleared rest of thieves' hole and exposed the whole of the slate pair (10-1-16). The clearing of the mud débris from the NW quarter of the court continued. In this mud débris, about four meters north of middle of court, another slate triad (Pl. 32 *f*) with the heads, feet, and left side shattered, No. 13 (10-1-17).
- January 20. Work continued in NW quarter; the bent left arm of a decayed wooden statue, No. 49 (10-1-18), was found in the filling of (I-23) (Pl. 32 *a*). Began cutting through floors in rooms (II-1) and (II-2) and in magazine, to trace foundation walls of first mud-brick temple (Pl. 30 *c-e*). Removed slate pair to camp.
- January 21. Gang tracing foundations in (III-3), found small unfinished diorite statuette, No. 28 (10-1-20), under the bulge of the west wall (Pl. 61 *d*). The wall had bulged owing to weight and moisture. This was true of all the walls of the first mud-brick temple. Hence came the necessity of tracing the foundations.
- January 22-23. Work on NW quarter and tracing foundations of magazine walls; cutting away house walls resting on temple walls in strip 1. Removing mud débris from (III-10), found twelve fragments of stone vessels and mass of pottery on floor, west end.
- January 25. Work on south corridor, rooms (III-12) and (III-18), and following the Dynasty IV foundations in (III-2). On removing mud débris from (III-12), found a mass of broken stone vessels on the floor (Pl. 66 *b, c*). In (III-2), on breaking mud floor of (II-2), the second crude-brick temple (Dynasty VI), found on floor of (III-2), two rough red pots (type R W III-1), fragments of a faience vase (No. 7), and a copper point (drill?), No. 16.
- January 27. Above the bottom course of the mud-brick wall (Pl. 30 *f*), blocking the doorway from (II-2) to (III-4), body and legs of an ivory statuette of Mycerinus (name on belt), No. 48 (10-1-25) (Pl. 63 *g-j*).
- January 28-31. Clearing walls in NW quarter, and sand from southern half of court; removed stone vessels from (III-12).

- February 1. Continued clearing walls in NW quarter of court (strip 5), removing sand from southern half of court, and clearing southern exterior corridor.
- In NW quarter of court in rooms (I-26) and (I-28) under floors, fragments of W. S. R. painted jar with name of Mycerinus, associated with fragments of statues, stone vessels, flint knives, and faience inlays.
- On floor of southern exterior corridor (III-21), two big basins (type XXX-1), traditional offering jar (type IV-4), coarse "flower-pot" (type XXV-3), red-polished shoulder jar (type XVII-1).
- Feb. 2-4. Continued as on February 1, and also working out the foundations of the first crude-brick temple, for which purpose the northern wall of (II-2) was partly removed, and several fragments of alabaster statues were found under the wall, showing that the damage to the statues had been partly done before the construction of the second crude-brick temple. The later walls in (II-1) were also being removed as far as necessary, and the floor of (III-1) exposed.
- February 5-16. Clearing sand from southern part of court, an operation which proceeded continuously until February 16, when it was finished. At the same time, the trench along the southern face of the temple was carried eastward, and the excavation of the southern exterior corridor proceeded at about the same rate.
- The examination of the foundation lines of the first temple was completed on February 5 (Pl. 26 b, 27).
- The excavation of the upper series of houses was also completed on February 5 and the lower series on February 16 (Pl. 31, 32). In the floor débris of the court were found many fragments of statues, stone vessels, etc., from the temple magazines.
- From February 8 onward the sand from the southern half of the court was thrown into the rooms in the southern part of the inner temple. I decided that the crude-brick walls could be saved from rapid decay only by covering again with sand.
- February 17. The excavation along the south wall and in the exterior corridor reached the southeastern corner of the temple 60 m. from the southwestern corner.
- Began removing the débris of decay, mud, and sand, from the rooms of the southern half of the court.
- February 18-23. Removed débris of decay from the rooms in southern half of court; walls better preserved than on north (Pl. 33); floors of room about 75 cm. above floor level of court. In middle of court a copper *hes*-vase, 34 cm. high; in room (I-320), a mass of fragments of an alabaster statue (No. 24b); in room (I-323), fragment of fine alabaster stela ("the *sm*-priest, Ra-wer"), and many fragments of statues, stone vessels, and pottery, including the arm of statue No. 18, found in the portico.
- February 24-26. The removal of the floors of the rooms in the southern part of the court was begun and finished to the floor level of the court. The pottery found under these floors was especially fine; other objects as northwest quarter. In this part of the court there were only two series of rooms. While this work, which required only a small number of skilled men, was proceeding, the removal of the sand from the area east of the southern half of the court was begun.
- February 26-March 11. While the final examination of the southern half of the court was carried out, and the plans and photographs were made, all but half a dozen men were set to excavate the temple of Pyramid III-a, which was finished on March 9. On March 9 began the excavation of the temple of Pyramid III-b, and on the days March 10 and 11, the work shifted back and forth from this temple to the valley temple because of the high wind which repeatedly stopped the work at the temple of III-b.
- March 12-18. Resumed work at the valley temple, pushing the removal of the sand eastward from the southern half of the court, in which the sand was dumped. The excavation of the exterior southern corridor proceeded behind the gang which was removing sand from the two parallel southern walls, as this gang, having a much shallower deposit of sand to remove, worked faster than the gangs further north.
- March 18. We had now cleared a space half the width of the temple, reaching to 20 m. east of the eastern face of the great court. The excavation had come so close to the Moslem cemetery that the people of the village begged us to stop, and we were unable to refuse their request. The mud surface of decay was high over the part between the court and the eastern face of the temple, and fell away toward the east as far as the edge of our excavation. On March 18, we began cutting out the débris of decay.
- March 19-25. Revealed the walls of the houses in front of the temple and the rooms of the southern part of the vestibule and the hall of columns in the vestibule (Pl. 35).
- On March 24, in the doorway leading from the vestibule hall of columns to the great court, on about one meter of débris (Pl. 34 d), found a decree stela of Pepy II, badly weatherworn, which mentions Mycerinus (Pl. 64 d, e).
- March 26-28. Continued clearing hall of columns, and removed the sand from above northern vestibule magazines, and from NE quarter of court.
- March 28-April 1. Cleared the northern magazines of débris of decay. Continued removing sand from NE quarter of court (Pl. 34 e, f).
- April 2-5. Cleared out débris of decay from NE quarter of court. Fragments of statues, stone vessels, and pottery as in other parts of court, including diorite basis No. 42 and part of porphyry statuette No. 40.
- April 5-7. Set workmen to finish clearing temple of Pyramid III-c.
- April 8-12. Final clearing and examination of walls in NE quarter of great court.

2. DESCRIPTION OF THE MYCERINUS VALLEY TEMPLE

The Mycerinus valley temple presented three main building periods:

- (a) The massive stone temple of Mycerinus.
- (b) The first crude-brick temple, presumably of Shepseskaf.
- (c) The second crude-brick temple, of Dynasty VI.

(A) THE MASSIVE STONE TEMPLE OF MYCERINUS

The plan of the massive stone temple cannot be determined because of the incomplete state of the building. Probably the plan was approximately that of the first crude-brick temple (Pl. IX). The massive foundation platform and the walls as far as laid were exactly like those of the pyramid temple built of enormous blocks of local limestone and from the same quarry (Pl. X). Indeed, the masonry, as far as carried out, was in direct or indirect contact with the end of the causeway, as if the stones had been brought down the causeway from the quarry above. The foundation platform, resting on gravel alluvium, had been laid under most of the inner temple and under the northern part of the open court. Although the platform was not complete, the walls had been begun. In the western wall, two courses had been laid north of the causeway and one south of it, leaving a space in the middle through which obviously the stones coming down the causeway were dragged. In the northern wall, two courses were in place, as in the adjoining part of the west wall. The tops of the foundation stones under the sanctuary were higher than those under the court, so that the difference in floor level between these two parts, as found in the crude-brick temple, was part of the original plan.

The abandonment of this construction was certainly coincident with the cessation of work on the massive pyramid temple, and was due to the same cause — the death of Mycerinus. The valley temple, however, was not so advanced as the pyramid temple, and had probably been begun at a later point of time.

(B) THE FIRST CRUDE-BRICK TEMPLE, BUILT BY SHEPSESRAF

When Mycerinus died, the unfinished pyramid temple, planned as a stone temple of grandiose proportions, was finished in crude brick. But the unfinished stone temple in the valley was still in an early stage of its construction, so that it was not a question here of casing the walls and adding a few partitions. Practically the whole temple had to be built, and, just as at the pyramid temple, the material chosen was the cheap and practical crude brick, the favorite building material for all but the most expensive buildings. The incomplete walls of the stone temple hardly give a hint of the intended plan of that building. Nevertheless a difference in level existed between the foundation platform in the western part and that in the middle, and the higher western part of the platform was utilized for the sanctuary of the crude-brick temple, while the lower part was taken by the great open court. Thus the extent of the sanctuary with its magazines was already fixed by the foundation platform of the stone temple and, in all probability, the plan of the first crude-brick temple was somewhat like that of the intended stone temple. The plan of the first crude-brick temple differed little in its functional provisions from the plan of the outer temple at the pyramid, but the absence of an inner temple, such as existed at the pyramid temple, is to be especially noted. The first crude-brick valley temple is to be ascribed to Shepseskaf, as was the first completed temple at the pyramid.

The foundation for the temple was prepared by filling in the space around the unfinished stone platform with hard-packed gravel and covering the stone platform to a height of 15–50 cm. Thus a gravel platform was produced, of about the same firmness as the desert strata on which the Egyptians were wont to found their crude-brick walls.

The first crude-brick temple consisted of (Plan on Pl. IX):

1. A vestibule with magazines (354–384).
2. An open court ("Court").
3. A sanctuary (1, 2) with magazines (3–20).
4. An exterior corridor leading to the causeway corridor (21).

These were all parts of one continuous structure, built of the same kind of bricks with the same bonding and plastering. The rooms within the walls had been filled with hard-packed débris to a height of 24–80 cm. above the foot of the walls, and this filling was covered with a floor of mud plaster. Or, alternatively, the walls had been built in trenches cut in the gravel platform.

(1) *The Vestibule of the Mycerinus Valley Temple*, Pl. IX, 354–384, and Pl. 35.

The wide doorway in the eastern wall of the vestibule had been originally the main entrance to the temple. On each side was a stone door-socket, showing that the doorways had been closed with a two-leaved wooden door. Later, however, the main entrance had been blocked up with a wall of crude brick and ceased to be used.

The vestibule structure contained a small anteroom, flanked on each side by four magazines opening from a corridor. The anteroom (III-377) was nearly square, being 14.50 m. long (east-west) and 16.10 m. wide (north-south). The roof had been supported by four wooden columns resting on four alabaster bases sunk in the mud floor; but only the bases with prints of the columns remained. The walls were plastered with mud and whitened.

In the north wall, next to the west wall, a doorway opened to the northern magazine corridor (380), and opposite, in the south wall, another doorway gave access to the southern magazine corridor, (354). From each of these corridors, four doorways led eastward into four long east-to-west magazines. In the northern magazine corridor, a stairway (Pl. VIII and Pl. 34 *e*) led upward, probably to the roof. In the southern end of the southern magazine corridor (354), a doorway led into the exterior southern corridor (21).

In the middle of the west wall of the anteroom, opposite the entrance, another doorway led into the open court. The stone-paved pathway which crossed the middle of the open court to the portico, began in the middle of this doorway.

The doorway into the northern magazine corridor and the doorways of the northern magazines had been blocked with crude brick. But the end doorways of the southern magazine-corridor and the doorways of the southern magazines had not been blocked. Thus a passage was left open from the exterior corridor into the southern magazine corridor, from there into the anteroom, and thence into the open court. This passage appears to have formed the only entrance to the temple after the entrance doorway was closed with brickwork.

All the rooms and corridors of the vestibule and all the doorways had been roofed with wood. Remains of logs were found on top of the walls of the northern magazines and of beams (?) over the doorway into the exterior corridor. Over this doorway, the brickwork had been built upward to the top of the wall. When the wood decayed, the mass of brickwork resting on it dropped down into the doorway and was found by us lying on about 50 cm. of drift sand (cf. Pl. 29 *b*).

(2) *The Great Open Court*

The great open court was much like that at the pyramid temple, except that it was not paved with stone. It measured 19.40 m. long (east-west) and 41 m. wide (north-south), and was crossed by a stone-paved pathway 110 cm. wide, which began in the middle of the western doorway of the antechamber and ended in a stone ramp leading up to the sanctuary. The faces of the walls on all sides of the court were built in a series of offering niches, as at the pyramid temple — one compound niche and three simple niches in alternation (Pls. 26, 31, and 33).

South of the middle of the pathway, a tank, hollowed out of a single rectangular block of limestone, was sunk in the gravel filling of the court. From its northeastern corner, an inflowing drain, slanting to the east-northeast, reached to the western door of the vestibule anteroom. This drain was a trench hollowed in blocks of stone laid end to end and covered with slabs of stone. The joints between the stones were caulked only with the plaster which lined the trench.

The middle part of the western side of the court was open and occupied by the front of a portico. This feature was exactly the same as at the pyramid temple, but in each case I have not counted the portico as part of the court.

(3) *The Sanctuary*, Pl. IX, 1-2

The sanctuary of the Mycerinus valley temple consisted of a portico (1) and an offering room (2) similar in plan to those of the outer part of the pyramid temple. The sanctuary and the magazines together correspond to that part of the pyramid outer temple which lies west of the open court. But note must be taken that these apartments terminate the valley temple. There was no inner temple.

The portico was of the same form as that of the Mycerinus pyramid temple, with the same rectangular antae, but all built of crude brick plastered and whitened. The roof and the columns must have been of wood. The eastern side of the portico was formed by a crude-brick wall rising to the level of the floor, and perhaps originally forming a low parapet. The floor of the portico had been packed hard with gravel and plastered with mud. The original approach, no doubt a ramp like that found in place, had been destroyed when the earliest alteration to the temple was made. Probably early in Dynasty V, the portico was closed by a high screen-wall of crude brick, built in the court along its western side. The entrance to the portico as found by us and its approach belonged to this screen-wall. The threshold was a large slab of limestone, with grooves for the casing slabs of the door-jamb and with two door-sockets for a double-leaved door, exactly like the threshold in the screen-wall at the pyramid temple. The rise from the court to the threshold, about 50 cm., was made by means of a stone ramp with a low parapet on each side. The sloping floor consisted of five slabs of limestone contained between side slabs set with a slight batter and resting on the floor of the court. The edges of these side slabs rose about 5 cm. above the sloping floor, to form the low, round-topped parapets. The space between the side slabs appeared to be filled with hard-packed débris on which the floor-slabs rested. This ramp, which joined the end of the pathway through the court, was of different limestone (yellow), 195 cm. wide between the parapets (85 cm. wider than the pathway), and 320 cm. long.

In Dynasty VI this portico had been entirely rebuilt on a different plan, but the late walls had been founded on the earlier, or on débris. It was thus easy to follow the lines of the old walls under the later ones, although it was necessary in places to cut away the later wall to make sure of the details (Pls. 26 *b*; 30 *c-e*). It is certain that the four alabaster statues of Mycerinus found in the later room, resting on the later floor a few centimeters above the old floor, had been originally in the old portico.

In the middle of the west wall of the portico, a doorway led into the offering room. The foundation wall was interrupted by a space which was bridged by two limestone slabs (Pl. 30 *d*), forming the threshold of the doorway. The upper surfaces of these slabs were grooved on each side to receive casings of stone or wood, and showed two door-sockets and a bolt hole, which indicated a double leaved wooden door. It is to be noted that this threshold was not in the later doorway, leading to the later offering room.

The offering room was of the long east-to-west form usual in these rooms and already seen in the outer offering room at the pyramid temple. The western end of the room had been washed out previous to the building of the second crude-brick temple, and overbuilt by the later wall. Its examination was, therefore, a matter of considerable difficulty, but we managed to expose the greater part of the foundation wall, which crossed the end of the room in a straight line with no indication of niche or stela. It is to be noted that we found in the later offering room, which nearly coincided with the earlier, parts of an offering bench consisting of water-worn alabaster slabs, and beside this, four small unfinished statuettes (Pl. 61 *a, b*). The offering bench, at any rate, was probably in a similar place in the old offering room. On the floor of the old room, under the later floor, there were two offering pots of coarse red pottery, potsherds, a few fragments of statuettes and stone vessels, some flint flakes, and fragments of faience vessels.

North and south of the entrance, doorways in the north and south walls led to the magazine corridors, (20) (Pl. 27 *c*) on the north, and (4) on the south. Each of these doorways had had a bridge threshold of which a single limestone slab was preserved in each case, resting on the ends of the interrupted foundation walls, similar to the doorway from the portico to this room. These slabs had no door-sockets. In the other doorways, the sockets were in the second slab, which is the one missing in the two doorways under discussion. Probably the second slab in both these doorways contained a socket for a single-leaved door.

(4) *The Northern Magazines*

The northern magazine corridor (20) ran straight through the building to the north wall of the temple (Pl. 27). Six doorways in its western wall led to six long, east-to-west magazines (6) to (11), of which the northern three (9) to (11), were slightly shorter owing to a thickening of the west wall of the temple. Five doorways in the eastern wall led to four similar magazines (12) to (15), and a shorter magazine or room (16). The shortness of (16) was caused by the form of the portico; and for the same reason no room could be constructed opposite magazine (6). Magazines (10), (13), and (14), certainly, and possibly all the magazines, had been provided with a wooden loft like the magazines of the pyramid temple and other temples. In these magazines we found pottery, stone vessels, flint implements, sets of model vessels of stone and copper, flint wands, and other objects (Pl. 61 *e, f*; 66 *b, c*; 71 *f, g*). But all these objects had been disturbed, most of them broken, and many others were undoubtedly missing. These northern magazines had been grievously plundered and were probably in a state of decay when the second crude-brick temple was built; for the lines of the doorway of the later temple, leading from room (2) to the northern magazine corridor (20), do not coincide with the lines of the first doorway, and its floor is about 50 cm. higher up.

(5) *The Southern Magazines — Statue Rooms*

The southern magazine corridor (4) (Pl. 27) also ran straight across the structure; but, instead of ending at the southern wall of the temple, it passed through a doorway in that wall into the exterior corridor. This doorway had been roofed with wooden beams (?), traces of which were found on top of the walls. At some later period, the southern end of the doorway where it entered the exterior corridor had been blocked with a crude-brick wall one brick thick. When, therefore, the wooden logs decayed, the brick-work above the blocking wall remained in place, but north of this it sank into the doorway, as in the exit from the vestibule to the exterior corridor. The débris between the floor and the fallen brick-work in the southern doorway of (4) was, however, largely of decayed mud and only about 15 cm. deep. In the western wall of the corridor there was originally only one doorway, near the southern exit, and it led into a single narrow room (18), (17), (5), of the same length, east-to-west, as the corridor. (For later alterations, see below.) In the east wall, two doorways led each to a single rather wide room (19) and (3). In the masonry of the portico there was no room corresponding to the small room (16) on the north. In room (3) there were three rectangular depressions in the floor, which I take to have been sockets for three statuettes. In this room were found four unfinished statuettes (one on Pl. 61 *d*), but they did not fit the sockets in the floor. In the northern end of corridor (4) (Pl. 61 *c*) there were found three nearly finished royal statuettes and one private statuette. In the same corridor, farther south, the four slate triads of Mycerinus were standing, two against the east wall facing south, and two against the west wall facing north (Pl. 36). The slate pair was found in a thieves' hole below the floor of (4) (Pl. 30 *a* and 54) but came, I thought, from (17), (18), (5). Thus the greater part of all the statuary which was not in the portico was in these southern storerooms, and this part includes the five practically unbroken figures. The conclusion is suggested that, while the utensils were in the northern magazines, the statues were stored in the southern rooms.

It is to be noted that in the original structure the doorways of this part of the temple were all closed by wooden doors and could therefore be opened for passage from the offering room (III-2) into the northern and southern magazine corridors, and from the southern magazine corridor into the exterior southern corridor, which led to the causeway corridor and ultimately to the pyramid temple. Later the doorway into the exterior corridor had been blocked, apparently to prevent access from the exterior corridor to the magazines, that is, while the exterior corridor was still in use.

In the second crude-brick structure, the northern and southern doorways of room (III-2) had been filled up with brickwork, and it is possible that the corresponding doorways of the first temple may also have been closed with brickwork late in the occupation of that temple; but on the stone thresholds as we found them, there were 10–20 cm. of débris with no trace of brickwork.

The long western statue-room (III- 18, 17, and 5) had been twice repaired or altered. In the first place, the small room (5) had been formed by opening a doorway in the west wall of corridor (4), near the northern end, and by constructing a thick wall of crude brick across the end of the long western statue room (Pl. 28 *b*; 29 *f*). The white plastering of the older room was preserved behind the ends of this cross-wall, the southern wall of room (5). On the eastern side of room (5), the wall beside the doorway into corridor (4) had been cut back by one course, and room (5) had been replastered all round. The opposite side of the inserted southern wall in room (17) was also plastered, so that clearly at this time both rooms (5) and (17) were in use. At the same time, or later, another much thinner cross-wall was inserted in the long room, dividing it into rooms (17) and (18), and this wall contained a wide doorway giving access to (17) from (18). Within this wide doorway, a second very narrow one, with a crude-brick threshold, had been built of poorer brickwork. These alterations, made on the old floor level and involving room (5), (17), and (18), all provide entrances to the new rooms and are inexplicable except by the assumption that they were carried out while the rooms were still in use for some of the original purposes of the building. The division between rooms (17) and (18) might have been made at the same time as the construction of room (5), but the masonry is different. The second doorway in the thin wall between (17) and (18) is certainly later than the other alterations.

(6) *The Exterior Corridor*

The exterior corridor is thus named because it passed along the southern face of the temple to the southwestern corner, where it turned north along the western face, until it debouched into the causeway corridor. The exterior wall of the temple was 300–335 cm. thick. To form the corridor, a thinner wall, 165 cm. thick, was built at a distance of 155–160 cm. from the face of the temple, and running parallel to it. There were two doorways into the temple, one giving entrance into the southern vestibule corridor (354), which became the only entrance after the blocking of the main entrance in front, and the other giving exit from the sanctuary corridor (4). Thus a clear passage was provided from the corridor through the vestibule, the open court, and the portico, to the offering room, the magazines, and statue rooms, and finally out through corridor (4) into the exterior corridor again and on to the pyramid temple. But it was also possible to proceed directly to the pyramid temple, or to come down directly from it through the causeway corridor and the exterior corridor without visiting the valley temple. The section of the exterior corridor along the southern wall of the valley temple was marked off as a part of the valley temple, however, by two doorways both of which had been closed by wooden doors. One of these was at the southwestern corner of the temple (Pl. 29 *b*) and had a stone threshold and wooden roof, while the other, without a threshold, was at the southeastern corner. By the brickwork over the roofs of these doorways, the southern wall of the corridor appeared to be joined with the brickwork of the temple wall. East of the eastern face of the vestibule, the corridor appeared to be continued eastward, but we found a joint in line with the face of the vestibule in both the northern and the southern walls of the corridor, making it clear that the extension of the corridor eastward was a later addition to the temple and to the old exterior corridor. We followed the extension about nine meters to the east of the face of the vestibule, but could go no further without encroaching on the modern Moslem cemetery. At 420 cm. from the face of the vestibule, a doorway, 155 cm. wide, led into the area in front of the temple, occupied by house walls of crude brick. This doorway had been closed by a thin blocking wall, also of crude brick, at some later period, but before the abandonment of the exterior corridor.

As before stated, the causeway corridor was structurally and functionally a continuation of the exterior corridor, and ended at the front entrance of the pyramid temple, near which there was an exit on each side, north and south. At a point 540 cm. west of the western face of the valley temple, a stone drain crossed the causeway corridor at a slight slant, draining from north to south. This was a stone slab about 35 × 35 cm. in section, with a channel, 15 cm. wide and 20 cm. deep, sunk in the mud floor of the corridor. At each end a hole led through the bottom of the side wall of the corridor to the outside. The drain had probably been covered with a stone slab. Its purpose was undoubtedly to take water collected in the angle between the corridor and the temple on the north and discharge it out to the sloping ground on the south. It will be remembered that the causeway crossed a waterchannel

higher up, and has now been completely washed away by the rain-water which came down the channel from the plateau west of the Second Pyramid. While the causeway and the corridor still stood, this water must have passed down the northern side of the corridor and the temple to the cultivated land in the valley. Any obstruction north of the temple would dam the water up in this angle between the temple and the causeway corridor.

It is further to be noted that the exterior corridor had been closed by a thin wall of crude brick, one brick thick, where it entered the causeway corridor. The purpose of this wall is difficult to perceive. The corridor on one side of the block must have been abandoned, while on the other, it was still in use. The block belongs therefore to a time when the complete decay of the valley temple was approaching.

(7) *The Decay of the First Crude-Brick Temple*

The permanency of a crude-brick building is affected by:

- (a) The soundness of its wooden parts.
- (b) The rainfall.
- (c) The rapidity of the accumulation of sand or débris.
- (d) The local topography which affects the course of the drainage water and of the drift sand.

The most decisive factor for the preservation of a building in the Giza pyramid field is its local topography, including, it must be noted, the situation of surrounding buildings. For example, the preservation of the mastaba tombs in the great cemetery west of the First Pyramid and north of the Second Pyramid was due, firstly, to the massive stone wall on the southern edge of that area and to the enclosing wall of the First Pyramid on the east, which together held up all the drift sand brought in by the north, northwest, and west winds, which are the prevailing winds, and, secondly, to the slope of the limestone substratum which allowed the rain-water to drain off to the north. The Mycerinus valley temple was in a fatal situation, standing free on a low gravel bank on the edge of the desert, at the northern side of the mouth of a wide *wady* and deflecting with its causeway the branch channel which drains the limestone plateau west of the Second Pyramid. As long as the causeway and its corridor stood, all the rain water discharged by the branch channel flowed down the northern side of the causeway to the back of the valley temple. There its only outlet, aside from an inadequate drain under the causeway corridor, was around the northern face of the temple. Any deposit of sand or débris north of the temple was bound to increase the accumulation of water in the angle between the causeway and the temple, while the flow of water around the temple hastened the decay of the exterior wall and the deposit of mud débris. Other factors, now undiscoverable, may have affected the deposit of sand, for example, a mere eddy of wind in the angle in question may have led to the formation of a bank of drift sand, the snake-form drift so common in the desert, at the northwestern corner of the temple. The effect of the water discharged by the branch channel is well shown by the device adopted in the second crude-brick temple to protect the building; for a rubble embankment over a meter high was built along the bottom of the western and northern walls of that temple, to protect them against erosion by water. Furthermore, the surface of decay of the whole temple showed the channels and lines made by water washing down over the middle of the western wall.

It will be remembered that in paragraph 2 A, above, the statement was made that a gap had been left in the massive western wall of the original stone temple, apparently to permit the passage of the limestone blocks coming down the causeway from above. When the western wall of the first crude-brick temple was built, the stone blocks already in place were enclosed in the brickwork and formed a support to it; but the gap in the stone wall was filled with unsupported crude brick. This gap extended from a point south of the causeway to the southern wall of magazine (III-6). As the brickwork in the gap south of room (III-2) was protected by the causeway, the western end of (III-2) was the only part actually exposed to the action of the water which collected in the angle between the causeway and the northern part of the temple. The examination of the first crude-brick structure showed that the western end of room (III-2) had been washed away and with it the inside faces of the northern and southern walls of that room. The doorway into the portico and the doorway in the screen-wall had also been washed away at this time. It was clear that the brickwork in the west end of (III-2) had become water-

soaked and soft, and being unsupported by the old stone masonry, had given way suddenly under the pressure of the accumulated rain-water. The northern and southern magazines and storerooms were unaffected by the rush of water. In the middle of the open court, the water must have spread in a pool, soaking the brickwork of the rooms standing there at that time, and bringing them down, but not affecting the walls near the southern and northern sides of the court. Probably the water finally drained away through the gravel foundations of the court, or evaporated.

The level of the surface of decay of the first temple over the western and the northern walls proves that a meter or so of sand and water-borne débris had accumulated against these walls at the time when the sanctuary was destroyed by the inrush of water. When the break occurred, the western end of room (2) was scoured out considerably below the previous accumulation of débris on the outside, but the foundations were left intact.

The gully through the sanctuary carried off the accumulation of water behind the temple, thus relieving the pressure on the western wall and preventing the utter destruction of the magazines and storerooms. At this time, or at any rate before the restoration of the temple, the accumulation of sand and débris on the western, northern, and southern sides of the temple had reached such a height that the causeway corridor and the exterior corridor were buried to just above their roofs. But the walls of the temple could still be traced in the sand, higher on the northern side, especially in the northwestern quarter, and lower on the southern side, especially in the southeastern quarter.

Before the second temple was built, the roofing beams in the doorways of the first temple had decayed, and the superimposed brickwork had sunk down into these doorways. The roof of the exterior corridor, and probably that of the causeway corridor, at least in the lower half of its course, had collapsed, and the corridors had become filled with drift sand. The roofs of the magazines and storerooms had also fallen, and these rooms had become partly filled with débris. The temple appears to have lain in complete ruin. A surface of decay was formed, and it may well be doubted whether even a pretence was made of maintaining the temple service.

Thousands of fragments of statues, stone vessels, pottery, and other objects were found scattered over the temple site in all deposits, but especially in the floor débris of the court. A few of the pottery vessels may perhaps be ascribed to the second temple or the later houses, but the majority were of Dynasty IV. The masses of utensils found in the northern magazines, and the statues found in the southern magazines and in the portico, by their inscriptions and by comparison with the objects found at the pyramid temple, were proved to be of the time of Mycerinus or Shepseskaf. The condition of these rooms showed that practically all the objects in the magazines and storerooms were in the rooms in which they had been originally placed by Shepseskaf. The statues in the portico appeared merely to have been raised about 20 cm., and placed on the later floor. They all bore the name of Mycerinus and were undoubtedly the work of his reign.

Nevertheless, hardly a single object was entirely undisturbed. The pottery in room (10) lay utterly smashed on the floor. The stone vessels in rooms (7), (8), (9), (12), (13), and (16) were also broken, but many of these vessels were complete and all had been broken in the rooms where originally deposited. But some pieces were found on the floor of the magazine corridor (20), and fragments fitting on several of the stone vessels were found in the lower deposit of débris in the court. Thus it is clear that a considerable plundering of the magazines had taken place previous to the construction of the second temple and indeed before the building of the second series of house walls in the court. Fragments of statues, a fine copper jar, and other objects were found in the water-borne débris in the middle of the court. It was also evident that the destruction of the statues had already begun in the period of the first plundering of the magazines. On the surface of decay of the first temple, and in particular on the southern wall of the temple, house walls had been built, and under these were numerous deposits of alabaster and slate chips made by the breaking up of the statues and statuettes. Among these deposits were a few unfinished model vessels of the forms so common in the mastabas of Dynasties V and VI, and made of the same stones as the fragments of statuary, occasionally even presenting parts of the polished surfaces of statues. This proves that model vessels were actually manufactured in the temple. As will be shown later, the plundering of the temple for hard stone did not cease when the second temple was built. But

it may be assumed that whatever else of value there was in the magazines and storerooms had been removed very early in the plundering of the temple, perhaps during the early years of maintenance of the services.

(C) DESCRIPTION OF THE SECOND CRUDE-BRICK TEMPLE, PLS. VIII AND X

On the surface of decay of the first crude-brick temple, before it became covered with sand, a second temple of crude brick was built, the parts of which coincided approximately with corresponding parts of the older temple. A new portal or vestibule was built over the middle part of the old; a new sanctuary, including closed portico and offering room, was built over the old sanctuary; at least two rooms were added, one on each side of the offering room; and, finally, an outer wall was built enclosing the whole. The older open court continued to serve the same purpose in the new temple, but the floor was now nearly a meter higher and was merely the surface of decay produced by the inrush of water through room (2).

(1) *The Outer Wall of the Second Temple*

The outer wall of the second temple was 220 cm. wide, considerably less than the outer walls of the old temple. On the north and west, this wall rested on the middle of the older wall and had been protected at the foot by a sloping rubble embankment, about 100–200 cm. high. The southern end of the west wall and its embankment crossed over the top of the doorway from the southern to the western exterior corridor; and the southern wall of this second temple was built over the southern wall of the southern exterior corridor. No trace was found of an eastern wall closing the front of the structure; so that this great wall on three sides of the second temple was probably, in fact, the enclosing wall of the pyramid city and followed the older walls of the city in front of the first temple to its eastern limits, where this later enclosure was then bounded by an eastern wall, running north and south. The eastern end of the northern wall was washed away near the northeastern corner of the temple; and the eastern end of the southern wall, continuing beyond the eastern face of the vestibule, gradually disappeared, having been weathered away. The walls of the offering room (2) were bonded with the western wall, so that clearly this great enclosing wall had been built at the same time as the second temple and was structurally a part of it. It is to be noted that the southern wall bounding the exterior corridor must have been visible when the second temple was built, and was perhaps mistaken by the builders for the southern wall of the first temple.

(2) *The Sanctuary*

The sanctuary consisted of two rooms, as in the first temple — a narrow, long (east-west) offering room and a wide (north-south) portico or anteroom — and these were approximately over the old rooms. But they did not exactly coincide with them in size or plan, and the floors were 20–30 cm. higher. It will be kept in mind that these two rooms had suffered most from the inrush of rain water, and were most in need of restoration.

In the first temple, the axis of the offering room had practically coincided with that of the temple; but in the second temple, in which the widening had caused the axis of the temple to shift about 140 cm. to the south, the manifest desire to bring the new offering room over the old resulted in setting the axis of the new room about 90 cm. north of the axis of the new temple. Yet it was still about 25 cm. south of the old axis. The new room was about 60 cm. less than the old in width. The southern wall rested on the older southern wall with its interior face about 10–15 cm. south of the old face. The interior face of the new northern wall, however, was about 70 cm. south of the old face, and the northern wall on the inside was founded in a trench cut in the old floor, while outside, on the north, it rested on the old wall, which had been partly cut down to take it. On the west, the new wall was built on the older denuded wall, and its interior face was about 25 cm. west of the face of the older foundation wall. On the east, the interior face coincided with the old face, but the doorway was of different form and shifted slightly southward. On each side of the eastern end of the room, a doorway opened into the adjoining magazine, as in the old room, but was adjusted to the positions of the new walls.

In this second temple, the portico was replaced by an anteroom, a simple rectangular room, not of the compound recess form, with a doorway in the east and the west sides and with a single north-

to-south row of four columns to support the roof. The east wall was built over the eastern boundary wall of the old portico, inside the screen-wall of the older temple, and its doorway was thus entirely west of the older doorway. The interior west face of the portico was set 50 cm. west of the older face. On the north and the south, the walls of the portico were built partly over the remains of the old walls and partly over the débris in the old portico, but the axis of the room remained unchanged, although the axis of the new offering room was shifted to the south. The four columns had been wooden logs, and had rested on circular limestone bases in a north-to-south line down the middle of the room.

The doorways of these new rooms had only mud floors, not stone thresholds. In the eastern doorway of the anteroom, we found a stone door-socket set in mud, and it is probable that all these doorways had been closed with wooden doors, whose posts rested in similar detached stone sockets.

The floor of the anteroom was on a level with the hard trodden surface of the mud débris in the court, which at this time covered the old stone ramp and hid it from view. On this trodden surface, just outside the doorway, were two more circular bases of stone. These imply a porch in front of the doorway.

In the offering room, on the second mud floor, at the western end, stood an altar consisting of an alabaster slab set on two upright stones, with a libation basin of limestone beside it. Beside this altar, on the south, four unfinished statuettes lay in confusion on the floor. The alabaster slab was water-worn and had fallen or been knocked over to the north. It appeared as if an altar-bench had stood originally in this place, and had been accidentally disturbed only after the abandonment of the temple. But the statuettes had perhaps been cast down from room (5) by treasure-seekers.

Near the western wall of the anteroom were four seated alabaster statues, inscribed with the name of Mycerinus. These stood just in front of the line of the west wall of the old portico and opposite the space between the first and second columns on the south, the third and fourth on the north. These positions did not correspond to the openings between the columns and the antae of the old portico, and it is probable that the statues, having stood in the old portico, had been shifted slightly to one side and raised to rest on the new mud floor.

(3) *The Magazines*

North and south of the offering room, the walls of the first temple were preserved to a good height. On the south, in line with the exterior southern face of the anteroom, an east-to-west wall 80 cm. thick had been built between the southwestern corner of the anteroom and the back wall of the second temple, enclosing a long room shaped like a magazine. But this wall was unplastered on either face. No corresponding wall was found on the north. Nevertheless a doorway gave access from the offering room to this space on the south, and another northward to the ruined northern magazines. The question naturally arises as to the purpose of these two doorways. Both had been walled up at an apparently early date, for the sides of the doorways were hardly worn, and thereafter there was no exit from the offering room. It is also to be noted that we found no opening through the western wall by which one might have passed upward toward the pyramid temple. The statues in the anteroom prove that the temple was still devoted to the funerary services of Mycerinus; and, if the same priests and servants were attached to both the valley temple and the pyramid temple, the procession from the valley temple to the pyramid temple must have gone back from the offering room to the front of the temple and around by some path not discovered by us. The exterior corridor and the causeway corridor were certainly not in a condition to be used. Alternatively, it is possible that the pyramid service was abandoned at this time, or was conducted by a different set of men from those attached to the valley temple.

The possibility suggests itself that the unexplained wall south of the offering room was intended for the side wall of a stairway leading to the roof, or even over the west wall toward the pyramid temple. But we found nothing to support this suggestion.

(4) *The Open Court*

The old floor of the open court, as stated, was buried in about one meter of mud débris. Neither pathway nor basin was any longer visible. And those who crossed from the portal must have walked upon the surface of decay formed by the débris deposited in the court. North and south, the court was filled with little mud huts and granaries.

(5) *The Portal Structure or Vestibule*

Over the middle part of the old vestibule we found the remains of a portal structure nearly square in form, of which the southern part alone could be fully traced. On both the east and the west, the southern side of a doorway was preserved, which was just outside and in line with the corresponding doorway of the old vestibule. The west wall descended nearly to the floor of the old court and was not plastered on the outside. The south wall crossed the northernmost of the southern magazines over denuded walls and débris. The east wall was founded on a low level like the western wall, and, like it, also showed the southern face of a doorway. Along the southern side of the anteroom, an east-to-west wall, unplastered like all the others, was founded on the floor of the anteroom and built against the older wall. These walls were all of the same size and quite clearly distinguishable. Although founded deep, they were built over the older walls, even over house walls, and were undoubtedly not earlier than the other walls which I ascribe to the second temple. Over the northern wall of the anteroom there were traces of another wall, and on the west, north of the doorway into the court, remains of the northern half of the west wall of the second portal. There can be no doubt that this portal building offered a passage through to the court, in the axis of the old passage, but with a higher floor-level.

(6) *General Decay of the Second Temple*

The second crude-brick temple was built on the ruins of the first temple (Pl. X, sections), and as, owing to the erosion on the one hand and the deposition of sand and débris on the other, the surface of decay presented by the old ruins was very uneven, the second temple was not founded on a level plane. The exterior walls built on the older walls were founded on a level with the sand and débris accumulated on the outside of the ruins at the time. The walls of the offering room and the wide room (portico) were fitted into the gully made by the water rushing through the old west wall, and here the surface of decay had been partially cut away to obtain a level floor inside the rooms. The portal was built over the ruins of the old vestibule. The court, having been left a hollow by the decay of the first temple, remained lower than the rest of the old temple, was re-used as it stood, and was encumbered with houses.

Thus the second temple, observed from the west, rose above the surface of its day and formed a sort of hollow filled with houses. The water, still deflected by the middle stretch of the causeway, continued to flow down the northern side of the main *wady* and to run off along the western and the northern sides of the temple, so that these two sides had to be protected by a rubble embankment against erosion. The surface of sand and débris on the west sloped evenly to the south, so that no pool collected against the western face, nor was there any trace of water breaking through the western wall. On the contrary, the temple seems to have fallen gradually to decay. The collection of sand and débris continued on the north, west, and south, and the decay of the crude-brick walls above went on until the surface rain-water ran over the west wall. This drainage water running over the ruins produced a surface of decay (Pl. 25 *a*) sloping toward the east-southeast, with little channels worn by the water. And the water filling the court appears to have run over the southern part of the vestibule. This was the surface of decay which we saw section by section in 1908 and 1910, carefully noting its slope and its water channels. The sand over the west wall, the highest preserved part of the second temple, was only about 20–50 cm. deep, but over the lower southeastern part several meters deep. This accumulation was due without doubt to some artificial obstruction in the mouth of the valley. In the northern wall of the vestibule anteroom (377), a square burial shaft, not much later than the Old Kingdom, descends to the subsoil, and the surface of that time was less than a meter lower than the present surface. In the Moslem period, probably about the twelfth century A.D., treasure-seekers dug the great rubble-lined hole in rooms (18) and (4), in which we found the slate pair. Smaller holes in the vestibule, and in the north wall of the court, were apparently of about the same date. In much more recent times the local inhabitants, extracting the decayed mud brick of the walls for use as fertilizing material (*sebakh*), had dug a number of holes in the western and northern walls which were easily accessible from the modern surface. But all these holes had become covered with drift sand before we began work, so that the valley presented a level surface of sand sloping very gently to the east-southeast (Pl. 24 *a*).

(7) *Plundering of the Second Crude-Brick Temple*

The chief objects of the second crude-brick temple had been merely taken over from the first temple. The statues which we found in the southern storerooms and the objects in the northern magazines were approximately in their original places. The large statues in the wide room (1) were only slightly shifted from the positions they had occupied in the old portico. The altar and basin in the offering room may also have been in the old offering room, but they had been reset and may have been entirely new. The statuettes beside them were certainly from the old temple and may have been only accidentally deposited in this room. If new pottery was provided, analogy with the Giza cemetery shows that it would have been of the traditional types, IV and XXV, and the model types, XLIII and XLIV, with perhaps a bowl-stand and a few bowls.

Thus apparently the second temple contained nothing to attract plunderers except the hard stone statues and vessels which had been in the first temple. But it is clear that the destruction of these objects in order to procure hard stone for model vessels, was resumed, if it was interrupted, as soon, at any rate, as the second temple fell into disuse. The position in which the shattered triad was found in the court showed that it was being broken up after the abandonment of the second temple. It had probably been taken out of corridor (4), where the other triads were found. The four statues in room (1) were also broken up in this period, before the formation of the surface of decay of the second temple. But the distribution of the fragments of statues through the various deposits of débris proved that the greater part of the damage had already been done before the building of the second temple.

(D) DESCRIPTION OF THE INTRUSIVE STRUCTURES IN THE MYCERINUS VALLEY TEMPLE

(1) *The Pyramid City of Mycerinus*

With the exception of the two rooms of the sanctuary and the very middle of the court, the whole of the Mycerinus valley temple within the walls of the later crude-brick temple was filled with small structures, rooms, and granaries of crude brick (Pl. VIII). The general appearance was that of a poor modern village (Pl. 31). This village extended also eastward beyond the face of the temple into the area delimited on the south by the continuation of the exterior corridor and probably by a similar wall on the north. The decree of Pepy II found in the vestibule room (377), badly preserved as it is, is similar in content to the stela of Pepy I found at Dashûr in the pyramid city of Sneferuw,¹ and the conclusion seems unavoidable that this village is the pyramid city of Mycerinus, or, at least, a part of it.

The Sneferuw pyramid city was a rectangle about 65 × 100 m. in size, with the long axis running east and west; but it is yet unknown whether the valley temple of Sneferuw stood in this rectangle or adjoined it on the west. Assuming an approximate analogy between the Sneferuw pyramid city and the Mycerinus pyramid city, the latter, being 51 m. wide, would have measured about 78 or 79 m. in length. The first Mycerinus valley temple appears to be a unit bounding the western side of the city, but the second seems to be included in the city rectangle. We followed the southern wall of the temple and the rectangle for a distance of about 70 m. before being forced to stop by the Moslem cemetery. If the rectangle included the temple, then the point where we stopped was only about 10 m. from the eastern end of the rectangle; but if the rectangle really adjoined the temple, then this point was about 70 m. from the eastern side. It seems more probable, from the relations between the earlier temple and the city, that the city was added to the temple and should be reckoned as extending about 78 or 79 m. eastward from the face of the temple. In either case the houses built in the court and later over the ruins of the older temple were an encroachment of the town on the temple. The reason for this encroachment is easily understood. The area of these pyramid cities was fixed by definite massive walls, so that they resembled fortified villages. By decree, the inhabitants, who were the priests of the pyramid temples and the trustees of the pyramid endowments, were granted certain privileges, exemption from taxes and from the exactions of administrative officials, probably as an additional inducement to maintain the offerings and services in the temple. These privileges made the pyramid cities very desirable for residence,

¹ Borchardt, *Ä. Z.*, Vol. XLIII, p. 1.

and certainly everyone living in the neighborhood of such a city who could scrape up any pretext to an inherited right sought to gain a house in the city. Thus there would be always a tendency to overcrowding. One can well imagine the manner in which the chief officials would use such a situation, and the comfortable perquisites which they derived from the sale of sites, accompanied perhaps by appointment to some nominal post in the priesthood of the pyramid temple. The Pepy decree may have been merely a renewal of some older decree; but it is certain that as long as the authority of that dynasty lasted, the pyramid city of Mycerinus was fully populated.

It is equally clear that it was to the interest of the inhabitants of this pyramid city to maintain at least some semblance of the funerary service as a justification for the continuance of their privileges. In this fact I see the reason for the limited character of the restoration of the temple; for the second temple consisted merely of the sanctuary and the enclosing walls, which were really the walls of the city. From these circumstances it is also evident that the pyramid city of Mycerinus could not have enjoyed its privileged position very long after the end of Dynasty VI. Once the privileges ceased to exist, all incentive to live in the city or to maintain the temples was destroyed, so that the site was abandoned and fell rapidly into decay. Situated as it was, the ruined temple and city were soon covered with sand and their existence forgotten.

(2) *The Different Periods of the Houses*

In a village of mud houses which have repeatedly fallen into decay and been rebuilt during a period of several centuries, the tracing of any one period horizontally through the site is practically impossible. The nature of the difficulties is well shown by the state of almost any of the older modern Egyptian villages or of the Bulaq quarter of Cairo. The houses of one generation are not simultaneously destroyed and replaced by a new series built on their ruins; but one by one, at irregular intervals of time, the houses fall or are discarded, to be rebuilt sometimes after a lapse of many years. When a new house is built, it is founded on the surface of decay, or on the foundations of an older house, or in a deep excavation. The mound formed by the decay of the village grows upward by the deposit of dirt in the streets and by the accumulation of débris of decay from the ruined walls. When such a village is excavated, only the foundations of walls are found buried in the mound, except when the town has been overwhelmed by some catastrophe or covered by some great levelling operation preparatory to the construction of an important building. When a village is abandoned, the last series of mud buildings melts away slowly or rapidly, according to the situation and the weather, until only the bases of the walls lie beneath a weather-worn surface of decay. In the pyramid city of Mycerinus, the mud walls were protected by the high outer walls of the two temples, but exposed like the temple walls to the rain-water of the branch channel and to the action of the sand and débris borne by wind and water.

Remembering the conditions, the difficulties encountered in unravelling the series of houses in the Mycerinus valley temple become comprehensible. The complete reconstruction of any one period was simply unattainable. The town as it stood when abandoned, which would naturally have presented the only opportunity of complete recovery, had been greatly damaged by the rain-water, and the southern part, more exposed than the northern, had apparently entirely disappeared. The following facts, however, serve to outline the growth of the city within the temple:

1. As long as the first temple stood, the city would encroach only on the open court, and the earliest structures are to be sought there.
2. The houses on the walls of the first temple must have been built after the greater part of the temple had fallen into decay, probably after the construction of the second temple. None of these houses encroached on the sanctuary proper (the portico and the offering room).
3. There are no buildings on the surface of decay of the second temple; that is, the last houses and the second temple fell into decay simultaneously.
4. In the northwestern quarter of the court, there are three distinct series of walls visible:
 - (a) On the floor of the court, embedded in the floor débris of the court, which was a deposit of decayed mud and sand about 20 to 70 cm. deep.
 - (b) On the floor débris of the court.
 - (c) Partly over the walls of the first temple and partly over the court, about one meter above the floors of the series (b).

(a) *The Walls on the Floor of the Court.* — The floor of the court was covered with a layer of débris of decay, mostly mud, with some sand and other material, which varied in depth from about 20 cm. over the stone pavement to about 40 to 70 cm. along the northern and southern sides. In this floor débris, especially in the upper part, a considerable number of fragments of stone vessels and of shattered statues (Pl. 34 c) were found, some of which fitted on fragments of stone vessels found in the magazines of the first temple, and had clearly been scattered by the plunderers of the magazines. Thus all walls founded on this débris (Pls. 32 b, d, e; 34 f) had been built after the very serious first plundering of the older temple; but the walls in the débris belong to the time when the funerary service was maintained in the first temple.

The walls embedded in the floor débris of the court were badly preserved, owing probably to the dampness and to the pressure of the superimposed débris. The bricks were crushed and the walls difficult to follow. Walls apparently founded on the floor of the court were exposed under rooms (301)–(304), (318), (332), (333), and in the northwestern quarter parallel to the western side of the court. Of these, the only well-built walls were under room (303). The later wall between (303) and (302) had, in fact, been founded on one of the older walls; and the older walls appear to have been denuded to the level of the floor débris of the court previous to the construction of the later walls. Within these older walls under the floor of (302), and in the floor débris of the court, a group of 35 pottery vessels was found, mostly unbroken (Pl. 34 a). Although this layer of débris contained many objects from the magazines of the first temple, the preservation of the vessels under room (302) indicates that they were originally deposited where found and not brought here from the temple magazines by plunderers. Either room (302 *sub*) was an extra magazine constructed in the court at the time of the funeral because of the lack of room in the over-filled magazines, or it was built for a similar purpose at some slightly later date, perhaps for the storage of utensils used in the service. For example, the offerings made in the early years succeeding the funeral were probably specially full, being real and not sham offerings, and may have been brought in vessels which, after being emptied, were set aside in this room.

A comparison with the vessels found in the Giza cemetery shows that the group from (302 *sub*) (Pl. 72 b) lacks a number of characteristic types found in the royal mastabas of Dynasty IV, that it contains some of the types found in the mastabas of Dynasty V, and that, finally, the group, as a whole, corresponds rather to Dynasty V than to any other (see Chap. IX, POTTERY).

(b) *The Walls Founded on the Floor Débris of the Court.* — The series of walls founded on the floor débris of the court, and denuded to the level of the walls of the first temple, was the best preserved of all. In particular, a bonded complex of rooms lines the southern side of the court (Pl. 33) and consists of five separate apartments each opening on the court (Pl. VIII):

- (1) Rooms (301), (317), (337), (338), (339).
- (2) Rooms (316), (315), and (302).
- (3) Rooms (314) and (303).
- (4) Rooms (308), (304), and (305).
- (5) Rooms (306), (307), and (324).

Some of the doorways had stone thresholds, and one door-socket of stone was found in (315). The doorway between (306) and (307) and that between (307) and (324) were very low, each spanned by a limestone lintel. The roofs over the rooms were presumably of wooden logs covered with mud, but might have consisted of crude-brick vaults such as were used in the chapels of the mastabas of Dynasty IV. The walls were generally one brick thick, alternating header and stretcher courses, and their surfaces were mud plastered.

On the floor of room (307) were found four pottery vessels, a limestone jar, and a rough limestone basin. The pottery vessels were: a tall red-polished bowl-stand (type XXII-2), a large red-polished basin (type XXXIV-1), and two large jars (type III). These types occur from Dynasty IV to Dynasty VI and do not greatly assist in dating the rooms.

North of room (324), the same series of walls continued under the portal structure of the second temple, and was certainly earlier than that structure. The northern wall of room (338) was built against the screen-wall of the portico and was later than that wall (Dynasty V).

Abutting on this bonded complex were the well-built walls of

(6) Rooms (310), (323), (325), and (331).

These were of later date, but appeared to have been intended as an enlargement of the group (306), (307), and (324). That is, they belonged to the same period of occupation. In the space between the walls and the stone pathway were a number of poorly built walls, which were slightly later and yet had their floors on the same level.

In the northern half of the court, no such continuous complex of well-built walls was present, but the greater part of the area was occupied by circular granaries and single rooms or pairs of rooms. In the northwestern corner decayed and obscure walls formed

(7) Three rooms (57*a*), (57*b*), and (58) (Pl. 32 *b, d*),

with their western and northern walls (half-brick thick) built against the niched wall of the court, and with their floors about 40 cm. above the floor of the court. On the floor of room (57*b*), in the NW corner, were five stacks of pottery — three stacks, each consisting of two flower-pots upside down against the north wall, and two stacks, each consisting of four coarse trays, leaning with upper sides out against the west wall. These were clearly in their original position in the room which is thus marked as a storeroom. On the same level with these rooms were the

(8) circular granaries (?) (40*b*), (48 + 49 *sub*), (50 *sub*), (53), (54 *sub*), (55), (56), (383 *sub*), (386 *sub*), (391 *sub*), (404), and (407) (Pl. 32 *b; 33 e; 34 f*).

As to

(9) the rooms towards the middle of the court,

we were never able to determine whether they belonged to this series of rooms or to the succeeding series; possibly they belonged to both.

(*c*) *The Walls Founded Partly on the Decayed Walls of the First Temple.* — A very extensive series of walls was founded partly on the denuded walls of the first temple, partly over the débris-filled magazines, and partly over the older structures in the court (Pl. 31 *a* and *b; 28 d; 27 d; 36 a*). Over the exterior corridor, the southern wall of the temple and room (III-19) stood the complex

(10) Rooms (5) to (11),

of which only the foundations below the floor level were preserved. On the foundation level were heaps of alabaster chips from statues, potsherds, etc., from the temple magazines. Probably connected with this complex were the walls of

(11) Room (I-4),

and with these in turn the walls forming

(12) Rooms (I-1) to (I-3),

which were over room (III-17) and corridor (III-4); but the connecting masonry had been destroyed by the two enormous holes dug by Arab treasure-hunters.

Similarly, over the northern magazines, the western wall of the court, and partly over the court, stood the large interbonded complex

(13) Rooms (I-12) to (I-21), (I-23), and (I-24).

South of (21) lay the

(14) Rooms (I-22), (I-27), (I-28), all bonded together.

To the same period appeared to belong

(15) the rectangular rooms along the northern side of the court (I-29), (I-30), (I-39), (I-47), (I-52), (I-54), (I-383), (I-386), inasmuch as they were built over the older circular bins. With these belong the circular bins (I-40*a*), (I-390), (I-393), (I-405), and (I-406). As already stated, the rooms near the middle of the side of the court may be assigned to this period or to the preceding period, or to both.

In addition to the walls just mentioned, the following complexes were also over temple walls:

(16) Rooms (101) to (104) on top of the south wall of the court.

(17) Rooms (388) and (389); over the northern magazine room (410) of the vestibule.

(18) Rooms (355) to (358) and (370) to (372) in the southern magazines of the vestibule.

The rooms (388) and (389) were over the walls and the filling of the northernmost of the vestibule magazines (410), (411), and belonged manifestly to the series of walls over the western magazines.

The intrusive rooms in the southern magazines (cf. 18 above) had floors above the old floors; their doorways corresponded with the old doorways, and the walls were well built and heavier than those in any other part of the city (Pl. 35). The walls of the old magazines were utilized, wherever possible, as the exterior walls of the new rooms. Under the floors a number of pottery vessels were found, which had been in the old magazines. These rooms had undoubtedly been built at a time when the walls of the first temple were still practically intact, although the roofs had already fallen and the magazines become partially filled with débris. But the doors opened into the corridor (354), and this corridor must have been accessible, although not necessarily from both ends.

The rooms (372*a*) and (372*b*) were overbuilt by the walls of the later portal building, just as were the walls north of room (324) in the court. Taking all the facts, it may be concluded that the later rooms in the vestibule magazines are certainly as early as the complex (301) to (307), in the adjoining part of the court, and may be even earlier. But it is impossible to decide whether they formed merely a restoration of the vestibule magazines, or were of the same character as the complex in the court.

(*d*) *The Walls in the City Enclosure in Front of the Temple.* — The rectangular enclosure of the pyramid city of Mycerinus extended eastward for perhaps 70 m. from the eastern face of the temple. The southern side was bounded by a continuation of the exterior southern corridor (III-21) of the first temple; and the walls of this city corridor, although they were built against the southeastern corner of the temple, were practically contemporaneous with the walls of the first temple. At a distance of 415 cm. east of the corner of the temple, a wide doorway (width 155 cm.) opened through the northern wall of the exterior city corridor into the city enclosure. It was unfortunately not possible to follow the city enclosure over any great area, owing to the presence of the modern Moslem cemetery. The village people became very nervous and begged us to desist.

The few structures cleared were sufficient to show that there were at least two periods of houses. Under the floors of the second or upper series, the same classes of objects were found as in the floor débris of the court, including fragments of stone vessels and statues evidently scattered by the plunderers of the magazines of the first temple. This series of houses appears, therefore, to correspond to that built on the floor débris of the court (series *b*, above). Contemporary with this series, a blocking wall had been built across the two ends of the doorway into the exterior city corridor, completely closing that corridor to access. The blocking of the vestibule of the first temple appears to belong to the same period. But these door-blocks may have been built in the latter part of the period of the houses. The walls of the houses, as preserved, were only from 20 to 90 cm. high and were denuded to a very uneven surface of decay, sloping down from a height of about 200 cm. beside the face of the temple, to 140 cm., about four meters eastward of the face. Thus a later series of buildings had almost certainly been washed away. The lowest walls in this quarter may safely be ascribed to the time of the early use of the temple, but their condition was such as to make their recovery impossible.

(*E*) HISTORY OF THE VALLEY TEMPLE AND CITY

The history of the construction and the decay of the Mycerinus valley temple may be set forth as follows:

- I. The unfinished stone temple, abandoned at the death of Mycerinus.
- II. The first crude-brick temple, erected by Shepseskaf.
 1. The rooms formed by the walls resting on the floor of the court (I-302 *sub*), etc., and the series *a* of the city.
 2. The screen-wall closing portico (III-1).
 3. The rooms of series *b* (including granaries).
 4. The alterations in the storerooms (5), (17), (18).
 5. The blocking of the doorway from vestibule (III-377) to corridor (III-380).
 6. Probably the construction of the rooms in the southern magazines of the vestibule.
 7. The plundering of the magazines; the removal of vessels and statues to be broken up for the stone continued through the rest of the time of both the first and second temples.

8. The gradual decay of the temple; the decay and fall of the roofs; the deposition of débris to a depth of 150–200 cm. in the magazines, and from 40–100 cm. in the court; the sanctuary apparently kept clear.
 9. The ruin of the sanctuary by the influx of water through the western wall of the offering room, the formation of a surface of decay; the sanding up of the exterior corridor and the accumulation of débris around the southern, western, and northern sides of the temple to the level of the surface of decay of this temple.
- III. The second crude-brick temple, erected at least as early as the middle of the reign of Pepy II, and perhaps earlier.
10. The series of rooms (*c*), over the rest of the temple and city.
 11. The decay of the second temple; denudation of the upper part of the walls by weather and drainage water; formation of a surface of decay; buried in sand; the burial pit of "the king's tribesman, Yer-r . . ." (Dynasty VII?), holes dug by Arab treasure-seekers of the twelfth to fourteenth centuries A.D. in north wall, and in rooms (III-4) and (18); removal of *sebakh* in recent times.

The point in doubt is the date of the construction of the second temple. The great repairs at the pyramid temple were in limestone and were probably made by Menera. There the necessity arose from the decay of the inner temple of crude brick. But neither of these facts assists us much in the problem of the valley temple. The conditions were different; the thickness of the walls may have been less at the pyramid temple; the decay of the two temples may not have occurred at the same time, and the restoration may have been delayed in the one case or the other. The length of time which it may have taken for the first crude-brick valley temple to fall in ruins is incalculable; the period from Shepseskaf to the end of Dynasty V is not too short, nor that to the end of Dynasty VI too long. The restoration of the temple was not an expensive undertaking, being well within the means of a prosperous landowner of the present day. The people whose interest it was to rebuild the temple were those who belonged to the community of the pyramid city of Mycerinus. Tax-free and relieved from requisitions of all sorts, they could well afford the restoration of the temple. The construction of the second temple is not, therefore, necessarily to be connected with the decree of Pepy II. That decree merely confirmed the old privileges, but the restoration of the temple may have given occasion for its issue. The decree is dated in a year which is later than the thirtieth and earlier than the sixtieth, or somewhere near the middle of the reign of Pepy II. If the decree were issued as a reward for the restoration of the temple, then the second temple was built before the middle of the reign of Pepy II. But, as already remarked, there may have been earlier decrees of which this is merely a formal renewal.

However interesting the question may be, the exact date of the second temple has only an academic value. The few fragments of pottery found were none of them as late as the Middle Kingdom. Even those found inside the walls or on the floor of series *c* of the house walls were clearly of Old Kingdom date, not greatly different from those found under the floors of series *b* and in the magazines of the first temple. All the more important objects were in the magazines of the first temple, or demonstrably removed from those magazines, with the exception of the four large alabaster statues in the portico of the first temple, which had been slightly shifted to the places they occupied in the second temple. Thus there are practically no objects for which the exact date of the second temple would have been of importance.

CHAPTER IV

THE TEMPLES OF THE THREE SMALL PYRAMIDS SOUTH OF THE THIRD PYRAMID

SOUTH of the Third Pyramid and close to the wall of crude brick, which limits the more intimate precincts of the pyramid itself, stand three small pyramids, in a row from east to west (Pl. 73; Pls. IV-VII). These are within the long rubble wall which joins the outer enclosing wall of the Second Pyramid and marks off the burial field of the time of Mycerinus, including within its fold, as far as we were able to trace it, the Third Pyramid and its temple, the three small pyramids, the Mycerinus cemetery, and probably the valley temple as well. Vyse numbered these three small pyramids, V, IV, and VI, from east to west, while Lepsius numbered them X, XI, XII from west to east. But the Giza pyramid field is so obviously dominated by the three great pyramids of Cheops, Chephren, and Mycerinus, and the small pyramids beside these are so clearly those of subordinate persons of the same reigns, that much confusion will be avoided by numbering the small subordinate pyramids from the pyramid of the king in whose reign they were built. Thus I number the pyramids beside the Third Pyramid as III-*a*, III-*b* and III-*c*, from east to west.

1. THE TEMPLE OF THE PYRAMID III-*a*

(A) THE IDENTIFICATION OF PYRAMID III-*a*

So far as identified, the small pyramids subordinate to the pyramids of kings, have always been the tombs of queens of the king beside whose tomb they stood. It is therefore probable that the small pyramids at the Third Pyramid are the burial places of queens of the family of Mycerinus. Vyse cleared out the underground chambers of all three, but has reported nothing which might serve to identify the owners of the tombs. In pyramid III-*b*, he found some hieroglyphics written in red paint on the roof; but of these the only intelligible signs form the name of Mycerinus. We cleared the temples of all three pyramids and found only a few objects. In the débris of the inner part of the temple of III-*a* we found fragments of a beautifully finished alabaster statue of a queen, but nothing bearing her name. Under the plastered floor of room (9) of that same temple, we found a small pot containing five model cups of alabaster, each bearing the name of "the king's son, Kay." But the manner in which these objects had been placed in the temple indicates that they were a later offering, and in that case Prince Kay may have been a pious descendant of the owner of the pyramid. Thus the excavation of the subordinate pyramids and their temples has really yielded no material for their identification.

Pyramid III-*a* is the most prominent of the three small pyramids, as well as the largest and the most elaborate. It was a true pyramid, cased at least partly in granite, while the other two were step pyramids left uncased (Pl. 73). Thus pyramid III-*a* was certainly the tomb of the most important lady of the family of Mycerinus. This position I would assign to the wife of Mycerinus, whom I call Queen Khamerernebtj II.

(B) THE EXCAVATION OF THE TEMPLE OF PYRAMID III-*a*

The southeastern corner of the temple of pyramid III-*a*, the easternmost of the three small pyramids, was marked down in December, 1906, while we were examining the ground for a place to dump the débris from the Mycerinus temple. In March, 1907, the same season, the whole front of the temple was traced in order to prevent any encroachment from the large dump running out from the inner temple of the Mycerinus pyramid temple. But the excavation of the temple was postponed until 1910.

On Saturday, February 26, 1910, as the gangs working on the sand over the surface of decay in the court of the valley temple finished their sections, each was sent over to the temple of the small pyramid III-*a*. This was a very simple piece of work. The walls were entirely of crude brick, and had been de-

nuded by wind and weather to a gentle slope, so that they were about 160 cm. high on the west beside the pyramid and about 60 cm. high on the east. The interior was filled with débris of decay in six layers on the west where deepest:

1. Sand and stones in the surface débris;
2. A thin layer of white limestone chips;
3. A very thin layer of burnt material;
4. A layer of sand;
5. A layer of fallen bricks and dust;
6. The deepest layer, sand mixed with decayed mud brick, plaster from the walls, etc. — débris of decay.

The ground immediately to the south of the temple was found to be clear of all buildings or graves, and the débris was thrown out on this side. All the débris in the temple and between the temple and the pyramid was removed in eight working days, and the temple lay clear on March 6.

Very few objects were found in the course of the excavations:

Tuesday, March 1, 1910. In the broken crude-brick stratum (5) in room (9), fragments of a beautiful alabaster statue of a queen.

Thursday, March 3. In the southwestern corner of the court (2), a pile of eight rough offering jars (R W IV). In room (6), ashes and marks of fire in the northeastern quarter. In room (7), abundant ashes over all the floor.

In broken brick stratum in rooms (3) and (9), several small fragments of statues, and in room (11), a flint knife, type 2.

Friday, March 18. In brushing the floor in room (9) a small pot was found, sunk in the floor, and in it five small alabaster model cups inscribed with the name of Prince Kay, and a smaller one of slate, uninscribed.

Various fragments of pottery, flint flakes, small pottery vessels, and a few fragments of stone vessels were also found in the débris.

(C) DESCRIPTION OF THE TEMPLE OF PYRAMID III-*a* (PLS. IV, V, VII)

As stated above, the three small pyramids south of the Third Pyramid are within the extensive rubble enclosure which surrounds the whole Mycerinus *enceinte*, and outside the southern side of the more intimate enclosing wall of the pyramid. They were surrounded by a thick rubble wall of their own, which ran a few meters outside their bases and included the larger temple of pyramid III-*a*. This rubble enclosure was entered near the northeastern corner by a pathway lined on each side by a continuation of the thick rubble wall, and leading off to the northeast toward the inner part of the Mycerinus temple.

The pyramid III-*a* of the usual pyramidal form, presented a core apparently built of low courses of small blocks of limestone. The two other small pyramids (III-*b* and III-*c*) were of large blocks, in step form, and uncased. On the analogy of these and other small pyramids at Giza, it is probable that III-*a* has an inner core of larger blocks in step form, and that the low courses of small blocks which are visible really form the filling of the steps of the inner core. Pyramid III-*a* had been cased in red granite from Assuan like the Third Pyramid. On the front, the first course of this casing, 96 cm. high, is still in place, but having been covered by the back wall of the temple, it had never been dressed smooth. The floor of the temple was about 30 cm. above the base of the pyramid, that is, the bottom of the granite casing. Below the casing lay a foundation course of fair-sized limestone blocks, which appeared to extend eastward under the temple. The base of the pyramid was 423 cm. below the granite floor in room (29) of the pyramid temple of Mycerinus.

The relatively massive foundation platform of the queen's temple bore only a crude-brick structure, just like the two temples of the king; and this parallelism justifies the assumption that the queen's temple (III-*a*) was also planned by Mycerinus as a stone temple, but finished after his death by Shepseskaf in crude brick. Three, or rather four, building periods are distinguishable:

1. Unfinished stone temple, foundation platform — Mycerinus.
2. Complete temple of crude brick — Shepseskaf:
 - (a) The earlier inner half of the temple;
 - (b) The later outer half of the temple.
3. Restorations and alterations during the period of occupation, not later than Dynasty VI.

(1) *The Unfinished Stone Temple of Pyramid III-a — Mycerinus*

It is impossible to determine how far the construction of the pyramid III-a had advanced at the death of Mycerinus. At least the limestone core and one course of the granite casing had been completed, and the limestone platform of the temple had been laid, but beyond that all is uncertain. As the stone walls of the temple had not been begun, it seems to me improbable that the casing of the pyramid with granite had proceeded very far. No clue whatever was found to the plan of the stone temple.

(2) *The Crude-Brick Temple — Shepseskaf (Pls. 74, 77, 78; and IV, V, VII)*

The crude-brick temple, omitting later alterations, consisted of an inner and an outer part not structurally bonded together. The inner part had been completely finished, to the plastering and whitening of the interior and exterior walls. The outer part had been built against the plastered and whitened exterior wall of the interior temple, and was therefore later in date, if only by a few weeks or even days. The dividing line between the two parts crossed the temple from north to south about in line with the eastern face of the wall which bounds the entrance corridor, the portico, and the kitchen (?) on the west. Thus the later outer part consisted of the following rooms:

- (a) Entrance corridor, room (8).
- (b) Open court of niches, room (1) (Pl. 78 a).
- (c) Court portico, room (2) (Pl. 78 a).
- (d) The magazines or kitchens, rooms (6) and (7) (Pl. 78 b).

But the wall which bounds these rooms on the west belonged, as just stated, to the inner part of the temple. The inner part of the temple contained the following rooms:

- (e) The anteroom(3).
- (f) The stairway anteroom (4).
- (g) The stairway (5).
- (h) The hall of niches (9) (Pls. 77; 78 c, e).
- (i) The inner offering room (12) (Pl. 77 c).
- (j) The magazine (11).
- (k) The secondary offering room (10) (Pl. 78 d).

All the walls which surround these inner rooms belonged to the earlier temple. In addition to the plastered face on which the outer walls abutted, the bricks of the outer part were lighter in color and of a different consistency from those of the inner part, which were of ordinary black Nile mud. But apparently the outer part was prescribed in the original plan, because abutments were already built in the front wall of the inner structure opposite the walls which were afterward built to form the outer structure.

The inner temple was functionally incomplete in lacking the outer court, which the evidence of the mastabas shows was used for the slaughter of sacrificial animals, but was complete for all the more intimate purposes of a temple. Thus, considering all the evidence, it appears that the inner part was hastily constructed at the time of the funeral, and the rest completed on the original plan a few weeks or a few months later. The character of this addition, moreover, is against the theory that it was built by the funerary priests of this pyramid at a considerably later date, for as a rule the works of the funerary priest of later times consist only in such necessary repairs as will permit his continuing his services. I am, therefore, of the opinion that both parts of the temple were built by practically the same people (not necessarily by the same masons) probably within the same twelve months.

The analogy between the construction of this pyramid with its temple and the pyramid of Mycerinus with its two temples is patent. Both pyramids were intended to receive a granite casing; all three temples were planned in stone and finished in crude brick; and the very plastering on the walls is the same. There can be no doubt that the massive stone constructions were interrupted in all three cases by the death of Mycerinus and that the crude-brick structures were executed on the orders of Shepseskaf.

(a) *The Entrance to the Temple of Pyramid III-a.* — In addition to the wide rubble wall (80 cm. thick) which enclosed all three of the small pyramids, the temple of III-a has a narrow wall (32 cm. wide) partly of rubble and partly of crude brick, parallel to the outside walls at a distance of 32 cm.

At the northern entrance to the temple, this narrow wall, here of crude brick, turns inward at right angles, to meet the northern face of the temple on each side of the entrance doorway. Directly opposite, the thicker rubble wall is broken by an opening, and the two ends of that wall are continued in a slanting direction northeastward as the boundaries of a road or path leading toward the crude-brick enclosing wall of the Third Pyramid, probably to a doorway in that enclosing wall. I reconstruct the older inner temple of the Third Pyramid — that built, as I assume, by Shepseskaf, of crude brick — with a doorway in the southern wall opening into the pyramid enclosure. This would have permitted access through the doorway in the southern enclosing wall to the pathway mentioned above, and so to the enclosure of the three small pyramids. Similar connections existed between the enclosure of the king's pyramid and that of the queen, at several other, perhaps all other, pyramids of the Old Kingdom.

The entrance to the temple of III-*a* led from this pathway southward into the eastern end of the corridor (8), by a doorway through the northern wall. The floor of this doorway consisted of four limestone slabs built in the brickwork, with socket-holes in the fourth or inmost slab. The inner edge of the third slab was elevated about six centimeters above the fourth slab, to form a ledge against which the wooden door-leaves closed. Outside the doorway, a single sloping stone formed a small ramp, against each side of which a narrow slab was set, sloping in two directions, but not rising above the surface of the ramp. The doorway was plastered with mud and whitened like the other wall surfaces of the temple, and had been closed by a two-leaved wooden door on the inside and opening inward.

(*b*) *The Entrance Corridor (8)*. — The entrance corridor seems to have served simply as a passage from the outer doorway to the court. The doorway into the portico of the court had a threshold composed of two slabs of limestone, built in the masonry at the ends and with the upper surface 4 cm. above the mud-plastered floor. It was closed by a two-leaved wooden door on the portico side. The floor of the corridor was a thick layer of mud laid over the foundation packing of gravel. A later coat of white plaster covered the older white plaster on the west wall, and on the joint in the masonry in the north-western corner.

(*c*) *The Court (1), and the Court Portico (2)*. — The part of the outer temple which, having been added later, brought in one of the most characteristic elements of the plans of the large Mycerinus temples, was the court with its portico. The northern wall of the court showed the same series of one compound niche and three simple niches that was present in the court of both the Mycerinus temples; and although the walls on the east and south were denuded below the base of the niches, it is practically certain that these two walls were also niched in the same manner.¹

The court was 10.5 meters long from east to west, and 9 meters wide from north to south. Of this area, a strip 2.8 meters long (east to west), running the width of the court, was taken by the portico; the rest, 7.70 × 9 meters, was paved with yellow limestone slabs. This pavement sloped very slightly toward the centre, where a rectangular stone basin was let into the floor just south of the middle. The basin was a single block of stone 120 × 92 × 45 cm. and was sunk with its top two or three centimeters below the pavement. The bottom of the basin had been broken through by treasure-seekers, who dug about 30 cm. into the gravel foundation filling. The court was, of course, open to the sky.

The portico which, as I have said, measured 2.8 × 9 meters, had a mud-plastered floor and was roofed with wood, the rafters of which were supported on the eastern side by four round wooden columns resting on stone bases. The marks of the ends of the columns on the bases showed that the columns had been renewed at some time, the prints of the second set of columns being less in diameter and not centred on the stones. After the erection of the second set of columns, a screen wall of crude brick with a doorway in the middle had been built across the front of the portico, shutting it off from the court. The proof that the wall was later than the columns was given by the fact that where the wall actually touched the columns, it was unplastered in lines 10 cm. broad from the floor upwards (Pl. 78 *a*). The resemblance to the screen walls of the two large temples is obvious, but the doorway in this screen wall had no stone threshold and appeared not to have been closed with a door.

(*d*) *The Kitchens (6) and (7)*. — The doorway in the southern end of the portico led into a long (east to west) structural space 235 cm. wide balancing the corridor space in the north, but 25 cm. wider. The

¹ Cf. temple III-*c*.

doorway was, on the contrary, only 65 cm. wide compared with the 90 cm. of the opposite doorway from the entrance corridor into the portico. A single limestone slab formed the threshold; the single-leaf door, resting on a stone socket (not in place) was swung on the portico side of the door-jam, but in the original temple the door may have been swung on the southern side of the doorway.

This long structural space was originally 10.5 meters in length and 2.35 meters wide, but had been divided into two rooms (7) and (8) by a cross-wall broken by a doorway. The western room (7), was 6.60 m. long; and room (8), the eastern, 3.15 m. long. The floors of these two rooms had been originally plastered with mud, and the threshold of the doorway in the cross-wall had consisted of a limestone slab. But at some later period, a pavement of slabs of white limestone, not yellow like the court, had been laid over the mud floor in room (7) and perhaps also in room (8), and a new stone threshold set in the connecting doorway over the old one. A slight repair of the northern jamb of the doorway had been built over the new threshold and belongs properly to the same period as the stone pavement. The western half of this pavement had been torn up in room (7), and the whole of the pavement in room (8), if (8) was paved, as I believe it was, had been similarly treated.

In the northeastern corner of room (8), two upright slabs of stone had been set in the pavement, similar to those which were used to support the stone offering benches in the inner rooms. The wall beside these slabs was blackened and reddened by fire, and the floor thereabouts was littered with ashes and coals. The fire had been an open one built on the pavement. In the northwestern corner of room (8) was a hearth (?), a rectangle open on the south, built of stones and bricks set on edge. It was filled with coals and ashes, and the floor of the room was covered several centimeters deep with ashes. The pavement, if it extended throughout this room, was laid over these remains.

It appears, therefore, that rooms (7) and (8) had been used for some purpose for which a fire was required, and the most obvious purpose was the cooking of food, especially meat. Furthermore, the rooms were used for this purpose for a long period, beginning probably before the laying of the stone pavement and lasting certainly during the final occupation of the rooms before the accumulation of any débris on the floors. The faces of the walls of these rooms had been plastered with mud, but not whitened.

(e) *The Anteroom of the Inner Part, Room (3)*. — The front wall of the inner part of the temple was 2.15 m. thick like all the exterior walls of the completed temple, while the walls dividing the rooms varied from 1.35 m. to 1.65 m. in thickness. The length of the doorway from the portico to the anteroom (3) was determined by the width of the wall; the jambs extended 1.05 m. inwards from the outer face of the wall and rested on the ends of a threshold composed of two limestone slabs. In the inner angles of the jambs, there was a stone door-socket on each side in which swung a two-leaved door opening inwards.

The original size of the anteroom (3), was 3.15 m. long (east to west) by 6.20 m. wide (north to south). But the western wall was in the form of a very wide and very shallow niche which increased the length in the middle by 10 cm. to 3.25 m. At some later time the eastern wall had been thickened by a layer of brickwork which reduced the length of the room to 2.60 m. (or 2.70 m. opposite the niche). The room was replastered after this alteration.

In the western corner, a doorway in the south wall led into the room (4). This doorway was provided with a stone threshold and had been closed by a door swinging back into room (3).

(f) *Room (4) and Stairway (5)*. — Room (4), entered as described above from the anteroom (3), was itself the landing or anteroom of the stairway (5), which led to the roof. Room (4) was nearly square, being 3.15 m. long (east to west) and 3.55 m. wide (north to south). It appeared to have served no other purpose than that of giving access to the stairway by means of a doorway through the southern end of its western wall.

It will be noted that the ground plan of this inner part of the temple is nearly symmetrical; room (4) balances with room (11) and the L-shaped space of the stairway, room (5), balances room (10). The doorway to the L-shaped room (5) had no stone threshold and appeared to have been closed by a door swinging into room (4). As excavated by us, a stair of crude bricks set on edge began on a line with the outside of the door-jamb towards room (4), rose by seventeen low steps to a line over the middle of the inner arm of the L, beyond which line it had disappeared by weathering. These steps consisted of two courses of crude bricks laid on edge on a filling of small limestone chips; and the whitened plaster of the

walls of room (5) descended below the brickwork of the steps and the filling. Thus this stair was, in any case, a later construction built after room (5) had been in use. But an examination of the western end of the stair in the western arm of the L, showed the foundation course of a lower stair of similar construction, also resting on limestone chips (Pl. V). This earlier stair had reached the level of the floor of room (5) in the western part of the eastern arm of the L, leaving unoccupied the eastern part of this L adjoining the doorway into room (4). The plaster in room (5) descended to the top of this lower stair, which appears to have been about 50 cm. lower than the later stair.

It is to be noted that the later stair had no landing in the turn of the L-shaped space and must have reached the roof somewhere over the masonry between the temple and the pyramid without making a turn. The earlier stair, following the lines of the L-shaped space, made a turn north and apparently reached the same height as the later stair, but at a point over the inmost room (12) of the sanctuary. The earlier stair clearly belonged to the original period of construction, that of the inner part of the temple. The later stair was built of lighter colored mud bricks.

In the southern wall of room (5) was a narrow opening like a doorway, but straight-sided without jambs. This opening had been walled up and plastered over in the original plastering of the room. Outside, the narrow enclosing wall had been denuded away so that it was impossible to determine whether an opening had existed in that wall opposite the opening in the main wall. I came, therefore, to the conclusion that this opening in the south wall of room (5) was left in the masonry as a construction entrance to facilitate the introduction of bricks and plaster used in the construction especially of the interior walls and the stairway.

(g) *The Hall of Niches (9)*. — The hall of niches was 1.90 m. long (east to west) and 10.50 m. wide (north to south). The southern end was closed against the stairway space (5), while the northern end opened by a doorway into room (10). In the axis of the temple, a doorway led in from room (3), and another led out opposite into an inner room (12). The doorway from room (3) had no stone threshold, but was plastered level with the mud floors inside and out; the jambs were 85 cm. long; on each side at the inner end of the jamb was a stone door-socket; in these had turned the doorposts of a two-leaved wooden door; the leaves had been of the usual battened type; and the wearing marks of the turning door post and of the battens were plain on the walls for all to read¹ while decayed wood was abundant in the sockets and on the floor. The opening into room (12) was plastered with mud and had never been closed by a door. The doorway into room (10) was paved with stone slabs, but was otherwise exactly like the doorway from room (3) with the same kind of wearing marks in the plaster. The leaves of the door swung inwards into room (9). But this doorway was a later construction, for the western door-jamb was a separate half-brick wall built against the old plastered face of the doorway, apparently in order to permit the western leaf of the door to swing back against the front of the stone bench in the northwestern corner of room (9). This offering bench projected about 10 cm. beyond the old western face of the doorway. The older doorway may not have been closed with a door.

The western wall of room (9) was built in a series of niches exactly symmetrical on each side of the entrance which led into room (12). In the middle of each side was a large deep double compound niche flanked on the north and the south by three small compound niches (Pls. V, and 78 e). This room contained several offering places, added after the walls had been plastered and whitened. In the northwestern corner was a complete and unbroken offering table built of seven limestone slabs (Pl. 77 a). It was partially closed in front by an upright slab and had a horizontal slab set some distance below the tops of the side and back slabs. In this horizontal slab was a small circular depression large enough to take a round-bottomed stone or pottery bowl of medium size. The front of the depression was worn as if by the hand in placing and removing a bowl. Below the horizontal slab, a rectangular stone basin rested on the floor. In the débris below the horizontal slab and before the whole table were found 50 to 60 small model offering jars and saucers of red-brown pottery. In front of the double compound niche, south of this table, a rectangular limestone slab was set on a low mud foundation so that its top was level with the base of the niche (Pl. 77 b). In this slab were two depressions for bowls, and both were hand-worn on the outside like the bowl depression in the table. Adjoining the floor slab on the south, a sort

¹ See Pl. V, and Pl. 78 c.

of platform ran along the wall keeping level with the top of the floor slab, that is, with the bases of the niches. The first part of this platform next to the floor slab was of stone, but the rest was of crude brick. In the double compound niche, however, there was a clearly marked line of indentation, as if a table of similar character to the one in the corner had once stood in the outer part of the niche. Directly opposite the middle one of the three small compound niches south of the great niche, in the middle of the room, the small pot which contained alabaster vessels with the name of Prince Kay was sunk upright in the floor and covered by the mud plaster of the floor (Pl. 77 *b*).

In the southern half of the room (9), against the western plastered face between the first small niche and the doorway into room (12), stood a mud-brick basis (Pl. 78 *e*) about 30×30 cm. and 30 cm. high. The outer part was slightly rounded off, and the whole had been plastered and whitened. If it had been entirely square I should have assumed that it had served as the basis for a small obelisk and had been balanced by a companion basis on the northern side of the doorway into (12), for which analogies occurred in the mastabas. But as it stands, I am doubtful of its purpose. The double compound niche on the south had a line of horizontal indentations like the northern double compound niche; but there were no other traces of offering tables or stones in this half of the room.

(*h*) *The Inner Offering Place, Room (12)*. — On comparing rooms (9) and (12) with the offering places of the early mastabas of crude brick, room (12) seems to be really an integral part of the niched wall of room (9). It is as if a third double compound niche mid-way between the other two had been enlarged into a small room of niched form. The entrance, as stated above, was not a real doorway and had never been closed with a door. The large part of the inner niche, like a small "wide-room," measured 1.30 m. long (east to west) by 2.90 m. wide (north to south). The west wall had contained an offering niche in the middle, but the destruction of the brickwork at this place prevented our tracing the exact plan of this niche.

(*i*) *The L-shaped Offering Room (10)*. — The L-shaped offering room (10) (Pl. 78 *d*) was entered by a door in the northern end of the hall of niches (9), the construction of which has been described above. The western arm of the L contained traces of three offering places. In the extreme southern end against the southern wall was an offering table of stone slabs of the general form of the table in (9), with a single depression for a bowl; but the table had been upset, leaving the stones displaced and in confusion. Beside this table in the western wall, the marks in the brickwork below indicated that there had been a niche in the wall above, toward the pyramid. In front of this niche, on the floor, was a large limestone slab, 190×80 cm., perfectly plain, without the bowl depressions. This served as an offering stone or possibly as a resting place for a basin or something similar. North of this slab there had been a third offering place, apparently a table, of which there remained two smaller stones set in the floor at a distance of 150 cm. apart.

(*j*) *The Magazine (?), Room (11)*. — From the northern end of the L-shaped room (10), a doorway opened eastward into a small square room (11), measuring 3.13 m. long (east to west) by 3.65 m. wide (north to south). The doorway had been closed by a single-leafed door pivoted on a socket inside the northern door jamb. For some reason the opposite angle at the inside end of the southern door jamb had been lessened by building a pillar of half bricks in the angle against the white-plastered face.

In the room were two inserted structures. In the southeastern corner, a manger-like basis was built of crude brick, except that the top of the northern wall was formed by a single block of stone of square section, set level with the brickwork in the west end. The cavity behind was filled with débris not unlike that of the room. The whole, about 60 cm. high, may have been covered with a stone or wooden slab. In the northeastern corner was a construction of an entirely different sort. Two walls, about one meter high when excavated, stood, one against the eastern wall, and the other, at right angles to the first, against the northern wall 140 cm. from the NE corner of the room. They appear to have supported a floor, like the second floors in magazines, and would thus have formed a shelf in the corner, 185×80 cm. in area. Against the eastern wall adjoining the end of the shelf wall was a low buttress about 50 cm. high and 65×50 cm. in area, which I can only interpret as a step on which a person might stand in order to reach the shelf. The second floors in magazines were often reached by means of steps of this sort.

(k) *The Plastering of the Whole Temple.* — The walls had been originally heavily plastered with yellowish mud and covered with a good thick coat of white plaster of Paris. Wherever alterations had been carried out, the new parts were also plastered and whitened. In the inner rooms the whitening had been repeatedly renewed and covered irregularly the edge of the mud floor. In rooms (3) and (4), a grey-black band ran round the rooms, except in the recesses of the doorways, at a height of 1.32 m. above the floor. Otherwise no trace was visible of any attempt to decorate the walls. It is of course possible that scenes had been painted on the walls above this black band as in the mastabas, but no trace was visible. In rooms (3) and (9), the mud plaster of the floor had been washed with a bluish-grey color which had splashed up on the bottom of the wall in places but had been worn away in the middle of the floors.

(3) *The Later Alterations and Repairs*

The alterations and repairs to the temple have been mostly noticed in the description of the completed temple, but for convenience they are reviewed in this paragraph:

1. In the portico (2), the wooden columns had been replaced and the screen wall built with its doorway into the court.
2. In rooms (6) and (7), the dividing wall had been made later; still later the stone pavement was laid and the connecting doorway repaired.
3. The shallow recess at the western end of room (6) had been filled by a half-brick wall built against the face of the older inner part of the temple.
4. Room (3) had been made 45 cm. shorter (east to west) by the insertion of a brick-and-a-half wall built against the plastered eastern face.
5. In room (5), a second stair had been built which began in the doorway instead of in the room and rose therefore about 50 cm. higher than the first stair. The second stair rose in a straight line westwards, while the first stair followed the lines of the L-shaped space in which it was built.
6. In the room of niches (9), the table and the offering places had been added after the room had been plastered and whitened. The doorway into room (10) had been altered to permit the western leaf of the door to swing back against the offering table.
7. The whitening had been repeatedly renewed.

Thus none of the alterations made after the completion of the temple were extensive and all were of a very practical character. The building of the screen wall has a striking resemblance to the similar alteration at both the large temples of Mycerinus and was probably done at the same time (Dynasty V). The reason for the reconstruction of the stair is less obvious, but was probably due to some damage from weather or to the decay of the temple.

2. THE TEMPLE OF PYRAMID III-*b* (PLS. VI, VII; AND PLS. 73, 75 *b*)

Pyramid III-*b* is the second of the small pyramids south of the Third Pyramid and stands 10.15 meters west of the queen's pyramid III-*a*. The general situation of the three small pyramids and their relation to the *enceinte* wall, to the enclosing wall of the Third Pyramid, and to their own enclosing wall proper, has already been described in this chapter.

Pyramid III-*b* and Pyramid III-*c* are both "step-pyramids" in four stages and practically duplicates in size and form. The measurements vary slightly according to the place where they are taken, and the similarity is probably greater than appears from the figures.

	III- <i>b</i>	III- <i>c</i>
Side of base of stage I	31.24 m.	31.55 m.
Side of top of stage I	29.14 m.	29.17 m.
Side of base of stage II	23.31 m.	24.08 m.
Side of top of stage II	20.55 m.	21.57 m.
Side of base of stage III	13.50 m.	13.72 m.
Side of top of stage III	10.97 m.	10.97 m.
Side of base of stage IV	7.01 m.	7.38 m.
Side of top of stage IV	5.89 m.?	. . . .
From top of stage I to base of stage II (horizontal distance)	2.91 m.	2.54 m.
From top of stage II to base of stage III	3.52 m.	3.92 m.
From top of stage III to base of stage IV	1.98 m.	1.79 m.
Height of stage I	5.26 m.	5.26 m.

	III-b	III-c
Height of stage II	5.94 m.	5.94 m.
Height of stage III	5.94 m.	5.94 m.
Height of stage IV	4.06 ± m.?	....
Batter of stage I	1.05 m.	1.14 m.
Batter of stage II	1.38 m.	1.25 m.
Batter of stage III	1.21 m.	1.37 m.
Batter of stage IV . . . . .	.56 m.	....

Although some of the variations in the measurements of the two pyramids are undoubtedly due to difficulties of measuring and to the weathering of the masonry, all the variations cannot be ascribed to these causes; and the two sets of measurements taken from two pyramids of similar types of masonry and plans erected probably by the same masons afford an illuminating example of the practical methods of the Egyptian builders.

The lowest stage of pyramid III-b, consisted of four courses of medium-sized blocks of local limestone founded on the rock; the second and third, of five courses each; and the fourth, which was broken, had three courses still preserved. The faces of each stage were stepped like the faces of the mastabas of the period and consequently had a slight batter, about like the core-structure of the Chephren mastabas, or a little less. The steps had been dressed in the stone after the construction and corresponded roughly to the courses of the masonry; but as the lines of the steps were straight (level) and the lines of the courses rather irregular, the two did not coincide. The carelessness with which the courses were laid seems to indicate that the structure, like the cores of the Chephren mastabas, was intended to be cased with some better stone.¹

Against the eastern face of the lowest stage, a temple had been built of crude brick. On this face the lowest step of the pyramid had been omitted to obtain a flat surface for the crude-brick wall. Owing to the proximity of the back of pyramid III-a, the temple was much wider in the north to south direction than it was long (east to west).

As already stated, the burial chambers of pyramid III-b were cleared out by Vyse.² The inner room contained a granite sarcophagus of small size, remains of wooden boards, and fragments of a skull and other bones which Vyse judged to be those of a young woman. A fragment of inscribed stone was found in the anteroom and bore the two signs "endowed with life" which usually follow royal names. On one of the limestone slabs composing the roof of the burial chamber were a number of hieroglyphic signs written in red, some of which Vyse copied.³ These include the name of Mycerinus in a cartouche, Pl. XI, No. xvii; and the whole was probably the name of the crew "Mycerinus-is-drunk."

In the débris of the temple, we found nothing which might assist in the identification. One small fragment of a statue might even have been intrusive. The other objects were exclusively fragments of pottery.

Thus the name of the owner of the pyramid is lost. Nor do we know the names of any other members of the family of Mycerinus with which, by inference, the owner of pyramid III-b might be identified. We may say, however, that she was a young female who died after the death of Mycerinus and was probably a second wife of the king.

(A) THE EXCAVATION OF THE TEMPLE OF PYRAMID III-b

When we approached the excavation of the temple of pyramid III-b the ground was encumbered on the side next to pyramid III-a with a mass of débris sloping down from that pyramid towards the middle of the space between the two pyramids. This débris consisted mostly of broken stone and was the result of recent destructive work on the pyramid III-a. Under this broken stone the old débris of decay of the temple of pyramid III-b lay intact. It sloped from near the top of the first stage of the pyramid eastwards towards the base of pyramid III-a and had received its form through the action of the prevailing north wind which eddies around the Third Pyramid and sweeps between these small pyramids.

¹ For the plan of the pyramid and its burial chambers as well as the measurements, see Vyse, *Pyramids of Gizeh II*, pp. 41 and 124.

² *L. c.*, pp. 46-49.

³ *L. c.*, p. 48.

The surface débris, largely of sand mixed with decayed bits of limestone, was an even layer of about 20 cm. over the whole. Under the top débris lay a surface of decay, and below that the rooms of the temple were filled with decayed mud brick mixed with a little sand. On the floor was a layer of ashes, coals, and dust.

On Wednesday, March 9th, 1910, we began clearing away the recent limestone débris. We worked on this until noon of the 10th, resumed work on the 11th and by 4 P.M. had removed all the upper débris to the surface of decay. The removal of the mud débris began at noon on April 5th and continued until the afternoon of April 7th when the temple was clear. Thus four working days were employed in the excavation with a force of about fifty men.

(B) DESCRIPTION OF THE TEMPLE OF PYRAMID III-*b*

(1) *Massive Stone Temple—Mycerinus*

At the temple of pyramid III-*b*, as at all the other temples hitherto described, a beginning at least had been made with the construction of a massive stone foundation for the temple, and the temple had then been built of crude brick over this foundation. The exact extent of the foundation was not traced, but some of the stones were visible in intrusive holes. This condition is parallel to that at the Mycerinus pyramid temple, the valley temple, and the temple of pyramid III-*a* and justifies the conclusion that Mycerinus had planned for pyramid III-*b* a stone temple with granite-cased limestone walls. This temple was obviously less advanced at the death of Mycerinus than any of the others and was therefore probably begun after them. But it is to be noted that work on all four of these temples was proceeding simultaneously at the death of the king.

(2) *The Crude-Brick Temple—Shepseskaf*

The crude-brick temple of pyramid III-*b* like the other crude-brick temples of the Mycerinus cemetery, was presumably built by Shepseskaf. Being about the same size as the crude-brick funerary chapels attached to the old mastabas in the western part of the Cheops cemetery, it presented the modest simplicity of these chapels and resembled especially the chapel of G 1203, the tomb of Prince Ka-nofer, which had been built in a narrow space between two mastabas.

The *entrance* was from the north, from the pathway bounded by the 80 cm. rubble wall which led along the northern side of these small pyramids as already described. This path, it will be remembered, led off from the eastern end of the northern side, opposite the entrance to the temple of pyramid III-*a* towards the Mycerinus temple. On the outside of the temple, the entrance *doorway* opened in the middle of a broad shallow recess in the north wall placed a little east of the middle. The threshold was a single slab of limestone; the single-leaf door opened inwards and rested on a stone socket (not found) against the inner end of the western jamb.

The *anteroom* (1), entered by the outer doorway, had two other doorways, one in the west wall leading to room (2), and one in the south wall leading to the open court (3). The doorway into room (2) had a small stone threshold, but appears not to have been closed by a door. Room (2) may have been some sort of magazine, or a kitchen, or may have been occupied by a watchman. The wall between the first two rooms and the third is about 25 cm. thinner between (2) and (3) than it is between (1) and (3), as if room (2) had been widened by cutting back the wall.

The *court* (3), judging by its size and the analogy with other temples and chapels, was not roofed over. It was a plain room, nearly square, with a mud-plastered floor. The plaster of the walls had been almost entirely worn away — another proof of the absence of a roof. The doorway from room (1), and that into room (4), had no traces of doors.

The *wide outer offering room* (4) was entered from the north by the doorway leading from the court and gave entrance to the inner offering room (5) and the magazine (6) by two separate doorways in the west wall. In the northeastern corner was an offering bench not entirely preserved, but clearly of the form of the offering bench in the northwestern corner of the hall of niches in the queen's temple. The stone basin on the floor and the upright front slab were still in place.

The *inner offering room* (5) was entered by a doorway in the middle of the eastern wall, which was recessed on the outside, in room (4), but apparently not closed by a door. In the western wall there was a compound niche near the southern end. The rest of this wall, as well as part of the mud floor, had been destroyed by treasure-seekers. It is impossible therefore to reconstruct the system of niches used in the west wall, but the niche at the south end was doubtless one of a series. This room is opposite the middle of the pyramid. Theoretically it should have been opposite the burial chamber; but as so often happens in Giza tombs, the burial chamber lies to the north. The curious position of the burial chambers in this pyramid led Vyse to search for another chamber farther east, but his search was vain.

The *magazine or secondary offering room* (6) lies just south of the primary offering room and is entered also by a doorway, apparently not closed by a door, from the outer offering room (4). The inner rooms were heavily plastered with mud and coated with white plaster (plaster of Paris).

3. THE TEMPLE OF PYRAMID III-c (PLS. VI, VII; AND PLS. 75, 76.)

Pyramid III-c, the third or westernmost of the three small pyramids south of the Third Pyramid, is separated from III-b by a space of about 13.60 meters, as compared with 10.15 m. between III-a and III-b. Pyramid III-c is a step pyramid similar to III-b, as explained in section 2.¹ We cleared out the passage and the burial chambers in April 1907, but have nothing to add to the record made by Vyse and Perring. The large inner chamber had not been finished, and Vyse was of the opinion that the burial place had never been occupied. He found the passage and the adjoining part of the anteroom filled with sand and rubbish which had fallen in from the entrance; and on the floor of the anteroom, masons' débris, pounding stones, and some decayed wood. We found much the same conditions in 1907. The evidence is by no means sufficient to justify Vyse's conclusion, and the evidence of the chapel leaves no doubt that the burial place was actually used.

Nothing was found in the pyramid or in the chapel which would give a hint as to the name, rank, age, or sex of the owner of the pyramid.

(A) THE EXCAVATION OF THE TEMPLE OF PYRAMID III-c

In the month of July, 1923, when the guards at our camp at the Pyramids were changed in order to give them a vacation, I detained the outgoing guards for a short time and proceeded to clear the mass of huge stone blocks lying against the eastern face of the pyramid. The pyramid was more seriously damaged than III-b. The fourth or top stage was demolished; the northern half of the second and third stages had been thrown down; and the upper northern face of the first stage was partly broken away. The stone blocks from these damaged parts lay in confusion around the eastern, northern, and western faces of the pyramid. Vyse had difficulties with the stones on the north when he searched for the entrance. On the east, the stones embedded in sand and rubbish lay in a fan-shaped mound against the northern half of the face, sloping sharply to the ground-level south of the pyramid. Underneath this modern surface débris, a shallow layer of old surface débris sloped southwards, showing that the damage to the pyramid had been done long after the decay of the temple. Underneath this in turn lay the surface of decay of the mud-brick temple sloping from the north to the south.

On Friday, July 6th, we began removing the fallen blocks of stone, employing twenty-eight of our trained Egyptian foremen. On July 17th, forty boys from the pyramid villages were added to carry out the sand and rubbish, and the removal of the stones continued until the 21st when the surface of decay was exposed. Thus the preliminary work of clearing away the surface débris required twelve working days, more than either of the other two small temples. The excavation of the débris of decay from the rooms began in the late afternoon of the 21st and continued until July 28th, being six working days.

The débris of decay had been penetrated by an excavation made after the fall of stones from the pyramid, perhaps within the last hundred years. This excavation had been begun on the west where it

¹ For the plan of the pyramid and the subterranean chambers, see Vyse, *Pyramids of Gizeh II*, pp. 41, 126.

had exposed the face of the pyramid in the inner offering room (7) and penetrated downwards to rock. From this larger hole a trench had been dug eastwards across rooms (6) and (5), cutting through the lower floors. In the eastern side of room (5), the trench, grown shallow, turned northwards for about two meters, and, passing through the eastern wall of the temple to pyramid III-*b*, became a tunnel forced in the lowest course of that pyramid.

The débris in the undisturbed rooms consisted largely of decayed mud brick, especially in the narrow rooms and near the walls of the open court, room (3). No evidence of a burning of the roof was found. The mass of walls and débris had been denuded by water and wind passing from north to south, so that the walls and floors at the southeastern corner, rooms (8) and (9), were worn away to a point below the floor level.

In the portico of the court, a large circular basin of limestone stood against the south wall between the second and third columns. It was 106 cm. in diameter and 85 cm. high. In room (6), in the southwestern corner, was a rectangular basin of mud brick. In front of this and before the door to room (9), on the floor stood a rectangular offering basin of the form usual in this period, but uninscribed. This offering basin seemed to be in its original place.

In addition to these two uninscribed stone basins, a number of pottery vessels and small model offering jars and bowls were found in the rooms, as follows:

Room (2), in floor débris:

1. Traditional offering jar of coarse red ware, type IV-3.
2. Four or more rude trays, coarse red-brown ware, red wash, type XXVI-2; two were red (hard-baked) and two or more were brown (soft-baked); the red wash was laid on the upper surface and the under-side of the rim but not on the bottom; 23-7-2.
3. Six small model jars, of coarse red-brown ware, type XLIII.
4. Two model bowls, of coarse red-brown ware, type XLIV.
5. Part of the neck of a R. P. shoulder jar, type XVIII-1 (?).
6. A hammer stone, a flint nodule, with both ends bruised by pounding.

Room (4), in débris in western end; in upper débris and in the big limestone basin, apparently thrown into the room from room (7).

7. Lower part of low bowl-stand, red-brown ware, red wash; type XXII-2; no holes.
8. Fragment from the side of a R. P. flaring bowl of type XXXIX-2.
9. Fragment from the side of a R. P. flaring bowl of type XXXIX-1.
10. Fragment from the recurved rim of a R. P. bowl of type XXXIII-1.
11. 278 small model offering jars of various subtypes of type XLIII.
12. 620 small model offering bowls, type XLIV.

Room (6), in floor débris:

13. Small bag-like jar with rimless neck, of red-brown ware, with a wash, the original color of which is not clear, probably drab, wheel-made.
14. 34 small model offering jars, type XLIII.
15. 76 small model offering bowls, type XLIV.

(B) DESCRIPTION OF THE TEMPLE OF PYRAMID III-*c*

The site of the pyramid and the temple of III-*c* was cleared to rock before construction, and the pyramid was founded directly on the rock. The site of the temple was packed with gravel, but the slope of the rock, a fall of about 185 cm. from north to south, was never completely compensated, so that the floors still show a fall of 60-65 cm. from north to south. The walls were founded in trenches in this packed floor.

The rooms consisted of the following:

- (a) Entrance doorway in middle of north wall; north wall not recessed for doorway (cf. III-*b*); slab threshold of three stones, of which the inner stone is 15 cm. lower forming a step; closed by a two-leaved wooden door on the inside, opening inwards.
- (b) Room (1), entrance corridor with west end walled off to form room (2); doorway in south wall at east end leading to room (3).
- (c) Room (2), small room formed in west end of room (1) by cross wall bonded with the other walls; cf. III-*b*.

- (d) Room (3), large open court with series of one compound and three simple niches around the western, northern, and eastern faces; the entrance from room (1) appears not to have been closed by a door; the southern side is taken by the portico.
- (e) Room (4), the portico with three wooden columns on circular limestone bases along the southern side of the court; east and west, opposite the columns, a rectangular anta in the wall; between the western and the middle columns, against the south wall, a large circular basin of limestone (diam., 105 cm.; height, 80 cm.).
- (f) Room (5), anteroom to hall of niches, room (6), doorway from east end of room (4) (portico), doorway in south end of west side, leads to hall of niches; doorway in south end leads to room (8); no evidences of doors in these doorways, but doorway from room (4) probably closed by wooden door opening inwards into room (5).
- (g) Room (6), hall of niches, with complex system of niches as in room (9) of temple III-*a* doorway from room (5) opens in middle of east wall and probably had a wooden door swinging into the hall of niches; doorway in middle of west side leads to inner offering room (7), a third doorway in south wall leads to room (9), in the southwest corner, a rectangular basis of crude brick, 55 × 35 cm. and 30 cm. high, was built against the plastered surface of the room (cf. room (9) in III-*a*); in front of this basis, on the floor stands a square limestone basin (60 × 65 cm.) of the usual type but unincised.
- (h) Room (7), the main offering room, greatly damaged by thieves' excavation, doorway from room (6) enters at south end of east wall, west wall only 90 cm. thick, was probably niched.
- (i) Room (8), corridor leading from room (5) to rooms (9) and (10); doorway in north end leading from (5) and another in south end of west wall leading to (9).
- (j) Room (9), anteroom (?) to room (10); doorway from corridor (8) as just stated; another in the north wall connecting with room (6) (hall of niches); a third doorway in the west wall leads to room (10).
- (k) Room (10), secondary offering-room (?) or magazine, entered from room (9); walls plain without evidence of niches, table-altars or shelves; cf. room (6) in III-*b* and perhaps room (10) in III-*a*.

The stairway and its anteroom, rooms (4) and (5), in III-*a* are the only parts of III-*a* which are not represented in temple III-*c*. It appears that the plan of III-*b* presents all that is functionally necessary in a funerary temple. The temples of III-*a* and III-*c* present these same functional apartments, but with accessory features like the portico at the end of the court of offerings.

Like III-*a*, the walls of the temple of III-*c* have been repeatedly plastered with a yellow mud plaster. Over this a thin layer of fine white plaster had been laid.

The spaces between the walls were filled with a layer of clean débris packed hard on the underlying "gebel." This packed layer had been plastered with mud to form the first floor. The first layer of yellow plaster was laid from the first floor upwards. On this first floor after it had become footworn, a fresh layer of clean débris largely limestone chips (masons' spills) fifteen centimeters deep, was laid down, and on that a fresh floor of mud plaster. The second floor was only slightly footworn.

There were only two minor alterations in the structure: —

- (a) The doorway to the entrance magazine, room (2), had been blocked with a wall of crude brick, as often in the mastaba chapels.
- (b) In the southwestern corner of the portico, room (4), on the southern wall, there appeared to have been a niche or the opening of a doorway to room (7); the eastern side of this niche or doorway was plastered in continuation of the south wall to a depth of 10–15 cm. southwards and the eastern wall to a similar depth on the opposite side of the doorway or niche; but the lines of doorway and niche could not be traced any further and certainly did not show in room (7); the space between the two plastered strips had been filled with brickwork and the surface of this brickwork coated with yellow plaster like the main wall; probably this added brickwork and plaster represented some slight change in plan made before the completion of the temple.

4. COMPARISON OF THE PLANS OF THE TEMPLES OF PYRAMIDS
III-*a*, III-*b*, AND III-*c*

A comparison of the plans of the temples of the three small pyramids south of the Third Pyramid show the following facts:

Apartments	III- <i>a</i> Room	III- <i>b</i> Room	III- <i>c</i> Room
Entrance corridor	(8)	(1)	(1)
Entrance magazine (kitchen?)	(6-7)	(2)	(2)
Court of slaughter, usually with niches	(1)	(3)	(3)
Court portico	(2)	..	(4)
Anteroom of hall of niches	(3)	..	(5)
Anteroom of stairway to roof	(4)	..	..
Stairway to roof	(5)	..	..
Hall of niches with offering tables and basin	(9)	(4)	(6)
Inner offering room	(12)	(5)	(7)
Corridor to secondary offering (?) room	(10 <i>a</i>)	..	(8)
Anteroom to secondary offering room or magazine	(11)	..	(9)
Secondary offering place (in III- <i>a</i>) or magazine (?)	(10 <i>b</i>)	(6)	(10)

In the mud-brick chapels of the mastabas of the Cheops cemetery, the apartments are usually reduced to:

(1) Court; (2) Anteroom (often omitted); (3) Magazine; (4) Offering room.

In the case of the mastabas of Dynasty V, the exterior mud-brick chapel usually contains (1) Court; (2) Magazines, one or two.

CHAPTER V

BUILDING MATERIALS AND CONSTRUCTION

It was my original intention to have the building materials and the construction of the Mycerinus temples described by Dr. C. S. Fisher, who made plans of the temples (except III-*c*) and took notes in view of writing this chapter. Unfortunately Dr. Fisher's work with the Eckley B. Coxe, Jr., Egyptian Expedition made it impossible for him to carry out the original intention, and I find myself compelled to give briefly the essential facts. A certain poverty in the use of architectural expressions will be evident as the material is necessarily described from the archaeological standpoint.

1. BUILDING MATERIALS

Stone was the building material used in the temples begun during the reign of Mycerinus — nummulitic limestone, red granite, and black granite. The building material in the temples erected by Shepseskaf was white limestone or crude brick with stone and wood accessories. The later additions, such as the screen wall and the blockings of the doorways, were also of crude brick, but the extensive restoration of the inner part of the pyramid temple in Dynasty VI, was of nummulitic limestone.

(A) LIMESTONE

The basis of the Mycerinus temples and of the Third Pyramid was the local coarse nummulitic limestone. The core of the pyramid, the foundation platforms of the temples, and the massive core walls were all of this stone. It is in general the same as the strata in the quarry southeast of the Third Pyramid, which is of nearly sufficient size to have supplied the whole. Slight variations of color and texture make it possible, however, that some stones were taken from another quarry. But no stone occurs which may not be duplicated in the strata of the pyramid plateau.

The limestone used in the inner part of the pyramid temple (Dynasty VI) is also nummulitic limestone of the pyramid plateau, but that is certainly not from the Mycerinus quarry. Some of the stones have a softer texture and are yellowish in color.

Fine white limestone from Turah was used in the upper courses of the pyramid casing, above the granite, and in the kernel-structure of the inner temple, but elsewhere only as an accessory:—

- (1) In the valley temple, the threshold slabs of the Shepseskaf temple of crude brick, the rectangular basin in the court, and the bases of the columns in the portico.
- (2) In the pyramid temple, three threshold stones, of which one was in doorway (12) and the other two in the magazine corridor, a kerb socket in doorway (21), two door-lintels in the northern magazines, some of the packing stones used between the granite casing and the core walls and the unexplained niche-like stone at the western end of the entrance corridor.
- (3) In the temple of III-*a*, the column bases, the threshold slabs, the kerb sockets for doors, and the offering tables.
- (4) In the temple of III-*b*, the offering basin in room (3).
- (5) In the temple of III-*c*, the column bases, the threshold slabs in the entrance doorway, the great circular basin in room (4), and the rectangular basin in room (6).

The limestone had been cut in quarries, the nummulitic usually in enormous blocks. By traces left on the terraces of the Mycerinus quarry and in the quarry of the Second Pyramid, the method of cutting is fully shown to have been that universally used for limestone in ancient Egypt. This was the method of isolating a block by trenches in the rock and breaking it loose by splitting along the cleavage line of the strata.

The trenches in the Chephren quarry average about 60 cm. in width and descend to 30–40 cm. below the cleavage surface along which the blocks had been split off. Before the removal of the blocks, the trenches must have exceeded a meter in depth, and their width is just about sufficient to have permitted a stone cutter to work standing in the trench. Unfinished trenches in the Mycerinus quarry show that the trench was excavated by cutting a very narrow trench or trough with a copper chisel along each side of the wide trench and smashing the ridge between with a heavy stone hammer. The method of

separating the blocks from the bed can only be surmised. It is usually taken for granted that wedges were used in one way or another. The long rectangular excisions in the large limestone blocks in the pyramid temple suggest that wooden beams were employed. The excisions extend the length of one edge only of the blocks, are 16 cm. \times 16 cm. in section, and always occur at a thin stratum which is stained red.¹ This excision was manifestly made in the quarry, and I am inclined to think that when the block had been isolated by trenches, a groove 16 cm. \times 16 cm. was cut near the bottom of the trench along one side of the block; a wooden beam of about the size of the groove was wedged fast in it; the trench filled with water (the ends could be easily dammed with mud); and the beam swelling in the water lifted the stone from its bed.

It is to be noted that by this method of quarrying, blocks of limestone of any desired dimensions and of approximately uniform size might be obtained. The trenches in the Chephren quarry prove that blocks about 270 cm. square were cut over a considerable area. On the other hand, the removal of stone from the Mycerinus quarry by terracing produced stones varying greatly in length, but of about the same width and height. In the second and third courses of the pyramid temple where the stones appear most uniform, the length ranges from 330 cm. to 630 cm. Of the larger stones, four measure 610 ± 20 cm.; seven, 510 ± 20 cm.; six, 470 ± 20 cm.; and five, 400 ± 20 cm. Four stones of the core walls were of remarkable size. The largest was in the great pier between the northwestern quarter of the court and magazines (15) to (20). This gigantic stone measured $8.5 \times 5.3 \times 3$ meters which, after deducting two excisions made after the stone was in place, gives about 130 cubic meters (about 220 tons). Two other blocks in the southern pier between the court and room (10) measured $7.9 \times 3.75 \times 2.58$ meters and $7.5 \times 4 \times 2.46$ meters respectively, making 76 cubic meters and 73.8 cubic meters or about 125 tons each. The fourth stone was in the angle of the wall north of the doorway between the entrance corridor and the court and measured $8 \times 4.20 \times 1.8$ meters, making about 60 cubic meters or 100 tons. These enormous stones were quarried by the trench method and without doubt in the adjacent quarry. One of the two stones in the southern pier shows the bottom of one of the trenches cut for the superimposed layer of stone, and the other has cracked across the middle after being set in place.

(B) RED GRANITE AND BLACK GRANITE

The limestone core walls of the pyramid temple were already partly cased with granite when Mycerinus died, and no doubt it is admissible that Mycerinus had designed to case his pyramid, the pyramid III-*a*, the walls of the pyramid temple, the valley temple, and the temple of pyramid III-*a* in granite after the manner of the walls of the two temples of Chephren.

It was only on the pyramids, however, and in the pyramid temple that any part of the granite casing had been built. We found the unfinished black granite casing of the northern corridor, (13), still in place on both walls. On the northern wall four adjoining blocks and one isolated block, while on the southern wall, six stones of the first and three of the second course stood as set by the masons. Aside from this room, only one other block was found in place — in the southern end of the portico. In room (24) behind the broken southern casing wall of crude brick, another black granite block was uncovered, but it was found to be displaced and broken. And all along the core walls in the court and the entrance corridor, dressed emplacements in the floor and in the core walls proved that the casing had been begun in at least six places in these two apartments, that many blocks of the first course had been set in place by the builders, but were afterwards removed by those who plundered the temple for its stone. In both these apartments, many fragments of black granite were found in the débris of the breaks in the crude-brick casing, showing that the casing had been of black granite like the blocks still in place.

In the débris of the portico, we found four more or less complete casing blocks and a door lintel of red granite, and it was evident that the casing indicated by the cuts in the walls of the portico and the outer offering-room (8) had been of red granite. On the analogy of the Chephren valley temple, the pillars and antae should be reconstructed of the same material (Fig. 10). The marks on the walls show that the casing of these two rooms had been completed.

¹ See section 2a, (2), below.

The red granite of both temple and pyramid has the characteristic appearance of Assuan granite and was brought down in ships as described in the autobiographies of the Old Kingdom. The black granite has the same consistency as the red and was of course also from Assuan. It occurs not only in the temple casing but also here and there among the red granite casing blocks of the pyramid. Many of the blocks of granite in or from the pyramid casing were carefully examined when we removed the mass of them from above the pyramid temple, and aside from one hole bored with a cylinder borer, no trace was found of the use of metal tools, except on those blocks which had been split or partially split by Arab workmen of the 12th–13th century A.D. The stones split by the Arabs bore lines of wedge-shaped

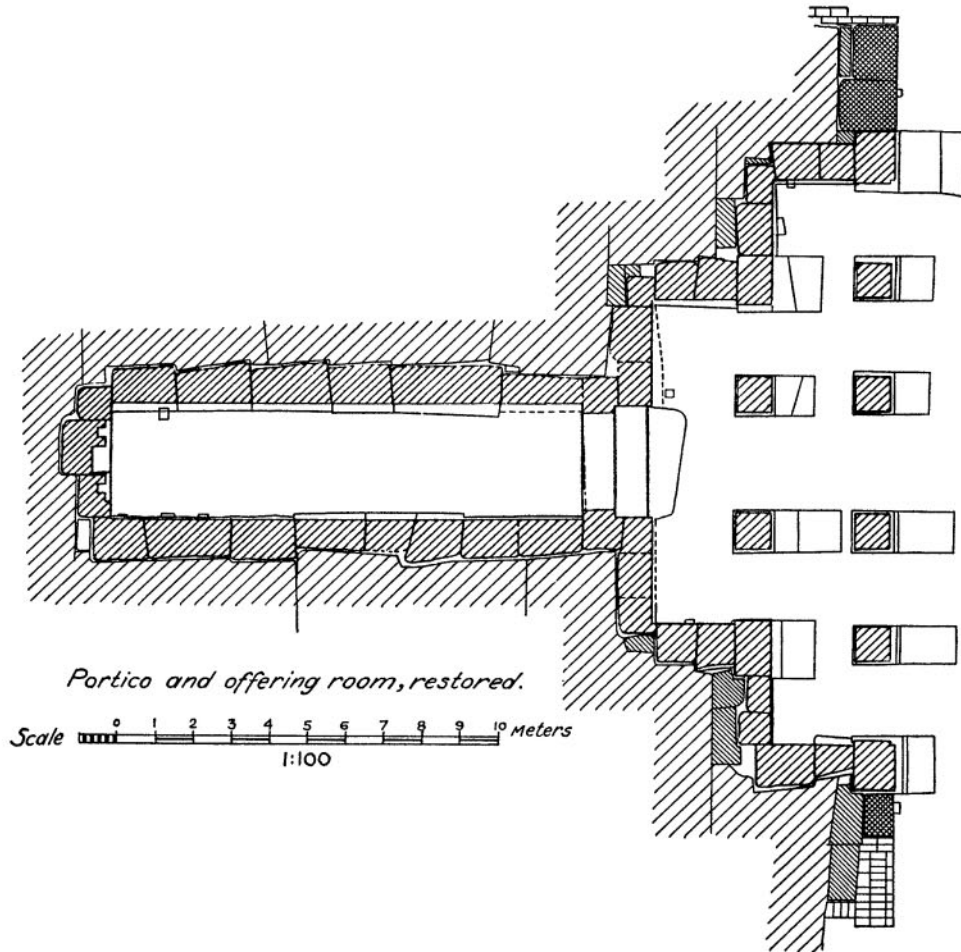


FIGURE 10

cuts, evidently made with the iron or steel chisels found among the stones, and presented the characteristic surfaces of split granite. The surfaces of the stones untouched by the Arabs, that is the great majority, showed only the marks of hammering and rubbing with stone implements. Moreover the undressed surfaces of some of these intact stones bore the characteristic weathering of the natural granite boulders as seen to-day in the granite deposits of the First Cataract. It seems to me probable that in Dynasty IV the greater part, if not all, of the granite blocks, were not quarried in the modern way, nor in the manner of the obelisks of the New Kingdom, but taken directly from the piled masses of boulders at Assuan in which the blocks lay already separated by internal splitting and weathering. To work these blocks loose one by one was no difficult matter, and the proximity of the water greatly facilitated transportation. The quality of those boulders was sometimes no doubt inferior to the living rock cut for obelisks of the New Kingdom, but was usually perfectly sound, as I personally observed during the breaking of many of the them for the great dam at Assuan. Granite weathers, hard as it is, and a number of the casing blocks in the Third Pyramid show a slight deterioration of the surface, but I have not noted one which had become unsound while in place. In the débris before the pyramid, however, we found four or five unsound blocks which crumbled at a blow or two of a heavy hammer, but these had lain for centuries in salty débris exposed to rain and heat.

The largest single block of granite was red, set in the fourth course of the pyramid casing opposite room (29). It measured 5.17 meters long by 0.98 meters high. The width could not be measured, but the stones which could be measured varied from 1.50 m. to 2.65 m. in average width, the longer the stone the greater its width. I estimated the width of the large block at a minimum of 1.9 m. but it may have been over 2.5 m. This estimate gives from 9.6 to 12.7 cubic meters or 26 to 34 tons. The pillars in the portico appear to have been slightly smaller, about 5 to 6 cubic meters or 11 to 16 tons.

(C) CRUDE BRICK

Crude brick was the material used by Shepseskaf in finishing the pyramid temples of Mycerinus, and all five of the completed temples were of that material. Crude brick was also used in the screen walls, and in the other alterations in these crude-brick temples as well as in the restoration of the valley temple in Dynasty VI, but not in the restoration of the inner part of the pyramid temple. The manufacture of crude brick is known in detail from the observation of the methods of modern Egyptian brickmakers and is confirmed by the ancient models of brickmaking, and by bricks and brick moulds found in excavations.

(1) *Preparation of the Dough for Bricks*

Ancient bricks are for the most part of black Nile mud, but some of them have a lighter color and the mud in them was palpably mixed with other materials. Straw occurs in some bricks, but is by no means universal or even prevalent. Modern bricks show similar differences in color, and usually contain straw. At the present day, the variations in color are due almost entirely to the natural color of the deposit from which the mud is taken. In some places the old deposits of Nile mud are shot with sand, and at others, especially near the edge of the desert, with strata of fine rain-washed detritus from the desert above. The only material which is now deliberately added to the mud is dust and broken straw, by preference the sweepings of the threshing-floor; but even street-sweepings, which usually contain a certain amount of wind blown straw, are used by poor people. The ancient mixtures may have been less accidental in character, as they have a greater range towards yellow than the modern mixtures.

At present the mud is mixed in a nearly circular hole in the ground, if possible that from which the mud is being cut. The mortar, mixed carefully and kneaded by use of the short hoe and by treading with the feet, is prepared in the morning and lies all day and over night in the hole. The next morning, it is rapidly removed on circular mats, with two handles, which are sprinkled with dust to prevent the mud sticking. It is laid out in long bars on dust sprinkled ground alongside the place where the bricks are to lie. Meanwhile another lot of mud is mixed in the hole in the ground to lie until the following day. The amount of mud mixed in one batch is sufficient for 2000 to 3000 bricks, and if more are required two or more mixing places are prepared, each to turn out one batch.

(2) *Making the Bricks*

The bricks of the Mycerinus temples were made in the well-known Egyptian brick mould which is used also at the present day. This is a wooden box open on both top and bottom and with one side extended and dressed to form a handle level with the top of the mould. The process of manufacture was anciently much the same as to-day; as the marks on the bricks, the examples of ancient moulds, and the models of brickyards fully prove.

The process probably varies a little from locality to locality and from craftsman to craftsman, but, as I have observed it among the brickmakers of Coptos, it is mainly as follows:

- (a) The brickmakers working in pairs squat on each side of the long bar of mud dough placed on the ground as described above; one takes from his right and one from his left and both shuffle back a pace after each brick is made.
- (b) A lump of dough is torn off the bar and roughly formed as a brick, using dust to keep the mud from sticking to the fingers;
- (c) The wooden mould is set on the ground lengthwise or parallel to the bar of dough having been dipped in water to remove the mud of the preceding brick;

- (d) Some brickmakers dip the brick in water to prevent it sticking in the mould, while others trust simply to wetting the mould; the rough brick is then slammed sharply into the form and pressed down; the surplus mud on top is removed by scraping with the hand or with a stick; it is at this point that the long finger marks seen on ancient bricks were made; the bottom of the brick takes a print of the ground under the mould;
- (e) The mould is then lifted, dipped in water as the brickmaker shuffles backwards to the place of the next brick, and the process is repeated.
- (f) When the end of the dough is reached, two long lines of bricks lie end to end on each side and are left to dry. The drying process takes several days at least, and the bricks are turned over in the process.
- (g) A pair of brickmakers and a mud mixer will produce from 4000 to 6000 bricks a day, but the usual production is less owing to the conditions under which they work. They work only on order. That is, when a man wishes to build he engages the usual gang of three, provides the place and the materials, and as his facilities and means are often only equal to one mixing place the gang is limited to 2000 to 3000 bricks a day on that job. Often, however, they may have two or even three such jobs going at one time and reach their maximum.¹

(3) *Sizes of Bricks in the Mycerinus Temples*

Owing to the crushing of the heavier walls and the general destruction and decay, it was in many places impossible to distinguish the individual bricks in the walls of the Mycerinus temples. A certain amount of variation in size was no doubt caused by moisture and pressure after the bricks were laid.

In almost all Egyptian brickwork, the size of the individual bricks made in the same mould varies slightly, due to carelessness in lifting the mould, to settling while wet, to accidents during the drying process and the subsequent transport, and in part to trimming by the mason. The bricks used in the walls of Shepseskaf varied from 34 to 41 cm. in length, 16 to 20 cm. in width, and 9 to 12 cm. in thickness. The most common size was about $40 \times 20 \times 12$ cm. Bricks of different consistency and from different moulds were observed side by side in the same wall. The essential feature of the proportions of these, as of all Egyptian bricks, is that the length of the brick was approximately twice the width, at any rate when laid with plastered joints.

The larger size, about $40 \times 20 \times 12$ cm., was also used in the screen wall built probably in Dynasty V, and was found moreover in the mastabas of the Giza cemetery. But in the cemetery a smaller size was more usual.

A warning must be given that the size of the bricks is a very unreliable indication of date. It can only be used at one locality and under special circumstances. Conclusions drawn at one site should not be transferred to another.

2. MASONRY AND CONSTRUCTION

The types of masonry and the methods of construction used at the Mycerinus temples varied according to the purpose of the structure and the material of which it was built: —

- (a) Stone structures —
 - (1) Foundation platform;
 - (2) Core walls — pyramids, walls of pyramid temple and valley temple.
 - (3) Casings and pillars — pyramids and pyramid temple.
 - (4) Simple free walls — the inner part of the pyramid temple.
- (b) Crude-brick structures —
 - (1) Foundations walls — all temples of Shepseskaf.
 - (2) Casing walls — substitute for stone casing at pyramid and valley temples.
 - (3) Simple free walls with wood and limestone accessories.

(A) STONE STRUCTURES

Except for the inner part of the pyramid temple, all stone structures were erected by Mycerinus.

(1) *The Foundation Platform*

The foundation platform of the pyramid temple, the causeway, and as much of the platform of the valley temple as had been built, were parts of one continuous construction. It consisted of enormous

¹ We have found it impossible when building camp-huts to buy ready-made bricks except as a favor from some one who was planning to build, and have been obliged to employ brickmakers to make our own bricks like everyone else in Egypt.

blocks of limestone, apparently as they came from the quarry but bruised by transport and loosely set together without any binding material. The interstices were filled with masons' limestone chips, débris, or quarry débris. The surface of the bed rock had been dressed but not leveled to take this platform.

The platform varied in depth to equalize the irregularity of the bed rock, and produce an approximately level surface. As already stated, the bed rock under the southwestern quarter of the pyramid temple rose in a knoll, the top of which was about 90 cm. above the floor level of the court. Over the area of this knoll, the core walls were usually laid on the surface of the rock which had then been cut away between the walls to admit the paving slabs which formed the floors of the rooms; but the southern wall of room (8) had been founded in a trench cut in this rock stratum. The southern side of the knoll sloped gently away to the south. The eastern and northern sides, however, descended abruptly along a line which crossed the court from the south, about eight meters east of the screen wall, to a point about four meters north of the central pathway where it turned sharply westward to the northern side of the pillar socket (E 4). From there, the line was traced northwestwards under the northern pier of the portico and under room (24) to the northern end of room (28); but the cliff became much lower in this direction. The abrupt side of the knoll was deepest north of the central pathway where its top was 110 cm. and its bottom 362 cm. below the court floor, giving a height of 252 cm. for the cliff. At the northeastern corner of the court, outside, the platform consisted of two courses of great blocks and the bottom of the lower course was 435 cm. below the court floor. As the top of the upper course was 86 cm. below the floor, the depth of the foundation platform was 349 cm. Wherever the Arab treasure-hunters had penetrated the platform, we found two courses of stone; but we observed that close to the abrupt side of the knoll, in rooms (24, 13, 26, and 28), the platform was only one course deep. Where there were two courses, the joints were broken but the stones of both courses were laid with large cracks occasionally 50 cm. wide, which had been packed with limestone rubbish.

As nearly as could be determined the transport of these immense blocks from the adjacent Mycerinus quarry took place, as usual, by dragging the stones on sledges out through the low southern side of the quarry and up the natural slope, either east or west of the quarry, to the place where each was to be set. No trace was found of any causeway other than the great one. The foundations of the valley temple were growing from the end of the causeway outwards and it is probable that the stones used there had been dragged down the causeway, especially as an opening had been left in the superstructure of the west wall at the end of the causeway.

The marks on the lower edges of these stones show that they were manoeuvred into place by means of large wooden (?) levers.

(2) *The Limestone Core Walls*

The walls of the two Mycerinus temples were also built of massive limestone blocks, even larger than the average used in the foundations. As already stated above (p. 70), four of these stones were of monstrous size, 60 to 130 cubic meters, with calculated weights of 100 to 220 tons.

The surface of the platform was dressed level on the lines of the core wall, not continuously but for each stone separately. In the southwestern quarter, rooms (7), (8), and (10), the rock was sufficiently high to take the preliminary dressing. The south wall of room (8), north wall of room (10), was in a trench about 80 cm. deep cut in the rock, and about 70 cm. wider on the south than the wall. On the north side of the wall the rock had been further cut away to a depth of 28 cm. to take the granite floor of room (8). The core walls were then laid in these prepared places directly on the rock or on the massive foundation platform. As the blocks rested in the walls, the tops, the bottoms, and the ends were seen to be dressed flat, and the stones to be closely fitted with fairly fine joints, badly weathered in places. The joints had all been closed with a pink plaster made of sulphate of lime and sand, and the stones appeared to have been adjusted in place by "floating" on plaster as was certainly done in the case of granite blocks.

The stones which were much longer than they were wide or high were laid generally as stretchers in all three courses; but in the core walls of the entrance corridor the stones were shorter, between 3.5

and 4 meters long, and were laid as headers in the bottom course. The stones of the second course in all the walls were generally slightly longer than those of the first course, and those of the third course were more narrow than those of the first two courses. The four enormous blocks mentioned above were in the bottom course (first course). The joints were well broken from course to course and the corners were properly bonded.

The blocks of stone in the core walls, like those in the foundations, had been brought up on sledges from the adjacent quarry, still with the rough surfaces left by quarrying. Each stone had probably been turned over in loading on the sledge so that its strata ran vertically. Brought to its intended place in the wall, the exposed side which was to be the bottom and the end which was to fit the end of the stone already set were dressed flat. The block appears to have been then turned over on its long axis to fall into the place prepared and was adjusted with wooden levers, probably having been "floated" on plaster. The place for the next block was then prepared by dressing the exposed end of the stone just set and the floor or the top of the course below. The process of dressing the floor for the stones singly has produced a very uneven base, but as applied to the tops of the courses has resulted in fairly even but not level lines. There is a slight slope downwards from west to east in the great outside walls; and at various places there are small steps in the course lines, in particular in the northern core wall of the court. The great piers which form the western side of the portico (8) and those which bound the western side of the court north and south of the portico, were manifestly set before the rest of the core walls. These contain three of the four enormous stones so often mentioned and their course levels do not correspond with those of the other core walls. These irregularities may be illustrated by the following series of course levels:

	Court S. wall	South pier	Room 7 S	7-8 door S.	8, S, E. end	8 W. wall
Rock basis	61.04 m.	61.64 m.	61.27 m.	61.58 m.	61.58 m.	61.37 m.
Top of c. 1	62.08 m.	64.20 m.	62.49 m.	62.42 m.	63.21 m.	63.35 m.
Top of c. 2	64.46 m.	65.17 m.	64.14 m.	64.26 m.	65.06 m.	65.15 m.
Top of c. 3	66.16 m.	(none)	65.89 m.	65.89 m.	(none)	66.82 m.

Similar differences were found in the levels of the corresponding walls on the north. The step in the northern wall of the court is 5 cm. high in the top of the first course and 10 cm. high in the top of the second. All these walls are shown by the carefully drawn outlines in the plan to have been very irregular, indeed crooked in their lateral lines, a fact which is explained by the nature of the walls which were merely to act as supports for the granite casing. The granite blocks already set prove that in places the limestones wall cut away on both sides would have been only 30-50 cm. thick.

These huge stones exhibit three different kinds of excisions —

- (1) A rectangular excision, about 16 × 16 cm. running the length of one edge only; this edge was sometimes the bottom edge and sometimes the top edge, but always at a reddish stratum in the stone.
- (2) One to five rectangular excisions, from 20-30 cm. long, 10-15 cm. wide, and 10-15 cm. deep, always in one lower edge.
- (3) A sloping excision about 30 cm. long in one top edge of a few stones of the second course.

The long excision No. 1, above, was manifestly a quarry cut as it was sometimes above and sometimes below in the wall, and in at least one case the stone above had five rectangular excisions of type No. 2, adjoining the long excision. I reconstruct the long excision as one used in separating the block from the bed in the quarry by cleavage. Probably a wooden beam was wedged in the cut and swollen with water. The rectangular cuts No. 2, I interpret as lever holds for adjusting the stone in place in the wall by means of large wooden beams operated on the same simple principles as those which we apply to the use of such levers in our own excavations. The sloping excisions No. 3 in the top of the second course I think were also to facilitate the use of levers in adjusting the stones of the third course.

It is to be noted that the stones rest in the walls with the natural strata horizontal and usually with that side up which was upwards in the quarry. Those stones which have the quarry ledge on the upper edge have probably been turned over the wrong way in setting, but still have the strata horizontal. One exception to the horizontal position of the strata was presented by the first stone on the west in the

wall between corridors (13) and (15). In this block the strata run vertically and it is to be noted that the levelling line in red and the inscription attached to it also run vertically. The only explanation is that this stone once stood in a core wall on which the levelling lines had been already drawn and had then as an afterthought been shifted to its present place. The gap in the limestone wall in which the doorway (25) was built appears to me to be the place from which this stone was removed. In that case, the gap left for the doorway was originally much smaller and was enlarged by removing this stone. Another gap, perhaps originally left for the stairway to the roof, is seen in this same core wall opposite stairway (23). It was afterwards closed with light masonry when the crude-brick temple was built.

From the quarry to the wall, the stones were dragged on sledges. The great blocks weighing from 100 to 200 tons, although not so heavy as the greatest of the granite obelisks of the New Kingdom,¹ give evidence of the ability of the Egyptians to deal with great weights as early as Dynasty IV. In comparison with these colossal blocks, the handling of the smaller stones of 10–30 tons was a simple matter. It is, I think, almost impossible to escape the conclusion that these huge stones were turned over twice, once in the quarry in loading on the sledge and once in unloading the stone into its place in the wall. For all the stones of the first course, the sledge was dragged on the surface of the rock or the foundation platform. For the second and third courses, construction planes of rubble packed with limestone rubbish were used, on which the sledges were dragged up to the higher levels. The condition in which the use of these construction planes left the spaces between the walls was clearly proved by the unfinished room (10). This was completely filled to the top of the second course with worn boulders and rubbish which formed the construction platform on which the stones of course three had been dragged to their places, but this platform covered another platform at a lower level. The approach to these platforms was through a gap left in the western wall of room (10), and I conclude that this gap was reached on the outside by an inclined plane. Apparently the wall served by these platforms was the southern wall of room (8), but perhaps also the back part of the southern pier of the portico. The stones of the first course of the wall of room (8) had been dragged along the rock to the edge of the trench in which that course was set. After this course was laid, the space was filled in to the top of course one with limestone rubbish, and the stones of course two dragged across the hard packed surface of this plane. After course two was in place, the space was filled with worn limestone boulders to the top of that course and the stones of course three were dragged over the hard packed surface of this plane. It is to be noted that in the foundation platform of the causeway, which had been used also as a construction plane, the irregularities of the top of this platform had been filled with limestone rubbish, the surface of which was worn and darkened by usage.

The effect of this method of construction was to leave the rooms of the temple completely filled with the material of the construction platforms when the core walls had been finished. It is obvious that this material had to be removed before the granite casing could be begun. Similar construction planes and platforms had to be built, at any rate for the granite courses, above the second course and for the roof, filling the rooms a second time up to the roof. This second set of platforms was removed gradually in dressing the surfaces of the granite casing from the top down. The same process was observed in the unfinished limestone rooms of the inner temple (see p. 21). In the case of the great open court, the planes were probably confined to a sufficient width along the walls. The repeated handling of light masses of construction material of this sort is no great matter. The large room (10) could have been emptied by 100 men in five or six days. The material when removed was not carried far away, but left close by to be used again or it was simply transferred from one part of the temple to another. The limestone boulders were all rounded and worn by repeated use. The worn boulders in the later construction plane south of the inner temple were probably boulders previously used in the Mycerinus work; and the rubble used in the walls of room (36), and in the retaining wall north of the entrance corridor, probably also came from the material of the construction planes.

The interior and the exterior faces of the core walls had been marked with horizontal parallel red lines, one Egyptian ell apart. At irregular intervals, pendent isosceles triangles were drawn on the un-

¹ Engelbach, *The Aswan Obelisk*, p. 9, calculates the weights of nine obelisks at the following figures — 1168 tons, 507 tons, 455 tons, 823 tons, 331 tons, 227 tons, 193 tons, 121 tons, and 143 tons.

dersides of these lines, forming vertical rows, but not exactly in a vertical line. These vertical rows were usually one to two meters from the ends of the walls and sometimes on long walls at intermediate points as well. One of the triangles, as observed in three places—that of the 3-ell mark—was filled in solid with red paint. These red lines, which are known to be levelling lines, have suffered greatly where exposed to the weather and had been partially cut away wherever the granite casing had been set. The vertical distance between the ell lines varied from 50 to 54 cm., tested both by telescopic level and by dead measurement, and the levels above our arbitrary datum line also varied as much as seven centimeters. For example, the 5-ell line was at level 63.76 meters in room (10) and at 63.83 meters in room (13). The zero mark as calculated from the ell lines in rooms (10 inside and out), (13), (14), (15), (19), (20 inside and out), (24), (27), and the great court, was between 61.17 and 61.19 meters; and the 1-ell mark on the southern face of the entrance corridor at the east end gave a zero of 61.165 meters (plus or minus 5 millimeters). The zero mark would have been just about level with the top of the foundation platform where the causeway joined the entrance doorway. It was not found marked, however, at any point. In the court, the zero line was slightly below the top of the foundation platform, and the floor of the court in front of the portico was about at the 1-ell level. Further west the floor rose to 63.14 m. (just under the 4-ell level) in the granite pavement in room (29); and the base of the pyramid casing at this point was 62.04 m. (just under the 2-ell level). Under the southern side of the portico, the rock surface rose above the 1-ell mark.

The irregularities of the levelling lines is illustrated by the following list of levels:

	Room (13) S. wall		Room (13) N. wall		Room (10)	Court
	west	east	west	east	south	N.W. corner
7-ell mark	64.69 m.	. . . .	. . . .	. . . .	64.79 m.	. . . .
6-ell mark	64.36 m.	64.385 m.	64.37 m.	64.36 m.	64.27 m.	. . . .
5-ell mark	63.823 m.	63.835 m.	63.83 m.	63.83 m.	63.76 m.	. . . .
4-ell mark	63.29 m.	63.28 m.	63.33 m.	63.32 m.	. . . .	. . . .
3-ell mark	62.765 m.	62.76 m.	. . . .	62.80 m.	. . . .	62.75 m.

In room (10), where the levelling lines were especially well preserved on the north and the south walls, the lines from 3-ells to 7-ells were marked on the north wall and the triangle of the lowest mark, 3-ells, was in solid red. On the south wall, the lines and marks for 5-ells to 7-ells were plain, but no line could be found below the 5-ell marks. The 4-ell marks would have fallen about in the top of course one of the core wall. It was clear that the 3-ell line on the north wall had been marked before the making of the “first construction plane” in this room and that the lines on the second course both north and south had been made after the “first plane” and before the “second plane.” Probably the ell lines on the second course were fixed by dead measurement from the 3-ell line, which could easily have been exposed at the two ends. The lines on the south wall on the second course could have been fixed by a secondary levelling operation from the north wall.

Professor Borchardt¹ reports two zero lines from the pyramid of King Ne-weser-re of Dynasty V, one at the level of the foundation platform and the other at the level of the top of the pavement. At the Mycerinus temple, the building had not advanced so far as to require the drawing of the second set of levelling lines which would naturally have been placed on the granite casing. In our temple therefore we have found only one zero level indicated by the marks preserved.

I would reconstruct the process of levelling at the Mycerinus pyramid temple as follows:

- (a) The zero mark was fixed on the top of the foundation platform at the entrance, probably on one side, and after the construction of course 1 of the core walls.
- (b) The marks for ells 1 to 3 were set on the core wall by dead measurement from zero.

¹ See *Das Grabdenkmal des Königs Ne-weser-re'*, p. 154. Professor Borchardt has recovered from the Abu Str temples four very interesting technical terms used by the Egyptian architects in levelling, and a fifth is recorded by Professor Petrie (*Medum*, p. 12 b):

“zero”	<i>nfrw</i>		“below zero”	<i>md hr nfrw</i>	
“zero line”	<i>m tp n nfrw</i>			<i>hr n nfrw (Medum)</i>	
“above zero”	<i>hr nfrw</i>				

- (c) The 3-ell mark was taken as the starting point for the levelling and was carried across the corridor and along both walls to the court and from there throughout the temple. The triangles of the 3-ell line were the only ones found filled in solid with red.
- (d) Having fixed the 3-ell mark at each convenient point, the other ell marks at that point were fixed by dead measurement up and down.
- (e) The instruments used in the levelling were:
- (1) A stout cord, perhaps the same cord used in linear measurements on building sites and fields.¹
 - (2) A wooden isosceles triangle, with a hole in the middle of the odd side for attaching a plummet string.
 - (3) A plumb-bob on a string.
 - (4) Possibly a long straight-edge of wood to which one or more triangles may have been attached; it would also have been possible to have the triangles marked on the side of a broad straight-edge.
- (f) The cord was stretched horizontally along the wall, with one end on the 3-ell mark, and levelled by holding the base of the wooden triangle, odd side up, along the cord so that the string of the plumb-bob bisected the pendent angle between the equal sides, perhaps marked with a straight vertical line; the accuracy of the operation would be proportional to the size of the wooden triangle and would have been greatly increased by the use of the straight-edge mentioned above.
- (g) When the cord was adjusted and stretched very taut, a red line nearly one centimeter thick was drawn along the cord; in some cases, in the Giza mastabas, the splashing of the red paint indicates that the cord was smeared with red paint and snapped against the wall.

In addition to the levelling lines, the ell marks, and the triangles, every stone appears to have borne an inscription in red paint, repeated, on both long sides. These were near the top of the stone and between two of the levelling lines, but not necessarily connected with them. We found it difficult to determine whether the inscriptions or the levelling lines were made first. The inscriptions were for the greater part concealed behind the brick casing and were recovered in 1923 by cutting away the casing. They are given in Pl. XI carefully copied by Mr. Alan Rowe. The list is as follows:

- (1) Wall between rooms (13) and (24), second course, first stone on west, western end of stone:
 - i. On face in room (13).
 - ii. On face in room (24).

ꜥprw Mnkꜣwrꜥ-thw wꜣꜥt sꜣ.
Distinguishing mark, antelope.
- (2) Same wall between rooms (13) and (24) second course second stone from west, eastern end of stone:
 - iii. On face in room (13).
 - iv. On face in room (24).

ꜥprw Mnkꜣwrꜥ-thw nꜥꜣs (?) sꜣ.
Distinguishing mark, *wꜥꜥ*.
- (3) Wall between rooms (13) and (15), first course, first stone on west, runs vertically about in middle:
 - v. On face in room (15).


ꜥprw Mnkꜣwrꜥ-thw nꜥꜣs sꜣ.
Distinguishing mark, *ꜣhw*-bird (? or *sꜣ*-bird).
- (4) Same wall between rooms (13) and (15) second course, third stone from west, east end:
 - vi. On face in room (13).

The only legible mark is *sꜣ*.
- (5) Wall between rooms (14) and (26), second course:
 - vii. On face in room (14).

ꜥprw Mnkꜣwrꜥ-thw nꜥꜣs sꜣ.
Distinguishing mark, not preserved.
- (6) Same wall between room (20) and room (36) and (37), second course, third stone from corner:
 - viii. On face in room (20).

ꜥprw Mnkꜣwrꜥ thw wꜣꜥt sꜣ.
Distinguishing mark, Jackal-with-feather, Cynopolis-nome.
- (7) Same wall between rooms (20) and (37 N), first course, second stone from corner:
 - ix. On face in room (20).
 - x. On face in (37 N).

ꜥprw Mnkꜣwrꜥ-thw wꜣꜥt sꜣ.
Distinguishing mark, *ꜣtp*.

¹ For the New Kingdom, see Borchardt, *Aeg. Zeit.* 42, p. 70. The object represented by the sign  *sꜣ*, may represent the same cord, taking the end loops as handles and the side loops as tags marking the ells. See the form of the sign in Dynasty I, Petrie, *R. T. I.* Pl. IX, 1-5; XI, 6, 16; XXI, 28; XXXI, 46.

- (8) Wall between rooms (16) and (20) and exterior, second course, second stone from corner:
 xi. On face in room (19).
ḥprw Mnkḥwrḥ-thw nḏś (?) sḥ.
 Distinguishing mark, *ḥhw*-bird (or Ibis).
- (9) Wall between rooms (27) and (22), second course:
 xii. On face in room (27).
ḥprw Mnkḥwrḥ-thw
 Distinguishing mark, not preserved.
- (10) Wall between rooms (10) and (37 S.), second course, third stone from corner.
 xiii. On face in (37 S.).
ḥprw Mnkḥwrḥ-thw wḥḏt sḥ.
 Distinguishing mark, *wḥḏ*
- (11) Great court, north of doorway (12), on west face near corner of pier:
 xiv. On face in court, facing east.
ḥprw Mnkḥwrḥ-thw nḏś sḥ.
 Distinguishing mark, a bird.

The signs which I have noted as distinguishing marks are usually after the inscription and of larger relative size than the signs in the inscriptions; but in two cases, the distinguishing mark was in front (Nos. vii and xii), in two cases underneath (Nos. ii and x), and in one case (No. xiii) both before and behind but not aligned with the inscription. A full list of these marks and a discussion of their meaning is given in Appendix E.

The levelling lines of the first course which appear to have been drawn first would have served primarily in levelling the top of that course and similarly the levelling lines of the second and third courses served the tops of those courses. In corridor (13), which had a sloping floor, special red lines were drawn to mark the tops of the sloping courses of the granite casing (see Pl. II). The line for the top of the first course had been almost entirely cut away in preparing the core wall for the casing, but the greater part of the line for the top of the second course was preserved. It began four centimeters under the western end of the 5-ell mark and sloped down to cross the 4-ell line 830 cm. from its western end, making a fall of 48.5 cm. in 830 cm. of length or one ell in 17 ells (895 cm.). The line sloped on downward toward the 3-ell mark, but ran behind the crude-brick casing, to reappear again on the core wall forming the side of the doorway (12). The vertical distance between the two lines was 90 cm., not an even ell, or two ells, like the levelling lines. It seemed clear that the levelling lines had been used to set the sloping course lines; and in the rest of the temple where the floors were flat, the levelling lines could also have been used to dress the tops of the courses of the casing. In rooms (7) and (8), where the casing was finished, the top of the courses did not coincide with the ell-lines, but special course-lines for the casing need not necessarily be assumed. See Appendix E.

(3) *Wall-Casings and Pillars*

The condition of the granite casing has already been described: 1, the finished but entirely destroyed red granite casing in rooms (7) and (8), 2, the unfinished but destroyed casing of black granite in the entrance corridor and the court, 3, the black granite block in place in the southern end of the portico, 4, the displaced black granite block in room (24), and 5, the unfinished black granite casing still in place on both sides of corridor (13). From the point of view of construction no distinction need be made between the red and the black granite. The evidence for the finished casing has long been known from the valley temple of Chephren.¹ The unfinished casing of the Mycerinus temple has now afforded important additional evidence of the method of construction.

First of all, the top of the foundation platform along the face of the core wall was dressed for each casing stone separately. The stone must, I think, have been dragged up and placed face down, probably on wooden beams, opposite the place it was to occupy in the wall. The stone had already been roughly dressed on the sides and front. On the front, a low ridge, 5–10 cm. wide and 3–5 cm. high, had been left on the four edges. While lying thus the bottom only of the first stone was dressed flat; the

¹ See especially Hoelscher, *Chephren*.

floor of the place to be occupied was dressed flat, and the crevices in the foundation platform chinked with limestone chips and white plaster. The core wall was also hollowed out to take the bulging undressed back of the stone; or, when the stone was a short one, the space was filled with a limestone slab, or rubble, set in the core wall with plaster. It was uncertain whether or not one side of the first casing stone was dressed before setting, but the second side was clearly seen not to have been dressed in the solitary block in room (7). The outer sides of the end stones in the three rows in corridor (13) were also undressed. There was no trace of a guiding line for the face of the finished casing to be found on the foundation platform; and it is probable that a stretched cord served this purpose.

The bottom of the stone and the place for it having been thus prepared, the next step is a matter of surmise. I would suggest that the granite block was then turned over on its lower edge as a fulcrum,

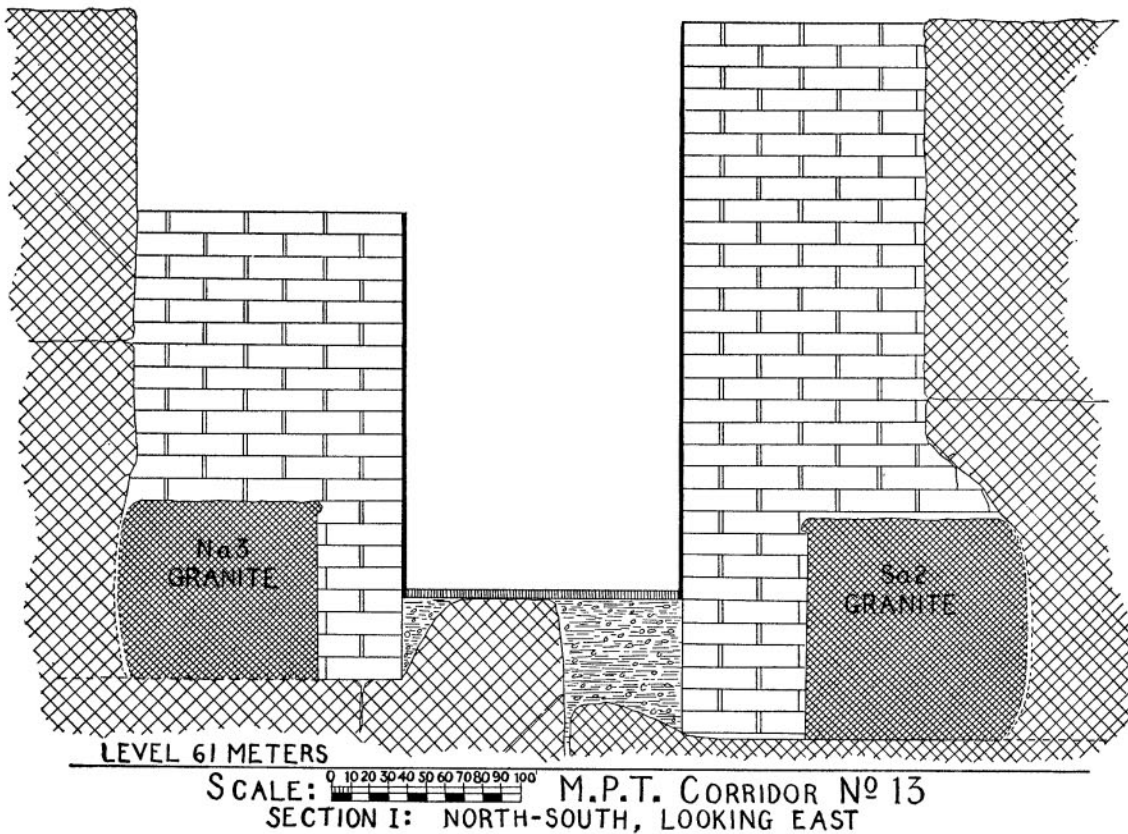
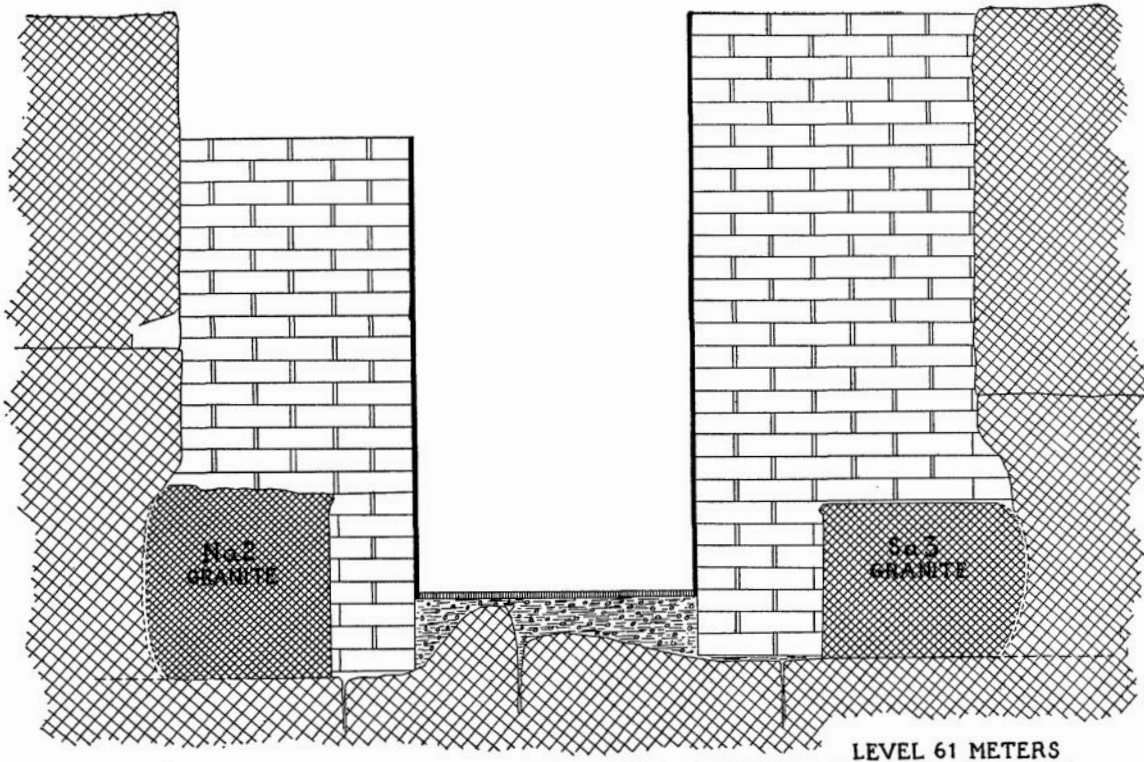


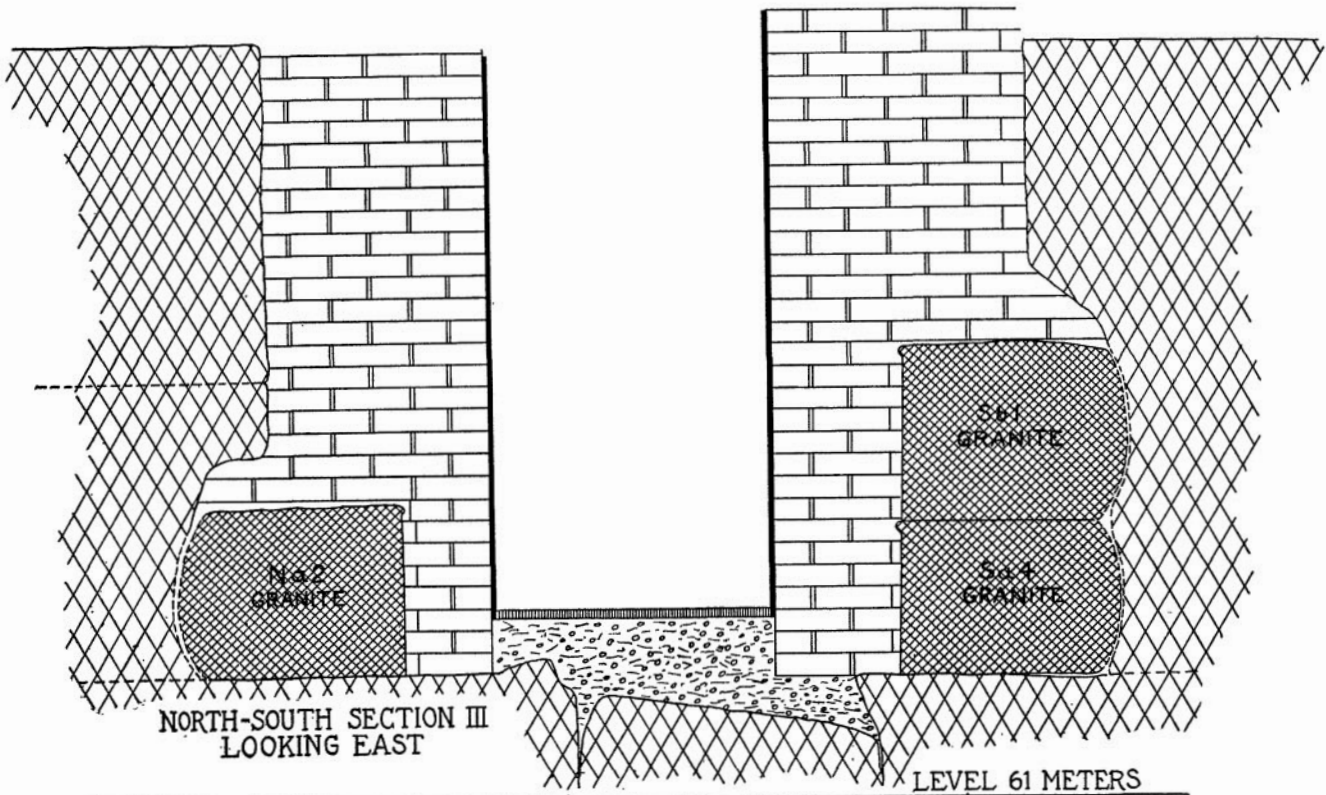
FIGURE 11

until it dropped into place in the wall, on a layer of plaster. The stones of the first course of the casing in the corridor were very irregular in size, but measured from 1.4 cubic meters to 1.8 cubic meters. Mr. W. P. Pollard of the Chemical Laboratory of the Egyptian Government has kindly ascertained for me that this stone weighs about 2,900 kilogrammes to the cubic meter. Thus the stones weighed from 4,060 to 5,220 kilogrammes each, or from 4 to 5.2 tons. As a matter of practical experience, we have, during the excavation of this temple, repeatedly turned over, partly with wooden levers and partly by hand, granite blocks of this weight with a gang of 10 to 12 men. I would point out that the ridges, especially that on the top edge, would greatly facilitate this process. In a few cases once the stone had dropped in place, it required little or no adjustment; but in many cases, two lever-holes were cut in the foundation platform under the front edge of the stone as it lay after dropping. These lever-holes measure about 20 cm. long by 12–20 cm. wide, and 5–8 cm. deep and usually lie under the face-line of the casing but sometimes entirely in front of that line. These holes prove that the final adjustment was made in these instances by levering with wooden beams. The layer of plaster of which we found abundant evidence in all emplacements, served to “float” the stone and facilitate the adjustment. It is well known that granite blocks “floated” in this manner can be shoved about by a few men even without levers; and it is to be presumed that some of the stones which were without lever-holes were so adjusted by hand.



SCALE: 0 10 20 30 40 50 60 70 80 90 100 M.P.T. CORRIDOR No 13
SECTION II: NORTH-SOUTH, LOOKING EAST

FIGURE 12



NORTH-SOUTH SECTION III
LOOKING EAST

SCALE: 0 10 20 30 40 50 60 70 80 90 100 cent M.P.T. CORRIDOR No 13
1:20

FIGURE 13

When the first stone was set, the side against which the next stone was to abut was dressed flat. The next stone was brought up, laid on its face on the wooden beams, and dressed flat both on the bottom and on the side which was to join the dressed side of the first stone. The emplacement for the second stone, having been prepared by dressing the floor and cutting out or filling in the core wall, was flooded with plaster; the second stone was then turned over and set in place against the dressed side of the first stone. This process was continued until the first course was finished.

The second course was laid in a similar manner, but without doubt from the top of a construction plane instead of from the top of the foundation platform. In room (13), while the work on the second course of the southern casing was in progress, the continuation of that on the first course of the opposite wall must have been hampered. That this was actually the case is shown by the fact that the fifth stone in the northern wall, stone (Na 5), was set in place with an interval of 135 cm. between it and the preceding stone (Na 4). The explanation seems to be that when the continuation of work on the first northern course was interrupted by the plane for the second southern course, the masons working on the northern wall discontinued and began again further east, beyond the end of the plane. For reasons which will immediately appear, I conclude that the plane used on the second course on the south approached from the west (the break in the wall which afterwards became doorway (25)), and that the second course was being built from west to east. It seems now an inexplicable piece of muddling to have begun the second course before the first was finished; but it is possible that Mycerinus died at this time and that during the last weeks of the construction, the work was disorganized.

The top of the first course was prepared for the second course one stone at a time. In room (13), the second course began in the middle of the wall, and three stones of the course were found in place. The top of course one west of the western stone of course two was still rough (undressed); but east of the eastern stone of course two, the top of course one had been dressed flat for a distance of 120 cm. The stone which was intended for this dressed place was certainly the unset stone which we found cast down on the bare limestone floor, against the core wall just east of the eastern stone of course one of this casing and covered by the crude-brick casing of Shepseskaf. This unset stone had a measured length of 119 cm. If the inclined plane had approached from the east, it would hardly have been possible to roll this unset stone off on the bare floor of the corridor so close to the casing already in place, but if it be assumed that the plane approached from the west, the position of the unset stone would be the one.

The most noticeable difference between the first and the second course lies in the absence of lever-holes for adjusting the stones of the second course. In working levers on top of a construction plane, it was of course easy to dig under the edge of the casing block and to use a fragment of hard stone as a fulcrum. One of the three stones of the second course shows the usual ridge around the edges of the face; another has this ridge and also two rough lever knobs on the lower edge; and the third has a flat face, which may however have been dressed after the stone was set. The stones of the second course, like those of the first, had been "floated" on plaster, and the close joints of both courses were filled with a film of plaster and pointed.

The faces of all these granite blocks, including the one abandoned before setting, bore inscriptions in red paint. In one place, the plaster used in setting course two had run down over the inscription on the stone below; in another, the writing was over the splash of plaster. But the presence of a similar inscription on the unset stone proves that these inscriptions were painted on the stone before setting, and where the inscription was written over the plaster, it had no doubt been rewritten after setting the stone. Probably the inscription, having been placed on more than one side of the stone, was rewritten horizontally on the face after the stone had been set; for some signs were found upside down on the face and the complete inscription was in several instances found on the undressed top or side.

The red inscriptions on the granite casing blocks consisted of four elements of which one, like the red inscriptions on the blocks of the core wall, was a "distinguishing mark." This distinguishing mark was not regularly placed with reference to the rest of the inscription, but was sometimes in front, sometimes behind, sometimes above or below, and was often repeated on the same face. As the stones were

dressed on the spot to fit the place, as the masons began in the middle of the wall in two cases, and as they began at several places simultaneously in the walls of the entrance corridor and the court, it is very doubtful to my mind whether these distinguishing marks could have served to indicate the place of the stone in the wall.¹ The first element in the inscription was the word *gš*. The four stones on the north wall of corridor (13) all bore the word *gš*, and as second element the word *imy-wrt*, but the two were separated by a space. The stones of the south wall in both courses had for the first element the word *gš*, and for the second the word *imn* (?), but on stones *S b 2*, *S a 4* and *S a 7*, the *gš* was separated by other signs from the word *imn* (?) while in *S b 3*, the word *imn* (?) was omitted or illegible. The third element was the same on all preserved inscriptions and read: *ḥmwṯ smyt*. The first interpretation which suggests itself is that the words *gš imy-wrt* and *gš imn* (?) designate the two sides of the corridor; but the *gš imy-wrt* side is the northern side and the other is the southern side, and I fail to see how the terms, both meaning "right-hand side," can apply. Furthermore what was the object in rewriting an inscription designating the place of the stone after the stone was in place? On the other hand, the word *gš* (det., house) "administration (?)," "estate," or something similar, has a meaning which may more probably belong to the word in our inscription; cf. the following titles:

- (a) *imy-rš gš* (det., house) "overseer of the *gš*."²
- (b) *imy-rš gš-imy-wrt ʿš ḥr* (or *ḥr ʿš*).³
- (c) *imy-rš gš* (det., house) *ḥryt-ntr* "overseer of the *gš* (det., house) of the necropolis."⁴
- (d) *ḥry-sštš n rš-ʿš m gšwy* (det., house);
imy-rš š-t (pl.) *tš mḥw m gšwy* (det., house).⁵

It seems therefore that *gš imy-wrt* and *gš imn* (?) may designate two different administrative departments, probably of the royal estates. The stones were marked after rough dressing and before setting perhaps to permit a control of the work to be credited to each and to save disputes as to which building gang the stones were assignable. If that supposition be correct, then the addition of *ḥmwṯ smyt* may be taken as a qualification of the other terms, that is the *gš-imy-wrt* of the *ḥmwṯ smyt* ("desert workshop"?) and the *gš-imn* (?) of the *ḥmwṯ smyt*.

The inscriptions have been carefully copied in fac-simile and repeatedly collated by Mr. Alan Rowe. His copies are reproduced in Pl. XII. The stones in the northern wall of corridor (13) are designated N(orth) a(= course 1) and a number counting from the left or west. Those in the southern wall are designated *S a* for the first course, *S b* for the second course, and the numbers read from left (east) to right (west). See Appendix E.

When the granite casing wall was finished, as in rooms (7) and (8), and the roofing stones laid in place, the rooms must have been filled to the roof with the débris of the construction plane. This débris would have been removed from the top down and afforded a standing place for the workmen dressing the walls. I conclude that the granite casing was dressed from the top down as the construction was removed layer by layer at the convenience of the workmen, analogous to the practice in limestone building (see below). The pavement, doubtless of stone, was laid after the dressing of the walls, in the same way as the pavement and floors made for the brick-cased walls. In room (13), the crude-brick casing wall descended to the foundation platform and the floor had been formed by filling in the space between the crude-brick casing walls with about 60 cm. of limestone chips and covering this layer with mud plaster. This was true also of the entrance corridor and the great court, but in the great court a stone pavement had been laid on the mud.

Owing to the irregular floor in corridor (13), the height of the granite blocks of the first course varied considerably, but the height nowhere exceeded a meter. The top of the first course, however, was dressed to an even sloping line and the course line for the top of the second course was 87–88 cm. above the dressed top of the first course. In rooms (7) and (8), the emplacement marks on the walls indicated a much greater height for the courses of red granite casing in those two rooms, as is shown by the follow-

¹ See Borchardt, *Sa 'hure I*, pp. 92 and 96.

² See Sethe, *Urk. I*, p. 47.

³ See for both, Borchardt *Ne-user-re'*, p. 113.

⁴ See Murray, *Index of Names and Titles*, p. xxiv.

⁵ Maritte, *Mastabas*, p. 538; Lepsius, *Denkmäler*, II 34 e.

ing table. The last column gives course heights from the Chephren valley temple, of which those in brackets are from the hall of pillars:

Height of	Room (7)	Room (8)	Chephren
Course 1	158 cm.	183 cm.	172 cm.
Course 2	?113 cm.	130 cm.	154 cm.
Course 3	?112 cm.	120 cm.	111 cm.
Course 4	115 cm.	...	105 cm.
Course 5	?105 cm.	...	104 cm.
Height of architrave	?100 cm.	...	[100] cm.
From floor to bottom of architrave	367 cm.	...	[418] cm.
From rock to bottom of architrave (top of pillar)	510 cm.	...	...
From paved floor to ceiling	467 ± cm.	433 cm.	[518] cm.
From paved floor to top of core wall as preserved	421 cm.	514 cm.	...

The red granite casing blocks found complete measured:

- (1) Exposed face, 105 × 72 cm.; thickness, 88 cm. (Fig. 14.)
- (2) Exposed face, 107 × 73 cm.; thickness, 67 cm.

In order to correspond with the course heights, these must have been placed upright in the fourth or fifth course. Examples of blocks placed upright in the suggested position are S b 2 in corridor (13), the isolated block in the southern end of the portico, room (7), and the red granite blocks in the west wall of the hall of pillars in the Chephren valley temple.

In the portico a large fragment of a red granite lintel was found which I concluded had roofed the doorway between the portico and the offering room. On the underside was a rectangular socket for the upper socket block of the doorpost, and in the roof of the socket was a cylindrical hole, bored with a tube borer, to take the upper end of the doorpost. The height of the block was about 99 cm., — 84 cm. the height of the inside face plus 15 cm. the height of the ledge at the top of the door. Thus the top of the doorway was probably 99 cm. below the ceiling of the offering room (8), and therefore 334 cm. above the floor of that room. The lintel was 101 cm. thick, but as the other face had been split off, it may originally have been 110–130 cm. thick. The door jamb as reconstructed from the emplacement marks would have been about 90 cm. wide, a measure entirely compatible with the supposed thickness of the lintel. The length of the lintel, which would have fixed the width of the doorway, was quite indeterminate.

The marks on the floor of the western end of room (8), seen by Vyse and still visible, are the emplacements of three granite casing blocks, not the prints of pedestals. The middle stone is thicker than the other two and I reconstruct with a compound niche¹ to correspond with the thickness of the stones.

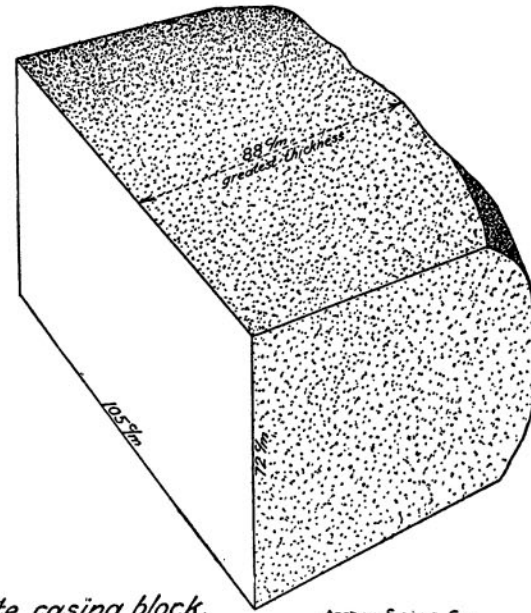
The square pillars and the antae in the portico were probably also of red granite on the analogy of the Chephren valley temple. The sockets in the floor indicated two rows:

- (1) Eastern row of four pillars and two antae.
- (2) Western row of two pillars and two antae.

The sockets in which they stood were sunk in the rock, which here forms the foundation of the temple, to a depth of 99–105 cm. (about two Egyptian ells) and were about 105 cm. square. The bottom of the sockets in the eastern row varied from 119 cm. to 136 cm. in depth below the floor of the portico, and the western sockets from 130 cm. to 148 cm. I calculate the height of the pillars from socket bottom to architrave at 456 cm. to 415 cm. according to the depth of the socket, or 367 cm. above the floor. I think there can be very little doubt that they were monolithic like the Chephren pillars.

The manner of the erection of these monoliths is indicated by the form of the sockets. The front or eastern side of the socket has been cut away to form a slope descending from the east, of the same width as the socket (100–105 cm.), but varying in length from 120 cm. to 150 cm. The slope descends below the level of the bottom of the socket so as to form a slight step (3–5 cm. high) just inside the eastern side of the socket. The process of erection I would reconstruct as follows (see Figs. 15, 16):

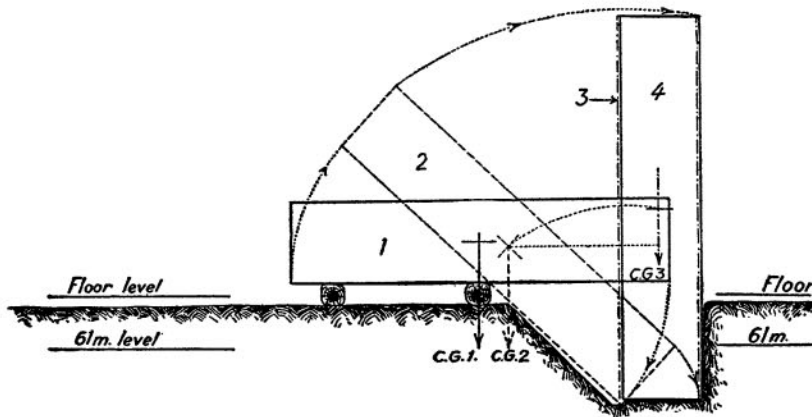
¹ See Fig. 10, p. 71.



Red granite casing block.

APPROX. SCALE CM
0 10 20 30 40 50 60 70

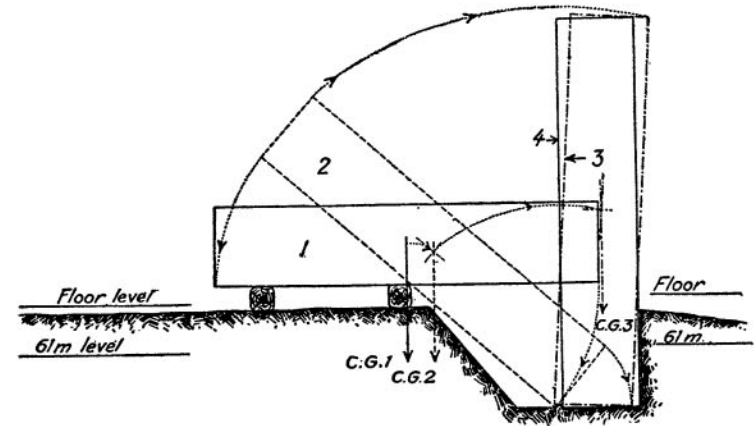
FIGURE 14



Proposed method of raising square pillars.

Scale 0 10 30 50 70 100 Cm.

FIGURE 15



Proposed method of raising square pillars.

Scale 0 10 30 50 70 100 Cm.

FIGURE 16

- (1) The pillar, rough-dressed but not smooth, was dragged up on a sledge until it was beside the slope and the socket, with its butt approximately opposite the front third of the socket; being already 30–50 cm. above the floor, the pillar was then rolled over perhaps upon three wooden beams of height equal to that of the sledge; these beams were perpendicular to the side of the sledge; the pillar was then manoeuvred into place so that the butt end projected beyond the edge of the socket; the middle beam was not far from the center of gravity, perhaps a little west of it; the western beam was then worked out from under the stone, perhaps by breaking slightly the limestone under it, and the pillar left practically teetering on the middle beam; the weight to be lifted would have been small and by levering one end and pressing down on the other, the pillar would have been easily revolved on the middle beam as a fulcrum, until it rested on the slope with its lower edge against the step at the bottom of the slope.
- (2) The pillar at this stage made an angle of from 35° to 41° with the horizontal according to the slope of the socket in question; at any of these angles an effective pull could have been exerted with ropes held by men standing on the floor to the west or better on top of the massive walls; these stones weighed from 13–14 tons each but at that angle far less power was required to turn the stone on its lower edge than that required to lift the weight of the stone; the movement of the pillar would have been guided and restrained by ropes held by men standing in the court to the east; the rough surface of the pillar would have prevented the ropes from slipping, and the sides of the socket would also have assisted in guiding the pillar into place.
- (3) The sides of the socket have a thin layer of plaster, and it is probable that a thick layer of plaster was put in the bottom of the socket before setting the pillar to facilitate the final adjustment of the pillar by twisting it, if necessary, while standing; the plaster also served to fix the pillar in place; the slope was filled either with a single stone or with rubble and plaster.
- (4) The architrave and the roofing slabs were mounted from an inclined plane and construction platform; the architrave stones resting on the tops of the pillars were from 300 cm. to 370 cm. long measuring from the middle of one socket to the middle of another; the middle space in each row is wider (370 cm.); the width of the architrave was that of the pillars (ca. 100 cm.); and the height should have been the same on the analogy of the Chephren temple, but the marks on the wall indicate a height of 54 cm.
- (5) The final stage was the dressing of the pillars probably done at the same time as the dressing of the casing.

I infer that

- (a) In spite of the differences in height of the casing-courses in the two rooms, the casings of rooms (7) and (8) were built first and from the same construction planes.
- (b) The construction planes were then removed, at least as far as the doorway to room (8), and the pillars erected.
- (c) The construction planes were then rebuilt for the architraves and roof of the portico.
- (d) The casings and the pillars were dressed by workmen standing on the construction platform, which was removed as the smoothing of the walls and the pillars progressed, working downwards.

But it is possible that room (8) was finished before the portico was begun, in which case the planes would have been twice removed before the final clearance.

The roofing of the portico and the offering room is to be reconstructed on the analogy of the valley temple of Chephren. In the portico the square red granite architraves ran north and south over the tops of the pillars and the antae; and on these the roofing slabs were laid running east and west. The front edge of the portico roof was probably quite plain and square cut.¹

The dressing of the granite at the Mycerinus pyramid and temples, wherever it was found and in whatever state of completion, showed traces of only three processes — hammering, rubbing, and boring with a cylindrical borer. The cylindrical or tubular borer was used, as far as our evidence goes, only for boring sockets to take the ends of doorposts and the ends of bolts, and consequently was not of general utility in construction.² The hammering and the rubbing processes were however everywhere in evidence, especially in the casing of the Third Pyramid where large ridges had been worked out by pounding and rubbing, and these ridges were often partly broken off by smashing blows with the point of impact on the upper side of the ridge. Three types of stone implement were found in and about the temples:

- (1) A large two-handed hammer or rubber.
- (2) A large hammer which was used with a wooden handle.
- (3) Rough hammers and rubbers held in the hand, or in both hands.

¹ Cf. Professor Borchardt's reconstructions of the temple of Sahura.

² See Chapters VII and VIII.

These hammers and rubbers are described in Chapter X, section 7. The processes performed were smashing blows to knock off projections, tapping blows to bruise and crush the surface, and rubbing motions. The irregular lumps of very compact black granite of which a score or more were found in the unfinished room (10) have a bruised surface like that produced by the bruising and rubbing on the unfinished statuettes and were apparently used both for bruising and rubbing. Most of them would have required both hands to operate, and many of them had been split by pounding. Their used surfaces are all rounded, and I imagine the final flat dressing was carried out with a flat faced stone of larger size, perhaps a rectangular slab of granite worked by two men.

(4) *Free-Standing Walls*

With one exception the granite walls of Dynasty IV appear to have been cased core walls like those of the Mycerinus temple. The exception is the court of the Chephren pyramid temple, called by Dr. Hoelscher the "Statuen-Hof"¹ which is stated to have been of granite, although not so shown in the plan. Free-standing walls of limestone occur in this temple in the inner magazines west of this room and are common in the mastaba chapels of the period. The earliest example of this type of masonry is, I believe, the pyramid temple of Sneferuw at Medûm.² That temple was of limestone, perfectly preserved and entirely unscribed except for the graffiti of visitors, the earliest of whom were of Dynasty XVIII. The area of the temple was very small, about 8.95 meters long (measured on the plan) from the base line of the pyramid and 8.65 meters wide, and the workmanship is described by Professor Petrie as "solid and sound but not refined." "The stone is left rough" or partially dressed "in many parts." The masonry and the unfinished condition of the temple correspond very closely with the inner part of the Mycerinus pyramid temple built in Dynasty VI, and the temple is so small that a doubt arises in my mind whether this pyramid temple of Sneferuw was the original temple. This type of structure may assuredly be expected in the time of Sneferuw, and I regret that I do not feel safe in using it as direct evidence for the period.³

The inner part of the Mycerinus pyramid temple is of limestone, and consists as already described of two very different structures, one in Turah limestone and the other in local limestone. The kernel structure of white limestone (see Fig. 7, p. 23), which I ascribe to Shepseskaf, resembles in its masonry some of the mastaba chapels of Dynasty IV, especially those in the southern division of the great Giza cemetery. The walls were unfortunately not preserved above course 2; and as the masonry of the foundations built around the massive granite pavement of Mycerinus was not normal, a retaining wall had been constructed, and as it rose the space between it and the mass of granite had been filled with rather carefully laid rubble. The noticeable point is that the top of each course was levelled and smooth, that the facing line of the next course above was scored both on the foundation platform and on each course, exactly as in the chapels of white limestone in the cemetery of Dynasty IV. The niche, or niches, are shown by the preserved niched stone to have been built of long stones set on end as in those chapels.

The second structure, of the poorer nummulitic limestone, had been left undisturbed by the quarrymen and was practically intact (see Pls. I-III). It was built against the kernel structure wherever the two came in contact and was thus clearly later in date as well as different in material. The type of masonry is that of the chapels built of the same material, belonging to the mastabas of Dynasties V and VI. The walls are of two types, a thinner wall which is a single stone thick and a thicker wall generally two stones thick (the south wall of room (27), the wall between rooms (27) and (26), the wall between rooms (26), (27), and (28), and the northern wall of the whole structure). The blocks of the single-stone wall are usually large and run lengthwise in the first two or even three courses, but the courses are of two stones (see Pl. II, section O-P). The two-stone walls have occasionally alternate one-stone and two-stone courses, as in south wall of room (27) (see Pl. II, section K-L), and occasionally a single stone set at the ends of a course as the eastern wall of room (28).

¹ Hoelscher, *Chephren*, p. 64.

² Petrie, *Medum*, pp. 8 and 9, and Pl. IV.

³ Since writing the above the temple of Zoser at Saqqara has been excavated by Mr. Firth and proves the construction of free-standing limestone walls at the beginning of Dyn. III.

All the stones in this later structure were laid rough by methods similar to those described for the granite casing, but without being "floated" on plaster. It may be recalled that the rooms (27), (30) to (35) had not been finished. In the doorways of these rooms, the sockets for the upper door-blocks had been cut in the lintels and the wooden blocks set in these sockets with reddish plaster before the lintels were mounted and while the walls were still undressed. Although the roofs had been laid, the surfaces of the walls were bulging and uneven leaving narrow crooked spaces between, in room (30) so narrow that a man passes through with some inconvenience. When excavated these rooms were found filled to the roof or nearly to the roof with masons' débris deposited in layers about equal in height to the corresponding courses, and it was clear that these layers served as construction platforms for the courses of the walls. In rooms (30) and (31), the dressing of the surfaces of the walls had been begun at the top and the construction platform had been partially removed. In room (27), the same condition of the process of dressing was observed, but there the whole of the construction plane had been removed to make way for the Roman communal burial. The conclusion is obvious that the walls were dressed from the top down. The tool marks on the surfaces in process of dressing prove that the implements used were the chisel of hardened copper and the pear-headed wooden mallet of which numerous examples were found in the Giza mastabas. The chisel which left a groove about 14 mm. wide was similar to those actual copper blades found in the Senezem-ib complex in the great cemetery. This consisted of a heavy rectangular shaft about 12 cm. long and a broad cutting edge about 14 mm. wide. Such chisels, as is well-known, were set in sockets at the end of a wooden handle.¹ The finished rooms, (26) and (28), show that the final dressing was done by rubbing with stone, and that the surfaces were finally sized with fine plaster. In dressing back the walls the excess of the stone at the bottom was left projecting and was dressed level with the floor. The floor consisted of stone slabs fitted to the stones built in the walls.

The plan seems not to have been marked on the foundation platform as was done for the better structures of Dynasty IV, nor could we find any trace of facing lines on the courses.

In five of the six square pillars in room (27), the shaft consisted of two stones, a tall stone, 220–270 cm. high, and a short upper stone, 95–45 cm. high. The sixth pillar, that on the south, had two small stones instead of one. The usual square architrave ran north and south across the tops of pillars. The eastern ends of the eastern row of roofing slabs rested in a groove cut in the old core wall of the outer temple; and the western ends of the western row must have rested in a groove cut in the white limestone wall of the kernel structure, which rose considerably higher than the roof of room (27). The sides of the pillars, like the wall surfaces of this room had not been completely dressed, but were more advanced than the walls. The pillar in room (26) was a monolith and rested on a large block of stone which descended to the rock. The upper surface of this stone had been dressed to form a low square pedestal about 5 cm. high for the monolithic pillar and the flanges on the four sides of the pedestal had been dressed to form part of the paved floor of the room. The architrave and the roofing slabs were built as in room (27), but the western ends of the western row of roofing slabs rested on the contemporary wall between rooms (26) and (28). The surfaces of the walls and the pillar in room (26) had been finely dressed and sized with plaster.

Room (26) had the only window found in any of the temples. For a time I thought that a slot in the upper part of the west wall of room (28) was also a window, but a more careful examination proved this supposed window was only an empty place from which a stone of the wall had been removed. The window in room (26) consisted of a narrow horizontal slot at the top of the wall, over the doorway to room (27) and just under the roof. It opened into an irregular vertical shaft which descended between the southern roofing slab of room (26) and the northern roofing slab of room (27), so that the light fell vertically on the sloping bottom of the slot and was reflected into the room.

An inclined plane of much worn limestone boulders rested against the western wall of the outer temple and led from the ground northwards to the top of the walls of the inner temple. This was built against the crude-brick casing of the outer temple and against the broken end of that casing — the broken end left after the old inner temple of crude brick had been removed — as well as against the limestone

¹ See Chapter IX, *Copper Vessels and Implements*, for remarks on the hardening of copper.

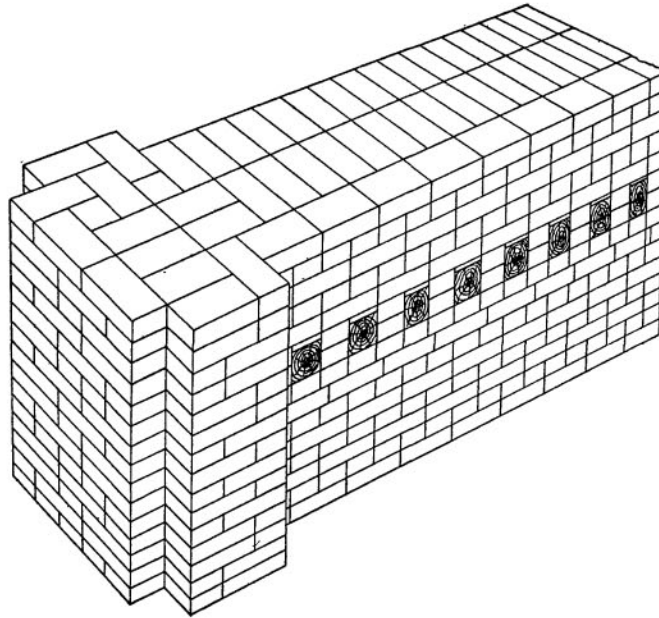
walls of the later inner temple. It had manifestly been used to bring up the roofing slabs of room (27) and perhaps of the whole inner temple. Another plane may have led up to the roof from the north, but this would have been removed on account of the exit from room (26) to the pyramid enclosure.

(B) CRUDE-BRICK CONSTRUCTION

The use of crude brick in the temples built by Shepseskaf, in the screen walls, in the various alterations, and in the valley temple of Dynasty VI, presented in general the characteristics of other structures of crude brick built in the Old Kingdom.

(1) *Bonding*

Ordinary Egyptian brickwork has carefully bonded faces with header and stretcher courses in alternation, usually three header courses to one stretcher course, but sometimes with one header and one stretcher course in strict alternation. In the brickwork of the Mycerinus temples, the alternating header and stretcher courses in the exposed faces and the bonding are more carefully executed than in



Bonding in wall between M.P.T. 17 & 18.

Scale 0 10 30 50 70 100 Cm.

FIGURE 17

ordinary brickwork. The bonding depends on the fact that at the corners two courses of headers alternate with two courses of stretchers. The alternation of one header course with one stretcher course in the rest of the wall brings a header continuation of one of the two stretcher courses and a stretcher continuation of the other; and the same is true of the continuation of the two header courses. Thus every other joint in a header course is broken by a stretcher above each joint and the alternate joints in the same header course are broken by a stretcher below each joint (see Pl. V, 7). For example, in the southern half of the eastern wall in III-*a*, the courses counted from above consisted of:

- | | |
|--|--|
| Course 1, all headers from corner. | Course 5, all headers from the corner. |
| Course 2, all stretchers from corner. | Course 6, all stretchers from the corner. |
| Course 3, one stretcher followed by headers. | Course 7, one stretcher followed by headers, and |
| Course 4, one header followed by stretchers. | so on. |

This is a really beautiful system of face bonding as may be seen from the drawings (Pl. V, 7 and Fig. 17). Another fine example was the high southern casing wall of corridor (13) in the pyramid temple (Figs. 11-13), but there a certain amount of irregularity was introduced in the lower courses. And in general in long walls the use of defective and trimmed bricks was apt to affect the regularity of the bonding in places.

The internal bond appears to have been theoretically quite as fine as the facing bond, but the execution was defective. It has been repeatedly observed that the work of the Egyptian mason was careless and slipshod where it was hidden from direct observation. On taking down the wall mentioned above, the southern half of the eastern wall of room (9) in the temple of III-*a*, it was seen that the wall had the thickness of three and one-half lengths of a brick. Each course had headers in both faces or stretchers in both faces. Behind the faces, the bricks were generally laid as headers; but this left in each course an extra half-brick width which was filled with a line of stretchers running the length of the wall. The position of this line of stretchers was shifted in each succeeding course half a brick towards one face or the other so that looking at a section the lines of stretchers formed a zigzag running from the top of the wall to the bottom. These internal stretchers together with the stretchers on the faces tied the wall solidly in the longitudinal direction while the headers, both those in the wall and those on the faces, tied the wall crosswise. A few courses were laid quite regularly according to this system of bonding, but almost always there were irregularities, a half-brick inserted instead of a whole one, the place for an internal stretcher filled with lumps of mud, and once a header laid diagonally in the place of two

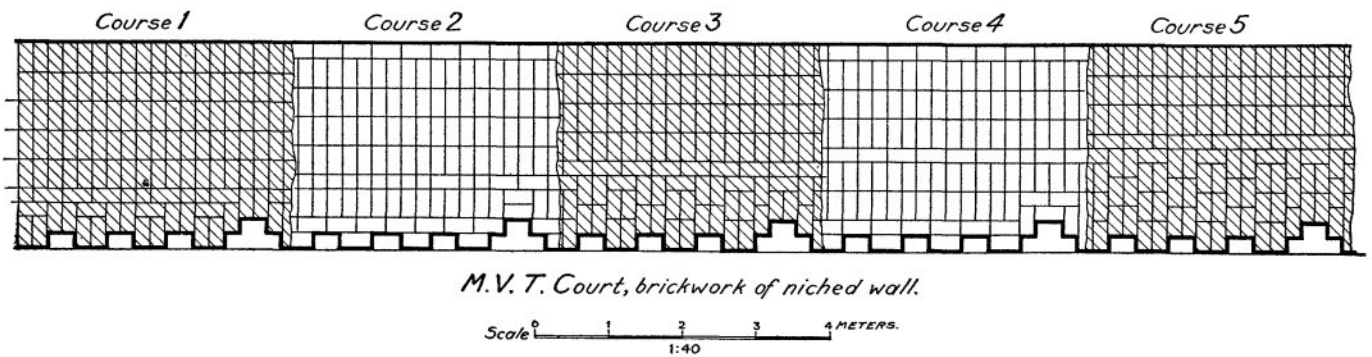


FIGURE 18

headers. This was the system when the thickness of a wall was an even number of bricks plus one half brick. When the thickness of the wall was exactly an even number of bricks, a course which had stretchers in one face had headers in the other and vice versa; but the internal bond was similar to the other width of wall (see Pl. V, 6). The system of bonding lent itself readily to niche-work in the face of the wall (see Fig. 18).

The casing walls built against the older stone walls had the same bonding of the face as the other walls, but behind the face the bricks were almost exclusively headers (Figs. 11, 12) laid very loosely and carelessly.

The crude bricks were laid in thick mud plaster of about the same consistency as the bricks themselves, and increased greatly the cohesion inherent in the system of bonding.¹ The brickwork was in all cases covered with a thick mud plaster, 1-4 cm. thick which in turn was coated with a layer of white plaster. The mud plaster commonly used on the walls of the temples built by Shepseskaf was a yellowish mixture and quite characteristic. But on the later walls, black mud plaster was used. The Egyptian architect seems never to have been willing to admit the presence of brickwork in his walls. At the same time, the plastering was a great protection against weathering.

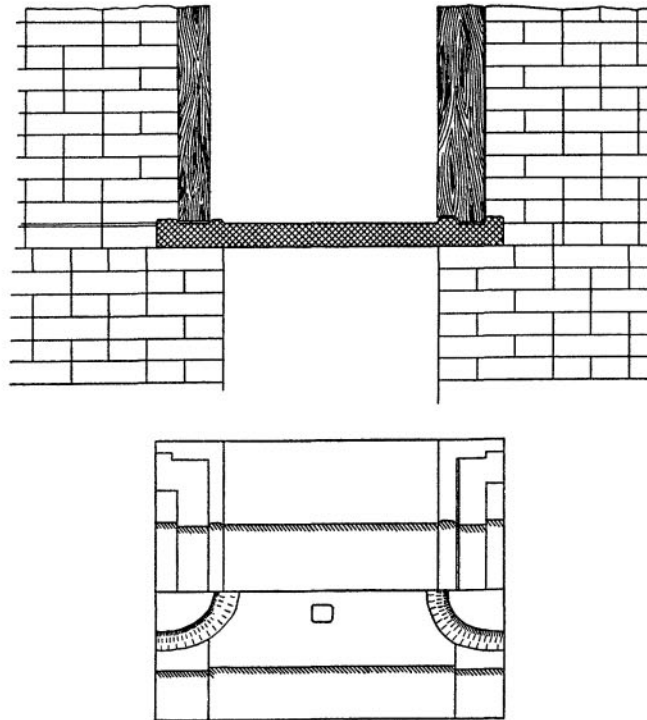
(2) Foundations of Crude-Brick Walls

The ordinary Egyptian manner of preparing the foundations of a crude-brick structure at the present day is to lay out the plan with strings or cords fastened to pegs, or bricks, or stones, to clear away the soft surface rubbish in the lines of the walls, to mark the corners of walls and doorways with dry bricks, and then to lay the first course in mud mortar directly on the ground, leaving spaces for the doorways. When the ground is uneven, the first course often consists of bricks set on edge in the lowest

¹ In connection with the Egyptian crude-brick walls, I would call attention to the *khalûfa* walls of the Sudan. *Khalûfa* are great rectangular clumps of mud like the hand-made lump which the Egyptian brick-maker prepares for the mold, but much larger and thicker. These are laid wet in the wall and dry in place; and each course must dry before the next is laid. The slowness of the proceeding is admirably adapted to the temperament of the Sudanese, and the wall is surprisingly solid and enduring.

places, leaning more or less and even turned on the side in the higher places, so that the top of the course is practically level. It is seldom that foundation trenches are dug for crude-brick walls.

In all the crude-brick walls of the Mycerinus temples, including those of the small pyramids but not the screen walls founded on an older pavement, the bases of the walls lay from one to seven courses below the living floor of the temple. In the pyramid temple, the crude-brick walls were founded on the rock platform; and the floors were filled in and plastered or paved after the construction of the walls. In corridor (13) the floor was 46 cm. above the foot of the wall. In the other crude-brick temples the foundation floor was prepared either (1) by clearing the desert surface (III-c) or (2) by laying down a hard packed layer of gravel and rubbish over the foundation platform of the unfinished stone temple (M. V. T., III-a, and III-b). On this earthen platform the plan of the building was laid out by the architect using cords to guide the lines and leaving spaces for the doorways. These foundations varied



*Plan & Elevation of threshold & doorway, M.V.T.
1 to 2 First Temple.*

Scale 0 10 30 50 70 100 Cm.

FIGURE 19

in depth with the varying level of the platform, but reached a nearly common level at the height of the projected floors. Thus, for example, the walls in the northern half of the temple III-a, are only from one to two bricks deeper than the floors, while at the southeast corner they reach to seven courses below the floor. The gaps in the doorways were usually, but not always, bridged with thresholds of limestone slabs at the projected floor level (Fig. 19). After the walls were built, the foundation compartments were filled with hard packed gravel and rubbish to the projected floor level, which was plastered with mud. It is not quite certain whether the superstructure walls were built before filling in the foundations or afterwards, but I think afterwards. The floors in the Mycerinus valley temple varied somewhat in the various parts of the temple, quite apart from the difference of level between the western sanctuary and the court. In the temples of the small pyramids, III-a and III-b, the floors were fairly level. In that of III-c the floors sloped with the slope of the foundation platform from north to south, but less steeply.

(3) Roofing

On the top of the corridor walls of the valley temple and on some of the magazine walls, we found the ends of decayed wooden logs about 20 cm. in diameter and 50 cm. long from the face of the wall to the end of the log. These logs were not set close together but separated by a space varying from 15

to 19 cm (Fig. 20). As found the logs were sunk to a depth of about 5 cm. in the tops of the walls, but this may have been due to pressure. The separation of the logs proves conclusively that a layer of planks or reeds or palm-leaf stems was laid over the logs to support the bricks and mud which protected the roof from rain. This type of roof is wonderfully effective in the Egyptian climate as long as the wood lasts, but is unsuited for covering wide spaces owing to the weakness of the logs. It is to be noted that all the roofed rooms in the five crude-brick temples were less than 320 cm. in width, except the portico and the anteroom of the vestibule of the Mycerinus valley temple. The logs were laid across the smaller dimension of each room.

In the wide vestibule room (III-377), the roof was carried on rafters supported by wooden columns which rested on four alabaster bases set in two rows. The bases were square blocks, the tops of which had been dressed down leaving a circular disc rising a couple of centimeters above the floor. The two porticos in the temples of III-*a* and III-*c* had no wall on the side towards the court to support the roof; and the rafters on this side were held up by wooden columns resting on circular limestone bases. The outer ends of the roofing logs rested on these rafters. In the case of the great portico of the valley temple, the character of the roof supports was not clear. The presence of the two pairs of antae in the northern and the southern walls led us at first to reconstruct the room on the analogy of the portico of the pyramid temple, with two rows of square crude-brick pillars corresponding in width to the antae, an eastern row of four pillars and two antae and a western row of two pillars and two antae. But a careful search failed to show any trace of the foundations of crude-brick pillars, and a consideration of the strength of a square pillar the width of the antae led to the conclusion that such a pillar was impracticable. It was finally decided that although square pillars may have been marked in the original plan, the roof had been supported by wooden columns of the same number and arrangement as the supposed square pillars (Figs. 21, 22). These must have rested on stone bases which, on the analogy of the vestibule room, should have been of alabaster. But the use of limestone is not to be excluded; and the fact that exactly six limestone bases were found in the second temple seems to indicate that these were the original six bases of the portico of Dynasty IV. The six wooden columns bore two lines of north to south rafters, which in turn carried the east to west roofing beams (or logs).

In the Chephren valley temple¹ the architraves were held in place by copper (?) dovetails with a heavy round pin extending vertically downwards from the underside. The copper (?) dovetail was placed in a hollow on the top of each granite pillar so that the pin and half the height of the dovetail were sunk in the pillar, while the upper half of the dovetail crossing the joint between two architrave stones was sunk to half of the remaining height in the bottoms of the two stones — one half in one stone and the other in the other stone. On the upper side of the joint, the ends of the two architrave stones were joined by another copper (?) dovetail. In the case of this granite temple where the architraves had to stand the strain of mounting the heavy roofing slabs, such a system of internal ties was much more necessary than in a wooden roofed temple. Nevertheless, the Egyptian was very fond of ties in woodwork, and it is altogether probable that the rafters of the rooms with columns were fastened to the columns and to each other. I would reconstruct the columns with a block between the top of the column and the rafters because the grain of the column running vertically was perhaps unsuited to the strain of a dovetail or other tie. The grain of the block would run in the direction of the grain of the rafters and the block would have been held on the top of the column by a heavy pin in the column resting in a hole in the bottom of the block. The rafters were probably dovetailed to the block and to each other as in the case of the granite structure with wooden dovetails, but some other tie may have been used. It is needless to say that no trace of the rafters or of the ties was found.

There is another type of roof used in Dynasty IV in crude-brick structures, that is, the leaning course vault. But, while this vault would have been suitable for roofing the small rooms of the lesser temples, no actual evidence was found of its use. The walls had, however, been so denuded that the absence of evidence was not decisive.

¹ Hoelscher, *Chephren*, p. 43.

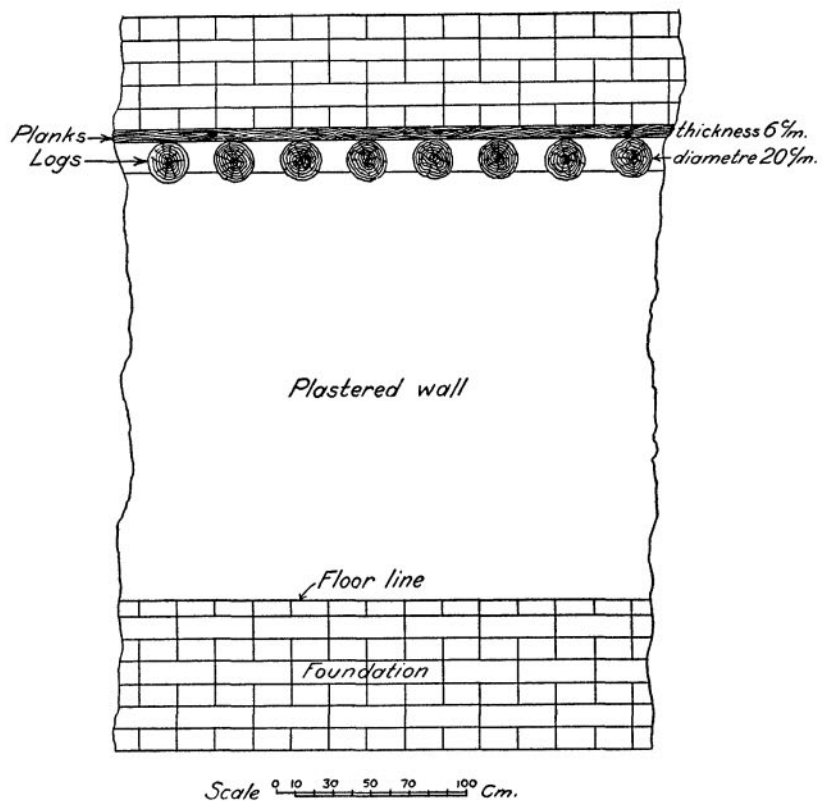
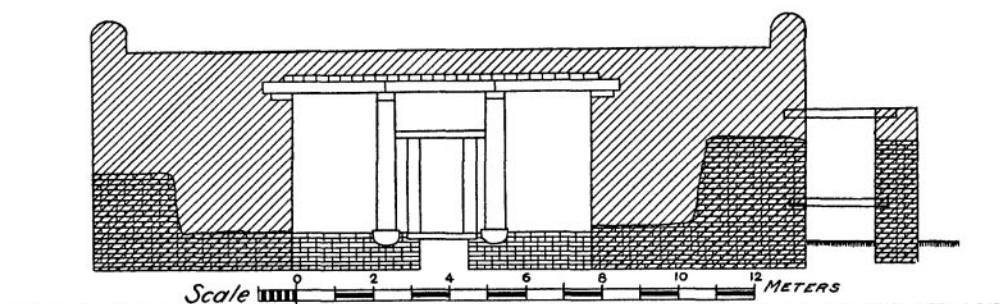
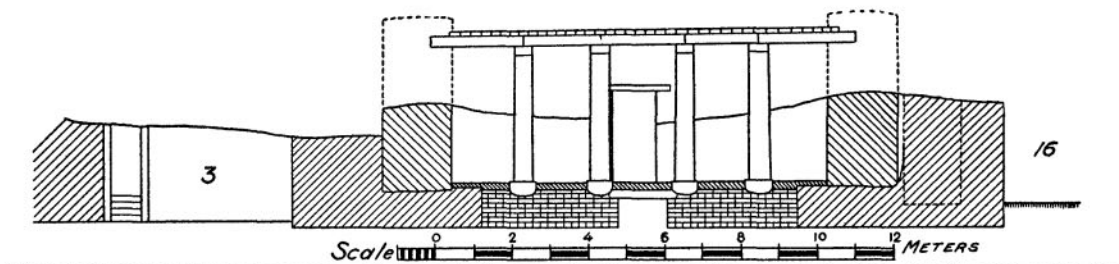


FIGURE 20



Section-south-north through portico of M.V.T First Temple, showing restoration of columns and roof

FIGURE 21



Section south-north through the outer offering room M.V.T. I Second Temple, showing restoration of columns and roof.

FIGURE 22

(4) *Doors and Windows*

It may be said at once that no windows either for light or air were discovered anywhere in the Mycerinus temples of crude brick. As Egyptian windows were usually at the top of the walls, all possibility of determining the presence and the form of the windows was lost with the destruction of the upper part of all walls. It must be assumed, however, that some of the rooms were provided with windows. In the chapels of the mastabas in the great cemetery, two types of windows have been found in crude-brick structures. One is the embrasure window, widening inwards and usually horizontal; the other is the multiple slot window, which consists of five to seven vertical slots each half a brick wide and five to seven courses high, left in the brickwork at the end of the room. The embrasure window usually accompanies the wooden roof, while the multiple slot window seems to be peculiar to the rooms roofed with the leaning course vault. Both were set high in the wall, the multiple slot window not so high as the other, and the former would have been in evidence in the Mycerinus temples if it had been used. It is therefore almost certain that the embrasure window was the type employed in those temples.

The doorways on the other hand were fairly well preserved, so that the doors could be confidently reconstructed. The doorways all have broad jambs. They fall into two types, those with stone thresholds, and those with mud floors. Four of the stone thresholds in the valley temple were of a particular construction — in the doorways from (III-1) to (III-2), from (III-2) to (III-4) and (III-20), and that in the later screen wall. All these were alike, but the best preserved was in the doorway from (III-1) to (III-2), bridging the doorway gap in the foundation wall. This consists of two broad slabs of fine white limestone, about 12 cm. thick. The outline of the jamb is grooved in a way which indicates that the broad jamb was cased with an upright slab of wood or stone about 15 or 20 cm. thick (see Fig. 19). The cased jamb ended at the edge of the outer threshold slab; and in the adjoining edge of the second slab, on each side, was a hole of the form of a quarter circle, which either formed the socket for the doorpost or contained a kerb socket. The door was of the two-leaf type, and a small hole bored in the second slab immediately north of the middle line between the socket holes was evidently for receiving the end of a vertical bolt which locked the northern leaf of the door on the inside. The simple grooves on the ends of the second slab probably served to hold the leaves of the door when open. The doorway in the later screen wall was also of the two-leaf type, but the other two were of the one-leaf type, also with a cased jamb. It seems necessary to reconstruct the top of the cased jamb with a lintel of the same material as the casing, wood or stone.

Three doorways in the temple of pyramid III-*a* also had stone thresholds — the entrance doorway, that from the entrance corridor (8) to the court portico (2), and that from the court portico (2) to the anteroom (3). These three were all different. The threshold of the entrance doorway was similar to the two-slab threshold of the valley temple but had a step inside the doorway against which the leaves closed. The threshold from (8) to (2) lay between the broad jambs only and consisted of three small slabs laid on the gravel packing but rising 4 cm. above the floor. The crude-brick door-jambs were built on the ends of the stone threshold; and the door socket was set in the mud floor in the inner angle of the jamb toward room (2). The third threshold from (2) to (3) likewise stretched between the broad door jambs only and consisted of two slabs, the second of which was cracked, set in the mud floor between the brick jambs (not under them) and rising 5 cm. above the mud floor.

The remaining doorways were plastered with mud on a level with the contiguous floors and had stone door sockets of the kerbed form set in the floor in the angles of the jambs.

The kerb socket for door posts consists of a curving rim of limestone, a segment of an ellipse, open on the side next to the narrow end of the jamb and also on that next to the wall. The inner side of the kerb is sloping, so that the doorpost, as it settled by the weight of the door, is forced inwards against the end of the jamb and the wall. This feature was probably of especial importance in preventing play in the doorpost, when the end of the post began to wear. I would suggest that the extra length of the upper end of the doorpost, which extends usually into a hole above the upper socket block was intended to allow for the sinking of the doorpost through wear. The door must have been hung high on the post

to allow for this sinking, leaving a space between the bottom of the door and the floor. This space was usually closed in the mastabas by a step or high threshold stone rising 5–15 cm. above the floor. The steps, 4–5 cm. high, formed by the thresholds of three of the doorways of the temple of III-*a*, served this purpose, but none was observed in the valley temple.

The door leaves were of the type so well known in both stone and wood, in actual examples as well as in models and pictures. The door leaf consisted of vertical boards held together by horizontal battens on the inside only. The battens were morticed to the round door posts, fastened with pegs in the mortice joints, and sometimes strengthened with copper bands. The fact that this type of door was used in the crude-brick temples built by Shepseskaf, was fully proved by the marks left in the plaster of two doorways in the temple of III-*a*, from room (3) to room (9) and from room (9) to room (10). The wearing mark of the doorpost was plain on the narrow end of the jamb, and the prints of the battens on the wall, caused by slamming the leaves back in opening the door. In the doorway from room (3) to room (9), three battens were marked, about 28 cm. apart with the lowest about 33 cm. above the floor. In the doorway from room (9) to room (10), two similarly spaced battens were visible.

The closed doors were fastened on the inside by bars probably operated by strings passing through a hole, or holes, in the door leaf. The bar was locked in place in all probability by one of the trick-lock devices of the ancient Egyptians. The best is that known to have been used in later times, in which certain pegs dropped into place in holes in the bar, when the bar was pulled into place by a string from the outside; in opening the door, these pegs were pushed up out of the bar by a rather large key which had a duplicate set of pegs to that set in the lock. In the double-leaf door, the bar slid in wooden clamps or brackets back and forth across the opening between the two leaves. It is probable that the hole in the middle of the floor of the threshold was used for fastening one leaf of the door before the other leaf was closed. In the case of the one-leaf door, the lock was of a similar character, but the bar slid into a hole in the wall behind the angle of the jamb. In the Mycerinus temples this hole appears to have been in the brickwork of the uncased doors, but in stone structures in the door casing. In the mastabas, but very rarely, a stone with a hole was set in the brickwork to take the end of the bar.

The roofs of the doorways were seen in several cases in the valley temple, where the brickwork above the door had sunk down in the doorway by decay. These roofs were always of wood, but were so badly rotted that the shape of the wooden elements could not be determined. I would reconstruct them as planks like the lintels of the cased doorways, but possibly they were of logs, or planks reinforced with logs. The brickwork was continued above the lintel to the height of the wall, which, in the doorways of the valley temple, was nearly a meter higher than the doorways. If the roofing were of logs, at least one plank must have crossed the top of the doorway to take the socket holes of the doorposts. In the houses in the court of the valley temple, two stone lintels, limestone slabs, were preserved over narrow doorways in rooms (I-306) and (307); and, in the Giza cemetery, one ordinary doorway was roofed with a thin stone slab (G 1351), but there, the weight was reduced by an arch in the brickwork above.

The doors all open inwards, and when closed the two sides of the door were covered by the broad jamb and the top by the lintel. The bottom was also covered in those doorways which had the step threshold of which evidence was found in the temple of III-*a*, but not in the Mycerinus valley temple. The bars, locks, and battens were on the inside, and only the latch strings hung out through the two small holes in the door. Thus the essential fittings of the door were protected and made difficult of access to plunderers. In the case of crude-brick walls and wooden doors, a determined thief could always have found his way in.

CHAPTER VI

OBJECTS FOUND IN THE MYCERINUS TEMPLES

1. THE USE OF FUNERARY TEMPLES AS DEPOSITORIES OF OBJECTS

(A) FUNCTIONAL PARTS OF AN EGYPTIAN TOMB

THE significance of the occurrence of large numbers of objects in the Mycerinus temples can only be understood in the light of the history of Egyptian tomb forms and funerary customs. At present our knowledge of these subjects is derived from a great number of private graves of the predynastic period, and from both royal and private tombs of Dynasties I–VI. It is clear that the Egyptian tomb, at least from Dynasty I onwards, consisted of two chief parts:

- (1) The burial place (substructure);
- (2) The offering place consisting of a superstructure which protected the burial place and a chapel.

The burial place was beneath the surface of the ground with a few very rare exceptions (Menes Tomb and Cheops Pyramid), and its form developed *pari passu* with the growth of power over hard materials from a simple open pit dug in gravel, by many stages to a rock-cut chamber, deep underground, entered by means of a vertical rock-cut shaft. In the simple predynastic pit, the body was laid in a contracted position on its side, protected by cloth, skins, and mats, while in the more important rock-cut chambers of the Old Kingdom, it was placed in a granite coffin, extended on its back, mummified in the imperfect early manner, and wrapped in cloth.

In the Old Kingdom the offering place consisted of a massive superstructure (pyramid, mastaba, or natural rock dressed to imitate a mastaba) and a chapel either outside or inside the outer wall of the superstructure. The development of the offering place which proceeded along with that of the burial place and was influenced by it, was also based on the growth of the technical powers of the Egyptian craftsmen and in particular on those of the masons. It must be remembered that the main thread of the development will be manifested by the tombs of the rulers and the great men for whose benefit advances in technical skill were made.¹ The tombs of the lesser men and of the poor will imitate as far as possible the forms developed in the large tombs, and the ordinary workmen will eventually learn the technical acquirements of the royal craftsmen. Both rich and poor cling in varying degrees to forms and practices which have become fixed or traditional; and all forms old and new must satisfy the functional requirements founded on basic ideas, fundamental religious beliefs.

Now the offering place can only be traced at present from Dynasty I onwards, because the superstructures of the predynastic graves which were probably of earth or of mats and wood, have been destroyed by exposure and by the plundering of the pits. In Dynasty I, the large burial pit, whether entered from above or by a stairway, was covered with a rectangular bench-like structure with sloping faces, always of crude brick and apparently never more than two meters high. This superstructure is usually designated by the modern Arabic word *mastaba* meaning "bench," and that word is the most convenient name for the tomb form which predominated during the first six dynasties.

From Dynasty I to Dynasty III, the exterior faces of the large crude-brick mastabas were usually built with recessed brickwork, presenting a series of offering niches which imitate doorways in form and are now called false doors. In the smaller mastabas, the niches were usually omitted from the desert side and sometimes from all but the valley side. An essential feature of the larger mastaba was the enclosing wall which surrounded it at a distance of 50–100 cm. on the north, the south, and the desert side, but at a greater distance on the valley side where it was broken by an entrance. The valley side was clearly that at which the offerings were made, and the wider space on that side represents functionally the offering room. In the royal mastabas two of the niches on the valley side were especially marked by

¹ See Reisner, *Naga-'d-Dêr I*, p. 11.

large round-topped stones (stelae), inscribed with the Horus-title and name of the king.¹ The smallest mastabas have at least two niches on the valley face; and the subsequent history of the crude-brick mastaba shows that the southern niche was the more important of the two, being in Dynasty III much larger than the other and opposite the subterranean burial place. Still later the southern niche was developed into the offering chapel which is so conspicuous a feature of the mastaba of the Old Kingdom.

In all the mastabas of Dynasty I and Dynasty II, the niches on all sides were of exactly equal dimensions although, as noted above, the niches of the valley face were the most important — those actually used for the offering ceremonies. On the valley face itself, the niches were again of equal size as far as they have been preserved; but the fact that only two stelae were found in any one of the royal tombs of Abydos proves that two of the niches were more especially used for the offerings. The southernmost of these two niches in conformity with the later history is marked as the more essential by the fact that the entrance to the tomb enclosure was at the southern end.² In the later mastaba of Hesy (late Dynasty III),³ the first addition to the mastaba had a wooden stela in each of the eleven niches of the valley face, but the entrance was at the southern end, while a secondary niche had been made in the outside face of this enclosing wall. The final conclusion must be, I think, that even in Dynasty I, two of the niches on the valley face were the most important, possibly the southern one already in practice more important than the other, and that in royal tombs each of these two niches contained a stela with the name of the king.

The increase in size of the southern niche in Dynasty III appears due to the introduction of the long stairway type of burial place in which the length of the stairway, running down from the north, forced the burial chamber under the southern end of the mastaba. This development followed by the custom of building the wife's mastaba abutting on the northern end of that of the husband led eventually to the differentiation of the southern niche as the husband's niche and the northern niche as the wife's.

Such was the beginning of the development of the offering place as far as now traceable, the function of which was filled by the temples of the pyramids. The offering niche in these temples is no longer at the southern end of the superstructure but in the middle. The southern position was due to the desire to bring the main offering niche, the false door of the tomb, opposite the burial chamber. One of the essential functions of the superstructure was to prevent the access of thieves to the burial chamber. In the pyramid this function required that the burial place should be approximately in or under the center of the mass of masonry, and consequently the same desire which brought the chapel at the southern end of the mastaba, dictated placing the pyramid temple in the center of the valley face opposite the burial chamber, quite apart from any architectural considerations. The niches of the exterior faces of the mastaba appear to be represented in the pyramid temples by the niches of the court, while the chief offering niche of the mastaba is to be found in the wide portico and the deep offering room which probably terminated in a false door or stela of some sort.

(B) TYPES OF OBJECTS PLACED IN THE BURIAL CHAMBERS AND THEIR PURPOSE

Now for all periods previous to Dynasty IV, practically the whole body of the archaeological material, except the bare structures of the mastabas or pyramids, was found in the burial chambers of the tombs. After the burial, these chambers had been sealed up and were intended to remain inviolate to the end of time. The objects placed in the chambers were originally practical utensils of daily life taken from actual usage or from new stocks intended for use. The spirit of the object was supposed to serve the spirit of the owner of the grave in the other world. As time went on, the custom of making new objects for the graves grew, owing to two causes: (a) Models were substituted in poor graves for the more expensive objects; (b) Certain objects which had gone out of daily use were made especially to put in the graves as a matter of tradition. But it must be kept clearly in mind that all the objects found in the burial chambers represent things which were once in use in daily life and were intended to convey their

¹ Petrie, *R. T. I*, p. 6b. Professor Petrie was unaware at the time of the existence of the niched mastaba in Dynasty I and thought of these stelae as standing isolated on the desert surface.

² Reisner, *Naga'-d-Dêr I*, p. 6 and Petrie, *Tarkhan II*, Pl. XVIII.

³ Quibell, *Tomb of Hesy*, Pl. I.

spirit forms to the other world for the use of the spirit of the owner. The same purpose must be ascribed to the subsidiary bodies in the predynastic graves (*sâti*-burial) — wives or servants whose souls were sent into the other world to serve the soul of their lord and master. The burials in the complexes around the large tombs of Dynasty I may be assumed to have been of the same character, although the evidence that the bodies in these were buried at the time of the chief burial is not conclusive. In Dynasty II, the use of these surface complexes appear to have ceased, and the tomb of Khasekhemuwy contains an underground complex of over fifty loculi. Some of these loculi were necessary for the funerary furniture, but it may be surmised that others were intended, at least theoretically, for subsidiary burials (*sâti*-burials), replacing the surface complexes of Dynasty I. Similar underground loculi have been found in the pyramid of Zoser, in the pyramid at Zawiat-el-Aryan, and in certain large private tombs of Dynasty III (perhaps also of Dynasty II?).¹ In time, just as models of objects were substitutes for the actual objects, so figures in stone and wood of members of the family came to be substituted for their actual persons. Thus taking the whole interval from the Predynastic Period to Dynasty IV, the objects found in the burial chambers were of three classes:

- (1) Objects used in daily life and bodies of members of the family including servants.
- (2) Models of such objects and figures of members of the family including servants.
- (3) Objects which had once been in daily use but had been displaced by others and were made especially for the grave as a matter of tradition.

The common purpose of all three classes was to supply the necessities of the spirit of the dead in the other world, necessities which were approximately the same as those on earth.

(C) FUNCTION OF THE OFFERING PLACE AND OBJECTS ASSOCIATED THEREWITH

When the offering places are examined, it becomes clear that they also served the purpose of supplying the spirit with the daily necessities of life in the other world. The obvious difference between the funerary offerings of the burial chamber and those of the chapel was that the food and drink in the burial chamber could never be renewed, while those in the chapel were, by prescription, to be made daily. Thus, in Dynasties V and VI and later, the food in the burial place was placed, more or less mummified, in stone cases of the form of legs of meat and dressed fowls, in order to preserve the simulacra at least of the necessary articles of food. On the other hand, in order to maintain the daily offerings in the chapel, endowments were created and *ka*-priests appointed. Food offerings (*rahma*) are still made at Egyptian graves and custom prescribes that, after the ceremony, the food may not be eaten by the offerers or their family, but must be given away. A similar custom probably held sway in the Old Kingdom and led, for reasons of ceremony, to the use of miniature offerings of bread and beer; for thousands of small model vessels, suitable for this purpose, are found cast outside the endowed chapels in the Giza cemeteries. Even before the introduction of miniature offerings, the permanent equipment of the offering place need not have been very extensive. To obtain an idea of what equipment was usual and what was possible, it is necessary to consider the evidences preserved, although they are very fragmentary for the first three dynasties:

- (1) Dynasty I:
 - (a) Offering niches or "false-doors" were placed on the valley face of the mastaba or on all faces; the most significant fact is the use of a stela in the offering niche, giving only the name of the owner or his name and title. The most necessary part of the offering recitation was the name of the recipient.
 - (b) One example has been reported of the occurrence of vessels which may have been part of the equipment of the chapel.²

¹ There are also loculi in the Third Pyramid which are entirely in harmony with forms of the older burial chambers; but no such loculi have been noted in any of the four pyramids just previous to Mycerinus (Sneferuw, Cheops, Dedefra, and Chephren), and Professor Borchardt is of the opinion that these loculi were made in the Saite period when the wooden coffin of Mycerinus was placed in the tomb.

² Petrie, *R. T. I*, p. 15a. The northern stela of King Qay'a (Q) was found over subsidiary grave No. 3 and "near it on the south were dozens of large pieces of alabaster bowls and one of diorite" inscribed with the name of "the *sm*-priest of the temple of Qa." The vessels were similar to those found in the burial place.

- (2) Dynasty II:
- (a) Offering niches as in Dynasty I. The two stelae of Peribsen¹ prove the continuation of the use of stelae in the niches, still bearing only name and title.
 - (b) Another possible case of chapel equipment is reported.²
- (3) Dynasty III: the true stairway mastaba:
- (a) Offering niches as in Dynasties I-II; often reduced to two, in which case the southern niche is the larger.
 - (b) Evidence of chapel equipment is lacking.
- (4) Dynasties III-IV: transition from stairway to shaft mastaba: the material is derived from mastabas of the time of Khaba, Sneferuw, and Cheops, in particular the tomb of Hesy.
- (a) It is clear that in the time between the stelae of Peribsen and the earliest shaft mastaba, a considerable advance had been made in powers of the Egyptian craftsman, especially in drawing, painting, and sculpture. Moreover the use of stone in architecture was developing towards its highest point at the time of these monuments of the transition period from Dynasty III to Dynasty IV.
 - i. The tomb of Hesy has a wooden slab in each of the eleven niches of the offering room; each slab has a figure of Hesy, standing or seated, inscribed in relief with his name and titles and with a short list of offerings, incense, food, and drink, but no offering formula.

The walls of this room were decorated with paintings of objects such as are included in the ordinary burial furniture, beds, boxes, games, utensils, jars of oils and ointment, etc., a sort of pictorial list.
 - ii. The temple of the pyramid of Medum was of limestone, found by Professor Petrie in perfect condition, but was uninscribed and had no stela, as usually understood; but in the inner room was an offering stone between two uninscribed round-topped stones which appear to occupy the places usually taken by the pair of obelisks before the false door in tombs of Dynasties V and VI. The later pyramid temples of Dynasty IV showed no traces of such stones but only of a stela against the pyramid. The outer offering room in front of the pyramid may be restored by a false door (stela) on the wall next to the pyramid.
 - iii. The tombs of Rahotep and Neferma'at at Medum have the southern niche enlarged to a room cased with stone; the false door in the back wall sets the "norm" for the later development; the slab above the door corresponds to the seated scene of the Hesy panels with its inscriptions. The walls are decorated with scenes from life. An abbreviated form of the lists of the Hesy chapel is found on the sides of the false door. The northern niche in the Neferma'at mastaba was decorated for his wife, Atet. These cased niches were blocked by a brickwork addition around the whole mastaba and remained hidden from view; and in them were placed the *ka*-statues of the man and wife.
 - iv. The earliest stone mastabas at Giza (the Cheops mastabas) have two- or three-room chapels of crude brick on the southern end of the valley face and a niche in the brick wall adjoining the mastaba; in this niche, set in the face of the mastaba, was a slab with a seated figure before a table inscribed with name and titles similar to the Hesy slab and exactly like the tablet above the false door in the Medum tombs. The Merib-tomb (Lepsius 24, now in Berlin) was originally of this type with slab set in the southern end of the valley face and a crude-brick chapel; the later stone chapel, built round the southern end of the mastaba and more nearly of the type of the Medum mastabas, was actually built in the reign of Chephren.
 - (b) The objects found in the chapels are: altar (of various forms) and basin, placed before the chief niche or the false door; large basin, placed in the outer court (later a stone ring for tying sacrificial animals is found beside the basin); one or two tall stands for libation bowls, usually one on each side of the altar, of pottery or stone; and occasionally, in Dynasty V and VI, two obelisks instead of bowl stands.

In the mud-brick chapels of the Cheops mastabas there was usually one room provided with a wooden door which was evidently some sort of magazine. In the magazine of G 2001, the tomb of Prince Wep-em-nofret, there were five or six pots and pans of pottery of the usual types found in the burial places; but ordinarily the magazines were quite empty.

From this brief survey it is clear that the function of the offering place was not only to provide the same food and drink as was placed in the burial chamber but also to provide the utensils of daily life. It must be understood that a magical formula was necessary in the chapel for the conveyance of all classes of objects to the use of the spirit and, as is proved by inscriptions inside the burial places of Dynasties V and VI, similar formulas were helpful there as well as in the chapel. From Dynasty I to the time of the Hesy panels and the Cheops stelae the inscriptions on the false door or stelae omitted

¹ Petrie, *R. T. II*, Pl. XXXI.

² Petrie and Wainwright, *Tarkhan II*, p. 4, — found "a great stack of pottery against the outside of the enclosing wall" at the doorway of mastaba 2038. These were of the ordinary types found in graves of this period, traditional-ceremonial in character.

all formulas. The earliest wall inscriptions are mere pictures of objects (tomb of Hesy), and it was not until Dynasty IV that the objects were shown in actual use as well as in written or illustrated lists, and that the offering formulas which had probably been recited from predynastic times and had become traditional, were actually inscribed on the false door.

(D) INTRODUCTION OF KA-STATUES AND RELIEFS

At the time when the offering room was reaching its full development, its functional fitness was increased by the introduction of statues of the dead, so-called *ka*-statues. In the Medum tombs these were walled up in the enlarged offering niche; in the Chephren period at Giza they were placed in specially constructed chambers behind the niche; in the tomb of the lector-priest Ka'ar, commonly called the "Sheikh-el-Beled," the statues of himself and his wife were set in a broad niche in the southern wall of an exterior chapel; and in the time of Hesy, the statue chamber was merely a walled up end of an offering room of the last addition to the mastaba. Later, the statue chamber or *serdab*, became a separate structure in the body of the mastaba somewhere near the offering room and usually connected with it by a small slot-like window; but statues were still put behind the niche or in the walled ends of the room, or even standing free in the chapel. It is quite evident that the special closed rooms were only used to protect the statues from injury, that the essential feature was the proximity of the statues to the offering place. In several tombs the statue is carved in the niche, as if in the act of issuing from the false door. By the addition of statues in which the *ka* might reside, nothing was changed in the fundamental ideas attached to the offering place. The statues were added simply because the technical means of the craftsmen permitted the creation of simulacra of the dead just as they now permitted the representation of scenes from life in painting and relief on the walls. The newly acquired technical powers were also utilized to improve the functional efficiency of the furniture in the burial place, first by means of so-called reserve-heads, then by statues similar to those placed in the *serdab*, by means of carved or painted lists on the walls, and, finally, at the end of the Old Kingdom, by models of the same sorts of scenes as were carved on the walls of the offering places.

In the case of the temples of Chephren and Mycerinus, the walls appear never to have borne the scenes from life which are seen in the mastaba chapels and in the pyramid temples of Dynasty V. The German work at the Second Pyramid¹ revealed no traces of reliefs. The only inscriptions were the names and titles, incised around the two outer doors of the valley temple and the doors in the court of the pyramid temple. At the Third Pyramid, the evidence is destroyed by the decay of the crude brick; and such plastered areas as remained intact were in corridors and magazines which would not necessarily have been painted. The only contemporary inscriptions found there were those of the Shepseskaf decree and a few fragments of an alabaster stela. Now the Chephren temple was cased in granite, and the Mycerinus temple was intended to have been cased in the same way. At this time the sculpturing of reliefs in wood and limestone was practically at its culmination; but the architectural use of granite was recent, and the sculptors had not become sufficiently expert in the cutting of this harder material to make wall scenes in relief on granite a practical possibility. In fact, the cutting away of the background always presented a serious difficulty, and it is probable that the sunk relief, so popular in later ages, came into use as a solution of this difficulty. Thus the relief scenes were omitted from the Chephren temple for technical reasons and were, probably for the same reason, never intended to be used in the Mycerinus temple.

While the working of reliefs in hard stone was still undeveloped, the carving of hard-stone figures in the round had reached its highest level. *Ka*-statues of both hard and soft stones have therefore been found in numbers in the temples of both the Second and the Third Pyramids and some were no doubt placed in the temples of the First Pyramid. These statues stood partly in the exposed rooms of the sanctuary and partly in hidden rooms or rooms closed with doors or door blocks. Altars, libation stands, and offering basins are also attested, and the general service equipment is proved to have been not unlike those of the larger mastabas of Dynasty IV.

¹ Hoelscher, *Das Grabdenkmal des Königs Chephren*, pp. 15, 28, Figs. 5, 16.

(E) FURNITURE OF THE FUNERARY TEMPLES OF MYCERINUS

In addition to these well proved characteristic features of funerary offering places, the temples of Mycerinus contained a great equipment of stone vessels, pottery, and other objects, which had been placed in retired magazines behind wooden doors. These wooden doors had, however, after no great time been replaced by blocking walls of crude brick. Similar magazines were found in the temples of the Second Pyramid together with traces of stone bowls and other objects, especially mace heads. The evidence from the pyramids of Dynasty V at Abusir, excavated by the German Expedition, confirms the conclusion that during Dynasties IV and V an equipment similar to that of the burial equipment was placed in accessible magazines in the funerary temples. These were manifestly not necessary to the ordinary food offerings and magic recitations but may have been intended for special ceremonies and formulas which have escaped us. But in any case these special ceremonies were probably not maintained for any long period, for in the Mycerinus temples the magazines were after a time closed with crude-brick walls.

The evidences found of the original contents of the magazines of the pyramid temples of Dynasties IV and V prove the presence of vessels of pottery, stone, bronze, and faience, of mace heads, sets of magical implements for "the opening of the mouth," bronze and flint implements, and various other objects of less permanent materials. From these a more complete equipment may be presumed, including also beds, chairs, tables, boxes, games, writing materials, clothing, and weapons, perhaps even royal insignia of precious metals and personal ornaments.

The contents of the burial chambers of the pyramids have not been so fully recorded as those of the temple magazines, owing to the activities of a long series of ancient and modern plunderers and in part to the lack of archaeological knowledge of the early explorers.¹ The broken vessels found by Perring in the Zoser tomb undoubtedly belonged to the funerary equipment of the tomb. Yet no record appears of their forms or numbers, and, for all that I can ascertain, they may be still lying in this passage. In the inner rooms of the Third Pyramid, Vyse and Perring found only the granite sarcophagus, the broken wooden coffin-lid, and some human bones, but apparently nothing of the original burial equipment. There can be no doubt, however, from the analogy of the older royal tombs and of the private mastabas of Dynasty IV that the burial equipment of the Third Pyramid was similar to that outlined for the temple magazines including, certainly in this case, personal ornaments and royal insignia.

In this connection a comparison of the floor areas of the burial chambers and the temple magazines of the Third Pyramid is of interest:

	sq. m.
<i>Pyramid burial place:</i>	
Floor area of burial chamber, less sarcophagus	15.09
Floor area of loculi-chamber and loculi	22.53
Total floor area of burial chambers	37.62
Floor area of large outer apartment	54.00
Total	91.62
<i>Pyramid temple magazines:</i>	
Floor area of the magazines for objects and statues	68.92
Intended floor area of the unfinished magazines	48.95
Total	117.87
<i>Valley temple magazines:</i>	
Floor area of the furniture magazines on north	77.25
Floor area of the statue magazines on south	88.89
Total (inner temple)	166.14
Floor area of vestibule magazines (service equipment?)	84.00
Total	250.14

¹ For example, Perring records (Vyse, *Pyramids of Gizeh II*, p. 47) that the lower passages (loculi passages) of the Zoser pyramid "were nearly filled with broken vases composed of marble and of alabaster, with fragments of sarcophagi, and with broken stones, upon which stars, a common ornament of Egyptian ceilings, were observed." These vessels have now (1929) been rediscovered by Mr. C. M. Firth.

The figures which give the effective areas devoted to furniture are probably 54 sq. m. in the burial chambers, 68 in the pyramid temple, and 77 in the valley temple. The figures for the temples are perhaps to be increased by the areas of the shelves or second floors in the smaller magazines. The larger areas in the temple magazines indicate that a greater amount of pottery and stone vessels was included in the temple equipments than in the burial chamber.

2. DATE OF THE OBJECTS FOUND IN THE MYCERINUS TEMPLES

The examination of the history of the construction of the Mycerinus temples, especially with relation to the decree of Shepseskaf, led to the conclusion that the unfinished stone buildings as originally planned, had been finished by Shepseskaf in crude brick. The operations carried out by Shepseskaf required only a few months with the resources at the command of a king of Egypt. And it may be premised that Shepseskaf hastened the work in order to free himself for the construction of his own tomb. The actual deposition of the objects in the temples probably took place in the first or early in the second year of Shepseskaf. Therefore all the objects found in the older deposits in the temple, and especially those in the magazines, were made in the first year of Shepseskaf or were of an earlier date. Those which were manifestly of the reign of Mycerinus were the statues of Mycerinus himself, many of which were placed still unfinished in the temples, and the stone vessels. Of still earlier manufacture were a few objects inscribed with the names of earlier kings, notably the set of magic implements inscribed with the name of Cheops, and a few stone bowls.

Now of all the objects found in the Mycerinus temples, only the statues and one painted pottery jar bore the name of the king, while two flint wands were found, one inscribed with the name of Cheops and the other with the name of Khamernernebt, probably the mother of Mycerinus. Not a single one of the hundreds of stone vessels bore the name of Mycerinus, but five vessels bore older names:

- (1) A flint bowl with the figure of a seated cat-headed goddess scratched on one side with the Horus-name Nebra before her. The name Nebra has been partially erased and the Horus-name Hetepsekhemuwy inserted between it and the goddess.
- (2) A diorite bowl with a Horus-name scratched inside. The name is nearly illegible but seems to me to be Hetepsekhemuwy. (Fig. 57, No. 37.)
- (3) A diorite bowl with the cartouche and name of Sneferuw scratched inside. (Fig. 57, No. 38.)
- (4) A diorite bowl with the name of Sneferuw scratched inside, without a cartouche. (Fig. 57, No. 2.)
- (5) An alabaster cylindrical jar fragment, incised with the corner of a rectangular frame and the double crown of Egypt; the rest of the figure and frame was broken off (not found).

In the temples of Chephren, where few objects were found except for the statues discovered by Mariette, eight hard stone mace heads were the only objects on which the name of the king was found. None of the stone vessels bore his name; but

- (6) One fragment was inscribed with the name of King *Sened* of Dynasty II.¹

The temple of Sahura also yielded no objects with the name of the king but contained

- (7) One stone vessel with the name of the Horus Khaba and
- (8) Five vessels with the name of Sneferuw (Borchardt, *Sahure I*, p. 114).

This material must be judged in the light of the occurrence of the older names in the royal tombs of Abydos (Petrie, *R. T. I*, p. 5 and *II*, p. 3). For example:

- (9) Alabaster bowl with name of Narmer (*Wḥc-mr*) found in the tomb of Zet (*R. T. I*, Pl. IV, 2).
- (10) Another of Narmer re-used in the tomb of Den (*Wdy-mw*), (*R. T. I*, p. 5a, p. 16b end).
- (11) Calcite vase with the name of Den (*Wdy-mw*) reinscribed with the name of Azabmerpaba (*cd-ib-Mry-pi-bi*)
- (12) Crystal bowl with the name of Den (*Wdy-mw*) reinscribed with the name of Azabmerpaba (*-Mry-pi-bi*) provenience not given. (*R. T. I*, Pl. V, 9.)
- (13) Red limestone vase with name of Den (*Wdy-mw*) reinscribed with the name of Azabmerpaba (*-Mry-pi-bi*), provenience not given (*R. T. I*, Pl. IV, No. 12).
- (14) Alabaster jar inscribed with the name of Azabmerpaba (*-Mry-pi-bi*) which has been erased, found in the tomb of Mersekha (*Smrht*). (*R. T. I*, Pl. VI, 11; *R. T. II*, Pl. XLVI, 7.)

¹ See Professor Steindorff in Hoelscher, *Das Grabdenkmal des Königs Chephren*, p. 116.

- (15) Bowl of volcanic ash, inscribed with the name of the palace of Nebra, erased and reinscribed with the name of Neterymuw; found in the tomb of Peribsen (*R. T. II*, Pl. VIII, 12).
- (16) Three fragments of bowls, inscribed with the name of Hetepsekhemuwy and found in the tomb of Peribsen (*R. T. II*, Pl. VIII, 8-10).¹

It is difficult to discover from *R. T. I* and *II*, the number of stone vessels found in the individual tombs at Abydos or even where some of the inscribed vessels were found. The tombs are identified by the inscribed labels of wood and ivory, by the jar sealings, and a few other objects, but of the large numbers of vessels found in the tombs only a very few appear to have been marked with the name of the owner of the tomb. In any case only the more important objects were so marked while the greater part of the names on the stone vessels were those of earlier kings. The difference between this practice and that of Dynasties IV and V lies in the fact that while a few stone vessels in Dynasties I and II had the names of the owner of the tomb, no stone vessels at all have been found in the temples of Chephren, Mycerinus, Sahura, Neferirkara or Neweserra which bore the name of any of these kings. But some other objects, the statues, the mace heads of Chephren, the painted pottery jar of Mycerinus, the inlaid wooden jars of Neferirkara and Mycerinus, were inscribed with the names of the owner of the tomb. The vessels bearing the names of earlier kings were inscribed in four ways:

- (a) With the name of an earlier king, Nos. 2-10, 15, and 17, above.
- (b) With the name of an earlier king erased, No. 14 above. (Evidence, however, inconclusive owing to fragmentary condition of example.)
- (c) With the name of an earlier king erased, and the name of the owner of the tomb inserted. No. 11 and perhaps Nos. 12 and 13 above.
- (d) With the name of an earlier king erased, and reinscribed with the name of a later king who was also older than the king of the tomb. Nos. 1 and 16.

Now the vessels inscribed with the names of previous kings must have been in some accessible place and not in the burial chambers. And the reinscribed vessels of class (d) above must have been twice found in an accessible place. Professor Petrie suggests (*R. T. II*, p. 26b) that the inscribed stone vessels had been taken from the palace furniture, which might well have included objects inscribed with older names and inherited with the rest of the contents of the palace magazines.² This is a plausible and reasonable explanation, at any rate for the early period. But a doubt as to Dynasties IV and V is raised by the objects with names of kings of Dynasty II found in the temples of Chephren and Mycerinus. These might rather have been taken from old equipment dedicated to some temple on its renewal by a later king, or removed from the magazines of a funerary temple on the occasion of some restoration.

The occurrence in the tombs of private persons of objects, especially stone vessels, bearing royal names, is to be explained in a different manner. These were presentation objects given by the king as marks of favor.³ Examples of such royal vessels found in private tombs may be cited as follows:

- (17) Alabaster vase with Horus-name of Narmer (*Wh'-mr?*) in Grave B 13. Petrie, *R. T. II*, p. 4 and Pl. II.
- (18) Five marble bowls with the name of the Horus Khaba, in stairway mastaba Z 500 at Zawiat-el-Aryan.
- (19) Diorite bowl with the name of Horus Nebma'at, in pit-mastaba N 739 at Naga-ed-Dêr.
- (20) Diorite bowl with the Horus name of Sneferuw, in pit-mastaba A (Kamena), Quibell, *El Kab*, p. 4.
- (21) Diorite bowl with name of Sneferuw, in pit-mastaba 301, Quibell, *El Kab*, p. 5.
- (22) Diorite bowl with name of Sneferuw, in pit-mastaba 288, Quibell, *El Kab*, p. 5.
- (23) Alabaster bowl with the name of Sneferuw, in pit-mastaba R 64 (Shepses). Garstang, *Third Egyptian Dynasty*, pp. 49, 50, pl. 25.

¹ By inscription No. 15, the order is Nebra, Neterymuw, Peribsen; by No. 16, Hetepsekhemuwy, Peribsen; by No. 1, our flint bowl, it is Nebra, Hetepsekhemuwy. These three seem to require one of the two following orders:

(a) Nebra	(b) Nebra
Neterymuw	Hetepsekhemuwy
Hetepsekhemuwy	Neterymuw
Peribsen	Peribsen

Now the inscription on the shoulder of the famous kneeling statuette in the Cairo Museum reads as follows: Hetepsekhemuwy, Nebra, Neterymuw. It is certain that Nebra was the first of these three kings in time and that Hetepsekhemuwy was the most important to the official represented by the statue. It is clear that the order on the statuette is not the chronological order. The priesthood (?) of Hetepsekhemuwy as the most important, was probably that of the last king of three to die, and I would adopt the order (a) above, placing Nebra first, Neterymuw second, Hetepsekhemuwy third, and Peribsen fourth, in this group.

² I have been told by British officials sent into Darfur at the time of the overthrow of Ali Dinâr, that the doorways of the palace and almost all the furniture were marked with the name and title of the Sultan. It is also said that his favorite method of rewarding his officials was to give them a sword marked also with his own name and title.

³ See footnote 2 regarding Ali Dinâr.

The records of our expedition also include an alabaster jar of Unas found in a pit tomb at Naga-ed-Dêr and a diorite bowl of Teti found in a mastaba at Giza.

From the evidence of the inscribed objects found in the Mycerinus temples and other tombs, the conclusion is certain that a few objects found in these ancient tombs were of an earlier period. The question therefore arises: Were other objects which were not inscribed, also of earlier date, taken, like the older inscribed objects, from some palace or temple magazine?

In the chapters on the stone vessels and the pottery, the great body of type forms of all vessels is shown to be of the archaeological group of Dynasty IV, falling into place in the development of the two crafts in question and presenting degenerate modifications of the older traditional types, especially those of Dynasty III. At the same time about half the stone forms have been found in the temple of Sahura of Dynasty V and many of the pottery types are known in Dynasties IV and V. But in addition to the stone vessels inscribed with older names, five examples of older types were found which cannot be traced later than Dynasty I:

- (a) Type II, recorded in the Early and the Middle Predynastic periods but not later, two examples, both basalt as the older examples.
- (b) Type IV, *b*, recorded from M. P. to Dynasty I, one example of volcanic ash, an Early Dynastic material.
- (c) Type VI, *b*, recorded Dynasty 0–Dynasty I, one of alabaster, the old material of the type.
- (d) Type VII, *a*, recorded Dynasty 0–Dynasty I, one of alabaster, the old material, but the form rather degenerate.

Thus of the 537 stone vessels in the Mycerinus valley temple, only the five inscribed vessels were proved to be earlier work and five others cannot be connected with the archaeological group of Dynasties III and IV. Admitting that the whole ten were earlier work they form only 1.86 per cent of the vessels in the temple. In the case of the pottery, there were only two of the hundreds of examples which have not been found in Dynasty IV and these two have been proved for Dynasty III in which they occurred as ceremonial-traditional forms.

Thus no doubt whatever would have arisen except for an opinion expressed by Professor Steindorff¹ that the bulk of the stone vessels in the Chephren temples had been removed and placed in the Mycerinus valley temple, because:

- (a) he was under the impression that stone vessels with the name of Chephren were found in the Mycerinus valley temple and
- (b) only a few fragments of stone vessels were found in the Chephren temple.

But no fragment of any stone vessel bearing the name of Chephren was found in a layer of the Mycerinus temples. A silver seal of an official of Chephren was found, a fact which requires no explanation, and a few fragments of a statue of Chephren. These fragments were found, however, in one of the later workshops where statues of both Mycerinus and Chephren had been broken up to manufacture the small model vessels placed in the tombs of Dynasties V and VI. This shop was on the surface of decay of the mud-brick temple under the last series of houses. Similar workshops with fragments of statues of Chephren were found in the great cemetery north of the Second Pyramid, notably in the offering chapel of the mastaba of Duwanera, the nearest mastaba in the field. In the early deposits of the Mycerinus temple, dated to the time of Shepseskaf, no fragment with the name of Chephren was found. As to the second reason, the paucity of vessels in the Chephren temple, that is otherwise explainable by the exposed position of the temple and the nearly total destruction of the magazines. The number of vessels compares approximately with the numbers found at the Mycerinus pyramid temple and most of the Abusîr temples. Finally, Mycerinus is hardly likely to have made a complete clearance of his father's temple, for Chephren was, in all human probability, the father of Mycerinus. As far as actual evidence is concerned, Mycerinus was no more impious towards his predecessors than any other king whose tomb furniture has been recovered, and the character given him by the classical authors cannot be used as an argument for his violation of the tomb of Chephren.

Thus Professor Steindorff's theory is actually devoid of all supporting evidence. Many of the stone vessels with which his theory was solely concerned were in an unfinished condition like the pyramid,

¹ Hoelscher, *Chephren*, p. 104.

the two temples, and the statues, a condition undoubtedly caused by the unexpected death of the king. Most of the objects of all classes found in the temples belonged demonstrably to the archaeological group of Dynasty IV as the descendant of the group of Dynasty III and the ancestor of the group of Dynasty V. All the facts lead naturally to the conclusion that the great mass of the objects found in the Mycerinus valley temple and many of those in the pyramid temple were made for Mycerinus either during his reign or in the first year of Shepseskaf.

3. ARCHAEOLOGICAL VALUE OF THE OBJECTS FOUND IN THE MYCERINUS TEMPLES

The examination into the date of the objects in the temples of Mycerinus gave the following conclusions:

- (a) A few objects inscribed with older names are to be assigned to earlier reigns.
- (b) The objects requiring a longer time to manufacture, that is, the statues and stone vessels, are of the reign of Mycerinus.
- (c) The objects which might be quickly and easily manufactured were mostly made in the first year or two of the reign of Shepseskaf.

For all practical purposes, the objects made for the temples by Mycerinus and Shepseskaf belong to one archaeological group and may be considered together as characteristic of the last part of Dynasty IV.

In considering the archaeological bearing of funerary furniture, the underlying fundamental ideas must be carefully distinguished from the physical means employed to satisfy the requirements of those ideas. All the tombs discovered in Egypt are based on one conception of life after death, a life similar in its physical needs to the life on earth. In the graves of the Neolithic Period, the grave furniture consisted of vessels, weapons, implements, and utensils used in daily life, and, whatever conceptions were added in later times, the equipments found in the tombs prove that the belief in the similarity of the two lives always persisted. Thus all tombs are examples of the one permanent practice of providing the means of life after death for the souls of the dead.

The permanent practice was carried out in some form or other by all, rich or poor, strong or weak, male or female, but the form varied from tomb to tomb and from age to age. The rich and the strong and, in particular, the kings, had naturally at their disposal the means for obtaining the best materials and employing the finest craftsmen both on their tombs and on the equipment. Thus the development of the arts and crafts and of changes in the outward form of the practice may be best traced in the evidence preserved in the great tombs. The graves of the poor only followed the development in imitation of the great after the spread of new technical means and new forms. Therefore, in periods of growth, the small tombs and their contents always showed a chronological drag in taking up the course of the development of their time, so that the great tombs and the small tombs, in periods of rapid technical progress generally showed considerable differences in style. For example, alongside the great stairway tombs of Dynasty III, the greater part of the poor graves were open, brick-lined graves like those of the great people of the early part of Dynasty I, except that they were smaller and usually roofed with stone slabs.

The objects placed in the graves of both rich and poor were not always taken from the daily life of the period of the grave. Two factors, the belief in magic and the force of tradition modified in time the practical expression of the fundamental idea. The necessities after life might be supplied by magical models of real objects, and these models placed in the graves with the proper spoken words might become efficient substitutes for the actual objects. Thus, in the Old Kingdom, pictures on the walls of the tombs, and, in the Middle Kingdom, wooden models of scenes from life, are based on this idea. But the first expression of this belief in magical substitutes is found in the poor graves of the Predynastic Period where mud models of cattle, people, boats, weapons, and other objects permitted the provision of an equipment beyond the means of the daily life of the owner. In the further development of the idea, the use of models became common and was practised through the course of history by almost all classes, both rich and poor. But in all these cases the model stood for something used in the daily life of the period and so it represents for all practical purposes the development of life in Egypt.

The effects of tradition on the forms of the tombs and especially on the funerary equipment, were entirely different in character from those produced by the use of magic. Tradition in this case means the handing down from generation to generation of practices established by long usage. The best illustration of the effect of tradition is shown in the case of the sacrificial flint knife. This was a broad blade with a curving edge, the lower part of which was wrapped round with thong or covered with shrunk raw hide to form a handle and was used in the Neolithic Period to cut the throat and to dress the carcase of all slaughtered animals. When the use of copper knives had come in, flint knives of this form still continued to be made and used because by long custom the flint knife was regarded as the only proper instrument for sacrificial slaughter. As flint knives were displaced in daily use by copper knives, the fine art of chipping flint declined and was lost; but the priests still demanded sacrificial knives of flint. The forms of Dynasty I, large, curving blades, were roughly chipped and already impractical for cutting the throat of the bull of sacrifice.¹ Those of Dynasty IV, as shown by the examples from the Mycerinus temples, were directly descended from the sacrificial flint knives of Dynasty I.² But I conclude that in Dynasty I, and probably before Dynasty I, the actual sacrifice was already executed with practical metal knives. The ceremonial flints found in graves were probably merely "ghost-knives" the immaterial projections of which were intended to be used in the spirit world for the sacrificial slaughter of the spirits of animals.

The effect of tradition, as just shown, is to preserve the use of obsolete objects as part of the funerary furniture. Now in primitive communities where the necessities of life show little change, and the daily utensils are permanent and indispensable requirements of life, objects do not become obsolete except for serious cause. As far as I have been able to observe, the cause in ancient Egypt was always some great advance in technical knowledge, the discovery of the practical use of hardened copper, the invention of the mechanical stone borer, and that of the potter's wheel. The primary mark that objects have become obsolete and are used in graves merely from the force of tradition, is the deterioration of their workmanship. In the case of the flint knives of Dynasty I their crude forms are proof of the loss of the art of flint chipping. It had become impossible for flint chippers to dispose of their wares in competition with copper implements, and the flint workers were replaced in the life of the community by the copper workers. The craft was lost with the death of the craftsmen. And it may be said in general that a lost art is only one which has ceased to find a demand in practical life. In a community where the physical conditions of life are unchanging, the cessation of a demand for certain objects is due to the functional substitution of similar objects produced by a new craft or imported from outside the cultural unit. When a craft was maintained by a demand for obsolete objects required for traditional funerary purposes, and not for actual usage, then the objects necessarily deteriorated in workmanship; but when the craft had merely made a technical advance and, as a result, was producing an object of more serviceable form with the same function, then the increased power of the craft was sometimes used to produce extremely fine or richly decorated ceremonial examples of the older form. Examples of the influence of tradition on the deterioration or the elaboration of classes of objects may be cited as follows:

- (a) Deterioration of flint knives from the late Predynastic Period and onwards as a result of the substitution of metal working for flint chipping.
- (b) Deterioration of the hand-made pottery in the early Dynastic Period owing to the invention of the mechanical stone borer, and still further in Dynasties III and IV owing to the invention of the potter's wheel.
- (c) The elaboration of the slate paint palettes of Dynasty I, when the common palette was going out of use in favor of the heavier mortar palette of hard stone. The ordinary slate palettes were appearing in the poorer graves in degenerate forms and less often at the same time that the increase in the skill of the stone carvers permitted the elaboration of the ceremonial palettes of the kings.
- (d) The elaboration of the bulbous stone mace head with reliefs in a manner similar to the slate paint palettes at the same time and for a similar reason. Stone-headed maces had gone out of general use owing to the introduction of copper weapons; but the bulbous mace head, which had been used for the ceremonial execution of prisoners of war and was retained by tradition as the necessary implement of this ceremony, never deteriorated. Its use was reserved for the one person prescribed as the actor in the cere-

¹ See Reisner, *Naga' d-Dêr I*, Pl. 40.

² See Chapter X, section 1.

mony, the king, and, as the stone-working craft by which it was produced was a living craft throughout the whole history of Egypt, the later examples, like the mace heads of Chephren, are as fine as any ever made, although not decorated after the manner of the ceremonial maces of Narmer.

The same conclusion as to the effect of tradition on burial furniture may be stated in another way. The lost crafts were maintained by the demand for the classes of objects which the older people had always seen placed in the graves. As the objects were for show, not use, they deteriorated in workmanship and, as a result, the craft degenerated. Increased skill in a craft, or a new craft using the same materials, was often employed to manufacture examples of forms which had in practical life been functionally superseded by new forms. Objects produced for actual use by a growing or a living craft increased or maintained at a high level the excellence of their forms and workmanship.

When the equipment of the Mycerinus temples is examined in the light of the foregoing exposition, the objects are found to fall into the following classes:

- (a) Practical products of living crafts — statues, wheel-made pottery, copper implements, stone hammers.
- (b) Older functional forms maintained as a matter of tradition by a dying craft, objects which might have been well made by the use of allied living crafts — stone vessels.
- (c) Degenerate products of dead crafts — flint knives, hand-made pottery.

Reduced to its ultimate limits, the classification shows only two great groups, (1) ceremonial-traditional objects made solely for the grave and (2) practical objects used in daily life.

CHAPTER VII

THE STATUARY

PREVIOUS to the excavation of the temples of Mycerinus, only thirteen statues and statuettes were known of kings of Dynasty IV, and these pieces presented no more than five faces, Cheops, Radedef, two of Chephren and a very poor one of Mycerinus. In the temples of Mycerinus, the Harvard-Boston Expedition found seventeen statues equal in preservation to the thirteen already known of Dynasty IV and in addition fifteen statuettes presenting eight stages in the creation of a statue. Five of the seventeen statues were practically perfect, and two were nearly complete, giving us seven portraits of Mycerinus, one of the queen, and eight faces of Hathor and the nome-deities. In addition to these, two other heads were found, making a total of eighteen faces carved by the royal sculptors of Dynasty IV, of which ten were portraits of the king and his family. This rich material made it necessary to revise the history of Egyptian art during its great creative period, the Fourth Dynasty, and led to the immediate abandonment of a number of theories which had been confidently advanced in regard to that period.

1. LIST OF THE STATUARY FOUND IN THE MYCERINUS TEMPLES

The list of statues, statuettes, and fragments found in the temples of the Third Pyramid is as follows:

(A) THE PYRAMID TEMPLE (M. P. T.)

- (1) *Great statue of Mycerinus*, over life-size, of clear translucent alabaster; broken and incomplete; see Pls. 12, 13, 14, 15, 16 *a*.
 - (a) The head was found outside the northern wall opposite room (20), about three meters from the drain hole in the wall; see p. 22 and Pl. 8; Reg. No. 07-4-9.
 - (b) The left shoulder was found with the head; see p. 22 and Pl. 8; Reg. No. 07-4-10.
 - (c) A fragment of the body was found nearer the drain hole; see p. 23; Reg. No. 07-4-13.
 - (d) Three fragments of the body and shoulder, embedded in sand in the inner end of the drain hole, in room (20); see p. 18 and Pl. 8 *b*; Reg. No. 07-1-70, 71, 72.
 - (e) The large fragment of the knees and part of the basis, found in sand in room (15); see p. 18 and Pl. 7 *b, d*; Reg. No. 07-1-77.
 - (f) Fragments of basis and toes with part of inscribed name of Mycerinus, in sand in quarry.
- (2) *Smaller statue of Mycerinus*, seated, about two thirds life-size, of opaque alabaster; broken and incomplete; see Pls. 16 *b, c, d*, and 17 *c*.
 - (a) Two fragments of torso found with the head of the great statue, outside the drain hole; see p. 22 and Pl. 8 *c*; Reg. No. 07-4-11, 12.
 - (b) One fragment of torso, in inner end of drain hole, in room (20), with fragments of great statue; see p. 18 and Pl. 8 *b*; Reg. No. 07-1-73.
 - (c) Four fragments of basis, feet, hips, and apron, in the sand in room (15), west of knees of great statue; see p. 18 and Pl. 7 *b*; Reg. No. 07-1-74, 75, 76, and 79.
 - (d) Fragment of thigh, high in sand above room (15); see p. 17; Reg. No. 07-1-22.
- (3) *Small fragment of slate statue*, in rubbish in room (9); see p. 16; Reg. No. 07-1-29.
- (4) *Small fragment of alabaster statue*, found with No. 3; Reg. No. 07-1-28.
- (5) *Small fragment of copper statue (?)*, found with No. 3; Reg. No. 07-1-30.
- (6) *Few minute fragments of alabaster*, in floor débris of court; see p. 14.
- (7) *Few minute fragments of slate and alabaster*, in débris of portico; see p. 15.

(B) THE TEMPLE OF PYRAMID III-*a*, THE QUEEN'S TEMPLE (M. Q. T.)

- (8) *Statue of the Queen*, life-size, of clear translucent alabaster; fragments only, see Pl. 17 *d*.
 - (a) Seven fragments of face and wig with vulture on head; found in room (9) in stratum No. 5; see p. 56; Reg. No. 10-3-00.
 - (b) Ten fragments of right hand and arm, in rooms (3) and (9) in stratum No. 5; see p. 56; Reg. No. 10-3-00.

Beautifully polished like the great statue of Mycerinus.

(C) THE MYCERINUS VALLEY TEMPLE (M. V. T.)

(9) *Nome triad, Hathor, Mycerinus, and the Hare-nome.*

Hathor seated in the middle; Mycerinus with crown of upper Egypt, standing on left embraced by the goddess, holding mace in right hand; and female figure representing the Hare-nome standing on right of goddess with *ꜥnh*-sign in left hand; see Pls. 38 *a*, 39, 40.

Dark amorphous slate; about two fifths life-size.

Painted, traces of red on king's face, of yellow on female faces, of black on hair parts, of green and yellow on necklaces, of black and green on king's belt.

Inscribed on top of basis,

(a) In front of Mycerinus:

"Horus Kay-khet; King of Upper and Lower Egypt, Men-kauw-ra; beloved of Hathor, mistress of the Sycamore Tree."

(b) In front of nome-goddess:

"Recitation: I have given to you all good, all offerings, all foods which are in the South forever."

(c) Faintly legible on front of king's belt, the name "Men-kauw-ra."

Found in southern magazine-corridor (III-4), practically on floor with statues Nos. 10-12; see pp. 35, 42 and Pls. 36, 37.

(10) *Nome triad, Mycerinus, Hathor, and the Theban nome.*

Mycerinus with crown of Upper Egypt, standing in the middle; Hathor standing on his right; and a male figure representing the Theban nome standing on his left; see Pls. 38 *b*, 41, 42; all three have the left foot advanced and the arms hanging at sides.

Dark amorphous slate; slightly larger scale than No. 9.

Coloring similar to No. 9.

King's beard broken off and not found.

Inscribed on top of basis (Pl. 46 *c*),

(a) In front of king and Hathor, signs facing to right:

"King of Upper and Lower Egypt, Men-kauw-ra; Horus, Kay-khet; beloved of Hathor, mistress of the Sycamore Tree, in all her seats."

(b) In front of the nome-god, signs facing to left:

"Recitation: I have given to you all things which are in the South, all food, all offerings, since thou hast appeared as King of Upper and Lower Egypt forever."

(c) Painted on front of king's belt: "Men-kauw-ra."

Found with No. 9, on west side of room facing north.

Now in Cairo Museum.

(11) *Nome triad, Mycerinus, Hathor and Jackal-nome.*

Mycerinus with crown of Upper Egypt, standing in middle, with left foot advanced and arms hanging; Hathor on his right, standing with left foot slightly advanced, with left arm around king's back and left hand on his left arm, with right hand hanging, holding seal; goddess representing the Jackal-nome on king's left, standing with feet together, with right arm around king (at Hathor's left), with left hand hanging and holding seal; see Pls. 38 *c*, 43.

Dark amorphous slate; slightly larger than No. 10.

Coloring similar to No. 9, but not so well preserved.

Inscribed (Pl. 46 *e*),

(a) On top of basis, in front of king and Hathor, signs facing to right:

"King of Upper and Lower Egypt, Men-kauw-ra; beloved of Hathor, mistress of the Sycamore Tree, in all her seats."

(b) On top of basis, in front of nome-goddess, signs facing to left:

"Recitation: I have given to you all good things and all offerings which are in the South (for) you have appeared as King of Upper and Lower Egypt forever."

(c) Name painted on king's belt, now very faint.

Found with No. 9 on west side of room, south of No. 10 and facing north.

Now in Cairo Museum.

(12) *Nome triad, Mycerinus, Hathor, and nome of Diospolis parva.*

Mycerinus wearing crown of Upper Egypt, standing in middle, left foot well forward, left hand hanging closed at side, right hand open, held by Hathor's left hand; Hathor on king's right, standing with left foot slightly advanced, right hand hanging and closed, left hand holding open hand of king; goddess representing the nome of Diospolis parva on king's right, standing with feet together, hands hanging closed at sides; see Pls. 38 *d*, 44, 45.

Dark amorphous slate; in size, the largest of the four triads.

Coloring similar to No. 9 but not so well preserved.

Inscribed (Pl. 46 *a, b*),

(a) On top of basis, in front of king and Hathor, signs facing to right:

"Horus, Kay-khet; King of Upper and Lower Egypt, Men-kauw-ra; beloved of Hathor, mistress of the Sycamore Tree, in all her seats."

- (b) On top of basis, in front of nome-figure, signs facing to left:
 "Recitation: I have given to you every good thing and all offerings which are in the South (for) you have appeared as King of Upper and Lower Egypt forever."
- (c) Painted name on king's belt, scaled off.
 Found with No. 9, just behind it to the north and facing south.
 Now in Cairo Museum.
- (13) *Shattered nome triad, Mycerinus, Hathor, and a nome (male).*
 Mycerinus in the middle, standing, left foot advanced, left hand hanging closed at side, right hand held by Hathor's left (cf. No. 12); Hathor on right of king, standing, left foot advanced, right hand hanging closed at side, left hand holding king's right; god representing a nome (name broken off) on left of king, standing with left foot advanced, right arm around back of king with hand open on king's right shoulder, left hand hanging (broken off); see Pl. 46 f.
 Slate as Nos. 9-12; slightly larger scale than No. 12.
 Coloring completely lost.
 Heads and feet broken away, except chin of Hathor; hands, arms, legs, and other parts damaged or missing.
 Found in upper part of débris of decay (mud) in court, four meters east of entrance to portico and two meters north of axis of court; see pp. 37, 49 and Pl. 32 f.
- (14) *Fragment of nome triad.*
 Large fragment from left lower part of back of triad; seated figure in middle and standing male figure on left of seated figure; probably like No. 9; see Pl. 64 h.
 Slate like Nos. 9-13.
 No trace of color.
 Found in thieves' hole in room (III-4) in sand below the water level, about 50 cm. below base of the slate pair, No. 17.
- (15) *Fragments of other nome triads, of slate.*
 Fragments of other triads of slate were found,
 (a) In SE quarter of portico (III-1) near the floor of the Second Temple of crude brick;
 (b) Under the walls of the last series of houses (I-5 to I-10) above the southern wall and on the surface of decay of the First Temple; Pl. 64 g.
 (c) Three larger pieces, in sand outside southern wall of First Temple at a depth of 150 cm.; see p. 36 (Dec. 15).
- (16) *Fragments of nome triads (?), of alabaster.*
 A number of very small fragments of alabaster statues which seem to be parts of triads similar to the slate triads suggest that the nome triads of Lower Egypt were of alabaster. But as alabaster and slate were concealed under the paint so that the finished triads would have looked alike, this conclusion is probably fallacious and the fragments represent only small *ka*-statuettes, singly or in groups of the usual character.
 Found with No. 15b.
- (17) *Pair statue of king and queen.*
 King on right of queen; both standing with left foot advanced; king with closed hands hanging at his sides; the queen has her right arm around king's waist with her left hand resting on his arm; king wears the royal headdress but no uraeus; see Pls. 55-60.
 Dark amorphous slate; unfinished, in state VII with the feet and lower part of legs in state VI.
 Traces of conventional colors on king's face.
 Not inscribed, being in states VI-VII, but undoubtedly Mycerinus and Khamerernebt II.
 Found in hole dug by treasure-hunters of the Moslem Period; two meters below floor of corridor (III-4) (where the triads were found) in sand and débris with feet at water level; apparently thrown into the hole by the treasure-hunters before they began the next hole on the west; see p. 37 (Jan. 18-19) and Pl. 54.
- (18) *Life-size statue of Mycerinus (in Cairo Museum).*
 Mycerinus wearing royal headdress and uraeus, seated on a plain block basis; right hand closed on knee with thumb up, holding "handkerchief"; left hand open palm down on left knee; see Pls. 48, 49.
 Opaque alabaster; life-size; broken but nearly complete; three large pieces, head, torso, and legs with basis; arms shattered but right arm nearly complete; not quite finished.
 No trace of coloring.
 Inscribed on top of basis beside right foot:
 "King of Upper and Lower Egypt, Men-kauw-ra."
 Found as follows:
 (a) Basis in portico (II-1) on the floor of the Second Temple, the northernmost of a row of four alabaster bases (Nos. 18-21); shifted slightly from their places in the portico (III-1) of the First Temple; see p. 36 and Pl. 47 a.
 (b) Torso in débris a little above floor in middle of same room directly east of No. 19.
 (c) Head practically on floor immediately in front of No. 19.
 (d) Part of arm was found in court in house (I-323), on February 23, 1910 (the rest was found in 1908).
 Now in Cairo Museum.

(19) *Inscribed alabaster statue-basis of Mycerinus.*

Part of a life-size seated statue; plain block basis with lower part of thighs, legs, and feet; see Pl. 47.

Clear translucent alabaster.

No trace of coloring preserved, except blue in hieroglyphics.

Inscribed,

(a) On front of basis beside right leg and foot:

"Horus, Kay-khet; King of Upper and Lower Egypt, Lord of the Two Crowns, Ka; Golden Horus, Netery Men-kauw-ra, endowed with life forever; King of Upper and Lower Egypt, Men-kauw-ra, shining brighter than any other good god (*šwt r ntr nfr nb*)."

(b) On front of basis beside left leg and foot:

"King of Upper and Lower Egypt, Lord of the Two Crowns, Ka; Golden Horus, Netery Men-kauw-ra, endowed with life forever; Hor[us Kay-khet], shining brighter than any other good god."

(c) On the right side of basis engraved, from top to bottom:

Above, two flying hawks, facing each other, each carrying a seal in its claws.

Under these, toward front of basis:

"King of Upper and Lower Egypt, Men-kauw-ra."

Under the hawks, toward back of basis:

"Horus, Kay-khet," facing the other name.

Between the two names, from top to bottom and facing to back, (1) "Nekhbet," (2) vulture with *wšs*-staff, (3) the sign *nb*, (4) the straight-stemmed lily (?) of El-Kab.

Between the lily (?) and the names stand the signs, "endowed with life, endurance, and prosperity."

Below these is a straight horizontal line and below that, two Nile gods facing each other, the one on the right holding the papyrus plant of Lower Egypt and the other the plant of Upper Egypt.

Above, the stem of the plants twine about the sign for "union" to form the conventional arms of United Egypt.

The whole is enclosed in a rectangular frame with the sign for "sky" at the top.

(d) On the left side of the basis the same design and inscriptions occur as on the right, except that in the middle field, "Buto" replaces "Nekhbet," the uraeus replaces the vulture, and the three-stemmed papyrus plant replaces the lily (?), leaving no space for the four signs, "endowed with life, endurance, and prosperity," which are therefore omitted.

(e) The back of the basis bears one horizontal line of inscription at the top, reading from left to right, "Horus, Kay-khet," not in a frame. Below this, the arms of Egypt are engraved as on the sides of the basis but without the Nile gods. The whole is enclosed in a plain rectangular frame.

Found in the portico (II-1) with Nos. 18, 20, 21, the second from the north and just north of the doorway to (II-2); see p. 36 and Pl. 47 *a*.

(20) *Basis of unfinished statue of Mycerinus.*

Seated figure of Mycerinus, over life-size; plain block basis with lower part of thighs, legs (incomplete), and feet.

Clear alabaster (not so good as No. 19), was still in state VI, when it was hastily finished, polished, and partly inscribed, leaving sawing marks still visible between the legs; saw marks filled with greenish paste (pumice?) stained with copper oxide.

No trace of color.

Inscribed,

On projection of basis beside right foot:

"King of Upper and Lower Egypt, Men-kauw-ra."

Found in portico (II-1) with Nos. 18, 19, and 21, the second from the south, south of doorway to (II-2); see p. 36 and Pl. 47 *a*.

Still at pyramids.

(21) *Basis of unfinished statue of Mycerinus.*

Like No. 20 in material, lack of coloring, and condition of completion; smaller than No. 20, about life-size, and a little better preserved, showing part of lap.

Saw marks and one boring mark between the legs.

Inscribed: exactly like No. 20.

Found in portico (II-1) with Nos. 18-20, the first on the south; see p. 36 and Pl. 47 *a*.

Still at pyramids.

(22) *Head of Mycerinus, headdress with triple pleating.*

Perhaps belongs to basis No. 19; wears the pleated royal headdress with uraeus; the pleats are in groups of three, one broad pleat between two narrow pleats, as in the Great Sphinx; the edge of the hair is represented in relief, projecting from the headdress onto the forehead and temples; see Pls. 50, 51.

Clear translucent alabaster, about life-size; sides of headdress, nose, and right eye damaged.

Found in portico (II-1) beside southern side of No. 19; see p. 36 and Pl. 47 *a*.

Now in Cairo Museum.

- (23) *Youthful head of king or prince.*
 Immature features; close-fitting cap (?) grooved (to take a covering of plaster or metal or to represent hair?); uraeus in front; conventional royal beard; see Pls. 52, 53.
 Clear translucent alabaster; a little less than the size of a grown man; possibly belonged to No. 21, in which case it is a youthful portrait of Mycerinus; it appears to me too small for No. 21; as fragments of other statues of similar size were found, including a fragment from the side of a basis with the end of the name of Shepseskaf, it is possible that this head is a portrait of Shepseskaf.
 No trace of coloring.
 Found in portico (II-1) in upper débris of decay on eastern side of portico north of entrance doorway; see p. 36 (July 16) and Pl. 47 a.
- (24) *Fragments of alabaster statue of Mycerinus.*
 Less than life-size; face shows features of Mycerinus; Pl. 64 b.
 Clear alabaster.
 Found scattered,
 (a) Fragment, lower part of face from eyes to beard; in débris under last series of houses over room (III-12); see p. 37 (Jan. 13).
 (b) Twelve fragments, back of head, knee, ankle, etc.; in mud débris in room (I-320), p. 38 (Feb. 13).
- (25) *Unfinished statuette, state I.*
 Seated statuette; roughly blocked by bruising with a stone pounder (held in the hand?) and rubbing; traces of sculptor's guiding lines in red paint, marking hands and face; see Pl. 62 a.
 Diorite, translucent; height, 35 cm.
 Found in mud débris above floor in magazine (III-3); (08-7-1); see p. 35 (July 7).
- (26) *Unfinished statuette, state II.*
 Seated statuette; face, lower arms, hands, and basis, roughly defined; red lines on face, arms, and hands for next stage; see Pl. 62 b.
 Diorite, translucent; height, 35 cm.
 Found practically on floor of magazine (III-3); (08-7-8); see p. 36 (July 13).
- (27) *Unfinished statuette, state III.*
 Seated statuette; head and right arm carried a stage further; the headdress is now distinctly that of a king; no red lines visible; see Pl. 62 c.
 Diorite, translucent; height, 43 cm.
 Found on floor of Second Temple in (II-2) at west end (08-7-24); with Nos. 29, 32, and 39, near Nos. 38 and 45; see p. 36 (July 17) and Pl. 61 a, b.
 Now in Cairo Museum.
- (28) *Unfinished seated statuette of the king, state IV.*
 Legs beginning to be distinguished; no red lines preserved; see Pl. 62 e.
 Diorite, translucent; height, 35 (?) cm.
 Found under crushed north wall of magazine (III-3); Pl. 61 d; (10-1-20): p. 37 (Jan. 21).
 Now in Cairo Museum.
- (29) *Unfinished seated statuette of the king, state IV.*
 Like No. 28, see Pl. 62 d.
 Diorite, translucent; height, 47 cm.
 Found on floor of Second Temple in (II-2) at west end (08-7-23); with Nos. 27, 32, and 39, near Nos. 38 and 45; see p. 36 (July 17) and Pl. 61 a, b.
- (30) *Unfinished seated statuette of the king, state IV.*
 Head and torso, only; see Pl. 62 i.
 Diorite, translucent; height, 20 cm.
 Found in mud débris under room (I-4), over magazine (III-18); (10-1-4), see p. 37 (July 14).
 Now in Cairo Museum.
- (31) *Unfinished seated statuette of the king, state IV.*
 Legs a little more developed than No. 28, the face a little less; see Pl. 62 h.
 Diorite, translucent; height, 25 cm.
 Found in northern end of magazine corridor (III-4), in débris about level with foot of Sixth Dynasty wall; with Nos. 35, 37, and 43 (08-7-12); see p. 36 (July 14) and Pl. 61 c.
- (32) *Unfinished seated statuette of the king, state V.*
 Recognizably a portrait of Mycerinus; see Pl. 62 f.
 Diorite, translucent; height, 42 cm.
 Found in II-2 (08-7-25), with Nos. 27, 29, and 39, near Nos. 38 and 45; see p. 36 and Pl. 61 a, b.
- (33) *Unfinished seated statuette of the king, state V.*
 About like No. 32; broken in two and damaged about the bottom; feet missing; see Pl. 62 h.
 Fine hard pink limestone (?); height, 20 cm.
 Found in mud débris in southeastern corner of portico (III-1); (08-7-11): p. 36 (July 13).

- (34) *Unfinished seated statuette of the king, state V.*
See Pl. 63 a.
Fine hard reddish stone; height, 16 cm.
Found in magazine (III-3) in mud débris about 20 cm. above the floor (08-7-2); see p. 35.
- (35) *Unfinished seated statuette of the king, state VI.*
Lacks only the details (fingers and toes) and the final polishing; see Pl. 62g.
Diorite, translucent; height, 35 cm.
Found in northern end of corridor (III-4) with Nos. 31, 37, and 43 (08-7-3); see p. 36 (July 14) and Pl. 61c.
- (36) *Unfinished seated statuette of the king, state VI.*
Torso and head; see Pl. 62 i.
Diorite, translucent; height, 16 cm.
Found in mud débris above (III-18) at foot of walls of (I-4); (10-1-15); see p. 37 (Jan. 12)
Now in Cairo Museum.
- (37) *Seated statuette of the king, state VII.*
Finished but uninscribed; see Pl. 63 a.
Fine hard red stone with two thin white veins; height, 20 cm.
Found in north end of corridor (III-4) with Nos. 31, 35, and 43 (08-7-14); see p. 36 (July 14) and Pl. 61c.
Now in Cairo Museum.
- (38) *Seated statuette of the king, state VII.*
Finished but uninscribed; broken in two; right arm, left forearm, and feet missing; beard and nose damaged; see Pl. 63 c.
Diorite, translucent; height, 32 cm.
Found on floor of Second Temple in west end of (II-2), with No. 45 just east of Nos. 27, 29, 32, and 39 (08-7-22); see p. 36 (July 17) and Pl. 61 a, b.
Now in Cairo Museum.
- (39) *Seated statuette of Mycerinus, state VII-VIII.*
Usual seated attitude with royal headdress and uraeus; legs left unpolished (state VI).
Diorite; height, 20 cm.
Inscribed,
(a) On front of basis beside right leg and foot:
"Horus, Kay-khet; King of Upper and Lower Egypt, Men-kauw-ra"; no frame to Horus name.
(b) On front of basis beside left leg and foot:
"Beloved of Sokar foremost of [He]kenet."
Found on the floor of Second Temple at western end of (II-2) with Nos. 27, 29, and 32, near Nos. 38 and 45 (08-7-26); see p. 36 (July 17) and Pl. 61 a, b.
- (40) *Standing statuette of the king, state VII-VIII.*
Standing with left foot advanced, hands hanging closed at sides; nearly finished state; head missing, rest in four pieces, much damaged; see Pl. 63 d.
Black and white porphyry; height, 32+ cm.
Found scattered in court débris in (I-310, 319, and 395); see Nos. 42 and 46; see p. 37 (April 2).
- (41) *Standing statuette of a woman (the queen?), state VII.*
Standing, feet together; full, short wig (?), parted in middle; arms hanging with hands open, palms against thighs; rectangular supporting pillar at back reaching to base of wig; broken in three pieces; arms knocked off; mouth and nose, damaged; see Pl. 63 k.
Grey granite; height, 55 cm.
Found as follows (1910, No. 4):
(a) Legs with base, found in mud débris over (III-18) under house walls; see p. 37 (Jan. 12).
(b) The other two pieces, body and head, found in débris in room (I-318); see p. 38 (Feb. 18).
- (42) *Basis of seated statuette of a man.*
See Pl. 62 j; feet broken off.
Diorite, translucent; height, 20+ cm.
Inscribed,
(a) On top and front of seat, to right of figure:
"King's son of his body beloved —————."
(b) In corresponding position to left:
"King's son of his body, lector-priest of his father —————."
Found in floor débris of court in (I-395) with Nos. 40 and 46; see p. 38 (April 2).
- (43) *Squatting statuette of Khnum-wer-kauw.*
Seated on ground with left foot flat on ground and left knee in the air; right leg resting with its right side on the ground and the sole of the right foot against the side of the left foot; left hand open cupped over left knee; right hand open palm down on right knee; broad flaring wig, parted in middle, ears exposed; bead necklace; short skirt; cf. the somewhat similar attitude of the statue pictured in *Hierakonpolis I* (Quibell and Green), Pl. II; see Pl. 63 b, e.

Fine white limestone; height, 50 cm.; cracked and fragment missing from right corner of basis.
Inscribed with rudely scratched hieroglyphics,

(a) On top of basis between legs:

“The chief lector-priest, Khnum-wer-kauw, his (good) name (is) Yekuw.”

(b) On front edge of basis:

“The sole companion, the chief lector-priest, the leader of the mysteries of the god’s road (?)
——, the *špsy* of the King of Lower Egypt, the overseer of the residence of the Pharaoh,
controller of the *d3-t*, Khnum-wer-ka[uw-].”

Found in the northern end of corridor (III-4) with Nos. 31, 35, and 37; (08-7-15); see p. 36 (July 14).
Now in Cairo Museum.

(44) *Seated statuette of a man; head and torso.*

Head and torso with arms broken off; short wig covering ears; pillar support at back reaching to back of head; see Pl. 63 f.

Red granite; height, 40+ cm.

Found outside western wall of Second Temple, about 120 cm. from corner, in mud débris just above foot of rubble wall which protects temple from rainwater; deposited after the construction of the Second Temple; (09-12-1); see p. 36 (Dec. 30).

(45) *Crouching jackal.*

Crouching jackal in the usual position with forepaws extended and tail hanging down; the edge of the basis is unpolished, as if the figure had rested in a depression in another stone, while the position of the tail would also suggest that the jackal had rested on a high pedestal or other stone object; see Pl. 64 a.
Two pieces, battered head and rear half of body.

Dark slate like the triads and pair statue; width of basis, 12 cm.; length of larger piece, 20 cm.; original total length, 60-80 cm.; the head and neck have been used as a hammer or rubbing stone.

Found in room (II-2) on the floor of the Second Temple, with No. 38, just east of Nos. 27, 29, 32, and 39, (08-7-22a); see p. 36 (July 17).

(46) *Fragments of standing statuette of a man, alabaster.*

Standing with left foot advanced; hands hanging closed at sides; right overlapping end of skirt is pleated; broad wig, with incised lines; see Pl. 64 f, i.

Many pieces, incomplete and irreparable.

Poor, heavily veined calcareous alabaster; the largest piece, from waist to thighs, has a height of 14 cm.
Found in court débris (I-395) with Nos. 40 and 42; see p. 38 (April 2).

(47) *Fragments of two forepaws of a lion, alabaster.*

Probably from the feet of a throne on which sat a statue (like the famous Chephren statue); see Pl. 64c.
Clear alabaster; width, about 12 cm.

Found as follows:

(a) One in upper mud débris in filling of (I-19) over walls of northern magazines; see p. 37 (Jan. 18).

(b) Under room (I-10) on south wall of temple; see p. 37 (Jan. 16).

(48) *Standing ivory statuette of Mycerinus.*

Head, arms, hands, right thigh, and feet, missing; in traditional standing attitude with left foot advanced, arms hanging, and probably hands closed at sides; royal pleated skirt; see Pl. 63 g-j.

Ivory; height, 14+ cm.

Inscribed on front of belt, which is decorated with incised lozenge pattern:

“King of Upper and Lower Egypt, Men-kauw-ra.”

Found in lower part of brickwork which blocked the door of (II-2 to III-4), on the side towards (III-4), on removing that door block; see p. 37 (Jan. 27).

(49) *Arm of a wooden statue, about life-size; bent left arm, probably from a standing statue in the traditional attitude.*

Found in débris in room (I-23); see p. 37 (Jan. 20) and Pl. 32 a.

(50) *Five crystal eyes set in copper, probably from one wooden statue and three statuettes.*

(a) Large crystal eye (length, 4 cm.), set in copper frame, to the outside of which cling fibres of wood impregnated with copper oxide; left eye.

Front, highly polished; back, matt and convex; details painted on back — corner of eye red; white of eye white; iris and pupil not preserved; backed with white plaster.

Found in (III-3) in débris (July 21, 1908).

(b) Small crystal eye set in bronze frame; length of crystal, 2.1 cm.; length of frame, 2.8 cm.; wood fibres clinging to outside of frame; left eye.

Front, polished; back, flat except for defect in stone older than manufacture; shallow circular hole filled with black to form pupil; iris, painted dark red; white of eye, painted white; corners, probably light red; backed with white plaster.

Found in (III-17), débris (1908).

(c) Small crystal eye set in copper frame and also part of the copper frame of a second eye; length of frame, 3.2 cm.; wood fibres clinging to outside of frame; right eye, and frame of left eye.

Polished and painted like *b*, above.

Found in (III-7), débris (1908).

(*d*) Crystal eye, a trifle larger than *c* but otherwise like it; right eye.

Found in (I-11), below floor of room, see p. 37 (Jan. 11).

(51) *Fragment of standing statuette of man.*

Basis and lower legs; left foot advanced; supporting pillar, at back.

Diorite; height, 10+ cm.

Inscribed on back of support, rude hieroglyphics:

“—————*m t.*”

Found in débris in room (I-318), see p. 38 (Feb. 18). See statuette No. 41.

(52) *Fragment of seated statuette of Mycerinus (?), state VI.*

Waist to below knees; right hand closed on right knee; left hand open on left knee; unfinished.

Hard pink-drab limestone (?); height, 7+ cm.; length, 9 cm.

Found in débris in room (I-32).

2. THE TECHNIQUE OF THE STATUARY

The unfinished condition of many of the statues and especially of the seated diorite statuettes found in the Valley Temple make it possible to fix at least eight states in the production of a statue. Examples of these eight states are given above in Nos. 25–39. The earlier states, I–IV, show red lines drawn by the master to guide the apprentices in cutting away the stone. It is obvious that after each marking with lines the cutting proceeded until the lines were reached or obliterated, when the master drew a new set of lines to guide the next advance. These pauses for drawing the red lines marked the actual stages of the process, and the terms “state I,” “state II,” etc., strictly taken should apply to the statue at these pauses. Possibly none of the figures which I have designated as being in a particular state was in such a state in the strict sense of the word; for we have a series of statuettes in which the work was accidentally interrupted, probably between the real states. The more advanced stages, which I call states V–VIII, which were probably executed by the master himself, are not marked with red lines. Nevertheless, state VI, the rough finished figure and state VII, the finished but uninscribed figure, represented well-defined stages in the process and are probably states in the strict sense. And it is quite clear that in the case of the Mycerinus statues, some examples (Nos. 17, 18, 20, 21, 39, and 40) were partly in state VI and partly in state VII, or partly in VII and partly in VIII, or even (No. 39) show evidence of three states, VI, VII, and VIII.

State I is represented by only one example, No. 25, and shows the rough blocking of the stone, with the seated form and the block seat vaguely indicated, without distinguishing face, arms, and legs. The surfaces are roughly pitted as if bruised by pounding with a hard stone held in the hand; but the pits have been partly smoothed away and in places are filled with a pastelike substance as if some sort of grinding powder had been used with water. This smoothing has certainly been done with a rubbing stone. There are traces of lines 2–5 mm. broad, drawn in red paint and marking the outline of the right arm. These guiding lines are clearer on No. 26, and it is obvious that the master craftsmen marked out each advance in the carving and left the rough blocking to be done by an apprentice, as is the rule in Egyptian crafts in all times.

State II again has only one example, No. 26. The blocking-in has proceeded so far as to outline the face, the right arm, and the seat. The surfaces show the same marks of bruising and rubbing as those of state I. The red lines are clear, outlining for the next stage, the face, the right arm, and the lower outer edge of the left arm. In the smoothing of the walls in the rock-cut chambers of the mastabas, the surfaces smeared with red were to be cut away, and it is to be presumed that these red lines on the statuettes were also to be cut away. In any case, it must be remembered that they were understood by the apprentice according to a customary code, like that of the mysterious marks which a modern tailor makes on a garment in fitting it.

State III is presented in No. 27. Here the right arm with its closed fist, the face with its beard, and the wig have taken more definite outlines, while the left arm with its open hand is roughly blocked. The red guide-lines are especially clear on the upper edge of the right forearm, which is not yet rounded,

and on the front right edge of the basis. The surfaces show the same treatment as in the preceding stages.

Four examples show slight variations of state IV, Nos. 28, 29, 30, and 31. Here two points are to be noticed, the treatment of the face and that of the legs. The advance in working the head appears in the small lump on top, which is to become the uraeus. The middle part of the face has been rubbed into four almost flat surfaces, the forehead, the top of the nose, a surface from the tip of the nose to the point of the chin, and a surface from the chin to the end of the beard. The sides of the face have been treated in a similar manner, but the planes are not so large nor so clearly defined. The groove which separates the legs has been rubbed with long strokes of a sharp stone or a slab-rubber with curving edge. A faint trace of the red line is still visible on the right arm of No. 29.

State V is represented by three examples, Nos. 32–34, all slightly different. The face, especially in No. 32, is already discerned to bear the characteristic features of Mycerinus. Traces of bruising on the surfaces are still visible, but much less pronounced than in the earlier states. The blows must have been very light taps not to have broken off the nose, beard, and similar protruding parts. The rubbing process must have been chiefly used for this and subsequent states. No signs of red lines are discoverable.

State VI, examples Nos. 35 and 36, is the final rough-surfaced state before polishing. The surfaces indicate a continuation of the fine bruising and rubbing processes of state V. The statuette is an unmistakable portrait of Mycerinus. The toes and fingers are not yet distinguished, and the lines about the eyes are vague. These finer details were apparently worked out during the polishing.

The finishing state, No. VII, is seen in statuettes Nos. 37 and 38. These two have a dull polish, from which all traces of the bruising process have disappeared. The details are more or less distinguishable, and it is obvious that the refining process might be continued for a longer or shorter time, according to the quality of work desired in the final statue. This is the state in which the final form of the statue was reached, and the excellence of the whole depended on the time and labor spent on this stage. All the large statues of Mycerinus and four of the statuettes had reached or passed state VII.

The fully inscribed state I call state No. VIII. The four triads and the alabaster statues represented by Nos. 22 and 19, were in this state. Of the statuettes, there is only the basis, No. 39, and that had been polished and inscribed without having been brought to perfection in state VII. The alabaster statues, Nos. 1, 2, 18, 20, and 21, and the slate pair, No. 17, were at various stages in state VII. The slate pair was never inscribed, and the alabaster figures received only the words "King of Upper and Lower Egypt, Men-kauw-ra" engraved beside the feet on the top of the basis.

The large statues, as just stated, were all in state VII or VIII, and the marks of the preliminary processes had been largely effaced by the finishing. But sufficient traces were found to prove that in general the technique was the same as that of the small figures. On the bases of the unfinished alabaster statues, and in particular on that of No. 20, the pitting of the surface caused by the bruising process had not been entirely smoothed away and is still visible to the eye under the fine scratches produced by the polishing process. Likewise the back of the slab which supports the slate pair, the sides of its basis, and the front of the slab between the figures bear distinct marks of the bruising process. The alabaster statues show much more clearly than the statuettes the scratching of the surface caused by the use of rubbing stones in smoothing, probably with wet pumice. The final polishing was, perhaps, a dry process.

In addition to these processes, common to all statues, the large figures of Mycerinus bear evidences of the use of metal tools, as follows:

- (a) The statue, No. 20, shows saw-cuts between the legs. The insides of the legs have been polished, but the front of the basis between the legs has been only roughly smoothed by bruising (hammering). In this bruised surface, there are four series of saw-cuts in vertical planes. One of the four series follows closely the inside contour of the left leg and another that of the right leg. Between these two, the other cuts lay in two or more vertical planes. The series along the inside of the right leg consisted of at least two cuts produced by a separate operation. Each cut was slightly curving in its long section, as if made by rubbing a slightly curved edge up and down. In some of the cuts, a hard pale greenish paste was found which seemed to be a grinding powder (pumice?) stained with copper oxide. The conclusion is obvious that the saw was a broad copper blade about 4 mm. thick (measured by the width of the cuts) with a slightly curved edge and not necessarily more than 4–8 cm. in length. It must have been attached to a

stout wooden handle. The distance from cutting edge to handle must have been at least 15 cm., in order that the handle might clear the front of the legs. The form thus prescribed is that of the model copper blade found with model chisels, drills, adzes, and other tools in the tomb of Impy (G 2381 A), who was an "overseer of works."

The result of this sawing operation was to separate the stone which it was desired to cut away into vertical slices. These slices may have been cut free at the top and bottom by the cylindrical borer noted in the next paragraph. In any case they were broken loose and the rough places where they were attached at the back were being pounded down flat, preparatory to polishing when the statue was hastily polished for the funeral.

- (b) Statue No. 18, now in Cairo, shows a circular groove on the face of the seat between the knees just under the edge of the skirt; and statue No. 21, a similar groove between the heels. This is plainly the typical groove left by the hollow cylindrical borer of copper (diam., 4.6 cm.; thickness of metal, 5 mm.) after breaking off the core and partially smoothing down the surface. The intention was to smooth away the groove entirely. The borer was used of course with wet pumice like the saw just described and was probably turned with a crank-handle like the stone borer. It may be noted, however, that a fairly effective action could have been obtained by turning the cylinder back and forth between the palms of the hands, especially if weighted and used vertically. The holes produced by the cylindrical borer, as seen in stone vessels, have very fine striation marks, as if the turning had been continuously in one direction, and even blocks of granite have been found with these boring holes.
- (c) Small holes were bored with a drill, probably also of metal, and used with pumice. The most common of these are the nostrils of all the statues, but the most remarkable are the two fine holes bored one at each corner of the mouth of the great alabaster statue, No. 1. This drill may have been the common bow-drill with wooden top and copper point, but was more probably the hand-drill of the type used by the borers of seals.¹

Thus the technical processes used in carving hard stone statues were of the simplest sort, as must be the case when steel is not available. The chief operations were:

(1) *Pounding with a stone.*

Used in all stages until the statue was ready for finishing. I am uncertain whether the process is to be identified in the tomb scenes where the making of statues is represented.

(a) Steindorff, *Grab des Ti*, Pl. 134.

Between a scene of stone-boring and one of work on a wooden (?) statue, two craftsmen sitting on high stools are engaged on a seated statue under the label: "the working by the stone-worker (*hmwty*)," "statue," "stone-worker." The two workmen, one in front and one behind the statue, are apparently hammering with a stone held between two sticks. The other statues to the left may be of wood or limestone; and the statue of which we are speaking was probably of limestone.

(b) Davies, *Deir-el-Gebrawi I*, Pl. XVI.

Five "stone-masons (*hrty-ntr*)" are engaged in dressing a beam, probably of limestone. Four of them are using chisels and the heavy stone-mason's mallet. The fifth is engaged in removing a protuberance with what appear to be two round-edged axes, which is absurd. The carpenter's mallet is slender and light, and the carpenter's axe has a nearly straight edge (see same plate, above). This is probably a representation of the same implement as that of the *Ti*-tomb but heavier, a stone axe-head held between two sticks. Stone axe-heads with a groove around the butt are well known in the Old Kingdom.

(c) Newberry, *Rekhmara*, Pl. XX.

Two of the workmen engaged on the granite (?) statues of the king hold a small implement (a stone?) in one hand and appear to be tapping it with a second implement. But the operation is obscure.

(2) *Rubbing with stones* of various forms and sizes held in the hand, probably accompanied by the use of a grinding paste.

The chief process used in the finishing stage but also employed in the preceding stages together with pounding. Examples of the process are represented in the tombs.

(a) Steindorff, *Grab des Ti*, Pl. 134.

Two men kneeling are rubbing a standing limestone (?) statue. The scene is labeled "statue" and "polishing by the sculptor."

(b) Newberry, *Rekhmara*, Pl. XX.

The men at work on the sphinx are using stones of two shapes, one with an edge and one circular with flat (?) or concave (?) surface, while an apprentice stands with a bowl of paste and a stick ready to smear grinding paste as required by the rubbers. Just below, the two men at work on the altar use circular rubbing stones, while the apprentice holds the bowl of paste on top of the altar beside one of the workmen.

¹ See Steindorff, *Grab des Ti*, Pl. 133.

- (3) *Sawing by means of a copper blade* of fan-shape fixed in a long wooden handle and worked by rubbing up and down or back and forth, accompanied by the use of grinding paste.
Used as far as discoverable only on the large alabaster statues for removing surplus stone from between the knees, but adapted to other uses. No representations are known to me.
- (4) *Boring by means of a hollow tube of copper*, turned either by rolling between the hands or with a crank (as the stone-borer), used with grinding paste (emery?).
Traces found only in alabaster statues, Nos. 18 and 21, but elsewhere in granite blocks; and suitable for use on hard stone statues.¹ Used also in boring stone vessels, especially cylindrical jars; possibly represented in *Grab des Ti*, Pl. 134.
- (5) *Drilling with a copper or stone point* with grinding paste.
Evidences found in the nostrils, ears, and especially at the corners of the mouth of the large alabaster statue, No. 1. A hand-drill is shown in the Ti-tomb (*l. c.*, Pl. 133) used in boring a stone seal; and a blow-drill in the same plate used on wood.
- (6) *Rubbing with a copper (?) point*, with grinding paste.
The evidence is doubtful. The implement is shown in *Rekhmara*, Pl. XX — a long slender shaft with a bulbous head probably also of metal to give weight to the implement. Two men are shown at work inscribing the back of a standing granite (?) statue of the king — one a scribe with brush and palette and the other working with the implement in question. The workman holds the shaft close to the point. The inscriptions on the Mycerinus statues have been made by bruising the stone with a small implement probably of stone and then dressing the outlines of the bruised surface by rubbing possibly with this weighted point, or with a sharp stone. Some of the signs on the slate triads show slips of a sharp point.

3. THE CANON OF PROPORTIONS

The canon of proportions used in wall reliefs was pointed out by Lepsius² and is proved by unfinished walls on which the red proportion lines are still visible. Such walls are known from the mastabas of the Old Kingdom and from the great rock-cut tombs of the nomarchs of the Middle Kingdom. In the Old Kingdom mastabas the proportions were measured on a vertical line in the axis of the human figure by means of dots and cross lines. The lateral measurements were marked by dots on the cross lines. These red lines show that the height of the human figure from the sole of the foot to the base of the hair or wig on the forehead was divided into six units. The length of the advanced foot was more than one unit; that of the other was about one unit. To the knee was two units and to the base of the neck was five and a third. The seated figure had five units from the soles of the feet to the base of the hair. In the Middle Kingdom the examples of unfinished walls show a rectangular network of red lines, the unit of which is approximately one third of the old unit, so that the height of the standing figure is 18 units and of the seated figure 15. But on this network the figure was outlined freehand and the lateral measurements of the Old Kingdom artist no longer appear. The network was probably used already in the Old Kingdom for complicated scenes, and it continued in use to the end of Egyptian history. The number of units was changed again about Dynasty XXVI when the height of the standing figure was divided into 21 units to the base of the hair (21½ units to the top of the head).³

In the reliefs, whether the Old Kingdom system of marking the chief canonical proportions was used or the later network, the figures were outlined by eye, and there are many examples of re-drawing where the eye of the master or of the craftsman was not satisfied with the first attempt. The details of the face and the clothing were also drawn in red or sometimes black lines, which disappeared of course in the process of rubbing in these details, and the final finishing was greatly dependent on the skill of the craftsman. The various degrees of excellence in the reliefs arose from the exactness of eye and the practised coördination of hand and eye of the different craftsmen. Therefore, the measurements of the figures in the reliefs and especially the measurements of details show variations from those normal proportions which have been established by the examination of unfinished reliefs. It is especially to be noted that the canon of proportion did not prevent the drawing of unusual bodies or of bodies in unusual postures, such as dwarfs, the fat old boat builder, and the lean herdsman in the reliefs at Meir, men struggling with cattle, bending down to receive loads on their backs, or fighting in boats.

¹ See Petrie, *Pyramids and Temples of Gizeh*, Pl. XIV; Hoelscher, *Chephren*, Blatt XIV; and elsewhere.

² *Denkmäler*, Erg. I, p. 234.

³ See Edgar, *Sculptors' Studies*, p. 12.

The unfinished statuettes of the Saïte to Roman periods, although few in number, seem to present the system of marking the principal measurements, used in the Mycerinus statues.¹ The sculptor's models of this late period, in addition to this system, show on some examples the network of 21 units incised or drawn on the back with special marks to indicate certain details; and it is quite clear that the canon was intended to be used in statues as well as in reliefs.

The measurements of the Mycerinus statues show as close an approximation to the canon of the Old Kingdom reliefs as could be expected. The large size of the feet is not out of harmony with the earlier reliefs. The small size of the head in proportion to the massive shoulders is shown by all the statues, including the small diorite statuette found at Saqqarah. The same relation between head and shoulders is seen in the statue of Rahotep from Medûm (in Cairo); and the workmanship of that statue, as well as of the Mycerinus statues, is so fine that the form given must be assumed to have been intentional. In all probability Mycerinus and Rahotep were actually distinguished by unusually heavy shoulders. Rahotep was a member of the royal family of Dynasty IV.

4. COMPARISON WITH EARLIER STATUARY

The significance of the statues of Chephren and Mycerinus in the development of Egyptian sculpture appears only when they are compared with previous works. As far as possible, like must be compared with like, figures in soft materials (limestone, wood, ivory) with one another, and similarly figures in hard materials, figures of royal persons, and figures of private persons, in each case with one another. It has been observed that technical gains in all the crafts in Egypt have been made in the service of royalty, and these gains have become available for other grades of persons only after the lapse of some time. Royal statuary is always of better quality and often of a different type from the private work of the same reign. There is also a tendency for skill to develop more rapidly in softer and more tractable materials so that a high excellence may be exhibited by limestone statues of the same class while the granite statues still present a rude and primitive appearance. In other words, in studying a formative period like that of Egyptian sculpture previous to Chephren, the development should be traced if possible in four parallel lines, (1) royal statues in soft materials, (2) royal statues in hard materials, (3) private statues in soft materials, and (4) private statues in hard materials. The separate objects used in this study should be accurately dated. But unfortunately the greater part of the early examples of private statuary have been discovered in museum collections without indication of their origin, and have been dated by their form and workmanship.

The earliest reproductions of the human figure in Egypt are the figures in mud, pottery, and ivory which have been found in private graves belonging to village communities of the Predynastic Period. These figures are rude in workmanship and uncouth in form like the figures made by primitive men in other countries and other times. Along with them must be grouped the representations of both men and animals which occur in the line drawings on pottery, and in relief on slate palettes, ivory combs, and other objects of the same period. The development of sculpture in the round is inseparably bound up with the development of drawing and of sculpture in relief. The technical processes which gave the Egyptians power over stone took their origin in the making of the stone vessels, the stone mace-heads, and the slate palettes of the earliest predynastic times, and something of the characteristic Egyptian sense of form is perceptible in all these products of the stone workers' craft. The increase of skill both in the technical processes and in the delineation of forms may be followed down into the Early Dynastic Period to the wonderful carvings on the palettes and mace-heads found at Hierakonpolis.²

(A) THE EARLY DYNASTIC SCULPTURE

The sculpture of the Early Dynastic Period is represented by a number of reliefs carved on slate palettes, mace-heads and vessels of stone, and various objects of ivory, and by figures of men and animals in ivory, stone, and faience.³ Among these are the following:

¹ Edgar, *Sculptors' Studies*, p. iii.

² Quibell and Green, *Hierakonpolis*.

³ See in general, Capart, *Primitive Art in Egypt*.

- (1) A number of ivory figures of men and women found at Hierakonpolis¹ and Abydos.²
- (2) Three limestone statues of the god Min, from Coptos.³
- (3) Two limestone statues of a kneeling man (one decayed), from Hierakonpolis.⁴
- (4) Limestone standing statue of a man, from Hierakonpolis.⁵
- (5) Limestone statuette of a squatting man (body decayed), from Hierakonpolis.⁶

A great increase of skill over the Predynastic Period is shown by all these sculptures, but especially by the smaller figures and by the reliefs which are also on a small scale in all cases. The head of the squatting statuette of limestone is quite as good as the ivory carvings and the better preserved of the two kneeling statues appears to have been of similar merit. The three statues of Min and the standing statue from Hierakonpolis are unfortunately badly preserved, but they were probably not much different in quality. The workmanship of all these figures, statues, and statuettes, although they are executed in soft materials, is far from that of Dynasty IV. In the form, especially in the faces, a human likeness has been attained of such merit that opinions have even been expressed as to the race of some of the persons represented, but the surfaces show a lack of modelling, a simplification, which, combined with the stiffness of attitude, marks them as products of a craft not far from the primitive. The reliefs show that the craftsmen of that time had the same difficulties in representing the human form in profile as the sculptors of the Old Kingdom; and that the early dynastic solution of these difficulties appears traditional in the Old Kingdom. Whenever it was possible to represent the nearer arm behind the body, the breast was represented *en face* with the rest of the figure in profile. When the hands are holding something in front of the body, the same awkward drawing of the back of the shoulder is seen as occurs in later times. The inner side of the foot is shown, two left feet or two right feet on each figure, but the hands are usually correctly drawn as right and left on each person. I would suggest that some part of the failure of the later sculptors of relief may have been due to the fixing of traditional forms at this early period when the skill of the craftsmen was not fully developed.

The attitudes of the figures in the reliefs are familiar from the Old Kingdom sculptures, but the clothing of both the king and the ordinary man are different in certain features. The statues and figures present peculiarities both in the attitudes and the clothing. The statues of Min, the kneeling statues and figures, and the ivory figures of a man clothed with a cloak, have their analogies in later times. The standing statues and figures in most cases have the arms hanging at the sides with the hands open or closed in various combinations. The males have the left foot advanced, while the females have the feet together in the usual later manner. The most notable feature of the early dynastic attitudes is the placing of the left hand and forearm in some instances on the chest in males and under the breasts in females. This position occurs in the standing limestone statue from Hierakonpolis as well as in both male and female ivory statuettes.⁷

(B) STONE STATUES OF DYNASTY III

The earliest dated stone statues now known are the following:

- (aa) Seated statue in white limestone of King Zoser, found by Mr. C. M. Firth, Chief Inspector of the Egyptian Department of Antiquities, in charge of government excavations at Saqqarah, in its original position in a *serdab* built against the Step Pyramid. This is a *ka*-statue in which the king is represented clothed in a cloak, with a divine headdress and over it the royal *nms*-headdress. The right hand is closed on the breast holding the edge of the cloak. The left hand is open palm down on the left knee. The throne has moldings on the side to represent a wooden frame.
Fragments of an alabaster statue and a black granite (?) head from same place.
- (bb) Two seated statuettes, inscribed with the name of King Khasekhem found by Mr. J. E. Quibell at Hierakonpolis,⁸ one of fine hard limestone, the other of slate. Both have the left arm across the front of the body with the clenched hand near the right elbow, while the right hand rests closed, with thumb up, on the right thigh. The throne has moldings on the side like the Zoser statue.

¹ Quibell and Green, *Hierakonpolis*, Pls. V–XII.

² Petrie, *Abydos II*, Pls. II and XIII.

³ Petrie, *Koptos*, Pls. III and IV; Capart, *Primitive Art*, Fig. 166.

⁴ Quibell and Green, *Hierakonpolis*, Pls. I and II, and p. 35.

⁵ *L. c.*, Pl. LVII and p. 15.

⁶ *L. c.*, Pl. V and p. 36.

⁷ Quibell and Green, *Hierakonpolis*, p. 16a, Pls. LVII, VIII (a man), IX (a woman); Petrie, *Abydos II*, Pl. II, 5 (a woman).

⁸ *L. c.*, Pls. XXXIX–XLI.

The workmanship of these three is royal. The modelling of the mouth is perhaps a little better than the earlier figures, but the same simplification of the surfaces is evident as before. Unfortunately the relation in time of Zoser and Khasekhem is in dispute, and the conclusions to be drawn concerning the development of sculpture in the round depend on whether Khasekhem was the predecessor of Khasekhemuwy of Dynasty II or one of the kings of Dynasty III. As will be pointed out in the chapter on stone vessels, the arts and crafts of Khasekhemuwy are intimately connected with those of Dynasty III, and the stone vessels of Khasekhem belong to this group. Whether therefore Khasekhem precedes or follows Zoser, the statues mentioned above are of the cultural group which begins with Khasekhemuwy, or perhaps with his predecessor if that predecessor was Khasekhem. Although the cultural group does not coincide exactly with a dynastic period, I have designated it Dynasty III with the understanding that this period in the history of Egyptian sculpture may include the end of Dynasty II.

Nearest to these in workmanship are the two statues of the "king's daughter," Redyzet:

- (cc) Two figures of the Princess Redyzet, a perfect seated statuette of diorite in Turin (No. 3035) and a limestone torso with head, in Brussels. These have the open left hand and fore-arm on the front of the body under the breasts while the right hand lies open on the right knee. The sides of the throne are molded to represent a wooden chair, with bent wood support around the inside of the frame.

There is no apparent difference in the quality of the two. Comparable in workmanship are the following:

- (dd) Two standing statues of Sepa and one of his wife Nesa, all three of limestone (Louvre, Nos. A 36, 37, 38). The male figures have the left foot advanced, while the female has the feet together. The woman has the left arm across the front of the body with the hand open against the right side, while the right hand hangs open against the right thigh. The man also has the right hand hanging open against the thigh and the left arm across the front of the body, but the left hand grasps a staff the end of which rests on the ground. This attitude of the man is not intended to represent the usual standing statue with the left arm outstretched grasping a staff. It is to be noted that two of the five panels of Hesy show Hesy seated or standing holding the scribe's staff against the chest, while others show him with the arm extended holding the same implement.

Sepa appears to have been a high official, not of the blood royal. The statues are probably therefore of Dynasty III, but towards the end of the Dynasty and possibly as late as the reign of Sneferuw.

In addition to these statues of better workmanship, there is a group of crude statuettes to which Professor Steindorff first called attention with the designation "archaic." Two of these represent an official named Nezemankh, identified by Weill with a man whose name and titles were read by Professor Sethe on a jar sealing from Bêt Khallâf.¹ The sealings were found by Professor Garstang in the crude-brick stairway-mastaba, K 5, along with sealings of an official of King Zoser, and are certainly dated to Dynasty III. If this very plausible identification be correct, as I believe, then the two statuettes of Nezemankh are of Dynasty III, and are the earliest dated private statues known to us. Their form and quality are therefore of the greatest importance for comparison with the other material both royal and private.

- (ee) Seated granite statuette of Nezemankh (Louvre, A. 39); hands folded in lap; sides of chair of wooden type with bent wood supports; height, 61 cm.²
 (ff) Seated black granite statuette of Nezemankh (Leyden, D 93); left hand closed on front of body; right hand closed with knuckles up, on right knee; chair with bent wood supports; height, 79 cm.³

These two exhibit the private work of Dynasty III in hard stone, while the one statue of Khasekhem, the fragments of alabaster and granite (?) of Zoser, and the diorite statue of Princess Redyzet give the royal work of the same period in hard stone. There are no essential differences in attitudes or workmanship between these two figures of Nezemankh and a number of undated statuettes of granite marked as "archaic"; and I would place the latter likewise in Dynasty III:

- (gg) Seated black granite statuette of Ankh (?) (Leyden, D 94); left hand closed on front of body; right hand open palm down on right knee; chair with bent wood supports; height, 62 cm.⁴

¹ Weill, *II^e et III^e Dynasties*, p. 181; Garstang, *Mahâsna and Bêt Khallâf*, p. 26b.

² Capart, *Rec. Mon. Egypt. I*, Pl. I.

³ *L. c.*, Pl. II.

⁴ *L. c.*, Pl. III.

- (hh) Seated red granite statuette of boat carpenter Aperankhuw (?) (British Museum, 70 a); left hand on breast grasping the handle of an adze (cf. Hesy reliefs and statue of Sepa); right hand open palm down on right knee; chair with bent wood supports; height, 66 cm.;¹ supposed to be from Giza where there are tombs of Dynasty III south of the Third Pyramid area.
- (ii) Basis of a seated red granite statuette (Cairo Museum); left arm across front of body with hand open against right side; right hand open palm down on right knee;² chair with bent wood supports on four sides.
- (jj) Seated red granite statuette of a woman (Naples Museum); left arm across front of body with hand open against right side; right hand open palm down on right knee; chair with bent wood supports; height, 44.5 cm.³
- (kk) Seated limestone statuette of a man (Berlin Museum); left arm across front of body with left hand closed on right breast; right hand on right knee but broken away with knees; chair with bent wood supports; height, 42 cm.⁴

Three others are mentioned by Weill in *II^e et III^e Dynasties*, p. 187, but I have not seen them even in photographs:

- (ll) Turin, No. 3065; Petrie's Photo. Turin, Nos. 2 and 3.
- (mm) Bologna, No. 1826; Petrie's Photo. Turin, No. 4.
- (nn) University College, London; Capart's Photo. Nos. 470 and 520.

The statuette of Akhet-a'a in Berlin, of which only the basis is preserved, is of the same general type as those just enumerated but judging from the reliefs which came from the same tomb is to be dated towards the end of Dynasty III, possibly as late as Sneferuw. In Dynasty IV, two types of relief have been found, one high and bold and the other very low and delicate, representing two schools of work probably each connected with a different locality. The Akhet-a'a reliefs are of the bold type and come from a mastaba which seems to have been close to the Amten tomb between Abusir and Saqqarah.⁵

- (oo) Basis of seated granite statuette of Akhet-a'a (Berlin Museum); left arm brought across front of body hand missing; right hand open palm down on right knee; chair with bent wood supports.⁶

Finally, there is the much discussed kneeling figure in red granite in the Cairo Museum, which has the names of Hetepsekhemuwy, Nebra, and Neterymuw inscribed on the back of the right shoulder:

- (pp) Kneeling statuette of a man in red granite (Cairo Museum); hands open palms down on knees; height, 39 cm.; found in 1888 at Mitrahineh (in Ptah Temple?).⁷

Professor Borchardt reads the name doubtfully *Hetep-di-ef*. The man represented was probably a funerary priest of the three kings of Dynasty II whose names are on the shoulder. The inscription proves that the statuette is later in date than any of these kings, but nothing more. The workmanship and the style of the hieroglyphics cannot in my opinion be used as proof of any more exact dating than the period of Dynasty III (including the end of Dynasty II).

The form of chair with bent wood supports occurs in the Nezemankh statuettes and, as Professor Steindorff has pointed out, is represented on the walls of the tombs of Medûm of the time of Sneferuw or of Cheops. The plain wooden throne is shown by the royal statues of Zoser and Khasekhem, and later by the statuette of Amten. Thus in Dynasty III, the plain frame seems to be used for kings and the bent wood frame for persons of lesser station in life.

Making due allowance for the obduracy of the material and the station of persons represented by the "archaic" statuettes, and noting the differences of workmanship in these figures, they are of the quality and the forms which might be expected in the period of the royal works of Zoser and Khasekhem. In Dynasty V, examples are known of granite statues which, differing in attitudes, are as rude and simple in modelling as the earlier statuettes. The differences in execution of the "archaic" statuettes manifestly imply that several different sculptors were active. But the similarities of attitude⁸ and of chair

¹ Weill, *II^e et III^e Dynasties*, p. 255 and Pl. I.

³ Capart, *l. c.*, II, Pl. LI.

⁵ For the Amten statuette see next section.

⁷ Borchardt, *Cat. Gen., Statuen*, No. 1.

² Borchardt, *Cat. Gen., Statuen*, No. 2.

⁴ Steindorff, *Zeitschrift für Aegyptische Sprache*, 1920, p. 26.

⁶ Weill, *l. c.*, Pl. VI.

⁸ The left arm on the front of the body with the hand on the breast or the right side of the body is characteristic. One figure in the Cairo Museum (No. 176) dated by Professor Borchardt to Dynasty IV has this attitude. It is certainly not "archaic."

indicate that all were products of one school and of one period; and the obvious conclusion is that the majority, probably all of them, were made in Dynasty III.

(C) FIGURES OF THE EARLY PART OF DYNASTY IV

I have already mentioned the statues of Princess Redyzet, of Sepa, Nesa, and Akheta'a as being possibly as late as the time of Sneferuw, the first king of Dynasty IV. The next dated piece is the ivory statuette of Cheops found by Professor Petrie in the temple of Abydos. The Harvard-Boston Expedition has found fragments of small alabaster statues inscribed with the name of Cheops, but not large enough to determine the attitudes or the workmanship. Three other figures have been found which are of the reign of either Sneferuw or Cheops:

- (i) Granite seated statuette of Amten (Berlin, No. 1106); right hand closed on breast; left hand open palm down on left knee; chair with plain wooden frame like the Zoser and the Khasekhem statues, and inscribed on sides and back; found by Lepsius in the *serdab* of the Amten tomb between Abusir and Saqqarah. Now in Berlin.¹
- (ii) Limestone seated statue of Prince Rahotep (Cairo Museum); hands as Amten statuette, right closed on breast, left open on knee; plain block throne without molding; found in the *serdab* of tomb at Medûm with the following statue.
- (iii) Limestone seated statue of Nofret, wife of Rahotep (Cairo Museum); arms folded under her tunic with the right hand only visible resting open palm inwards under the left breast; plain block throne without molding; found with the statue of Rahotep.
- (iv) Seated ivory figure of Cheops; crown of Lower Egypt on the head; right hand clasped on breast holding whip; left hand open palm down on left knee; plain block throne.² Now in Cairo.

Mention must also be made of the standing statue of a woman found in the Galarza tomb at Giza and probably representing the mother of Chephren, although the other statues in the tomb were of the Chephren types.

- (v) Standing limestone statue of the mother (?) of Chephren (Cairo Museum); clothed in a curious pleated robe which passes twice around the body; right hand exposed rests on the chest above the breast instead of below; left arm hangs at the side, with the hand open palm inwards against the left hip.³

The most instructive of these figures are the two statues of Rahotep and Nofret, which after the time of Cheops would probably have been joined in a group. The excellence of their modelling is no doubt due to the softness of the material, but it foreshadows the workmanship in hard stone of the time of Chephren and Mycerinus.

The attitudes of all these are characterized by the position of the right hand on the breast while the left rests open on the knee. The first instance which we have of this position is in the limestone statue of Zoser of Dynasty III. But the examples seem to show that the attitude was that generally used in seated male statues in the early part of Dynasty IV.

5. THE ATTITUDES OF STATUES AND STATUETTES

(A) THE STANDING AND SEATED FIGURES OF MYCERINUS

The Mycerinus statues and statuettes include two standing figures of the king,⁴ one standing figure of the queen (?), 21 seated figures of the king, one pair statue with standing figures of the king and queen, and five triads of the king, Hathor and a deity representing one of the nomes of Egypt. The standing figures of the king in the porphyry statuette (No. 40), in the ivory statuette, and usually in the groups, have the left foot advanced and the arms hanging with the hands closed at the hips.⁵ No. 41, a woman, has the feet together, but the queen in the pair statue and the goddess in the triads have the left foot slightly advanced. The seated figures of the king all have the arms bent at the elbows with the left hand flat, palm down on the left thigh, and the right hand closed, resting thumb up on the right thigh,

¹ Lepsius, *Denkmäler*, II, 120, *Text I*, p. 144.

³ Daressy, *Annales X*, p. 43 and a plate.

⁵ The wooden statue (No. 44) had the left arm bent.

² Petrie, *Abydos II*, Pl. XIII.

⁴ Or three, if the wooden statue was standing.

holding the "handkerchief." The pair statue shows the queen with her right arm around the king and her left hand on his left arm; while the six examples of the nome groups present at least five different attitudes in the groups:

- 9.¹ Hathor seated, embracing the king in the attitude of the queen in the pair statue except that he stands on her left; the Hare-nome stands free on the right of Hathor.
10. Hathor on the right, king in middle, and the Theban nome on the left; all stand free with left foot advanced; the two males have the hands closed, while the hands of Hathor are open with the palms against the hips.
11. Hathor on the right with her left arm behind the king and her left hand clasping his left upper arm; the king in the middle with hanging arms and closed hands; the Jackal-nome on the left, with her right arm about the king symmetrical with the left arm and hand of Hathor; the two goddesses have the free arm hanging with a seal in the hand.
12. Hathor on the right with her left hand clasping the right hand of the king and her right hand closed on her hip; the king in the middle, clasping the left hand of Hathor with his right and having the left hand closed on his hip; on the left, the nome of Diospolis parva stands free with closed hands.
13. Hathor on right clasping king's left hand as in No. 12; king in middle as in No. 12; but nome-god (male) on left hand has his left arm behind the king with his left hand clasping top of king's right shoulder.
14. Hathor probably seated in the middle like No. 9, and a male figure stands on her left, but the group is too fragmentary to permit the fixing of the attitudes.

(B) OTHER ROYAL STATUES OF DYNASTIES IV TO VI

The royal statues of Dynasties IV to VI which may be compared with these Mycerinus statues include:

- (a) Seated ivory figure of Cheops found in the temple of Abydos.²
- (b) Seven seated statues of Chephren, five of diorite, one of slate, and one of alabaster; six were found in the Sphinx Temple and one in the temple of Ptah at Mitrahineh.³
- (c) Fragment of a standing slate statue of Chephren, about life-size, from Sphinx Temple.⁴
- (d) Pair statue of Bast and Chephren, diorite, incomplete, from Sphinx Temple; both seated; Bast has her left hand open on her thigh, and the right arm was probably around the king, who sits on her right. Height, 53 cm.⁵
- (e) Seated diorite statuette of Mycerinus, from Ptah Temple at Mitrahineh; height, 55 cm.⁶
- (f) Seven badly preserved limestone statues of the family of Chephren from the Galarza tomb at Giza.⁷
- (g) Seated alabaster statuette of an unnamed king (perhaps Dedefra), from the Ptah Temple at Mitrahineh. Height, 64 cm.⁸
- (h) Seated granite statuette of Neweserra (Dynasty V) from the Ptah Temple at Mitrahineh.⁹
- (i) Lower part of standing granite statue of Neweserra, with the right hand closed on hip and the left arm probably on breast, found in the lake at Karnak by Legrain;¹⁰ height, 61 cm. Of dark stone.
- (j) Seated alabaster statue of Menkauwhor (Dynasty V), wrapped in *heb-sed* garment, from the Ptah Temple at Mitrahineh; height, 48 cm.¹¹
- (k) Basis of a seated statuette of Pepy (Dynasty VI) bought at Kom-el-Ahmar; grey stone; height, 26 cm.¹²
- (l) Standing copper pair of Pepy I and his son, from Hierakonpolis; the king a little more than life-size; right hand closed at right hip, left extended holding staff; prince with both hands closed at hips.¹³

With two exceptions, the alabaster statue of Menkauwhor (*j*) and the copper statue of Pepy I (*l*), these royal figures show the same attitude as the Mycerinus statues. The variation in the Menkauwhor statue is due to the fact that he is represented in the garment of the *heb-sed* festival. The Pepy statue is of metal and presents a tradition derived from sculpture in wood, not stone.¹⁴

¹ See list on p. 109.

³ Borchardt, *Cat. Gen., Statuen*, Nos. 9, 10, 13, 14, 15, 17, and 41.

⁵ *L. c.*, No. 11.

⁷ Daressy, *Annales*, X, pp. 41-49.

⁹ *L. c.*, No. 38.

¹¹ Borchardt, *l. c.*, No. 40.

¹³ Quibell, *Hierakonpolis, II*, Pl. L.

² Petrie, *Abydos II*, Pl. XIII.

⁴ *L. c.*, No. 16.

⁶ *L. c.*, No. 42.

⁸ Borchardt, i, No. 39.

¹⁰ Legrain, *Cat. Gen., Statues*, No. 42003.

¹² *L. c.*, No. 43.

¹⁴ The upper part of an alabaster statue published by Professor Petrie in *Ancient Egypt*, 1923, Part I, is not included in the above list of royal statues. It is not of the workmanship of the statues of Dynasty IV and is certainly not a portrait of Mycerinus, as any one will perceive who compares it with our plates. The absence of the uraeus, the nondescript feathered garment on the back, the careful sparing of the face from damage, all raise grave suspicions of the genuineness of the piece. Personally I am of the opinion that the piece is a modern forgery. Professor Petrie refrains from informing us when and where it was purchased or by whom.

(C) ATTITUDES IN PRIVATE STATUES OF DYNASTIES V AND VI

The seated attitude and the standing attitude are usual in the stone statues and statuettes of Dynasties V and VI. The chief variation is in the attitude of the seated figure and consists in turning the closed right hand over so that the knuckles are upward. In Borchardt's catalogue of the statues in the Cairo Museum, 61 Old Kingdom figures have the traditional attitude while 36 present the variation just mentioned. The standing attitude is almost universal in stone figures (34 single and 10 in groups), while the attitude of the Pepy statue is traditional in wooden figures (9 examples). In the group attitudes of the Old Kingdom there is a great variation. The attitude of the slate pair is repeated by two groups in the Cairo Museum.¹ Of the twelve other groups, many similarities may be observed in the attitudes of the triads, Nos. 9-14, and other similarities may well have been represented in the triads which have been destroyed.² Thus it may be said in general that the attitudes of the Mycerinus and the Chephren statues were the prevailing traditional types for royal persons and subjects used by the sculptors of Dynasties V and VI.

(D) CHRONOLOGICAL ORDER OF ATTITUDES USED BY EGYPTIAN SCULPTORS

The figures and statues cited in this and the preceding section show clearly that three different positions of the hands and arms were traditional at three different periods:

- (1) The *left* hand on the front of the body is characteristic of all the so-called "archaic" statues which date from Dynasty III and probably as late as the reign of Sneferuw. This was one of the attitudes of the ivory figures of the Early Dynastic Period, the true archaic period.
- (2) The *right* hand on the front of the body is characteristic of Cheops statues and was probably the tradition during his reign.³
- (3) The right hand closed on the right knee of the seated statue with the left hand open on the left knee first appears in the royal statues of Chephren. The standing statue of the same period had the arms hanging and the hands closed at the hips, thumb forward.

The wooden statues of Dynasties V and VI often followed the traditional standing and seated attitudes in stone.⁴ But these are to be regarded as mere substitutes for stone statues, and the special attitude in wood of the standing statue of a man was that of the Sheikh-el-Beled. There are at least nine examples of this attitude among the statues of the Cairo Museum and many others are known. The wooden statues of women and children did not differ in attitude from the stone statues.

(E) INFLUENCE OF THE STATUES OF CHEPHREN AND MYCERINUS ON PRIVATE STATUES OF DYNASTIES V AND VI

There are 100 seated figures of men in the Cairo Museum of the Old Kingdom, including those in groups. Of these, 60 follow the traditional Chephren position and 36 present only a slight variation in the position of the closed right hand, which is turned palm down instead of with the thumb up. Of these 36, at least 31 were from Saqqarah and are to be dated to Dynasty V. I suggest that they were made by one sculptor or a small group of sculptors who lived at Memphis and had adopted this slight variation from the Giza tradition. The Giza tradition was probably the official tradition, as the only royal statue of Dynasty V, that of Neweserra (*h*, above), presents the Chephren attitude. After deducting these two groups, the 60 of the Giza school and the 36 of the Saqqarah school, only four of the 100 statues remain which present other variations. In two of these it is the left hand which is closed on the knee and in two (one of them from Abydos) both hands are closed.⁵ The male standing figures and the seated female single figures present almost no variations. Two of the single standing statues of women have the left foot slightly advanced like the queen in the Mycerinus slate pair; and one female in a standing pair statue with a man has her hands closed at her side like her male companion.⁶

¹ Borchardt, *l. c.*, Nos. 105 and 151.

² See Borchardt, *l. c.*, Nos. 6, 22, 101, 151, 158, 55, 89, 125, 84, 95, 100, 105, 107, 123. It is to be noted that in No. 107, the man standing holds with his left hand the right elbow of the seated woman, his mother.

³ The statue of Zoser found by Mr. C. M. Firth at the Step Pyramid in 1924 shows this same attitude in Dynasty III.

⁴ See Borchardt, *l. c.*, Nos. 148 and 380, seated; Nos. 125, 155, and 270 standing.

⁵ See Borchardt, *l. c.*, Nos. 64, 87, 102, and 219.

⁶ See *l. c.*, Nos. 271, 274, and 275.

(F) SUMMARY

The present evidence is fairly clear. Two of the dated pieces, those of Nezemankh and of King Khasekhem, have wooden chairs and the left arm in front of the body but are of very different workmanship. That of Zoser, having also a wooden chair, has the right arm in front of the body. The Khasekhem and Zoser figures present the royal work of Dynasty III, and the Nezemankh statuettes the private work of the same period. There is no good reason for dating any of the other archaic statuettes previous to this period. It is quite possible that no hard stone statuettes, royal or private, were made before Dynasty III, or at any rate before the last two reigns of Dynasty II, but the evidence does not force that conclusion. The royal statues of Dynasty III (Zoser and Khasekhem) show that a few royal craftsmen had already attained the power of carving very good and probably fairly life-like portraits. It is to be presumed that they made figures of almost all of the kings of that dynasty. The lesser craftsmen, taking granite as their favorite material, met the demand of the official class with a much ruder product, which imitated the attitudes and the forms of the royal statuettes. The statues of Redyzet and Sepa on the other hand are of a much more tractable material (limestone) and are probably from the end of the dynasty or from the time of Sneferuw.¹ The next step is presented by the limestone statues of Prince Rahotep and his wife Nofert, who were of the family of Sneferuw but were probably interred in the reign of Cheops, which exhibit many of the high qualities of Egyptian sculpture at its best.

The craftsmen of the time of Cheops, and perhaps a little earlier, gave their seated statues a new form, so that clearly in that time the archaic tradition was not felt to be binding. As far as our present evidence goes, it was the sculptor or the group of sculptors who worked for Chephren and then for Mycerinus, who found a form more acceptable to the Egyptian court of that day as conveying the correct impression of royalty. Chephren, for whom the first work was executed by this new school, had 22 or 23 life-size statues in his Valley Temple alone, and probably as many more in his Pyramid Temple, while the many fragments of smaller statues indicate a total of between 100 and 200. Mycerinus had perhaps even more. The triads alone must have numbered 42. Thus between 200 and 400 statues and statuettes, mostly of alabaster and diorite, were carved, probably by a single generation of sculptors. These craftsmen must have had a large number of apprentices, who would become master sculptors in the course of such abundant employment. Thus Dynasty V opened with a numerous school of sculptors trained in the workshops of Chephren and Mycerinus. At the same time the development of stone architecture during the building of the pyramids of Dynasty IV led to an extensive exploitation of the quarries, especially of the beds of fine white limestone at Turah, and had produced improved methods of cutting stone and created a great body of expert quarrymen and transport workers. For all practical purposes, the pyramid workshops were great schools of the crafts and laid the foundations for the development of sculpture and architecture in the following periods.

The creation of a large body of sculptors and the provision of the soft white limestone of Turah, reduced the cost of making statues and created all the circumstances which permitted, almost forced, the great expansion of Egyptian sculpture in Dynasties V and VI. Every great official at Giza and Saqqarah had his life-size portrait statues placed in his tomb, and practically every minor official managed to obtain statues of some sort. Farther away from the capital city, statues and statuettes occur infrequently. Never again were so many statues made in any period of Egyptian art, and never again were statues within the reach of persons of moderate means. The sculptors naturally copied the forms of their masters, the creators of the statues of Chephren and Mycerinus, and except for the one slight innovation of the craftsmen of Saqqarah, these forms became the traditions of Egypt of the Old Kingdom.

It is curious that so few of the statues of the kings of Dynasty V have been found. The *serdabs* of the pyramid temples of Abusir must have contained numbers of statues. The German expedition which excavated the pyramids at Abusir found only one small fragment, the mouth of a nearly life-size and beautifully modelled statue in alabaster in the Sun Temple of Weserkaf, but discovered five statue-

¹ It was the use of the soft fine-grained Turah limestone, which permitted the expansion of Egyptian sculpture in Dynasty V, after the great activity in hard stone in Dynasty IV.

niches in each of the pyramid temples as well as storerooms with wide floor areas. These temples, like the pyramid temple of Chephren, had been inwardly greatly destroyed, and the statues which they once contained, had been exposed to the destructive inclinations of the local inhabitants for thousands of years. Thus, the few examples of royal statues of this period come from elsewhere.¹

In later times, after the Old Kingdom, the attitude of the standing statue persisted to the very end as the predominating type. The seated statues of the Middle Kingdom and the New Kingdom generally followed the Saqqarah variation with the right hand turned down. Other forms were also introduced, and the pages of catalogues, such as Legrain's great find at Karnak, present a variety of attitudes in contrast to the almost monotonous material of Borchardt's catalogue of the statues of the Old Kingdom.

6. THE COLORING OF THE MYCERINUS STATUES

The traces left on the statues of Mycerinus, in particular on the slate pair and the triads, prove that all his statues were painted or intended to be painted in the ordinary conventional colors of the Old Kingdom private statues. The best examples of this coloring are perhaps the statues of Rahotep and his wife, Nofert, from Medûm, and now in the Cairo Museum.² When the coloring was perfect, the material of which the statue was made was of course indistinguishable, and the examples of limestone statues show that the finer modelling was slightly obscured. From a modern artistic point of view the coloring of ancient statues seems a denial of artistic appreciation, and there is no doubt that artistic appreciation was not considered in the intent of the sculptor. He was a realist producing a practical implement, according to the ideas of the time, for securing a satisfactory future life to the man portrayed. The portrait must be a replica of the man in order properly to serve his spirit after death. For that purpose the color was essential, and, if it was laid on with an elementary sense of the use of paint, at any rate it supplied those qualities which, to the Egyptian eye and mind, were necessary to complete an image of the man or woman. A few of the statues were placed in the open rooms of the temple, but most of them were interned in cells in the masonry, never to be seen after they were set in place.

7. COMPARISON OF THE PORTRAITS OF MYCERINUS AND CHEPHREN

The statues Nos. 1, 9-12, 17, 18, and 22 offer eight portraits of Mycerinus for comparison. The identification of all of them is certain. Six directly by inscriptions, No. 22 by its attribution to the inscribed basis No. 19, and No. 17, the slate pair, by its unfinished condition and its provenience. In addition to these eight, the youthful head is possibly also a portrait of Mycerinus, belonging to inscribed basis No. 21. The head of the small diorite statuette found at Memphis and those of the statuettes of the Mycerinus Valley Temple, are of secondary importance.

Of the queen of Mycerinus, Khamerernebt II, the face in the slate pair is the only one which is actually a portrait. But in all periods, the Egyptian craftsmen represented the faces of the gods and goddesses in the likeness of the king, "the good god" who ruled Egypt, and his queen. Thus the face of the Theban nome in triad No. 10 is similar to the face of Mycerinus in the same triad, and the faces of the goddess Hathor and the female nomes are patently the face of the queen in the slate pair. Thus in reality the seven faces of the goddesses and nomes in the four triads may be counted as portraits of the queen.

The first point which strikes the attention is that no two of the principal portraits of Mycerinus are exact duplicates. The three large alabaster statues, Nos. 1, 18, and 22, present a certain general resemblance, especially about the mouth with its full and slightly drooping lower lip; but the face is wider and more rounded in No. 1 than in No. 18, and in No. 22, it is almost corpulent. The four faces of the king in the triads, which are smaller but vary little in size, also differ from one another, although all have the drooping lower lip, the round nose, and the bulging eyes of Mycerinus. The face in the triad of the Hare-nome, No. 9, is nearly like that of the great alabaster statue, No. 1; but the other three have lines

¹ The seated statue of Neweserra, Cairo Museum, No. 38; the seated *heb-sed* statue of Menkauwhor, Cairo, No. 40; and the lower part of the statue of Neweserra, Cairo, No. 420003. There are also several statuettes dedicated by kings of the Middle Kingdom, which bear the names of kings of Dynasty V.

² Borchardt, *l. c.*, Nos. 3 and 4.

or modelling about the mouth and a higher arching of the eyebrows, which give those faces a leaner and more severe expression. Now the face of the king in the slate pair is of the severe type of the three triads Nos. 10–12 and is most nearly like that of No. 12; and all these five examples of the leaner type of face have the drooping underlip, the rounded nose, and the bulging eyes of the other portraits. The conclusion seems obvious to me that the portraits of Mycerinus present two versions of the king's face, such as would be most plausibly ascribed to two different sculptors. I designate hereafter the two versions of the face and the two sculptors by the letters A (the severe type) and B (the softer rounded type).

Now the examples of type B in the alabaster statues Nos. 1, 18, and 22 present minor variations as noted above, and the same may be said of the examples of type A in the slate triads and the pair statue. The variations in the examples of B, if the youthful head, No. 23, be taken as a portrait of Mycerinus, would seem to present the face of the king in four different stages of his life from youth to full maturity (35–40 years old). But the variations in the examples of B seem to favor another explanation. The alabaster statue, No. 18, was manifestly not far advanced in state VII, when it was hastily polished and inscribed merely with the name of the king. The only alabaster head which was completely finished was No. 22. It seems therefore that the variations in type B were partly due to the unfinished condition of the statues. In general the variations in both groups appear to me to be due to the different degrees of care which were devoted to the working up of the details in state VII. In the case of type A, I suspect that the triads lacked the touch of the master, at any rate in the case of triad No. 10.

The portrait of Chephren is now known from five faces, the face of the Great Sphinx, that of the famous diorite statue, the smaller face of the slate statue (Borchardt's No. 15), the quarter-size face of the alabaster statue from Memphis (Borchardt's No. 41), and probably the diorite face from the Siglin Excavations at the Second Pyramid (*Chephren*, Blatt XIV). Other fragments from the Siglin excavations and from those of the Harvard-Boston expedition are probably also parts of the face of Chephren statuettes. These faces of Chephren present a family resemblance to the faces of Mycerinus as does also the face of the Chephren queen (Siglin fragment No. 56) to the queen of Mycerinus; and I have no doubt that Chephren was the father of Mycerinus and his queen (Khamerernebtly I) the mother of the queen of Mycerinus (Khamerernebtly II). But the faces of the two kings have distinct differences, for the faces of Chephren have higher cheek bones and more slender jaws.

Now the portraits of Chephren show again two versions of the face differentiated like the two versions of the face of Mycerinus. The larger statues, the Sphinx, the great diorite statue, and the slate statue, present the lean severe face of type A of Mycerinus while the alabaster statue and the diorite head (Siglin fragment No. 1) have the softer contours of type B. Yet the examples of both types of the Chephren portrait differ from the examples of the corresponding types of Mycerinus. It may be added that these differences are not caused by the varying qualities of the stones of which the statues were made, as both style A and style B occur in the same three stones, alabaster, diorite, and slate, although style B occurs more often in alabaster in the Mycerinus statues. Thus the examination of the Chephren portraits strengthens the conclusion that the two styles A and B arose from the individual characteristics of two different sculptors and leads to the further deduction that these two sculptors, or at least they and their pupils, worked for both Chephren and Mycerinus.

I would assign to sculptor A, the creator of the more severe type of portrait, the following works:

1. The Great Sphinx, cut in the natural nummulitic limestone.
2. The famous diorite statue of Chephren found in the Chephren Valley Temple and now in the Cairo Museum.
3. The slate statue of Chephren, found with No. 2.
4. Various fragments from Chephren pyramid temple,¹ No. 7 of alabaster, and perhaps No. 2 of hard stone. Also alabaster fragments found by the Harvard-Boston Expedition in workshops in the great cemetery, associated with fragments bearing the name of Chephren.
5. The beautiful slate pair of Mycerinus and the queen, No. 17, in my list.
6. Mycerinus triad, No. 10, slate.
7. Mycerinus triad, No. 11, slate.
8. Mycerinus triad, No. 12, slate.

¹ See Borchardt in Hoelscher, *Chephren*, pp. 92–104.

Perhaps by apprentices of A:

9. The very small head in pink limestone from Chephren pyramid temple.¹
10. The Mycerinus statuette, No. 37, fine hard white-veined red stone.

To sculptor B, whose works are softer and more delicately modelled, I would assign the following:

1. The alabaster statue of Chephren, found at Memphis.
2. The Siglin head, probably Chephren, diorite.²
3. Various fragments of the Siglin Expedition, probably Chephren.³
4. The great statue of Mycerinus, No. 1, alabaster.
5. The complete statue of Mycerinus, No. 18 (in Cairo), alabaster.
6. The finished statue, Nos. 19+22, of Mycerinus, alabaster.
7. The youthful head of Mycerinus or Shepseskaf, No. 23, alabaster.
8. The Mycerinus triad, No. 9, slate.

Perhaps by his apprentices:

9. The small statuette of Mycerinus from Memphis, diorite.
10. The unfinished statuettes of Mycerinus, Nos. 32, 35, 36, and perhaps the whole series Nos. 25-31, all of diorite.

Thus in the reign of Chephren, the larger statues of the king known to us are by sculptor A, while in the reign of Mycerinus, the larger statues, except the slate pair which is less than life-size, are by sculptor B. It may perhaps be concluded that sculptor A was the elder and was chief sculptor in the time of Chephren, that the great activity of sculptor B was in the reign of Mycerinus; but the examples of statues preserved to us are only a small part of the large number made for these two kings.

Unfortunately no stone statue of Sneferuw or of Cheops has been yet brought to light to enable us to carry the history of the statuary of this great period a step further back. The fragments found by M. Chassinat at Abu Roash show, I think, that one at least of the same men worked for Radedef as for Chephren and Mycerinus. The statues of Prince Rahotep and his wife Nofert from Medûm are in limestone, a much more tractable material than the slate, alabaster, and diorite of the Chephren and Mycerinus statues. Nevertheless they were probably the work of the royal sculptor of the time of Cheops and as far as can now be seen should represent the style of the immediate predecessor of sculptors A and B. It is possible that the first statues of great excellence in hard materials were made by this predecessor; but if not, the art of the delicate modelling of hard-stone portraits was created by one of the two Chephren sculptors, probably by A.

The most striking result of the above examination of the portraits of Chephren and Mycerinus is the conclusion that sculptor A carved three of the greatest known works of Egyptian art:

The Great Sphinx.

The famous Chephren statue in diorite.

The beautiful slate pair of Mycerinus and Queen Khamerernebtj II.

As manifested by these works, this nameless sculptor A was a very great and courageous artist who probably exercised a decisive influence on Egyptian sculpture in this period. The sculptor B, his pupil or his rival whichever he may have been, was perhaps a greater craftsman even than A. The wonderful modelling of the faces in his alabaster statues of Mycerinus surpasses that of the faces carved by A, and his treatment of the muscles, tendons, and patella in the knees of the large alabaster statue of Mycerinus (No. 1) is unexampled in the history of Egyptian art. Judging solely by the material now available, sculptor A appears to me to be a roadbreaker, not so much an idealist as the creator of the formula of a type of face which influenced all his work. Sculptor B, in spite of the softness and plasticity of his work, was a realist, striving for a life-like portrait of the face he was reproducing. Whatever may have gone before them, these two men were without doubt the teachers of the swarm of sculptors in the round who flourished in Dynasty V, and were responsible for the great expansion of Egyptian statuary which followed immediately on their activity under Chephren and Mycerinus.

¹ See Borchardt, *l. c.*, No. 3.

² See Borchardt, *l. c.*, No. 1.

³ See Borchardt, *l. c.*, No. 5, diorite, and No. 8, alabaster.

CHAPTER VIII

STONE VESSELS

1. HISTORY OF THE DEVELOPMENT OF EGYPTIAN STONE VESSELS FROM THE PRE-DYNASTIC PERIOD TO DYNASTY V

(A) THE STONE VESSELS OF THE PRE-DYNASTIC PERIOD

STONE vessels are rare in ordinary graves in all periods of Egyptian history, except during the first three dynasties. Their occurrence in predynastic graves is indicated by the following examples of cemeteries of that period:

1. El-Amrah (incomplete record)	33 vessels	108 graves
2. El-Mahasna (empty graves omitted)	3 "	132 "
3. Ballás (mss. notes; all graves)	7 "	401 "
4. El-Ahaiwah (mss. notes; all graves)	12 "	285 "
5. Mesa'eed (mss. notes; all graves)	<u>20</u> "	<u>728</u> "
Totals	75 "	1654 "

The number of pottery vessels in the cemeteries of which I possess complete records is nearly one hundred times the number of stone vessels. The proportion varies greatly from cemetery to cemetery according to the apparent wealth of the community. In each cemetery the stone vessels occurred usually in the richer graves, and often in groups of two to seven in single graves. Thus:

Graves T 5, T 16, and 743 at Naqada¹ each contained five stone vessels.

Grave 17: 83 at Khor Ambukol² contained seven.

Grave b 62 at El-Amrah³ contained five.

And other examples might be cited.

The most characteristic material used for stone vessels in the Predynastic Period is basalt; but alabaster, limestone (especially pink), red and white breccia, porphyry, and syenite also occur.

The vessels have been hollowed by boring. The boring marks are coarser and less regular than in the later stone vessels and appear to have been produced by a different method of boring, perhaps not by using the crank-borer represented in the reliefs of the Old Kingdom. The hole bored by the predynastic borer is of two forms: (1) straight sided with fine striation marks due to a continuous boring from top to bottom with one stone; and (2) concave sided with broad concave grooves finely striated due to boring with stones of different sizes or rubbing with a stone held in the hand. The interior has seldom been dressed smooth except in bowls. The exterior surface has usually been beautifully dressed by rubbing, not turning. The holes in the pierced handles have been drilled from both sides and show a good deal of play in the tool.

The Predynastic Period covered a considerable length of time, and a distinction must be drawn between the vessels of the Early Predynastic (E. P.), the Middle Predynastic (M. P.), and the Late Predynastic (L. P.). A fourth division comprises the so-called Dynasty O, which is intimately connected with that part of Dynasty I which was previous to the death of Menes or, perhaps, previous to King Zer.

The vessels are here classified into twelve principal types, for the sake of convenience. Types I–VIII are jars of various sorts; types IX–XI are cups, dishes, and bowls; and type XII includes the tables. Some other classification might easily have been found, but this seems to me practical for the purpose. A few vessels of peculiar form, "fancy" vessels as they have been labeled by Professor Petrie, have not been included — sack-like jars, frog form pots, etc. The types which can be definitely described as predynastic are only six in number, types I, II, III, IV, IX, and X. In addition, types V,

¹ Petrie, *Naqada and Ballás*, pp. 19–20.

² Reisner, *Nub. Arch. Sur. 1907–08*, p. 125.

³ MacIver and Mace, *El-Amrah and Abydos*, p. 20.

VI *a*, and XI are each represented by one or two examples which are, however, modifications of types II and IV and certainly not the forms attached to these types in Dynasty I. The above types occur in the different predynastic periods as follows:

- | | | |
|-----------------------------------|-------|---|
| (a) Early Predynastic (E. P.) | ..... | Types I and II alone. |
| (b) Middle Predynastic (M. P.) | | Types I and II continue.
Types III, IV, and IX begin.
Types V, VI <i>a</i> , and XI occur sporadically. |
| (c) Late Predynastic (L. P.) | | Types I, III, IV, and IX continue.
Type X <i>a</i> begins. |
| (d) Dynasty O — Menes (Dynasty O) | | Types I, III, IV, V, IX, and X continue.
Types VI <i>b</i> , VII, and VIII begin. |

The poverty of the type forms of the Predynastic Period, and especially of the E. P., is striking in comparison with Dynasty O and, as will appear later, the forms of Dynasty O are few in comparison with those of the Early Dynastic Period when a multitude of sub-types are represented by examples in the tombs.

It is to be noted that:

- (1) The E. P. and the M. P. are firmly tied together by types I and II.
- (2) The M. P. and the L. P. are joined by types I, III, IV, and IX.
- (3) The L. P. and Dynasty O are connected by the same types — I, III, IV, IX, and X.

Dynasty O and the archaeological group of Menes are admittedly one. The group of Menes has from the first been recognized as intimately joined to that of the succeeding kings of Dynasty I. Thus the types of stone vessels developed progressively from the E. P. to the Early Dynastic Period, indicating that the Egyptians of Dynasty I were the historical descendants of those of the E. P. This conclusion applies also to the pottery, the flints, the copper weapons and tools, and both grave and burial types. Thus the archaeological evidence proves that the Egyptians from the E. P. to the Dynastic Period are one race developing from the use of stone to the full practical use of metal. There is no evidence of the introduction of foreign culture and, I believe, no archaeological evidence of the influx of a foreign race, the so-called "dynastic race." I am aware of the results of the measurements of bones, but the somatological material is very defective, and the results of the anatomists are far from conclusive.

(1) *Type PD-I. Cylindrical Jar*

The cylindrical jar begins certainly in the Early Predynastic Period. The variations of the form are almost as many as there are jars, and all are rather irregular and clumsy. Predynastic cylindrical jars are characterized by the absence of the cord in relief around the neck. The materials are ivory, basalt, limestone, and alabaster. I suggest that the form is a natural one for wood or ivory and that the stone forms were derived from earlier wood or ivory jars. The following examples may be cited:

Type PD-I

- (1) Ayrton and Loat, *El-Mahasna*, grave H 29, two ivory, one alabaster, and one limestone. Early Predynastic (Fig. 23, Nos. 1-4).
- (2) Reisner, *Nub. Arch. Sur. 1907-08*, Pl. 64 b,
Grave 17:6, Nos. 3 and 10 (both alabaster). Early Predynastic.
Grave 17:83, Nos. 2, 3, 4, two of alabaster and one of basalt. Middle Predynastic.
- (3) Petrie, *Diospolis parva*,
Grave B 102, three alabaster and one limestone. Early-Middle Predynastic (Fig. 23, No. 5).
Grave B 122 (Pl. VI), material not given, grave not described.
Grave U 290, one basalt, grave not described.
Grave U 384, one basalt, grave not described.
- (4) MacIver, *El-Amrah*, grave a 16, one "stone" jar; and a 95, three basalt. Both Middle Predynastic (Fig. 23, No. 6).
- (5) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, grave 28, No. 1, alabaster. Middle Predynastic (Fig. 23, No. 7).
- (6) Hearst Expedition, *mss. notes on Ballás*,
Grave 30, No. 2, limestone. Middle Predynastic.
Grave 144, No. 7, alabaster. Late Predynastic.

- (7) Petrie, *Nagada and Ballás*, Pl. X, 3-11. The insufficiency of the published record renders the dating of these examples very difficult. None of them appears to be earlier than the Late Predynastic.
- (8) Harvard-Boston Expedition, *mss. notes on Naga-'l-Hai*, grave 2131, basalt. Late Predynastic (Fig. 23, No. 8).

Other examples were found by our expedition in the graves of the Early and Middle Predynastic Periods in Cem. 6000 at Naga-'d-Dêr, but none at all in the Late Predynastic Cemetery at El-Ahaiwah.

(2) *Type PD-II. Egg-Shaped Jar with Foot and Handles*

The egg-shaped jar occurs in both bulging and slender elongated examples, and almost always with foot and two horizontally pierced handles. The examples without foot had, I believe, a foot made of a separate piece, perhaps wood. The examples without foot and those without handles are rare. The most usual material is basalt, but breccia and limestone also occur.

The type is well attested in the Early Predynastic Period and again in the Middle Predynastic Period, but it is doubtful whether any examples have been found in the Late Predynastic Period. After that

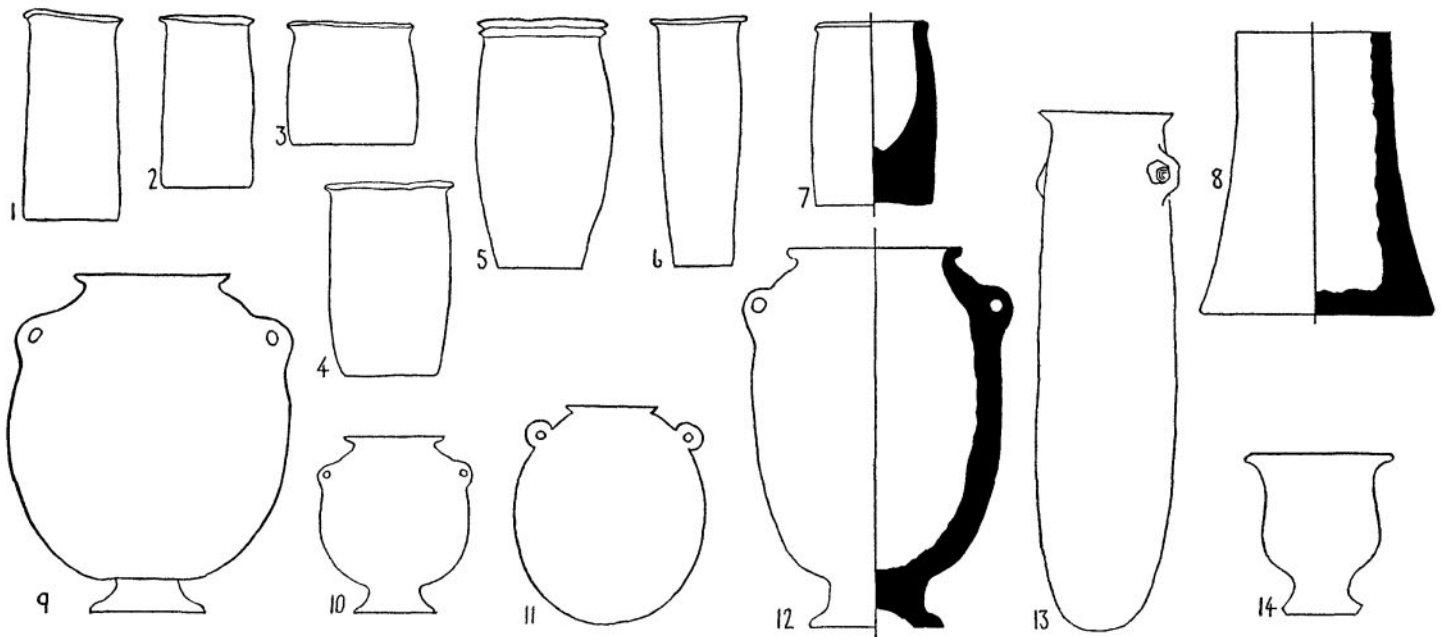


FIGURE 23. PD STONE VESSELS, TYPES I, II. SCALE $\frac{1}{4}$

time I know of none except the two from the Mycerinus valley temple. The bulging variation seems to be the original type-form, while the elongated examples are generally of the Middle Predynastic Period. The foot is curious and difficult to explain. The stone and metal vessels with foot of the Early Dynastic Period and Old Kingdom are usually compounded of a jar or a bowl with a stand or a ring-stand. The broad foot of the *hes*-jars and of the narrow cylindrical jars is produced by splaying the lower part of the body of the jar. But these predynastic jars have a foot more like that of the cups and goblets of the New Kingdom. A few copies in black polished pottery are known, but are later than the Early Predynastic Period. The one ivory jar of this type is of the elongated form and comes from a grave not earlier than the late Middle Predynastic Period (see below, example No. 12). The form obviously suggests an egg (ostrich egg) or a gourd on a small ring stand of wood or cloth; but in the absence of any examples speculation is futile. The type occurs in stone in the Early Predynastic Period; it presents the first examples of vessels with two handles horizontally pierced, and has a foot of unique form.

The examples are:

Type PD-II a, bulging form with foot and handles.

- (1) Petrie and Quibell, *Nagada*, Pl. IX, form H 70, from graves 218 and 271, late Middle Predynastic; form 72, from graves 271, late Middle Predynastic, and 1241, Middle Predynastic; form 69, miniature, from grave T 4, Middle Predynastic.

- (2) MacIver, *El-Amrah*, grave B 144, basalt, Early Predynastic; a 66, limestone, Middle Predynastic; grave a 33, basalt, miniature, late Middle Predynastic; grave a 68, miniature, late Middle Predynastic.
- (3) Petrie, *Diospolis parva*, Pl. IX 5 and 7, basalt, from grave B 56, Early Predynastic (Fig. 23, Nos. 9 and 10).
- (4) Ayrton and Loat, *El-Mahasna*, grave H 30, basalt, Early Predynastic.
- (5) Reisner, *Nub. Arch. Sur. 1907-08*, grave 17:83, two of basalt and one of breccia, Middle Predynastic; grave 17:50, basalt, Middle Predynastic.
- (6) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, grave 20, basalt, Early Predynastic; grave 981, limestone, late Middle Predynastic.

Type PD-II b, bulging form with handles but no foot.

- (7) Petrie and Quibell, *Naqada*, Pl. XII, form S 71, from grave T 5, Middle Predynastic (Fig. 23, No. 11).

Type PD-II c, slender form (sometimes elongated) with foot and handles.

- (8) Petrie and Quibell, *Naqada*, Pl. IX, form H 67, from grave 271, late Middle Predynastic; form 71, from grave T 4, Middle Predynastic.
- (9) MacIver, *El-Amrah*, grave b 220, basalt, late Middle Predynastic.
- (10) Petrie, *Diospolis parva*, Pl. IX, 6, limestone, irregular form, from grave B 133 (not described); grave 56, basalt (Pl. V), Early Predynastic.
- (11) Peet, *Cemeteries of Abydos II*, Pl. XXVII, grave U 1, Middle Predynastic.
- (12) Ayrton and Loat, *El-Mahasna*, grave H 38, limestone, Middle-Late Predynastic; grave H 23, ivory, Middle-Late Predynastic.
- (13) Reisner, *Nub. Arch. Sur. 1907-08*, grave 17:83, basalt, Middle Predynastic.
- (14) Hearst Expedition, *mss. notes on Ballás*, grave 309, basalt, Middle Predynastic.
- (15) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, grave 29, basalt, Early Predynastic (Fig. 23, No. 12); grave 744, basalt, Middle Predynastic.

Type PD-II d, slender form without foot.

- (16) Petrie and Quibell, *Naqada*, Pl. IX, form H 62, no provenience discoverable (Fig. 23, No. 13).

Type PD-II e, slender form with foot but no handles.

- (17) Petrie and Quibell, *Naqada*, Pl. XII, form S 62, graves 1417 and 1487, Middle Predynastic.
- (18) Quibell and Green, *Hierakonpolis*, Pl. LXIV, 16, basalt, from "prehistoric cemetery" (p. 50b); No. 20, twin vase of same type, basalt, same provenience.
- (19) Petrie, *Diospolis parva*, Pl. IX, 18, basalt, grave U 134, not described (Fig. 23, No. 14).

(3) Type PD-III. Spheroidal Jar with Two Horizontal Handles

Professor Petrie in *Naqada and Ballás*, Pl. VIII, forms H 1-5, reproduces a series of spheroidal jars with two horizontal handles, but a painstaking search of the text has revealed the provenience of only one example. These jars are now well known from the beautiful vessels found in the royal tombs at Naqada and Abydos, and a number of examples are dated with certainty to Dynasty I. In the Middle Predynastic Period the form was freely used for a fine series of painted pottery vessels and persisted into the Late Predynastic. Some of the pottery examples are painted with obvious imitations of hard stone, and possibly even those with spirals or zones of wavy lines are also intended to be imitations of hard stone. These facts suggest that the form was originally a stone form. One example in stone is recorded from the Middle Predynastic Period (pottery form in same tomb), five others from the late Middle Predynastic or early Late Predynastic. Two miniature jars are from about the same period. Thus there can be no doubt that the type belongs to the predynastic corpus. It is to be noted that all the examples are of the round-bottomed type; but cf. Type PD-IV d, miniatures.

Type PD III a (1), round-bottomed, large forms:

- (1) Petrie and Quibell, *Naqada*, Pl. VIII, form H 2, from grave 430, Middle Predynastic (Fig. 24, No. 1).
- (2) Petrie, *Diospolis parva*, grave b 217, breccia, late Middle Predynastic (Fig. 24, No. 2).
- (3) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, four of limestone, from grave 982, late Middle Predynastic.

Type PD III a (2), round-bottomed, miniature forms (Fig. 24, No. 3).

- (4) Petrie, *Diospolis parva*, two limestone, from grave b 62, late Middle Predynastic.
- (5) Hearst Expedition, *mss. notes on Ballás*, grave 3, limestone, late Middle Predynastic.
- (6) Firth, *Nub. Arch. Sur. 1909-10*, Pl. 28 a 2, breccia, from grave 102-199, Late Predynastic.
- (7) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, alabaster, from grave 873, Late Predynastic.

(4) *Type PD-IV. Barrel-Shaped Jar with and without Handles*

The barrel-shaped jar has usually two horizontally pierced handles, and this variation is probably to be marked as the original type. The majority of the examples have a flat disc base, but many have only a plain flat base. The widest part of the jar is usually at or near the middle (Type PD-IV a), especially in the earlier form, but is higher up in others (Type PD-IV b), forming often a true shoulder jar. Type IV has not been recorded before the Middle Predynastic Period. The most usual material among the older jars is basalt; but porphyry, syenite, and breccia also occur.

The following examples may be cited:

Type PD-IV a (1), barrel-shaped with disc base. Fig. 24, Nos. 4-6.

- (1) Petrie and Quibell, *Naqada*, Pl. VIII, forms H 28, 29, materials not given, from graves T 5 (three) and 1241, Middle Predynastic; from graves T 16, 421, and 1247, Late Predynastic.
- (2) Quibell and Green, *Hierakonpolis II*, Pl. LXVII, diorite (?) from the "painted tomb," Late Predynastic, or Dynasty O.
- (3) MacIver, *El-Amrah*, grave b 119 ("stone"), b 62 (two of marble), b 225 (basalt), all late Middle Predynastic; grave b 232, breccia, Late Predynastic.
- (4) Hearst Expedition, *mss. notes on Ballás*, graves 91 and 121, both of basalt, Late Predynastic.
- (5) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, grave 47, two basalt and one limestone, Middle Predynastic (Fig. 24, Nos. 4, 5, 6).

Type PD-IV a (2), barrel-shaped with plain flat base. Fig. 24, Nos. 7, 8.

- (6) Petrie and Quibell, *Naqada*, Pl. VIII, forms H 25, 26, 13, from graves T 5, T 14, Middle Predynastic; grave B 99, late Middle Predynastic; graves 421 and 1247, Late Predynastic to Dynasty O.
- (7) Petrie, *Diospolis parva*, grave B 75 (grave not described).
- (8) MacIver, *El-Amrah*, grave a 118, limestone, late Middle Predynastic.
- (9) Peet, *Cemeteries of Abydos I*, Pl. III, 6, breccia, from grave E 272, Late Predynastic.
- (10) Hearst Expedition, *mss. notes on El-Ahaiwah*, grave 213, basalt, Late Predynastic.
- (11) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, grave 10, basalt, Middle Predynastic (Fig. 24, No. 7).
Grave 651, limestone, late Middle Predynastic.
Grave 829, limestone, Late Predynastic.
Grave 925, porphyry, Late Predynastic.
- (12) Harvard-Boston Expedition, *mss. notes on Naga-'l-Hai*, grave 615, basalt, Dynasty O (Fig. 24, No. 8).

Type PD-IV b (1), swelling above middle, disc base. Fig. 25, Nos. 1, 2.

- (13) Petrie and Quibell, *Naqada*, Pl. VIII, forms H 32-45, from graves 743 (four limestone), T 16, 1247, Late Predynastic; grave 185, very Late Predynastic or Dynasty O (Fig. 25, Nos. 1, 2).
- (14) MacIver, *El-Amrah*, graves 46 (basalt), b 62 (two, one breccia), b 87 (basalt), b 224 ("stone"), late Middle Predynastic; graves 76 ("stone"), b 189 (two of "stone"), Late Predynastic.
- (15) Peet, *Cemeteries of Abydos I*, Pl. III, 5, graves E 12 (not described) and 169 (Late Predynastic).
- (16) Petrie and Wainwright, *Labyrinth, Gerzeh and Mazghuneh*, Pl. VI 6, two examples, from grave 142, Late Predynastic; Pl. VIII, 3, from graves G 31, 93, 154.

Type PD-IV b (2), swelling above middle flat base.

- (17) Petrie and Wainwright, *Labyrinth, Gerzeh and Mazghuneh*, Pl. VIII 1, two examples, from grave 142, Dynasty O.

Type PD-IV, miniature jars. Fig. 25, No. 3.

Form PD-IV a:

- (18) MacIver, *El-Amrah*, form H 7, limestone, from grave b 88, Middle Predynastic; stone, from grave b 235, Late Predynastic.
- (19) Peet, *Cemeteries of Abydos I*, Pl. II, 8, basalt, from grave E 272, Late Predynastic.

Form PD-IV b:

- (20) Petrie, *Diospolis parva*, form H 24 (Pl. IX 2), from graves U 311 and B 328.
- (21) MacIver, *El-Amrah*, from grave b 233, Late Predynastic.
- (22) Petrie and Wainwright, *Labyrinth, Gerzeh and Mazghuneh*, Pl. VIII 4, from grave 16.

Form PD-IV c, broad form:

- (23) Petrie and Quibell, *Naqada*, Pl. VIII, form H 41, limestone, from grave 743, Late Predynastic (Fig. 25, No. 3).
- (24) Petrie, *Diospolis parva*, four examples, from graves B 57 (L. P.), B 328 (not described), B 378 (two; L. P.).
- (25) Reisner, *Nub. Arch. Sur. 1907-08*, grave 17:15, limestone, Middle Predynastic.
- (26) Hearst Expedition, *mss. notes on El-Ahaiwah*, breccia, from grave 66, Dynasty O.
- (27) Petrie and Wainwright, *Labyrinth, Gerzeh and Mazghuneh*, Pl. VIII 5-8, from graves 31, 85, 170, 105, 145 (date uncertain).

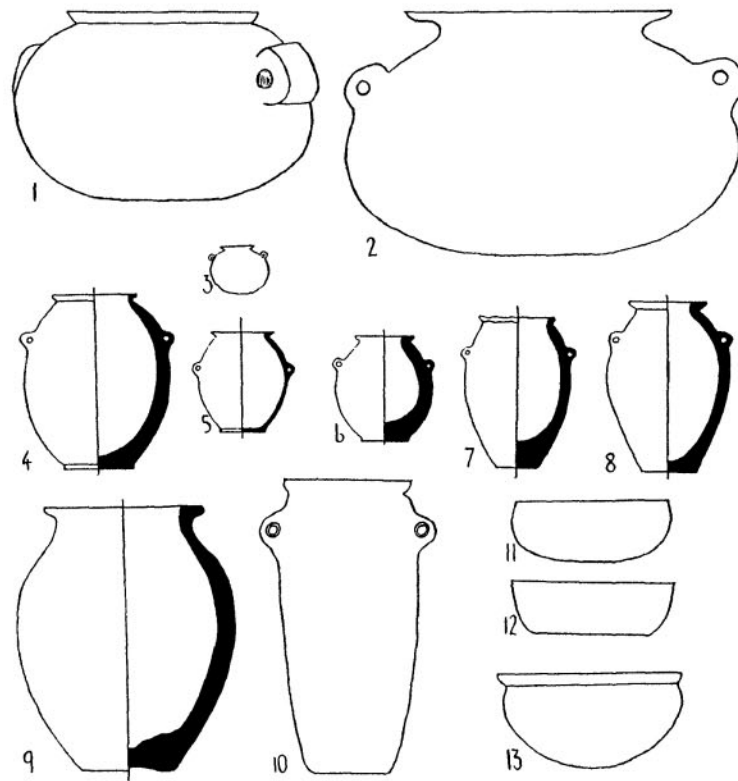


FIGURE 24. PD STONE VESSELS, TYPES III, IV, V, VI, IX-XI. Scale $\frac{1}{4}$

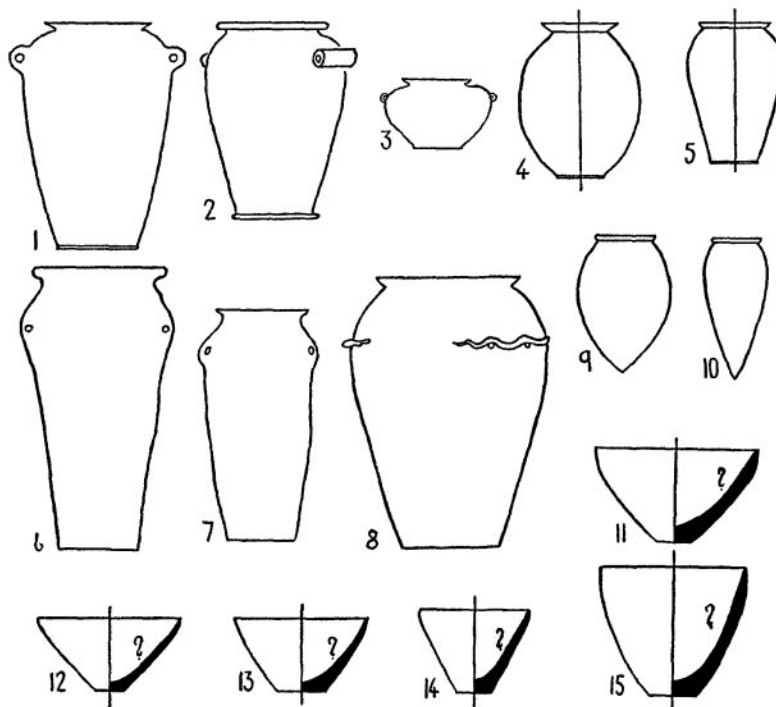


FIGURE 25. PD STONE VESSELS, TYPES IV, V, VI, VII, VIII. Scale $\frac{1}{4}$

(5) Type PD-V. Jar without Handles

The type of jar without handles is practically unknown in the Predynastic Period. I know of four examples, which are only Type IV a without handles. These examples are therefore rather modifications of Type IV than a new and separate type. I introduce Type V here merely because of its later importance.

Type PD-Va equals PD-IV a and b, without handles: Fig. 25, Nos. 4, 5.

(1) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, basalt, grave 49; probably late Middle Predynastic (Fig. 24, No. 9).

(2) Petrie, *Diospolis parva*, Pl. VII, basalt, from U 384, doubtful form, perhaps even a rude cylindrical jar.

(3) MacIver, *El-Amrah*, type IV b without handles, miniature, from grave a 189; Late Predynastic.

(4) Petrie and Wainwright, *Labyrinth, Gerzeh and Mazghuneh*, Pl. VII, 10, 11, from graves G 88 and 83 (date ?) (Fig. 25, Nos. 4, 5).

(6) *Type PD-VI. Vertical Jar with Handles*

The vertical jar with two handles and a slight swelling below the rim occurs in two variations which are apparently not connected — one in basalt and the other in alabaster or limestone. The basalt form has been found in only a few examples, none of them earlier than the late Middle Predynastic Period, and appears to have been a degeneration or modification of type II d.

Type PD-VI a, basalt, irregular form: Fig. 24, No. 10.

- (1) Petrie and Quibell, *Naqada and Ballâs*, Pl. IX, form H 63, no provenience given.
- (2) Petrie, *Diospolis parva*, Pl. IX 4, basalt, grave U 135, grave not described (Fig. 24, No. 10).
- (3) MacIver, *El-Amrah*, graves a 95 and b 87, both basalt and late Middle Predynastic.

The form which occurs in alabaster or limestone seems to be a cheap or degenerate variation of type IV b. It has usually been recorded from graves of Dynasty O or Dynasty I. The only example which might be as early as the Late Predynastic Period is that found by Mr. Green in the "painted tomb" at Hierakonpolis (5, below). Professor Petrie dates that tomb to S. D. 63, or Late Predynastic. Some of the forms on which this conclusion was based (R 1 e; R 94; W 41) have certainly a range which reaches below S. D. 63, even in Egypt, while the other forms such as B 42, P 40, and D 8 may be dated in Nubia as late as Dynasty I. It is to be noted that Hierakonpolis is within the Nubian sphere of influence. The brick lining of the grave, the partition, and the stone vessel of type VI b, would ordinarily be dated to Dynasty O at the earliest. As a result, I would date the "painted tomb" to Dynasty O, not to the Late Predynastic Period.

Type PD-VI b, alabaster or limestone, regular form: Fig. 25, Nos. 6, 7.

- (4) Petrie and Quibell, *Naqada*, Pl. IX, forms 51-55; No. 52 is shown by Pl. V to be from grave B 874, Dynasty O (Fig. 25, Nos. 6, 7).
- (5) Quibell and Green, *Hierakonpolis II*, Pl. LXVII, limestone, from the "painted tomb," Late Predynastic.
- (6) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, grave 679, Dynasty O.

(7) *Type PD-VII. Wavy-Handled Jar*

In the Late Predynastic Period, a small shouldered jar (Petrie's type W 41-47) of grey-surfaced pottery is of frequent occurrence. This jar has two ledge handles of wavy outline and has been derived by Professor Petrie quite correctly from the larger bulging forms of Middle Predynastic date. Two copies in stone of the later form have been recorded by Mr. Wainwright at El-Gerzeh, where one of them occurs associated with the corresponding pottery form. The pottery form is dated by Mr. Wainwright to the Late Predynastic Period (S. D. 58-63), and the stone forms are presumably assigned by him to the same period. The graves are not described. Elsewhere this form is definitely dated to Dynasty I, and in view of the defect in the publication, I feel unable to date these examples previous to Dynasty O.

Type PD-VII, wavy-handled jar, two ledge handles:

- (1) Petrie and Wainwright, *Labyrinth, Gerzeh and Mazghuneh*, Pl. VIII 2, from graves 25 (cf. Pl. XI 19 b) and 148 (Fig. 25, No. 8).

(8) *Type PD-VIII. Pointed Jar*

The pointed conical jar with contracted mouth furnished with roll rim is well known in black-topped and in red-polished pottery from the late Middle Predynastic and the Late Predynastic Periods.¹ Of the stone form a few examples only are known, and one of these is certainly dated to the time of Zet (Dynasty I). The only predynastic examples are those miniature forms recorded by Mr. Wainwright at Gerzeh, which he dates to S. D. 57-60, 63, that is, Middle to Late Predynastic; but he does not describe the graves in any way, and I am unable to date these jars before Dynasty O (see preceding paragraph).

Type PD-VIII a, pointed jars:

- (1) Petrie and Wainwright, *Labyrinth, Gerzeh and Mazghuneh*, Pl. VIII, 12-14, graves G 123, 126, 145, 146, and 203 (Fig. 25, Nos. 9, 10).

¹ See Petrie's forms B 39 and P 98.

(9) *Type PD-IX. Round-Bottomed Saucers and Bowls*

Stone cups, saucers, and bowls are among the rare forms of the Predynastic Period. The only examples known previous to the Late Predynastic are the round-bottomed shape. I find two round-bottomed bowls which may be as early as the Middle Predynastic Period, but one of these with a stick handle is clearly a fancy form and ought, strictly speaking, to be excluded. The round-bottomed form of bowl or cup is fairly common in pottery of the black-topped, the red-polished, and the coarse wares. The saucers of coarse ware are often used as containers of copper ore or of galena.

Type PD-IX, round-bottomed saucers:

- (1) Reisner, *Nub. Arch. Sur. 1907-08*, grave 17:68, alabaster, with stick handle, Middle Predynastic.
- (2) MacIver, *El-Amrah*, alabaster, from grave a 85, late Middle Predynastic (MacIver, "before S. D. 41").
- (3) Petrie, *Diospolis parva*, Pl. IX, 19, from H 57, Late Predynastic (Petrie), (Fig. 24, No. 11).
- (4) Hearst Expedition, *mss. notes on El-Ahaiwah*, grave A 192, alabaster, Late Predynastic; grave 226, alabaster, Dynasties O-I.

(10) *Type PD-X. Flat-Bottomed Saucers and Bowls*

As stated in the preceding paragraph, I know of only two bowls, both of them small cups or saucers, previous to the Late Predynastic Period, and both of these are round-bottomed shapes. In the Late Predynastic Period, a few crude flat-bottomed cups or saucers with plain rims have been recorded of about the same technique and finish as the corresponding round-bottomed saucers. The fine cleanly cut bowls with flat bottoms do not appear until the very end of the Late Predynastic Period. It may be doubted whether any example occurs previous to Dynasty O. All these early fine bowls have the straight-sided conical form with plain rim.

Type PD-X a, flat-bottomed saucers and cups, of crude form:

- (1) Petrie and Quibell, *Naqada*, Pl. XII, form S 49 (small), alabaster, from T 16, Late Predynastic.
- (2) Petrie, *Diospolis parva*, Pl. IX, 19, from grave H 51, Late Predynastic (?) (Fig. 24, No. 12); grave B 57, alabaster (Pl. VI), Late Predynastic or later.
- (3) Hearst Expedition, *mss. notes on El-Ahaiwah*, graves A 45, A 69, A 118, all alabaster, and about Dynasty O.
- (4) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, grave 925, pink limestone, Late Predynastic.

Type PD-X a (2), flat-bottomed bowls, of fine form:

- (5) Petrie and Wainwright, *Labyrinth, Gerzeh and Mazghuneh*, Pl. VIII, 15-21, thirteen examples, probably Dynasties O-I (Fig. 25, Nos. 11-15).

(11) *Type PD-XI. Cups and Bowls with External Rim*

In Dynasty I the bowls with external rim make their first appearance in two definite forms (see below, type 1-X), one of which presents a rounded external rim apparently for trying on a cloth or parchment cover. But all these early dynastic examples (until Dynasty III) have flat bottoms. It is therefore improbable that the two isolated examples of round-bottomed bowls recorded at Diospolis parva have any connection with the later rimmed bowls.

Type PD-XI, round-bottomed cups with external rim:

- (1) Petrie, *Diospolis parva*, Pl. IX, 17, 18, from grave B 122, late Middle Predynastic; grave B 500, grave not described (Fig. 24, No. 13).

(12) *Type PD-XII. Tables*

No example of a table in stone has been found in any predynastic grave. Tables make their appearance at the very end of the Predynastic Period in pottery, high forms with dished tops. And the earliest stone tables of Dynasty I are also dish-topped, but not so high as the older pottery tables.

(B) STONE VESSELS OF DYNASTY I

In the Early Dynastic Period, the manufacture of stone vessels received such an impetus that even the poorest graves of the latter half of Dynasty I, of Dynasty II, and Dynasty III usually contained at least one stone vessel,¹ while the royal tombs of Naqada and Abydos and the important private mastabas

¹ See Reisner *Naga'-d-Dêr I*, pp. 99-101.

of the first three dynasties have yielded a large number of beautifully worked jars, pans, and bowls in a great variety of types and materials.

In comparing the stone vessels of the Early Dynastic Period with those of the Predynastic, two conclusions are obvious:

- (1) Certain types of Dynasty I are the same as earlier types, or are developments of earlier types, so that the archaeological continuity of the two groups is clear — types I, III, and IV.
- (2) The forms of the Early Dynastic Period are larger and much more finely worked than those of the Predynastic Period.

The advance in technical skill presented by the early dynastic vessels is manifested in the symmetry and proportions of the forms, the internal smoothing, the external polish, and the thinness of the walls of some examples. The climax was reached perhaps in the thin, highly polished alabaster bowls and pans of private graves of Dynasty III. Facility in the handling of hard stones, which was one of the racial characteristics of the Egyptians and the source of the artistic merit of their later sculpture, was already discernible in the stone vessels of types II and III of the Early and Middle Predynastic Periods and in the other stone implements of the same age (mace-heads and slate palettes). When the dated examples of the Early Dynastic Period are compared with the earlier pieces, the only technical difference appears in a slightly greater regularity of the boring marks, and I would ascribe this regularity to the adoption of a better borer, the weighted stone-borer turned with a crank, as represented in the reliefs of the Old Kingdom. The improvement in the forms and the finish of the stone vessels of Dynasty I is to be ascribed not merely to the invention of the mechanical stone-borer, whose greatest effect was the cheapening of the process, but also to a general high development of technical skill in the craftsmen — a skill to which the ceremonial slate palettes and mace-heads of Hierakonpolis bear witness. This development in skill arose out of the demand for ostentatious objects both practical and ceremonial created by the establishment of the monarchy and the accumulation of wealth in the hands of the royal family — a striking example of what human progress owes to the differentiation of wealth. Another result of the new political and economic conditions was the provision of abundant supplies of various hard stones from newly opened beds and quarries, some of them in remote districts, a fact proved by the profusion of materials used in the stone vessels. Thus the great extension of the manufacture of stone vessels in Dynasty I was one of the most characteristic features of the general development of that time and was due to the cheapening of the process of manufacture by: (1) the invention of the mechanical stone-borer; (2) the provision of an abundant supply of various hard stones; (3) the development and spread of a high degree of technical skill fostered by the political conditions and the accumulation of wealth in the hands of the royal family and the court.

The first proved evidence of expansion in the manufacture of stone vessels is given by the tomb of Menes at Naqada. The vessels from this tomb are beautifully formed and finished; but one striking fact is to be noted, no bowl with an internal rim is reported from that tomb, nor any with a sharply contracted mouth. The tomb of Narmer has not been found, but vessels with sharply contracted mouth and internal rim appear in the tomb of Zer, the third king, and in all royal tombs thereafter. The vessels from Dynasty O belong clearly to the Menes group and present the prototypes of the simpler forms of the Menes tomb. Strictly taken, therefore, Dynasty O and Menes form one archaeological group, and should be marked as the connecting group between the Predynastic Period and Dynasty I. The tomb of Menes marks the types which belong to this period as:

Type I a, b, c	Cylindrical jars with cord, etc.
Type III a, b	Spheroidal jars, flat and round bottom.
Type IV a	Barrel-jar with handle, rare, fancy.
Type V	Small shoulder jars, rare.
Type X a	Bowls, flat bottom, plain rim.

This is a very small group of forms for a royal tomb, and if the two rare forms are omitted, it is reduced to three common forms. The private graves of Dynasty O and early Dynasty I naturally present a different group of types, for even the private tombs of early Dynasty I, because they were private graves, represent a stage in the development which is earlier than that of Menes, the royal tomb of their time.

Type I c	Cylindrical jars without cord.
Type IV	Small jars, truncated ovoid with two horizontal handles.
Type VI	Swelling jars with two knob handles.
Type VII	Wavy-handled jar with two ledge handles, usually pierced vertically.
Type VIII	Pointed jar with roll rim.
Type IX	Cups and saucers, round-bottomed.
Type X a	Saucers and bowls, flat-bottomed, plain rim.

It is to be noted that this group of forms from private graves is still dominated by the predynastic forms — I c, IV (which is also the original of VI), IX, and X. Form VI b is apparently a degenerate form of PD IV; forms VII and VIII are copies of predynastic pottery vessels; and the finer flat-bottomed bowls are a natural development of the older flat-bottomed bowls. The Menes group dispenses with types VI, VII, and VIII. Types VI and VII are manifestly poor forms, and their omission from the Menes tomb is not surprising; and form VIII is really a very small form, which might well have been omitted from the tomb or have been lost by plundering or even dropped from the record as unimportant. Thus I have reached the conclusion that a certain number of graves of Dynasty O and of the earlier part of Dynasty I are to be marked as a connecting group between the Late Predynastic and the Early Dynastic Period.¹

The materials used in the stone vessels found in the royal tombs of Dynasty I include alabaster, dolomite marble, various limestones, slate, volcanic ash, syenite, porphyry, crystal, serpentine, and basalt. In the private tombs the variety is not so great, and there alabaster is used in the majority of vessels, while slate, volcanic ash, basalt, porphyry, and the limestones occur in scattered examples. It is further to be noticed that the proportion of alabaster increases with the poverty of the tombs, so that in the case of the poorest tombs alabaster is used almost exclusively. This is only a natural result of the fact that the vessels of the harder stones were obviously more expensive. Probably no reliable deduction can be drawn from the relative numbers of the various materials, and certainly nothing can be gained by comparing the relative proportions of materials in royal graves with those in private graves. In the following table I use Professor Petrie's percentage figures² for the Giza tomb (designated Giza), the tomb of Zet (designated Zet), and the whole group of royal tombs at Abydos (designated Aby.); for the tomb of Khasekhemuw (designated Khas.) I have made up the figures as well as possible from M. Amelineau's defective publication; and the others are from the respective publications:

	(a) ROYAL TOMBS				(b) PRIVATE TOMBS				
	Zet %	Aby. all %	Khas. %	Myc. %	Aby. M %	Giza %	Naga-d-Dér I Dyn. I %	Dyn. II %	Hesy %
Alabaster	28	18	48	58	60	47	53	64	67
Lst. + marble	39	36	14	9	6	22	7	8	..
Slate	7	8	?	0.6	16	19	27	12	..
Volcanic ash	5	11	?	0.5	4	1	13	14	..
Porphyry + syenite + breccia	10	11	24?	14	6	7	..	1	?
Basalt	3	5	?	4	6	3	..	1	..
Crystal	5	8	0.4	..	..	1	..	..	..
Serpentine	3	3	..	..	..	1	..	..	..
Diorite	..	..	14	14	..	..	..	..	?

The following conclusions may be drawn from these figures:

- (1) The proportion of alabaster vessels in royal tombs rises from 28 per cent in the tomb of Zet to 58 per cent in the Mycerinus temple.
- (2) The frequency of limestone, and especially the fine colored limestones and marbles, decreases from 39 per cent in the tomb of Zet to 9 per cent (largely blue marble) in the Mycerinus temple. The blue marble appears in the tomb of Khasekhemuw along with diorite. The combined figures for these materials and alabaster are of interest:

	Zet %	Aby. %	Kha. %	Myc. %
Alabaster + limestone + marble	67	54	62	67
All other stones	33	46	38	33

¹ The stone vessels from the Predynastic Cemetery at Gerzeh (see Mr. Wainwright in Professor Petrie's *Labyrinth, Gerzeh and Mazghuneh*) might throw some light on this question, if they had been properly reported. On Pl. VIII a number of miniature forms are shown with the grave numbers, but, as not a single grave is described, the numbers are of small utility. I am not even sure just what dates Mr. Wainwright assigns to any but the pointed jars, and such information as he gives for them does not enable me to control his conclusion. I have therefore been obliged reluctantly to ignore the dates which he assigns to these vessels.

² See Petrie, *Gizeh and Rifeh*, p. 5a. (Mastaba V).

- (3) The variety of non-calcareous stones does not vary greatly, but the numbers of vessels of slate, volcanic ash, crystal, and serpentine decrease to the vanishing point in the Mycerinus temple. At the same time the porphyries and related stones increase:

	Zet %	Aby. %	Kha. %	Myc. %
Porphyry + syenite + granite + breccia	10	11	24	16
Diorite . . . . .	..	..	14	12
	<u>10</u>	<u>11</u>	<u>38</u>	<u>28</u>

- (4) The great change in the materials used in the royal tombs was the introduction of diorite in the tomb of Khasekhemuw, to become one of the characteristic features of the private tombs of Dynasty III. It had occurred in scattered examples in Dynasty I.
- (5) In the private tombs, the percentage of alabaster rises in Dynasty III, but otherwise it varies greatly according to the wealth or poverty of the tombs. Cemetery M at Abydos, which was the least important socially of the three First Dynasty cemeteries, has the highest percentage of alabaster, and the small graves of Dynasty III at Naga-'d-Dêr seldom yielded any other stone.
- (6) The combined alabaster and limestone figures for the private graves are:

	Aby. M. %	Giza %	Naga-'d-Dêr I		Hesy %
			Dyn. I %	Dyn. II %	
Alabaster + limestone + marble	66	69	60	72	67
All other stones	34	31	40	28	33

- (7) Porphyry, syenite, and breccia occurred in Cem. M (Abydos) and in the Giza graves, but only one example (breccia) is shown in the remaining columns. The most important non-calcareous stones in the private graves were slate and volcanic ash:

	Aby. M. %	Giza %	Naga-'d-Dêr I		Hesy %
			Dyn. I %	Dyn. II %	
Slate	16	19	27	12	..
Volcanic ash	4	1	13	14	..
	<u>20</u>	<u>20</u>	<u>40</u>	<u>26</u>	<u>..</u>

The total amount of slate and volcanic ash in the tomb of Zet was 12 per cent, and in all the royal tombs at Abydos, 19 per cent. The remarkable excess of the percentage of these stones at Naga-'d-Dêr was probably due to local conditions. At any rate no other plausible explanation presents itself to my mind.

It must be remembered that any comparison of this sort suffers greatly from the unfortunate manner in which so many of the royal tombs at Abydos were excavated before Professor Petrie rescued what was left. The figures from the Mycerinus temples and the private graves are dependable and subject only to the chances of preservation, which are often curiously incalculable. But these chances would not affect appreciably the proportional frequency of the commoner stones.

The chief forms of all twelve of my types were established in Dynasty I or before, and the following list will show the range of these and of the sub-types:

Type	Inclusive limits of occurrence
I c	Plain cylindrical jar E. P. to Dyn. VI.
a	Fine cylindrical jar with cord in relief Dyn. I to Dyn. V
b	Cylindrical jar with ridge or band Dyn. I to Dyn. V
d	Slender splay-footed cylindrical jar Dyn. III to Dyn. VI
e	Models of types b, c, and d Dyn. IV to Dyn. VI
II a, b	Egg-shaped jar with foot and two horizontal handles E. P. to M. P. (Myc.)
c, d	Elongated variation of type II a M. P. (Myc.)
III a	Spheroidal jar with two horizontal handles M. P. to Myc.
b	Spheroidal jar with two handles, flat bottom Dyn. I to Myc.
c	Quasi-spheroidal jar with shoulder and handles Khas. to Dyn. V
IV	Barrel-shaped or shoulder jar with two horizontal handles
a (1)	Barrel-shaped with disc-base M. P. to Dyn. I
a (2)	Barrel-shaped with plain flat base M. P. to Dyn. I
b (1)	Swelling above the middle, disc-base L. M. P. to Dyn. I
b (2)	Swelling above the middle, plain flat base Dyn. O to Dyn. II
a-c	Extra. Miniature forms M. P. to Dyn. I
c	Broad form, disc-base Dyn. I
d	Shouldered form, disc-base Dyn. I
e	Broad-shouldered form, broad disc-mouth Khas. to Dyn. V

Type		Inclusive limits of occurrence
V	Shouldered jar and quasi-shouldered jar	
a	Same as type IV a and b, without handles	L. P. to Dyn. O
a (1)	True-shouldered jar, larger forms	Dyn. I to Myc.
a (2)	True-shouldered jar, miniature and small	Dyn. I to Myc.
a	Extra. Large, round-shouldered wine-jar, pottery form	Khas. to Dyn. III
b (1)	Truncated ovoid or barrel-shaped jar, large	Dyn. I to Dyn. III
b (2)	Truncated ovoid or barrel-shaped jar, small	Dyn. I to Dyn. V
c (1)	Broad-shouldered jar, high form	Dyn. I to Dyn. V
c (2)	Broad-shouldered jar, squat form	Dyn. I to Dyn. V
d	Jar with flaring foot, <i>hes</i> -vase form	Dyn. I to Dyn. III
e	Type IV e, without the handles	Dyn. III to Myc.
VI	Swelling vertical jar with two knob handles	
a	Tall slender modification of type II c	M. P.
b	Tall form	Dyn. O to Dyn. I
c	Squat form	Dyn. O to Dyn. I
VII	Wavy-handled jar	
a	Two ledge handles, often pierced horizontally	Dyn. O to Dyn. I
b	Continuous wavy ledge, often pierced horizontally	Dyn. I
VIII	Pointed jar	
a	Miniature copies of pottery form with roll-rim	Dyn. O to Dyn. I
b	Short neck, convex base	Myc.
c	No neck or rim, wavy body	Myc.
d	Neck with tapering base, pottery form	Myc. to Dyn. VI
IX	Round-bottomed saucers and bowls, plain rims	
a	Clumsy saucers and cups	M. P. to Myc.
a (1)	Shallow plates and dished table tops	Dyn. I to Dyn. III
a (2)	Flat table tops	Dyn. III to Dyn. IV
b	Round-bottomed bowls	Dyn. I to Dyn. IV
X	Flat-bottomed saucers and bowls	
a	Plain rims, clumsy forms	L. P. to Dyn. IV
a (1)	Fine forms, flaring plain rim or slightly contracted	Dyn. O to Myc.
a (2)	Fine "conical" forms	Dyn. O to Dyn. II
a (3)	Small slender "conical cup"	Khas. to Myc.
b (1)	Flaring form, with concave sides	Dyn. I to Dyn. III
b (2)	Contracted mouth, concave body	Dyn. I
b (3)	Cup with internal ledge	Dyn. I
b (4)	Shallow flaring form with cup hollow	Dyn. III to Myc.
c	Contracted mouth, internal rim	Zer to Dyn. V
d	High bowl-jars with internal rim	Khas. to Dyn. V
e (1)	Cups with contracted mouth and spout	Dyn. I to Dyn. III
e (2)	Open cups with spout	Dyn. I to Myc.
e (3)	Bowl-jar with spout	Dyn. III to Myc.
XI	Bowls and cups with external rims (isolated examples in PD)	
a (1)	Bowls with ledge rim	Dyn. I
a (2)	Deep bowls with external roll-rim	Dyn. II
a (3)	Basin, contracted mouth, rim	Dyn. III
a (4)	Basin, contracted mouth, rim, short tubular spout	Khas. to Dyn. III
b (1)	Bowl with grooved rim, cord often in relief	Dyn. I to Dyn. III
b (2)	Bowl, upright recurved rim (relief-cord, Khas.)	Khas. to Dyn. V
b (3)	Same as b (2), with round bottom	Dyn. III to Myc.
b (4)	Flaring recurved rim, flat bottom	Myc.
b (5)	Same as b (4), with round bottom	Sneferuw to Dyn. V
b (6)	Exaggerated flaring rim, round bottom, spout	Myc. to Dyn. VI
c (1)	Small cup, with grooved rim, contracted mouth	Dyn. I to Dyn. II
c (2)	Small cup, with band-rim on contracted mouth	Khas. to Dyn. V
XII	Tables and table tops	
a	Dish-topped tables (see also type IX a (2))	Dyn. I to Dyn. III
b	Flat-topped tables (see also type IX a (3))	Khas. to Dyn. VI.

Thus eleven of the twelve types are represented in Dynasty I, and forty of the seventy mentionable sub-types. Of the forty sub-types of Dynasty I.

- 14 are not found after that time, or only in sporadic examples;
 2 persisted to Dynasty II;
 1 persisted to Khasekhemuwy;
 8 persisted to Dynasty III;
 16 persisted to Mycerinus or later.
 40

Of the thirty sub-types which do not occur in Dynasty I,

- 6 ceased in the Predynastic Period or in Dynasty O;
 1 appears only in Dynasty II;
 9 were first noted in the tomb of Khasekhemuwy;
 7 were first noted in Dynasty III;
 1 was first noted in the time of Sneferuw;
 1 was first noted in Dynasty IV;
 5 were first noted in the Mycerinus collection, but may have been earlier.

30

These facts show clearly the dependence of all the later stone vessels on the forms of Dynasty I and in particular on those established in or before the reign of Zer, third king of the dynasty. The chief modifications of the forms of Dynasty I were introduced in the reign of Khasekhemuwy and in Dynasty III. The great modification of the early forms seems to have taken place in the reign of Khasekhemuwy, and all the vessels of Dynasties III and IV are dominated by the special forms of Khasekhemuwy.

(1) *Type 1-I. Cylindrical Jar*

In Dynasty I the cylindrical jar, the descendant of predynastic type I, is second only to the flat-bottomed bowls in numbers. Most of the early examples have a cord in relief around the shaft a little below the prominent rim. Among the earlier tombs, a good many of these jars have straight vertical sides and are distinctly wide in form; but later the more slender form with slightly concave sides predominates, and it is this concave form which persists into Dynasties II-IV. Examples occur in practically every tomb of Dynasty I:

- (1) Reisner, *Naga'-d-Dêr I*, p. 101.
- (2) De Morgan, *Tombeau royale*, p. 180 (Fig. 26, Nos. 1, 2).
- (3) Petrie, *R. T. II*, Pls. XLVI-LIII (Fig. 26, Nos. 3-12).
- (4) Petrie, *Abydos I*, Pls. XLII-XLVII, Cemetery M.
- (5) Petrie, *Gizeh and Rifeh*, Pls. VA-VD.
- (6) MacIver, *El-Amrah*, pp. 25 ff.
- (7) Petrie, *Tarkhan I and II*.
- (8) Junker, *Turah*.

It is noteworthy that no example of this type was found at Hierakonpolis.

(2) *Type 1-III. Spheroidal Jar with Horizontal Handles*

Type III of Dynasty I is the same as predynastic type III except that it occurs in two forms, (a) with round bottom and (b) with flat bottom, often with a ring base or a disc base. Both forms are also represented in miniature examples. The large examples occur exclusively in royal tombs, or at Hierakonpolis.

Type 1-III a, with round bottom:

- (1) De Morgan, *Tombeau royale*, Fig. 655 (Fig. 27, No. 1), five examples in hard stones altered by heat; Fig. 582, granite, unfinished.
- (2) Quibell and Green, *Hierakonpolis*, Pl. XXX, 1 and 2, porphyry, unfinished; Pl. XXXVII, syenite.
- (3) Petrie, *R. T. II*, Pl. XLIX, 129 (Fig. 27, No. 2), porphyry, tomb T (Den = *Wdy-mw*) and Q, three examples; 130, porphyry, tomb U (Mersekha = Semerkhet); 131 (Fig. 27, No. 3), syenite, tomb O (Zer); 132, syenite, tomb U (Mersekha = Semerkhet); Pl. LIII D, 455 (Fig. 27, No. 4), breccia, tomb Y (Merneit).

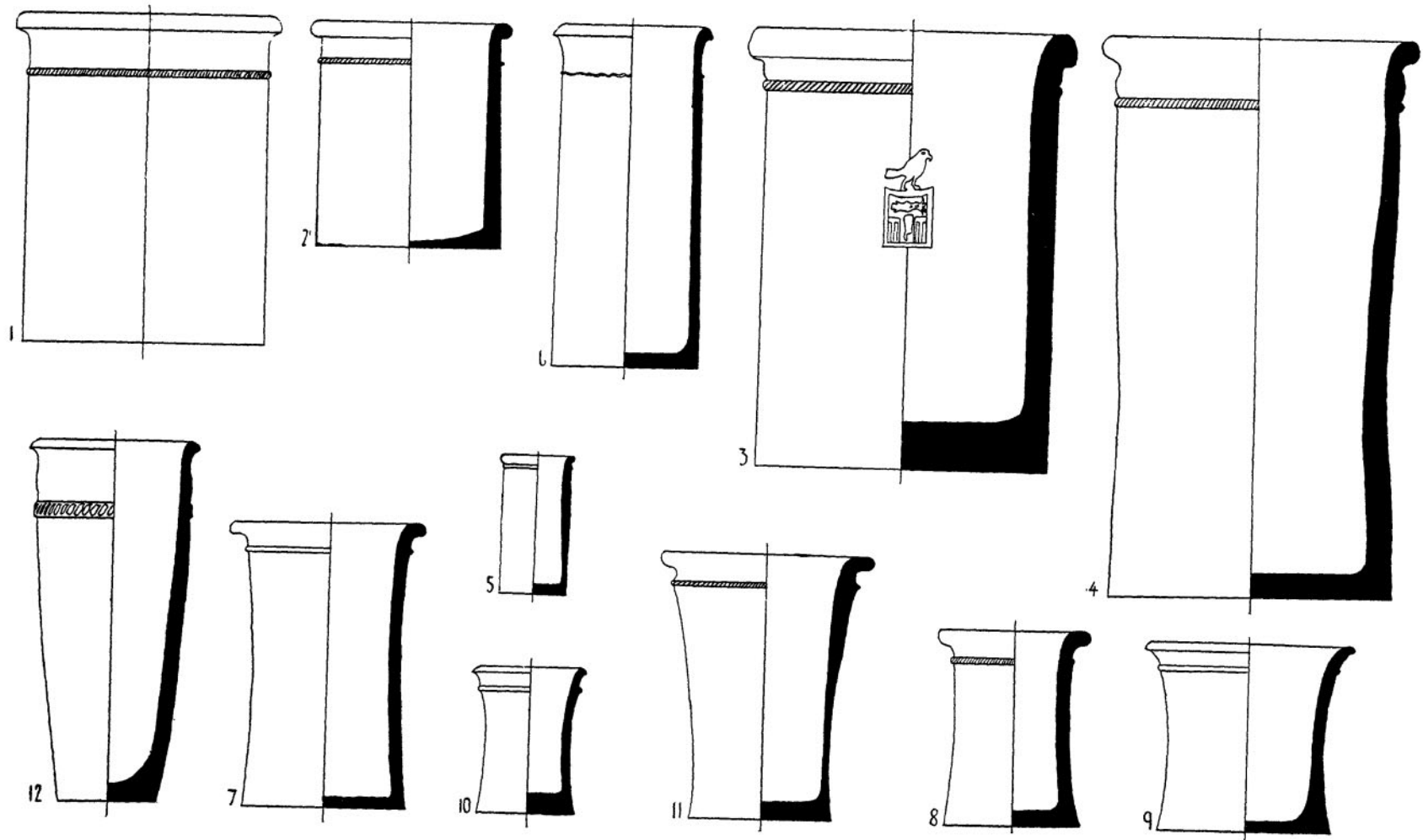


FIGURE 26

DYN. I. STONE VESSELS, TYPE I. SCALE $\frac{1}{4}$

Type 1-III b, with flat bottom:

- (4) De Morgan, *Tombeau royale*, Fig. 657 (Fig. 27, No. 5), 664, and 656 (Fig. 27, No. 6), all of porphyry.
 (5) Quibell and Green, *Hierakonpolis*, Pl. XLVIII a, two diorite, one porphyry, and one serpentine, from main deposit.
 Cf. also Petrie, *R. T. II*, Pl. XLVII B, 72 and LI A, 203.

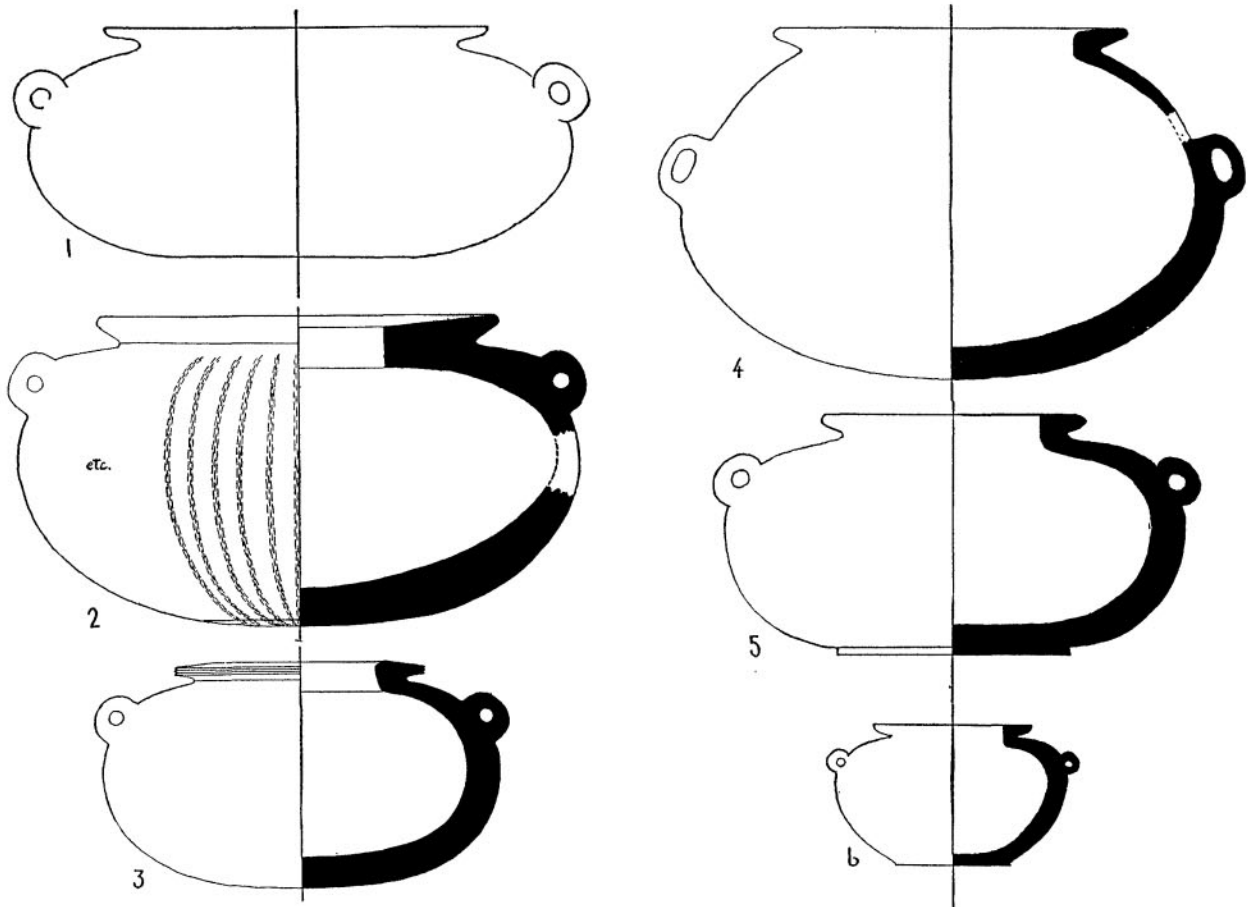


FIGURE 27. TYPE 1-III. SCALE $\frac{1}{4}$

(3) *Type 1-IV. Swelling or Shouldered Jar with Horizontal Handles*

In Dynasty I the old predynastic type of barrel-shaped jar with horizontal handles (type PD-IV a) has practically disappeared. One true example (Fig. 28, No. 1) was found in the tomb of Den (*Wdy-mw*) and a decorated ceremonial example in the tomb of Menes (Fig. 28, No. 2). Several examples have been recorded of the later form with the swelling above the middle and several of the true shouldered type. But these few examples are all from the royal tombs or from the Hierakonpolis temple. They have not been found in private graves of Dynasty I. Functionally, the type PD-IV was probably replaced in private graves by types 1-I and 1-VI. It may be noted that it was the true shouldered jar which persisted into Dynasties II and III.

Type 1-IV a (1), the barrel-shaped jar with two handles, disc base:

- (1) Petrie, *R. T. II*, Pl. XLVIII B, 125, porphyry, tomb T (Den = *Wdy-mw*) (Fig. 28, No. 1).
 (2) De Morgan, *Tombeau royale*, Fig. 659, pottery imitation; Fig. 665, pink limestone, decorated fat example.

Type 1-IV b (1), the jar with swelling above the middle:

- (3) Petrie, *R. T. II*, Pl. LI A, 204, 205 (Fig. 28, No. 2), serpentine, from tomb Y (Merneit); Pl. XLVIII B, 122 (Fig. 28, No. 3), 123, 124, 126, porphyry, from tomb T (Den = *Wdy-mw*).
 (4) Quibell and Green, *Hierakonpolis I*, Pl. XXXIII, 2, 3, 6; Pl. XVII, serpentine, handles in form of animal-head.

Type 1-IV c, broad form (see type 1-III b):

- (5) Petrie, *R. T. II*, Pl. XLVII B, 72 (Fig. 28, No. 4), basalt, from tomb X (Azab = *Andy-ib*); Pl. LI A, 203, serpentine, from tomb O (Zer).

Type 1-IV d, shouldered form:

- (6) Petrie, *R. T. II*, Pl. XLVIII B, 127 (Fig. 28, No. 5), porphyry, from tomb T (Den = *Wdy-mw*).

(4) *Type 1-V. Bulging or Shouldered Jar without Handles*

The shouldered jar and the bulging jar without handles are not necessarily connected with the older handled forms, but are probably derived from pottery forms of Dynasty I. Even the early examples do not have the disc base and are distinguished by the roll-rim, a detail natural to pottery, around the narrow mouth. The earliest examples are from Cem. B at Abydos and the tomb of Menes. A few are

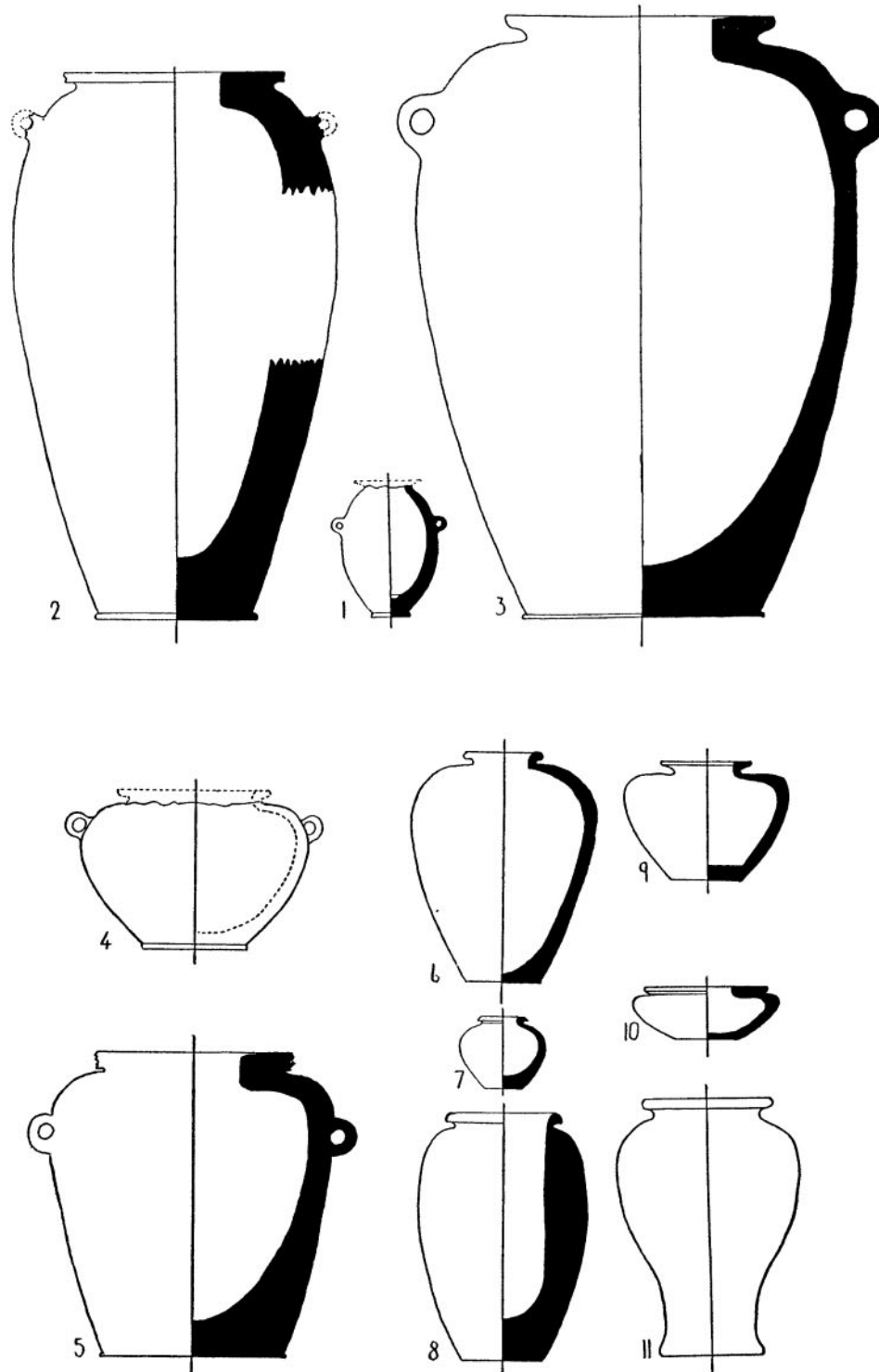


FIGURE 28. DYN. I. STONE VESSELS, TYPES IV, V. SCALE $\frac{1}{4}$

recorded from the royal tombs of Abydos and a small number from the private graves at Naga-'d-Dêr and Tarkhan. But none was found in Cem. M at Abydos, or in our Dynasty I graves, while the only examples from Turah were from an unrecorded grave. The shoulder jar is designated type 1-V a.

Type 1-V a (1), true shoulder jar: Fig. 28, No. 6.

(1) Petrie, *R. T. II*, Pl. LI E, 278, 283 (Fig. 28, No. 6), and 284, marble, from Cem. B (two) and tomb T (Den = *Wdy-mw*), and three or four other fragments may be from similar jars.

Type 1-V a (3), true shoulder jar, miniature:

- (2) De Morgan, *Tombeau royale*, Fig. 661, 662, "géobertite."
- (3) Petrie, *R. T. II*, Pl. LI E, 281 (Fig. 28, No. 7), marble, from O 2, O, T, W, eleven examples, also alabaster, serpentine, and colored limestone; Pl. LI H, 329, alabaster, from tomb O (Zer).
- (4) Petrie, *Gizeh and Rifeh*, Pl. V D, 67, magnesite, from Giza tomb (time of Zer).

A small type of shoulder jar was developed for private graves and rapidly became traditional, so that it took on ruder forms, truncated ovoid or barrel-shaped. These small crude forms became especially common in Dynasty II and are here designated type 1-V b.

Type 1-V b (1), truncated ovoid or barrel-shaped jar, large:

- (5) Petrie, *R. T. II*, Pl. LI H, 330, 333, 334 (Fig. 28, No. 8), alabaster, from tomb Y (Merneit); Pl. LI E, 282, marble, from tomb T (Den).
- (6) Daressy, *Annales VI*, p. 104, from Giza tomb of the time of Zet; this is clearly a copy of the pottery form type IX of *Naga'-d-Dêr I* and type 94 of *Tarkhan*.

Type 1-V b (2), truncated ovoid or barrel-shaped jar, small:

- (7) Reisner, *Naga'-d-Dêr I*, p. 105, type III b 1, 3, 4, 7, type IV 2, and V 2.
- (8) Petrie and Wainwright, *Tarkhan I*, Pl. XLIII and XLIV, type 77, nine to eleven examples of Dynasty I; type 78, four or five examples of Dynasty I; Mr. Wainwright dates the whole collection, I understand, to Dynasty I, but I am convinced that the greater part of the examples are later.

Another new type of shouldered jar which belongs to Dynasty I, but is more common later, is the squat jar with a narrow rimmed mouth and wide shoulders often flat on top. The form is a difficult one for stone, owing to the narrow mouth, and it is frequently made in two pieces. Probably the form is derived from pottery prototypes.¹ A few examples which may be dated as early as Dynasty I are grouped below as type 1-V c.

Type 1-V c (1), wide-shouldered form, higher form:

- (9) Petrie, *R. T. II*, Pl. LI E, 285 (Fig. 28, No. 9), marble, from tomb Q (Qa).
- (10) Petrie and Wainwright, *Tarkhan I*, Pl. XLIV, type 81 f, 81 h, 81 n, three examples of Dynasty I; see note under (8) above.

Type 1-V c (2), wide-shouldered form, squat form:

- (11) Petrie and Wainwright, *Tarkhan I*, Pl. XLIV, type 81 t, one example of Dynasty I, see (8) above.
- (12) Daressy, *Annales VI*, p. 104, time of Zet (Fig. 28, No. 10).

A third type of shouldered jar introduced in Dynasty I is that with concave stem and flaring foot. The form is much more frequent in pottery than in stone, but in both materials was probably derived from a copper prototype. This is really the early form of the *hes*-jar and is designated type 1-V d.

Type 1-V d, shoulder jar with concave lower part and flaring foot:

- (13) Daressy, *Annales VI*, p. 104, time of Zet.
- (14) Petrie and Wainwright, *Tarkhan I*, Pl. XXXVIII, type 31, graves 176 and 178; *Tarkhan II*, grave 1973; all of late Dynasty I or early Dynasty II. Pl. XXVII, type 90 (Fig. 28, No. 11).

(5) Type 1-VI. Swelling Jar with Two Knob Handles

The swelling jar with two knob handles pierced horizontally has been noted above under type PD-VI as occurring in Dynasty O. It is, however, more frequent in Dynasty I, when it was made in two variations, (a) the slender tall form of type PD-VI, and (b) a fat squat form. The squat form appears to present about the same relation to the spheroidal jar (PD-III) as the tall jar shows to the barrel-shaped handled jar (PD-IV b). Neither variation is recorded by Professor Petrie from the royal tombs and both seem therefore to have been cheap forms used only for private persons. Amélineau gives one example "from Om el-Ga'ab," but does not deign any further information.

Type 1-VI b, tall form with knob handles:

- (1) Reisner, *Naga'-d-Dêr I*, p. 106, type XI, alabaster.
- (2) Petrie and Wainwright, *Tarkhan I*, Pl. XLIII, type 71, about nine examples of Dynasty I, alabaster (Fig. 29, No. 1).
- (3) Hearst Expedition, *mss. notes on El-Ahawaih*, graves 26, 61, and 226, Dynasty O-I, alabaster.
- (4) Harvard-Boston Expedition, *Fisher's mss. notes on Zawiat-el-Aryan*, graves 113, 116, and 136 (Fig. 29, No. 2), alabaster, Dynasty I.

¹ Cf. Reisner, *Naga'-d-Dêr I*, p. 95, types IX, XI-XIV.

- (5) Harvard-Boston Expedition, *mss. notes on Mesa'eed*, graves 229 and 679, alabaster, Dynasty O-I.
 (6) Junker, *Turah*, graves 72, 95, 184, alabaster, Dynasty I; another example said to be of volcanic ash is not discoverable in the tomb list.
 (7) Firth, *Nub. Arch. Sur. 1908-09*, grave 89:77, alabaster; grave 99:72, small, serpentine (?).
 (8) Amélineau, *Fouilles d'Abydos 1895-96*, Pl. XXII.

Type 1-VI c, squat form:

- (9) Petrie and Quibell, *Naqada*, Pl. IX, form S 56, no provenience.
 (10) Petrie, *Abydos I*, Pl. XLV, tomb M 16, alabaster.
 (11) Petrie and Wainwright, *Tarkhan I*, Pl. XLIII, types 72, 73, seven examples (Fig. 29, No. 3).
 (12) Harvard-Boston Expedition, *Fisher's mss. notes on Zawi-el-Aryan*, grave 103, alabaster.
 (13) Junker, *Turah*, graves 179 (two examples), and 74, all of alabaster.

(6) *Type 1-VII. Wavy-Handled Jar*

The wavy-handled stone jars of Dynasty I are of two forms, (a) shouldered form with two ledge handles of wavy outline, being the same as PD-VII, and (b) tall jar with a continuous wavy ledge

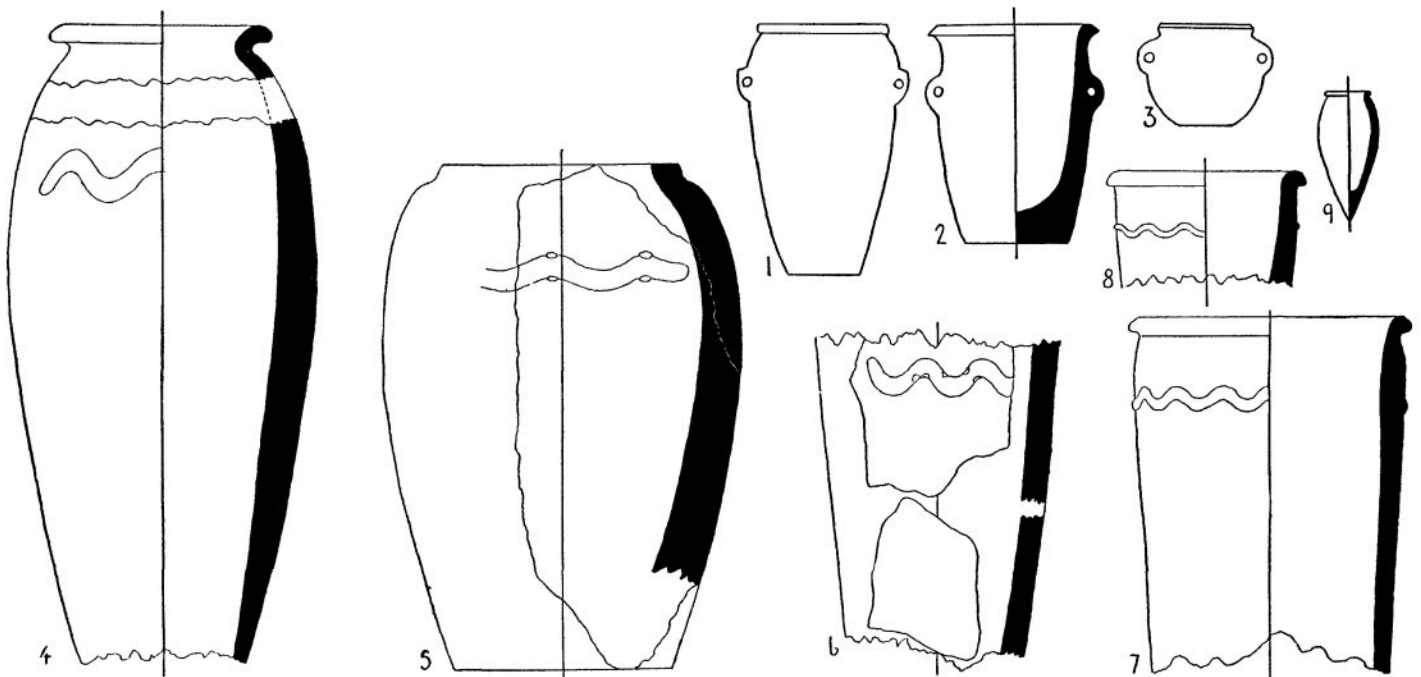


FIGURE 29. DYN. I. STONE VESSELS, TYPES VI, VII, VIII. SCALE $\frac{1}{4}$

around the upper part. The ledges of both are often pierced vertically with two pairs of holes. The form with two wavy handles was copied, as stated above, from the late ledge-handled pottery jar (Petrie's type W 41). Associated with this type W 41, and also with still later pottery, occurs a taller pottery jar with a continuous wavy ledge or ridge around the swelling of the slight shoulder (Petrie's type W 51-62). This second pottery jar, W 51, also was copied in Dynasty I in stone and is here designated type 1-VII b.

The known occurrences of this jar constitute a curious record. No example was found in Cem. M at Abydos, in our Dynasty I tombs at El-Ahaiwah, Ballás, Naga-'d-Dêr, Mesa'eed, Naga-'l-Hai, and Zawi-el-Aryan, in Junker's cemetery at Turah, or in the subsidiary tombs of the Giza mastaba of the time of Zet. But at Tarkhan six examples were found, most of them, it is true, broken and incomplete. At Abydos, the only examples were five from the tombs of Merneit and Den. The records of the royal tombs are, however, far from complete, during Amélineau's work, and no conclusion can be drawn from the curious facts except that the wavy-handled jar is certainly a vessel of ceremonial ostentation not usually obtainable by private persons.

Type 1-VII a, jar with two wavy ledge handles:

- (1) Petrie, *R. T. II*, Pl. A, 206 (Fig. 29, No. 5), serpentine; Pl. LII, 355 (Fig. 29, No. 6), alabaster; Pl. LIII F, 483 (Fig. 29, No. 4), grey limestone; all from tomb Y (Merneit); another example, No. 483, from tomb T (Den).
 (2) Daressy, *Annales VI*, p. 104, from the Giza tomb of the time of Zet.

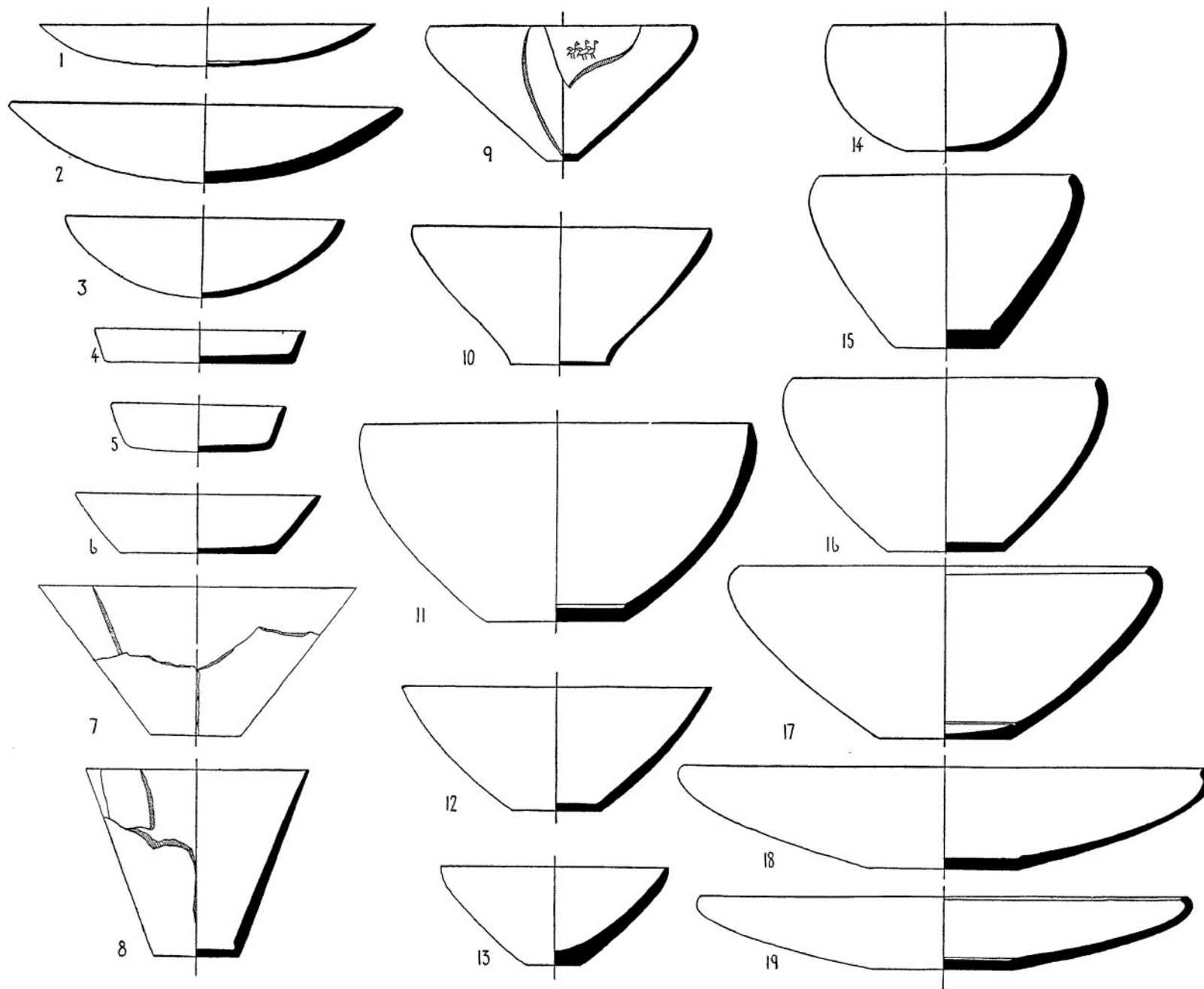


FIGURE 30

DYN. I. STONE VESSELS, TYPES IX, X, Xc. SCALE $\frac{1}{4}$

- (B) Internal rim, sharp or rounded, with contracted mouth, and (x) straight sides; } type X c.
 or (y) convex sides; }
- (C) External rim, see type XI.

These variations are multiplied by differences in the proportions, in the convexity of the sides, and in the exactness of the workmanship of the individual examples.

The examples are so numerous that I give first of all the general references:

Type 1-X a and c, bowls, with flat bottom, with both plain and internal rim.

- (1) De Morgan, *Tombeau royale*, pp. 175-179 — all plain rims (Fig. 30, Nos. 7-9).
- (2) Petrie, *R. T. II*, Pls. XLVI-LIII (Fig. 30, Nos. 4-6, 10-19).
- (3) Petrie, *Gizeh and Rifeh*, Pls. V A-D.
- (4) Daressy, *Annales VI*, p. 104.
- (5) Reisner, *Naga'-d-Dêr I*, pp. 107-111.
- (6) Petrie, *Abydos I*, Pls. XLII-XLVII, Cem. M; also *R. T. II*, Pl. XXXIII.
- (7) MacIver, *El-Amrah*, pp. 25 ff.
- (8) Petrie and Wainwright, *Tarkhan I and II*, dating often incorrect.
- (9) Junker, *Turah*.
- (10) Quibell, *Cat. gén., Archaic Objects*, Nos. 11896-11935.

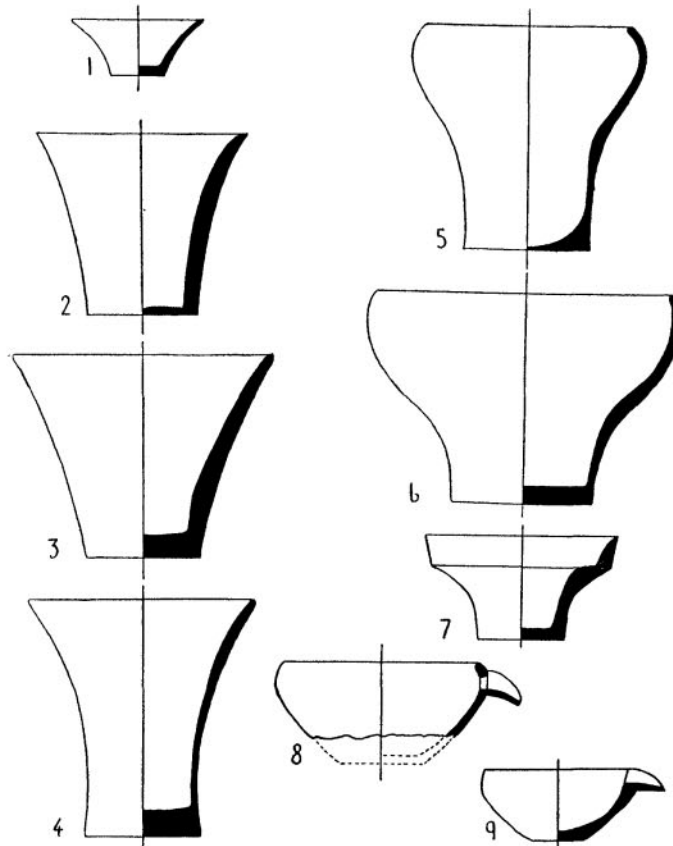


FIGURE 31. DYN. I. STONE VESSELS, TYPE X b, X e. SCALE $\frac{1}{4}$

The general outlines of practically all these stone bowls are found in pottery forms; but the details, such as the sharply marked internal rim and the circular depression in the bottom, are peculiar to stone vessels, the results of technical processes.

Particular attention is to be directed to a deep bowl with concave sides, flaring mouth, and plain rim, derived apparently from older pottery forms.¹

Type 1-X b (1), flaring, with plain rim and concave sides:

- (11) De Morgan, *Tombeau royale*, Fig. 615, crystal.
- (12) Petrie, *R. T. II*, Nos. 51, 52 (Fig. 31, No. 2), 140, 233, 234 (Fig. 31, No. 1), 235, 236, 302, 303, 304, 404, 405, 406, 459, 460; basalt (2), volcanic ash (1), marble (5), alabaster (3), fine limestone (3), grey limestone (2); from Cem. B (1), tombs O (7), Z (3), Y (3), U (1), X (1).
Abydos I, Pl. IX, 3, alabaster (O) (Fig. 31, No. 4).

¹ See Professor Petrie's types R 26, N 30, C 14, C 24-40, C 44, R 17, B 16-19.

- (13) Petrie, *Gizeh and Rifeh*, Pl. V D, 68, 72, 76, porphyry, serpentine, and syenite, time of Zet.
 (14) Petrie, *R. T. II*, Pl. XXXIII, one with concave-convex sides from grave M 1, porphyry.
Abydos I, Pl. XLIV, from grave M 17, breccia (Fig. 31, No. 3).

The last example cited appears to form the transition to a modification of this type, which has a contracted mouth. Two of the examples with contracted mouth occurred in this very grave M 1.

Type I-X b (2), with concave-convex sides and contracted mouth:

- (15) Petrie, *R. T. II*, Pl. XXXIII, two of alabaster, from M 1; *Abydos I*, Pls. XLIV and XLVII, three examples, one breccia and two alabaster from Cem. M (Fig. 31, Nos. 5, 6).
 (16) Petrie, *R. T. II*, No. 488, common limestone, from tomb Z.

Both these forms appear natural to the technique of copper vessels and type X b (1) is well known in copper as early as Dynasty II. A third form with a ledge inside and an angle outside, also like a copper form, may be the ancestor of the flaring bowl with cup hollow which occurs in Dynasty III.

Type I-X b (3), cup with interior ledge:

- (17) Petrie, *R. T. II*, Pl. LI F, 305 (Fig. 31, No. 7), alabaster, from tomb O (Zer).

The small bowls or cups with open spout form an unusual but interesting group.

Type I-X e (1), small bowl with sharply contracted mouth and open spout:

- (18) Petrie, *R. T. II*, No. 265 (Fig. 31, No. 8), marble, from tomb T (Den).

Type I-X e (2), cups with slightly contracted mouth and open spout:

- (19) Petrie, *Abydos I*, Pl. XLVIII, grave M 24, pink marble (Fig. 31, No. 9).
 (20) Junker, *Turah*, grave 372, alabaster.
 (21) Petrie and Wainwright, *Tarkhan I*, type 25 c, grave 126.

(10) Type I-XI. Bowls with External Rim

Bowls with external rim were also new forms, introduced in Dynasty I. The forms present two sub-types, (a) flaring bowls with straight or slightly concave sides and ledge rim, and (b) cups and bowls with hollow groove between rim and body. The small cups with contracted mouth and a band rim in the top of the mouth are characteristic of Dynasty III. I know of no certain example before that time. The small magnesite cup registered in Professor Petrie's *Gizeh and Rifeh*, Pl. V D, 91, came from a "tomb on the hill" (on p. 5 a) and is of Dynasty III.

The bowls with ledge rim have been found only in Cem. B, in the tombs of Zer and *Wdy-mw*, and in Cem. M at Abydos. The form is clearly derived from the similar pottery bowls of the Late Predynastic Period (Petrie's type L 10) and Dynasty I.¹ The type begins and ends in Dynasty I, if the records can be trusted.

Type I-XI a (1) (x), with straight sides, ledge rim:

- (1) Petrie, *R. T. II*, No. 88 (Fig. 32, No. 1), red porphyry, from Cem. B; No. 53, basalt, from grave B 15; No. 54, basalt, and No. 194, serpentine, both from tomb O (Zer); Pl. XXXIII, alabaster, from grave M 1.

Type I-XI a (1) (z), with concave sides, ledge rim:

- (2) Petrie, *R. T. II*, No. 403 (Fig. 32, No. 2), fine limestone, from tomb O (Zer); No. 140 (Fig. 32, No. 3), volcanic ash, from tomb O.

Type I-XI a (1) (y), with convex sides, ledge rim:

- (3) Petrie, *R. T. II*, No. 412 (Fig. 32, No. 4), fine limestone, from tomb T (Den = *Wdy-mw*).

The cups and bowls with external rim and a hollow groove between rim and body were apparently so formed to permit the tying on of a cover of cloth or parchment by means of a cord passing around the groove. A number of examples have the cord represented in relief, as in the case of the cylindrical jars, and one example shows as many as three turns of the cord. The sides are generally straight, and the flat base is narrow. Two variations are found, (1) the large bowl, which afterwards developed into the bowl with recurved rim, and (2) the small cup, which afterwards gave rise to the cup with low band rim on the contracted mouth. There are two other minor variations, one a large basin with heavy rim

¹ See Cem. M in Petrie, *R. T. II*.

and shallow groove (Petrie, *R. T. II*, No. 71) and the other a rimless bowl with a very shallow broad groove below the mouth, filled with four cards in relief.

Type 1-XI b (1), bowls with groove below external rim, large:

- (4) Petrie, *R. T. II*, No. 69 (Fig. 32, No. 5), basalt, from tomb O (Zer);
 No. 70 (Fig. 32, No. 6), basalt, with cord, from tomb B 16;
 No. 71 (Fig. 32, No. 7), basalt, heavy rim, from tomb Z (Zet);
 No. 276, dolomite marble, from tomb Q (Qa);
 No. 328, alabaster, triple cord, from tomb Y (Merneit);
 No. 454, fine limestone, plain rim, quadruple cord, from tomb T (Den = *Wdy-mw*).

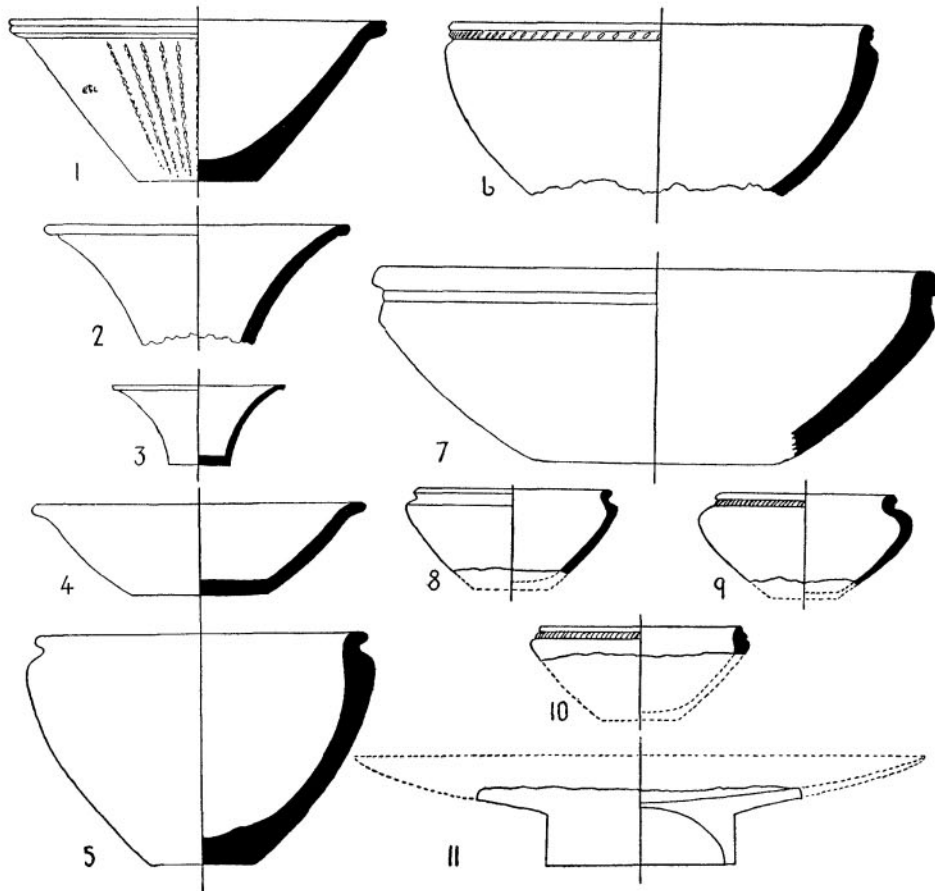


FIGURE 32. DYN. I. STONE VESSELS, TYPES XI AND XII. SCALE $\frac{1}{4}$

Type 1-XI c (1), cups with groove below external rim, small:

- (5) Petrie, *R. T. II*, No. 121, porphyry, from tomb U (Mersekha = Semerkhet);
 No. 201 (Fig. 32, No. 8) serpentine, from tomb U (Semerkhet);
 No. 275 (Fig. 32, No. 9), marble, cord, tomb Q (Qay'a);
 No. 277, marble, from tombs O (Zer), T (Den), U (Semerkhet), 5 examples.
 No. 279, marble, from tomb Q (Qay'a);
 No. 280, marble, from tomb U (Semerkhet), O (Zer), and T (Den).
 No. 453 (Fig. 32, No. 10), fine limestone, cord, from tomb T (Den = *Wdy-mw*).
- (6) Petrie, *Gizeh and Rifeh*, Pl. V C-D, Nos. 53 (serpentine), 87 (limestone), 91 (magnesite), time of Zet.

(11) Type 1-XII. Tables

In the Late Predynastic Period, towards the end (Dynasty O), a series of pebble-polished pottery tables was made and these were of one piece, broad and high with dished top. The examples in stone of Dynasty I also have a dished top and, although much lower than the pottery tables, are clearly copied from the pottery form. Some of the stone examples are so low that the support is little more than a disc base. Sometimes the stone examples were made in two pieces, and it is therefore possible that the platters and shallow pans (type 1-IX a) were the tops of such tables. The flat-topped table is unknown in Dynasty I and really belongs to Dynasty III.

Type 1–XII a, dish-topped tables:

- (1) De Morgan, *Tombeau royale*, Figs. 679, 680, alabaster.
- (2) Petrie, *R. T. II*, No. 413, fine limestone, from tombs Z (Zet) and Y (Merneit), (Fig. 32, No. 11).
- (3) Reisner, *Naga-'d-Dêr I*, p. 111, type XXVI c (cf. XXVI a 9).

(C) STONE VESSELS OF DYNASTY II

The tombs of seven of the eight kings of Dynasty I have been excavated and identified, but those of only two kings of the equally long Dynasty II. Unfortunately the published reports of the vessels found during the first excavation of these two tombs by M. Amélineau are not very good, and Professor Petrie was able to publish only such things as Amélineau overlooked. Altogether the reports, good and bad, give thirty-five stone vessels from the tomb of Peribsen and four or five hundred from that of Khasekhemuwy. Khasekhemuwy was without doubt the last king of Dynasty II; Peribsen was certainly not before the middle of the dynasty and may have been the immediate predecessor of Khasekhemuwy. In addition to these two royal tombs, two private mastaba tombs have been reported, which contained jar sealings with the Horus-name of Netery-muwy, a king of Dynasty II.¹ The tomb described by Professor Petrie was never completely excavated, but he gives excellent drawings of all the stone forms. Of the "large quantities of stone bowls" found by Mr. Quibell in the Saqqarah tomb, only one is represented.² Probably other tombs of the archaic cemetery reported by Mr. Quibell are also of Dynasty II, but the published material is insufficient to enable me to separate the tombs of Dynasty II from those of Dynasty III; and only a small part of the stone vessels found in these tombs are represented. Of larger tombs, there remain the mastabas with corbelled chambers, which are reported in *Naga-'d-Dêr I*, which I dated on archaeological grounds to Dynasty II. Among the smaller tombs of Dynasty II, I reckon the subordinate corbel-graves at Naga-'d-Dêr, El-Amrah, and Turah, and many of the graves reported in *Tarkhan I*. The authors of *Tarkhan I* date the whole of their material previous to Dynasty II, but their classification of the pottery on which they depend appears to me contrary to the evidence.

In Dynasty II as in Dynasty I, a certain number of types are known only in royal tombs, the spheroidal jar with handles (type 2–III), the shoulder jar with handles (type 2–IV), and the flat-topped table (type 2–XII b). Taking all the vessels both from royal and private tombs, a comparison reveals the fact that the vessels from the tomb of Peribsen and from the private tombs approximate in their forms to those of Dynasty I, but the vessels from the tomb of Khasekhemuwy, the last king of Dynasty II, are like those from the great stairway mastabas of the time of Zoser and Sanekht of Dynasty III. The ceremonial-traditional character of the Khasekhemuwy group is strikingly shown by the rude alabaster cylindrical jars.³ Thus the degeneration of the forms of Dynasty I practically reached its climax in the reign of the last king of Dynasty II and became wide-spread during Dynasty III. But associated with the degenerate examples of the older forms in the tomb of Khasekhemuwy, nine new sub-types appear:

- (1) Type 2–III c, quasi-spheroidal jar with two handles, flat bottom, and strongly marked shoulders, rather like type V c with handles.
- (2) Type 2–IV e, shoulder jar with wide flat rim, and two handles, a modification of type IV d.
- (3) Type 2–V a extra, large wine jar (pottery form).
- (4) Type 2–X a (3), "conical cups" derived from the "conical" bowls of Dynasty I.
- (5) Type 2–X d, bowl jar, flat bottom, internal rim, derived from the deep bowls with internal rim of Dynasty I, but with characteristic upright sides.
- (6) Type 2–XI a (4), deep basin with short tubular spout, external rim, flat base.
- (7) Type 2–XI b (2), bowl, flat bottom, upright recurved rim, cord in relief in hollow of rim, derived from type XI b (1), with grooved rim.
- (8) Type 2–XI c (2), small cup with band rim on contracted mouth, derived from the small cup with grooved rim, type XI c (1).
- (9) Type 2–XII b, flat-topped tables.

¹ Quibell, *Archaic Tombs*, No. 2302, and Petrie, *Gizeh and Rifeh*, p. 7.

² The forms of these two tombs prove that the development of the burial place in the northland followed a different course from that in the south. At the time when the south was using the corbelled mud-brick chamber with a stairway from the valley side, the north was using a chamber roofed with stone slabs and later a chamber cut in the rock, both approached by a stairway from the valley side. The stairway from the north developed first in the north, and the ordinary stairway type of Dynasty III occurs in both north and south.

³ Amélineau, *Fouilles d'Abydos 1896–97*, Pls. I–III.

These new forms together with the degenerate forms of type I, and V b, and the old forms of type V a, V c, IX, and X, were passed on to Dynasty III. This fact is again in accordance with the principle laid down in *Naga-'d-Dêr I*, p. 11, that the main thread of development lies in the great tombs, and especially in the royal tombs. New features and forms introduced in a royal tomb would not normally appear in private tombs until the succeeding generation.

The vessels from the tomb of Peribsen (marked with ** in the following lists), although nearer those of Dynasty I than are the vessels of the private tombs, are noticeably less accurate in form and less well

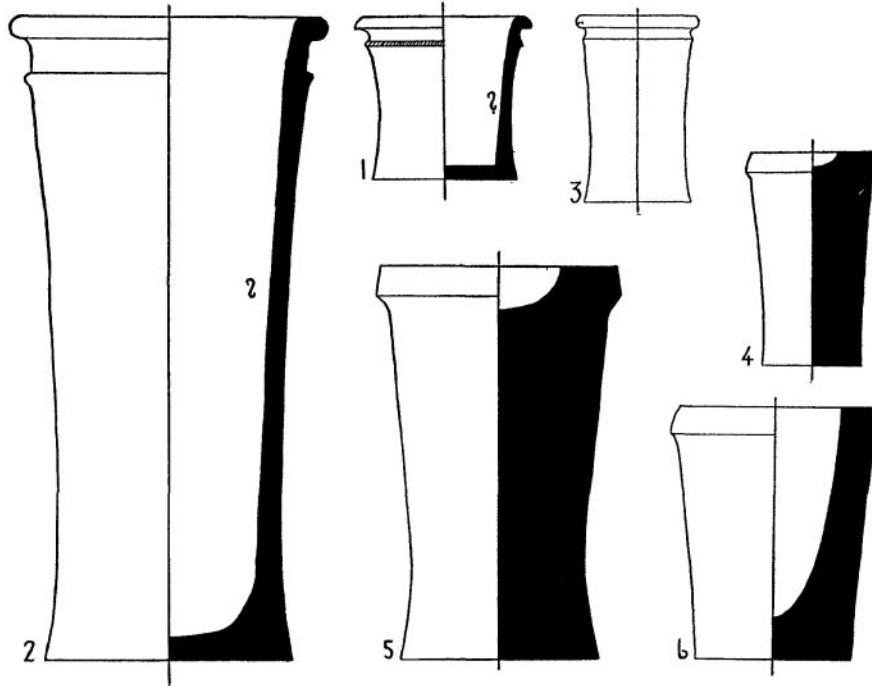


FIGURE 33. DYN. II. TYPE I A-C. SCALE $\frac{1}{4}$

finished than the earlier vessels. They, as well as the vessels of Khasekhemuwy, exhibit a number of hard stones; but it is to be noted that the materials used in the Khasekhemuwy vessels (marked with * in the following lists) include a proportion of diorite as do the private tombs of Dynasty III. In the private tombs of Dynasty II, alabaster predominates and at Naga-'d-Dêr is the material of 64 per cent of all vessels and at Tarkhan of even more.

In Dynasty II as in Dynasty I, the cylindrical jar is one of the most common forms. The sides of the well-made jars are almost always slightly concave. Examples still occur with cord or ridge around the neck, but the majority are plain forms, often quite rude and sometimes mere dummies. The tomb of Peribsen yielded, with one exception, only the ruder forms; that of Khasekhemuwy ten good jars, four of them with cord or ridge, and seventy-eight poor jars, most of them dummies. The forms with cord persisted into Dynasty III, as will be shown, but the traditional-ceremonial character of the type was already manifest in Dynasty II. The examples are almost exclusively of alabaster.

Type 2-I a, with cord:

- (1) Reisner, *Naga-'d-Dêr I*, p. 101, type I a, twenty-one examples (eighteen of alabaster).
- (2) Petrie and Wainwright, *Tarkhan I*, five to ten examples of types 53-55, alabaster.
- *(3) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. X, 14 (Fig. 33, No. 1) and XI 2, two of blue-veined marble, Khasekhemuwy.

Type 2-I b, with ridge:

- (4) Reisner, *Naga-'d-Dêr I*, p. 101, type I b, five examples of alabaster.
- (5) Petrie and Wainwright, *Tarkhan I*, one example of type 60.
- (6) Petrie, *Gizeh and Rifeh*, Pl. VI B, 95 (Fig. 33, No. 3).
- *(7) Amélineau, *Fouilles d'Abydos 1897-98*, Pl. IV, 15 (Fig. 33, No. 2) and XV, 4, two of alabaster, Khasekhemuwy.

Type 2-I c, without cord or ridge, many dummies:

- ** (8) Petrie, *R. T. II*, Pl. XLVII 49, squat, well-made crystal jar, Peribsen.
- ** (9) Amélineau, *Fouilles d'Abydos 1897-98*, Pl. XLIX, 5-9, five dummies of alabaster, Peribsen.

- (10) Reisner, *Naga-d-Dêr I*, p. 101, types I c-h, forty examples (thirty-nine of alabaster; one of volcanic ash).
 (11) Petrie, *Gizeh and Rifeh*, Pl. VI B, tomb dated to Netery-muw, but never properly excavated (possibly later).
 (12) Petrie and Wainwright, *Tarkhan I*, thirty-seven to forty examples of types 60-64, alabaster (some dummies):
 *(13) Petrie, *Abydos I*, Pl. X, 22-35, fourteen dummies of alabaster, Khasekhemuwy (Fig. 33, Nos. 4, 5, 6).
 *(14) Amélineau, *Fouilles d'Abydos, 1896-97*, Pls. I and II, sixty-four examples of alabaster, mostly dummies; Pl. IV, 19, Pl. V, 14, Pl. VI, 2 + 8, Pl. XI, 19, Pl. XV, 1, Pl. XVI, 4, six well-made examples (four of alabaster; two of marble); tomb of Khasekhemuwy.

(1) *Type 2-III. Spheroidal Jar with Handles*

The spheroidal jar with handles in Dynasty II has been found only in royal tombs. The round-bottomed form of the Predynastic Period occurs and also the flat-bottomed form introduced in Dynasty I. A third form appears in the tomb of Khasekhemuwy, the quasi-spheroidal jar with high shoulder, which became common in Dynasty III and in the Mycerinus collection. The material is, as heretofore, of some hard stone.

Type 2-III a, spheroidal jar with round bottom:

- ** (1) Amélineau, *Fouilles d'Abydos, 1897-98*, Pl. XLIX, 14, porphyry, tomb of Peribsen (Fig. 34, No. 1).
 * (2) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XIV, 3, porphyry (or similar stone).

Type 2-III b, spheroidal jar with flat bottom:

- * (3) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XIV, 17, 18, two examples of porphyry (Fig. 34, No. 2).

Type 2-III c, quasi-spheroidal jar with flat bottom and high shoulder.

- * (4) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. X, 15, marble; Pl. XII, 19 (Fig. 34, No. 3), breccia, with unpierced handles; Pl. XIV, 15 and 20 (Fig. 34, No. 4), both porphyry; total of four jars, tomb of Khasekhemuwy.

(2) *Type 2-IV. Shoulder Jar with Two Horizontal Handles*

Only two examples of shoulder jars with handles have been recorded from Dynasty II. Both of these are from the tomb of Khasekhemuwy and the form, like type 2-III, appears to have been used only in royal tombs. Probably it was merely an expensive form obtainable only by the very wealthy. One of these jars is of the old type 1-IV b without the disc base. The other is of a new form closely related to type 1-IV d, but taller and again without the disc base. This new form, type 2-IV e, continued to be made throughout Dynasty III and appears in numbers in the Mycerinus collection. In this particular, as in so many others, the styles of the private tombs of Dynasty III seem to have been set by the last king of Dynasty II.

Type 2-IV b (2), two-handled jar with swelling above the middle = type 1-IV b.

- * (1) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XIV, 21, porphyry, Khasekhemuwy (Fig. 34, No. 5).

Type 2-IV e, tall shoulder jar with two handles.

- * (2) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XVI 2, alabaster, Khasekhemuwy (Fig. 34, No. 6).

(3) *Type 2-V. Bulging or Shouldered Jar*

In regard to the shouldered jars, the tomb of Peribsen fails entirely, but that of Khasekhemuwy presents a satisfactory number of examples. Especial attention must be called to the copies in alabaster of the large wine jars, both of plain form and of that with cord net in relief. At first view these forms might seem to constitute a bond with Dynasty I because of the fragments found by Amélineau (see below), but the other known examples are:

- (a) the jar with net in relief found at Saqqara, Quibell, *Tomb of Hesy*, Pl. XXVII; and
 (b) the plain jar found by Quibell at Ballâs, Petrie and Quibell, *Naqada*, Pl. XVI S, 160, in tomb B 567, with an enormous mass of fragments of stone vessels.

The Hesy tomb is certainly close to the end of Dynasty III and the Ballâs tomb, or rather the deposit, is also probably of Dynasty III.

Type 2-V extra, tall wine jars:

- * (1) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XV, 2, 3, one perfect example of the plain form and nine others; p. 245, one example with cord net in relief; all of alabaster, tomb of Khasekhemuwy.

Besides the large wine jars of Khasekhemuwy, both that tomb and the private tombs show a number of small to medium-sized jars of shoulder shape and of the barrel or truncated ovoid shape. In particular, the small barrel-shaped or truncated ovoid variation has become very common, and many of them are practically dummies, proving the ceremonial-traditional character of this form. The material is usually alabaster.

Type 2-V a (1), medium-sized jar, both fat and slender:

- ** (2) Amélineau, *Fouilles d'Abydos, 1897-98*, Pl. XLVIII, 1, jar of copper, not stone, but mentioned for comparison; tomb of Peribsen.
- (3) Reisner, *Naga'-d-Dêr I*, p. 105, types II and IX, three examples, alabaster.
- * (4) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. VI, 13 (Fig. 34, No. 7), 19, 20 (Fig. 34, No. 9), 21 (Fig. 34, No. 8), alabaster; Pl. XI, 14, 23, blue-veined marble, Khasekhemuwy.

Type 2-V a (2), small shoulder jar:

- (5) Reisner, *Naga'-d-Dêr I*, p. 105, types VI and VIII, eight examples of alabaster.
- (6) Mace, *Naga'-d-Dêr II*, Fig. 93.
- (7) Petrie and Wainwright, *Tarkhan I*, Pl. XLIII, type 77, seven to eleven examples, alabaster.
- * (8) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XIV, 10, 14, 19, three of porphyry; Pl. XVI, 6 (Fig. 34, No. 10), 9 (Fig. 34, No. 11), two of alabaster; total, six examples; tomb of Khasekhemuwy.
- * (9) Petrie, *Abydos I*, Pl. IX, 6, 7 (Fig. 34, Nos. 12, 13); *R. T. II*, Pl. IX, 8, 9, 10, four of dolomite marble, Khasekhemuwy.

Type 2-V b (2), truncated ovoid or barrel-shaped jar, small, often dummy:

- (10) Reisner, *Naga'-d-Dêr I*, p. 105, types III a 1-5, III b 2, 4-7, IV 1, V 2, 4, seventeen examples, alabaster.
- (11) Petrie and Wainwright, *Tarkhan I*, Pl. XLIV, type 78, thirty-seven to forty examples, alabaster.
- * (12) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XIV, 16, porphyry; Pl. XX, 21 (Fig. 34, No. 14), alabaster; tomb of Khasekhemuwy.

NOTE: Scattered examples in *Naqada* (Ballâs Cemetery), *El-Kab*, and *El-Amrah*.

The wide sharp-shouldered jar, of which several examples were noted in Dynasty I, has become a characteristic form of Dynasty II, especially in the squat form, and continued in use throughout Dynasty III. The squat form occurs in two variations, one with straight sloping sides and the other with convex sides.

Type 2-V c (1), wide sharp-shouldered jar, high form:

- (13) Reisner, *Naga'-d-Dêr I*, p. 105, type VIII 1, alabaster.
- (14) Petrie and Wainwright, *Tarkhan I*, Pl. XLIV, type 81 b, d, f, h, k, nine examples, alabaster.
- (15) MacIver, *El-Amrah*, grave b 10, Pl. XVI, 2.
- * (16) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. X, 13, dolomite marble; Pl. XI, 15, 21, 26, 30, blue-veined marble, Khasekhemuwy.
- * (17) Petrie, *Abydos I*, Pl. IX, 9, 10, dolomite marble, Khasekhemuwy (Fig. 34, Nos. 15, 16).

Type 2-V c (2), wide sharp-shouldered jar, squat form:

- (18) MacIver, *El Amrah*, graves b 54 (three), b 55, b 142 (three), b 12, and b 70, nine examples, alabaster.
- (19) Reisner, *Naga'-d-Dêr I*, p. 105, type VIII 2-5, four examples of alabaster.
- (20) Petrie and Wainwright, *Tarkhan I*, Pl. XLIV, type 80 p, t, and type 81 m-x, thirty-three examples, alabaster.
- * (21) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. X, 5, dolomite marble; Pl. XI, 5, 17, 22, blue-veined limestone (No. 17 has convex sides); Pl. XII, 4, 6, red and white breccia; Pl. XIV, 4, porphyry, seven examples, Khasekhemuwy.
- * (22) Petrie, *Abydos I*, Pl. IX, 5, 12, dolomite marble and alabaster, Khasekhemuwy (Fig. 34, Nos. 17, 18).

The rare type of shouldered jar with concave lower part and flaring foot, copied probably from the copper *hes*-jar, and already noted in Dynasty I, occurs in Dynasty II in a few examples one of which was in the tomb of Khasekhemuwy.

Type 2-V d, shouldered jar of *hes*-vase form:

- (23) Reisner, *Naga'-d-Dêr I*, p. 105, type X, one example, alabaster.
- (24) Petrie and Wainwright, *Tarkhan I*, Pl. XXXVIII, type 31, graves 176, 178, Dynasties I-II.
- * (25) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XVI, 3, alabaster (?), Khasekhemuwy (Fig. 34, No. 19).

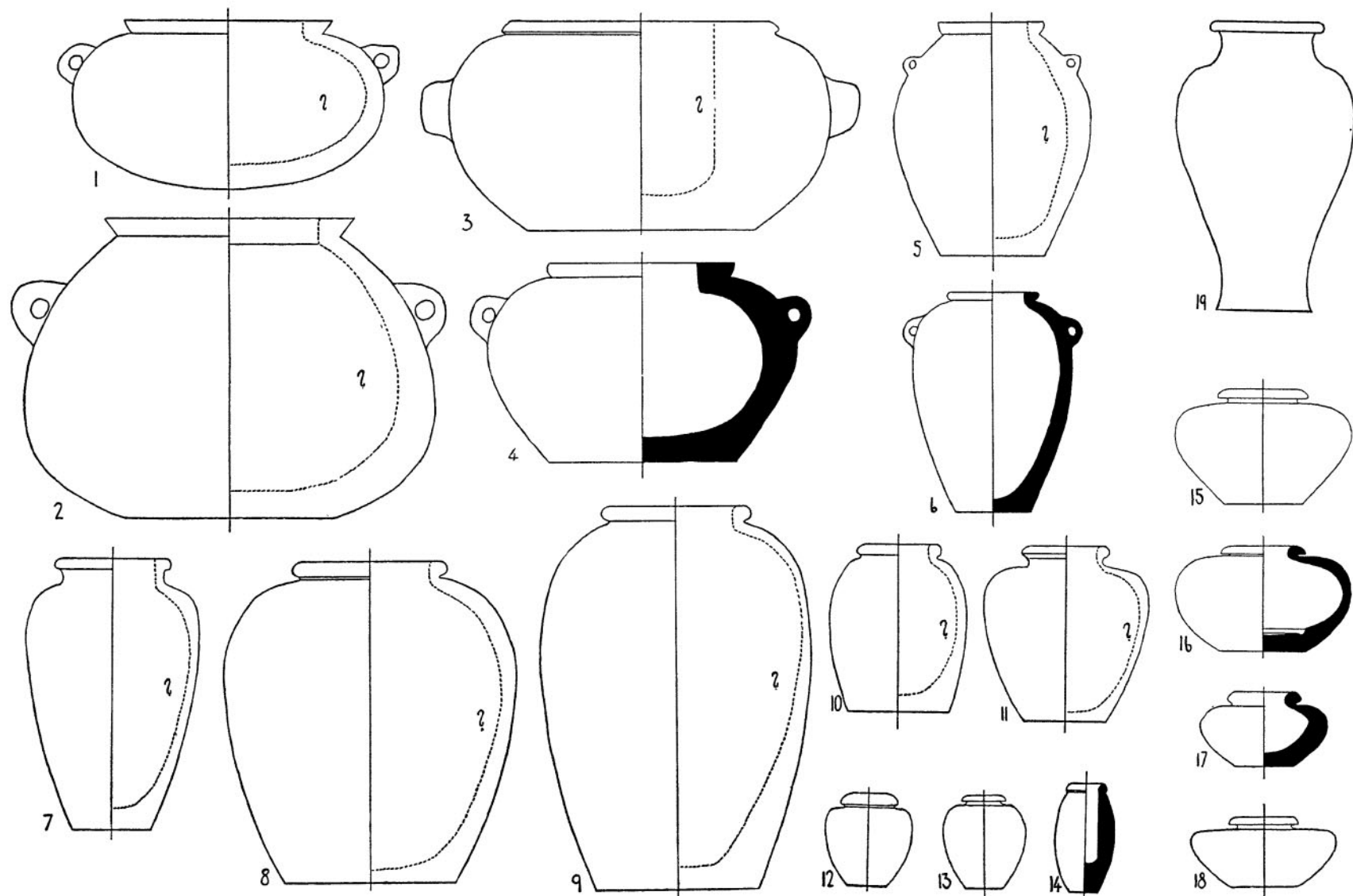


FIGURE 34
 DYN. II. STONE VESSELS, TYPES III, IV, V. SCALE $\frac{1}{4}$

(4) *Type 2-IX. Round-Bottomed Dishes and Bowls*

The round-bottomed dishes and bowls are, as usual, not very numerous. One example was recorded by Petrie from the tomb of Peribsen. None, however, appears to have been found by Amélineau in either of the two royal tombs at Abydos; but the photographs, the only record which M. Amélineau gives us of the vessels, have been trimmed, show in many cases only the mouths from above, and per-

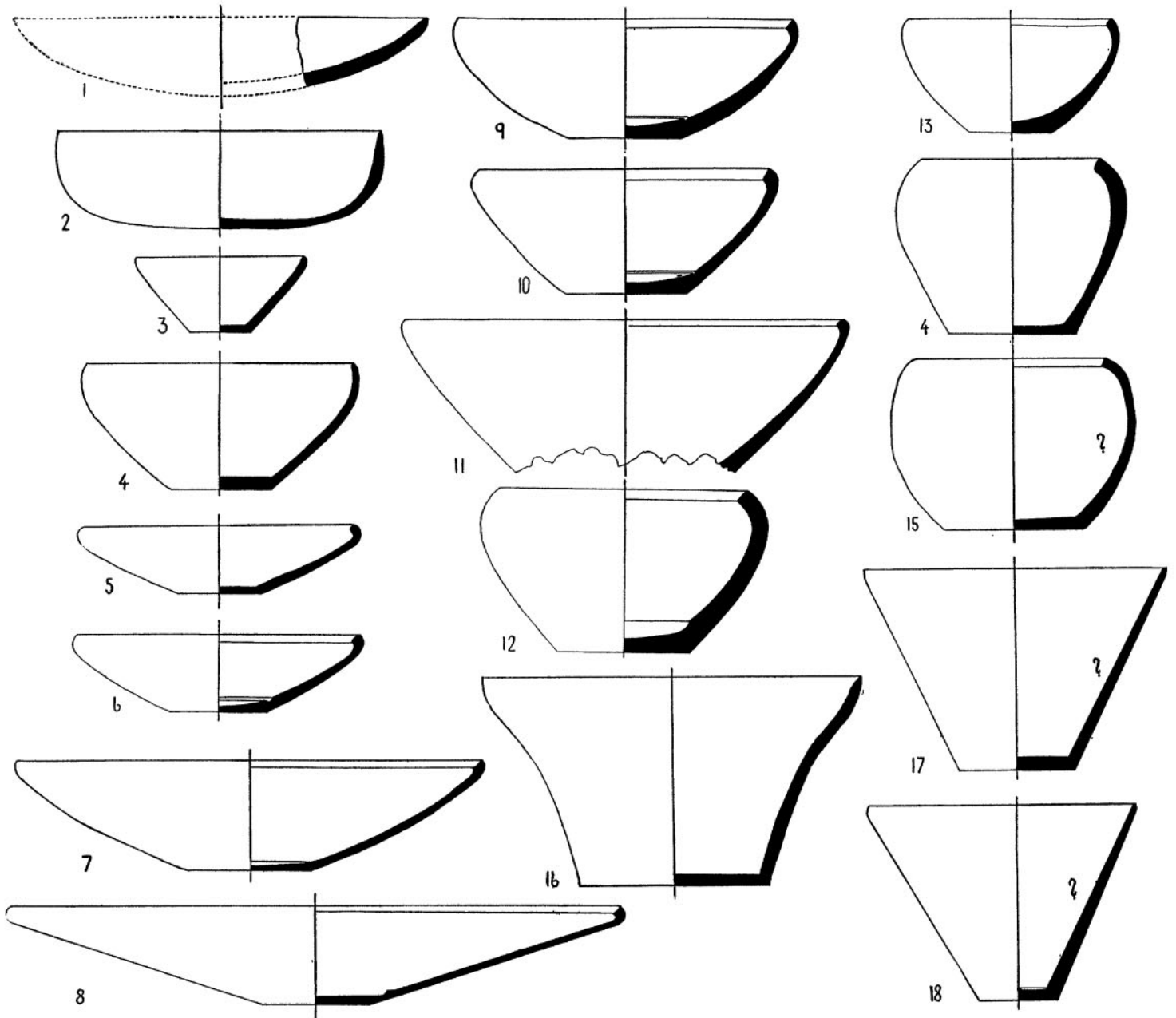


FIGURE 35. DYN. II. VARIATIONS OF TYPES IX AND X. SCALE $\frac{1}{4}$

mit no definite statement. In the private tombs the shallow platters are still found, which served the same purpose as tables and were perhaps mounted on stands of stone or wood. In the tomb of Khasekhemuwy, flat-topped tables occur for the first time and associated with them a number of flat discs which may be taken as the equivalent of the older dished platters.

Deeper bowls with round bottoms also appear in the private graves.

Type 2-IX a (2), platters and shallow dishes:

(1) Reisner, *Naga-'d-Dêr I*, p. 111, type XXVI, eleven examples, eight of slate, two of limestone, and one of alabaster.

** (2) Petrie, *R. T. II*, Pl. XLIX, 141, volcanic ash, tomb of Peribsen (Fig. 35, No. 1).

(3) Petrie and Wainwright, *Tarkhan I*, type 6, five examples of limestone.

Type 2-IX a (2), flat platters, or table-tops:

- * (4) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. III and IV, twenty or more examples of alabaster, Khasekhemuwy.

Type 2-IX b, round-bottomed bowls:

- (5) Reisner, *Naga-'d-Dêr I*, p. 111, type XXIV, six examples, alabaster (Fig. 35, No. 2).
 (6) Petrie and Wainwright, *Tarkhan I*, Pl. XXXVIII, type 27 c.
 (7) Mace, *Naga-'d-Dêr II*, Fig. 93, No. 1.
 (8) Petrie, *Gizeh and Rifeh*, Pl. VI C, 98, limestone, tomb dated to Netery-muw, but never properly excavated.

(5) *Type 2-X. Flat-Bottomed Dishes and Bowls*

The most numerous class of stone vessels in Dynasty II is the flat-bottomed bowl. In his report on the tomb of Khasekhemuwy, M. Amélineau represented 165 dishes, bowls, and cups, and he would add about 116 to that number, making about 281 vessels of this type.¹ Many of these are finely finished examples and with those of Peribsen show that the craft was maintained about on a level with that of Dynasty I. But the convex-sided bowls, especially the deeper forms, are increasing in frequency. At the same time, a number of heavy examples in the tomb of Khasekhemuwy indicate that even the bowls were becoming traditional-ceremonial in character, like most of the other types. The variations in form are produced by similar combinations of details as in Dynasty I.

Hard stones are used for the vessels of the two royal tombs, and the fact must be noted that diorite has become a marked feature of the Khasekhemuwy collection. This is again a case in which that tomb set an example to be followed by the succeeding private tombs of Dynasty III. Alabaster is, however, more frequently used in Dynasty II than any other stone, in the royal tombs as well as in the larger private tombs. At Naga-'d-Dêr, the alabaster bowls formed 25 per cent of the flat-bottomed bowls (type X a and c) of Dynasty I and 46 per cent of those of Dynasty II. The proportion of alabaster vessels increases, however, with the poverty of the graves, and it is unusual to find anything but alabaster or limestone in the vessels of the small graves.

The following list attempts to distinguish between the bowls with plain rim and those with internal rim, but in the case of the mass of vessels reported by M. Amélineau it is quite impossible to distinguish the rims of a large number of bowls.

Type 2-X a (1), flat-bottomed bowl with plain rim:

- ** (1) Amélineau, *Fouilles d'Abydos 1897-98*, Pl. XLVIII, 5-7, slate; Pl. L, 2, alabaster; tomb of Peribsen.
 ** (2) Petrie, *R. T. II*, Pl. XLVII, 28 (Fig. 35, No. 4), 39, crystal; Pl. XLVIII, 89 (Fig. 35, No. 3), porphyry; tomb of Peribsen.
 ** (3) Quibell, *Cat. gén., Archaic Objects*, No. 14445, limestone, inscribed with name of Peribsen, from Amélineau's excavations.
 (4) Reisner, *Naga-'d-Dêr I*, pp. 107-111, types XX b-d, XXI (oval), XXIII, and XXV; forty-three examples, twenty of alabaster, three of slate, eight of volcanic ash, eleven of limestone, and one of blue-veined limestone.
 (5) Petrie and Wainwright, *Tarkhan I*, Pls. XXXII-XXXVIII, types 7, 8, 10, 12-14, 17-20, 26, 27, barring mistakes due to the failure to represent all the rims, twenty-eight to thirty-four vessels, seventeen to twenty-three of alabaster, ten of various limestones, one of dolomite marble.
 * (6) Amélineau, *Fouilles d'Abydos 1896-97*:
 Pl. V, 1-24, alabaster, twenty-four.
 Pl. IX, 1, 3-7, diorite, six.
 Pl. VIII, 20, 21, diorite, two.
 Pl. X, 12, 16, blue-veined marble, two.
 Pl. XII, 12, 14-18, 20, 21, breccia, eight.
 Pl. XIV, 1, 7, porphyry or granite, two.
 Pl. XXI, 11, 12, crystal, two.
 Total, forty-six vessels, probably more on Pl. XIII; original total over ninety-two vessels; tomb of Khasekhemuwy.

Type 2-X c, flat-bottomed bowl with internal rim:

- ** (7) Amélineau, *Fouilles d'Abydos 1897-98*, Pl. XLVIII, 3, alabaster; Pl. XLIX, 1, 3, 4, blue-veined marble; Pl. XLIX, 2, 10-13, alabaster; Pl. L, 1, alabaster; total ten vessels from tomb of Peribsen.
 ** (8) Petrie, *R. T. II*, XLVII-LIII, Nos. 158, 160 (Fig. 35, No. 10), 161, 173, 175, five of volcanic ash; No. 440, colored limestone; Nos. 443 (Fig. 35, No. 9), 481, dolomite marble; Nos. 110 (Fig. 35, No. 5), 497, syenite; see duplicate list, p. 45; ten examples, from tomb of Peribsen.

¹ Amélineau, *Fouilles d'Abydos 1896-97*, p. 221.

- ** (9) Quibell, *Cat. gén., Archaic Objects*, Nos. 14446, 14447 (Fig. 35, No. 7), one of pink and black-veined limestone and the other of alabaster, inscribed with the name of Peribsen.
- (10) Reisner, *Naga-'d-Dêr I*, pp. 107–111, types XVII and XVIII, seventy-five examples, thirty-five alabaster, eighteen slate, nineteen volcanic ash, and one each of blue-veined limestone, marble, and breccia.
- (11) Petrie, *Gizeh and Rifeh*, Pl. VI B, 96 (Fig. 35, No. 14), 97 (Fig. 35, No. 11), alabaster; Pl. VI C, 99–122 (120 = Fig. 35, No. 8), alabaster except one slate; from tomb dated to Netery-muw, but never properly excavated.
- (12) Petrie and Wainwright, *Tarkhan I*, Pls. XXXII–XXXVIII, types 7 k, 9, 21–25, barring mistakes due to failure to represent all the rims, thirty-eight vessels, thirty-one of alabaster, four of dolomite marble, two of limestone, and one of breccia.
- *(13) Amélineau, *Fouilles d'Abydos 1896–97*:
 Pl. VI, 1, 3, 7, 9–12, 14–18, 22, 23, alabaster, fourteen.
 Pl. VII, 1–18, alabaster, eighteen.
 Pl. VIII, 3, 4, dolomite marble, two.
 Pl. VIII, 9, 10, 12–19, diorite, ten.
 Pl. IX, 9, 10, 12–16, 18–20, 23, 26, 27, diorite, thirteen.
 Pl. X, 1–4, 6–11, 17, 18, dolomite marble, twelve.
 Pl. XI, 6, 8, 27–29, blue-veined marble, five.
 Pl. XII, 1–3, 5, 7–11, 13, red and white breccia, ten.
 Pl. XIII, twenty-four bowls of porphyry and similar stones, but the rims are not determinable.
 Pl. XIV, 2, 5, 6, 8, 9, 11, 12, porphyry, seven.
 Pl. XVI, 1, alabaster, one.
 Total, ninety-two bowls, or counting those on Pl. XIII, one hundred and sixteen bowls; adding those undrawn, one hundred and eighty-four or two hundred and thirty-two vessels, from tomb of Khasekhemuwy.
- *(14) Petrie, *Abydos I*, Pl. IX, 13–15 (Fig. 35, Nos. 6, 12, 13), one translucent diorite and two of syenite, tomb of Khasekhemuwy.

Special mention must be made of a tall bowl, almost a jar, with contracted mouth so hollowed and dressed as to form an internal rim, which appears in the tomb of Khasekhemuwy and is a characteristic type of Dynasty III. This seems to have developed from the deep bowls with contracted mouth, but the older bowls have a greater width in proportion to the height and a smaller base in proportion to the width of the mouth. The nearest forms of an earlier date are presented by the bowl of Peribsen,¹ and one from Gizeh,² time of Netery-muw.

Type 2–X d, bowl-jar, with internal rim (Fig. 35, Nos. 14, 15):

- *(15) Amélineau, *Fouilles d'Abydos 1896–97*:
 Pl. VIII, 1, 11, diorite.
 Pl. IX, 2 (Fig. 35, No. 15), 8, 11, 17, 22 (?), 24, 25, diorite.
 Pl. XI, 9, blue-veined marble.
 Pl. XIII, 4, 5, porphyry or granite.
 Pl. XIV, 13, porphyry or granite.
 Total, twelve or thirteen examples.

The deep cup-bowl with concave sides and flaring mouth with plain rim has been found in only one grave of Dynasty II, the large stairway corbel tomb, N 3017, the largest tomb in Cem. N 3000 at Naga-'d-Dêr. No example in stone was found at Tarkhan in either Dynasties I or II, or in either of the two royal tombs at Abydos; but the form occurs in copper in both the royal tombs. Moreover, the stone type is recorded in Dynasty III at Bêt Khallâf and at Zawiat-el-Aryan (see next section). No doubt can therefore be entertained that this form is a rare type of Dynasty II.

Type 2–X b (1) (z), deep bowl with concave sides and flaring mouth:

- (16) Reisner, *Naga-'d-Dêr I*, p. 109, type XIX, red and white breccia (Fig. 35, No. 16).

Closely allied to this form is the similar cup form with straight sides and narrow base, which becomes prominent among the stone vessels of Khasekhemuwy and among the corpus of Dynasty III. The form originated in the time of Menes or even in Dynasty O, but in the royal tombs of Dynasty I at Abydos it is rare and seems to have been replaced by the concave-sided bowls and cups (see preceding paragraph). In the tomb of Khasekhemuwy the form is revived, but in a smaller and more slender variation, an in-

¹ Petrie, *R. T. II*, p. 173.

² Petrie, *Gizeh and Rifeh*, Pl. VI B, 96.

verted truncated cone, easily distinguishable at sight from the forms of the Menes tomb. In this particular, as in so many others, the forms of the Khasekhemuwy tomb set the fashion for Dynasty III.

Type 2-X a (3), straight-sided "conical" cup:

*(17) Amélineau, *Fouilles d'Abidos 1896-97*:

Pl. IV, 8, 9, 13, 14, alabaster.

Pl. VII, 19-27, alabaster, nine examples (Fig. 35, Nos. 17, 18).

Pl. VIII, 7, diorite.

(18) Reisner, *Naga-'d-Dêr I*, p. 109, type XX a, two examples of volcanic ash.

The small cups or bowls with contracted rim and open spout are not common, but five were found at Naga-'d-Der, including one with external band rim. The deeper cup-forms with spout occur in Dynasty III and in the Mycerinus temple.¹

Type 2-X e (1) and (2), small bowls and cups with open spout:

(19) Reisner, *Naga-'d-Dêr I*, p. 110, type XXII, five examples, two small bowls with contracted mouth, one of slate and one of volcanic ash (the latter with grooved rim); three cups, one of slate, and two of limestone.

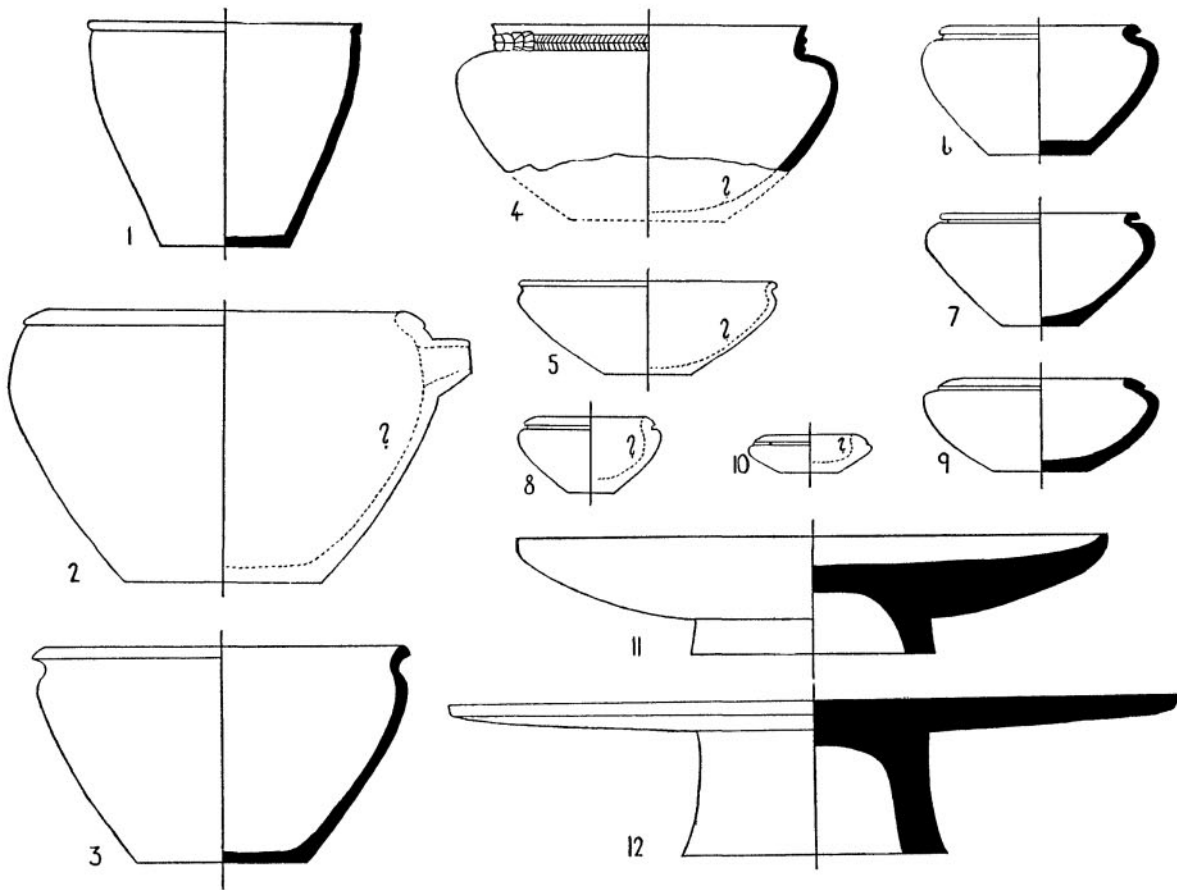


FIGURE 36. DYN. II. TYPES XI AND XII. SCALE $\frac{1}{4}$

(6) Type 2-XI. Bowl with External Rim

The bowl with ledge rim found in Dynasty I has not been recorded in Dynasty II. But one example of another form with a low roll rim was found at Naga-'d-Dêr, a copy of a pottery form (type XXI a) which occurred in the same cemetery.

Type 2-XI a (2), deep bowl with external roll rim.

(1) Reisner, *Naga-'d-Dêr I*, p. 107, type XIV, one of basalt (Fig. 36, No. 1).

Related to this form but more exactly to a pottery form of Dynasty III is a bowl with contracted mouth and low rim, which occurs with spout in the tomb of Khasekhemuwy.² This stone form has been

¹ Cf. the spouted copper form from Khasekhemuwy, *R. T. II*, Pl. IX, 13, 14.

² Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXX, 19.

found in tombs of Dynasty III both with and without the spout and makes another bond between the vessels of Khasekhemuwy and those of Dynasty III.

Type 2-XI a (4), deep bowl with external rim and short tubular spout:

*(2) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XVI, 5, one of alabaster (Fig. 36, No. 2).

The cups and bowls with hollow groove between rim and body are not numerous in Dynasty II. A few examples of both the larger and the small forms have been recorded in private graves. The tomb of Khasekhemuwy, however, provides us with three different forms, which show the transition from the older vessels to those of Dynasty III:

No. (3), below, type 2-XI b (1), the larger groove type of Dynasty I.

*No. (4), below, type 2-XI b (2), the new large type of Dynasty III, with upright recurved rim and cord in relief on rim (like type 1-XI b (1)).

*No. (7), below, type 2-XI e (1), grooved rim, small forms.

No. (9), below, type 2-XI c (2), the degenerate form of type 2-XI c (1), in which the groove has disappeared, and the vessel has become a squat cup with band rim on the contracted mouth.

No. (4) connects the tomb with Dynasty I, and Nos. (7) and (8) set examples which were followed by Dynasty III.

Type 2-XI b (1), grooved rims, large forms:

(3) Reisner, *Naga'-d-Dêr I*, p. 107, type XVI, volcanic ash (Fig. 36, No. 3).

Type 2-XI b (2), deep bowl with upright recurved rim (= type 3-XI c):

*(4) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XXII, 1, 5, two of marble (limestone?), with double cord and knot in relief, Khasekhemuwy (Fig. 36, No. 4).

Type 2-XI c (1), grooved rim, small forms:

(5) Reisner, *Naga'-d-Dêr I*, p. 107, type XV, six examples, three of limestone, two of alabaster, one of volcanic ash (Fig. 36, No. 7).

(6) Petrie and Wainwright, *Tarkhan I*, Pl. XXXVIII, type 42, f (Fig. 36, No. 8), g, three of alabaster; type 34, one of alabaster (Fig. 36, No. 5).

*(7) Petrie, *Abydos I*, Pl. IX, Khasekhemuwy, dolomite marble (Fig. 36, No. 6).

Type 2-XI c (2), small squat cup with band rim on top of contracted mouth (corruption of type 2-XI c (1), above):

*(8) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. V, 15 (Fig. 36, No. 9), alabaster; Pl. XI, 3, blue-veined marble, Khasekhemuwy.

(9) Petrie and Wainwright, *Tarkhan I*, Pl. XXXVIII, type 42, three examples, two of alabaster and one of limestone (Fig. 36, No. 10) (type 42 p).

(7) Type 2-XII. Tables

The dish-topped tables must have continued in use during Dynasty II. Several examples have been recorded at Tarkhan from graves which I would date to Dynasty II, and five examples were found in the Hennekht mastaba at Bêt Khallâf, which is dated to Dynasty III. The dished platters, type 2-IX a (1), must be considered as another evidence of the existence of the type in Dynasty II, as these, ately either with or without supporting stands, may have served the same purpose as the tables.

Type 2-XII a, dish-topped tables:

(1) Petrie and Wainwright, *Tarkhan I*, Pl. XXXII, type 5, two examples of limestone and part of a third of alabaster.

(2) Hearst Expedition, *mss. notes on Naga'-d-Dêr*, grave 523, one of limestone, Dynasties II-III (Fig. 36, No. 11).

No flat-topped table has been recorded in a private grave of Dynasty II, but the tomb of Khasekhemuwy yielded a number of flat-topped tables and flat table-tops (see 2-IX a (2)). This type immediately thereafter, in Dynasty III, appeared in private graves and entirely displaced the dish-topped table.

Type 2-XII b, flat-topped tables:

*(3) Amélineau, *Fouilles d'Abydos 1896-97*, Pl. III 1-16; Pl. IV 1-7, 10-12, 16-18; Pl. X 21, seven tables and over twenty-two table-tops, of alabaster; it is possible that some of these were slightly dished, but Amélineau's photographs do not give decisive evidence on this point (Fig. 36, No. 12).

(D) STONE VESSELS OF DYNASTY III

A far greater number of large graves are known from Dynasty III than from Dynasty II, and these compensate in a way for the absence of royal tombs. First of all the whole class of stairway tombs with underground chambers at Ballás, El-Kab, Reqaqna, Bêt Khallâf, Naga-'d-Dêr, Zawiat-el-Aryan, and Giza may be reckoned to Dynasty III, and most of these are of large size, while two are almost royal in their dimensions. To these are to be added several mastabas at Zawiat-el-Aryan, which are dated to the Horus Khaba. In addition to the larger graves, two cemeteries of quite small graves were excavated by the Hearst Expedition at Naga-'d-Dêr and others elsewhere have been recorded in the publications dealing with the sites mentioned above.

One of the characteristic features of the large graves is the frequent occurrence of the harder stones, diorite, porphyry, syenite, and granite, but especially diorite. In the small graves these harder stones are rare, and alabaster predominates as in Dynasty II. It will be remembered that diorite was introduced in the tomb of Khasekhemuwy.

The forms which give to the corpus of stone vessels of Dynasty III its characteristic appearance are as follows:

- | | | |
|--------|-------------------------|--|
| (1) | Type 3-I d | Cyl. jar, splay foot, concave sides. |
| * (2) | " " III c | Quasi-spheroidal jar. |
| * (3) | " " IV e | Shoulder jar, two handles, wide flat rim. |
| * (4) | " " V a extra | Large wine jar. |
| (5) | " " V e | Like IV e, without handles. |
| * (6) | " " X a (4) | "Conical cup." |
| (7) | " " X b (3) | Shallow flaring bowl with cup-hollow. |
| * (8) | " " X d | Bowl-jar with internal rim. |
| (9) | " " X e (3) | Bowl-jar with spout. |
| (10) | " " XI a (3) | Small basin with external rim. |
| * (11) | " " XI a (4) | Same as XI a (3) with short tubular spout. |
| * (12) | " " XI b (2) | Bowl, upright recurved rim, flat bottom. |
| (13) | " " XI b (3) | Same as XI b (2) with round bottom. |
| * (14) | " " XI c (2) | Small cup with band-rim on contracted mouth. |
| * (15) | " " XII b | Flat-topped table. |

* Occurred in tomb of Khasekhemuwy.

Of the seventy sub-types mentioned in the list on p. 140 (Section on Dynasty I), thirty-eight occur in Dynasty III, divided as follows:

15 forms just mentioned of which nine were already noted in the tomb of Khasekhemuwy.

7 old forms which do not occur after Dynasty III.

16 old forms which persisted until Dynasty IV or later.

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Of the fifteen characteristic sub-types, nine were found, as stated, in the tomb of Khasekhemuwy (marked with a * in the above list). Of the remaining six,

- (1) Type 3-I d was the splay-footed cylindrical jar which appears first in Dynasty III and becomes the predominating form of this type in Dynasties IV-VI.
- (5) Type 3-V e was type 3-IV e without the handles, occurs in a few examples in Dynasty III, and is very common in the Mycerinus collection.
- (7) Type 3-X b (4) was a rare form of which one example is known from Dynasty III, one from Dynasty IV, and several from the Mycerinus collection. The form occurs in pottery in Dynasties IV-VI, but appears to have been a metal form (Professor Garstang).
- (9) Type 3-X e (3), bowl-jar with spout, was like all vessels with spout a rare form, but was copied in the Giza stone models. The original form was the copper ewer.
- (10) Type 3-XI a (3), basin with external rim, was the same as 3-XI a (4) but without the spout. It also was a rare form which did not occur later.
- (13) Type 3-XI b (3), bowl with upright recurved rim and round bottom, appears to have been introduced in the type of Khaba. It is a modification of type 3-XI b (2) and occurs in the Mycerinus collection.

Of the fifteen new forms, twelve were passed on to the Mycerinus collection and sixteen of the old forms, making a total of twenty-eight forms passed on from Dynasty III to the Mycerinus collection.

These facts make it plain that the corpus of stone vessels of Dynasty III, both in the materials employed and in the forms, was the immediate descendant of the corpus of the tomb of Khasekhemuwy. Some of these "new forms" may conceivably have been introduced between the time of Peribsen and that of Khasekhemuwy, but the interval was probably not long, as Khasekhemuwy may have been the immediate successor of Peribsen. The private tombs of Dynasty II present variations of the older forms of Dynasty I; and the private tombs dated to Dynasty III by the names of Zoser, Sanekht, Nebka, and Khaba contained the characteristic sub-types of the tomb of Khasekhemuwy. On the present evidence, the conclusion seems justified that most, if not all, the characteristic sub-types of Dynasty III, which were assembled in the tomb of Khasekhemuwy, actually originated in his reign. The fact that the sub-types of Khasekhemuwy first appeared in private graves in the following generation is entirely in accordance with the principles which I have repeatedly stated, that the line of development lies in the great tombs, that new fashions and forms were created for the royal family and imitated thereafter by lesser men.

(1) *Type 3-I. Cylindrical Jar*

A few of the finer forms of the cylindrical jar with cord, and properly hollowed, still occur in Dynasty III, but a majority of the examples of that period are rude in form and imperfectly hollowed. Dummy jars occur with only a suggestion of hollowing, and the type has clearly become traditional-ceremonial. On the other hand, the later fine form, slender with flaring foot, makes its appearance and this is the form passed on to Dynasties V-VI.

Type 3-I, a and b, better forms with cord or ridge:

- (1) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XIII, 9, from K 1, Netery-khet (Fig. 37, No. 1).
- (2) Garstang, *Third Egyptian Dynasty*, Pl. X, 29, 30, from R 1.
- (3) Mace, *Naga-'d-Dêr II*, p. 42, Nos. 1-4, see text.
- (4) Petrie and Quibell, *Naqada and Ballâs*, p. 15 a, No. 23, Pl. V 23, Pl. X S, 1 b.
- (5) Quibell, *Tomb of Hesy*, Pl. XXVII, 13, at least one example, alabaster (Fig. 37, No. 2).

Type 3-I c, plain forms, often rude and only slightly bored:

- (6) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXII, from K 2, thirteen forms (Fig. 37, Nos. 3, 4, 6, 7); Pl. XXVII, 11-13 (Fig. 37, Nos. 5, 8), from K 4. *Third Egyptian Dynasty*, Pl. X, 27, 28, 31, from R 1 and R 40; Pl. 7 shows eight examples from R 40.
- (7) Mace, *Naga-'d-Dêr II*, p. 42, Nos. 5-11, twelve examples from small graves.
- (8) Petrie and Quibell, *Naqada*, pp. 4-8, stairway tombs, nine examples are mentioned.
- (9) Quibell, *El-Kab*, pp. 7-10, stairway tombs, "vertical jars" in four tombs.
- (10) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, five alabaster from stairway N 587; and two alabaster from shaft mastaba N 561 (earlier than Sneferuw mastaba).
- (11) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, twenty-five examples (ten dummies), alabaster from mastaba Z 500, time of Khaba.
- (12) Quibell, *Tomb of Hesy*, Pl. XXVII, 9, 10, not more than twenty, alabaster.

Type 3-I d, slender form with flaring foot:

- (13) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XI, two alabaster, from K 1 (Fig. 37, Nos. 9, 10).

(2) *Type 3-III. Spheroidal Jar with Horizontal Handles*

The old spheroidal jar with two horizontal handles still occurs in Dynasty III and is still made of the harder stones, porphyry, syenite, etc. Originating in the Middle Predynastic Period, it had become a ceremonial jar long before Dynasty III and from Dynasty I down had been found only in royal tombs, except in miniature form. Four examples have been recorded from large stairway tombs and one miniature from another. The flat-bottomed form of this jar was introduced in Dynasty I, and several examples are ascribed to Dynasty III. The more common flat-bottomed vessel of this type (3-III c), which has a higher form with squared shoulder, intermediate between the spheroidal jar with round bottom and the true shouldered jar with handles (type 3-IV e), was introduced in the tomb of Khasekhemuwy. In general, the Third Dynasty vessels of this type are badly finished, with unpierced handles and rudimentary boring.

Type 3-III a, round-bottomed spheroidal jar:

- (1) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXVII, 1 (Fig. 38, No. 1), syenite, from K 5; Pl. XXIV, from K 4; Pl. XX, alabaster, from K 2. *Third Egyptian Dynasty*, Pl. IX, 9 (Fig. 38, No. 2), 10, diorite and breccia, from R 1.

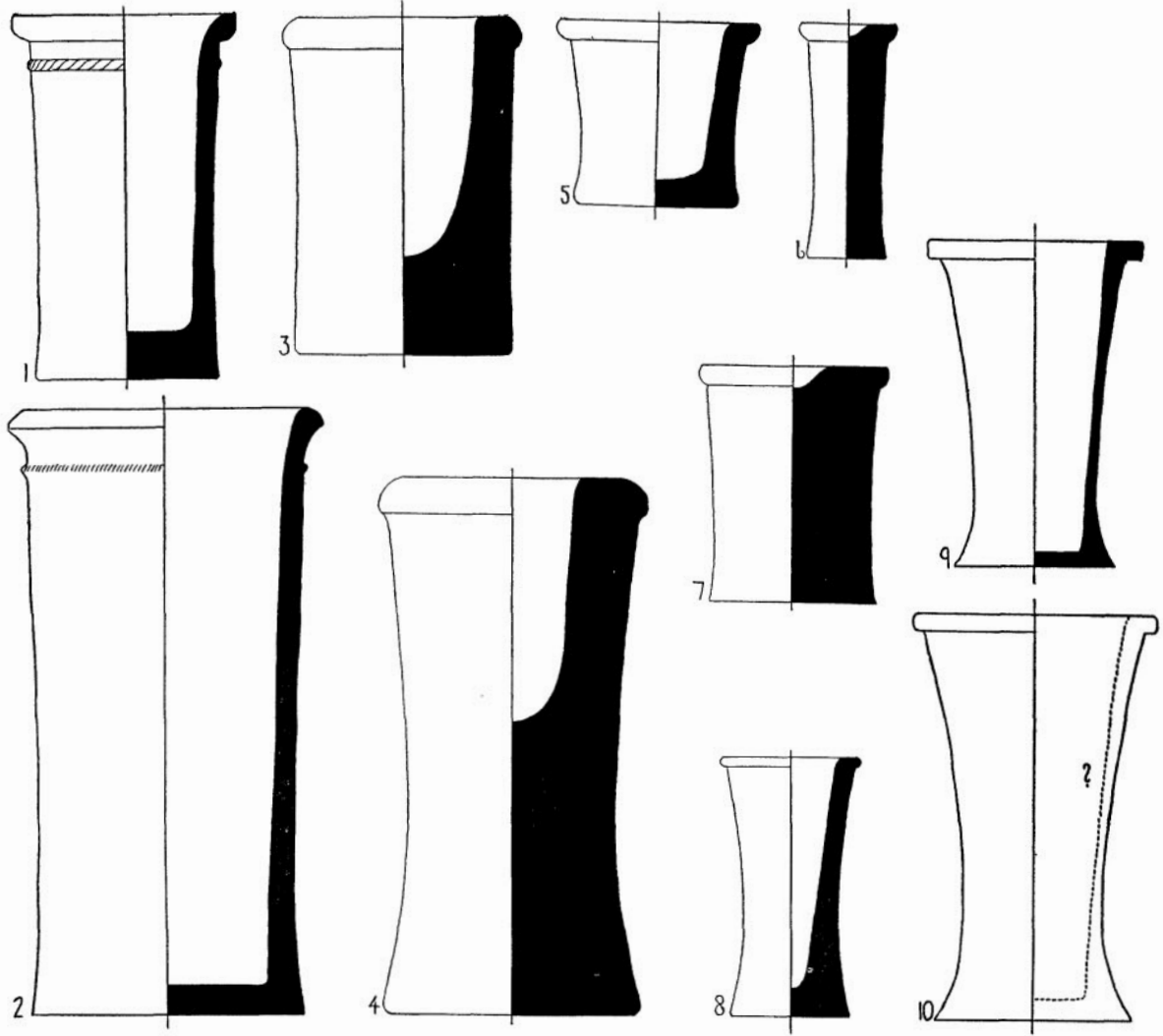


FIGURE 37. DYN. III. STONE VESSELS, TYPE I. SCALE $\frac{1}{4}$

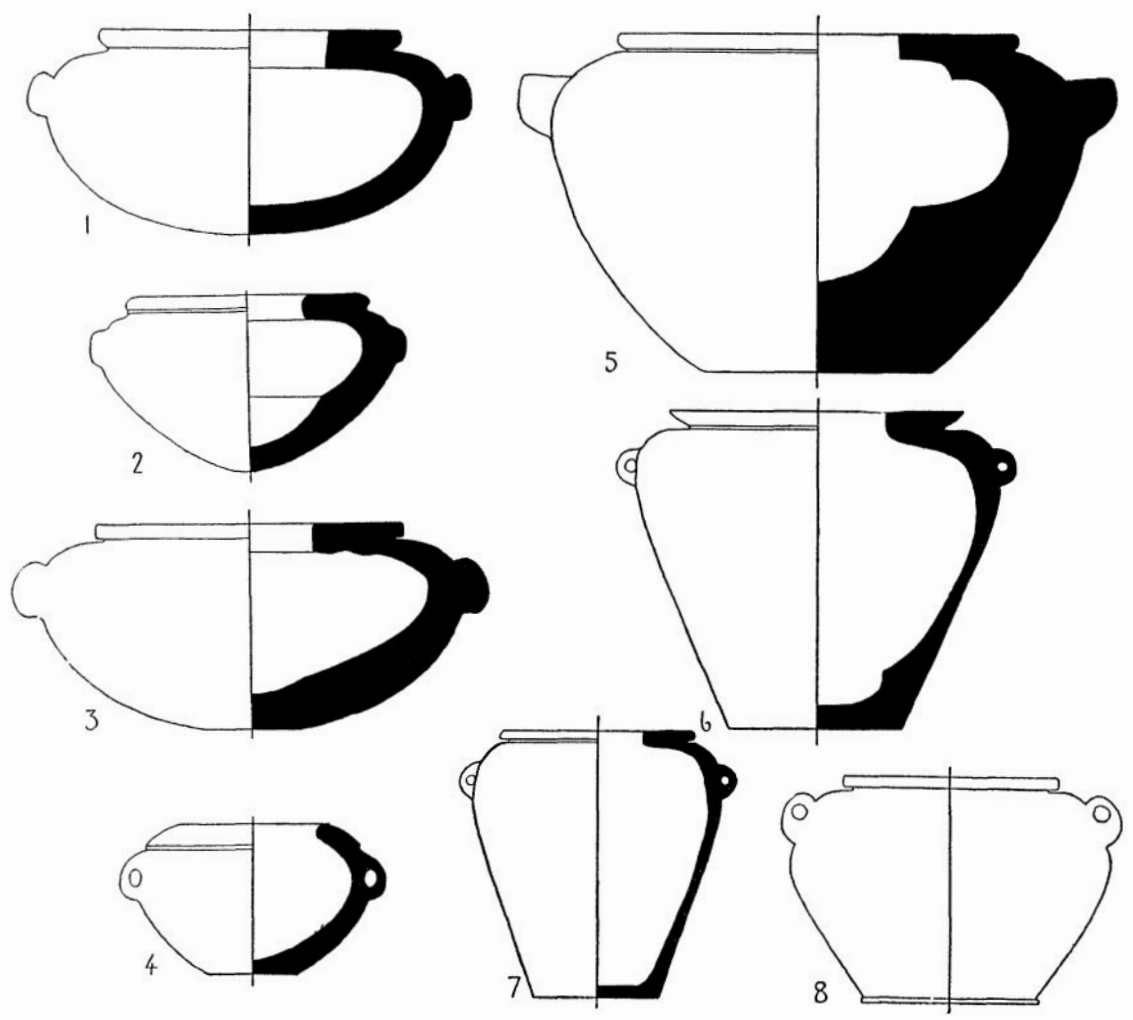


FIGURE 38. DYN. III. STONE VESSELS, TYPES III AND IV. SCALE $\frac{1}{4}$

- (2) Petrie, *Gizeh and Rifeh*, Pl. VI D, 121, diminutive variation, from mastaba T.
- (3) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, one porphyry from mastaba Z 500, time of Khaba.

Type 3-III b, flat-bottomed spheroidal jar:

- (4) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXVII, 2, (Fig. 38, No. 3), syenite, from K 5.
- (5) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, seven examples of porphyry from mastaba Z 500, time of Khaba.

Type 3-III c, quasi-spheroidal jar with shoulder, flat bottom:

- (6) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XX, breccia, from K 2. *Third Egyptian Dynasty*, Pl. IX, 11 (Fig. 38, No. 4), breccia, from R 1; Pl. VII shows two examples from that tomb.
- (7) Quibell, *Tomb of Hesy*, Pl. XXVII, 2 (Fig. 38, No. 5) and 5, eleven examples, all heavy, of porphyry or gabbro, late stairway.
- (8) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, porphyry, from late stairway tomb N 689.
- (9) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, one example, porphyry, from Z 500, time of Khaba.

(3) Type 3-IV. Shoulder Jar with Horizontal Handles

Curiously enough, two examples of the old predynastic barrel-shaped jar with two horizontal handles have been found in a cemetery of Dynasties II-III.

Type 3-IV a, old form of handled jar = PD-IV a:

- (1) Mace, *Naga-'d-Dêr II*, p. 44, No. 8, found in the surface débris, porphyry.
- (2) Hearst Expedition, *mss. notes of Cem. N 500 at Naga-'d-Dêr*, grave 639, contracted burial in wooden box with coarse pottery jars (see Mace, *Naga-'d-Dêr II*, Fig. 86, No. 11), pink limestone.

Considering the materials and technique of these jars, I have no doubt that both were actually predynastic jars, re-used for burial purposes at a time when the use of stone vessels was largely a matter of tradition.

The characteristic jar of type IV is the later form with the true shoulder and wide disc mouth like those so common in the Mycerinus temples.

Type 3-IV d, two-handled shoulder jar, high form:

- (3) Quibell and Green, *Hierakonpolis*, Pl. XXXVI, granite, unpierced handles, boring unfinished, inscribed with the name of Khasekhem.
- (4) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXVII, 3, syenite, from the large stairway mastaba K 5 (Fig. 38, No. 8).
- (5) Mace, *Naga-'d-Dêr II*, p. 44, No. 7, from a small brick-lined grave with mastaba, alabaster, with four other alabaster vessels (Fig. 38, No. 7).
- (6) Petrie and Quibell, *Naqada*, p. 6 a, stairway tomb 522, probably refers to H 40, but provenience of H 40 is not discoverable from the publication.
- (7) Quibell, *El-Kab*, Pl. X, 29, from stairway tomb No. 5 (?), according to text, p. 8 (misprint?).
- (8) Quibell, *Tomb of Hesy*, Pl. XXVII, 3, from large stairway mastaba (end of Dynasty III), alabaster (Fig. 38, No. 6).
- (9) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, grave 553; shaft mastaba N 561 (earlier than Sneferuw mastaba); both alabaster.
- (10) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, three of alabaster, one with dummy handles, from Z 500, time of Khaba.

This type is represented among the vessels on the wall of the Hesy tomb (Quibell, *Tomb of Hesy*, Pl. XV) and at Medûm in a tomb of the next period (Petrie, *Medum*, Pl. XV, left-hand side), where they are labelled as containers of oils or perfumes.

(4) Type 3-V. Shoulder Jar without Handles

The shoulder jars, although not so common as in Dynasty II, are fairly well represented, as in the tomb of Khasekhemuwy. A few large forms have been found in the great stairway tombs; but the smaller forms, especially the barrel-shaped jar and the squat jar, are numerous in the first half of the dynasty. One large jar, imitating a pottery wine jar with network of cords, was found in the tomb of Hesy (a late stairway tomb).

Type 3-V extra, tall jar:

- (1) Quibell, *Tomb of Hesy*, Pl. XXVII, 11, alabaster; cf. the jars from the tomb of Khasekhemuwy (type 2-V extra).

Type 3-V a (1), large or medium-sized jar:

- (2) Garstang, *Third Egyptian Dynasty*, Pl. XI, four different forms, alabaster, from R 1 and R 40 (Fig. 39, Nos. 1-4).
 (3) Quibell and Green, *Hierakonpolis*, Pl. XXXVII, alabaster, inscribed with the name of Khasekhem (?).

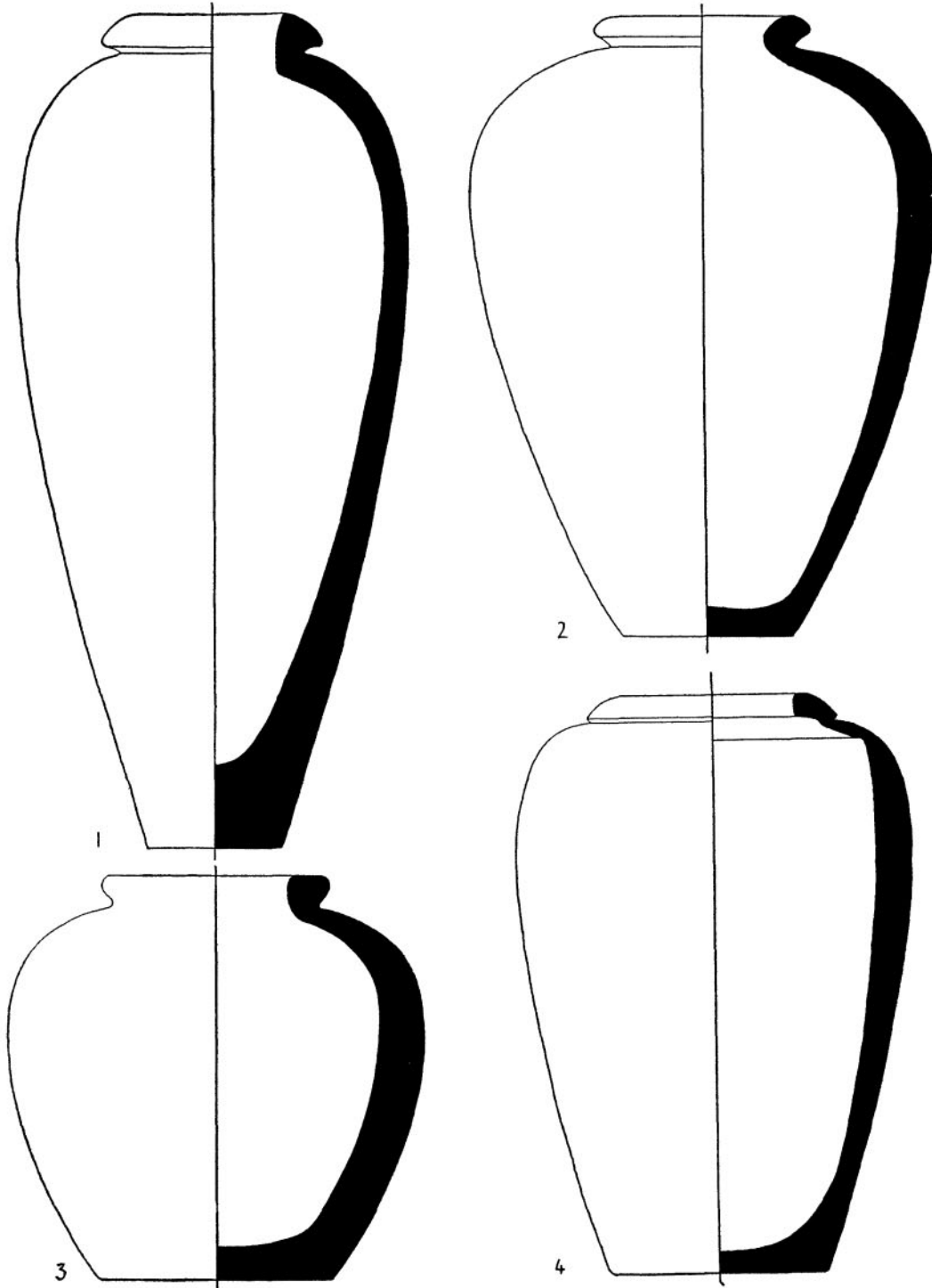


FIGURE 39. DYN. III. STONE VESSELS, TYPE V A (1). SCALE $\frac{1}{4}$

- (4) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, from late stairway tomb, N 587, alabaster (h., 24 cm.).
 (5) Harvard-Boston Expedition, *mss. notes on Zawiât-el-Aryan*, two of alabaster, from mastaba Z 500 (time of Khaba), barrel-shaped.
 (6) Quibell, *Tomb of Hesy*, Pl. XXVII, 12, two of alabaster.

Type 3-V a (2), small-shouldered jar:

- (7) Mace, *Naga-'d-Dêr II*, p. 44, Fig. 101, Nos. 3-6 (Fig. 40, No. 1), Fig. 102, Nos. 4, 5, six examples of alabaster, from small brick-lined graves.
 (8) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, three examples from small graves N 513, 536, and 637, alabaster.

Type 3-V b (2), truncated ovoid or barrel-shaped jar, small:

(9) Garstang, *Third Egyptian Dynasty*, Pl. IX, 23, three examples from R 40 (see Pl. VII). *Mahásna and Bêt Khalláf*, Pl. XXVII, 9, 10, from K 4 (Fig. 40, Nos. 2, 3).

(10) Mace, *Naga-'d-Dêr II*, p. 45, Fig. 102, Nos. 1-4, twelve examples, alabaster, from small brick-lined graves.

(11) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, one from stairway N 599 and nineteen from small graves.

Type 3-V c (1), sharp-shouldered jar, high form:

(12) Petrie and Quibell, *Naqada*, p. 5a, stairway tomb 162, Pl. XI, 26, and from small tombs 260 and 275 (p. 7b).

(13) Garstang, *Third Egyptian Dynasty*, Pl. VIII, 1 and Pl. IX, 12 (Fig. 40, No. 4), from stairway R 40.

(14) Petrie, *Gizeh and Rifeh*, Pl. VI E, 143, from large stairway mastaba T.

(15) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, one from stairway N 593, and from small grave N 581.

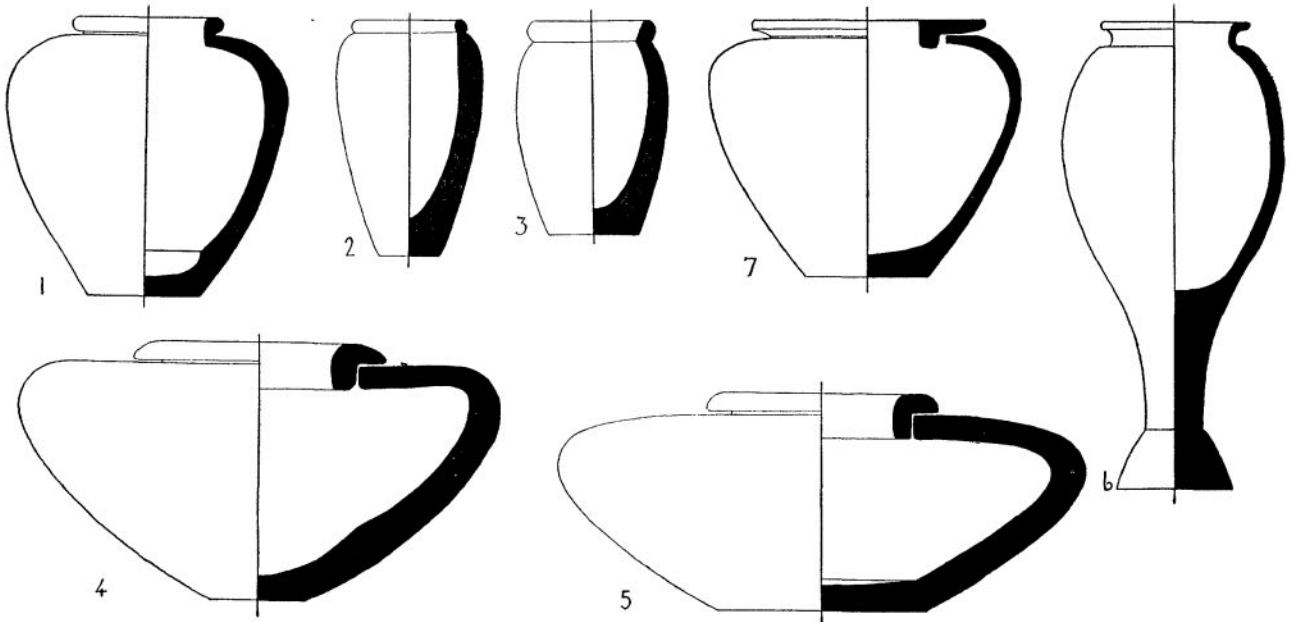


FIGURE 40. DYN. III. STONE VESSELS, TYPES V A-E. SCALE $\frac{1}{4}$

Type 3-V c (2), sharp-shouldered jar, squat form:

(16) Garstang, *Mahásna and Bêt Khalláf*, Pl. IX, 22 (Fig. 40, No. 5) from R 40 and, according to Pl. VII, three other examples from same tomb.

(17) Mace, *Naga-'d-Dêr II*, p. 44, Fig. 101, Nos. 1, 2, two examples only.

(18) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, one from the early stairway N 573, and eight from small graves.

NOTE: This small ceremonial jar was not found in later stairway tombs at Naga-'d-Dêr or in the grave of the time of Khaba at Zawiat-el-Aryan.

Type 3-V d, *hes*-form jar:

(19) Mace, *Naga-'d-Dêr II*, Pl. XLVI a, 12 (Fig. 40, No. 6).

Type 3-V e, broad-shouldered jar with ledge rim around mouth. (See 2-IV e):

(20) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, one from the shaft grave N 739, time of Sneferuw (Fig. 40, No. 7).

See also the vessels represented on the walls of the tombs in Professor Petrie's *Medum*, Pls. XIII and XV, and in Mr. Quibell's *Tomb of Hesy*, Pls. XXI and XXII.

(5) Type 3-IX. Round-Bottomed Dish and Bowl

The round-bottomed platters and bowls have almost disappeared in Dynasty III, except those with recurved rims (see type 3-XI, below).

Type 3-IX a (1), round-bottomed platter:

(1) Garstang, *Third Egyptian Dynasty*, Pl. IX, 17, from R I (Fig. 41, No. 1).

(2) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, one alabaster, from N 561, previous to Sneferuw.

(3) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, three heavy of alabaster, from mastaba Z 500, time of Khaba (total alabaster bowls, thirty-three).

Type 3-IX b, round-bottomed bowl:

(4) Petrie, *Gizeh and Rifeh*, Pl. VI D, 127, alabaster, from mastaba T (Fig. 41, No. 2).

(5) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, two deep bowls, alabaster, from mastaba Z 500, time of Khaba.

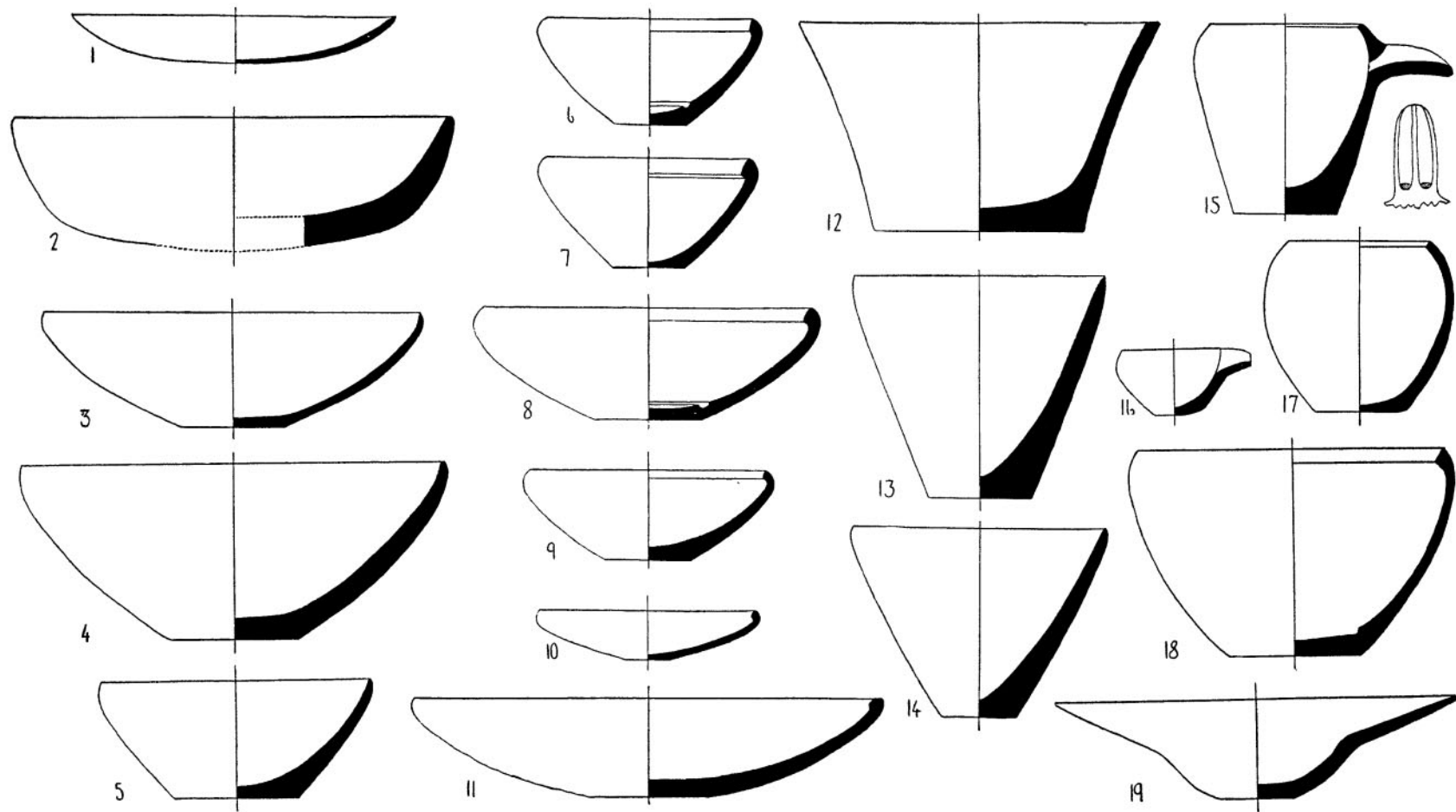


FIGURE 41
 DYN. III. STONE VESSELS, TYPES IX AND X. SCALE $\frac{1}{4}$

(6) *Type 3-X. Flat-Bottomed Bowl*

In Dynasty III, as in Dynasty II, the flat-bottomed bowls are more common than any other type of vessels. The variations of form may be described by the same symbols and combinations of symbols as in Dynasties I and II. But the group of bowls of Dynasty III on close examination proves to have a different appearance from that of the group of Dynasty I or of Dynasty II down to Khasekhemuwy. It is indeed nearly identical in its forms to the Khasekhemuwy group. There are more examples with convex sides, and the convexity is usually greater; fewer examples with sharp internal rim, and the slope of the rim is different; and the proportion of deep vessels has increased. A very characteristic form is the conical cup, both straight sided and concave sided, which is widely distributed, but occurs in no great numbers in any one grave. Another form which requires special notice is the wide bow with internal rim, one of the finer forms, which was found in six examples at Zawiat-el-Aryan, and bears the name of the Horus Khaba.¹ The materials of this bowl are veined marble and diorite. The same form in diorite occurs also with the name of Sneferuw (Dynasty IV).

The following references give the main material for the flat-bottomed stone bowls of Dynasty III, showing the examples with internal rim as distinguished from those with plain rim, but not attempting to mark the variations which merge into each other.

Type 3-X a (1), plain rim:

- (1) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XII, 18 (Fig. 41, No. 5), 19, breccia and alabaster, from K 1; Pl. XIV, 15 (Fig. 41, No. 3), 16-19, 20 (Fig. 41, No. 4), 24, alabaster, from K 1; Pl. XXI, 4, 6, 8, 9, 11, alabaster, from K 2; Pl. XXVII, 4, alabaster from K 5.
Third Egyptian Dynasty, Pl. VIII, 2, 8, diorite, from R 40; Pl. IX, 16, 18 (breccia), 19, 20, alabaster, from R 40.
- (2) Petrie, *Gizeh and Rifeh*, Pl. VI D-E, 123 (alabaster), 134, from mastaba T.
- (3) Mace, *Naga-'d-Dêr II*, p. 43, Fig. 98, Nos. 7-10 (10 is diorite; rest, alabaster), six examples from small graves.
- (4) Quibell, *Tomb of Hesÿ*, Pl. XXVII, 7, five examples of alabaster.
- (5) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, one of alabaster, from stairway N 587; one of alabaster (platter), from N 561, previous to Sneferuw mastaba.
- (6) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, twenty-five of alabaster, from mastaba Z 500, time of Khaba.

Type 3-X c, with internal rim:

- (7) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XII, 1-17 (2, 4, 5, 6, 14 = Fig. 41, Nos. 10, 6, 9, 7, 8), porphyry, syenite, and breccia, from K 1; Pl. XIII, 1-8 (Fig. 41, No. 11), 10-12, alabaster, from K 1; Pl. XXI, 1, 2, 3, 5, 7, alabaster, from K 2; Pl. XXVII, 7, alabaster, from K 5.
Third Egyptian Dynasty, Pl. VIII, 3-7, diorite and porphyry, many examples from R 1; Pl. IX, 15, alabaster, from R 40.
- (8) Petrie, *Gizeh and Rifeh*, Pl. VI B-E, 97, 100-120 (alabaster), 125 (alabaster), 126 (syenite), 128 (syenite), 129 (alabaster), 130 (syenite), 131 (alabaster), 132 (diorite), 133 (alabaster), 138 (limestone), 139 (limestone), 140 (porphyry), 142 (diorite), 144 (diorite).
- (9) Mace, *Naga-'d-Dêr II*, p. 43, Fig. 98, Nos. 1-6; all of alabaster, seven examples from small graves.
- (10) Quibell, *Tomb of Hesÿ*, Pl. XXVII, 4, 8, fourteen examples of diorite and porphyry.
- (11) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, three of alabaster and one of porphyry, from stairway N 587; one of porphyry, from stairway N 573 and one of dark diorite (?), from stairway N 599; one translucent diorite, from stairway N 689; one translucent diorite, from shaft mastaba N 739, inscribed with Horus name of Sneferuw.
- (12) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, ten examples of diorite, three of alabaster, and five of veined marble; the marble bowls are inscribed with the name of Horus Khaba.

Of the more unusual forms, the following may be noted for comparison with Dynasties I and II:

Type 3-X a (3), deep cup with straight sides and plain mouth, "conical cup":

- (13) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XIV, 21-23, alabaster, three from K 1 (Fig. 41, Nos. 13, 14).
Third Egyptian Dynasty, Pl. X, 32, alabaster, from R 40.
- (14) Petrie, *Gizeh and Rifeh*, Pl. VI D, 124, syenite, from mastaba T; I also saw a number more from this same tomb among the vessels found by Mr. Covington.
- (15) Mace, *Naga-'d-Dêr II*, p. 43, Fig. 100, No. 2, alabaster.
- (16) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, two from stairway mastaba N 587, one from stairway mastaba N 593; and three others from the small graves N 511, N 546, N 547; all of alabaster.
- (17) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, three of alabaster, from Z 500, time of Khaba.

¹ See Gauthier, *Livre des rois*, I, p. 42.

Type 3-X b (1) (z), deep cup with flaring plain mouth and concave sides:

(18) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXI, 14, alabaster, from K 2.

(19) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, one of alabaster, from Z 500, time of Khaba.

Type 3-X e (2) and (3), cup with spout:

(20) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXI, 10, 12, alabaster, from K 2; a bowl-jar with spout (Fig. 41, No. 15).

(21) Quibell, *El-Kâb*, Pl. X, 26, from stairway tomb 2 and No. 19 from small grave L 166 (Fig. 41, No. 16).

(22) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, from shaft mastaba, 564.

The deep bowl-jar of the Khasekhemuwy tomb may be noted especially, although in my lists its predecessors have not been distinguished from the other flat-bottomed bowls with internal rim.

Type 3-X d, bowl-jar with internal rim:

(23) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXVII, 8, one of alabaster, from K 5.

(24) Petrie, *Gizeh and Rifeh*, Pl. VI E, 145, diorite (Fig. 41, No. 18).

(25) Mace, *Naga-'d-Dêr II*, Fig. 100, Nos. 1, 2, both of alabaster, from small graves.

(26) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, one diorite, from stairway N 573; and two of alabaster, from small graves N 531 and N 541.

(27) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, one of diorite, from Z 500, time of Khaba.

A single example of a very curious form was found in a stairway mastaba at Naga-'d-Dêr, which must be mentioned here as it occurs also in the Mycerinus collection. Professor Garstang found a similar bowl at Reqaqna (Dynasty IV) and noted the obvious suggestion of metal technique in its details. Professor Petrie has recorded a curious form¹ which may be connected with type X b (4). If so, the older stone form may have been copied from an older form of the copper vessel from which type X b (4) was copied.

Type 3-X b (4), flaring cup with concave sides and a cup hollow in bottom, inside:

(28) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, alabaster (diam., 15 cm.), from late stairway mastaba N 587 (Fig. 41, No. 19).

(7) Type 3-XI. Bowl with External Rim

In Dynasty III, the bowls with external rim imitate closely the sub-types found in the tomb of Khasekhemuwy. Type 2-XI a (4) of that tomb, the deep bowl with external rim and short tubular spout, recurs in Dynasty III and, further, the same form without a spout. As already stated, similar pottery forms are known from Dynasty I,² and the exact form from Dynasty III.³ Nevertheless, the form seems more naturally explained as a copper form.

Type 3-XI a (3), deep bowl with contracted mouth and low external rim, flat base, without spout:

(1) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XIV, 25, alabaster, from K 1 (Fig. 42, No. 1).

(2) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, two examples of alabaster, from stairway N 587; one alabaster, from small grave N 634.

Type 3-XI a (4), deep bowl with contracted mouth and low external rim, flat base, with short tubular spout.

(3) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XIII, 13, 14 (Fig. 42, Nos. 2, 3) and Pl. XXI, 13, all alabaster, from K 1 and K 2.

Third Egyptian Dynasty, Pl. X, 33, alabaster, from R 1.

(4) Quibell, *Tomb of Hesy*, Pl. XXVII, 1, three examples of alabaster, from late stairway tomb.

(5) Hearst Expedition, *mss. notes on Naga-'d-Dêr*, one of alabaster, from stairway N 599.

(6) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, one alabaster, from Z 500, time of Khaba.

One example of the bowl with grooved rim has been found at Bêt Khallâf and is nearly a duplicate of the bowl with grooved rim found by Petrie in the tomb of Khasekhemuwy.

Type 3-XI b (1), bowl with grooved rim:

(7) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXVII, 5, alabaster, from K 5 (Fig. 42, No. 4).

But in general, the grooved bowls and cups have given way to the modified forms of Khasekhemuwy. The bowl with upright recurved rim occurs without the cord in relief and with both flat and round

¹ Petrie, *Royal Tombs II*, Pl. LI F, 305, from tomb O.

² See Reisner, *Naga-'d-Dêr I*, p. 97.

³ See Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXX, 19.

bottom. It was impossible to determine the bottom of the Khasekhemuwy bowls from the photographs in the publication, but they were no doubt flat, as the round-bottomed form does not appear in Dynasty III until late, probably in the time of Khaba.

Type 3-XI b (2), deep bowl with upright recurved rim and flat base:

- (8) Garstang, *Third Egyptian Dynasty*, Pl. IX, 14, alabaster, from R 40 (Fig. 42, No. 5).
- (9) Hearst Expedition, *mss. notes on Naga'-d-Dêr*, one of diorite, from shaft mastaba N 561, earlier than Sneferuw (Fig. 42, No. 6); one of diorite and two of alabaster, from small graves N 545, N 555 (diorite, Fig. 42, No. 7), and N 572.

Type 3-XI b (3), same as above with round bottom:

- (10) Quibell, *El-Kab*, Pl. X, 33, diorite, from stairway 8 (Fig. 42, No. 8).
- (11) Quibell, *Tomb of Hesy*, Pl. XXVII, 19, one of alabaster (see below), (Fig. 42, No. 9).
NOTE: This form is also a pottery form of the tomb of Hesy.
- (12) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, two examples of diorite, from Z 500, time of Khaba.

This bowl with upright recurved rim is the manifest predecessor of the beautiful bowls with flaring recurved rim which occur in Dynasties IV-VI. Its origin is obscure, perhaps, as suggested, derived from the stone bowl with grooved rim, or perhaps from a copper form. The earliest examples of pottery forms are:

- (a) Garstang, *Third Egyptian Dynasty*, Pl. XIII, 1.
- (b) Quibell, *Tomb of Hesy*, Pl. XXVII, 19.
- (c) Petrie, *Gizeh and Rifeh*, Pl. VI D, 122, from mastaba T.

In the time of Sneferuw, the pottery bowls with recurved rim became more common,¹ and were found in almost all the Cheops and Chephren mastabas at Giza. All these pottery forms have a round bottom like the late stone form 3-XI b (3). Judging from all this material, examples of the wheel-made pottery type are known from the latter part of Dynasty III, and the potter's wheel probably came into use in Dynasty III or late in Dynasty II.

In Dynasty III, the small squat cup with contracted mouth and grooved rim has been replaced by the Khasekhemuwy form in which the groove has disappeared and the rim has become a low band on top of the contracted mouth.

Type 3-XI c (2), squat cup with band rim:

- (13) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXVII, 6 (Fig. 42, No. 11), alabaster, from K 5; No. 14, large alabaster, from K 4; Pl. XI, one of diorite (?), from K 2.
Third Egyptian Dynasty, Pl. IX, 13, 21 (Fig. 42, No. 10), three examples, alabaster, breccia, and porphyry (cf. Pl. VII), from R 40.
- (14) Quibell, *El-Kab*, Pl. X, 17, 18, 30, 44, one of ivory, from stairway 2; one of alabaster, from stairway 8; one of diorite, from small grave L 206; and fifteen others from the small tombs summarily described on Pl. XXVII.
- (15) Mace, *Naga'-d-Dêr II*, p. 43, Fig. 100, Nos. 4-6, seven examples, all alabaster, from small graves.
- (16) Petrie, *Gizeh and Rifeh*, Pl. VI E, 137, porphyry, from mastaba T.
- (17) Hearst Expedition, *mss. notes on Naga'-d-Dêr*, one alabaster, from stairway N 587; two alabaster, from stairway N 599; three examples, diorite, from shaft mastaba N 561, previous to Sneferuw; and thirteen examples from small graves, seven of alabaster, four of diorite, one of breccia, and one of limestone.

(8) Type 3-XII. Table

With Dynasty III, the flat-topped table, which was apparently introduced by Khasekhemuwy, became fairly common. But a few examples of the older dish-topped table have been found in the earliest graves of this period. The flat-topped table occurs also in Dynasty IV and as late as Dynasty VI, but the great period of this shape begins with Khasekhemuwy and ends early in Dynasty IV.

Type 3-XII a, dish-topped table:

- (1) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXIX, 1 (Fig. 42, No. 12), 2, 3, 5 (Fig. 42, No. 13), 6, alabaster, from K 1, K 3, K 5.

¹ See Petrie, *Meydum and Memphis*, Pl. XXV.

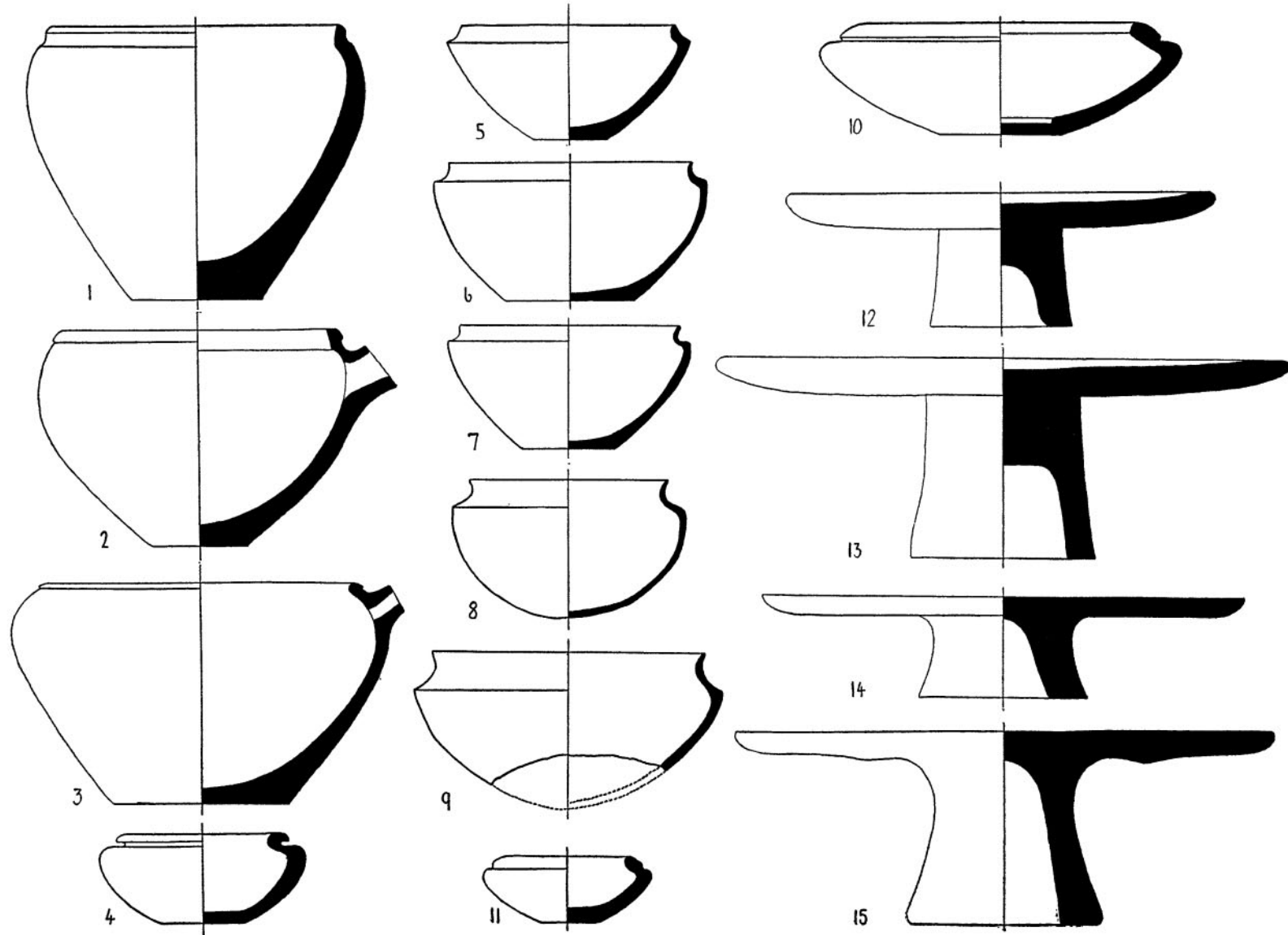


FIGURE 42
 DYN. III. STONE VESSELS, TYPES XI AND XII. SCALE $\frac{1}{4}$

Type 3—XII b, flat-topped table:

- (2) Garstang, *Mahásna and Bêt Khalláf*, Pl. XXIX, 7, 8 (Fig. 42, No. 14), 9 (Fig. 42, No. 15), alabaster, from K 1, K 2, K 5.
Third Egyptian Dynasty, Pl. VIII, seven examples of alabaster, from R 1 and R 40.
- (3) Quibell, *El-Kab*, Pl. X, 49, from stairway 6.
- (4) Mace, *Naga'-d-Dêr II*, p. 46, two examples, from small graves.
- (5) Petrie and Quibell, *Nagada and Ballás*, pp. 4-7, Pl. XVI, Nos. 167-170, from stairway tombs, B 201, 265, 353, 524, 764.
- (6) Quibell, *Tomb of Hesy*, Pl. XXVII, 6, thirteen of alabaster and three of porphyry.
- (7) Hearst Expedition, *mss. notes on Naga'-d-Dêr*, six of alabaster, from the stairway tombs N 573, N 587, N 599, and N 689; two of alabaster, from the shaft tomb N 561 and N 739 (time of Khaba); and five of alabaster and two of limestone, from small graves.
- (8) Harvard-Boston Expedition, *mss. notes on Zawiat-el-Aryan*, three alabaster, from Z 500, time of Khaba.

(E) STONE VESSELS OF DYNASTY IV

Dynasty IV witnessed a great change in the use of stone vessels in Egypt. The ceremonial-traditional character of many forms was exhibited by numerous examples of Dynasty III cited above, although some fine examples continued to be placed in the great stairway and early shaft tombs. The reign of Sneferuw brought the end of the old tradition of placing many stone vessels in the grave. A number of fairly well made diorite bowls inscribed with his name have been found widely distributed through Upper Egypt, and one very fine group of vessels was recorded from the tomb of Kamena at El-Kab. In this group was one of the beautiful round-bottomed bowls with flaring recurved rim made of translucent diorite of which a few examples occur in Dynasties V and VI. This form is the one great addition to the corpus of stone vessels known to us in Dynasty IV. But after the reign of Sneferuw, the great mastabas in the royal cemeteries of Cheops and Chephren at Giza contained few stone vessels, and these seldom polished, while stone models, often quite rude, occurred in numbers and in a variety of forms in these same mastabas. In the smaller graves of Dynasty IV, stone vessels are extremely rare, as rare as in any period of Egyptian history. The only stone types of the older period which are well represented in Dynasty V are the cylindrical jar with flaring foot (and lid) and the bowl with recurved rim (now often with a spout). Isolated examples of a few other older types have been found in Dynasty V — the quasi-spheroidal jar with two handles, the flaring cup, and the small cup with band-rim; but the most common vessels of this dynasty have new forms — the beautiful tapering jars, the similar jar with flat base, and the small jars with collar, all of which are copies of pottery or metal forms of Dynasty IV. Thus the use of stone vessels of the old traditional forms in private tombs came practically to an end with the reign of Sneferuw. The fact that the tradition was maintained for the royal tombs of both Dynasties IV and V emphasizes its abandonment in private graves.

The significance of this rather sudden decline in the manufacture of the old traditional forms of stone vessels becomes clear when the fact is noted that contemporaneous with the decline of stone vessels came the spread of the use of wheel-made pottery of fine forms, copying especially the types of stone vessels with recurved rim. The question as to when the potter's wheel came into general use is not easy to answer. The manufacture of practicable and beautiful stone vessels diminished little in Dynasty II, when stone vessels were certainly still being made for daily use. The vessels in the small graves of Dynasty III are generally of a ceremonial character and appear to have been made for funerary purposes, not for daily life. The conclusion seems obvious that pottery had taken the place of stone vessels in daily life early in Dynasty III, but the new wheel-made pottery does not appear until the very end of that Dynasty. The conclusions which I think most plausible are: (1) that the potter's wheel was invented or introduced towards the end of Dynasty II; (2) that wheel-made pottery was introduced for the purposes of daily life immediately after; (3) that the traditional forms of both stone and pottery vessels, steadily degenerating, continued to be made for the grave during Dynasty III; (4) that at the end of Dynasty III the wheel-made pottery, having been long in use, began to be placed in the graves; (5) that the traditional forms of stone vessels came practically to an end at the close of the reign of Sneferuw; (6) that at Giza, stone models were substituted from the reign of Cheops down; (7) that in Dynasty V, in Upper Egypt, a revival of the manufacture of very fine forms took place,

but these were usually quite small models, and followed generally the forms of the Giza models. The two larger forms are copies of wheel-made pottery jars of Dynasties IV–VI.

(1) *Type 4-I. Cylindrical Jar*

The cylindrical jar has taken on definitely the slender concave form with splayed foot. A few examples of the older form still occur, especially in dummy jars and in small models of alabaster and limestone. One example of the later disk lid is recorded, and the shape is in general a transition to the fine small jars of Dynasties V–VI and later. Needless to say, the cord around the neck has at last disappeared.

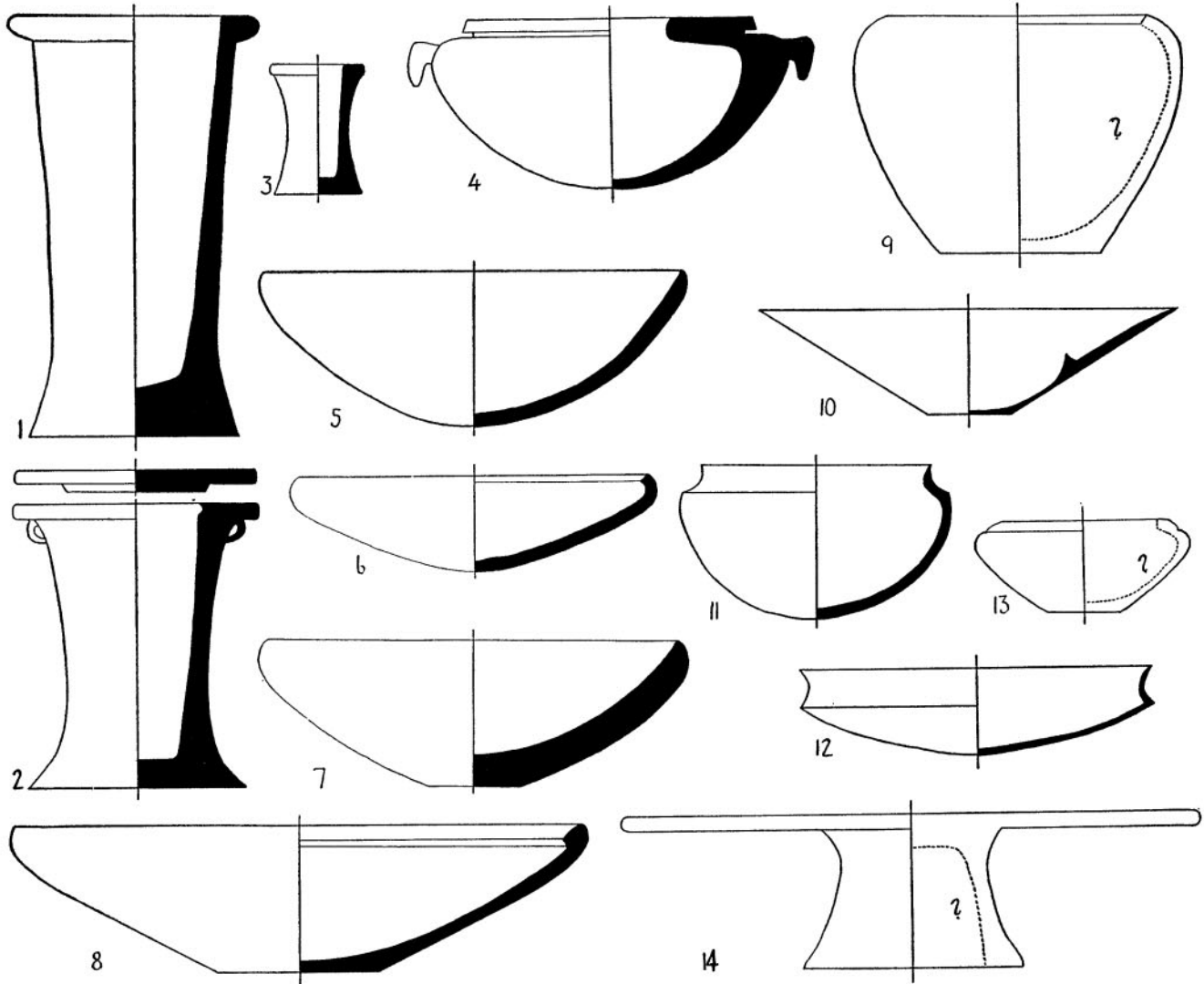


FIGURE 43. DYN. IV. STONE VESSELS. SCALE $\frac{1}{4}$

Type 4-I, c-d, cylindrical jar and dummy jar:

- (1) Quibell, *El-Kab*, Pl. X, 48, three from the Kamena tomb, mastaba A, reign of Sneferuw or Cheops; two from mastaba B (later than A); two from mastaba C, pits 4 and 5 (later than B); one each from 318, 88, and 233. All of alabaster.
- (2) Garstang, *Third Egyptian Dynasty*, Pls. 24, XXXII, one of alabaster and one of breccia, from R 63 (built just previous to R 64, date of Sneferuw or Cheops); Pl. XXXI, two of alabaster, from R 92, dated to Chephren or next reign.
- (3) Petrie, *Meydum and Memphis*, Pl. XXIV, 6, 8, 9 (Fig. 43, Nos. 2, 1), alabaster, from shaft tomb 55 (No. 8 of pronounced splay form, has two small horizontal handles just under the rim, and also a disk lid); Nos. 11–13, 15, fifteen of limestone and one of alabaster, all dummies, from shaft tomb 50.
- (4) Harvard-Boston Expedition, *mss. notes on great cemetery at Giza Pyramids*; one of alabaster from each of the Chephren mastabas, G 4240 and G 4640 (Fig. 43, No. 3). This represents the total from eight mastabas.

Type 4-I e, model jar:

- (5) Harvard-Boston Expedition, *mss. notes on the great cemetery at Giza Pyramids*. G 4631 B, one fine alabaster, Dynasty V (Fig. 44, No. 2).

G 4530 A, one fine splay jar and one rude old form jar, limestone, Chephren (Fig. 44, Nos. 3, 6); twelve, splay and straight forms, white limestone, Chephren.
 G 5733 E, three of alabaster, both forms, Dynasty V (Fig. 44, Nos. 4, 5).
 G 4520 B, one fine form, six, splay form, alabaster, Chephren (Fig. 44, No. 1).
 Other examples of both forms and of some very rude forms were found in the mastabas, G 4341 A, G 4631 B, and G 4733 E, all of Dynasty V.

(2) *Type 4-III. Spheroidal Jar with Handles*

The spheroidal jar with handles has also practically ceased, except for the examples in royal tombs.

Type 4-III, spheroidal jar with round bottom and undercut handles:

(1) Petrie, *Meydum and Memphis (III)*, Pl. XXIV, 14, granite, from shaft tomb 50 (Fig. 43, No. 4).

(3) *Type 4-IV. Shoulder Jar with Handles*

The shoulder jar with horizontal handles has not been found in any private grave of Dynasty IV, but does occur in the Mycerinus collection. At Giza we found one small model, however, of a shoulder

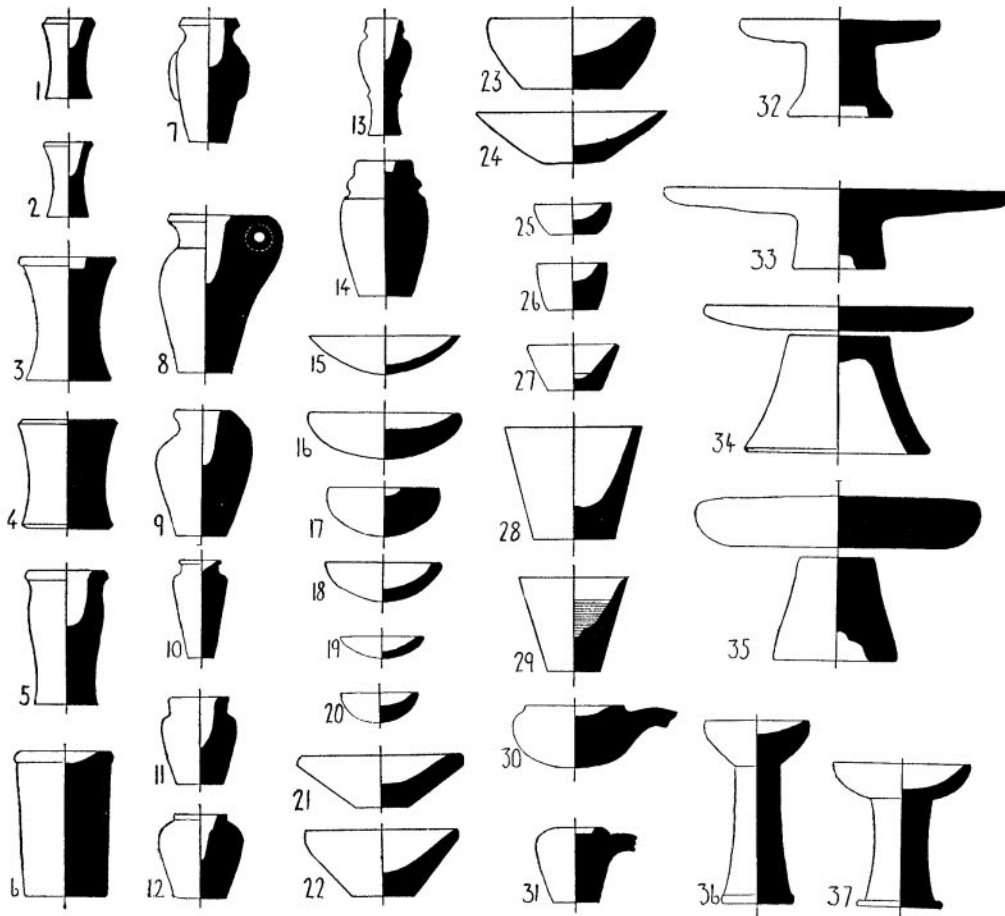


FIGURE 44. DYN. IV-V. MODEL STONE VESSELS

jar with neck and two side handles, which seemed to be a model of the two-handled pottery jar (Fig. 44, No. 7). There were also two stone models of a one-handled necked jar (Fig. 44, Nos. 8, 9) also a copy of a pottery form. Both these pottery forms occurred in the Cheops and Chephren mastabas.

(4) *Type 4-V. Shoulder Jar without Handles*

The shoulder jars also have practically disappeared. But the small stone models of a number of different shapes (Fig. 44, Nos. 10, 11, 12) occur in the Chephren and later mastabas at Giza. Some of these are duplicated in pottery models and all seem to be imitations of pottery rather than stone forms. The form with collar and small flat base, which is so characteristic a feature of the fine models of Dynasties V-VI, occurs in both stone and pottery (Fig. 44, Nos. 13, 14).

(5) *Type 4-IX. Round-Bottomed Platter and Bowl*

A few examples of round-bottomed platters and bowls occur as well as a large number of stone models, at Giza only. The earlier vessels are well finished, but the later ones and the models are merely smoothed.

Type 4-IX b, bowl:

- (1) Petrie, *Meydum and Memphis*, Pl. XXIV, 1-3, alabaster, from shaft tomb 55 (Fig. 43, No. 5).

Type 4-IX c, bowl with internal rim:

- (2) Harvard-Boston Expedition, *mss. notes on the great cemetery at Giza Pyramids*.

G 4640, alabaster, tapering body, sharp internal rim, contracted mouth, new form (Fig. 43, No. 6).

Type 4-IX d, models of platters, dishes, and bowls:

- (3) Harvard-Boston Expedition, *mss. notes on the great cemetery at Giza Pyramids*, numerous examples in alabaster and limestone, from the Chephren mastabas, G 4140 (Fig. 44, No. 18), G 4340 (Fig. 44, No. 15), G 4520, and G 4530 (Fig. 44, Nos. 16, 17); also from the mastabas of Dynasty V, G 4631 B (Fig. 44, Nos. 19, 20), G 4733 E, etc.

(6) *Type 4-X. Flat-Bottomed Dish and Bowl*

The examples of flat-bottomed bowls and models are more numerous than those with round bottom, as always heretofore. The earlier examples are again well finished, while the later are, in general, rude and unpolished.

Type 4-X a (1), plain rim:

- (1) Harvard-Boston Expedition, *mss. notes on Giza*, one alabaster (diam., 24.6 cm.), from G 4640 (Fig. 43, No. 7), Chephren; one diorite (diam., 18.2 cm.), from G 4733 E, Dynasty V.

Models: All the flat-bottomed model dishes have plain rim, or are dummies.

G 4140, fifteen, alabaster, Chephren (Fig. 44, Nos. 21-23).

G 4340, one, alabaster, Chephren (Fig. 44, No. 24).

G 4530, fifty of white limestone, Chephren.

G 4631 B, twelve, alabaster, Dynasty V (Fig. 44, Nos. 25-27).

G 4733 E, sixty-nine, alabaster, Dynasty V.

Type 4-X c, with internal rim, pans and bowls:

- (2) Quibell, *El-Kab*, Pl. X, 35 (Pl. III), one from mastaba A (Kamena, time of Sneferuw or Chephren); one from mastaba B (later than A), three from mastaba C (later than B), one from mastaba E, and four from mastaba 288 (one with name of Sneferuw); one each from shaft tombs 318 and 319; all these are of diorite.

- (3) Garstang, *Third Egyptian Dynasty*, Pl. 25, one of alabaster, inscribed with name of Sneferuw, from R 64; Pl. 31, one of diorite from R 92, dated to Chephren.

- (4) Hearst Expedition, *mss. notes on Naga'-d-Dêr*, one of diorite from shaft tomb N 604.

- (5) Harvard-Boston Expedition, *mss. notes on Giza*, two of alabaster (diam., 30 and 33 cm.), from mastaba G 4440, Chephren (Fig. 43, No. 8).

Type 4-X d, with internal rim, deep cup or open jar (bowl-jar):

- (6) Quibell, *El-Kab*, Pl. X, 39, one slate from mastaba 288; one alabaster (?) from shaft tomb 88; and one from shaft 204 (?).

- (7) Garstang, *Third Egyptian Dynasty*, Pls. 24, and XXXII, one diorite from R 63 (older than 64); one diorite from R 94 (probably Chephren or later) (Fig. 43, No. 9).

Some of the more unusual variations of the flat-bottomed bowls which occurred in Dynasty III are found also in Dynasty IV, but most of them only as models not as actual vessels.

Type 4-X a (3), straight-sided conical cup, models:

- (8) Petrie, *Meydum and Memphis*, Pl. XXIV, 5, alabaster, from shaft tomb 55.

- (9) Harvard-Boston Expedition, *mss. notes on the great cemetery at Giza Pyramids*, one alabaster from G 4140 and eight alabaster from G 4340, Chephren (Fig. 44, Nos. 28, 29).

See also herein cups of Cheops, p. 233.

Type 4-X e (3), cup with spout, models only, copying copper forms of Dynasties III-IV:

- (10) Harvard-Boston Expedition, *mss. notes on the great cemetery at Giza Pyramids*, two ewer-form of alabaster from G 4140 and G 4530 (Fig. 44, No. 31), Chephren.

One example again occurs in Dynasty IV of the alabaster cup with concave sides and hollow in the bottom, of which one example was noted in Dynasty III.

Type 4-X b (4), flaring cup with concave sides and a cup-hollow in bottom inside (see Dynasty III, same type):

- (11) Garstang, *Third Egyptian Dynasty*, Pl. XXXII, alabaster, from R 63, time of Sneferuw or Chephren; Garstang notes that this is a copper form (Fig. 43, No. 10).

(7) *Type 4-XI. Cup and Bowl with Recurved Rim*

The two forms of cups and bowls with recurved rim still occur. But the small squat cup with low band rim on the contracted mouth is recorded only in Upper Egypt at El-Kab. Three examples of the larger bowls are known, of which one, with upright rim, has a flat base, and two, one with upright and one with flaring rim, have round bottoms. The bowl with flaring recurved rim is of translucent diorite — a typical example of the beautiful bowls of Dynasties V and VI.

Type 4-XI b (3), deep bowl with upright recurved rim, round bottom:

- (1) Quibell, *El-Kab*, Pl. X, 33 (Pl. III), one of porphyry from mastaba A (Kamena; name of Sneferuw), (Fig. 43, No. 11).

Type 4-XI b (5), wide bowl with flaring recurved rim, round bottom:

- (2) Quibell, *El-Kab*, Pl. III, one of translucent diorite, from mastaba A (Kamena; name of Sneferuw) (Fig. 43, No. 12).

Type 4-XI b (6), model as b (5) with spout: (3) Harvard-Boston Expedition, *mss. notes*, limestone from G 4530 (Fig. 44, No. 30), Chephren.

Type 4-XI c (2), small squat cup with band rim on contracted mouth:

- (4) Quibell, *El-Kab*, Pl. X, 44, one porphyry from mastaba C (later than Sneferuw) (Fig. 43, No. 13); one diorite from shaft grave 319; one of "stone" from shaft grave 88.

(8) *Type 4-XII. Flat-Topped Table*

The flat-topped tables occur in most cemeteries of Dynasty IV, and in model forms in the Giza mastabas.

Type 4-XII a, flat-topped table:

- (1) Quibell, *El-Kab*, Pl. X, 49 (Fig. 43, No. 14), one of alabaster from mastaba A (Kamena; time of Sneferuw); one in mastaba B, two in mastaba C, and one each in the shaft tombs 288 (time of Sneferuw) and 319, all of alabaster.
- (2) Garstang, *Third Egyptian Dynasty*, Pls. 24 and XXXII, alabaster, from R 63 (previous to R 64); Pl. 25, one alabaster from R 64 (time of Sneferuw).
- (3) Harvard-Boston Expedition, *mss. notes on Giza*, one alabaster (diam., 47 cm.) from G 4440 (Chephren); one alabaster (diam., 38 cm.) from N 4640 (Chephren).

Type 4-XII c, flat-topped table, models:

- (4) Harvard-Boston Expedition, *mss. notes on Giza*, one of alabaster (diam., 10.5 cm.) from G 4530 (Chephren) (Fig. 44, No. 32); one of alabaster (diam., 17 cm.) from G 4631 B (Dynasty V), (Fig. 44, No. 33); two alabaster (diam., 9.6 cm. and 6.7 cm.), from G 4733 E (Dynasty V) (Fig. 44, Nos. 34, 35).

(9) *Type 4-XIII. Bowl-Stands and Jar-Stands*

The bowl-stands and jar-stands are represented in the models, but always with the bowl or jar attached and made of the same piece of stone.

Type 4-XIII a, bowl-stands, models:

- (1) Harvard-Boston Expedition, *mss. notes on Giza*, G 4733 E, two, one of alabaster and one of limestone (Fig. 44, Nos. 36, 37).

Type 4-XIII b, jar-stands, models:

- (2) Harvard-Boston Expedition, *mss. notes on Giza*, G 4520, two examples of alabaster; G 4631, one of alabaster (Fig. 44, No. 13).

2. STONE VESSELS OF MYCERINUS

(A) PROVENIENCE (SEE PLS. 66 b, c; 32 d; 71 f.)

The majority of the stone vessels were found in the valley temple magazines north of the central offering room, especially in rooms (III, 6, 7, 9, 10, 11, 12, 13). The vessels with very few exceptions were broken, but the fragments were on the floor of the Dynasty IV mud-brick temple (the first mud-brick temple). Although broken, many complete vessels were pieced together from the fragments. It is possible that the breakage was done intentionally at the time when the vessels were deposited; but part at least was due to the decay of the structure and to plundering. The middle rooms, (8), (14), and (15), had been entirely cleared out except for some fragments under the edges of the walls. The débris of the courtyard in the northwest quarter opposite these rooms contained a large number of fragments of stone vessels, some of which fitted on fragments found in the rooms. The fragments in the courtyard

were under the house walls, proving that the plundering of the magazines took place in Dynasty V. Other fragments were found scattered even as far as the house walls east of the front wall of the temple. A fragment of the hard stone squat jar, No. 64, found in (III, 7), was recovered in (I, 3); and a fragment of the flint bowl of Ra-neb, from (III, 7), was found in floor débris in the northwest corner of the court. Fragments were found in the débris of the latest houses, and I believe, therefore, that the theft of stone fragments for the manufacture of model saucers continued during Dynasty VI. Many unfinished examples of stone models were found, and, while most of them were undoubtedly made of fragments of statues, some of the saucers may have been made of fragments of vessels.

(B) DATE OF THE STONE VESSELS

A few of the stone vessels were inscribed, and in every such case the inscription gave the name of an earlier king. The examples were as follows:

- (1) Pl. 70 c. A bowl made of a flint nodule. The last inscription consists of a figure of a cat-headed goddess seated facing to right and immediately in front of her a hawk with the double crown on a frame which contains the Horus name, Hetep-sekhemuwy. This was incised on an erasure. To the right of the Horus frame, a partly erased inscription is seen, hawk and frame containing the name, Ra-neb. Traces of inscription are also visible above the seated goddess and a little to the left, which seem to indicate a third Horus name entirely erased. The conclusion results that Hetep-sekhemuwy was later in date than Ra-neb; that on the Cairo statue (No. 1) the order of the three names should be read: Ra-neb, Neteru-muw, and Hetep-sekhemuwy (see p. 103, note 1). That is, the name of the living king was placed first, then the oldest and then the predecessor of the living king.
- (2) Fig. 57, No. 37. A diorite bowl with a Horus name scratched inside. The name is illegible, but the traces suggest Hetep-sekhemuwy.
- (3) Fig. 57, No. 38. A diorite bowl with the name of Sneferuw in a cartouche scratched on the inside.
- (4) Fig. 57, No. 2. A diorite bowl with the name of Sneferuw without a cartouche; scratched.
- (5) Fig. 46, No. 99. Fragment of an alabaster cylindrical jar incised with the corner of a rectangular frame; inside the frame is the double crown of a figure, but the rest was never found.

No stone vessel was found with the name of Mycerinus himself.

On pp. 102-105, the significance of these older names has been discussed, and the conclusion drawn that the greater part of the stone vessels were made for the Mycerinus tomb and although many of them were still unfinished, all were placed in the temple by Shepseskaf as they were.

(C) TECHNIQUE OF THE STONE VESSELS

In general it may be said that, while almost all the forms of stone vessels are related to older forms of Dynasties I-III, the examples found in the Mycerinus temples, in common with those found in Dynasty IV mastabas, are generally crude and heavy. The walls are thick, and the smoothing is careless, even in finished specimens. In other words, the technique of the vessels of this period shows a general deterioration.

At the same time, the pottery of Dynasty V, especially in the large mastabas, shows a variety of fine practical forms beautifully made on the wheel. Thus it is clear that for ordinary household purposes the new pottery had displaced the stone vessels and that the stone vessels found in the tombs were made for funerary purposes as a matter of tradition. They were not taken from palace furniture, but were made for the grave. The fact that a few examples of beautifully finished vessels have been found in this and later periods shows that the crudeness of the work was not due to lack of skill but to haste and carelessness.

The methods of boring stone vessels with a boring stone fixed in a forked shaft weighted at the top and turned by a crank¹ continued to be used for all sorts of vessels.² The cylindrical hole was enlarged by rubbing with a stone held in the hand. The outside seems to have been finished by rubbing, but some of the unfinished hard stone vessels showed bruising marks as if they had been roughly formed before boring by hammering. No evidence was found of turning, such as concentric scratches on the outside of the vessel.

¹ See Reisner, *Naga'-d-Dêr I*, p. 1.

² See Davies, *Gebrâwi I*, Pls. XIII, XIV, XXIV; Steindorff, *Grab des Ti*, Pl. 134: 

In addition to the stone borer, a cylindrical tube borer was also used, especially for limestone and alabaster. The cutting edge appears to have been flat and left a groove about three millimeters wide.¹ In two cases where no attempt had been made to smooth away the stump of the core, the groove contained a fine gritty powder, not unlike pumice, tinged with green copper oxide. From this, it is to be concluded that the tube was of copper or of some alloy composed largely of copper. The tube may have been weighted with stones and worked by a crank handle or turned back and forth between the palms of the hands. The grooves on the cores and on the unsmoothed sides appear to be spiral, as if the turning were continuous in one direction. The outside surface was finished by rubbing, as in the case of the stone-bored vessels.

The holes in the handles had been bored from both sides and are widened at the entrances by the lateral play of the borer. They may have been made by a flint or copper drill set in the end of a round stick and turned by hand.² Pumice-like powder was probably used to increase the bite of the point.

(D) MATERIALS

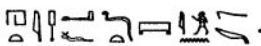


The total number of stone vessels, actually pieced together and drawn, from fragments found in the Mycerinus valley temple, was 546. In addition there was a large number of unattached fragments representing at least a hundred vessels or more. When the plundering and scattering are taken into account, it may be reasonably assumed that several hundred vessels have entirely disappeared and the whole number of vessels originally in the magazines of the valley temple was something over 800. At the pyramid temple, the vessels actually represented by the fragments found was less than 100. The magazine spaces in the pyramid temple were altogether much less than at the valley temple, and it may be concluded that the original number of stone vessels at the pyramid temple was also much less, possibly 200 or 300. For the present statistical purpose I take the 537 vessels drawn from the remains at the valley temple. The number of these is so great that the percentages based on them will probably not be far removed from the original percentages. In any case these vessels form the most reliable body of evidence now available.

The following table shows the numbers and the percentages of the vessels arranged according to material:

Material	Types	Forms	Number	Per cent
Alabaster	11	27	310	56.78
Porphyry and syenite	6	12	79	14.47
Diorite	8	22	74	13.55
Blue-veined limestone	4	6	50	9.16
Basalt	4	8	21	3.85
Slate	3	3	3	.55
Red and white breccia	2	3	3	.55
Volcanic ash	2	3	3	.55
Rose quartz-crystal	1	1	1	.18
Flint	1	1	1	.18
Yellow limestone	1	1	1	.18
Totals	33	42	546	100.00

The significance of these percentages has already been discussed in the section on Stone Vessels of Dynasty I (p. 139). Diorite, although known in scattered examples in the royal tombs of Dynasty I, was greatly favored in the tomb of Khasekhemuwy and became popular in the large tombs of Dynasty III. The blue-veined limestone is, I believe, included in the "grey marble" mentioned by Petrie, the "marble" of *Naga-'d-Dêr I*, the blue marble of Khasekhemuwy, and the veined marble of the Khaba vessels. Like the diorite, it was more frequent in the tomb of Khasekhemuwy than previously. The basalt is the same coarse brown stone as that of the Predynastic Period and the Abydos tombs. The slate, the breccia, and the volcanic ash were materials much more frequent in the Early Dynastic Period and

¹ See Petrie, *Pyramids*, Pl. XIV, 7, 8, p. 175, bottom.

² See bow-drill used on wood. Steindorff, *Grab des Ti*, Pl. 133; inscription . See also hand drilling of stone, *l.c.*, inscription ; also Davies, *Gebrâwi I*, Pl. XIII, Reg. 3. .

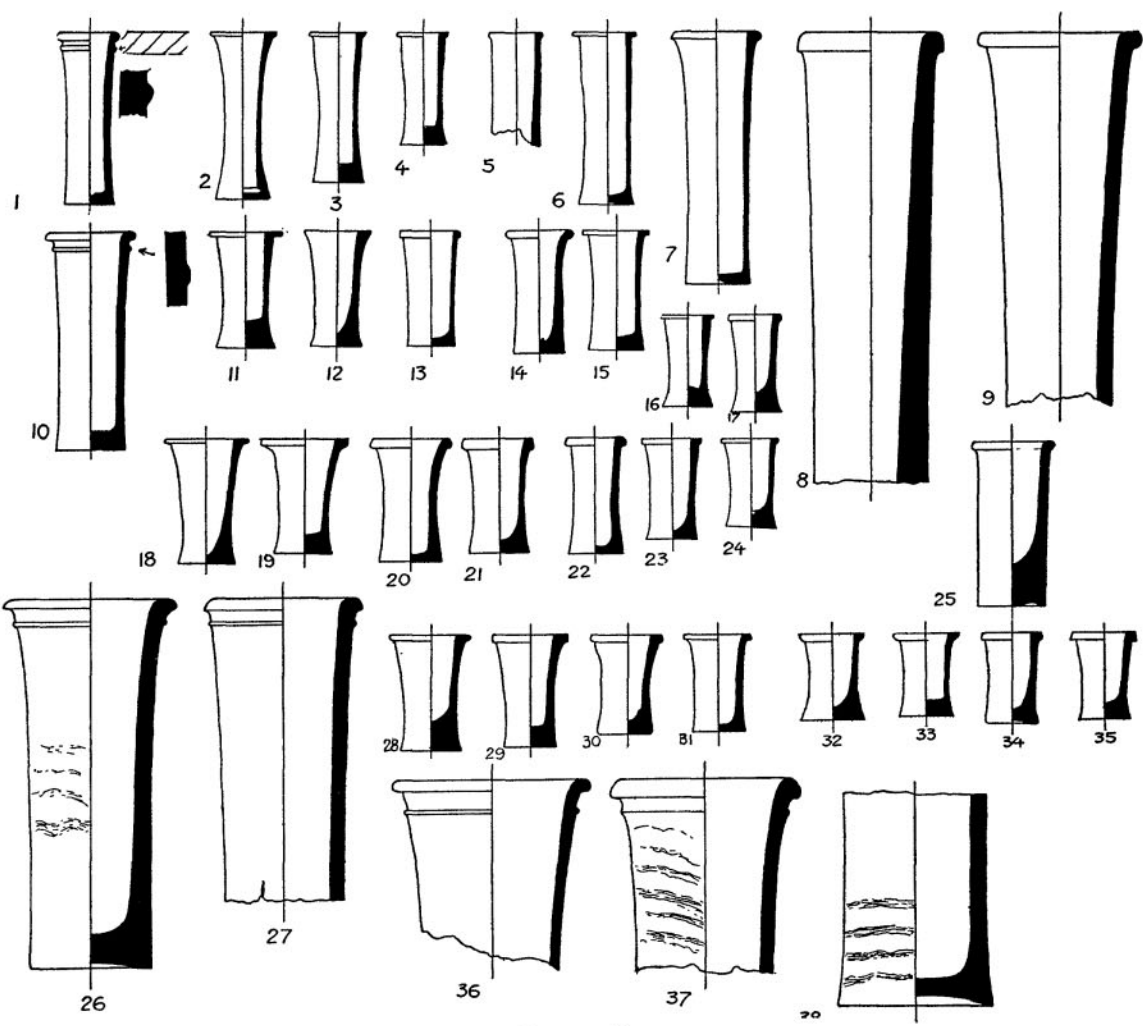


FIGURE 45
ALABASTER. TYPE I. SCALE $\frac{1}{10}$

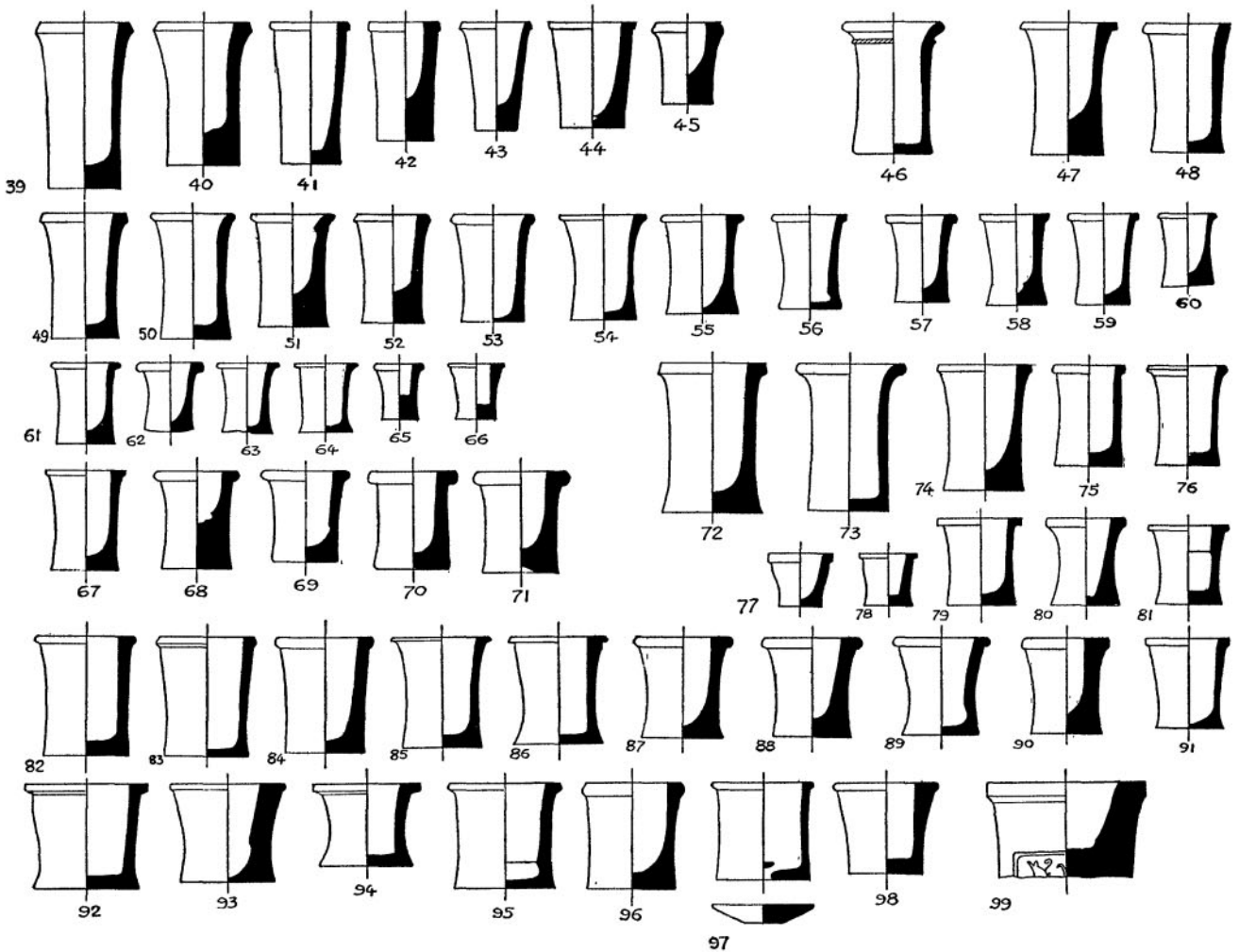


FIGURE 46
ALABASTER. TYPE I. SCALE $\frac{1}{10}$

were evidently no longer in common use in the time of Mycerinus. The slate and ash which were so often employed for the large bowls of Dynasty I were really unsuited for use by reason of their fragility. The red and white breccia was very hard and seems never to have been quarried in large pieces, but

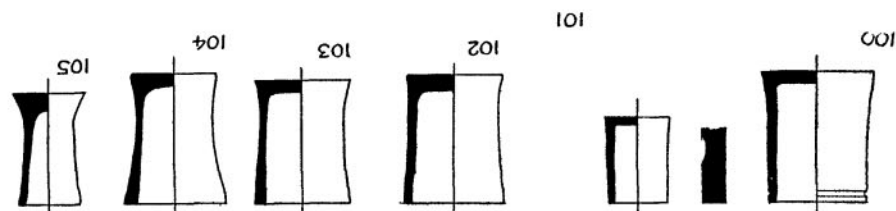


FIGURE 47
ALABASTER. TYPE I. SCALE $\frac{1}{10}$

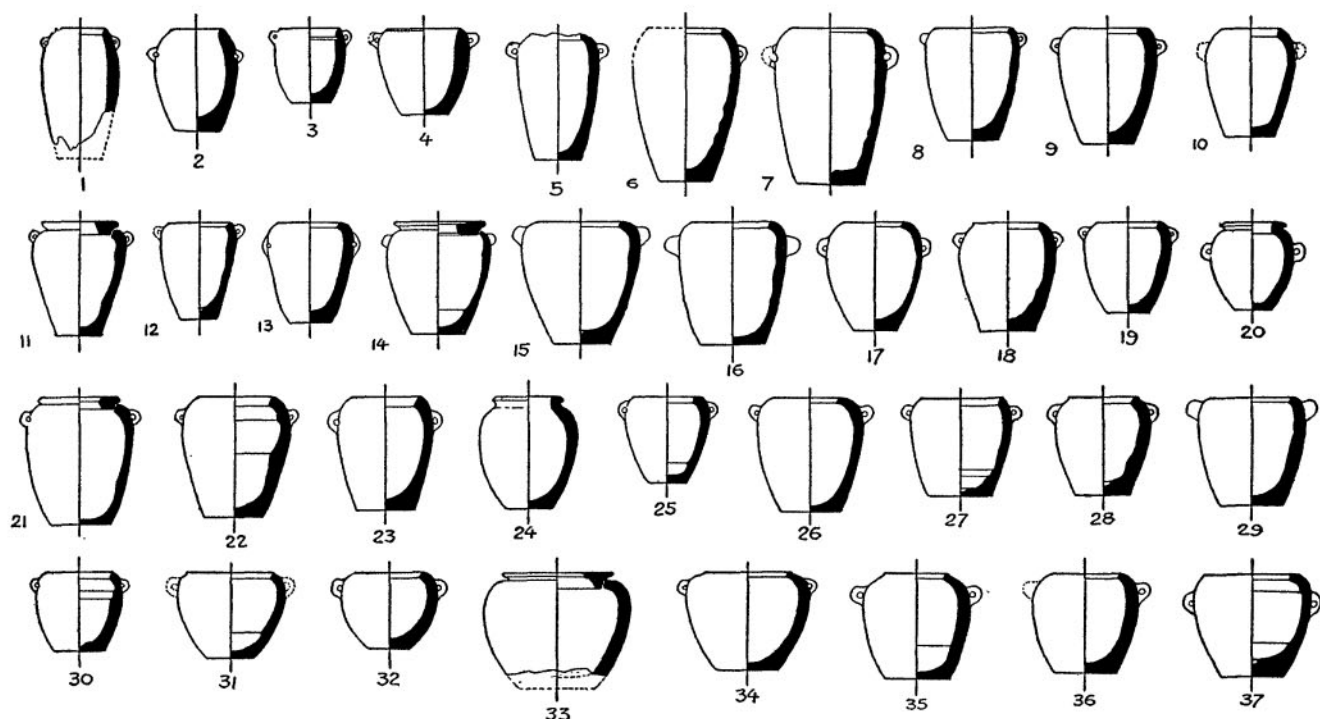


FIGURE 48
ALABASTER. TYPE IV. SCALE $\frac{1}{10}$

picked up as small boulders on the desert. The two vessels, one of quartz-crystal and the other of flint, were, of course, *tours de force* of technical skill. The flint bowl was made in Dynasty II or before.

The distribution of the type-forms among the various materials was as follows:

(1) Alabaster: total, 310 vessels = 56.78 per cent of all,

Type	Number	Per cent of group	Per cent of all	
V a, b, c, e	Shoulder jar, no handles	140	45.16	25.64
I a, b, c, d	Cylindrical jar	105	33.87	19.23
IV e	Shoulder jar, rim, handles	40	12.90	7.33
X a, b	Bowl and cup, flat bottom	10	3.23	1.83
XI b	Bowl, recurved rim	5	1.61	.92
VIII a, b, c	Pointed jar, Pl. 67 a ($\frac{1}{4}$); 68 b ($\frac{3}{8}$)	3	.97	.55
XII b	Flat-topped table, Pl. 68 (row 1, No. 3); 69 e	2	.65	.37
XIII b	Jar-stand, Pl. 68 a (row 1, No. 5; row 2, No. 2)	2	.65	.37
VI b	Jar with knob handles, Pl. 67 b (row 1, No. 2)	1	.32	.18
VII a	Jar with ledge handles, Pl. 67 b (row 1, No. 1)	1	.32	.18
IX a	Dish with round bottom, Pl. 68 a (row 5, No. 2)	1	.32	.18
Totals	310	100.00	56.78	

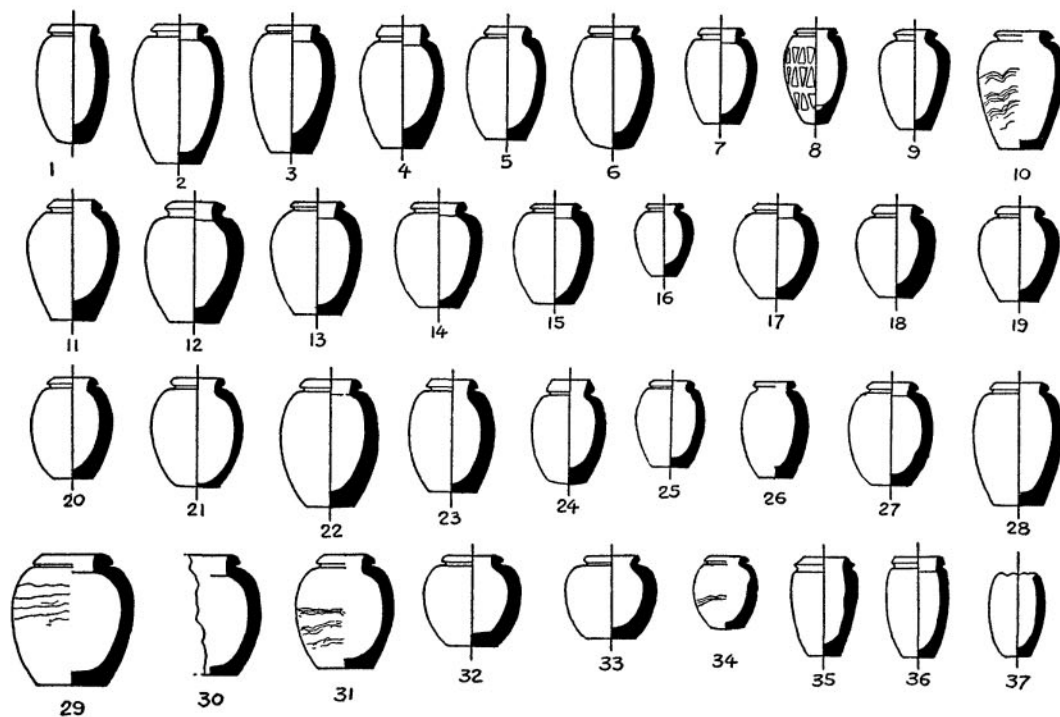


FIGURE 49
ALABASTER. TYPE V. SCALE $\frac{1}{10}$

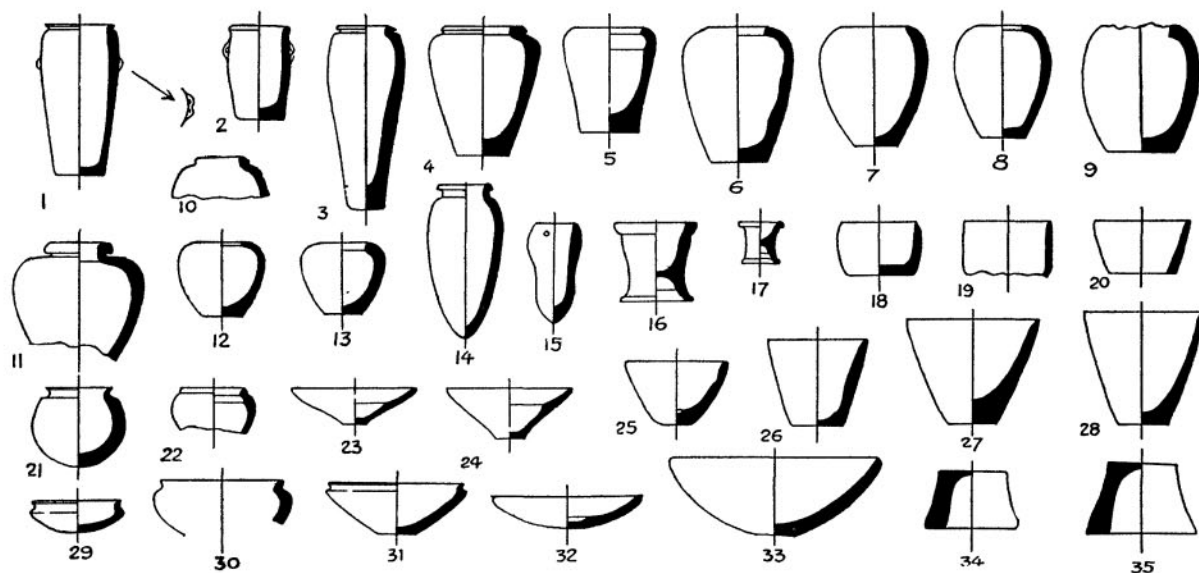


FIGURE 50
ALABASTER. MISCELLANEOUS TYPES. SCALE $\frac{1}{10}$

(2) Porphyry and syenite: total, 79 vessels = 14.47 per cent of all,

Type		Number	Per cent of group	Per cent of all
III a, b, c	Spheroidal jar with handles, Pl. 70 a	36	45.57	6.59
V c, e	Shoulder jar, no handles, Pl. 70 b	29	36.71	5.31
I c	Cylindrical jar, Pl. 69 d	10	12.65	1.83
XI b	Bowl, recurved rim, Pl. 70 b (2; 2)	2	2.53	.37
IV e	Shoulder jar, rim, handles, Pl. 70 a (2)	1	1.27	.18
IX b	Deep bowl with round bottom, Pl. 70 b (3)	1	1.27	.18
	Totals	79	100.00	14.47

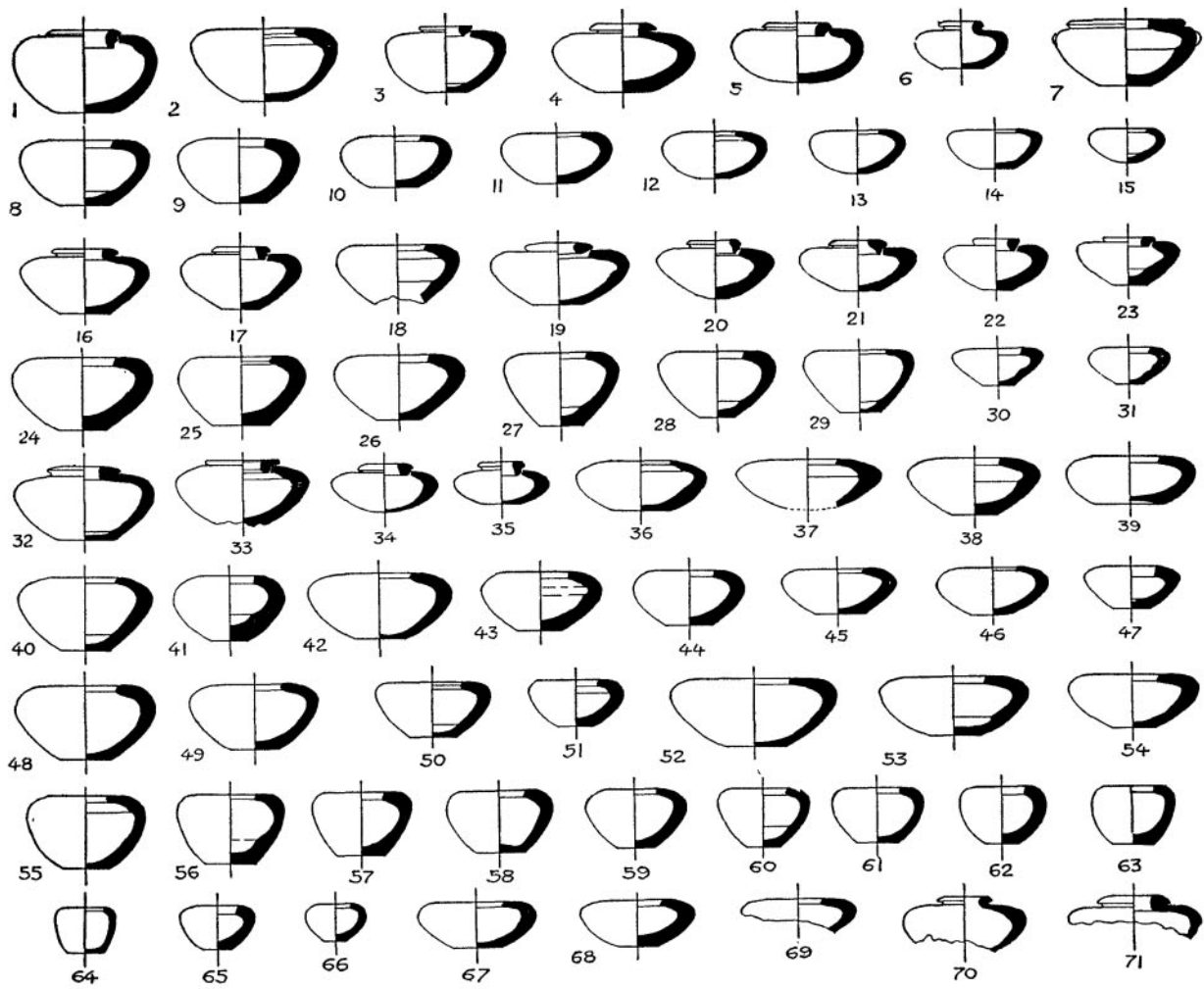


FIGURE 51
ALABASTER. TYPE V C. SCALE $\frac{1}{10}$

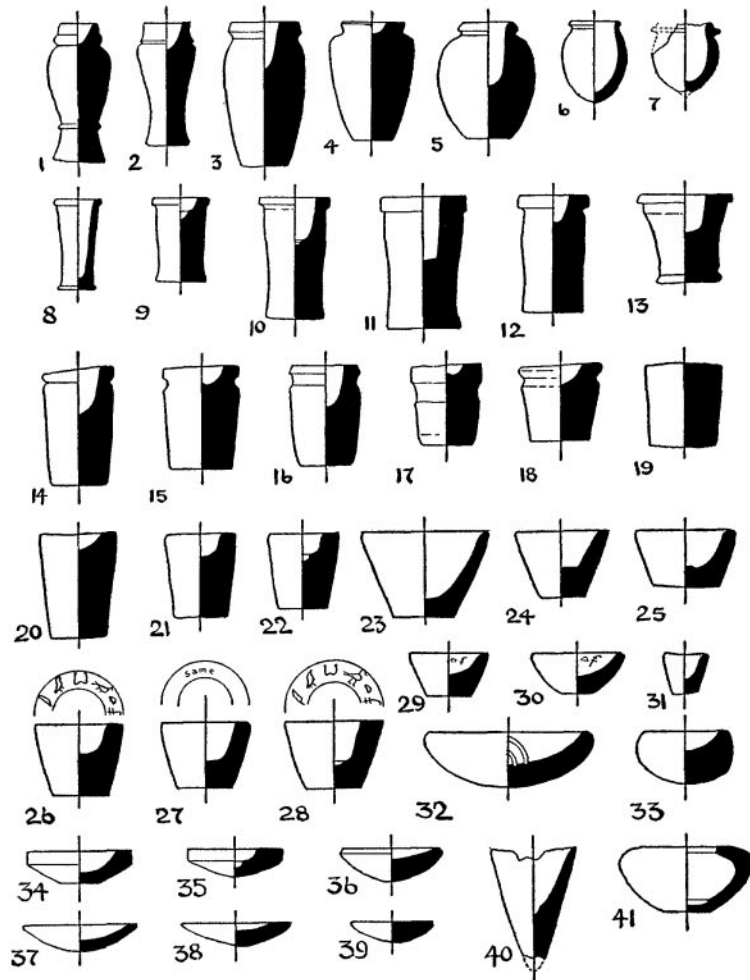


FIGURE 52
ALABASTER. MODEL VESSELS AND TWO OTHERS. SCALE $\frac{1}{10}$

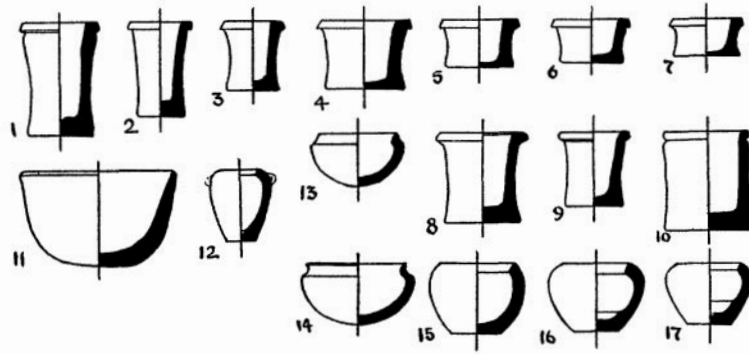


FIGURE 53
HARD STONE. TYPES I, IV, V, IX, XI. SCALE $\frac{1}{10}$

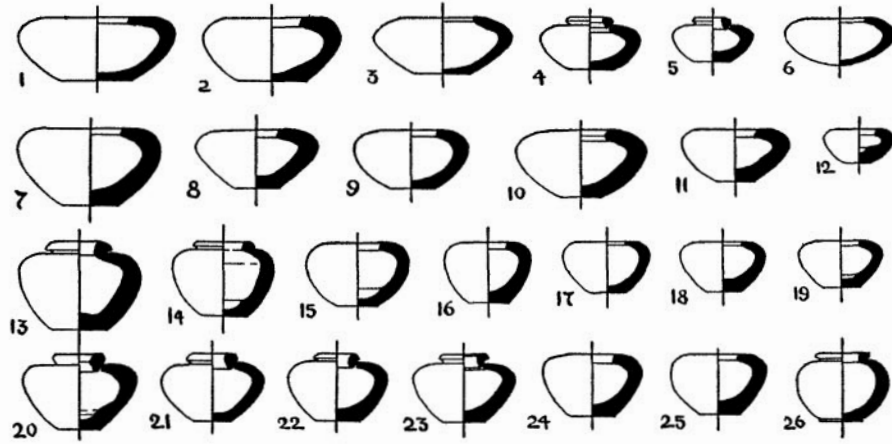


FIGURE 54
HARD STONE. TYPE V E. SCALE $\frac{1}{10}$

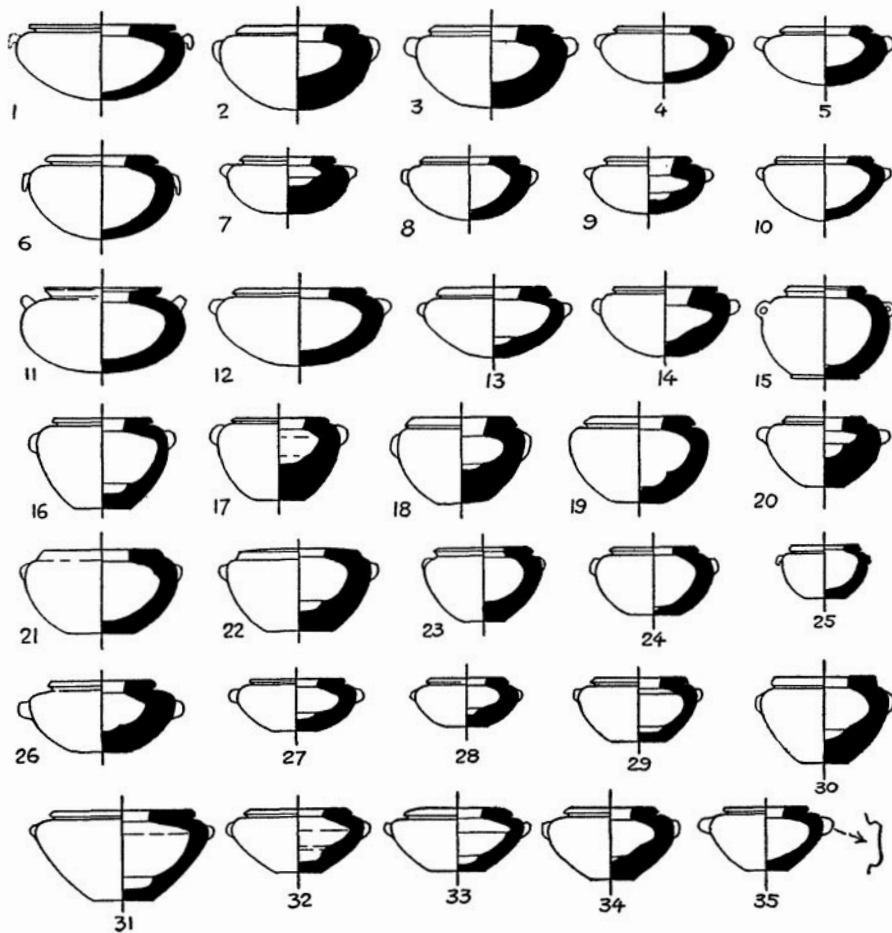


FIGURE 55
HARD STONE. TYPE III. SCALE $\frac{1}{10}$

(3) Diorite: total, 74 vessels = 13.55 per cent of all,

Type		Number	Per cent of groups	Per cent of all
X a, b, c	Bowl, flat bottom, Pl. 69 b	41	55.40	7.51
XI b, c	Bowl, recurved rim, Pl. 69 a (2-3)	11	14.90	2.02
IX a, b, c	Dish, round bottom, Pl. 69 a ($\frac{1}{2}$, 3-6)	12	16.20	2.20
III b, c	Spheroidal jar with handles, Pl. 70 a ($\frac{1}{2}$, 2, 4; $\frac{3}{4}$)	4	5.40	.73
V b, c, e	Shoulder jar, no handles, Pl. 69 a ($\frac{1}{2}$; $\frac{1}{4}$; $\frac{3}{8}$)	3	4.05	.55
I c	Cylindrical jar, Pl. 69 d ($\frac{1}{2}$)	1	1.305	.18
IV e	Shoulder jar, rim, handles, Pl. 70 a ($\frac{3}{8}$)	1	1.305	.18
XII b	Flat-topped table, Pl. 69 c (No. 2)	1	1.305	.18
Totals		74	100.00	13.55

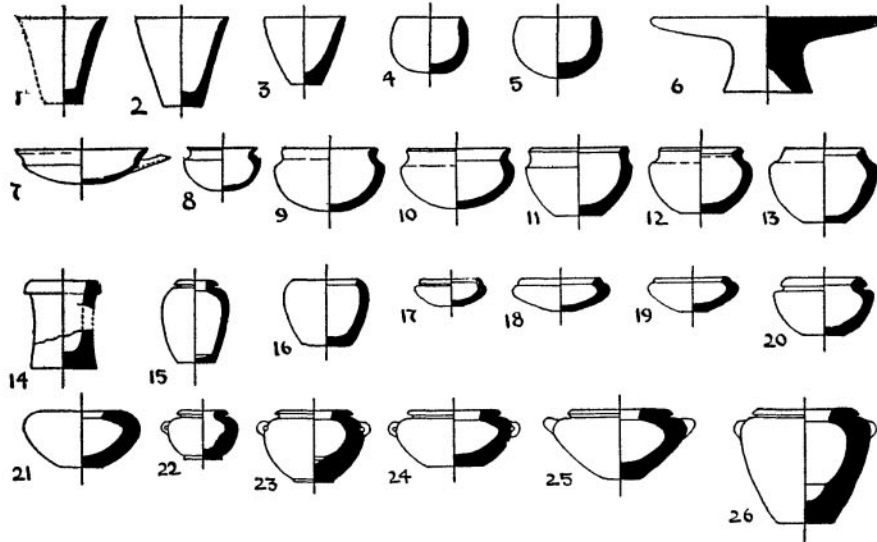


FIGURE 56
DIORITE. MISCELLANEOUS TYPES. SCALE $\frac{1}{10}$

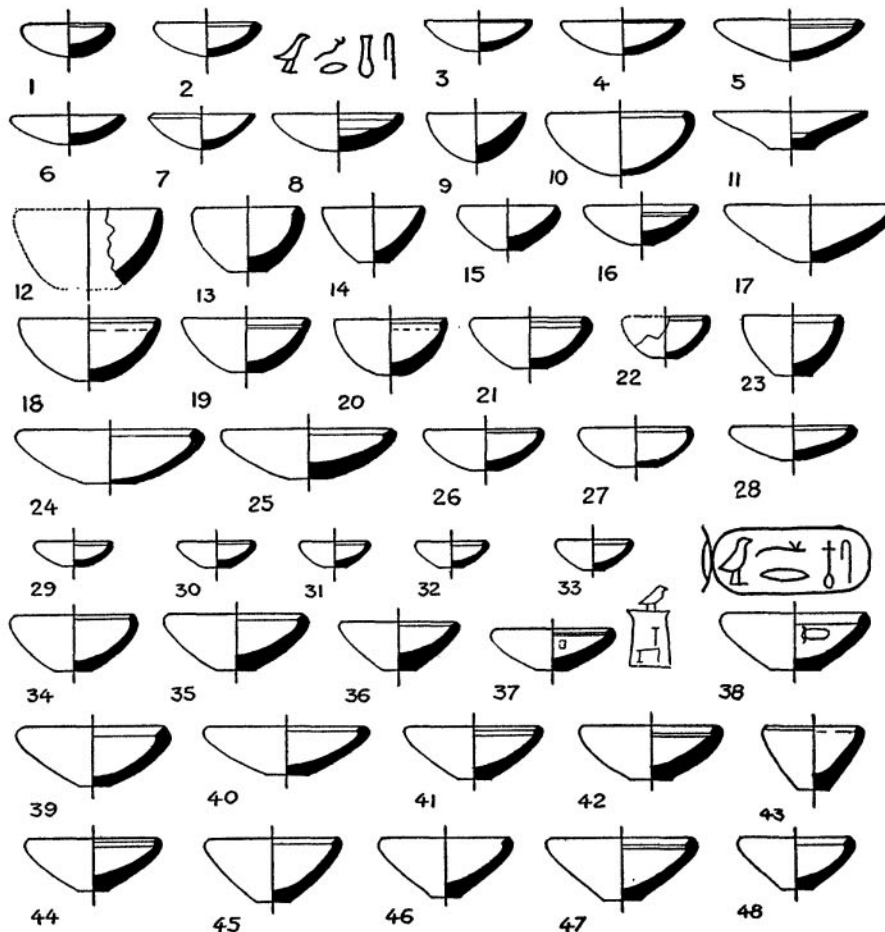


FIGURE 57
DIORITE. TYPES IX AND X. SCALE $\frac{1}{10}$

(4) Blue-veined limestone: total, 50 vessels = 9.16 per cent of all,

Type		Number	Per cent of group	Per cent of all
V c	Shoulder jar, squat, Pl. 68 d	45	90.00	8.24
IV e	Shoulder jar, rim, handles, Pl. 70 d ($\frac{1}{4}$, 5; $\frac{3}{8}$)	3	6.00	.55
III c	Quasi-spheroidal jar, handles, Pl. 70 a ($\frac{3}{8}$)	1	2.00	.18
X c	Bowl, flat bottom, Pl. 68 d ($\frac{1}{2}$)	1	2.00	.18
Totals		50	100.00	9.16

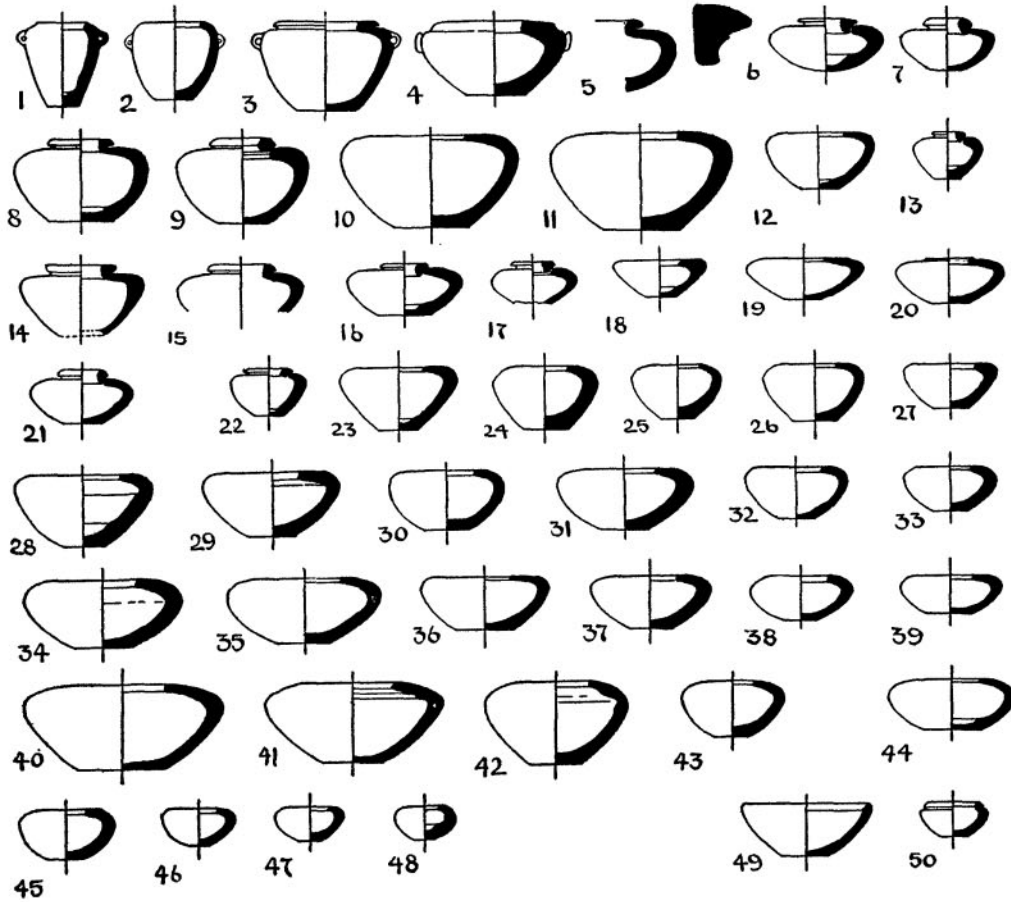


FIGURE 58
BLUE-VEINED LIMESTONE. TYPES III, IV, V, AND X. SCALE $\frac{1}{10}$

(5) Basalt: total, 21 vessels = 3.91 per cent of all,

Type		Number	Per cent of group	Per cent of all
X a, c	Bowl, flat bottom, Pl. 70 d ($\frac{1}{4}$ -3; $\frac{3}{8}$ -3, 5; $\frac{1}{2}$ -2, 5)	11	52.381	2.05
I b, c	Cylindrical jar, Pl. 70 d ($\frac{1}{2}$ -6)	6	28.571	1.12
II a, b	Egg-shaped jar, foot, handles, Pl. 70 d ($\frac{1}{4}$; $\frac{3}{8}$)	2	9.524	.37
IX b	Bowl, round bottom, Pl. 70 d ($\frac{1}{4}$, 5)	2	9.524	.37
Totals		21	100.00	3.91

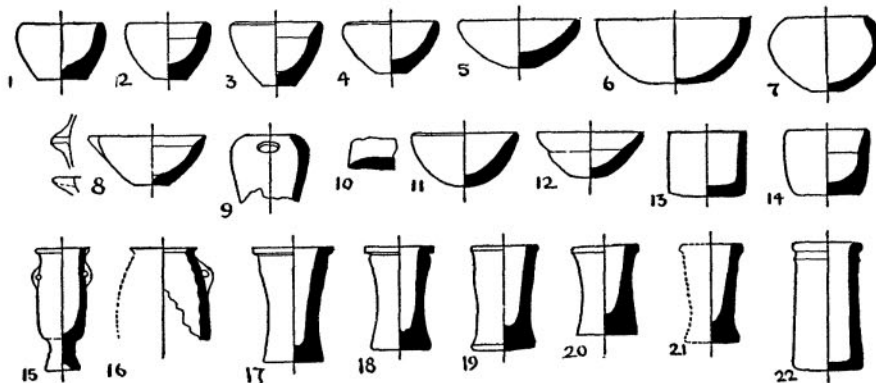


FIGURE 59
BASALT. MISCELLANEOUS TYPES. SCALE $\frac{1}{10}$

(6) Slate: total, 3 vessels = 0.56 per cent of all,		
I c	Cylindrical jar, Pl. 70 d ($\frac{1}{2}$)	1
V c	Squat shoulder jar, no handles, Pl. 70 b ($\frac{3}{8}$)	1
X a	Bowl, flat bottom, Pl. 70 d ($\frac{3}{4}$)	1
	Total	3

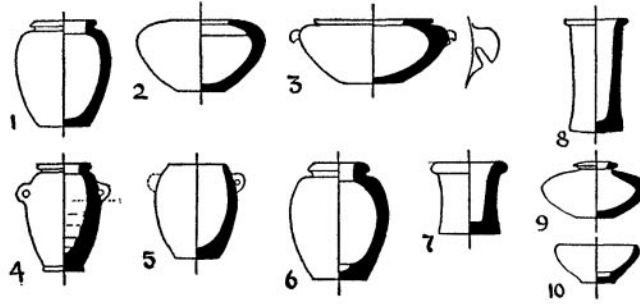


FIGURE 60
MISCELLANEOUS STONES. SCALE $\frac{1}{10}$

(7) Red and white breccia: total, 3 vessels = 0.56 per cent of all,		
III c	Quasi-spheroidal jar, handles, Pl. 68 b ($\frac{1}{2}$)	1
V b	Barrel-shaped jar, Pl. 68 b ($\frac{1}{2}$)	1
V c	Squat shoulder jar, Pl. 68 b ($\frac{3}{8}$)	1
	Total	3

(8) Volcanic ash: total, 3 vessels = 0.56 per cent of all,		
IV a	Jar, two handles, old type, Pl. 70 b ($\frac{1}{8}$; $\frac{1}{2}$)	2
V b	Barrel-shaped jar, no handles, Pl. 70 b ($\frac{1}{2}$)	1
	Total	3

(9) Rose quartz-crystal: one example = 0.19 per cent of all,	
I c	Cylindrical jar, Pl. 68 b ($\frac{3}{2}$)

(10) Flint: one example = 0.19 per cent of all,	
X a	Flat-bottomed bowl with plain rim, inscribed, Pl. 70 c

(11) Yellow limestone: one example = 0.19 per cent of all,	
XI e (2)	Small squat cup with band-rim on contracted mouth.

Thus alabaster was used for the greatest number of forms, but mainly for the four types of jars, excluding squat jars with handles, but including a large number of shoulder jars both with and without handles. The porphyry and syenite were used mainly for the spheroidal and quasi-spheroidal jars, for shoulder jars without handles, and for cylindrical jars. Diorite was used chiefly for bowls and cups; blue-veined limestone, for squat shoulder jars without handles; and basalt, for bowls and cylindrical jars.

(E) FORMS OF THE MYCERINUS STONE VESSELS

The 546 stone vessels sufficiently recovered to be drawn were divided among thirteen different types which presented 36 sub-types or variations. These thirteen types were represented by various numbers of examples as follows:

Type		Number	Per cent	Number	Per cent
Type I,	cylindrical jar:				
	a. With cord in relief	2	0.37		
	b. With plain band or ridge	6	1.10		
	c. Plain forms and dummies	109	19.96		
	d. Splay-footed forms	7	1.28	124	22.71
Type II,	egg-shaped jar with foot and handles:				
	a. Same as PD-II a	1	0.18		
	c. Same as PD-II c	1	0.18	2	0.37
Type III,	spheroidal jar with handles:				
	a. Round bottom	14	2.56		
	b. Flat bottom	3	.55		
	c. Quasi-spheroidal jar = 3-III c	25	4.58	42	7.69
Type IV,	swelling and shoulder jar, handles:				
	a. Swelling form = 1-IV a	2	0.37		
	e. Tall form = 3-IV e	45	8.24	47	8.61
Type V,	swelling and shoulder jar, no handles:				
	a. True shoulder jar	1	0.18		
	b. Truncated ovoid or barrel-shaped	40	7.33		
	c. Broad shoulder jar, squat	169	30.95		
	e. Form IV e, without handles	11	2.02	221	40.48
Type VI,	swelling jar with knob-handles:				
	b. Tall form = 1-VI b	1	0.18	1	0.18
Type VII,	degenerate wavy-handled jar:				
	a. Two handles, pierced vertically	1	0.18	1	0.18
Type VIII,	pointed jar:				
	b. Short neck, convex base	1	0.18		
	c. Neckless, wavy body	1	0.18		
	d. Neck (?), with conical base	1	0.18	3	0.55
Type IX,	round-bottomed dish and bowl:				
	a. Shallow saucer	4	0.73		
	b. Deep cup and bowl	6	1.10	16	2.93
	c. With internal rim	6	1.10		
Type X,	flat-bottomed dish and bowl:				
	a. Plain rim, cup and bowl	18	3.30		
	b (4). Plain rim with cup hollow	3	0.55		
	a (3). "Conical cup"	7	1.28		
	c. Internal rim	35	6.41		
	c (5). Deep bowl, with spout	1	0.18		
	e (3). Tall bowl-jar with spout	1	0.18	65	11.90
Type XI,	bowl and cup with external rim:				
	b (2). Flat bottom, upright recurved rim	3	0.55		
	b (3). Round bottom, upright recurved rim	3	0.55		
	b (4). Flat bottom, flaring recurved rim	2	0.37		
	b (5). Round bottom, flaring recurved rim	5	0.92		
	b (6). Round bottom, exaggerated flaring rim and spout	1	0.19		
	e (2). Squat cup with band-rim on contracted mouth	5	0.92	19	3.48
Type XII b,	flat-topped table	3	0.55	3	0.55
Type XIII b,	jar-stand	2	0.37	2	0.37
	Totals			546	100.00

A clearer view of the relative importance of the chief sub-types in the Mycerinus valley temple collection is gained when they are arranged in the order of their frequency:

Type		Number	Per cent	Period before Mycerinus
(1) V c	Broad shoulder squat jar	169	30.95	Dyn. I to Dyn. III
(2) I a-d	Cylindrical jar	124	22.71	E. P. to Dyn. III
(3) IV e	Tall shoulder jar, two handles	45	8.24	Khas. to Dyn. III
(4) V b (2)	Truncated ovoid jar	40	7.33	Dyn. I to Dyn. III
(5) X c	Bowl, flat bottom, internal rim	35	6.41	Zer to Dyn. III
(6) III c	Quasi-spheroidal jar, handles	25	4.58	Khas. to Dyn. III
(7) X a	Cup and bowl, flat bottom, plain rim	18	3.30	Dyn. O to Dyn. III
(8) III a, b	Spheroidal jar, flat and round bottom	17	3.11	a. M. P. to Dyn. III b. Dyn. I to Dyn. III
(9) XI b (2-6)	Bowl with recurved rim	14	2.56	(2) Khas. to Dyn. III (3) Khaba to Myc. (4) Not found. (5) Sneferuw-Myc. (6) Not found.
(10) V e	Tall shoulder jar without handles	11	2.02	Dyn. III
(11) IX a, b	Round-bottomed cup and bowl	10	1.83	Dyn. I to Dyn. III
IX c	Same with internal rim	6	1.10	Not found
(12) X a (3)	Slender conical cup	7	1.28	Khas. to Dyn. III
(13) XI c (2)	Small squat cup, band-rim	5	.92	Khas. to Dyn. III
(14) XII b	Flat-topped table	3	.55	Khas. to Dyn. III
(15) X b (4)	Bowl, flaring with cup hollow	3	.55	Dyn. III
(16) VIII b-d	Pointed jar	3	.55	Not found
(17) XIII	Jar-stand	2	.37	Not found
(18) II a, b	Egg-shaped jar, foot, handles	2	.37	E. P. to M. P.
(19) IV b	Swelling jar with two handles	2	.37	M. P. to Dyn. I.
(20) VI b	Jar with two knob handles	1	.18	Dyn. O to Dyn. I
(21) VII a	Degenerate wavy-handled jar	1	.18	Dyn. O to Dyn. I
(22) V a (2)	True shoulder jar	1	.18	Dyn. I to Dyn. III
(23) X c (5)	Cup with open spout	1	.18	Not found
(24) X e (3)	Bowl-jar with spout	1	.18	Dyn. III
		546	100.00	

It will be noted that: (1) twenty-seven of the forty-two forms mentioned above occurred in graves of Dynasty III; (2) all the forms represented by more than three examples occurred in Dynasty III; (3) six forms appear to have been introduced by Khasekhemuwy; three forms, in Dynasty III; one, in the reign of Khaba; one, in the reign of Sneferuw; and four forms, in Dynasty IV; thus fifteen of the sub-types of the Mycerinus collection have not been found in Dynasty I; (4) Type II, represented by two examples, has not been found after the Middle Predynastic Period; three sub-types, not after Dynasty I; thus five forms are archaic and disconnected from the rest.

Considered functionally, these vessels may be grouped in three divisions. It must be remembered that some of them are not really practicable vessels, but are grouped according to the function of the vessels for which they stand:

Group A. Jars used as containers of oils, perfumes, etc.:		Number	Per cent
Type I	Cylindrical jar	124	22.71
Type III	Spheroidal and quasi-spheroidal jar	42	7.69
Type IV	Shoulder jar with two handles	47	8.61
Type V	Shoulder jar, including squat jar	221	40.48
Type VIII	Pointed jar	3	.55
		437	80.04
Obsolete forms:			
Type II	Jar with foot and two handles	2	.37
Type VI	Jar with two knob handles	1	.18
Type VII	Jar with degenerate wavy handles	1	.18
		441	80.77

Group B. Cups and bowls, drinking and libation vessels:	Number	Per cent
Type IX Round-bottomed cup and bowl	16	2.93
Type X Flat-bottomed cup and bowl	65	11.90
Type XI b Bowl with recurved rim	14	2.56
	95	17.39
Type XI c Cup (perhaps for ointment)	5	.92
	100	18.31
 Group C. Tables and jar-stands:		
Type XII Flat-topped table	3	0.55
Type XIII Jar-stand	2	0.36
	5	0.92

Thus the jars of various sorts make 81 per cent of the total, while the bowls and cups make only 17 per cent. The following table shows the relative percentages of these functional groups in the previous dynasties. The figures for the royal tombs of Dynasty I at Abydos (abbrev. Aby.) are taken from Professor Petrie's plates and the list in *Royal Tombs II* of undrawn vessels.

	Aby. Per cent	Aby. M. Per cent	Naga-'d-Dêr I		Khas. Per cent	Hesy Per cent	Myc. Per cent
			Dyn. I Per cent	Dyn. II Per cent			
Group A.	19.89	43.01	35.00	39.84	24.68	51.22	80.77
Group B.	79.84	55.915	61.67	60.16	71.67	28.05	18.31
Group C. ....	.27	....	1.67	....	1.50	19.51	.92
Group D (wine jars) ?	....	....	....	....	2.15	1.22	....

The weak point in all these statistics is in the absence of an exact record for the Abydos royal tombs, including Khasekhemuwy. In the first and fifth columns, therefore, the figures are unreliable, and it is to be assumed that the number of cylindrical jars should be increased in each of these two columns so that Group A would become 35 per cent to 45 per cent with a corresponding reduction in Group B. I think the conclusion may be drawn that these functional groups remained fairly constant from Dynasty I to Dynasty III, but towards the end of Dynasty III the jars (Group A) became predominant. Thus the great excess of Group A in the Mycerinus collection is the result of a tendency manifested in the preceding dynasty.

(1) *Type I. Cylindrical Jar*

The cylindrical jar was the second in point of numbers in the Mycerinus collection. It is one of the well known forms of all the earlier periods¹ and has a long history after Dynasty IV. Although none of the earlier examples have been found with their contents intact, the function of the jar as a container for oils and perfumes is quite clear from the reliefs of Dynasties III and IV² where it appears as the determinative for these substances. These reliefs also show us how the jars were closed with a cloth or piece of hide or gold leaf drawn over the top and tied with a string about the neck below the rim. In some cases the string was secured with a seal of mud or perhaps wax. It is to be noted that neither the cylindrical nor any other form appears to be reserved for a particular kind of oil or perfume. In this connection, the fact may be recalled that Professor Petrie found certain cylindrical jars of pottery to contain fat, or fat mixed with mud.³

The material most commonly used for the Mycerinus cylindrical jars was alabaster:

	Number	Per cent
Alabaster.	105 =	84.67
Porphyry and syenite.	10 =	8.06
Basalt.	6 =	4.84
Diorite.	1 =	.81
Slate.	1 =	.81
Rose quartz.	1 =	.81
	124	100.00

¹ See type PD-I, 1-I, 2-I, 3-I, and 4-I.

² See especially Petrie, *Medum*, Pls. XIII-XV; and Quibell, *Tomb of Hesy*, Pls. XXI and X.

³ Petrie and Quibell, *Nagada and Ballâs*, p. 39.

And indeed alabaster was the material always used by preference for this type of jar from the Predynastic Period downwards.

The type is represented by six variations of the form (7 examples of I d):

	Number
(a) Type I a, cord in relief around neck	2
Alabaster, Fig. 45, No. 1; Fig. 46, No. 46	
(b) Type I b (1), plain band in relief around neck	4
Alabaster, Fig. 45, Nos. 10, 26, 27, 36	
(c) Type I b (2), ridge around neck	2
Alabaster, Fig. 45, No. 37	
Basalt, Fig. 59, No. 22	
(d) Type I c (1), plain body with heavy rim	109
Alabaster, Fig. 45, Nos. 2-9, 11-25, 28-35, 38	
Fig. 46, Nos. 39-45, 47-99	92
Porphyry, Fig. 53, Nos. 1-8	8
Syenite, Fig. 53, No. 9	1
Diorite, Fig. 56, No. 14	1
Basalt, Fig. 59, Nos. 17-21	5
Rose quartz-crystal, Fig. 60, No. 7	1
Slate, Fig. 60, No. 8	1
(e) Type I c (2), plain body, rimless mouth	5
Alabaster, Fig. 47, Nos. 102-105	
(f) Type I c (3), plain body, rimless mouth, line around mouth	2
Alabaster, Fig. 47, No. 100	
Porphyry, Fig. 53, No. 10	
Total	124

It may be added that examples of cylindrical jars made of copper probably also occurred.

(2) *Type II. Egg-Shaped Jar (Old Form)*

The egg-shaped jar with flat rim, small foot stand, and two handles is one of the original early predynastic stone forms (PD-II). In the Predynastic Period the type usually occurs in basalt, but also in limestone; and basalt is the material used in the two examples of the Mycerinus collection. No other example of this type is known to me after the Predynastic Period, and its reappearance in the Mycerinus valley temple comes as a surprise. One of the examples, although incomplete, appears to be of the typical predynastic form, while the other presents a degeneration of that form. The temptation is to assume that these two jars were taken from some older sanctuary or cemetery. In that case, the other basalt vessels might be assumed to be of the same origin; but basalt was used freely in Dynasty I, and the group, as a whole, could not be previous to that time.

The egg-shaped jar with foot stand and handles belongs functionally with the other small, handled jars which are proved to have contained oils and perfumes. But its origin is clearly different from that of the other stone jars. The suggestion that it originated in a mounted ostrich-egg vessel is obvious and attractive; but it must then be assumed that the handles were developed in the stone form by analogy, perhaps, with the barrel-shaped stone vessel.

The two vessels constitute 0.37 per cent of the total number, and both are of basalt (i.e., 100 per cent of the type). The examples are as follows:

	Number
(a) Type II a, true egg-shaped (old form)	1
Basalt, Fig. 59, No. 16	
(b) Type II c, slender, degenerate form	1
Basalt, Fig. 59, No. 15	

(3) *Type III. Squat Jar with Two Handles*

The squat jar with two handles is the descendant of the spheroidal jar with two handles, which began in the Middle Predynastic Period and continued to Dynasty III. The two main variations of the Mycerinus collection are Third Dynasty types, 3-III a and 3-III c. The type 3-III c, the quasi-spheroidal jar, is especially common; but three examples occur with disk base, and for these no prototype is known nearer than Dynasty I, type 1-III b.

The reliefs and paintings of Dynasty III place this type functionally with the containers of oils and perfumes. The pictured examples are represented as closed and sealed like the other perfume jars.

In numbers the squat jar with handles takes fifth place in the Mycerinus collection (7.69 per cent). In most cases the handles were not pierced, but three examples had pierced handles and three undercut handles. The examples were very rude as a rule and badly finished; the hollows were seldom worked out. This type was always a hard-stone form; and in our collection, also, 95 per cent of the examples are of porphyry and diorite.

	Number	Per cent
Porphyry and syenite	36 =	85.71
Diorite	4 =	9.52
Blue-veined limestone	1 =	2.38
Red and white breccia	1 =	2.38
Totals	<u>42 =</u>	<u>100.00</u>

The variations corresponding to those of Dynasties I-III are as follows:

	Number
Type III a, round bottom	14
Porphyry, Fig. 55, Nos. 1-14	
Type III b, disk base	3
Porphyry, Fig. 55, No. 15 (pierced)	
Diorite, Fig. 56, Nos. 22, 23 (pierced)	
Type III c, flat bottom (quasi-spheroidal)	25
Porphyry, Fig. 55, Nos. 16-35 and one other	21
Diorite, Fig. 56, Nos. 24 (pierced), 25	2
Blue-veined limestone, Fig. 58, No. 4	1
Red and white breccia, Fig. 60, No. 3 (undercut handles)	1

(4) *Type IV. Shoulder Jar with Handles*

The older forms of shoulder jar with two horizontal handles was replaced in Dynasty III by a new variation, a taller jar with marked shoulder and wide rim; and it is this Third Dynasty form which is most common in the Mycerinus collection. But two small examples were found in our collection similar to the older type of Dynasty I, and the Late Predynastic Period, both of volcanic ash and one with disk base.

The taller shoulder jar with horizontal handles usually has the mouth and rim of a separate piece cemented to the body. As many of these rim pieces were broken and incomplete, they could not always be identified with their jars, and a number of jars had to be drawn without the rim, but it must be assumed that these also had a rim like the others. The shapes vary considerably in proportions and in the curvature of the sides; but the type is virtually that of Dynasty III, as stated above. That type is evidently descended from the two-handled jars of Dynasty I,¹ and these in turn from the two-handled barrel-shaped jars of the Middle Predynastic Period (PD-IV a and b).

The taller shoulder jar with handles is represented by 45 examples which constitute 8.24 per cent of the total vessels in the Mycerinus collection. The material most commonly employed is alabaster.

	Number	Per cent
Alabaster	40 =	89.0
Blue-veined limestone	3 =	6.8
Porphyry	1 =	2.1
Diorite	1 =	2.1
Totals	<u>45 =</u>	<u>100.00</u>

	Number
Type IV a (1) and (2), old types with disk base or plain base	2
Volcanic ash, Fig. 60, No. 4 (disk base), No. 5 (plain base)	
Type IV e, shoulder jar with two handles (rim usually separate)	45
Alabaster, Fig. 48, Nos. 1-37 and three others	40
Porphyry, Fig. 53, No. 12	1
Diorite, Fig. 56, No. 26 (handles unpierced)	1
Blue-veined limestone, Fig. 58, Nos. 1-3	3

¹ Cf. type 1-IV c, d.

(5) *Type V. Shoulder Jar without Handles*

The shoulder jar occurs in the usual variations of Dynasty III. The true shoulder jar is certainly present in one example (type V a), but eleven vessels have the form of the handled jar (type IV e), without the handles, and the rim is often a separate piece, as in that type. The body without the flat rim occurs also in Dynasty III and has been included by me under the deep bowls with internal rim (type 3-X d). The form with flat rim, of which one example was found in Dynasty III (type 3-V e), is here designated type V e following the precedent set for Dynasty III.

The most numerous of the jars without handles is the truncated ovoid or barrel-shaped type (V b). This was one of the characteristic features of the stone vessels of Dynasties II and III, but examples are known as early as Dynasty I. The jars of the Mycerinus collection are of the traditional-ceremonial form of Dynasty III. The barrel-shaped jar is represented in the Hesy painting, although perhaps in a large size.¹ In the Mycerinus collection there are forty examples of this form, constituting 7.33 per cent of the whole. The favorite material was alabaster as in Dynasties II and III.

	Number
Type V a (2), true shoulder jar	1
Alabaster, Fig. 50, No. 3	
Type V b (2), truncated ovoid or barrel-shaped jar	40
Alabaster, Fig. 49, Nos. 1-37	37
Diorite, Fig. 56, No. 15	1
Volcanic ash, Fig. 60, No. 6	1
Red and white breccia, Fig. 60, No. 1	1
Type V e, form of the handled jar IV e, without handles	11
Alabaster, Fig. 50, Nos. 4-10	7
Syenite, Fig. 53, No. 15	1
Porphyry, Fig. 53, Nos. 16, 17	2
Diorite, Fig. 56, No. 16	1
Total	52

There remains another variety of the shoulder jar, the squat jar with wide sharply marked shoulder, which has been noted in Dynasties I-III under the designation V c. The variations of this form are very numerous in the Mycerinus collection, amounting to 169 vessels or 30.95 per cent. Curiously enough, the Mycerinus collection introduces a new variation of this squat jar, one of which had a rounded bottom. In my review of the stone vessels of Dynasties I-III, I have grouped two forms of the squat jar together, one with straight sides from shoulder to flat base and the other with very convex sides between shoulder and flat base. The angle made between side and base in this second form is very blunt and often obscure and in the Mycerinus collection it has sometimes disappeared, giving rise to the new form, of which eight examples occur. The older straight-sided form is represented on the walls of the Hesy tomb.² The materials used for these jars were in the following proportions:

	V a	V b	Per cent	V c	Per cent	V e	Per cent	Total V	Per cent
Alabaster	1	37	= 92.5	95	= 56.21	7	= 63.64	140	= 63.35
Blue-veined limestone .....		....		45	= 26.63	....		45	= 20.36
Porphyry and syenite .....		....		26	= 15.39	3	= 27.27	29	= 13.12
Diorite		1	= 2.5	1	= .59	1	= 9.09	3	= 1.36
Red and white breccia		1	= 2.5	1	= .59	....		2	= .91
Volcanic ash		1	= 2.5	....		....		1	= .45
Slate .....		....		1	= .59	....		1	= .45
Totals	1	40	= 100.0	169	= 100.00	11	= 100.00	221	= 100.00

¹ See Quibell, *Tomb of Hesy*, Pl. XXI on left.

² Quibell, *l. c.*, Pl. XXI.

Type V c (1) and (2), high and squat forms with flat base	161
Alabaster, Fig. 50, Nos. 11-13; Fig. 51, Nos. 1-4, 6-12, 14-32, 35, 36, 38-71, and 21 others	90
Porphyry, Fig. 54, Nos. 1-5, 7-25, and one other	25
Diorite, Fig. 56, No. 21	1
Blue-veined limestone, Fig. 52, No. 41; Fig. 58, Nos. 7-48	44
Slate, Fig. 60, No. 9	1
Red and white breccia, Fig. 60, No. 2	1
Type V c (3) squat forms with rounded base	8
Alabaster, Fig. 51, Nos. 5, 13, 33, 34, 37	5
Porphyry, Fig. 54, No. 6	1
Blue-veined limestone, Fig. 58, Nos. 5, 6	2
<hr/>	
Total	169

(6) *Type VI. Swelling Vertical Jar with Two Knob Handles*

The vertical jar with two horizontally pierced knob handles was one of the few forms which covered the interval between the Late Predynastic Period and Dynasty I, but it ceased in Dynasty I. As in the case of the extinct older types II and VII, one example of this type VI was found in the valley temple.

	Number
Type VI b, swelling jar with two knob handles, pierced horizontally	1
Alabaster, Fig. 50, No. 2	

(7) *Type VII. Wavy-Handled Jar*

The wavy-handled jar was used in Dynasty I in two forms, both represented by pottery forms — (a) the swelling jar with two wavy ledge handles, often pierced vertically, and (b) that with a continuous wavy ridge. The Mycerinus collection presents one alabaster jar which is not exactly the same as the type 1-VII a, but is obviously descended from it. The two small ledge handles set on the swelling upper part are pierced vertically, each with two holes.

	Number
Type VII a, degenerate wavy-handled jar	1
Alabaster, Fig. 50, No. 1	

(8) *Type VIII. Pointed Jar*

In the Late Predynastic Period and in the early part of Dynasty I a pottery jar with roll rim and pointed base was copied in alabaster, and the known examples I have collected above under type PD-VIII and 1-VIII. In Dynasties V and VI, another pottery jar with pointed base, but with a neck between the shoulder and the roll rim, was copied in stone, and many examples have been recorded. In the Mycerinus collection two forms of pointed jars were found which differ from both of the types just mentioned, but also copied, no doubt, from pottery forms. The base of a thin pointed jar from the valley temple is given in Fig. 52, No. 40, and this was probably of the pottery form, type VIII.

	Number
Type VIII b, pointed jar with short neck	1
Alabaster, Fig. 50, No. 14	1
Type VIII c, pointed jar with wavy body (no neck or rim; edge of mouth pierced)	1
Alabaster, Fig. 50, No. 15	1
Type VIII d, pointed jar of pottery form	1
Alabaster, Fig. 52, No. 40	1
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Total	3

(9) *Type IX. Round-Bottomed Dish and Bowl*

The round-bottomed cups, dishes, and bowls are not numerous in the Mycerinus collection, a fact entirely in accord with the occurrence of these forms in Dynasties II and III. Nearly all the examples are small cups, not well finished, and six have an internal rim. It is especially to be noted that these traditional forms are associated with small models like those from the large Giza mastabas.

The total number of examples is 16, being 2.93 per cent of the whole collection. The materials are as follows:

	Number	Per cent
Diorite	12	= 75.00
Basalt	2	= 12.50
Alabaster	1	= 6.25
Porphyry	1	= 6.25
	<hr/>	<hr/>
	16	= 100

		Number
Type IX a, shallow saucers		4
Alabaster, Fig. 50, No. 32	1	
Diorite, Fig. 57, Nos. 6-8	3	
	<hr/>	<hr/>
	4	
Type IX b, (1), deep cups, tapering base		3
Diorite, Fig. 57, No. 9	1	
Basalt, Fig. 59, Nos. 11, 12	2	
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	3	
Type IX b, (2) globular cups		2
Diorite, Fig. 56, Nos. 4, 5	2	
Type IX b, (3) deep bowl		1
Porphyry, Fig. 53, No. 11	1	
Type IX e, saucers and bowls with internal rim often vaguely defined		6
Diorite, Fig. 57, Nos. 1-5, 10	6	
	<hr/>	<hr/>
Total		16

(10) *Type X. Flat-Bottomed Bowl*

The flat-bottomed cups and bowls are much more numerous than the round-bottomed bowls, presenting another resemblance to Dynasties II and III. But the percentage is smaller than in any of the preceding archaeological groups from Dynasty I to Dynasty III, and the small forms predominate. This fact indicates a further degeneration caused by the traditional-ceremonial character of all these vessels. Out of a total of sixty-five flat-bottomed cups and bowls, thirty-six have the internal rim, but this rim is in many examples hardly more than a flattening of the inside of the mouth, sometimes slightly emphasized by an incised line.

Taking the flat-bottomed cups and bowls all together, the materials were as follows:

Type X, total vessels	Number	Per cent
Diorite	41	= 63.00
Alabaster	10	= 15.38
Basalt	11	= 16.92
Blue-veined limestone	1	= 1.54
Slate	1	= 1.54
Flint	1	= 1.54
	<hr/>	<hr/>
	65	= 100.00

Thus this is the one type of stone vessels in which diorite predominates, and, if the thirty-six bowls with internal rim be examined alone, the preponderance of diorite becomes still more striking, as is shown by the following table:

Type X c	Number	Per cent
Diorite	33	= 91.7
Basalt	2	= 5.5
Blue-veined limestone	1	= 2.8
	<hr/>	<hr/>
	36	= 100.00

It is to be noted that type X is better maintained than any other type of bowl, and that fact is undoubtedly connected with the special ceremonial use of the bowl with internal rim, which is shown by the occurrence of the inscribed examples of the reigns of Khaba and Sneferuw. Diorite and veined marble were the materials employed in the Khaba bowls; diorite and alabaster in the Sneferuw bowls.

	Number
Type X a, plain rim	
(a) Bowl, small base, incipient contraction of mouth	2
Alabaster, Fig. 50, No. 33	1
Diorite, Fig. 57, No. 17	1
(b) Bowl, wide base	3
Diorite, Fig. 57, No. 12	1
Basalt, Fig. 59, No. 6	1
Flint cup	1
(c) Cup	7
Alabaster, Fig. 50, No. 25	1
Diorite, Fig. 57, Nos. 13-15	3
Basalt, Fig. 59, Nos. 1, 4, 5	3
(d) Cup with contracted mouth	2
Slate, Fig. 60, No. 10	1
Basalt, Fig. 59, No. 7	1
(e) Cup with vertical sides	4
Alabaster, Fig. 50, Nos. 18, 19	2
Basalt, Fig. 59, Nos. 13, 14	2
Total	18
Type X b (4), flaring cup with concave sides and cup-hollow in bottom inside (copper form)	3
Alabaster, Fig. 50, Nos. 23, 24	2
Diorite, Fig. 57, No. 11	1
Type X a (3), deep cup with straight sides and plain mouth, "conical cup"	7
Alabaster, Fig. 50, Nos. 20, 26-28	4
Diorite, Fig. 57, Nos. 1-3	3
Type X e (3), deep bowl, with contracted mouth and spout	1
Basalt, Fig. 59, No. 9	1
Total, type X a, b, e (3)	29
Type X c, internal rim, often vaguely defined	
(1) Shallow bowls	8
Diorite, Fig. 57, Nos. 16, 24-28, 37, 40	8
(2) Shallow bowls, small	5
Diorite, Fig. 57, 29-33	5
(3) Deeper forms with small base	15
Diorite, Fig. 57, Nos. 34-36, 38, 39, 41-48	13
Basalt, Fig. 59, Nos. 2, 3	2
(4) Deep forms, vague rim (line)	7
Diorite, Fig. 57, Nos. 18-23	6
Blue-veined limestone, Fig. 58, No. 49	1
Total	35
Type X c (5), cup with spout	1
Basalt, Fig. 59, No. 8	1
Total, type X c	36

(11) *Type XI. Cup and Bowl with External Rim*

The cups and bowls with external rim follow approximately the forms of Dynasty III. The deep rimmed bowl with and without spout of Dynasty III (3-XI a (3) and (4)) were wanting. On the other hand, the bowls with flaring recurved rim are represented in three variations, of which one, type XI b (4), is very similar to the grooved rim bowl of Dynasty I.

The number of vessels of this type is small, as usual in Dynasty III. The majority are of diorite, followed by alabaster, porphyry, and yellow limestone:

	Number	Per cent
Diorite.....	11	= 57.9
Alabaster.....	5	= 26.31
Porphyry.....	2	= 10.52
Yellow limestone.....	1	= 5.27
	19	= 100.00

		Number
Type XI b (2). Bowl with flat bottom and upright recurved rim.....		3
Alabaster, Fig. 50, No. 30.....	1	
Diorite, Fig. 56, Nos. 12, 13.....	2	
Type XI b (3). Bowl with round bottom and upright recurved rim.....		3
Alabaster, Fig. 50, No. 22.....	1	
Porphyry, Fig. 53, No. 13.....	1	
Diorite, Fig. 56, No. 9.....	1	
Type XI b (4). Bowl with flat bottom and flaring recurved rim.....		2
Alabaster, Fig. 50, No. 31.....	1	
Diorite, Fig. 56, No. 11.....	1	
Type XI b (5). Bowl with round bottom and flaring recurved rim.....		5
Alabaster, Fig. 50, Nos. 21 (abnormally deep), 29.....	2	
Porphyry, Fig. 53, No. 14.....	1	
Diorite, Fig. 56, Nos. 8, 10.....	2	
Type XI b (6). Bowl with round bottom, exaggerated flaring rim and spout.....		1
Diorite, Fig. 56, No. 7.....	1	
Total.....		14
Type XI c (2). Squat cup with band-rim on contracted mouth.....		5
Diorite, Fig. 56, Nos. 17-20.....	4	
Yellow limestone, Fig. 58, No. 50.....	1	
Total, type XI.....		19

(12) *Type XII. Table*

The flat-topped tables of Dynasty III are also represented in the Mycerinus group, but by only three examples.

		Number
Type XII b. Flat-topped table.....		3
Alabaster, Fig. 50, Nos. 34, 35.....	2	
Diorite, Fig. 56, No. 6 (perfect).....	1	

(13) *Type XIII. Jar-Stand*

In the Old Kingdom, two types of pottery stands are known, (a) a tall slender stand with flaring base and (b) a short "ring-stand." Both were hollow right through from top to bottom, and the tall stand was used to support bowls, while the short stand held round-bottomed jars. One form of the short stand was found in Dynasty I.¹

The earliest examples I know of the tall bowl-stand are:

- (1) One from the tomb of Khasekhemuwy, Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XXIV, 12 (though the Coptic jar on the same plate raises a suspicion).
- (2) One from the stairway tomb K 5, Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXXI, 30.

They are very common in the Giza mastabas and examples were found standing before the offering place with bowl in position. Several examples of stand and bowl in one piece of stone are in the museums. The ring-stand for jars is also known in Old Kingdom pottery; and in grave N 568 at Naga-'d-Dêr of Dynasties V-VI, a diorite jar and stand in one piece was found with other small stone vessels.

¹ See Reisner, *Naga-'d-Dêr I*, p. 98, Type XXVIII; and Petrie, *R.T. I*, Pl. XL, Nos. 13-15.

In the Mycerinus collection, two examples of stone jar-stands were found which resemble in outline the basis of the jar from N 568, just mentioned. These Mycerinus stands are not like the similar pottery forms, hollow from top to bottom, but have been bored from both top and bottom leaving a partition in the middle. Both are of alabaster.

	Number
Type XIII b. Jar-stand	2
Alabaster, Fig. 50, Nos. 16, 17	2

(14) *Stone Models of Vessels*

A number of stone models of vessels were found in the Mycerinus valley temple, which present the forms found in the great cemetery west of the Cheops pyramid. Almost all of these forms have been dated by their provenience to the time of Chephren, and there is no *a priori* reason why all the models in the valley temple should not be ascribed to the original furniture. But only a very few examples (Fig. 52, No. 32, from III-12 and a dummy cylinder-jar from III-21) were found on the floors of magazines. Several were recorded from the floor débris of the court and may have belonged to the temple furniture (Fig. 52, Nos. 1, 4, 5, 10, 18), but the great majority were on the floors of the later houses in association with the fragments of statues and stone vessels under conditions corresponding to those of the work-shops in the great cemetery, used for making these models during Dynasties V-VI. The models inscribed with the name of the "king's son, Kay" were found in a pot under the floor of the Queen's Pyramid (Pyramid III-a).

The forms are, with a few exceptions, those of the stone vessels:

- (1) Models of type I, cylindrical jar,
Fig. 52, Nos. 8-22, alabaster, except Nos. 9, 12, 15, 19, 20, which are limestone. Nos. 19-22 are boring cores from a tubular borer and only slightly worked; the others were probably made from similar cores.
- (2) Models of type V, shoulder jar,
Fig. 52, Nos. 1-5, all of alabaster. Nos. 3-5 are ordinary variations of the shoulder jar. No. 2 is the *hes*-vase form with the peculiar neck which appears in the pottery models of Dynasty IV. No. 1 is the same form on a jar-stand (see type XIII b).
Fig. 52, Nos. 6, 7. These two are really vessels, not models, and belong to the series of small collared jars of Dynasties V-VI (see, for example, Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXXVIII, 1-4 and *passim*).
- (3) Models of type IX, round-bottomed dishe and bowl,
Fig. 52, Nos. 32, 33, 35-39, alabaster and limestone (Nos. 35, 36, 39).
- (4) Models of type X a, flat-bottomed bowl,
Fig. 52, Nos. 29, 30, 34, all of alabaster.
- (5) Models of type X a (3), "conical cup,"
Fig. 52, Nos. 23-28, 31, all alabaster except 27 (crystal). Nos. 26-28 and 31 are from the Kay group. No. 27 is from the original furniture, part of one of the groups of magical models which rest in holes in a stone slab.

The other two drawings in this figure are stone vessels. No. 40 is the base of a pointed jar of alabaster (type VIII c). No. 41 is type V c, of blue-veined limestone.

3. THE STONE VESSELS OF SAHURA

The stone vessels of the Mycerinus temple present the survival, for the funerary service of a royal tomb, of the corpus of traditional forms of Dynasty III which were derived in turn from the older forms of Dynasty I. Many of these forms were also used in private graves of Dynasty IV but in greatly diminished numbers. In the private graves of Dynasty V, these forms had been almost entirely replaced by new forms. Yet in the temple of Sahura at Abusîr, the older forms were again found under much the same circumstances as in the Mycerinus temple.¹ They were in the magazines, mostly

¹ See Borchardt, *Sa'hurê*, Vol. I, pp. 115-118.

broken, and included five bowls with the names of earlier kings, one of Khaba, two of Sneferuw, and two with titles only. The types represented are as follows:

		<i>Sa'hurê I</i>			
Type		Examples	Per cent	Per cent	
I a	Cylinder jar with cord	Fig. 146, 1-5	5 = 8.33		
c	Cylinder jar without cord	" 149, 1-4, 6, 7	6 = 10.00		
d	Cylinder jar, splay foot	" 148, 1	1 = 1.67	12	20.00
III c	Quasi-spheroidal jar	" 157, 2		1	1.67
IV e	Shoulder jar, handles	" 150, 1		1	1.67
V b (2)	Small barrel-jar	" 150, 3	1 = 1.67		
c (1)	Broad jar, high form	" 158, 2	1 = 1.67		
(2)	Broad jar, squat form	" 150, 2; 159, 1	2 = 3.33	4	6.67
IX b	Bowl, round base, plain rim	" 157, 1	1 = 1.67		
c	Same with internal rim	" 153, 2-4	3 = 5.00	4	6.67
X a (1)	Bowl, flat base, plain rim	" 147, 2; 149, 5; 153, 5, 6, 8, 10, 11; 157, 3	8 = 13.33		
a (3)	"Conical cup"	" 154, 2, 3	2 = 3.33		
b (4)	Flaring bowl, cup-hollow	" 151, 1	1 = 1.67		
c	Bowl, internal rim	" 147, 1, 3-5; 149, 8; 153, 1, 7, 9, 12; 154, 1; 158, 1; 159, 2	12 = 20.00		
d	Bowl-jar	" 155, 1, 4	2 = 3.33		
e (3)	Bowl-jar with spout	" 162, 1, 2	2 = 3.33	27	45.00
XI b (2)	Bowl, flat bottom, upright re- curved rim	" 155, 3	1 = 1.67		
b (5)	Bowl, round bottom, flaring recurved rim	" 152, 2	1 = 1.67		
c (2)	Cup, band-rim on mouth	" 155, 2	1 = 1.67	3	5.00
Miscellaneous fragments, forms not exactly determined				8	13.33
Totals				60	100.00

These vessels present seven of the thirteen types of the Mycerinus collection and only nineteen sub-types instead of forty-two. All of these sub-types occur in the Mycerinus collection and all except type IX c are known types of Dynasty III. The one exception is a poor round-bottomed bowl with an internal rim for which the only precedent is found in rude bowls of the Mycerinus collection. Some of the flat-bottomed bowls of type X c with internal rim have the rim merely indicated, not carefully worked out as in the examples of Dynasty III and previously. As in the Mycerinus collection, the bowls, five in number, with the names of preceding kings are the only ones which certainly belong to an earlier period, the reigns of Khaba and Sneferuw. The group as a whole is manifestly not the production of Dynasty III, much less of an earlier dynasty, and the rude careless finish of most of the examples makes it clear that these vessels were made not far from the time of Mycerinus and in all probability during the reign of Sahura himself. The five earlier bowls, and perhaps the fine cylindrical jars with cord, were included from earlier deposits in the same way that similar older material was placed in the Mycerinus magazines.

The number of the vessels of each type is not given by Dr. Borchardt, probably because the sorting of the fragments was not finished when the book was published. The percentage numbers have therefore little value. Nevertheless I have given them above for the sub-types and give now the percentages of the materials of the sixty examples noted in the book:

	Number	Per cent
Diorite	26 =	43.33
Alabaster	19 =	31.67
Grey sand (?) stone (limestone?)	6 =	10.00
Slate	5 =	8.33
Porphyry	3 =	5.00
Yellow sand (?) stone	1 =	1.67
	60 =	100.00

There were twelve different kinds of stone in the Mycerinus collection, and here there are but six, a considerable impoverishment. This impoverishment, like that of the forms, would be inexplicable if these vessels were stolen from older tombs.

These two collections of stone vessels, from the temple of Mycerinus and from that of Sahura, place before our eyes the dying stages of the old traditional stone forms, which have been traced above from the Early Predynastic Period to the reign of Sahura. The expansion of the manufacture of stone vessels began in Dynasty O, quickly reached its culmination in the early part of Dynasty I, received a second development in the time of Khasekhemuwy and Dynasty III, and died away under the influence of the use of the potter's wheel early in Dynasty IV. The Mycerinus pottery shows that the potter's wheel was in general use in Dynasty IV. The Mycerinus collection of stone vessels was the result of an attempt to construct for the king's tomb a set of these old forms which had by tradition been placed in the tombs since Dynasty I. The forms as they had been handed down in the royal workshops from Dynasty III to Dynasty IV, were probably carried almost wholly in the memories of individual craftsmen. The vessels of Sneferuw, Cheops, Chephren, and Radedef, if they were available, would no doubt give us the stages of the degeneration from the fine forms of Dynasty III to those of the Mycerinus collection. No one would maintain for a moment that the craftsmen of Mycerinus were unable to make fine vessels, finer even than those of the early dynasties, but that would have required a special effort. It would not have been like the work of the early craftsmen who made similar vessels for daily use and exercised a trained skill in the manufacture of stone vessels as a matter of habit. The vessels of Mycerinus appear ruder than was perhaps intended, as many of them were unfinished. And such an accident as the failure to finish a set of royal vessels would certainly accelerate the degeneration of the craft. Sahura died from twenty-five to thirty years after Mycerinus, and the same hasty workmanship is shown in his stone vessels as in those of Mycerinus. The forms have fallen to a little over half the number used by the craftsmen of Mycerinus, and the variety of stones employed to just one half. Like Mycerinus, he attempted to enrich his collection with a few earlier vessels; but the Sahura collection presents the logical continuation of the degeneration shown in the Mycerinus collection. Probably, if the material of the other royal tombs of Dynasty V were preserved, the degeneration might be traced to a still later stage, but for all practical purposes, the manufacture of the old traditional corpus of stone vessels was dead when the funerary equipment was placed in the magazines of the valley temple of Mycerinus.¹

¹ A number of fragments of stone vessels, especially bowls of the traditional form (Type X c), were found in the temples of both Neueserra and Neferirkara but, aside from one bowl and two flat-topped tables, were not published (see Borchardt, *Grabdenkmal des Königs Ne-user-re'*, p. 139, and *Grabdenkmal des Königs Nefer-ir-ke'-re'*, p. 68).

CHAPTER IX

THE POTTERY OF THE MYCERINUS VALLEY TEMPLE

THE stone vessels of the Mycerinus temples presented dying forms of the traditional types which had been living forms a century or more before the time of Mycerinus. The craft of making these vessels had been displaced by the potter's wheel, and, while Dynasties I–III had been the age of stone vessels, Dynasties IV–VI was the age of wheel-made pottery. Thus the pottery vessels in the Mycerinus temples belonged to a living craft and were intimately connected with the pottery vessels found in private graves of Dynasties IV–VI. The vessels of the pyramid temple were few in number, mostly in a fragmentary condition. This chapter therefore deals almost exclusively with the large collection found in the valley temple.

The forms employed by a living craft introduced after centuries of technical development will be, (a) old forms maintained for ceremonial-traditional purposes, (b) new forms arising out of the new technique or new material, or (c) new forms derived from older forms of other crafts — in the case of pottery from forms natural to stone vessels and copper vessels. The old traditional forms among the pottery vessels of the Mycerinus collection fall into three groups:

- (1) The impractical funerary vessels of coarse ware (group 1 on p. 207) consisting of four types with 218 examples (= 48+ %).
- (2) The more or less impractical copies of older forms in better wares (group 2 on p. 207) consisting of six types with 24 examples (= 5+ %).
- (3) The practical vessels of older forms adopted by the new craft and incorporated with the body of living vessels (group 3 on p. 207) consisting of nine types with 91 examples (= 20+ %).

Thus the total number of vessels of the old forms was 333 (= 73.67 %), but of these, 91 vessels (or 20+ % of all) were of living practical forms. The new forms which cannot be traced to the period before the introduction of the potter's wheel, are given in group 4 on p. 208, consisting of twenty-three types with 119 vessels (= 26+ %). The greater part of this number is made up of the slender pointed jars, the jar-stands, and the bowls and basins, particularly those with recurved rim (total, 101 vessels).

Dividing the vessels according to their use in daily life, those which are of living forms amounted to 210 (= 46+ %) and those which were not in daily use, to 242 (= 53+ %). Nearly all the types represented by both the practical and the traditional vessels were also found in the Giza mastabas; and the conclusion is clear that while the stone vessels belonged to a past age, the pottery was part of the archaeological group of Dynasties IV–V.

1. PROVENIENCE OF THE POTTERY

The pottery of the Mycerinus valley temple would be expected to fall into two groups, those vessels which belonged to the original furniture of the first period of services in the temple (i.e., Shepseskaf and perhaps his successor) and those vessels which were found in the débris of the later temple (i.e., Dynasties V–VI). An examination of the facts shows, however, that this grouping is of no practical value.

(A) THE EARLIER POTTERY

The following compartments of the first temple contained pottery vessels which were either in the original position or so deposited that they must have belonged either to the original furniture or to the first period of temple services:

- (1) Mag. III-10, a layer of smashed vessels on the floor at the western end: Pl. 71 g.
 - Type XXX, deep tapering bowl, two or more.
 - “ XXXIII, bowl, recurved rim, round bottom, two or more.
 - “ XXXVI, bowl, recurved rim and spout, one.
 - “ XXXVII, bowl, recurved rim, flat bottom, two or more.

- (2) Offering room, III-2, in floor débris of the first temple, under the floor of the second temple:
 Type III (1), two large bulging jars.
 " XLIII, small model jar.
 " XLIV, two small model bowls.
- (3) In door block, from III-2 to III-4:
 Type X (1) and (2), two small shoulder jars.
- (4) Under the same door block:
 Type IV, large fragment of jar which has been used to carry white plaster.
- (5) Mag. III-6, in floor débris, under bulge of wall:
 Type IV (2), coarse offering jar.
- (6) Mag. III-7, in floor débris, under bulge of wall:
 Type XXV, coarse "flower-pot."
- (7) Mag. III-19, in northwest corner on 20 cm. of débris, perhaps intrusive and in that case from the early occupation of the temple:
 Type III, large R. W. jar.
 " IV (1) and (2), three coarse R. W. offering jars.
 " V (5), small W. S. R. jar.
 " IX (1), pointed R. W. jar.
 " XXII (1), tall R. W. bowl-stand.
 " XXV (2), two mud "flower-pots."
 " XXVII (5), shallow, round-bottomed bowl, R. W.
 " XXXIX (1), flaring R. W. bowl.
 " XXXIII (3), three-legged bowl, R. W.
- (8) External corridor, III-21, practically on floor, opposite sanctuary and probably from temple:
 Type IV (4), coarse offering jar, R. W.
 " XVII (1), R. P. jar, flat bottom, flaring neck.
 " XXV (3), mud "flower-pot."
 " XXX (2), two big R. W. basins.
- Opposite great court,
 Type IV (5), two coarse offering jars.
 " V (4), bulging R. W. jar.
 " VIII (1), slender pointed W. S. R. jar.
 " XXV, seven mud "flower-pots."
 " XXXIII (1), bowl, recurved rim, round bottom, R. P.
 " XXXIV (1), large basin, flat bottom, R. P.
- Opposite sanctuary, upper débris,
 Type VIII (2), slender pointed W. S. R. jar.
 " XV (2), spherical jar, R. P.
 " XXV (3), three mud "flower-pots."
 " XXXII (3), deep bowl, tapering round base, R. P.
- (9) Mag. III-379, on floor:
 Type IV (3), coarse R. W. jar.
 " XXII (1), tall bowl-stand, R. P.
 " XLII (1), tray, wide flat rim, circular, R. W.
 " XXXIX, bases of two or more, flat-bottomed, flaring bowls.
- (10) Mag. Corridor III-380, on floor:
 Type XLI (1), flat-bottomed bowl with wide ledge rim, R. W.
- (11) Mag. III-382, on floor:
 Type V (3), small jar, R. W.

These deposits give us types III, IV, V, VIII, IX, X, XVII, XXII, XXV, XXVII, XXX, XXXII, XXXIII, XXXIV, XXXVI, XXXVII, XXXIX, XLI, XLII, XLIII, and XLIV, or twenty-one of the forty-four types, and seventeen of the twenty-one occur in more than three examples. But the vessels found in the floor débris of the court should be added to these as certainly belonging to the first period of occupation of the temple:

- (12) Room I-18 (I-57 b), on lower floor (Pl. 32 b):
 Type XXV (1), three stacks of two pots each, mud "flower-pots."
 " XXVI (1), two stacks of four trays each.
- (13) Room I-21, on floor of court:
 Types III, XXXII (2), XLIII (3), XLIV (2).
- (14) Room I-22, under floor, in débris of court:
 Types IV (4), XVIII (5), XXII (2), XXV, XXVII (4), XXXIX (3), XLIII (3).

- (15) Room I-24 sub:
Type II (1).
- (16) Room I-25, in floor débris of court:
Types XIX (1), XXII (2), XXV (5), XXVII (3), XXXI (1), XXXVII (2).
- (17) Room I-34, in floor débris of court:
Types IV and VIII (3).
- (18) Room I-36, in floor débris of court:
Types XXVII (4), XXXII (2).
- (19) Room I-38, in floor débris of court:
Type XV (2), R. P.
- (20) Room I-40, under floor of lower granary:
Types II (1), III (2), XXV (3), XXVI (1), XXVII (1, 3), XXXII (2).
- (21) Room I-55, in floor débris of court:
Types IV, XXV, XLIII (2).
- (22) Room I-56, in floor débris of court:
Types IV, VIII (1), XXV (2, 4), XXIX (1)
- (23) Room I-57, in floor débris of court:
Types XXXIV (1), XXXIX (2)
- (24) Room I-60, in floor débris of court:
Types III, XVIII (3), XXXI (1).
- (25) Room I-301, under floor:
Types V (2) and XXV (5).
- (26) Room I-302, under floor (Pl. 34 a):
Types XVI (1), XXIV (2), XXV (4), XXVI (1), XXVII (2), XXX (1, 2), XXXII (1, 2, 3),
XXXIII (1, 2), XXV (1), XXXVI (1), XXXVII (1).
- (27) Room I-304, under floor:
Types V (2, 6), XXV (5), XXXI (1), XXXIX (3), XL (1).
- (28) Room I-308, under floor:
Types III (3), XXV (5, seven), XXXI (1), XXXIX (2).
- (29) Room I-310, under floor:
Types VIII (1), XVIII (5, four), XXV (5), XXXVI (1), XXXVII (2, three), XLIII (2).
- (30) Room I-311, under floor:
Type XL (1).
- (31) Room I-314, under floor:
Types VIII (1), XXVI (1).
- (32) Room I-315, under floor:
Types XXXII (2), XXV (5, five).
- (33) Room I-316, on floor of court:
Types VIII (1), XXXIX (3).
- (34) Room I-317, under floor:
Types XI (1), XXI (1), XXV (5, three).
- (35) Room I-321, under floor:
Types V (3), VIII (1).
- (36) Room I-329, under floor:
Type XV (1).
- (37) Room I-331, in floor débris of court:
Types IV, VII (2), XXV (5, two), XXVIII (3), XXXIX (1).
- (38) Room I-332, in floor débris of court:
Type I (1).
- (39) Room I-335, in floor débris of court:
Type VIII (3).
- (40) Room I-355, under floor, (i.e., in magazine):
Type XXIII (1, two).
- (41) Room I-356, under floor (i.e., in magazine):
Type XXIII (2, five).
- (42) Room I-357, under floor (i.e., in magazine):
Type XXII (2).
- (43) Room I-366, under floor:
Types IV (2, three), III, X, XIV (1, 2), XVIII (1), XLIII (2, 5, 7), XLIV (3, twelve).
- (44) Room I-384, under floor:
Types III (2, 5), V (3, two), VIII (1), XIX (2, 3), XXV (5), XXXIX.

- (45) Room I-391, under floor:
Types III (2), XV (2), XXV (5), XXVII (2).
- (46) Room I-392, under floor:
Types XV (2), XXV (5), XXXII (2).
- (47) Room I-396, under floor:
Type V (4).

These deposits are certainly not later than the occupation of the first temple and belong to the same archaeological group as the temple furniture. They give the following list of pottery forms:

Types I, II, III, IV, V, VII, VIII, X;
XI, XIV, XV, XVI, XVIII, XIX;
XXI, XXII, XXIII, XXIV, XXV, XXVI, XXVII, XXIX, XXX;
XXXI, XXXII, XXXIII, XXXIV, XXXV, XXXVI, XXXVII, XXXIX, XL;
XLIII, XLIV.

That is, 34 of the 44 types were found in *débris* of early date. Of the remaining ten types, four were among those previously listed from the magazines. Thus only six types, — VI, XII, XIII, XX, XXVIII, and XXXVIII, were not proved to belong to the archaeological group of the first temple. These six types were represented by only seven vessels, or 1.5 per cent of all the vessels.

- (1) Type VI contains a single small R. W. jar with ovoid body, long concave neck, which was found in I-21 *débris* with types III and V.
- (2) Type XII contains a single small globular jar of B. P. ware, which was found in I-54 *débris*, with types IV, XIX, XXIV, and XXV.
- (3) Type XIII contains a single small flat-bottomed shoulder jar of B. P. ware, which was found in I-305 with types V, VII, and XXV.
- (4) Type XX contains a single squat jar with bulging base of R. P. ware, which was found alone in I-325.
- (5) Type XXVIII contains two hemispherical bowls of R. P. ware, one alone in I-331, the other in I-20 with types V, XXV, and XLIII.
- (6) Type XXXVIII contains a single flat-bottomed bowl with ledge rim found in I-18 with types III, V, XXV, and XXXVI.

Thus 43 of the 44 types (all except type XX) were found either in old *débris* or associated with the early types and may belong to the archaeological group of Shepseskaf and the early part of Dynasty V.

(B) THE LATER POTTERY

It has been shown in the last paragraph that all the types represented by more than one example are of the earlier period. This fact does not preclude the possibility that some of the examples which were found in the upper *débris* were of a later date; but in view of the disturbance of the older deposits in the later search for stone, none of these examples from the upper *débris* can be proved by their position to have been of the later period of the temple. It is only by comparison with the pottery found in the mastabas of Dynasties V-VI that some of the types can be shown to have continued in use in the time of the second temple. But admitting this possibility, the pottery of the later period has little significance for the present purpose in comparison with the pottery of the earlier period, and its discussion must be left for the publication of the Giza mastabas.

2. THE TYPES OF THE POTTERY FROM THE MYCERINUS VALLEY TEMPLE

The pottery vessels found in the Mycerinus valley temple have here been classified in forty-two types and two additional types of models. Excluding the models, the total number of vessels, the forms of which could be recognized, was 452, but the unrecognizable potsherds represent a far larger number, although probably less than double. In the descriptive provenience list (see p. 208-229), I have arranged these vessels in the following groups:

	Types	Sub-types	Number	Per cent
Group A, types I-XI, jars of R. W., Db. W., W. S. R. wares.	11	30	135	29.86
Group B, " XII-XIV, jars of B. P. ware	3	4	4	.88
Group C, " XV-XX, jars of R. P. ware	6	15	30	6.64
Group D, " XXI-XXIV, bowl-stands and jar-stands . . .	4	9	26	5.75
Group E, " XXV-XXVI, "flower-pots" and trays	2	7	158	34.96
Group F, " XXVII-XLII, basins and bowls	16	31	99	21.90
	42	96	452	100.00
Group G, types XLIII, XLIV, model jars and bowls	2	16	48	....

If the types be arranged according to function and the traditional-ceremonial vessels classified under their original functions, the groups appear as follows:

	Number	Per cent	Total No. of Vessels	Per cent
Group a, large jars, containers of wine, beer, water, or grain,				
Type I Wine jars	2	.44		
" II Jars, wine, beer, or water	3	.66		
" III Bulging jars, grain or water	26	5.75		
" IV Traditional jar	53	11.73		
" XV Globular jars, water, grain	5	1.11	89	19.69
Group b, medium-sized and small jars for oil, milk, etc.,				
Type V Ovoid, with or without neck	23	5.09		
Types VI-IX Bottle-jars, various forms	24	5.31		
Type X Shoulder jar, flat base	2	.44		
" XI Squat jars with spout	2	.44		
Types XII-XIV Small jars of B. P.	4	.88		
Type XVI R. P. shoulder jars, round base . . .	3	.66		
" XVII-XVIII R. P. jars, flat base	10	2.21		
" XIX, XX Squat jars, R. P.	12	2.65	80	17.70
Group c, large basins, for beer-making, storing liquids, etc.,				
Type XXIX Round bottom	1	.22		
" XXX Bent sides, tapering base	7	1.55		
" XXXIV Flat bottom	3	.66		
" XXXV Flat bottom, spout	2	.44	13	2.88
Group d, basins and bowls,				
Types XXVII-XXVIII Flaring, round base	12	2.65		
Type XXXI Hemispherical, swell rim	5	1.10		
Types XXXII-XXXIII Recurved rim, round base . . .	25	5.53		
Type XXXVI Recurved rim, spout, flat base . . .	6	1.33		
" XXXVII Recurved rim, flat base	12	2.65		
" XXXVIII Ledge-rim, flat base	1	.22		
" XXXIX Flaring side, flat base	16	3.54		
" XLI Small basin with wide rim	1	.22	78	17.25
Group e, trays, practical and ceremonial,				
Type XXVI Coarse oval traditional trays	13	2.88		
" XLII Circular, practical	1	.22	14	3.10
Group f, baking-pots (?),				
Type XXV Traditional "flower-pot"	145	32.08	145	32.08
Group g, bowl-stands and jar-stands,				
Type XXI Bowl and stand	1	.22		
" XXII Tall bowl-stand	9	1.99		
" XXIII Bowl-stands, traditional	7	1.55		
" XXIV Jar-stands, ring-stands	9	1.99	26	5.75
Group h, brazier (? or lid?),				
Type XL Body like a bowl with flat bottom, straight flaring side, rim; but with two rings on bottom and two rectangular holes in sides			7	1.55
			452	100.00

The chief types in point of numbers were:

Type		Number	Per cent
(1)	Type XXV	Coarse "flower-pot," traditional baking-pot (?)	145 32.08
(2)	" IV	Coarse offering jar, traditional form	53 11.73
(3)	" III	Large bulging jar, liquids or grain	26 5.75
(4)	" V	Medium-sized ovoid jar (beer, oil, milk)	23 5.09
(5)	" VIII	Slender pointed jar, flaring neck, new form	18 3.98
(6)	" XXXIX	Pan, flat base, flaring sides	16 3.54
(7)	" XXXII	Bowl, round base, low recurved rim	15 3.32
(8)	" XXVI	Coarse oval tray, traditional form	13 2.88
(9)	" XXXVII	Small basin, flat bottom, recurved rim	12 2.65
(10)	" XIX	Squat shouldered jar, R. P.	11 2.43
(11)	" XXVII	Bowl, round bottom, drooping rim	10 2.21
(12)	" XXXIII	Bowl, round base, high flaring recurved rim	10 2.21
(13)	" XVIII	Jar, shouldered, flat base, R. P.	9 1.99
(14)	" XXII	Bowl-stand, slender form	9 1.99
(15)	" XXIV	Jar-stand, ring form	9 1.99
(16)	" XXIII	Bowl-stand, short form with diaphragm	7 1.55
(17)	" XXX	Basin, bent sides	7 1.55
(18)	" XL	Brazier (?), with two rings and two holes	7 1.55
(19)	" XXXVI	Small basin, spout, flat bottom, recurved rim	6 1.33
(20)	" XV	Globular jar, large and medium-large sizes	5 1.11
(21)	" XXXI	Bowl, round base, swell rim inside, degen. recurved	5 1.11
(22)	Types II, VII, XVI, XXXIV, each with three examples		12 2.65
(23)	" I, IX, X, XI, XIV, XXVIII, XXXV, each with two examples		14 3.09
(24)	" VI, XII, XIII, XVII, XX, XXI, XXIX, XXXVIII, XLI, XLII (one example of each)		10 2.21
		<u>452</u>	<u>100.00</u>

The above list throws into relief the ceremonial character of the pottery devoted to the first temple. The rude impractical vessels number 218 and make up 48.23 per cent of the whole number of vessels:

Group 1,		Number	Per cent
(1)	Type XXV	"Flower-pots"	145 32.08
(2)	" IV	Traditional offering jars	53 11.73
(8)	" XXVI	Coarse oval trays	13 2.87
(16)	" XXIII	Bowl-stands with diaphragm	7 1.55
		<u>218</u>	<u>48.23</u>

In addition to these obviously degenerate forms, a number of others are also of known older types, although still well made and conceivably practical:

Group 2,		Number	Per cent
(23)	Type I	Tall wine jar with cord	2 .44
(22)	" II	Tall jar, smooth tapering body	3 .66
(22)	" VII	Small jar with flaring mouth	3 .66
(23)	" X	Small shoulder jar, flat base	2 .44
(13)	" XVIII-5	Small shoulder jar, flat base	3 .66
(10)	" XIX	Squat shouldered jar	11 2.43
		<u>24</u>	<u>5.31</u>

Other vessels were certainly practical and continued to be made during Dynasties IV-VI for the burials in the Giza mastabas, and were nevertheless derived or descended from older forms:

Group 3,		Number	Per cent
(3)	Type III	Large bulging jars	26 5.74
(4)	" V	Medium-sized ovoid jars	23 5.08
(24)	" VI	Small ovoid jar, long concave neck	1 .22
(20)	" XV	Large globular jars	5 1.10
(13)	" XVIII-1 to 4	Shouldered jars, neck, flat, base	6 1.32
(14)	" XXII	Bowl-stands	9 1.99
(22)	" XXXIV	Large basins, flat bottom, roll rim	3 .66
(23)	" XXXV	Large basins, spout, flat bottom	2 .44
(6)	" XXXIX	Flaring pans, flat bottom	16 3.53
		<u>91</u>	<u>20.13</u>

Thus altogether eighteen of the forty-two types and 333 (= 73.67 %) of the 542 vessels may be characterized as traditional forms whose origins can be traced into the past, many of them to Dynasty I, and through the forms of Dynasty I to the Predynastic Period.

It is important to note on the other hand the relations of these forms to those of Dynasties IV–VI. All the degenerate types of groups I, XXV, IV, XXVI, and XXIII, are represented among the vessels of each of the three Dynasties IV–VI in the Giza mastabas and elsewhere; but only type IV is common, being found both in the burial chambers and in the deposits of periodical offerings. Type XXV seldom occurs in the burial chambers, and the other two are altogether rare. Of the second group of better-made pots, type I has not been found in any of the Giza mastabas; but types II, VII, X, XVIII–5, and XIX occur, all infrequently except types X and XVIII–5. All the types of the third group, III, V, VI, XVIII–1 to 4, XXII, XXXIV, XXXV, and XXXIX, are well represented, although the large basins naturally occur in only a few examples (due to breakage). Thus of the old traditional forms, it is only type I, the old wine jar, which was not found in the private graves of Dynasties IV–VI.

The remainder of the vessels of the Mycerinus valley temple is composed of types characteristic of the new wheel-made pottery (see p. 174) which was so widely used during Dynasties IV–VI:

Group 4,		Number	Per cent
Type VIII	Slender pointed jar, long neck, Db. W. or W. S. R.	18	3.98
" IX	Slender pointed jar, short neck, Db. W. or W. S. R.	2	.44
" XI	Small squat jar with spout	2	.44
" XII–XIV	Small B. P. jar	4	.88
" XVI	R. P. jar with neck and round base	3	.66
" XVII	R. P. jar with neck and flat base	1	.22
" XX	Squat jar with bulging base	1	.22
" XXI	Tall bowl-stand with bent-rimmed bowl	1	.22
" XXIV	Jar-stand or ring-stand, Db. W., W. S. R., or R. W.	9	1.99
" XXVII	Round-bottomed bowl, drooping rim, R. P. or R. W.	10	2.21
" XXVIII	Round-bottomed bowl, internal rim, R. P. or R. W.	2	.44
" XXIX	Round-bottomed basin, R. P. or R. W.	1	.22
" XXX	Round-bottomed basin, bent sides, tapering base, R. P.	7	1.55
" XXXI	Round-bottomed basin, swell rim inside, R. P.	5	1.11
" XXXII	Round-bottomed bowl, low recurved rim, R. P. or R. W.	15	3.32
" XXXIII	Round-bottomed bowl, high recurved rim, R. P. or R. W.	10	2.21
" XXXVI	Flat-bottomed basin, spout, recurved rim, R. P.	6	1.33
" XXXVII	Flat-bottomed bowl, recurved rim, R. P.	12	2.65
" XXXVIII	Flat-bottomed bowl, ledge-rim, R. P.	1	.22
" XL	Brazier (?), two rings on base, two holes in side	7	1.55
" XLI	Flat-bottomed basin, small, wide ledge-rim	1	.22
" XLII	Circular tray, wide ledge-rim, three knob feet	1	.22
		<u>119</u>	<u>26.33</u>

Thus about one quarter of the vessels are not traceable directly to older pottery forms, but probably all of them could be traced to older types in other materials, stone and copper. This group belongs then to the living group of Dynasties IV–VI which was produced by the invention of the potter's wheel, and all the members of the group have been found in the Giza mastabas. The twenty-four types of the group with their sum of 119 vessels comprise over half of the practical vessels of the Mycerinus collection. But all the practical vessels of group 3 are also living forms of Dynasties IV–VI. Consequently all the practical vessels of groups 3 and 4 belong to the corpus of vessels in use in those dynasties.

In view of the facts stated above, it is obvious that all the vessels of the Mycerinus collection (except type I), belong to the archaeological group of Dynasties IV–VI. Nevertheless the whole corpus of pottery of Dynasties IV–VI is not represented in that collection, and the type-forms found in tombs later than Dynasty IV show variations from the same type-forms of the Mycerinus collection.

(A) JARS OF R. W., DB. W., AND W. S. R. WARES

(1) *Type I. Wine Jar*

The tall wine jar without a cord in relief has been found as early as Dynasty O. The forms with and without cord occurred in practically every known royal tomb of Dynasties I and II, including that of Khasekhemuwy. In private tombs these forms have been found as follows:

- (1) Reisner, *Naga'-d-Dêr I*, p. 91, type I, Dynasty I, both slender and wide forms.
- (2) Petrie, *Abydos I*, Pls. XXXVI-XLI, Cem. M., Dynasty I.
- (3) Petrie and Wainwright, *Tarkhan I*, Pls. LIV-LVI, Dynasties I and II.
- (4) Junker, *Turah*, pp. 31, 32, Dynasties O to II.
- (5) Quibell, *Archaic Tombs*, p. 17, Pls. XXV and XXXIX, see especially tombs 2171 (Neterymuw?), 2302 (Neterymuw?), 2322 (Nebka?), 2337, 2407 (alabaster), 2498 and tomb of Hesy (alabaster), — Dynasties II-III.
- (6) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXXI from K 1 and K 5, both from time of Neterykhet.

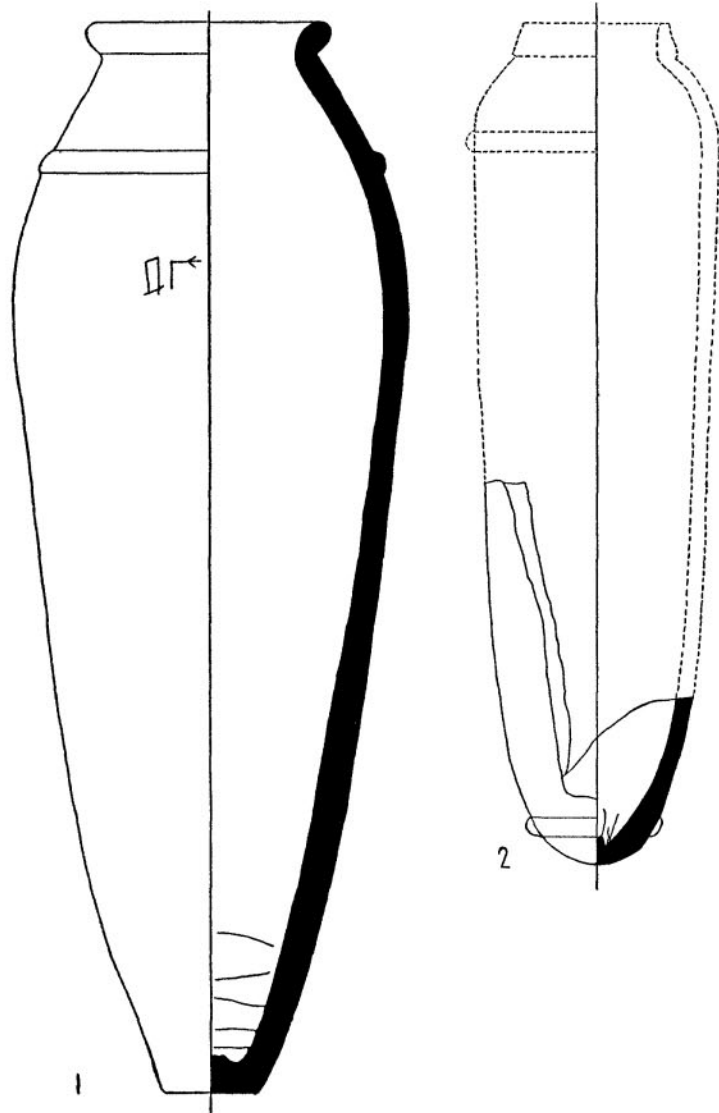


FIGURE 61
POTTERY, TYPE I. SCALE $\frac{1}{4}$

In general the wider form with cord in relief is earlier and the slender almost cylindrical form is later, but slender forms occur also in Dynasty I, and some wider forms in Dynasties II and III. The wide form of the type was found in the tomb of Khasekhemuw,¹ and the very narrow form in the earlier tomb of Peribsen.² One of the Mycerinus examples was of the swelling slender type, while the other was of the degenerate slender variation.

Type I, tall wine jars of traditional forms,

- (1) Fig. 61, No. 1, slender swelling form, flat base, cord around shoulder; fine hard brownish drab ware pebble smoothed; potmark on shoulder incised before baking. Pl. 71 c.
+ From I-355 débris, No. 372.³
- (2) Fig. 61, No. 2, degenerate slender form, round base, cord around shoulder and around base; fine hard brown-drab ware, smooth.
+ From I-332 sub, floor débris of court, No. 358.

¹ See Amélineau, *Fouilles d'Abydos 1896-97*, Pl. XXIV.

² See Petrie, *Abydos I*, Pl. VII.

³ In the following lists, the examples marked + have been reproduced in the drawings of pottery types.

(2) *Type II. Tall Jar with Tapering Body and Round Base*

This tall jar is obviously descended from the tall jar of drab ware which is commonly found in the graves of Dynasty O.¹ The intervening variations between that jar and the Mycerinus jar are as follows:

- (1) Petrie, *Abydos I*, Pls. XXXVI–XL, Cem. M., Dynasty I.
- (2) Reisner, *Naga-'d-Dêr I*, p. 92, type IV, Dynasties I and II.
- (3) Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXXI, Nos. 27, 28, Dynasty III.
- (4) Quibell, *Archaic Tombs*, Pl. XXXIX C and D, Dynasties II–III.

This type is closely related in origin to type IV, but instead of degenerating like type IV it remained a practical vessel throughout the Old Kingdom, but the later examples were usually of W. S. R. or R. P. ware.

Type II, tall jar with tapering body, rounded base, very short neck and roll rim around mouth, of fine, hard pink-drab ware.

Fig. 62, No. 1,

+ From I-56, débris in granary, No. 114. Pl. 71 e.

I-24, under the floor, No. i.

I-40, under the granary, No. 108.

(3) *Type III. Large Bulging Jar*

The very wide bulging jar with the rounded base and the short neck with roll rim, suitable for grain or water, is rare in the records of Dynasty I. In that dynasty a very similar jar with narrow flat base is more frequent. The material is usually not hard baked, and the walls are thin so that vessels of this type suffer greatly from breakage.

The examples are as follows:

- (1) Reisner, *Naga-'d-Dêr I*, p. 92, type III, all of Dynasty II.
- (2) Petrie and Wainwright, *Tarkhan I*, Pl. LVII, No. 82 c.
- (3) Quibell, *Archaic Tombs*, Pl. XXXIX, type B.

No two of these large jars are exactly alike, but they must be grouped as functionally the same. The number of examples in the Mycerinus collection was large, but most of them were badly broken.

Type III, large bulging jar, rounded base; of good red-brown ware with black fracture, smooth surface, and red or drab wash.

(1) Fig. 62, No. 2,

+ From III-2, in débris under floor of second temple, red wash, two examples.

(2) Fig. 62, No. 3,

+ From I-40 sub, No. 109, red wash.

III-11, high up in débris, No. IV.

I-21, débris; drab wash; h., 50 cm.; repaired in antiquity.

I-307, on floor, No. 2, drab wash.

I-384, sub, No. 7.

I-391, sub, No. 3, red wash.

(3) Fig. 63, No. 1,

+ From I-56, Nos. 112 and 113, drab wash, two examples.

I-308 sub, No. ii, drab wash, two examples.

I-318, No. iv, drab wash.

(4) Fig. 63, No. 2,

+ From I-30, No. 40, drab wash.

(5) Fig. 63, No. 3,

+ From I-30, No. 41, drab wash.

I-70, No. 256, h., 46 cm., red wash.

I-384 sub, No. 8.

(6) General types, badly broken examples:

From III-5, No. 32, red wash.

III-19, No. 11, red wash.

I-18, débris, Nos. 24, 25, 28; red surface, two examples.

I-21 sub, No. 175.

I-26 sub, No. 142.

I-60 sub, No. 236.

I-307 on floor, No. 3.

I-366, No. iii.

¹ Professor Petrie's L 36.

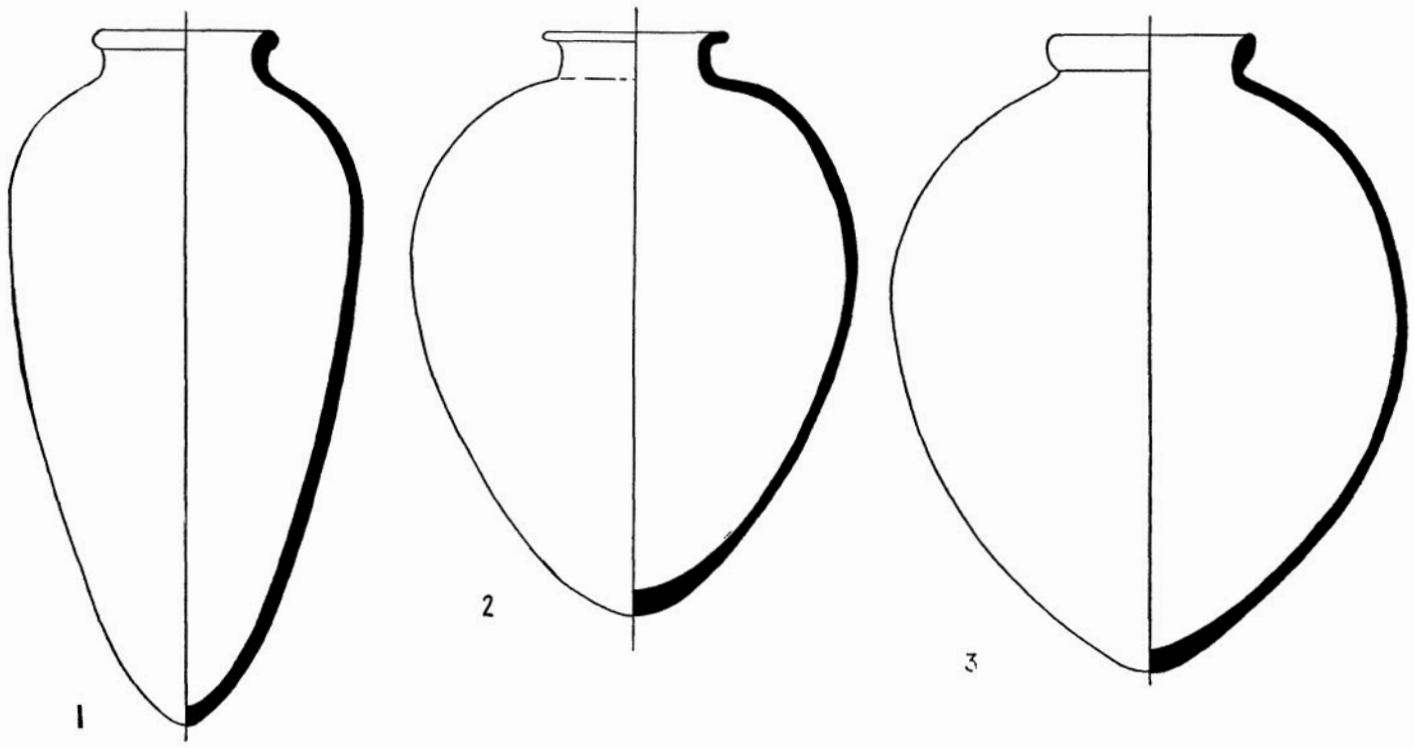


FIGURE 62
 POTTERY, TYPES II AND III. SCALE $\frac{1}{4}$

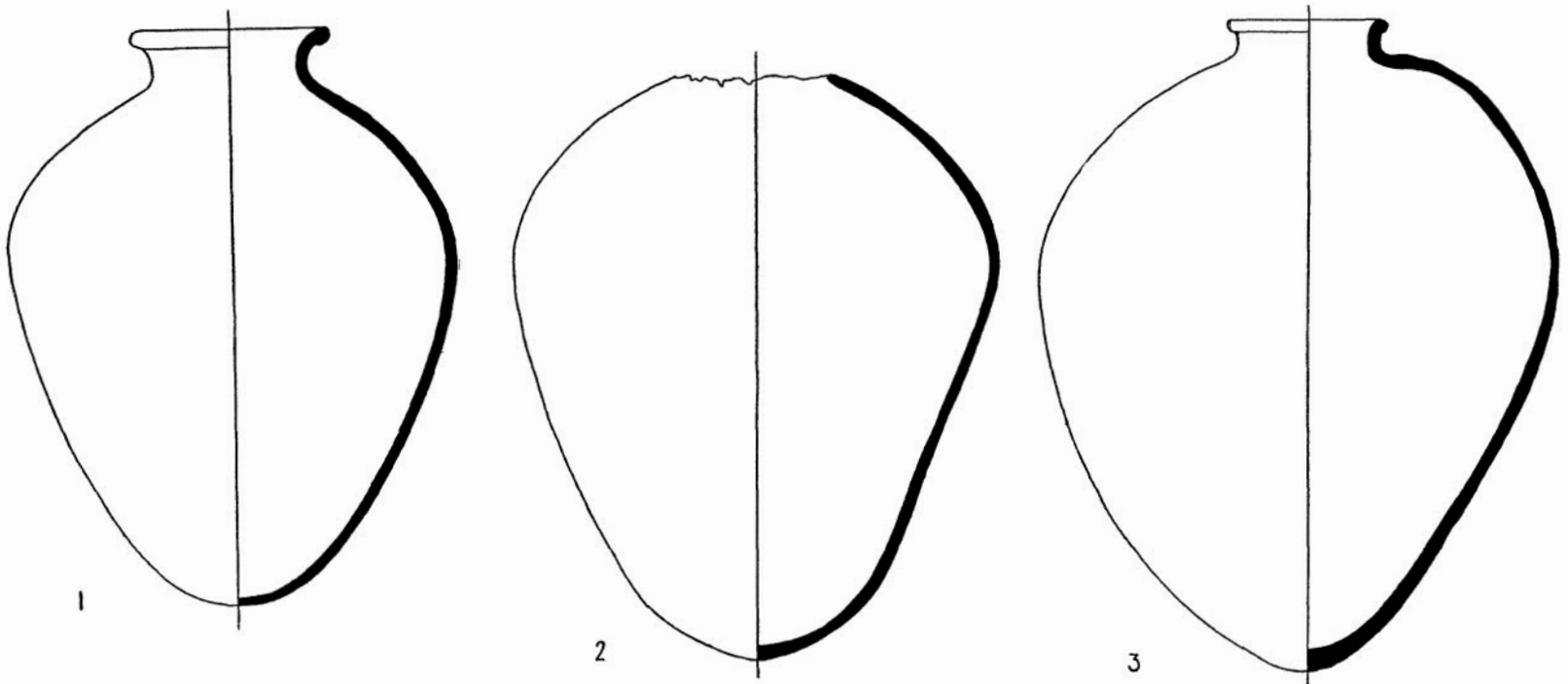


FIGURE 63
 POTTERY, TYPE III. SCALE $\frac{1}{4}$

The total number of identifiable examples was twenty-four, 5.27 per cent of the identified pottery. Similar large bulging jars were always in use probably for the same purpose as these jars, but the form and the material were different.

(4) *Type IV. Traditional Offering Jar*

The traditional offering jar has a long history,¹ extending from the Late Predynastic Period to the Middle Kingdom. Being always from Dynasty I down a traditional-ceremonial vessel, type IV presents great variations in form in the same tomb — see for example Mr. Mace's remarks in *Naga-'d-Dêr II*, p. 38. A good illustration of this fact may be found in varied forms found in the very homogeneous group of

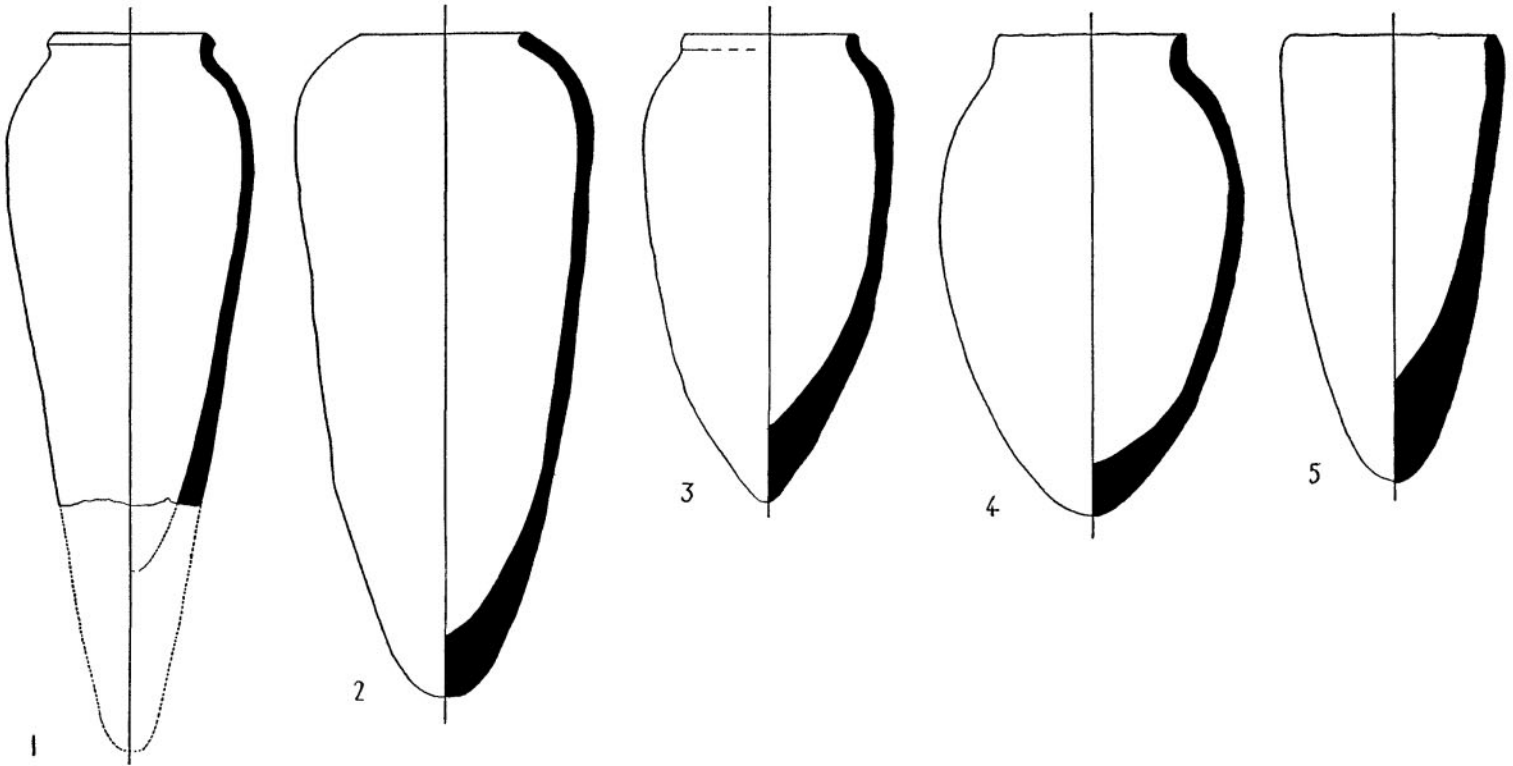


FIGURE 64
POTTERY, TYPE IV. SCALE $\frac{1}{4}$

Third Dynasty stairway tombs at Bêt Khallâf.² Our present type IV and especially the subtypes (3–5) are closely related to type II in origin. Subtypes IV (1) and (2) may be directly descended from the ancestors of type II or even from those of type I. The actual examples noted herewith represent only a part of the vessels of type IV, as the débris in almost every room contained potsherds of this general type. Their original number was probably not less than that of type XXV, but the latter were more compact and less easily shattered. The number noted was fifty-three, 11.73 per cent, next to type XXV in frequency.

Type IV, traditional offering jar, hand-made or imitating hand manufacture; of coarse red-brown ware with black fracture; surface, wet-smoothed by hand; usually vertical dressing marks on base.

(1) Fig. 64, No. 1, tall form with rim, Pl. 72 a ($\frac{1}{8}$).

+ From I-364, No. i.

(2) Fig. 64, No. 2, tall form without rim,

+ From III-19, Nos. 8 and 7, two examples.

(3) Fig. 64, No. 3, short form with rim,

+ From III-6, No. 62.

III-11, high up in débris, No. i.

III-19, No. 12.

Court, north of stone basin, floor débris.

III-379, No. iii, floor of magazine.

¹ Reisner, *Naga-'d-Dêr I*, p. 93, type V, and Mace, *Naga-'d-Dêr II*, p. 38.

² Garstang, *l. c.* (Pls. XXX; XXXI, 9, 10, 29–34). Other examples of Dynasties II and III may be found in Mr. Quibell's *Archaic Tombs*, Pl. XXXIX, type M.

- I-21 sub, No. 63.
 I-308 débris, No. 315.
 I-359 débris, No. 378b.
 I-361 débris, Nos. i and ii, two examples.
 I-366 sub, No. 373.
 I-367 débris, No. ii.
- (4) Fig. 64, No. 4, short form with rudimentary rim,
 + From III-21, Nos. 57, 59, two examples. Pl. 72 a ($\frac{1}{2}$).
 I-22 sub, Nos. 66-72, seven examples. Pl. 71 h.
 I-364 sub, No. iii, four examples.
 I-365, No. ii.
- (5) Fig. 64, No. 5, short form without rim,
 + From III-21, No. 368, two examples. Pl. 72 a ($\frac{1}{2}$).
- General type,
 From III-4, under door block, No. 40; traces of white plaster on inside.
 I-18 débris, No. 26.
 I-34 floor débris of court, No. 52.
 I-51 débris, Nos. 124, 127, five examples.
 I-52 débris, Nos. 128, 129, two examples.
 I-54 lower débris, No. 147.
 I-55 sub, Nos. 152, 153, two examples.
 I-56 sub, No. 255.
 I-303 débris, No. 277.
 I-304 débris, No. 313.
 I-306 débris, No. 305.
 I-314 débris, No. 329.
 I-321 débris, No. iii.
 I-331 sub, No. iii.
 I-366 sub, No. ii, two examples.

(5) *Types V, VI, and VII. Small Jars*

Six variations of jar with bulging shoulder, tapering rounded base, and short, or very short, neck are grouped under type V. Twenty-four of these (5.27 per cent) were registered, making the type tied with type III in point of frequency. Type VI, represented by one example, had an ovoid body with longer concave neck, while type VII, with three examples, was a small globular jar with flaring mouth. The types are difficult to trace before Dynasty IV.¹ The form of type V is common in the mastabas at Giza in R. W., W. S. R., and R. P. wares. The examples of the three types in the Mycerinus collection are as follows:

Type V, small jar, with bulging shoulder, tapering rounded base, and short, or very short, neck; of ordinary red or brown ware with black fracture; wet-smoothed surface; whitish-green or drab slip.

- (1) Fig. 65, No. 1,
 + From I-314 débris, No. 318. Pl. 72 a ($\frac{1}{2}$).
 I-18 sub, No. 58.
- (2) Fig. 65, No. 2,
 + From I-304 sub, No. 5. Pl. 72 a ($\frac{1}{2}$).
 III-382 on mag. floor, No. i. Pl. 72 a ($\frac{1}{3}$).
 I-18 débris, No. 22.
 I-301 sub, No. iv.
- (3) Fig. 65, No. 3,
 + From I-326 débris, No. i. Pl. 72 a ($\frac{1}{3}$).
 I-328 débris, No. i.
 I-321 débris, No. iv, two examples.
 I-384 sub, No. 6.
- (4) Fig. 65, No. 4,
 + From III-21 E, No. 367.
 I-396 sub, No. i. Pl. 72 a ($\frac{1}{3}$).

¹ See Quibell, *Archaic Tombs*, Pl. XXXIX, type F.

- (5) Fig. 65, No. 5,
 + From III-19, No. 9.
 I-20 débris, No. 15, wash faded or wanting.
 I-28 sub, No. 165.
- (6) Fig. 65, No. 6,
 + From I-304, No. 9, potmark.
 I-305 débris, No. 307.
 I-21 débris, No. 14.
- (7) Fig. 65, No. 7,
 + From I-321 sub, No. vi, with nearly globular body. Pl. 72 a (¾).
 General type,
 From top of wall between I-6 and south wall, No. 35.
 I-21 sub, No. 62.
 I-20 débris, No. 20.

Type VI, small jar, ovoid body, longer concave neck; ordinary red-brown ware, wet-smoothed surface.

- (1) Fig. 65, No. 8,
 + From I-21 débris, No. 13. Pl. 72 a (½).

Type VII, small jar, globular body, neck and flaring mouth; of red-brown ware with red or drab wash on wet-smoothed surface.

- (1) Fig. 65, No. 9,
 + From I-305 débris, No. 308, red wash.
 I-331 sub, No. ii.
- (2) Fig. 65, No. 10,
 + From I-30 débris, No. 43, drab wash.

(6) *Types VIII and IX. Pointed Jars with Neck*

Type VIII with bulging rounded shoulder, tapering pointed base, and wide flaring neck with roll-rim around mouth, is a characteristic form of Dynasties IV and V. As far as I know, it has never been recorded previous to Dynasty IV. The vessels are always of the whitish-drab ware ("Keneh ware") or the imitation of that ware (W. S. R. ware). The same form copied in alabaster is one of the common and characteristic types of the stone vessels of Dynasties V and VI. Type VIII-3 differs from VIII-1 solely in the straighter form of the neck and is also one of the common alabaster forms of Dynasties V-VI.¹ Type VIII was represented in the Mycerinus collection by eighteen examples or 3.97 per cent of all; type IX, by only two examples.

Type VIII, jar, rounded shoulder, tapering pointed base, wide flaring neck, roll-rim; of whitish-drab ware or of red ware with heavy whitish-drab slip.

- (1) Fig. 65, No. 11,
 + From I-321 sub, No. v. Pl. 72 a (¼).
 III-21 E, No. 369.
 I-18 sub, No. 56.
 I-51 débris, No. 123.
 I-56 sub, No. 253; smoke stained.
 I-307 débris, No. iv.
 I-310 sub, No. vi.
 I-314 sub, No. ii.
 I-316 sub, No. 359.
 I-317 on the floor, Nos. vi-x, five jars.
 I-359 débris, No. 378a.
 I-384 sub, No. 5.
- (2) Fig. 65, No. 12,
 + From III-21, No. ii. Pl. 71 h.
- (3) Fig. 65, No. 13,
 + From III-19, No. 1, with straight neck.

Type IX, jar, with short flaring neck, tapering body (swelling), and pointed base.

- (1) Fig. 65, No. 14,
 + From I-34 sub (floor débris of court), No. 53.
 I-335 sub, No. i.

¹ See for both VIII and IX, Garstang, *Mahâşna and Bêt Khallâf*, Pls. XXXIV-XXXVIII.

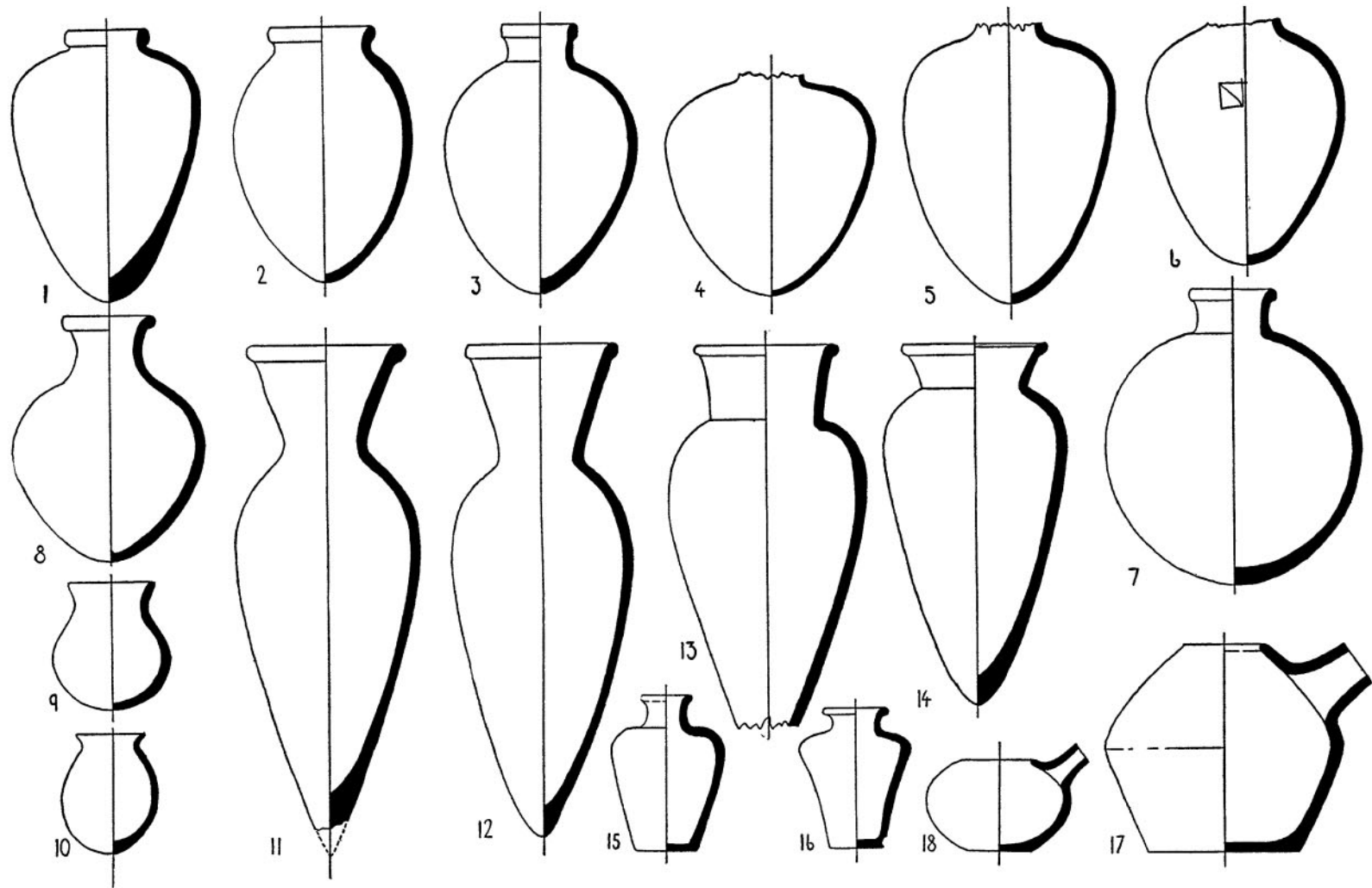


FIGURE 65
 POTTERY, TYPES V TO XI. SCALE $\frac{1}{4}$

(7) *Type X. Small Shouldered Jar with Flat Base*

Type X is the same form as the red polished type XVIII, but has an unpolished red wash. For the history of the form see type XVIII.

Type X, small shouldered jar with short neck and flat base, of red ware; wet-smoothed; red wash.

- (1) Fig. 65, No. 15,
+ From III-4, floor débris.
- (2) Fig. 65, No. 16,
+ From III-4, floor débris.

(8) *Type XI. Small Squat Jar with Spout*

Small bowls with contracted mouth and cups, both with open spout, have been recorded in stone in Dynasties I-III. The two squat jars found in the Mycerinus valley temple were different from either of these forms, which have both a short tubular spout. A larger vessel, a basin with external rim and short tubular spout, is known in stone¹ and in pottery in Dynasty III. Thus an historical predecessor of these two forms is sought in vain. In Dynasty IV, a number of forms with spout, often derived from the copper ewer, have been found at Giza, and the two vessels of our type XI are probably related to these imitations of copper forms.

Type XI, squat jar with spout,

- (1) Fig. 65, No. 17, squat jar with narrow rimless mouth, flat base, and tubular spout; of drab ware.
+ From I-317 sub, No. 349.
- (2) Fig. 65, No. 18, very squat jar (jar-bowl), contracted rimless mouth, flat base, short tubular spout; of W. S. R. ware.
+ From I-33 débris, No. 54.

(9) *Types XII-XIV. Black Polished Jars*

Black polished pottery is almost always an impractical, soft, and fragile ware. The examples of this material are rare in all periods and often imitative of stone forms.

Type XII, small globular jar with neck and roll-rim on mouth (cf. type VII); of soft dark grey ware; polished black slip.

- (1) Fig. 66, No. 1,
+ From I-54 débris, No. 146.

Type XIII, small shouldered jar, short neck, flat base (cf. R. P. XVIII); of soft dark grey ware; polished black slip.

- (1) Fig. 66, No. 2,
+ From I-305 débris, No. 309.

Type XIV, small squat jar with bulging base (cf. R. P. XX); of soft dark grey ware; polished black slip.

- (1) Fig. 66, No. 3,
+ From I-366 sub., No. 374.
- (2) Fig. 66, No. 4,
+ From I-366 sub, No. iv.

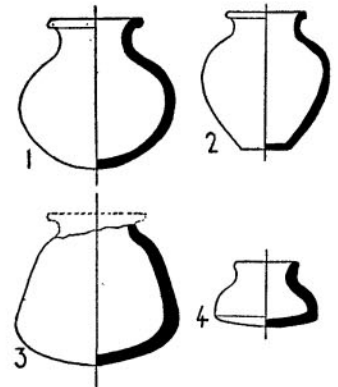


FIGURE 66
POTTERY (B.P.), TYPES XII
TO XIV. SCALE $\frac{1}{4}$

(10) *Types XV-XX. Jars, Red Polished Ware*

Red polished brown or red ware is well represented in the Predynastic Period and is known from all the early dynasties; but its frequency declined during the great period of stone vessels, especially for jars. The ware was revived with the advent of wheel-made pottery, as a harder ware with bright red polish for bowls and sometimes jars, and a softer ware with dark red polish for jars. The jars of the Mycerinus collection are of this softer ware with dark red polish except types XVI-XIX.

Type XV is of globular form, without exact historical predecessors.²

Type XV (1), large globular jar with roll-rim on mouth; red-brown ware, red wash, pebble burnished.

- Fig. 67, No. 2,
+ From I-329 sub, No. i.

¹ See stone vessels, type XIa (4).

² See, however, Garstang, *Mahásna and Bêt Khalláf*, Pl. XXX, 20, unpolished.

Type XV (2), medium-sized globular jar with flaring mouth; hard thin red ware, red wash, pebble burnished.

Fig. 67, No. 1,

+ From I-38 sub, No. 257.

III-21, No. iii.

I-391 sub, No. 2.

I-392 sub, No. 1.

Type XVI contains the ovoid, round-bottomed jars of various sizes, and is an Old Kingdom group.

Type XVI, round-bottomed jar with neck,

(1) Fig. 67, No. 3, ovoid jar, conical neck, roll-rim; hard thin red ware, red wash, burnished,

+ From I-302 sub, No. 35. Pl. 72 b ($\frac{1}{2}$).

(2) Fig. 67, No. 4, smaller ovoid jar, with neck (cf. type V (6)), red-brown ware, dark red wash, burnished,

+ From I-303 débris, No. 275.

(3) Fig. 67, No. 5, very small slender jar with tapering base; red-brown ware, red wash, bright polish,

+ From I-391 sub, No. iii. Pl. 72 a ($\frac{1}{4}$).

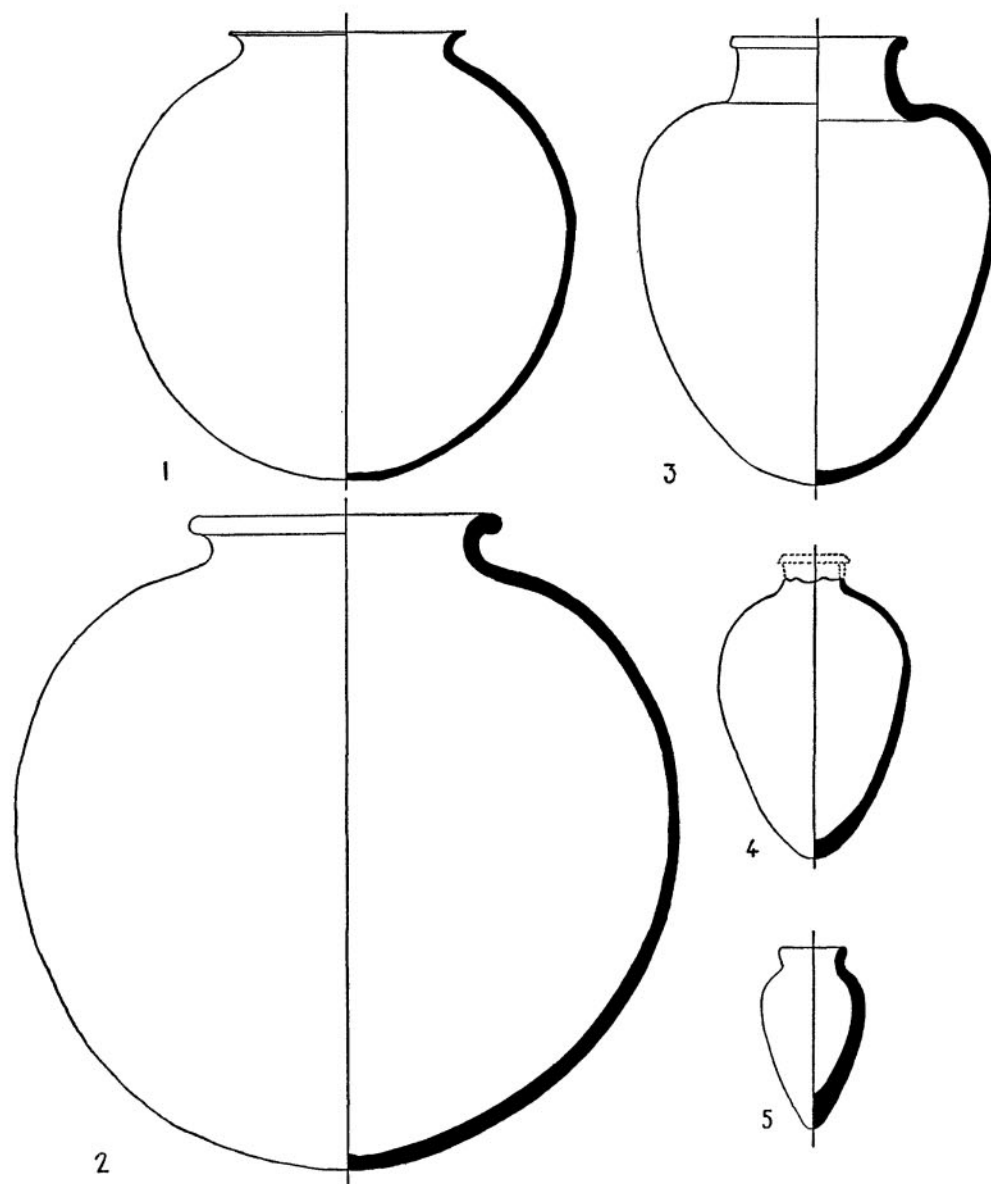


FIGURE 67
POTTERY (R.P.), TYPES XV AND XVI. SCALE $\frac{1}{4}$

Type XVII is similar to type VIII with the bottom truncated to form a flat base. It belongs to the archaeological group of Dynasties V-VI and like type VIII was copied in alabaster.¹

Type XVII, shoulder jar, flat base, flaring neck with roll-rim; red ware, red wash, pebble burnished.

(1) Fig. 68, No. 1,

+ From III-21, No. 60. Pl. 72 a ($\frac{3}{4}$).

¹ See Garstang, *Mahásna and Bêt Khalláf*, Pl. XXXVI, 16, 17.

Type XVIII contains the shouldered jars with flat base. Subtypes (1) to (4) are practical jars descended from type-forms of Dynasties II-III¹ and are well-known in Dynasties IV-VI. The subtype (5) consists of model jars which are probably descended from the type K of Quibell's *Archaic Tombs*.

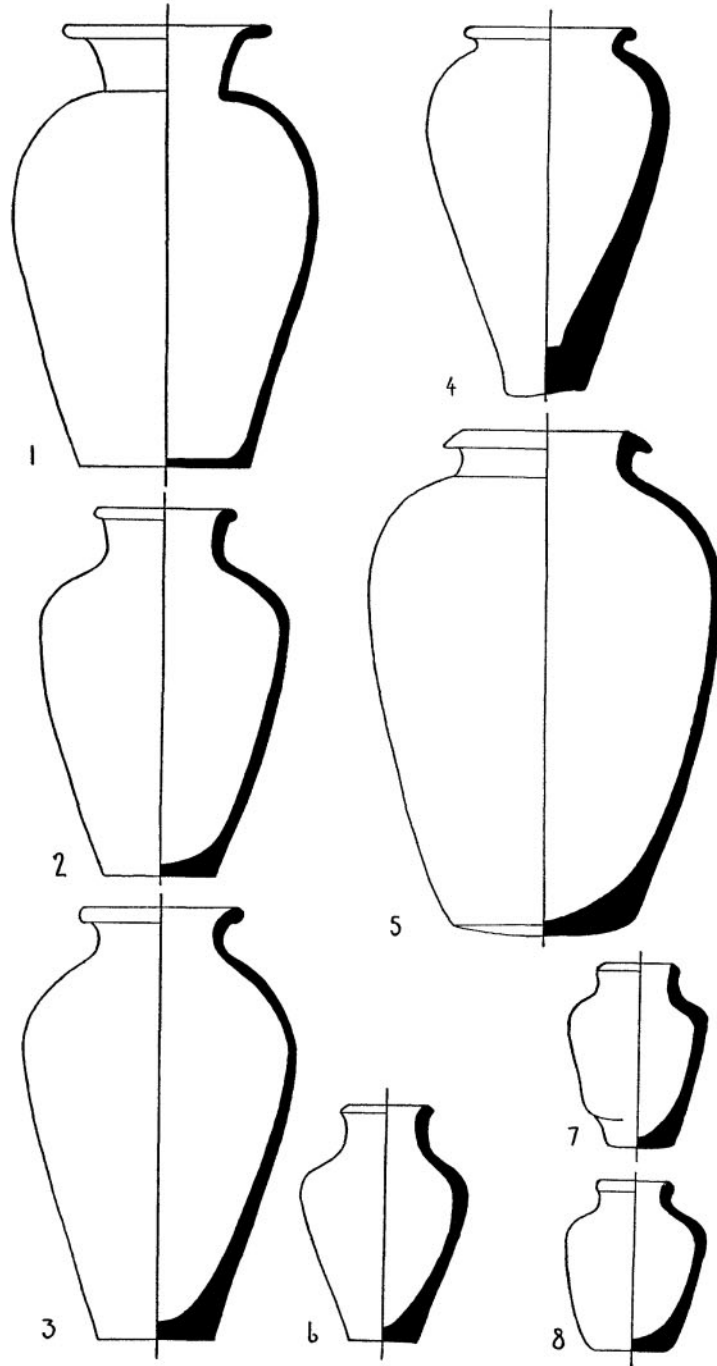


FIGURE 68
POTTERY (R.P.), TYPES XVII AND XVIII. SCALE $\frac{1}{4}$

Type XVIII (1), jar, sloping shoulder, short flaring neck, flat base; red ware, red wash, burnished.

Fig. 68, No. 2,

+ From I-365 débris, No. 382.

(2) Jar, bulging shoulder, neck (rim missing), flat base; red-brown ware, red wash, burnished.

Fig. 68, No. 3,

+ From I-366 sub, No. 383.

(3) Jar, swelling shoulder, no neck, roll-rim, small flat bottom; brown ware, red wash, dull burnish.

Fig. 68, No. 4,

+ From I-367 débris, No. 377.

I-60 sub, Nos. 237, 238, two jars.

¹ See Quibell, *Archaic Tombs*, Pl. XXXIX, forms G and L.

- (4) Jar, round shoulder, wide body, short neck, wide rim, flat bottom; red-brown ware, red wash, burnished (a common form in the Giza mastabas).

Fig. 68, No. 5,

+ From I-324 sub, No. 365.

- (5) Model jar, shoulder, neck, flat base; red-brown ware, red wash, dull burnish.

Fig. 68, No. 6,

+ From I-310 sub, No. 1. Pl. 72 a ($\frac{2}{3}$).

I-22 sub, No. 82.

Fig. 68, No. 7,

+ From I-310 sub, No. 2

Fig. 68, No. 8,

+ From I-310 sub, No. 3.

Types XIX and XX contain the squat-shouldered jars. These are undoubtedly descended from the squat pottery jars of Dynasty I.¹ The form occurs also in Dynasties V-VI, and even later.² This pot-

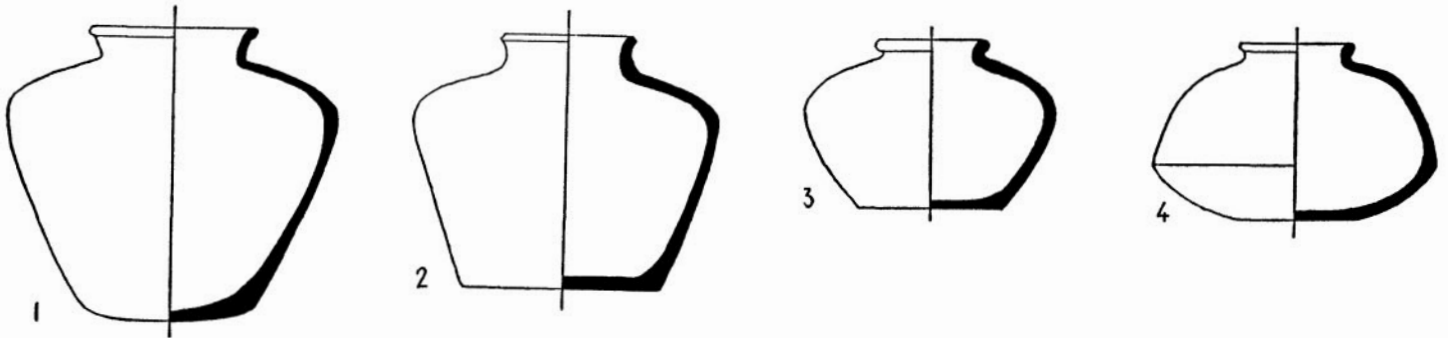


FIGURE 69

POTTERY (R.P.), TYPES XIX AND XX. SCALE $\frac{1}{4}$

tery jar was copied in stone (Type 1-V c) in which case the examples were often made in two pieces on account of the difficulty of boring. The form of the pottery jar presented by Quibell's type I³ which has a ridge around the shoulder appears to be copied from the two-piece stone jar.

Type XIX, squat broad shoulder jar; flat or convex base; red or brown ware, red wash, dull pebble burnish.

- (1) Fig. 69, No. 1, high form, convex base,
+ From I-25 sub, No. 1. Pl. 72 a ($\frac{2}{3}$).

- (2) Fig. 69, No. 2, wide base,
+ From I-54 débris, No. 144.
I-384 sub, Nos. 1, 2, two jars.

- (3) Fig. 69, No. 3, low squat form,
+ From I-326 débris, No. ii. Pl. 72 a ($\frac{2}{3}$).
I-384 sub, No. 9.

General type,

From I-4 sub, No. ii.

Between I-6 and south wall, No. 34.

I-8 débris, Nos. 32, 33, two examples.

I-51 débris, No. 123.

I-307 débris, No. iii.

Type XX, squat jar with bulging base (rare Old Kingdom form).

- (1) Fig. 69, No. 4,
+ From I-325 débris, No. 352. Pl. 72 a ($\frac{2}{3}$).

(11) Types XXI-XXIV. Bowl-Stands and Jar-Stands

The pottery stands are of two types, the taller bowl-stands, and the low ring-stands for jars. The tall slender bowl-stand (types XXI and XXII (1)) was probably descended from the dished-topped pottery table of Dynasty O, but the intermediate forms are wanting between that time and Khasekhemuwy, the last king of Dynasty II. The earliest examples appear to be those of Khasekhemuwy and the stairway tombs of Bêt Khallâf⁴ (see p. 198). The lower bowl-stands with concave sides (types XXII (2), and

¹ Cf. Reisner, *Naga'-d-Dêr I*, p. 95.

² See Garstang, *Mahâsna and Bêt Khallâf*, Pl. XLI, K 2.

³ See Quibell, *Archaic Tombs*.

⁴ See Garstang, *l. c.*, Pl. XXXI, No. 30.

XXIII) were probably derived by lost forms from the low stands with flaring base, found in Dynasty I.¹ The ring-stands or jar-stands are represented by stone examples,² but I know of no pottery forms before Dynasty IV. After that time pottery jar-stands occur continuously with little change of form, until the Ptolemaic Period and perhaps later. The favorite form of the bowl-stand in Dynasties IV–VI at Giza was the tall slender form, type XXII (1), of which so many degenerate examples occur in the intermediate period between Dynasties VI and XI.

In the Mycerinus valley temple, none of these types were very numerous. The ring-stands (type XXIV) had the largest number with 9 examples. Taken together, they amounted to 25 stands, 5.53 per cent of all. The material of types XXI and XXII was ordinary R. P. ware; type XXIII, ordinary red-brown ware, with or without red wash; and type XXIV, drab ware, red ware with drab wash (W. S. R.), or red ware.

Type XXI, tall stand, slender stem (lower part missing); bowl with six bent spouts; all of one piece; red-brown ware, red wash, pebble burnished.

- (1) Fig. 70, No. 1,
+ From I-317 sub, No. 350.

Type XXII, bowl-stand, taller and shorter, often with two or three holes in shaft; red-brown ware, red wash, burnished.

- (1) Fig. 70, No. 2, taller form,
+ From III-19, No. 6, no burnish, no holes.
III-379, No. i.
I-28 sub.

- (2) Fig. 70, No. 3, shorter form with concave sides,
+ From court, floor débris above stone pathway, No. 33. Pl. 72 a (⅔).
I-22 sub, No. 75.
I-25 sub, No. 9.
I-307 sub, No. 361.
I-355 débris, No. 389.
I-357 sub, No. 390.

Type XXIII, bowl-stand, shorter form with concave sides; bottom partly closed by a diaphragm; of ordinary red-brown ware, either with or without red wash (see type XXII (2)).

- (1) Fig. 70, Nos. 4, 5,
+ From I-355, No. i, two stands.
+ From I-356, No. 379, five stands.

Type XXIV, ring-stand or jar-stand.

- (1) Fig. 70, No. 6, drab ware,
+ From I-18 sub, No. 57.
I-51 débris, No. 117.
I-318 débris, No. i.
- (2) Fig. 70, No. 7, drab ware,
+ From I-302 sub, No. 50. Pl. 72 b (½).
- (3) Fig. 70, No. 8, red ware with drab wash (W. S. R.),
+ From I-21 sub, No. 64.
I-51 débris, No. 116.
- (4) Fig. 70, No. 9, red ware with drab wash (W. S. R.),
+ From I-54 débris, No. 143.
- (5) Fig. 70, No. 10, red ware, wet-smoothed,
+ From court, floor débris, north of pathway, No. 35.
I-51 débris, No. 118.

(12) *Types XXV, XXVI. "Flower-Pot" and Tray*

Type XXV is the traditional open pot, of "flower-pot" form with thick walls, and here with flat bottom, of poorly baked Nile mud. The type appears to have begun with the heavy coarse pans of similar ware which have been found in the Late Predynastic Period. The intervening form between that and the present vessel has been traced in *Naga-'d-Dêr I*, p. 98, which is to be emended by adding that, alongside the heavy coarse round-bottomed form marked 3–5, a form better even than 6 has now been recorded from Dynasties II and III.³ Our form is between the Saqqara vessels and the form marked 6

¹ See Reisner, *Naga-'d-Dêr I*, p. 98, type XIX; and Petrie, *R. T. I*, Pl. XL, Nos. 13–15.

² See stone vessels, type XIII.

³ Quibell, *Archaic Tombs*, Pl. XXXIX, Types O and P.

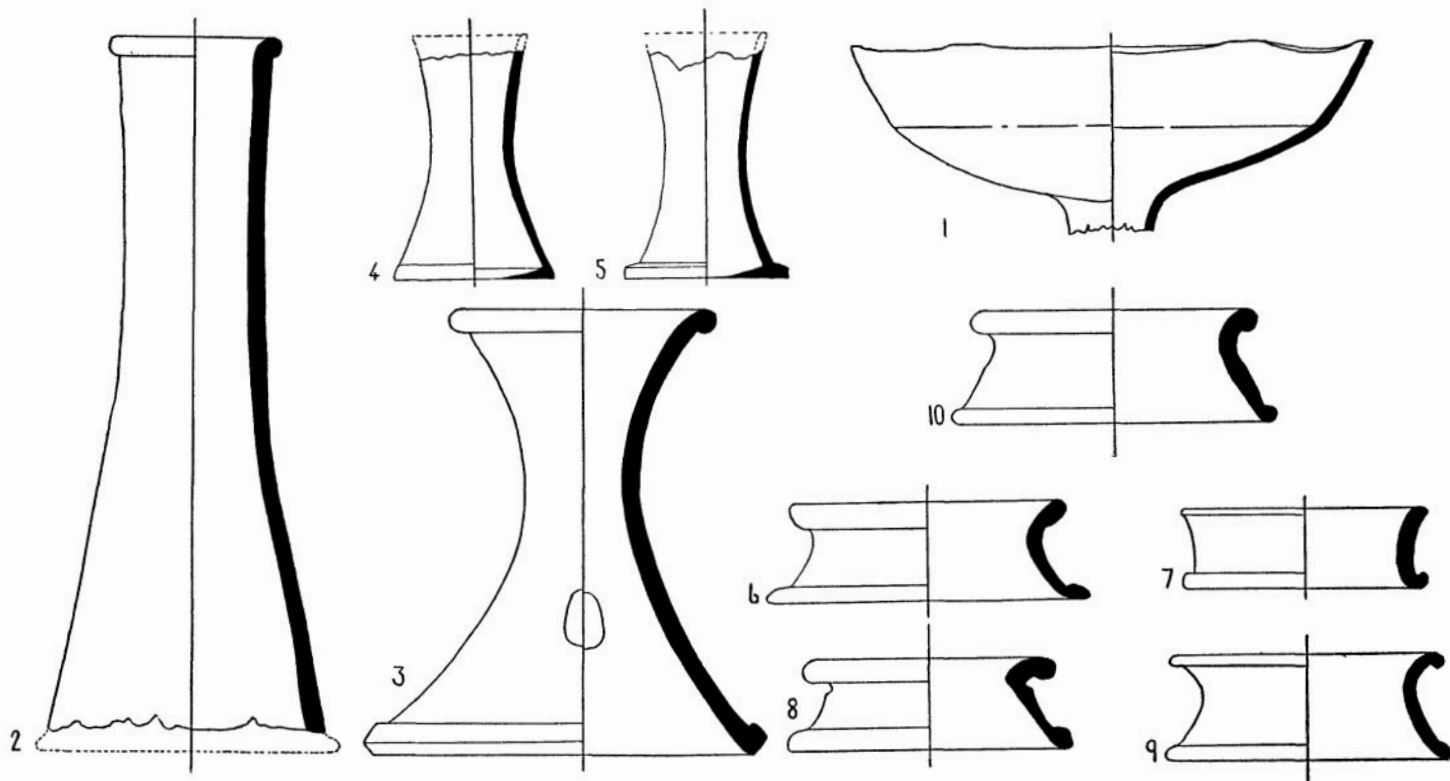


FIGURE 70
 POTTERY, TYPES XXI TO XXIV. SCALE $\frac{1}{4}$

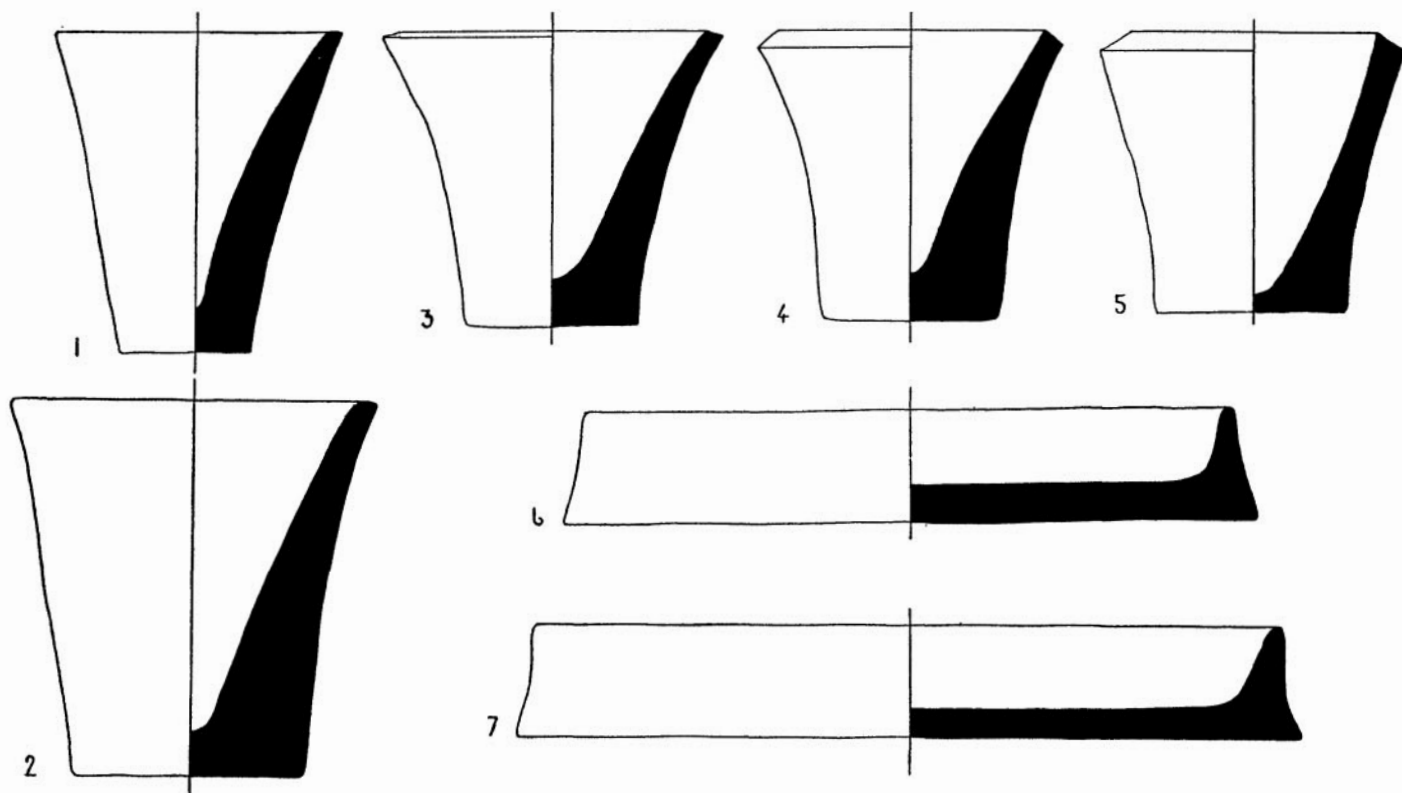


FIGURE 71
 POTTERY, TYPES XXV AND XXVI. SCALE $\frac{1}{4}$

in *Naga-'d-Dêr*. As was the case with our type IV and with traditional pottery in general, many variations of the type occur side by side in the same period and indeed in the same grave. This type continued to be made in the New Kingdom. It is the most numerous of all in the Mycerinus collection, containing 145 vessels or 32.08 per cent (practically one third). This fact was due in part to the compact form of the pot which ensures that even when broken, enough remains to be recognized.

Type XXV, open "flower-pot" with thick walls and flat bottom; of coarse poorly baked mud ware.

- (1) Fig. 71, No. 1, tall slender form with flat mouth,
+ From court, floor débris north of pathway.
I-57b on lowest floor, Nos. 117-122, three stacks of two pots each.
- (2) Fig. 71, No. 2, broader tall form, flat mouth,
+ From III-19, No. 4.
I-20 sub, Nos. 59-60, two pots.
I-56 sub, Nos. 243-248, nine pots; Nos. 245 and 248 have an X as potmark outside; No. 246 has a stroke as potmark inside; three pots are of subtype (4).
- (3) Fig. 71, No. 3, tall flaring form with beveled mouth,
+ From III-21, Nos. 58 and i, four pots. Pl. 71 d.
III-11, high up in débris, Nos. ii, iii, two examples.
Above corridor 21 between I-6 to I-10 and south wall, No. 36.
I-27 on floor, No. 161, two pots.
I-30 débris, Nos. 38, 39, two pots.
I-40 sub, Nos. 92-97, six pots.
- (4) Fig. 71, No. 4, shorter slender jar, flaring, beveled mouth,
+ From I-302 sub, Nos. 1-4, 21, 25-30, 33, 34, thirteen pots mostly of subtype (4), see subtype (3) above.
I-4 sub, No. vi.
I-52 débris, Nos. 130, 131, potmark X inside.
I-56 sub, Nos. 249-252, three examples, see subtype (2) above. Pl. 71 e.
I-304 sub, No. 13, five pots.
I-306 débris, No. 306, hole in bottom.
I-303 débris, No. 276.
- (5) Fig. 71, No. 5, short thick form, flaring beveled mouth,
+ From I-25 sub, No. 10; also Nos. 4, 5, 7, four pots.
I-51 débris, No. 126.
I-301 sub, No. ii.
I-304 débris, Nos. 311, 312, two pots.
I-305, Nos. 1, 2, under floor; No. 310 in débris, total, three pots.
I-307 débris, No. i, four pots.
I-308 sub, No. i, seven pots.
I-310 sub, No. v, two pots.
I-317 sub, No. xii, three pots; on the floor, Nos. i-iv, five pots; total, eight pots.
I-318 débris, No. ii, ten pots.
I-321 débris, No. ii.
I-322 sub, No. i.
I-327 débris, No. 357, two pots.
I-331 débris of court, No. i, two examples.
I-364 débris, No. ii.
I-365 sub, No. iv; débris, No. i, three pots; total, four pots.
I-366 sub, No. i, two pots.
I-384 sub, Nos. 3, 4, two pots.
I-391 sub, No. 1, six pots.
I-392 sub, No. 3, three pots.

General type,

- From III-7 in floor débris, No. 64.
III-19, No. 10.
III-21, No. 367, seven pots.
I-9 debris, Nos. 30, 31, two pots.
I-18 débris, No. 27.
I-20 débris, Nos. 16-18, three pots.
I-22 sub, No. 74.
I-32 débris, No. 11.
I-36 sub, No. 48.

I-54 débris, No. 148.

I-55 sub, No. 151.

I-367 débris, No. i.

Type XXVI is a coarse oval tray with vertical sides and the general character of a traditional-ceremonial vessel. The oval tray is probably descended from the coarse oval pans of the Late Pre-dynastic Period and Dynasty I.¹ Coarse round trays have also been found in Dynasties II and III.²

Type XXVI, oval tray with vertical sides; of coarse red-brown ware, hand-made.

- (1) Fig. 71, No. 6,
+ From I-57b on lowest floor, No. 183, two stacks of four each, leaning against the wall.
I-19 débris, No. 47.
I-40 sub, No. 100.
- (2) Fig. 71, No. 7, larger form,
+ From I-302 sub, No. 47.
I-307 débris, No. ii.
I-314 sub, No. i.

(13) *Types XXVII–XLII. Basins and Bowls*

The seven types XXVII–XXXIII are bowls and basins with round bases, while the nine types XXXIV–XLII are similar vessels with flat bottoms. These forms all belong to the wheel-made group which appeared in Dynasty III. The round-bottomed forms appear to have been in greater favor in Dynasty III and in the reign of Sneferuw.³ It was in that period that the round-bottomed stone bowls with recurved rims came into use, but the flat-bottomed stone forms were earlier. In the Giza mastabas the round-bottomed bowl with recurved rim continued to be the favored form, but an occasional example with flat bottom also occurred. In general in those mastabas the Mycerinus types prevailed in much the same proportions as in the Mycerinus temples, and the group of bowls and basins is a fairly characteristic set of vessels of Dynasties IV–VI.

Type XXVII, bowl, round bottom, shallow, flaring with drooping or molded rim; red-brown ware, red wash (does not always cover bottom of bowl), burnished; examples in the Giza mastabas.

- (1) Fig. 72, No. 1, deeper form with drooping rim,
+ From I-40 sub, No. 111.
- (2) Fig. 72, No. 2, conical base, rim molded on outside,
+ From I-302 sub, Nos. 41, 46, two examples.
I-391 sub, No. 4.
- (3) Fig. 72, No. 3, very shallow with drooping rim,
+ From I-25 sub, No. 6.
I-40 sub, No. 101.
- (4) Fig. 72, No. 4, very shallow, rim molded on underside,
+ From I-22 sub, Nos. 81, 85, two examples.
I-36 sub, No. 51, unburnished.
- (5) Fig. 72, No. 5, shallow, with rim molded on upper side,
+ From III-19, No. 3.

Type XXVIII, bowl, round bottom, deep, internal rim; red-brown ware, red wash, pebble burnished,

- (1) Fig. 72, No. 6, conical base, well-marked internal rim,
+ From I-331 débris, No. 355.
- (2) Fig. 72, No. 7, hemispherical, very slight rim,
+ From I-20 débris, No. 21.

Type XXIX, large basin, swell rim, outlined on outside; red-brown ware, red wash, burnished.

- (1) Fig. 73, No. 1,
+ From I-56 sub, No. 254.

¹ See Petrie, *Abydos I*, Pl. XL, 21.

² See Quibell, *Archaic Tombs*, Pl. XXXIX and Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXX.

³ See Petrie, *Meydum and Memphis*, Pl. XXV.

Type XXX, large basin, bent sides, tapering rounded base; red-brown ware, red wash, burnished or unburnished;¹ occurs in Giza mastabas of Dynasties V-VI.

- (1) Fig. 73, No. 2, larger size,
+ From I-302 sub, Nos. 43, 44, two examples. Pl. 72 b ($\frac{1}{2}$).
III-10, on floor, two or more examples.
III-21, Nos. 55, 56, unburnished, two examples.

- (2) Fig. 73, No. 3, smaller form,
+ From I-302 sub, No. 51. Pl. 72 b ($\frac{1}{2}$).

Type XXXI, bowl, rounded base, swell rim inside, degenerate form of recurved rim; red-brown ware, red wash, burnished or unburnished.

- (1) Fig. 74, No. 1,
+ From I-25 sub, No. 3, R. P. Pl. 72 a ($\frac{1}{2}$).
I-60 sub, No. 334 (R. P.), 335 (unburnished), two examples.
I-304 sub, No. 2, unburnished.
I-308 sub, No. iii, R. P.

Type XXXII, bowl, deep with tapering rounded base, low recurved rim; red-brown ware, red wash, pebble burnished; types of Giza mastabas.

- (1) Fig. 74, No. 2, nearly like the stone form with low upright recurved rim,²
+ From I-302 sub, No. 40. Pl. 72 b ($\frac{3}{4}$).

- (2) Fig. 74, No. 3, slight flaring low rim,³
+ From I-302 sub, Nos. 48, 22, two examples. Pl. 72 b ($\frac{3}{4}$).
I-21 sub, No. 22.
I-36 sub, Nos. 49, 50, two examples.
I-40 sub, No. 99.
I-51 débris, Nos. 120, 122, two examples.
I-314, Nos. 323, 324, two examples.
I-315 sub, Nos. 330, 331, two examples.

- (3) Fig. 74, No. 4, rim molded on outside,⁴
+ From I-302 sub, No. 52.
III-21, No. iv.
I-11 sub, No. ii.

Type XXXIII, bowl, round bottom, high recurved rim; red-brown ware, red wash, pebble burnished;⁵ common type in Giza mastabas.

- (1) Fig. 74, No. 5, flaring recurved rim,⁶
+ From I-302 sub, No. 38. Pl. 72 b ($\frac{3}{4}$).
III-21, No. 366.
III-10 floor, two or more.
I-4 sub, No. vi.
I-21 sub, Nos. 61, 65, two examples.
I-51 débris, No. 121.
I-355 débris, No. 389.

- (2) Fig. 74, No. 6, very high recurved rim with double curvature, anomalous example,⁷
+ From I-302 sub, No. 49. Pl. 72 b ($\frac{1}{2}$).

- (3) Fig. 14, No. 7, very flaring shallow recurved rim and three knob feet on bottom,
+ From III-19, No. 5, unburnished.

Type XXXIV, large basin, flat bottom, roll-rim; red-brown ware, red wash, pebble burnished.

- (1) Fig. 75, No. 1,
+ From III-21 E, No. 369, perfect.
I-57 sub, No. 241, broken.
I-307 on floor, No. 363, broken.

Type XXXV, large basin with short tubular spout, flat bottom, external roll-rim; red-brown ware, red wash, pebble burnished.⁸

- (1) Fig. 76, No. 1,
+ From I-302 sub, Nos. 31, 32. Pl. 72 b ($\frac{1}{2}$).

¹ See Petrie, *Meydum and Memphis*, Pl. XXVI, 53.

² Cf. Petrie, *Meydum and Memphis*, Pl. XXV, 17, 18.

³ Cf. Petrie, *Meydum and Memphis*, l.c.

⁴ Cf. stone bowls with cord in relief in grooved rim; Petrie, *Meydum and Memphis*, Pl. XXV, 1.

⁵ Cf. Petrie, *Meydum and Memphis*, Pl. XXV, 7, 15.

⁶ See stone vessels, Type XIb (5).

⁷ Cf. Petrie, *Meydum and Memphis*, l.c., 6, 7.

⁸ See the stone vessels, Type 2-XIa (4), from tomb of Khasekhemuwy and Type 3-XIa (4), and also the pottery example in Professor Garstang's *Mahâsna and Bêt Khallâf*, Pl. XXX, 19, from the stairway mastaba K 2 of Dynasty III; a few examples occurred in the Giza mastabas.

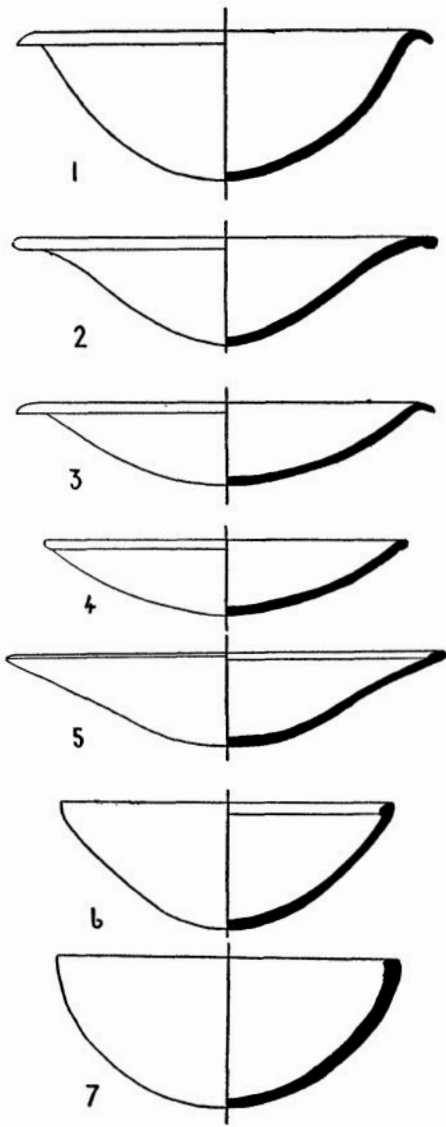


FIGURE 72
POTTERY, TYPES XXVII AND XXVIII. SCALE $\frac{1}{4}$

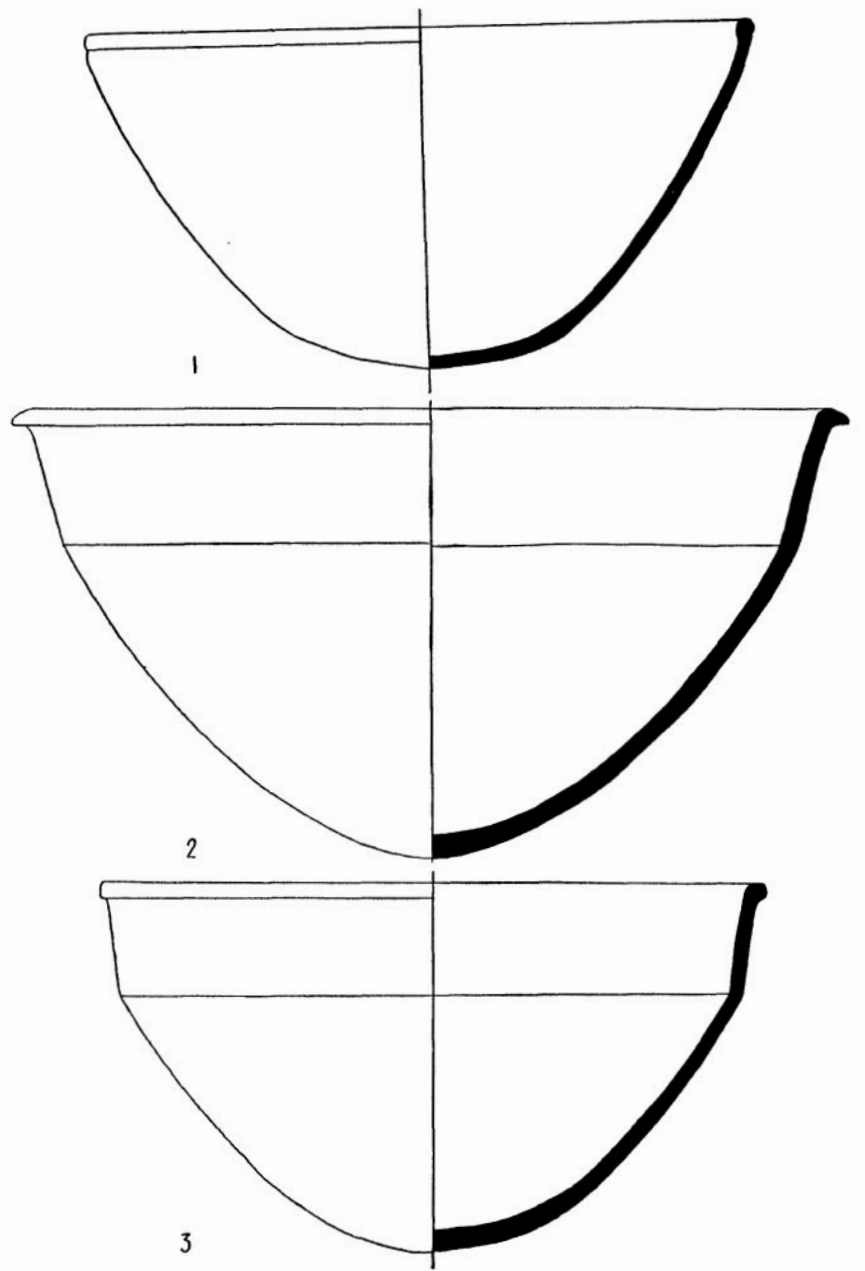


FIGURE 73
POTTERY, TYPES XXIX AND XXX. SCALE $\frac{1}{4}$

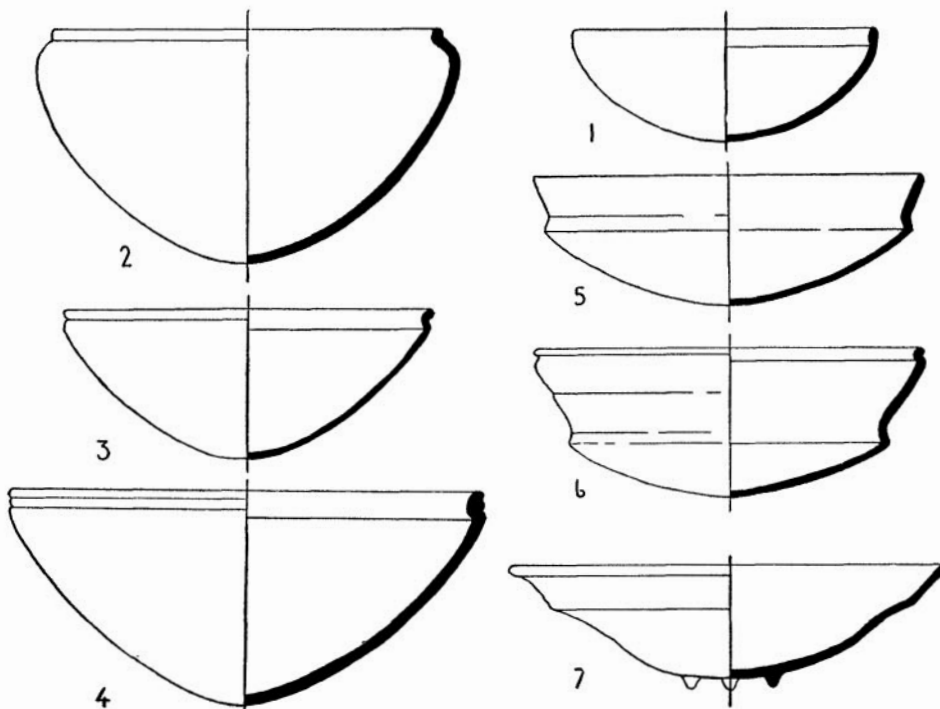


FIGURE 74
POTTERY, TYPES XXXI TO XXXIII. SCALE $\frac{1}{4}$

Type XXXVI, basin with short tubular spout, flat bottom, low recurved rim; red-brown ware, red wash, pebble burnished; common form in the Giza mastabas.

(1) Fig. 77, No. 1,

+ From I-302 sub, Nos. 36, 37, 45, three examples. Pl. 72 b ($\frac{2}{3}$; $\frac{2}{3}$; $\frac{2}{3}$).

I-310 sub, No. viii.

III-10, on floor.

I-4 sub, No. vi.

(2) Fig. 77, No. 2, bulging shoulder; incomplete example, spout doubtful,

+ From I-18 débris, No. 23.

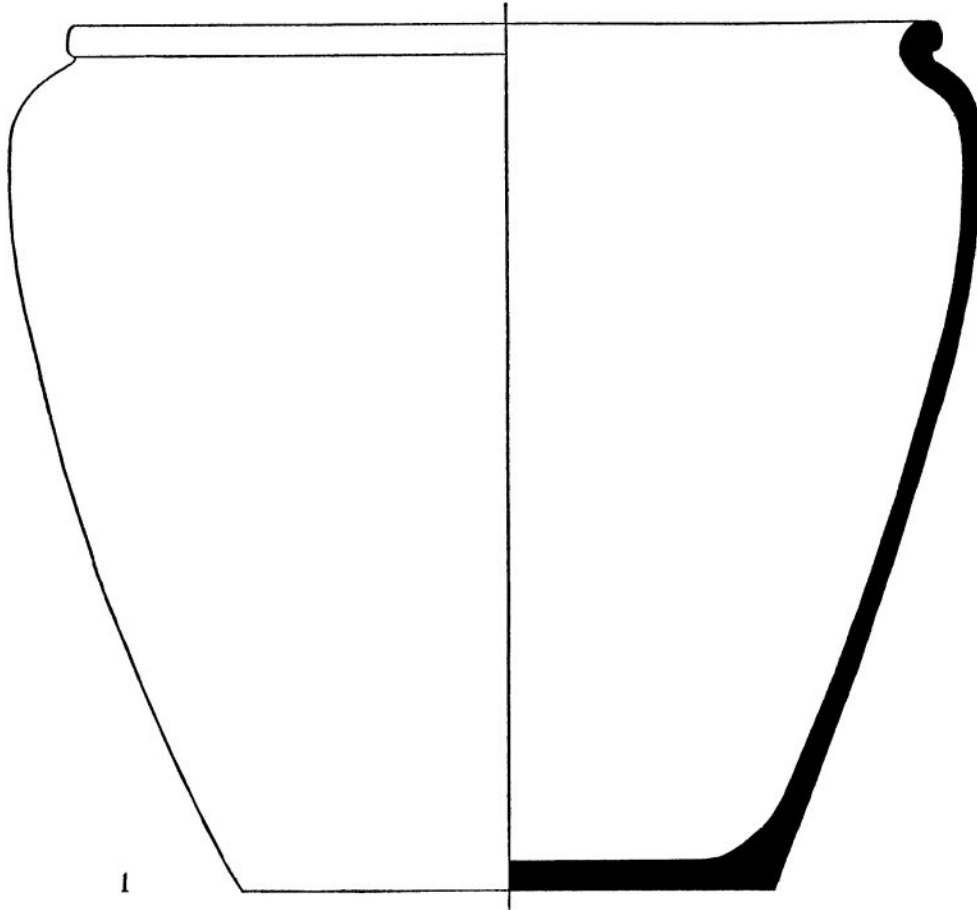


FIGURE 75
POTTERY, TYPE XXXIV. SCALE $\frac{1}{4}$

Type XXXVII, basin, low recurved rim, flat bottom; red-brown ware, red wash, pebble burnished; also in Giza mastabas.

(1) Fig. 77, No. 3, better developed rim,

+ From I-302 sub, Nos. 23, 24, 42, three examples. Pl. 72 b ($\frac{1}{3}$).

I-302 débris, No. 258.

III-10 on floor, two examples.

I-4 sub, No. vi.

See also XXXVI (2).

(2) Fig. 77, No. 4, rudimentary recurved rim,

+ From I-25 sub, No. 2.

I-307 débris, No. v.

I-310 sub, No. vii, three examples.

I-318 débris, No. v.

Type XXXVIII, bowl with ledge-rim, flat bottom; red-brown ware, red wash, pebble burnished.

(1) Fig. 78, No. 1,

+ From I-18 débris, No. 29.

Type XXXIX, flaring bowl, half-roll rim on underside of edge (except subtype No. 3); red-brown ware, red wash, burnished or unburnished; occurs in Giza mastabas; cf. ledge-rimmed bowls of Dynasties O-I.

(1) Fig. 78, No. 2, low very flaring form, unburnished,

+ From III-19, No. 2.

I-22 sub, Nos. 73, 76, two examples.

I-51 débris, No. 125.

I-331 sub, No. iv.

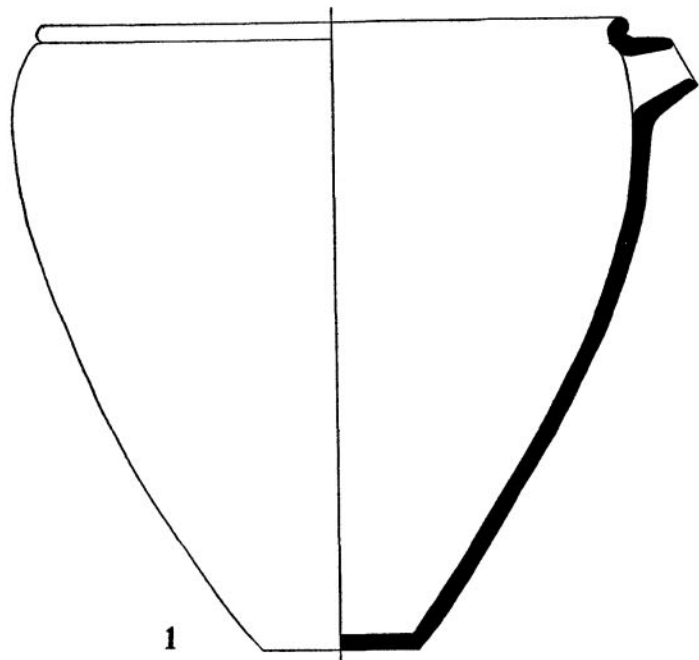


FIGURE 76
POTTERY, TYPE XXXV. SCALE $\frac{1}{4}$

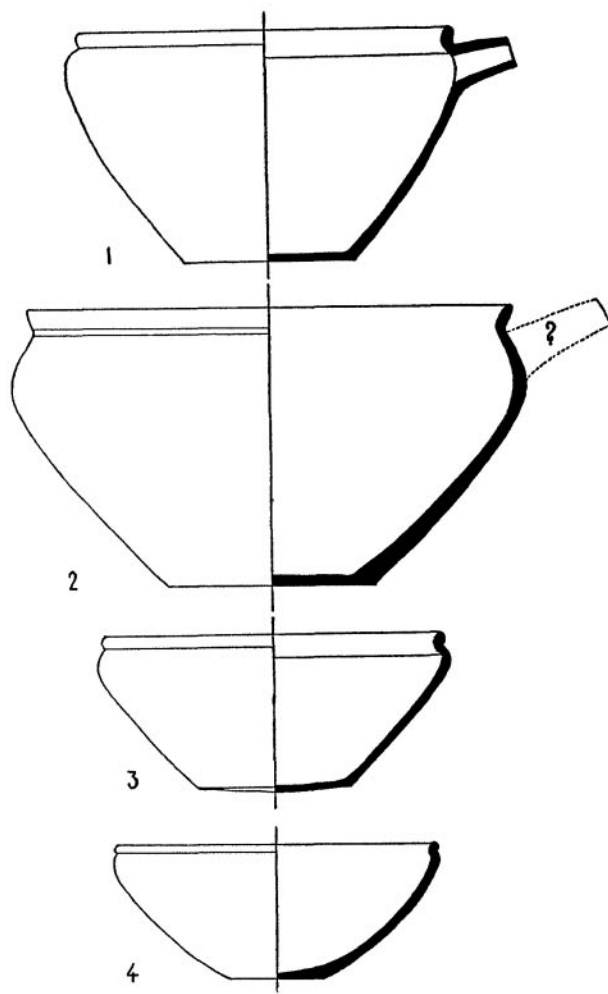


FIGURE 77
POTTERY, TYPES XXXVI AND XXXVII. SCALE $\frac{1}{4}$

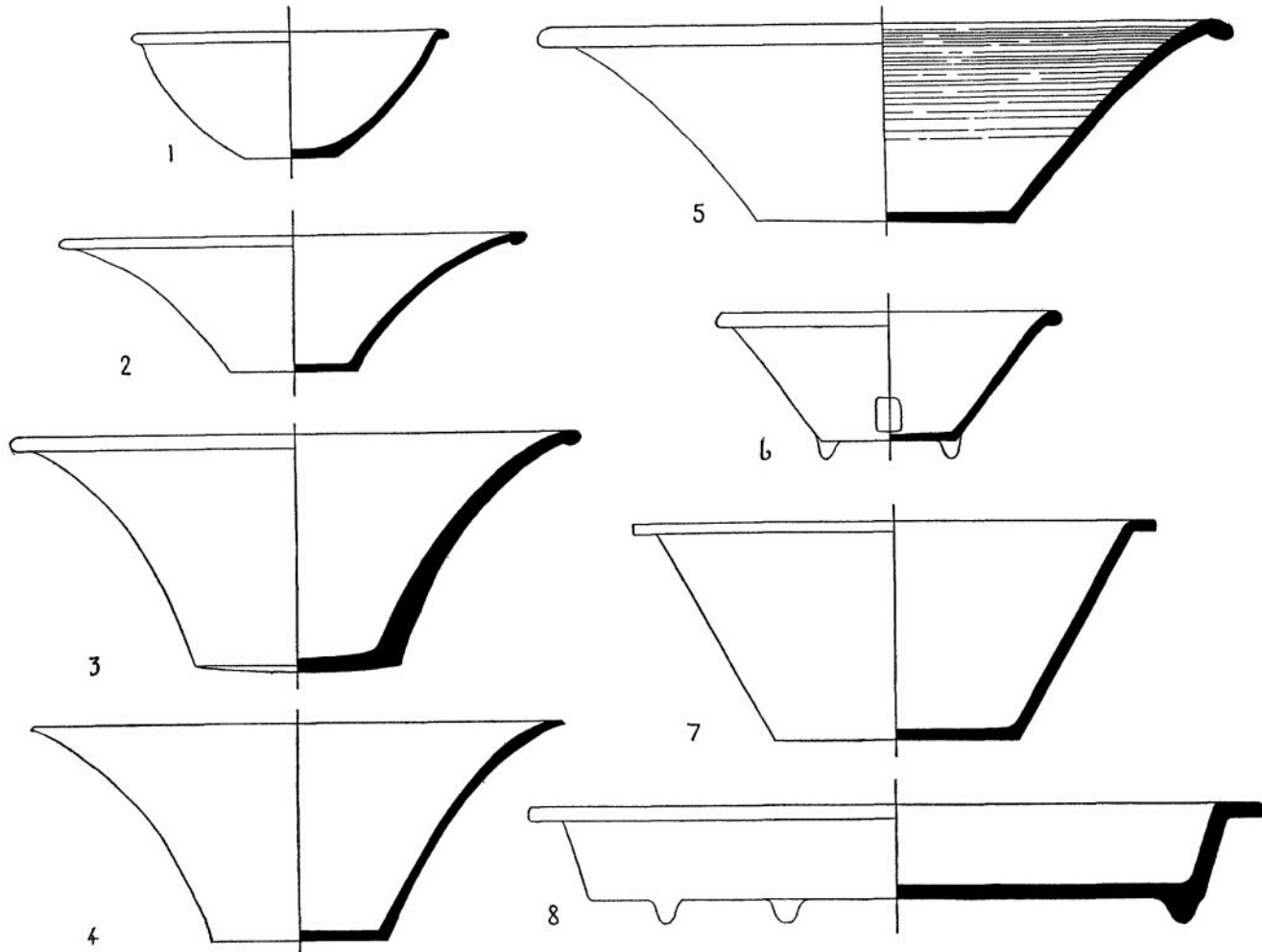


FIGURE 78
POTTERY, TYPES XXXVIII TO XLII. SCALE $\frac{1}{4}$

- (2) Fig. 78, No. 3, higher form,
 + From I-57 sub, No. 240, burnished.
 I-32 débris, No. 55, unburnished.
 I-54 débris, No. 145, unburnished.
 I-304 débris, Nos. 300, 301, unburnished, two examples.
 I-308 débris, No. iv, burnished.
- (3) Fig. 78, No. 4, high form without roll-rim,
 + From I-30 sub, No. 11, burnished; Nos. 7, 8, 12, unburnished; four examples.
- (4) Fig. 78, No. 5, large form with lines on inside,
 + From I-316 sub, No. 364, unburnished.

Type XL, bowl-shaped vessel (brazier? or lid?), straight flaring sides, external roll-rim, flat bottom; two rectangular holes in the side (opposite each other); two rings on bottom (opposite each other and half way between the two holes); red-brown ware, red wash, unburnished, unless otherwise stated.

- (1) Fig. 78, No. 6,
 + From I-17 débris, No. 314. Pl. 72 a ($\frac{3}{4}$).
 III-11 high up in débris, No. v.
 I-302 sub, No. 10.
 I-304 sub, No. 6.
 I-311 sub, No. i, burnished.
 I-321 débris, No. i.
 I-326 débris, No. 356, burnished.

Type XLI, small basin, straight flaring sides, flat ledge-rim, flat bottom; red-brown ware, red wash, burnished.

- (1) Fig. 78, No. 7,
 + From III-380 floor of magazine corridor, No. i.

Type XLII, tray with three knob-feet, straight flaring sides, wide flat ledge-rim, flat bottom; red-brown ware, red wash.

- (1) Fig. 78, No. 8,
 + From III-379 floor of magazine, No. ii.

(14) *Types XLIII, XLIV. Models of Jars and Bowls*

The small pottery models of jars and bowls were very numerous, especially in the débris of the rooms. These models are found in the burial chambers of the Giza mastabas in limited numbers but in the débris of the chapels and in the dump heaps thrown out from the chapels, they occur in great quantities. Beside the entrance to the pyramid temple of Mycerinus on the north, a deposit of several thousands thrown out from the temple represented the accumulation of years. They appear therefore to have been used in general in the periodical ("daily") presentation of offerings to the dead, in both the royal and the private chapels. When they were placed in burial chambers, they were almost always accompanied by stone models.

In the Mycerinus valley temple, a few models of both jars and bowls were found in the offering room (III-2) in the floor débris. Very few were found in the débris of the magazines, but on the other hand about 40-50 were lying on the floors in magazines (16, 17, and 18) of the pyramid temple. I give a representative set of the manifold forms of these models.

Type XLIII, small model jar, flat bottom; ordinary red-brown ware, wheel-made.

- (1) Fig. 79, No. 1, shoulder and rim,
 + From III-2 floor débris, No. 44.
- (2) Fig. 79, No. 2, shoulder but no rim,
 + From I-366 sub, No. 386.
 I-310 sub, No. x.
 I-55 sub, No. 154.
- (3) Fig. 79, No. 3, sharp shoulder, rim,
 + From I-20 débris, No. 19.
 I-372 under wall of second temple, No. v.
- (4) Fig. 79, No. 4, ruder form of No. (3),
 + From I-367 sub, No. iii.
- (5) Fig. 79, No. 5, goblet-shaped,
 + From I-21 sub, No. 172.

- (6) Fig. 79, No. 6, goblet-shaped, larger,
+ From I-366 sub, No. 387.
I-367 sub, No. 388.
- (7) Fig. 79, No. 7, concave cylindrical form,
+ From I-366 sub, No. 385.
- (8) Fig. 79, No. 8, cylindrical,
+ From I-22 sub, No. 77.
- (9) Fig. 79, No. 9, wavy form,
+ From I-367 sub, No. iv.

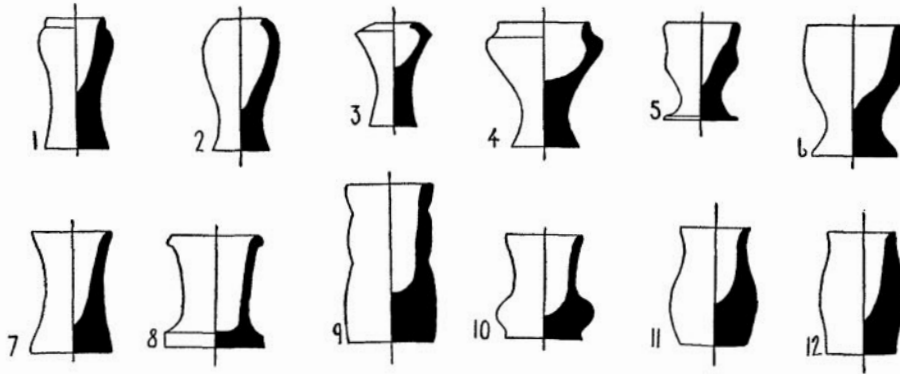


FIGURE 79
POTTERY, TYPE XLIII. SCALE $\frac{1}{4}$



FIGURE 80
POTTERY, TYPE XLIV. SCALE $\frac{1}{4}$

- (10) Fig. 79, No. 10, sharply bulging base,
+ From I-314 débris, No. 325.
I-318 débris, No. iii.
- (11) Fig. 79, No. 11, swelling lower part,
+ From I-304 sub, No. 303.
- (12) Fig. 79, No. 12, swelling middle part,
+ From I-367 sub, No. 388.
- Type XLIV, small model bowl, flat bottom, ordinary red-brown ware, wheel-made.
- (1) Fig. 80, No. 1, fine copy of flaring bowl,
+ From I-366 sub, twelve examples of varying sizes.
- (2) Fig. 80, No. 2, low flaring form,
+ From III-2 floor débris, Nos. 45, 46, two examples.
- (3) Fig. 80, No. 3, very low flaring form,
+ From I-21 sub, Nos. 168, 169, two examples.
I-372 sub, under second temple, No. i, eleven examples.
- (4) Fig. 80, No. 4,
+ From I-304 débris, No. 302, four examples.

CHAPTER X

OTHER OBJECTS FOUND IN THE MYCERINUS TEMPLES

1. FLINT KNIVES, SCRAPERS, AND FLAKES

A NUMBER of flint implements were found in the temples of Mycerinus, (*a*) in the pyramid temple, twenty-five, many of them unbroken, on the floors of the magazines (16-18), (*b*) in the valley temple, six on the floor of the offering room (III-2) and many fragments of knives and flakes in the débris of all periods. Seventeen fragments of knives were found in the débris of the court at the valley temple and ninety-three flakes or chips. These were all roughly chipped after the manner of the ceremonial-traditional flints of Dynasties III-V, and were originally without doubt placed in the magazines as part of the temple furniture.

The forms presented were six in number:

- Type I Broad knife without handle, one example, Pl. 18 d, No. 3.
- “ II Broad knife with handle formed in the flint, Pl. 18 d, No. 2; cf. also, d, No. 5; a, Nos. 3, 12.
- “ III Narrow knife with handle formed in the flint, Pl. 18 a-b, Nos. 3, 7, 11; c, Nos. 7-11; d, Nos. 1, 4, 5.
- “ IV Triangular flint (scraper?), Pl. 18, a, No. 10; c, Nos. 1-4.
- “ V Flint flake with one or both ends worked to a point, Pl. 18 a-b, Nos. 2, 4-6 (fragmentary).
- “ VI Flint flake, narrow with square ends, Pl. 18 a-b, Nos. 1, 8; c, No. 6.

The broad knives are degenerate variations of the crude broad knives of Dynasties I and II.¹ These Early Dynastic broad knives are usually large and have a pronounced bend backwards, which gives the cutting edge a fine curve. In the later royal tombs of Dynasty II the curvature is lessened and some examples of fine rather slender knives with curving back and front edge have been found.² In the tomb of Khasekhemuwy, the last king of Dynasty II, the knives were smaller and more clumsy with still less curvature and straighter backs, sometimes even with slightly convex backs.³ As in the case of the stone vessels, the flints of Dynasty III followed those of Khasekhemuwy,⁴ but flint knives are rare in private graves of Dynasty III. The Mycerinus flint knives follow the forms of Dynasty III and present a further marked deterioration over the examples from the tomb of Khasekhemuwy. This deterioration is most evident in the working of the handles of type II in the Mycerinus collection, which are usually merely rudimentary. The one example of type I is probably a knife intended to be of type II in which the working of the handle has been neglected.

Type IV, the triangular flint with worked edges, may also be traced from Dynasty I through Khasekhemuwy and the Bêt Khallâf grave to the Mycerinus collection. Several variations of the form occur both in the Mycerinus temples and earlier, one nearly triangular with equal sides and a point, a second of a taller triangular form (isosceles) with a point, and a third similar to the second but with rounded corners (nearly ovoid). The best formed examples are those of Khasekhemuwy. The flints of type IV from Dynasty III,⁵ and from the Mycerinus group are distinctly less well worked than those of Khasekhemuwy.

Type VI, the narrow flake, has the same history as the knives and scrapers (?) but in Dynasties I and II including Khasekhemuwy, it is accompanied by a wider type — in which the ends were carefully worked. In the Mycerinus collection this better form is wanting.

A seventh type interpreted by Mr. C. M. Firth as a crescent-shaped stone-borer, was found in the tomb K 1 at Bêt Khallâf and in the Abydos temenos.⁶ No examples occurred in the Mycerinus temple, or in the tombs of Dynasty I at Abydos; and this flint was probably a practical implement which did not become ceremonial.

¹ See Reisner, *Naga'-d-Dêr I*, p. 112 and Pl. 40.

² Petrie, *Abydos I*, Pls. XIV-XV.

³ Amélineau, *Nouvelles Fouilles 1896-97*, Pl. XIX; and Petrie, *l. c.*

⁴ See Garstang, *Mahâsna and Bêt Khallâf*, Pl. XV, on left below from K 1.

⁵ Garstang, *l. c.*

⁶ Petrie, *Abydos I*, Pl. XXVI.

All the six types found in the Mycerinus collection also occurred in the mastabas of Dynasties IV and V at Giza, types I–III being however very rare. The subsequent history is obscure. Professor Petrie found flints at Kahûn, which he dates to Dynasty XII,¹ and flint knives of similar form to type II are represented on the wall of the tombs of this dynasty at Beni Hasan.

Thus the flints like the stone vessels are impractical ceremonial-traditional objects, made only for the tomb, by craftsmen practising a dead art. As I have said elsewhere, they were probably "ghost-knives" for the slaughter of spirit cattle in the other world.

2. VESSELS AND IMPLEMENTS OF COPPER

All the objects of copper found in both the Mycerinus temples were heavily patinated, when not entirely corroded by oxidation. As far as recognizable, they consisted of vessels, models of vessels, and tools or implements.

Two large vessels were found as follows:

- (1) A large *hes*-vase; height, 34 cm.; found in the floor débris of the court of the valley temple, one meter south of the stone pathway about opposite the stone basin. This came without doubt from one of the temple magazines. Pl. 65 d.
- (2) A large elliptical pan or tray in fragments; diam. *ca.* 40 × 30 cm.; h., 7 cm.; upside down on the wall dividing magazines (III–6) and (III–7), about 40 cm. above the floor, evidently displaced by plundering from magazine (III–7); under it was the set of magical implements of Cheops; the exact form was indeterminable. Pl. 61 e.

Seventeen models of copper vessels were also recorded, of which fourteen were basins and three jars. All these except three basins were found on the wall between magazines (III–6) and (III–7) under the copper pan No. 2, above:

- (3) A model *hes*-vase badly corroded; height, 15 cm. Pl. 65 e.
- (4) A small model jar, egg-shaped body, narrow flat base, short neck, wide disk-rim; height, 7.4 cm. Pl. 65 e.
- (5) A model shoulder jar, flat base, roll-rim around mouth; height, 8.4 cm. Pl. 65 f.
- (6) A stack of six deep model basins; height, 5.6 cm.; diam. 9 cm. Pl. 65 f.
- (7) Three similar basins in floor débris of room (III–20), opposite room (III–6). Pl. 65 e.
- (8) Five shallow model pans; height, 2.8 cm.; diam., 7.6 cm.

Another object of copper was a sheath for the tapering end of a squared wooden beam, perhaps a roofing beam from the outer offering room (II–1):

- (9) Copper sheath for a beam; length, *ca.* 50 cm.; large end, 17 × 17 cm.; small end, 10 × 10 cm.; found in upper débris in magazine (III–16).

Two heavy practical copper blades were found, both unfortunately broken and incomplete. The breaking was intentional, but whether by the directors of the funeral of Mycerinus or by the later plunderers was indeterminable. Both were found in the plunderers' débris in the western side of the court outside magazine (III–3).

- (10) Axe blade with curving cutting edge; back part broken off and missing, was probably straight with square corners like the models found in the tomb of Impy (G 2381 A); height, 14.6 cm. (original); width, 6.6+ cm. (originally about 13.8 cm. according to the models); thickness, 0.5 cm.; found in the lower débris in room (I–338). Pl. 65 i.
- (11) Adze blade with slightly curving cutting edge; back end broken off and missing, was probably semicircular like the adzes from the Senezemib group,² but may have been tapering and square cut like the earlier adzes; length, 13.6 + cm. (originally, *ca.* 20 cm.); width, 6.4 cm.; thickness, 0.5 cm.; found sticking to No. 9. Pl. 65 i.
- (12) Two or more adze blades of the form of those illustrated in *Annales XIII*, pl. XI; slightly smaller than No. 11, about the size of the Senezemib adzes; found with chisels and other copper implements corroded in a mass, under the wall of room (I–50), in upper surface of the floor débris of court, together with the amulets and beads described on p. 235; the mass was wrapped in a coarse cloth (or sack) which had decayed but left a print of its weave on the copper oxide. Pl. 65 g.
- (13) Small adze blade of same form as No. 12; length, 9.6 cm.; width of cutting edge, 4 cm.; width of butt, 2.2 cm.; width of neck of butt, 1.4 cm.; thickness, about 0.3 cm.; from magazine (III–6). Pl. 65 h.

¹ Petrie, *Kahun, Gurob and Hawara*, Pl. XVI.

² *Annales XIII*, Pl. XI, 18.

Several practical chisels were found which, like the adze, were of the same form as the corresponding tool of the Senzemib group:

- (14) Heavy broad chisel with rectangular shaft and wide cutting edge (like Photo. A 838 from G 2381 Z); usual measurements, 15 cm. \times 1.5–1.6 cm. wide and 3–5 mm. thick;
 - (a) One or more examples in the mass of corroded implements found in (I-50 sub), see No. 12, above.
 - (b) One or more examples in the mass of corroded implements found in pyramid temple magazine (18).
- (15) Long narrow chisel (?), with widened cutting edge and flat rectangular shaft, tapering from near butt to the cutting edge; length, 17 cm.; width near butt, 1 cm.; thickness, 0.3 cm.; found in Mycerinus valley temple magazine (III-7), under the crushed wall.
- (16) Pointed chisel or drill with broad rectangular shaft and blunt point; length, 5.8+ cm. (originally, 10–12 cm.); width, 1 cm.; thickness, 0.3–0.4 cm.; found in floor débris of court under (I-39), No. 45. Possibly one or more of same type in corroded mass from pyramid temple magazine (18).

One or two other fragments were found which might have been parts of chisels or drills.

- (17) Point, similar to No. 16; length, 7 cm.; width, 0.6 cm.; thickness, 0.3 cm.; found in floor débris in (III-2), No. 36.
- (18) Twisted fragment; length, 5 cm.; from (I-54) débris, No. 156.
- (19) Long pointed shaft, round; length, 22.5 cm.; diam., 0.75 cm. from (I-55), under the granary, No. 155.

Two single-barbed harpoons were also recorded, both light and small.

- (20) Single barbed harpoon, plain tapering round shaft; length, 8.6 cm.; length of barb, 2.2 cm.; width at point of barb, 1.2 cm.; diam. of shaft, from 0.6 cm. at barb to 0.3 cm. at tip; found in middle of court, in floor débris, No. 347. Pl. 65 h.
- (21) Similar harpoon, badly corroded; length, 5.3+ cm.; length of barb, 2 cm.; width at point of barb, 1 cm.; diam. of shaft, 0.6 cm.; found in (I-331), court débris, No. 353. Pl. 65 h.

The examples of practical tools of copper raises the question of the hardness of the metal in the ancient Egyptian tools. The facts are quite clear and simple:

- (1) Heavy practical adzes and chisels of copper have been found in numbers in tombs of the first six dynasties.
- (2) Marks have been found on limestone in tombs and quarries of Dynasties IV–VI, which were obviously made by the same copper tools as those found in the tombs. In particular, the chisel marks have the same width as the copper chisels.
- (3) The chemical analyses which have been made of these ancient tools have invariably revealed the fact that they were soft copper.

The conclusion is quite clear these tools must have been used to cut limestone, and as soft copper is not a practical material for that purpose, the copper in the tools has suffered some alteration by which the factor which produced their hardening has been lost. That is, — *the modern analyses of ancient copper implements do not yield a decisive proof of the original state of those tools.* I submitted the question in this form to Professor T. W. Richards, Professor of Chemistry at Harvard University, and received from him the following suggestions:

- (a) The copper may have been hardened originally by the presence of small quantities of other substances which have disappeared by oxidation in the course of several thousand years.
- (b) The hardness of the copper may have been produced by hammering the tool while the metal was cooling. This process produces an abnormal state of crystallization in which copper is harder than in the ordinary state. The abnormal state, as is usual in metals, would have relaxed after a certain time and the copper would have again assumed its ordinary soft state of crystallization.

Both these suggestions, Professor Richards informs me, require further investigation; but from an archaeological point of view, the answer is perfectly sufficient. The modern analyses do not prove that the Egyptian tools were of soft copper; and it remains for the metallurgist to decide the process by which the copper was hardened and the reason for its softening in the course of five thousand years or more.

Copper working in Dynasty IV was a living craft, and in accordance with that fact the copper vessels and implements found in the Mycerinus temples are generally those of the period. The same types are found in the mastabas of Dynasties IV–VI.

3. FLINT WANDS ("MOUTH-OPENERS") AND ACCOMPANYING MODELS

The flint wand with fish-tail tip, which is called *pšš-kf* "mouth opener," is well known in collections of Egyptian antiquities, where it rests in a depression in a slab of limestone or wood surrounded by other depressions containing usually at least six dummy vases of stone. Although so often found by illicit excavators and placed on the market for purchase, this slab and set of magical implements have seldom been found by European excavators. Professor Petrie records one slab with two dummy vases and part of a third from the tomb of Adu I, Dynasty VI.¹ This slab has places for four conical bowls, set upright, two long-necked vases, lying down, a flint wand, and two small objects (perhaps flint knives). At Giza, we found one in the court of the Senezemib complex (Reg. No. 13-1-536). That slab had places for the flint wand, four conical bowls, and two tall jars, and it seems to be the usual form of Dynasties IV-VI. In the débris of pit G 2327 A, in this same complex, we found a set of dummy vessels consisting of four conical bowls (two of slate, one of quartz crystal, and one of grey quartzite), and two tall jars, one of crystal and the other of slate, but no flint wand. In the débris of shaft G 2381 Z, two conical bowls, one of crystal and one of slate, and two tall jars, one of crystal and one of slate, were found but again without the wand. In the tomb of Impy, which we found intact, there were, six conical bowls of slate; three conical bowls of crystal; one flaring bowl of clear quartzite; three tall jars of slate, all with narrow flat base; two tall jars of crystal, with narrow flat base; one tall jar of crystal, with fine pointed base.

Again no wand or slab was found; but of course both of these might have been of wood. However, a number of copper offering tables were in this tomb, several of which still had copper models attached, either standing on the top or resting in holes in the top, and one table had two of the conical bowls, one slate and one crystal, standing on the top. Therefore, the conclusion seems to be that in this tomb (Dynasty VI) these dummy models were placed upright on offering tables.² Two of the tables had holes in the top and the pointed jar of crystal may have been inserted in one of the holed tables. It is to be noted that a number of other forms occurred among the bronze models, in addition to the conical bowls and tall pointed jar, showing that the tables were set out with various groups of vessels. One intact set, for example, had six conical bowls and a *hes*-jar; and in tombs of the Middle Kingdom at Bersheh we found several sets of wooden slabs with two faience bowls and two faience *hes*-jars standing upright, cemented in holes in the slab.

In the pyramid temple of Mycerinus, a fragment of flint wand (Pl. 19 a) was found (Reg. No. 07-1-80, from room (15) in hole in floor), inscribed: "Mother of the king, Khamernernebtj." The fragment was from near the butt of the wand and measured 6.6 cm. long with a width of 4.3 cm. below and 4.7 cm. above, owing to the taper of the shaft. The thickness was about 2-3 mm. in the middle. One crystal bowl and several alabaster bowls of the required size were also found in the pyramid temple, but it was impossible to determine whether they had belonged to slab groups or were simply the ordinary models which, of course, were also magical in character.

In the valley temple, a full set consisting of flint wand, four conical bowls, one crystal and three slate, and two tall jars, one of crystal and one of slate, were under the bronze tray mentioned in the preceding section, found upside down on the wall between rooms (III-6) and (III-7). With these were the model bronze vases (above, section 2, Nos. 3-7), and, as the tall stone jar models have flat bases, the group bears a general resemblance to that of Impy (G 2381 A, Dynasty VI). Neither slab nor table was found, and the whole set seems to have stood in the shallow pan, when it was dumped upside down on the wall by plunderers (?). The remarkable point about this set is that the very beautiful flint wand is inscribed: "The Horus, Mezeduw; the King of Upper and Lower Egypt, Khnum-Khuwf." Thus the flint wand, and perhaps the whole set, is marked as having once belonged to Cheops, presumably the grandfather of Mycerinus. Pls. 61e, f; 65a, b.

A second flint wand was found in the offering room (III-2) of the valley temple. It was in the débris above the unfinished statuettes found in the western end of the room (Statues Nos. 27, 29, 31, 38, 39, and 43). This wand was very rudely made with the clumsy heavily curved tips of the later wands (Pl. 65 c).

¹ See Petrie, *Denderah*, Pl. XXI and p. 8.

² Earlier examples (Dynasty V) are given in Professor Borchardt's *Ne-weser-re'*, p. 130.

The Cheops wand is of a very graceful fish-tail form and suggests the form of the fish-tail flints of the Predynastic Period, except that the butt of the flint wand is cut off straight, while the predynastic knives have a tapering butt, which was inserted in a wooden handle. Professor Petrie was the first, I believe, to state that the fish-tail flint knife of the Predynastic Period was the ancestor of the flint wand.¹ He gives two examples of the intermediate form which belongs to the rude traditional-ceremonial flint knives of Dynasty I.² It is to be noted that the flint wands were not chipped, but finely ground by the technical methods of the stone engravers of the Old Kingdom. The flint wand had been handed down by tradition as a chipped flint, degenerating in form after the fine chipping of flint had become a lost art, and when its use as a magical implement was revived in Dynasty III or IV, the implement was improved by the application of the skill in working stone which had developed in that period. The resemblance of the set of implements from (III-6, 7) to those of Impy of Dynasty VI is especially to be noted. The use of these magical models was a living custom, and, as in similar instances previously noted, the tradition of the Old Kingdom followed that of Dynasty IV.

4. CYLINDER SEALS

Three cylinder seals were found, but none of them in such associations as to assure the conclusion that it was part of the original furniture of the temple.

- (1) Silver cylinder seal, consisting of a tube of silver plate laid over a wooden core with a silver disk covering each end; pierced lengthwise with small hole; length, 4.3 cm.; diam., 2.2 cm.; edges damaged by corrosion. Pl. 64, l.

Inscribed with six vertical lines of well-drawn hieroglyphics, of which each alternate line beginning with the Horus name of Chephren faces to right and every other line faces to left:

Line 1. The Horus Weser-ib, protected (?) of the White Crown. . . .

“ 2. The Golden Horus Sekhem, Khafra, wearing the Two Crowns every day. . . .

“ 3. The Horus Weser-ib, great god of. . . .

“ 4. The King of Upper and Lower Egypt, Khafra, king (?), follower of Horus and Set, mighty (?) every day. . . .

“ 5. The Horus Weser-ib, good god. . . .

“ 6. . . . (?) Khafra, the making of a decree (for) the assistant of the scribe of the . . . (?).

Found in Mycerinus valley temple room (I-54) upper débris.

This seal is of the same type as a seal of an official of Ysesy, Dynasty V,³ and another of an official of Pepy I.⁴ A much more rudely cut seal of sandstone, belonging to an official of Chephren, was found by the German Expedition at Abu Sîr in front of the tomb of Weserkafankh.⁵ No very plausible deduction can be made from the finding of this silver seal of an official of Chephren in the Mycerinus valley temple.

- (2) Steatite cylinder-seal, pierced lengthwise; length, 4.4 cm.; diam., 2 cm.; rudely incised. Pl. 64, j.

Engraved: Main field, two male figures back to back.

Below (or above), hare crouching upside down; to the right, an enemy lying in a bent attitude; further to right, a man lying on his back between two Set-animals (?), facing in opposite directions with their feet towards the man.

Found in Mycerinus valley temple room (I-396) in old débris in NE quarter of court.

This type is presented by the cylinders Nos. 140-146 on Pl. VI of Professor Petrie's *Scarabs and Cylinders*, especially Nos. 140 and 146. The type with figures is known from Dynasty I down.⁶ Our seal probably belonged to some one connected with the service in the first temple.

- (3) Limestone cylinder-seal, pierced lengthwise; length, 4.3 cm.; diam., 2.6 cm.; very rudely incised and badly worn. Pl. 64 k.

Incised with six vertical columns of doubtful signs.

Found in Mycerinus valley temple room (I-361) débris, a house in the city in front of the temple.

This type is again a known type of the Old Kingdom.⁷ Our seal is probably from the period of the second temple.

¹ See Petrie, *Abydos I*, p. 24.

² Petrie, *Abydos I*, Pl. LI, 22, from the time of Den; *Abydos II*, Pl. XLI, 33, from the temple.

³ See Petrie, *Scarabs and Cylinders*, Pl. IX, 5, 8.

⁴ See Newberry, *Scarabs*, Pl. V, 10.

⁵ See Borchardt, *Ne-weser-re'*, p. 138.

⁶ See Petrie, *R. T. II*, Pl. XIV, 101-104.

⁷ See Petrie, *Scarabs and Cylinders*, Pls. V and VII.

5. BEADS AND AMULETS

The beads found in the magazines at both temples were not numerous and mainly of one type, the ordinary long slender tubular bead of blue, black, or faded faience, measuring from 2 to 4.6 cm. in length and 3.5 to 5 mm. in diameter. These occurred in magazine (18) at the pyramid temple and in the débris at various other places in that temple. In the Mycerinus valley temple a few were found in the magazines and in three or four places in the débris of the court. This type is very common in the Old and Middle Kingdoms and has a history which covers practically the whole of the dynastic history of Egypt. The form, size, and glaze of the Mycerinus beads are those of the beads of the Old Kingdom.

In addition to these beads, one lot of beads and amulets was found in association with the bag of bronze tools mentioned in a preceding section (p. 231), under the walls of a circular granary and in the surface of decay of the first series of rooms in the court. They are thus shown to date previous to the reconstruction of the temple, that is to Dynasty V or the early part of Dynasty VI. This fact gives them a great importance because the types are well known from Upper Egyptian graves. The lot consisted of the following (Pl. 66 a):

- (1) String of about 270 ring-beads of dark blue faience, diam., *ca.* 4 mm., thickness 1–1.5 mm.
- (2) String of about 150 disk-beads of ostrich egg-shell, diam., *ca.* 5 mm., thickness, *ca.* 1.5 mm.
- (3) Six tubular beads of glazed steatite; 25 × 8 mm.; 21 × 6 mm.; 16 × 5.5 mm.; 12.5 × 5.5 mm.; 10 × 4 mm.; 9.5 × 5 mm.
- (4) Five barrel-shaped "crumb-beads" of very dark blue faience body and light blue crumbs; length, *ca.* 13.5 mm.; diam. ends, 2.5–3; diam. middle, 3–3.5 mm.
- (5) Two slender barrel-shaped beads, one of dark blue and one of light blue faience; length, 18 × 5 mm.; the light one broken.
- (6) One thick barrel-shaped bead of pale amethyst; 16 × 9 mm.
- (7) Open ring of ivory; 14 × 12 mm.
- (8) Large pendant, heart (?) -shaped, alabaster; height, 33 mm.
- (9) Amulet, lower leg, red carnelian; pierced through upper part; height, 16 mm.
- (10) Amulet, animal head (hippopotamus.); slate, pierced neck; length, 12 mm.
- (11) Amulet, turtle, ivory; pierced through head; length, 16.5 mm.
- (12) Amulet, fish, ivory; ring-shank on back, length, 17 mm.
- (13) Amulet, Thoeris, ivory; pierced through shoulder; height, 16.5 mm.
- (14) Amulet, horned animal head, ivory; hole in forehead; height, 19 mm.
- (15) Amulets, six rude scarabs, blue faience; pierced lengthwise; length, 8 to 11 mm.
- (16) Amulet, sacred eye, blue faience; ring-shank; length, 12 mm.
- (17) Amulet, open hand, blue faience; pierced through wrist; length, 12 mm.
- (18–25) Amulets, eight small faience amulets or parts of amulets, difficult to identify.

These amulets are well known from the Old Kingdom.¹ At Naga-'d Dêr, we found similar sets of amulets and beads of the same materials, ivory, carnelian, steatite, and faience, in about twelve graves associated with stone vessels and pottery which were dated at that time, quite correctly, to Dynasty V. With some variations in the forms and sizes of the amulets and with some additions, these amulets and beads have been found in graves of Dynasties VI–XII, and occurred in numbers in the Egyptian graves at Kerma.² These images of divinities, divine animals, and symbols had, of course, the same protective character as the later better formed amulets of stone and faience.

The circular stamp-seal, the so-called "button-seal," is commonly associated with the crude amulets of Dynasties V–VIII, which include the scarab. It was not until Dynasty XI or thereabouts that the scarab came to be accepted as the proper amulet for the protection of the seal and joined with the stamp-seal to form the scarab-seal of the Middle Kingdom and later periods. It was without doubt the union of the scarab and seal, which caused the seal to be modified from a circular to an elliptical form. Other forms of amulet are also used for the seal, especially the frog, which was also one of the old amulets of Dynasty V. But in the Old Kingdom the stamp-seal or button-seal with an amulet is very rare.³ I am therefore in doubt about the date of the button-seal described below, which was

¹ See Petrie, *Deshasheh*, Pl. XXVI.

³ See Newberry, *Scarabs*, p. 57.

² See Reisner, *Kerma, IV–V*, pp. 106 ff.; Garstang, *Mahâsna and Bêt Khallâf*, Pl. XXXIX.

found in the débris of decay of the second temple in 1908 and should therefore be not much later than Dynasty VI.

- (26) Button-seal of limestone, bearing on the top a human face with curiously striated hair or wig (sphinx ?); pierced sideways by a small hole just below the ears; diam., 3.1 cm. Engraved on seal side: two lizards or crocodiles, head to tail . . .



FIGURE 81

6. FAIENCE FRAGMENTS AND INLAYS

The moisture of the débris in the Mycerinus valley temple was unfavorable to the preservation of Egyptian faience, and the few fragments found were in very bad condition. The conditions were better at the Mycerinus pyramid temple, but there still fewer pieces were found.

The following are from the valley temple:

- (1) In (III-8), fragments of a cylindrical cup, made of hard white paste, originally blue-glazed. The surface had been divided horizontally into bands 9 mm. wide; every other band had been channelled out and filled with black paste so that the outside was striped, with alternate horizontal bands of black, appearing purplish under the transparent blue glaze, and light blue, or green. Pl. 65 c (on left).
- (2) In (III-16), several large fragments from a wooden *hes*-jar similar to those found by the Germans at Abu Sir.¹ Pl. 65 c (on right). The inlays mentioned below were probably from this jar or similar jars.
- (3) In (III-20), with fragments of stone vessels — a faience inlay in the form of a bull, from the Horus name of Mycerinus. See No. 2, above.
- (4) In (I-21 sub), in floor débris of court, six fragments of small inlays. See No. 2, above.
- (5) In (I-26 sub), No. 140, in floor débris of court, a complete inlay, the sign for "king of Upper Egypt." See No. 2, above.
- (6) In (I-301 sub), several fragments of faience, probably inlays. See No. 2, above.
- (7) In (III-2), under the floor of the second temple, six small fragments of a faience vase of unrecognizable form.

The following was from the pyramid temple:

- (8) Mycerinus pyramid temple (10), in the sweepings from the temple, a large fine blue inlay, broken. The complete form was unclear, but the inlay was flat not curving. Pl. 20 h.

These few fragments of faience are clearly in the line of development from the crude vessels of Dynasty I to the fine jars of Dynasty V, and resemble in particular the ceremonial *hes*-vases of Neferirkara. The technique, was similar to that of the later faience.²

7. STONE HAMMERS

The greater part of the excavation in the limestone rock at the Giza cemetery was carried out by means of copper chisels, mallets, and stone hammers. In the quarry north of the Second Pyramid and at other places, the stratum of stone was divided by trenches about 20 cm. wide, and the stone between the trenches lifted by splitting along the line of the horizontal stratum. The excavation of the rock for burial shafts and other purposes was also begun by the cutting of trenches, and in these trenches the chisel marks show a blade like the broad chisel found in the Senezemib group, with a cutting edge about 16 mm. wide. The stone between the trenches was then broken away with hammers of hard stone. Four or five of these hammers were found in the cemetery and were of heavy axe form with a short broad back and a longer blunt edged front part. A depression around the body near the blunt end permitted the hammer to be bound to a divided stick or a pair of sticks. Smaller hammers of similar form were also found, and, in addition to these, a number of pounding stones which appeared to have been held in the hand. One example was found of a two-handled hammer of limestone, the use of which has been a puzzle on account of the material. It was broken, and the possibility arises that this particular example was found impractical.

In the pyramid temple, in magazine (17), on the floor, was found a heavy two-handled granite hammer of the same form as the limestone hammer just mentioned. The handles and the body were of one piece of granite. The body was 31 cm. high, with a diameter of 18 cm. across the bottom and

¹ See Borchardt, *Neferrirke're'*, p. 60, Pls. 3-5.

² See Reisner, *Kerma, IV-V*, pp. 136-143.

14.3 cm. across the top surface. The sides were slightly concave, so that the diameter of the body was 13.8 cm. On each of two sides, the stone swelled to a width of 21.4 cm., and in each of these swellings or knobs, a hole had been worked so that the knobs were transformed into handles (see Pl. 20, *a-c*). The insides of the handles had been worn shiny by usage, and the wider lower surface of the hammer was bruised by use as a pounder. Now the granite casing of the pyramid had been dressed flat, after the stones were in the wall, by pounding and had been finished by rubbing. This great hammer by its weight, its form, and its material, was suitable for dressing granite by pounding, and the marks of its usage leave no doubt that it had actually been used for that purpose.

It is difficult to escape the conclusion that this heavy stone hammer was part of the original furniture of the temple. Its function as a builder's implement brings it into the same class as the axes, adzes, and chisels found in the temples and also in the mastabas of Dynasties IV-VI. Indeed, the use of tools and models of tools as part of the funerary equipment was general from the Predynastic Period down, and such objects were found in almost all the royal tombs at Abydos.

Other stone hammers and rubbers were found in the two temples, but none of these could be said to be part of the funerary furniture. About thirty hammers or rubbers of very compact black granite (?) were found in the unfinished compartment of the Mycerinus pyramid temple and had evidently been used on the granite casing either of the pyramid or of rooms (7) and (8). These had not been formed but were quite rough, except on the surface which showed usage. They were of many different shapes and sizes, but all were fairly heavy. Many were chipped or broken by impact on another hard material. The used surfaces were invariably rounded like an irregular segment of the surface of a sphere; and these surfaces were both bruised and rubbed. It is clear that they had been used both for pounding (hammering) and rubbing.

8. MISCELLANEOUS OBJECTS

A number of miscellaneous objects were found which include:

- | | | |
|---------------------|------------------------|-----------------------|
| (a) Shells. | (e) Color. | (h) A stone muller. |
| (b) Bone point. | (f) Mud jar-stoppers. | (i) A stone headrest. |
| (c) Ivory bracelet. | (g) Wood and charcoal. | (j) A painted pot. |
| (d) Plaster cones. | | |

(a) SHELLS

The half mussel-shell is well known in all periods as a container for color, kohl, and similar materials. A number were found at both temples, one containing blue color, under circumstances which prove that such shells were part of the original funerary equipment. The significant examples were as follows:

- (1) Fifteen half mussel-shells from pyramid temple magazine (18), No. 10. See Pl. 20 h. One of these contained blue color.
- (2) One half of a mussel-shell, from Mycerinus valley temple room (I-302 sub), No. 39.
- (3) Two half mussel-shells, from Mycerinus valley temple room (304 sub), Nos. 3, 4.

(b) BONE POINT

Bone points occur naturally in all periods of Egyptian history. They are among the primitive implements of the Predynastic Period and, because of their cheapness and practicality, never went out of use.

- (4) The point of a very fine bone awl or piercer; length, 4.5+ cm.; greatest diameter, 8 × 6.5 mm., oval; polished by use; found in the débris in the portico of the pyramid temple. Pl. 20 h.

(c) IVORY BRACELET

Ivory bracelets, like bone points, have been found frequently in graves of the Predynastic Period and even more frequently of the Early Dynastic Period. They occur in all later periods but never so frequently as in the Early Dynastic. In Nubia and in particular at Kerma, they are more common in the graves of the Middle Kingdom than in Egypt.

- (5) One third of an ivory bracelet; original diameter about 7 cm.; triangular section with rounded corners, 6 mm. high and 5 mm. wide; found in débris of the portico at the pyramid temple. Pl. 20 h.

(d) PLASTER CONES

Three cone-like objects of fine white plaster (plaster of Paris) were found, the purpose of which I have not been able to determine. Pl. 20 i.

- (6) A cone of fine white plaster; height, 7 cm.; diam. of base, 4.3 cm.; slightly irregular, but all surfaces smoothed while wet; not a cake from the bottom of a jar; found in pyramid temple, magazine (16), No. 4.
- (7) A cylinder of white plaster with conoidal end; height, 8 cm.; diam. of base, 5.3 cm.; sides have vertical striations as if formed in a hole in wood; conoidal end and bottom smoothed wet; the bottom is uneven and not vertical to the long axis; found in pyramid temple, magazine (18), No. 2.
- (8) A fragment similar to No. 7; found in débris in same room.

(e) COLOR

- (9) In a mussel-shell in pyramid temple, magazine (18), No. 1, was a thick layer of blue coloring matter, the fine granular blue which is used in the wall paintings of the mastabas.
- (10) Under the bronze tray on the wall between Mycerinus valley temple (III-6) and (III-7), Mr. Bates noted a mass of lumps of yellow matter (mustard color), which resembled also the yellow used in the wall paintings and in particular for female statues.

(f) MUD JAR-STOPPERS

- (11) The mud jar-stoppers with seals have been described on p. 19; a stopper without seal impressions was also found in the pyramid temple, magazine (18), No. 17.

(g) WOOD AND CHARCOAL

In addition to the wood used as accessories in the masonry, as roofing, and as supports for the platforms in the masonry, a few recognizable pieces of decayed wood were found in various places. First of all, the arm of a wooden statue was uncovered in the mud débris of room (I-23) at the Mycerinus valley temple (see Statues, No. 49).

- (12) Fragment of a decayed wooden board in pyramid temple, magazine (18), No. 15; about 60 × 60 cm. and 2 cm. thick; possibly from the shelf.
- (13) Fragments of decayed wood were found under the flint wand of Cheops (Mycerinus valley temple III-7 to 8), which Mr. Bates thought might have been a slab or case for the wand.
- (14) Fragments of decayed wood inside the silver seal cylinder of the official of Chephren proved that the core had been of wood.
- (15) Fragments of a wooden beam, inside the copper sheath, section 2, No. 9, above.

The paucity of the remains of wood was due of course to the decay of that material caused by the moisture of the débris in which it lay.

Small bits of charcoal were found in many rooms in the Mycerinus valley temple, but the only significant occurrence was in two magazines of the pyramid temple.

- (16) A double handful of charcoal was found on the floor of pyramid temple, magazine (17), and about twice that amount scattered over the floor of (18).

(h) STONE MULLER (?)

- (17) On the floor of magazine (18) at the pyramid temple, a circular muller (?) of limestone was found, a roughly worked implement; diam. of circular plate, 15 cm.; thickness of plate, 3.5 cm.; diameter of central projection, at top, 6.5 cm.; total height, 9 cm.

(i) HEAD-REST

- (18) On the floor of the room (I-27) at the Mycerinus valley temple was found a block head-rest of white limestone; length, 20 cm.; height, 13.5 cm.; thickness, at base, 6 cm.; the top is hollowed to a depth of 2.5 cm. This seems a very poor and rude head-rest for a royal tomb, and it was probably used in one of the later houses.

(j) PAINTED POT

- (19) In room (I-28) sub, in the floor débris of the court, two fragments of a painted pottery jar were found associated with fragments of stone statues, stone vessels, flints, and faience inlays (from *hes*-jars), all without doubt from the original equipment of the temple. This pottery jar was of red ware with white slip (W. S. R. ware). The larger fragment had a yellow horizontal band on which was painted in broad blue lines a cartouche containing the name of Mycerinus. The background in the cartouche was white and the signs were blue. The back end of the cartouche, the last *kj*-sign of the name and the side of the second *kj*-sign were preserved. The second fragment was illegible. This jar may have been a *hes*-vase decorated like the *hes*-vases of wood inlaid with faience (see section 6, above).

CHAPTER XI

THE FAMILY OF MYCERINUS

THE discovery of the tombs of Hetep-heres I, the mother of Cheops, and of Meresankh III, one of his granddaughters, and the excavation of the royal cemetery of Cheops east of his pyramid have made so much fresh material available in the last four years that the history of the royal family of Dynasty IV has had to be rewritten. The tomb of Hetep-heres I gave the connection between Dynasty III and Dynasty IV, and established the parentage of Cheops. The tomb of Meresankh III revealed the fact that Hetep-heres II, a daughter of Cheops, was fair-haired or red-haired and yielded the family relations of her line. Behind the names which have come to us, we see obscurely evidence of strife between the different branches of the family, marriages and deaths, intrigues in the harems of succeeding kings, and bitter enmities. It may never be possible to work out all the details of the intricate family affairs of the dynasty, but the main outline has become much clearer than before 1924.

The chief cause of strife arose undoubtedly from the plural marriages of King Cheops. Each king married a number of wives of different standing with regard to the blood royal and a number of concubines. The custom of brother and sister marriages was well established. No woman might ascend the throne, and in the whole course of Egyptian history down to Ptolemaic times only two queens became king — Sebek-neferuw of Dynasty XII and Hatshepsut of Dynasty XVIII. Nevertheless it was through his mother or his wife that a king established his strongest claim to the inheritance of the throne when the lady in question was herself of the blood royal. Of course, the accession of a king was not solely by inheritance, but depended from time to time on the character and personal qualities of the man or on harem intrigues of a type familiar to the historian, so that the kingship was in fact open to minor members of the royal family or even to other persons entirely outside the family. The accession of a person not in the direct line was usually counted as the beginning of a new dynasty, and almost invariably the founder of a dynasty sought to stabilize his *de facto* sovereignty by marrying a woman of the direct line of the blood royal. Thus by tradition, or legally if one may use such a term, the order of claims to the throne was as follows:

- (a) That of a king's son born of a marriage between a king and his sister, both being of the full blood royal.
- (b) That of a king's son born of a marriage between a king not of the full blood royal and a king's daughter of the blood royal.
- (c) That of a king's son born of a marriage between a king of the blood royal and a woman not of the full blood royal.
- (d) That of a strong man married to a king's daughter of the full blood royal.

It is always the descent on the mother's side which is significant for the strength of the heir's claim to the throne.

The order of the legitimate kings from the end of Dynasty III to Shepseskaf is now firmly established:

- (1) HUNI, last king of Dynasty III; father of Hetep-heres I, wife of Sneferuw and mother of Cheops.
- (2) SNEFERUW, first king of Dynasty IV; probably not of the full blood royal, but possibly a son of Huni by a minor queen; married Hetep-heres I; father of Cheops.
- (3) CHEOPS, son of Sneferuw and Hetep-heres I; father of Radedef and Chephren.
- (4) RADEDEF, son of Cheops.
- (5) CHEPHREN, son of Cheops; married his full sister, Khamerernebti I.
- (6) MYCERINUS, son of Chephren and Khamerernebti I; married his full sister, Khamerernebti II.
- (7) SHEPSESKAF, son of Mycerinus.

In the list of kings in the temple of Abydos, Weserkaf, the first king of Dynasty V, succeeds Shepseskaf; but in the Saqqarah list there appear to be four cartouches, one of which had contained the name of Shepseskaf, between Mycerinus and Weserkaf. The Turin Papyrus seems also to give three kings,

whose names are lost, at the end of Dynasty IV, while the list of Manetho presents two names, Bicheris and Thamthis. Thus the history of the second half of the dynasty is still obscure. The poverty manifest in the latter part of the life of Chephren, the short reigns of Mycerinus and of Shepseskaf, the transfer of the tomb of Shepseskaf to Dahshûr, where he received only a mastaba (not a pyramid), and the large unfinished tomb east of the Mycerinus pyramid at Giza, all indicate a troubled period during which other claimants to the throne, perhaps descendants of Radedef, may have set themselves up as independent kings for short periods. No doubt it was this condition of public affairs which gave Weserkaf the opportunity to seize the throne.

The story of Hetep-heres I, the mother of Dynasty IV, and the tragic plundering of her tomb is told in another place.¹ She carried the blood royal through from Dynasty III to Dynasty IV, and it was her son Cheops who came to the throne, and not the eldest son, Prince Kanofer of Dahshûr. No great difficulty appears to have arisen, and Cheops is shown to have been an extremely wealthy and powerful king by his great pyramid, with the three pyramids of queens and the two great fields of mastabas laid out in streets and rows, a veritable city of the spirits of the dead. The subsequent troubles arose out of his marriages and in particular out of two of them. His four chief wives are known from their tombs as follows:

- (1) The favorite queen was undoubtedly the lady buried in the first small pyramid G I-a, whose name has escaped us; she alone of the queens had a sun-bark buried beside her pyramid; she was, I imagine, a daughter of Sneferuw and Hetep-heres I, a full sister of Cheops and the source of the main branch of his family.
- (2) The queen buried in the second small pyramid, G I-b; this pyramid is in line with the first pyramid and equal to it in every way except that it is second in the line; her name also has not been found; I imagine that she was the Libyan (?) lady who brought the fair hair into the family (Hetep-heres II) and would thus be the mother of the secondary branch of the family.
- (3) Queen Henutsen, buried in the third small pyramid, G I-c; she was a daughter of Sneferuw; her pyramid stands a meter or so back from the line of the first two, although equal to them in construction; in Dynasty XXII she was identified with Isis and called Isis-henut-meruw ("Isis-Mistress-of-the-Pyramids"). I consider her to have been a half-sister of Cheops.
- (4) Queen Nefertkauw, the eldest daughter of Sneferuw, buried in mastaba G 7050; her mastaba is in the line of the pyramids but set back several meters from the line of pyramid G I-c, and is decidedly inferior to the mastabas of the sons and daughters of Cheops in the adjacent cemetery. Her relation to Cheops is not absolutely certain.²

These four tombs are on the western side of Queens' Street in the great royal cemetery of Cheops east of his pyramid. At least two other ladies are mentioned in inscriptions, but their tombs have not been identified:

- (5) Queen Meryt-yetes, who passed from the harem of Sneferuw into that of Cheops and was still alive in the reign of Chephren; she was probably only a beautiful concubine of no importance for the subsequent history.
- (6) Queen Sedyt, the mother of Prince Merib (of mastaba G 2100), who was a king's daughter, but whether married to Cheops or to one of his two sons is uncertain.

As far as I can now judge, it was the queen of pyramid G I-a who mothered the chief and direct branch of the family, Chephren and his descendants, while the queen of pyramid G I-b was the foreign lady who was the ancestress of the secondary line, Radedef and his descendants. The fourth queen, Nefert-kauw, was the mother of Prince Neferma'at of Giza and the grandmother of Neferma'at's son Sneferuw-khaf; but neither of these appears to have attained importance in the family. They may be dismissed after the fact is noted that in the three inscriptions found in their mastabas they derived their descent from Sneferuw and never mention Cheops, the probable husband of Nefert-kauw.

A certain number of enlightening facts are known, some of them since many years and others from the recent excavations. King Radedef succeeded his father Cheops. If my reconstruction is correct, his claim by birth was not so great as that of the eldest son Ka-wa'ab (mastaba G 7110 + 7120) or Chephren (pyramid G II). He left the royal cemetery at Giza, where his father had already provided two great

¹ See *Bulletin of the Museum of Fine Arts*, Boston, May, 1927.

² See *Ä. Z.*, 64, pp. 97-99.

cities of mastabas for his family, as if he wished to separate himself from his brothers and sisters and start a new royal cemetery at Abu Roash. Chephren, who followed Radedef, returned to Giza to build his great pyramid, to carve the Sphinx, and to place himself with the rest of the family of Cheops. The fair-haired Hetep-heres II, whom I take to have been a daughter of the Libyan queen and a full sister of Radedef, was married three times — first to Ka-wa'ab, her eldest half-brother, second to Radedef, her full (?) brother, and third to the great noble, Ankh-haf. Probably Ka-wa'ab was already dead when Radedef came to the throne. His granite sarcophagus was very roughly finished and the burial pit for his wife (in mastaba G 7110) was never completed. And Radedef was certainly dead when Hetep-heres II passed to Ankh-haf. In the tomb of her daughter, Meresankh III, the blond Hetep-heres inscribes herself as "daughter of the King of Upper and Lower Egypt, Cheops," an unusual procedure which can mean only that Cheops was long dead and another king on the throne. Her daughter, Meresankh III, was probably married to Chephren; and Hetep-heres II imitated her half-brother and son-in-law Chephren in adding her tomb to the cemetery of Cheops at Giza, where her mother was buried, as well as her first and third husbands, to both of whom she had borne children. By this act she appears to have separated herself definitely from the party of Radedef, which held no doubt to the cemetery at Abu Roash.

Another son of Cheops whose tomb suggests a tragic fate was the wise man Hordedef (mastaba G 7210 + 7220), known from the drinking song of King Yentef and from the story of Cheops and the magician Dedi. The granite coffin in which he had been buried stood unfinished in the burial chamber with the red lines of the stone masons and the incomplete saw-cuts plainly visible. And in his tomb chapel, all the inscriptions and reliefs had been chiseled away by an enemy.

Tentatively, I would group the chief sons and daughters of Cheops as follows:

(a) The main branch of the family:

- (1) Prince Ka-wa'ab, mastaba G 7110 + 7120; first husband of his half-sister, the blond Hetep-heres.
- (2) King Chephren, pyramid G II; married Khamerernebti, his full sister; Meresankh III, his niece, and other ladies.
- (3) Prince Hordedef, mastaba G 7210 + 7220; whose inscriptions were destroyed.
- (4) Prince Khnumbaf (?), mastaba G 7310 + 7320.
- (5) Princess and Queen Meresankh II, married Radedef (?), mastaba G 7410 + 7420.
- (6) Prince Khufuw-khaf, mastaba G 7130 + 7140.
- (7) Prince Min-khaf, mastaba G 7430 + 7440.
- (8) Princess and Queen Per[senti], rock-cut tomb L G 88.

(b) The secondary branch of the family:

- (1) King Radedef, pyramid at Abu Roash.
- (2) Queen Hetep-heres the fair-haired; for whom was built mastaba G 7530 + 7540, but whose burial-place has not been found; married Ka-wa'ab and then Radedef; probably second wife of Radedef.
- (3) Queen Khentenka, chief wife of Radedef.

(c) The third branch, descended from Queen Nefert-kauw, the eldest daughter of Sneferuw:

- (1) Prince Neferma'at of Giza, mastaba G 7060.

The secondary branch came first to the throne after the death of Cheops in the person of King RADEDEF. He was, as I believe, a son of the Libyan queen and had married at least one of his sisters of the main branch, perhaps Meresankh II, a marriage which would have strengthened materially his claim to the throne. He probably married his full sister, the blond Hetep-heres II, after his accession, with the object of increasing her rank from that of king's daughter to king's wife. Of the Queen Khenten-ka, we know only the name. Radedef seems to have reigned only a short time (Turin Papyrus, 8 years), and I think that the main branch of the family was in open enmity if not in active resistance to his domination. On his death, his brother Chephren came to the throne, but Radedef's family did not accept the decision as final, and his son Bakara (Bicheris) made a more or less successful struggle for the throne in later years.

CHEPHREN, who became the fourth king of the dynasty, judged by his works was only a little less powerful than his father Cheops. He married the following ladies:

- (a) Princess Khamernernebti I, his full sister of the main branch, who thus became queen and was to be later mother of the king when her son Mycerinus came to the throne; buried in the Galarza tomb.
- (b) Princess Meresankh III, his niece of a mixed marriage between the two branches; buried in mastaba G 7530; mother of Prince Nebemakhet.
- (c) Queen Hezhekenuw, who appears in the tomb of her son Sekhemkara (L G 89), but was not of the royal family.
- (d) Princess Per[senti]; buried in L G 88; mother of Nekauwra.

Chephren built only one small pyramid for a queen, and that may never have been used. The name of the person for whom it was intended has not been found. Only a few of his chief children have been identified:

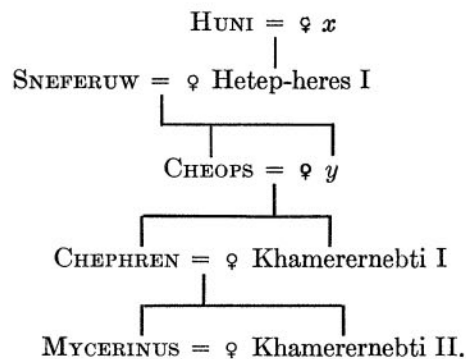
- (1) First (?) eldest son, Prince Nekauwra; rock-cut tomb L G 87; mother, Queen Per[senti]; married Kannebti, the granddaughter of a king, and had three children.
- (2) Second (?) eldest son, Prince Sekhemkara; rock-cut tomb L G 89; son of Queen Hezhekenuw; also married a king's granddaughter, Khufuw- . . . t, and had a son of his own name; he lived to the reign of Sahura of Dynasty V.
- (3) King MENKAUWRA, pyramid G III; son of Khamernernebti I of the blood royal; married his full sister, Khamernernebti II.
- (4) Queen Khamernernebti II; probably buried in pyramid G III-a; mentioned in Galarza tomb, and in the tomb of her son Khuwnera.
- (5) Prince Nebemakhet, rock-cut tomb L G 86; son of Meresankh III; married a king's granddaughter, Nub-hotep.
- (6) Princess Shepsset-kauw, mentioned in tomb L G 86; daughter of Meresankh III.
- (7) Prince Duwanera, mentioned in tomb L G 86, and perhaps the Prince Duwanera of mastaba G 4510; son of Meresankh III.
- (8) Prince Khnumbaf; mastaba G 5230.

It is quite clear that, of all the known princes, Menkaura had the clearest title to the throne. He certainly succeeded his father as King of Egypt.

King MYCERINUS was married in all probability to the three queens buried in the small pyramids G III-a, G III-b, and G III-c. No name was found in any of the three and thus we know the name of only one of his wives, his full sister Khamernernebti II. She was probably buried in the first of the small pyramids, G III-a. Her name occurs in the Galarza tomb and in the tomb of her son Khuwnera in the Mycerinus quarry. The others were probably sisters or cousins. His chief children were:

- (1) The eldest son, Prince Khuwnera, buried in a rock-cut tomb in the Mycerinus quarry; son of Khamernernebti II.
- (2) King SHEPSESKAF, buried in the "Mastabat el-Faraon" at Saqqarah (identified by Prof. Jéquier); he completed the tomb of his father Mycerinus in year 2 of his reign.
- (3) Prince Min-Yuwen, L G 92.

Thus, in the direct line, the descent of Mycerinus was as follows:



King Mycerinus was of the purest blood royal on the side of his father and mother, and of his grandfather and grandmother back to the mother of the dynasty, Hetep-heres I.

The date of Mycerinus and the chronology of Dynasty IV still present great difficulties. There can be no doubt that the kings after Cheops recognised by the Abydos List and by three lists known from contemporary private tombs were Radedef, Chephren, Mycerinus, and Shepseskaf, followed by Weserkaf, the first king of Dynasty V. Three other important sources, no one of which is, however, contemporary with Dynasty IV, add two or three more kings to the list of Dynasty IV, and it must be admitted that the annals of the kings of Egypt had kept a record of these additional names. The three private lists, and indeed all such lists taken from autobiographies, give the names of the kings with whom the autobiographer had personal relations, so that the omission of the three kings from these lists is not proof against their having ruled Egypt. The omission of the three unknown kings from the Abydos List would seem to indicate that there was some flaw in the claims of these kings to the kingship. The Turin Papyrus, which follows the annals, inserts them, as does the Saqqarah List; and Manetho gives at least two of them by name. Unfortunately in both the Turin Papyrus and the Saqqarah List the cartouches in question are broken away so that the names are not recoverable. Manetho gives the names Bikerhis, Thamphthis, and perhaps Seberkheres; but misplaces the name of Radedef (Ratoises) and perhaps omits Shepseskaf (unless Seberkheres is identified as Shepseskaf).

It is necessary to examine the matter in detail, taking the Turin Papyrus as a basis.¹ Meyer's reconstruction (which gives Huni, 24 years; Sneferuw, 24 years; Cheops, 23 years; and Radedef, 8 years) appears a safe basis for the first part of the dynasty. It is clear from the facts and inscriptions found in the funerary temples of Mycerinus that Shepseskaf was his son and completed the Third Pyramid and its temples in his own second year. Shepseskaf therefore succeeded his father immediately or after only a few months of struggle with a claimant of the other branch of the family and, according to the lists which give six kings to the dynasty, was the last of the family of Cheops, — that is, the last of the main branch of the family. The following reconstructions show the chief possible ways of arranging the kings according to the facts given in the Turin Papyrus (the numbers of the lines on the left refer to the line numbers of column 3 in Meyer, *op. cit.*, Tafel IV):

	T-1	Years	T-2	Years	T-3	Years	T-4	Years	T-5	Years
9.	Sneferuw	24	Sneferuw	24	Sneferuw	24	Sneferuw	24	Sneferuw	24
10.	Cheops	23	Cheops	23	Cheops	23	Cheops	23	Cheops	23
11.	Radedef	8	Radedef	8	Radedef	8	Radedef	8	Radedef	8
12.	Chephren	x	Chephren	x	Chephren	x	Chephren	x	Chephren	x
13.	Mycerinus	x	X-1	x	X-1	x	X-1	x	X-1	x
14.	Shepseskaf	x	Mycerinus	x	X-2	x	X-2	x	Mycerinus	x
15.	X-1	18*	Shepseskaf	18*	Mycerinus	18*	X-3	18*	X-2	18*
16.	X-2	4	X-2	4	Shepseskaf	4	Mycerinus	4	Shepseskaf	4
17.	X-3	2	X-3	2	X-3	2	Shepseskaf	2	X-3	2

* The number may be read 28 instead of 18.

It must be remembered that we are dealing mainly with probabilities. Certainty is at present beyond hope. Reconstruction T-2, which gives 18 (28) years to Shepseskaf, and any similar reconstruction must be ruled out. Shepseskaf by all the fragments of inscriptions and by the archaeological evidence ruled much less than 10 years. Reconstructions T-1, T-4, and T-5 assign the 18 (28) years of the papyrus to one of the three extra kings. It is inconceivable to me that a king who had 18 (28) regnal years should have been omitted from any list. T-4 would set 4 years opposite the name of Mycerinus, which is a sheer impossibility. Thus I conclude that T-3, which gives 18 years to Mycerinus and 4 to Shepseskaf, is the most probable reconstruction for the Turin Papyrus, and I would read 18, not 28, for Mycerinus.

The list of the kings given by the fragments of Manetho² was undoubtedly based on the ancient annals and is now in a very corrupt form, but appears to group the kings of the secondary branch of the family beginning with Radedef at the end of the dynasty.³ But Radedef (Ratoises) is out of order, being sixth instead of third in the list; one king is omitted; and the name of the seventh king,

¹ See Ed. Meyer, *Chronologie*, p. 142.

² See Meyer, *op. cit.*, opposite p. 145.

³ See Daressy, *Bull. Inst. Franç. XII*, p. 204.

Seberkheres, is difficult to identify. Most scholars consider that Seberkheres is a mutilation of Shepseskaf, which is possible, and then the omitted king is X-2. Bikhheris would be X-1, and Thamphthis, X-3. But it requires too much ingenuity to make Shepseskaf into Seberkheres. Seberkheres is clearly a name ending in *ka-ra* (cf. Menkheres), and possibly corrupted from Neferkara. I suggest therefore that Seberkheres represents X-2 and that Shepseskaf is omitted, perhaps through some confusion between Seberkheres (Neferkara) and Shepseskaf. The Manetho list is as follows:

As given	Years	Order corrected by T-3	Years	Daressy's order	Years
1. Soris	29	1. Soris	29	1. Soris (Sneferuw)	29
2. Souphis I	63	2. Souphis I	63	2. Souphis I (Cheops)	63
3. Souphis II	66	5. Ratoises	25	5. Ratoises (Radedef)	25
4. Menkheres	63	3. Souphis II	66	3. Souphis II (Chephren)	66
5. Ratoises	25	6. Bikhheris	22	6. Bikhheris (Bakara)	22
6. Bikhheris	22	7. Seberkheres	7	4. Menkheres (Mycerinus)	63
7. Seberkheres	7	4. Menkheres	63	8. Thamphthis (Dedefptah)	9
8. Thamphthis	9	9. [Shepseskaf	x]	9. King D (= X-2, omitted)	x
9. Omitted king	x	8. Thamphthis	9	7. Seberkheres (Shepseskaf)	7
Total		.....277 [read 284]			

The figures which give the years of the reigns are obviously fantastic, as will be shown later in this discussion. Modifying Daressy's suggestion, I take it that Manetho gave first the five kings of the main branch,—Sneferuw, Cheops, Chephren, Mycerinus, and Shepseskaf,—of which the last name was later omitted by copyists. Then he gave the four kings of the secondary line,—Radedef, Bakara (?), Seberkheres (Neferkara?), and Thamphthis. Or alternately Thamphthis was of a third branch. If Daressy's order be set against the figures in the Turin Papyrus, then Thamphthis (Dedefptah?) receives 18 (28) years; king D (X-3), 4 years; and Seberkheres (Shepseskaf), 2 years. This reconstruction is open to the same objection as T-1, T-4, and T-5 above, in that it is incredible that a king named Thamphthis (Dedefptah) should have ruled Egypt for 18 (28) years and left no trace of himself in a period so rich in private and royal monuments as Dynasty IV.

Since the discovery of the tomb of Meresankh III in 1927, the problem may be approached from a different angle. Meresankh III was a granddaughter of Cheops, on both sides, being a daughter of the blond Hetep-heres II, herself a daughter of Cheops, and of Kawa'ab the eldest son of Cheops. Kawa'ab was the first husband of Hetep-heres II and King Radedef was the second. Meresankh claims the title "king's daughter of his body" which cannot be taken literally as she was the child of Kawa'ab. But if she were a babe at the breast when Radedef married Hetep-heres II, or if Meresankh was born in the palace of Radedef after the marriage, the title would have been a natural courtesy title. I take it that Meresankh III was born about the first year of Radedef, perhaps a little before or a little after. Meresankh III was married to her uncle Chephren, as is proved by the estate names in the tomb of her son, and she bore him at least five children. The eldest son, Prince Nebemakhet, was an adult man of the rank of "lector-priest" as represented in the tomb prepared for his mother in the year of her death. The tomb made for Meresankh is of the rock-cut type commonly used for members of the family of Chephren who died after the accession of Mycerinus, and is actually nearest in form to two tombs, Debehen (L D 90) and Prince Khuwnera son of Mycerinus, both of which were made in the latter part of the reign of Mycerinus. Two inscriptions on the doorway of her tomb record that she died in the first year of an unnamed king and was buried nine months later. I conclude from the type of tomb that Meresankh III died in the first year of Shepseskaf, the nearest first year to the tombs, Debehen (L D 90) and Khuwnera. Dr. Derry has made a careful examination of the skeleton of Meresankh and has given his judgment that she was over fifty years of age and probably about fifty-five when she died. This would give us about fifty-five years from the first year of Radedef to the first year of Shepseskaf. Deducting 8 years for Radedef, and 18 for Mycerinus, a total of 26 from the 55 years of Meresankh, we get about 29 years for the intervening time, which includes the reign of Chephren and whatever there may have been of the reigns of X-1 and X-2. That is, the two following reconstructions may be worked out on the basis of T-1 and T-3 respectively:

Reconstruction A (on basis of T-1):

	Years
1. Sneferuw	24
2. Cheops	23
3. Radedef	8
4. Chephren	29 or 32
5. Mycerinus	18 or 15
6. Shepseskaf	4 or 6
7. X-1 (Bakara?)	18 or 28
8. X-2 (Neferkara?)	4
9. X-3 Dedefptah?	2
—	
Total	130 or 132 or 142

Reconstruction B (on basis of T-3):

	Years
1. Sneferuw	24
2. Cheops	23
3. Radedef	8
4. Chephren	} 29
5. X-1 (Bakara?)	
6. X-2 (Neferkara?)	} 18
7. Mycerinus	
8. Shepseskaf	4
9. X-3 (Thamphthis?)	2
—	
Total about	108

Reconstruction A, based on T-1, I regard as extremely improbable but I select it for comparison with reconstruction B, based on T-3, in considering the control afforded by five lives recorded in private inscriptions. The five lives are as follows (Cf. Scharff, *O. L. Z.*, February, 1928):

(a) QUEEN MERYTYETES: known from an inscribed stone found at Giza; she was not a "king's daughter" but was married to Sneferuw and then Cheops and "honored before" Chephren. She was at least twelve years old but perhaps still a virgin when Sneferuw died, and certainly not over thirty at that time. She lived into the reign of Chephren but how long is a matter of conjecture. Her age works out approximately the same for both A and B:

	Min. age	Max. age	Mean age
If 12 at death of Sneferuw	44 years	69 years	57 years
If 30 at death of Sneferuw	62 "	87 "	75 "

(b) PRINCE SEKHEMKARA: rock-cut tomb L G 89; as the second (?) eldest son of Chephren, he may have been born before the accession of his father, certainly not long after; he was "honored before" Chephren, Mycerinus, Shepseskaf, Weserkaf, and Sahura. Sahura ruled 12 years. Counting from the first year of Chephren:

	Min. age	Max. age	Mean age
By A (T-1)	83 years	94 years	88.5 years
By B (T-3)	61 "	72 "	66.5 "

(c) PTAHSHEPSES: mastaba at Saqqarah (Mariette, *Mastabas*, C 1, p. 110): son-in-law of Weserkaf;¹ he was born in the reign of Mycerinus, was a boy in the women's apartments of the palace of Shepseskaf, married Ma'at-kha, the eldest daughter of Weserkaf, and lived to some time in the reign of Neweserra. I would place his birth in the last five years of Mycerinus. Neweserra ruled about 32 years.

	Min. age	Max. age	Mean age
By A (T-1), if born in last year of Mycerinus	72 years	102 years	87 years
if born 5 years before death of Mycerinus	77 "	107 "	92 "
By B (T-3), if born in last year of Mycerinus	50 "	80 "	65 "
if born 5 years before death of Mycerinus	55 "	85 "	70 "

(d) NETERPUWNESUT: tomb at Giza reported by Gauthier in *Annales*, XXV, p. 180; "lord of honor" before Radedef, Chephren, Mycerinus, Shepseskaf, Weserkaf, and Sahura. If we count his life as beginning in the first year of Radedef, the limits of error are only plus or minus 5 years. As he probably died in the reign of Sahura, the 12 years of that reign cover the year of his death.

	Min. age	Max. age	Mean age
By A (T-1), if born in year 5 of Radedef	86 years	97 years	91.5 years
if born in year 18 of Cheops	96 "	107 "	101.5 "
By B (T-3), if born in year 5 of Radedef	64 "	75 "	69.5 "
if born in year 18 of Cheops	74 "	85 "	79.5 "

(e) QUEEN HETEP-HERES II: in the tomb of her daughter, Meresankh III (see preceding paragraphs), G 7530: she was a daughter of Cheops and was alive in the first year of Shepseskaf when her daughter Meresankh III died at about 55 years of age. Meresankh, who was by her first husband and was born about the beginning of the reign of Radedef, was perhaps her first-born child. At that time Hetep-heres II was not less than 12 and not more than 25 years of age. At the time of her daughter's death about 55 years later, Hetep-heres II was between 67 and 80 years old. By both A and B, Hetep-heres II would have been born between the last year of Sneferuw and the 12th year of Cheops.

¹ See Sethe, *Urkunden I*, pp. 51-53. I have varied Sethe's reconstruction of the career of Ptahshepses in the manner indicated above.

The three lives, *b*, *c*, and *d*, are those which offer independent material on the period in question, and the facts presented may be summarized as follows:

		Min. age		Max. age		Mean age
By A (T-1)	(b)	83 years		94 years		88.5 years
	(c)	72-77	"	102-107	"	87-92
	(d)	86-96	"	97-107	"	91-101
By B (T-3)	(b)	61	"	72	"	66.5
	(c)	49-54	"	79-84	"	64-69
	(d)	64-74	"	75-85	"	69-79

By Manetho, taking latest possible date of birth and earliest possible date of death, we get the following absolute minimal lives:

	Order T-3	Daressy's order
(a) If 12 at death of Sneferuw	101	101
(b) If born last year of Chephren	102 + <i>x</i>	102 + <i>x</i>
(c) If born last year of Mycerinus	53 + <i>x</i>	60 + <i>x</i>
(d) If born last year of Radedef	168 + <i>x</i>	168 + <i>x</i>
(e) If born last year of Cheops	173 +	184 +

Except for life *c*, the figures by Manetho are simply fantastic; and life *c* is made reasonable because only reigns are involved for which reasonable figures are given. Any chronological arrangement based on Manetho requires no further consideration. The three persons of greatest value, *b*, *c*, and *d*, certainly lived longer than the ordinary man, but we have no proof that they attained the extreme ages indicated by both the minimum and the mean figures for reconstruction A (T-1). In the preceding pages I came to the conclusion that T-1 was improbable because a reign as long as 18 (28) years was incredible for one of the missing kings. From the present examination of the three lives, *b*, *c*, and *d*, this reconstruction again appears improbable, and could only be saved by making the reigns of X-1, X-2, and X-3 contemporary or partly contemporary with Chephren, Mycerinus, and Shepseskaf. That solution brings us, however, practically to reconstruction B (T-3), which I have myself adopted.

The above discussion has dealt largely with approximations and probabilities and is therefore manifestly subject to modification by fresh material from the excavations. Moreover, the basis is Professor Meyer's reconstruction of the Turin Papyrus; and the basis may be broken up by some fresh combination of the fragments of that document. In conclusion, I give the chronological reconstruction of Dynasty IV which I have now adopted as a working hypothesis:

DYNASTY IV:	Years
1. Sneferuw	24 ¹
2. Cheops	23 ¹
3. Radedef	8 ¹
4. Chephren	29 to 23
5. X-1 (Bikheris-Bakara?)	0 to 5
6. X-2 (Seberkheres-Neferkara?)	0 to 1
7. Mycerinus	18 ¹
8. Shepseskaf	4 ¹
9. X-3 (Thamphthis-Dedefptah?)	2 ¹
Total	108

Average reign of six legitimate kings — 16.6 to 17.6 years.

Average reign including three usurpers — 12 years.

DYNASTY V (see Dr. Scharff, <i>O. L. Z.</i> , February, 1928, p. 78):	Years
1. Weserkaf	7
2. Sahura	12
3. Neferirkara	(12?)
4. Shepseskara	7
5. Khaneferra	(4?)
6. Newesera	(32?)
7. Menkauwhor	8
8. Dedkara	28
9. Wenes (Unas)	30
Total	140

Average reign of nine kings — 15.5 years.

¹ Figures taken from the Turin Papyrus.

The absolute date of Dynasty IV, it must be admitted, is still a point on which the material available permits no decision. The dates which have been given for the beginning of the dynasty vary from Meyer's 2840 B.C. to Petrie's 4803 B.C. The difficulty arises out of two periods in Egyptian chronology left obscure by lacunae in the lists and by the paucity of contemporary documents — (a) the period between the end of Dynasty XII and the beginning of Dynasty XVIII which includes the Hyksos period, and (b) the period between the end of Dynasty VI and the beginning of Dynasty XI. Professor Meyer's date for Dynasty IV was based on a scientific attempt to bridge the first gap (the Hyksos period) by means of the accumulating differences between the calendar year and the solar year, which amount to one calendar year in 1460 solar years (the so-called Sothic Period). He relied on a hieratic papyrus from Kahun published by Professor Borchardt, in which temple officials were notified that the heliacal rising of the star Sothis (Sirius) was to fall on the sixteenth day of the seventh month in year seven of Sesostris III, and a reconstruction of four Sothic periods backwards from July 19, A.D. 140–144. In my opinion that attempt has failed because, primarily, of the shortness of the period indicated by that method for Dynasties XIII–XVII. I believe that the only method which remains is that of an addition of the known lengths of the reigns beginning with Dynasty XVIII and working back into the past, to which are to be added reasoned estimates of the lengths of the unknown reigns. As members of that addition, certain groups of reigns must figure with wide limits of error and these limits of error will accumulate as the calculation approaches Dynasty I. For my present purpose, as an approximate indication of the date of Mycerinus, I estimate that the first year of Sneferuw falls somewhere within the period 3100–2900 B.C. (3000±100 B.C.). Mycerinus died about 100 years later or about 2900±100 B.C.

As I said early in this chapter, the division in the family of Cheops and the subsequent dynastic troubles were due to rivalry for the throne among the children of his various wives. I have no doubt that the three kings whose names are uncertain (X-1 = Bakara?; X-2 = Neferkara?; X-3 = Dedefptah??) were descendants of Radedef and formed the leading persons of the secondary branch of the family. The first reign to be seriously affected was that of Chephren. He had evidently intended to build small pyramids for his queens along the southern side of his pyramid as did his son Mycerinus after him, but he never carried out this intention. One small pyramid was certainly nearly finished when he died but was probably never used. Very few of his family are buried in cased mastabas. Most of them, Khamerernebti I, his chief queen, Prince Sekhemkara and Prince Nekauwra both claiming the title of eldest son, Queen Per(senti) the mother of Nekauwra, Queen Meresankh III and her son, Prince Nebemakhet — were buried in cheap rock-cut tombs. It is probable that all these rock-cut tombs were prepared after the death of Chephren. In any case, Chephren had not prepared the customary types of tombs for these members of his own family. His full resources were being taken by the effort to complete his funerary monuments, only a little less in grandeur than those of Cheops. Something happened to delay or prevent his completing the subsidiary tombs of his family, and I have no doubt that the cause was the more or less open revolt of the descendants of Radedef. The point on which I feel doubt is whether Bakara (?) and X-2 had short reigns as rebels during the reign of Chephren or whether they intervened between Chephren and Mycerinus with a few years of interlude during which Mycerinus was seeking to establish his control of the kingdom. In any case, Mycerinus succeeded to the troubles of his father, Chephren; and it was probably during the early part of his reign that the rock-cut tombs of his father's family, including that of his own mother Khamerernebti I, were excavated in the cliff southeast of the Second Pyramid.

Once firmly in the saddle, Mycerinus began the preparation of a pyramid smaller than those of his father and grandfather, but designed to be cased in Assuan granite, with two large granite-cased temples, and three pyramids for his queens, at least one of which was to be cased in granite. The expenditure contemplated was not much less than that of his ancestors, and the statues which he ordered were only a little less in number and in size than those of his father Chephren. All this costly work was proceeding when Mycerinus died quite unexpectedly. The pyramid was then cased in granite to about a third of its height; the outer part of the pyramid temple was partly cased, the offering room in red granite and the rest in black; the inner temple had been begun in red granite, but the limestone core-walls which were

to form the dividing walls of the rooms in the southeastern part of the outer temple had not yet been set up. At the valley temple the limestone core-walls were all unfinished. At the pyramid of the chief queen, the granite casing had been begun and the limestone foundations for the small temple had been set in place. The cores only of the other two small pyramids had been constructed and were perhaps incomplete. Many of the statues and vessels were unfinished and were deposited in the temples in all stages of manufacture. His son Shepseskaf hurriedly finished the pyramid in limestone and the temples in crude brick, set the unfinished statues and vessels in the temple magazines, and appears to have endowed the funerary services of his father in the second year of his own reign.

When Mycerinus came to the throne a large part of his father's immediate household was still alive. The evidence is clear for Queen Khamerernebti I, the mother of Mycerinus, Queen Per(senti), Queen Meresankh III, and doubtful for Queen Hezhekenuw. Khamerernebti and Per(senti) were daughters of Cheops (sisters of Chephren), while Meresankh was a granddaughter of Cheops and a niece of Chephren. Other persons of the older generation, that of Chephren, were no doubt still alive, with their burial-places already prepared in the royal cemetery of Cheops. The blond Hetep-heres II, daughter of Cheops, was certainly living, and perhaps her third husband Ankh-haf. We also know of others who may have been witnesses of the accession of Mycerinus — Prince Khufuw-khaf, Prince Min-khaf, Prince Duwanehor, and Prince Neferma'at of Giza. Of the royal princes and princesses, the brothers and sisters of Mycerinus, we have the names of Prince Nekauwra, Prince Sekhemkara, Prince Nebemakhet, Prince Duwanera, Princess Khamerernebti II, and Princess Shepseset-kauw. A number of other names may ultimately be assembled of royal children and grandchildren alive at the accession of Mycerinus, but that must await the final reconstruction of the history of the whole Giza cemetery. Most of the persons of the older generation died during the 18 years assigned to the reign of Mycerinus; but at the death of Mycerinus, the blond Hetep-heres II, daughter of Cheops, was still vigorous; her daughter, Meresankh III widow of Chephren, Prince Sekhemkara, Prince Nebemakhet, Princess Shepseset-kauw, and probably other children of Chephren were also alive.

Queen Khamerernebti II, the full sister of Mycerinus, is fully documented by the inscriptions of the Galarza tomb and the tomb of Khuwnera in the Mycerinus quarry, as the daughter of Khamerernebti I and the wife of Mycerinus. We know only one of her children, Khuwnera, the son of Mycerinus. Her tomb was probably the small pyramid G III-a. In the floor of the temple of that pyramid was carefully buried a small jar containing model stone vessels bearing the name of the "king's son, Kay"; and it is possible that Kay was another of her sons. Whether she was the mother of Shepseskaf or not, is uncertain. Mycerinus had of course other queens, two of whom were probably buried in the small pyramids G III-b and c. But the absence of inscriptions or reliefs in the crude-brick chapels of the pyramids of the queens, the complete plundering of the burial chambers, and the lack of inscribed stone coffins, have obscured our knowledge of their names and their personalities. The members of the immediate family of Mycerinus whose portraits appear most clearly are Mycerinus himself, Queen Khamerernebti II, and Prince Khuwnera. The queen is seen in the female figure of the slate pair and indeed in the figures of the goddesses in the triads, which are manifestly carved in her likeness. She is also represented in relief in the tomb of her son Prince Khuwnera. Prince Khuwnera is himself pictured in the same tomb both as a boy and as a man, and is represented as a squatting scribe in a small statuette now in Boston. Mycerinus is portrayed by the slate pair, the broken alabaster statue, the nearly complete alabaster statue, the alabaster head (in Cairo), the king in the four slate triads, and by several unfinished statuettes — a total of more than nine portraits. Whether the youthful alabaster head is a portrait of Shepseskaf, as I thought for a long time, or is a portrait of Mycerinus as a young man must be left undetermined. Our picture of Mycerinus is clear, a man with head proportionally small compared to the large broad-shouldered body. His face was full, in later life with heavy lips and bulging eyes. The best portrait of him is, I think, the large, fragmentary alabaster statue in Boston.

With Mycerinus, Egyptian sculptural art had reached its highest point in forms, technique, and the use of hard stone. The same craftsmen who had worked for Chephren, or many of them, were still active and no appreciable advance had been made over the statues of the preceding generation. As for the reliefs, the climax in limestone had been reached in the reign of Cheops or perhaps even as early as

Sneferuw. The carving of sunk reliefs in granite was used in making inscriptions as early as the reign of Chephren; but this hard stone seems to have discouraged the carving of true reliefs during the whole Old Kingdom. The high standard attained in both statuary and reliefs by the craftsmen who worked for Mycerinus and his direct ancestors was to be maintained and widely distributed during Dynasties V and VI, and to decline towards the end of Dynasty VI with a rapid deterioration in the succeeding obscure period. But when Egyptian sculpture revived in Dynasties XI–XII, the influence of the forms and of the technical methods of Dynasty IV is plainly visible and can be traced down to the end of Egyptian art.

In architecture, likewise, the royal family of Dynasty IV played a great rôle. The first characteristic Egyptian architecture was developed during Dynasties I and II, using crude brick with wooden doorways, columns, and roofs. The forms of the crude-brick architecture were translated into limestone by Imhotep and used by him in the temples and chapels of the Step Pyramid at Saqqarah, the tomb of Zoser, first king of Dynasty III.¹ Imhotep generally used small blocks of limestone in his finer masonry and small blocks in the core of the pyramid. About eighty years later, Sneferuw and Cheops were using much more massive blocks in the cores, in the casings, and in the wall masonry. The architects of Cheops began the substitution of hard stone (basalt and granite) for limestone in walls and casings, and this development was continued during the succeeding reigns of Dynasty IV. It was the use of this more obdurate material, not yet perfectly mastered in the mass, which produced the archaic appearance of the valley temple of Chephren (the granite temple beside the Great Sphinx) with its square granite pillars. In Dynasty V the use of granite had been carried further, as is shown by the beautiful palm-columns of the temple of King Sahura (excavated by the Germans at Abusîr). The thickness of the walls, which is so characteristic and necessary in the larger forms of the crude-brick architecture, was never eradicated from the stone architecture of Dynasty IV, and the imitation of the wooden parts of the structure continued unabated to the end of the Old Kingdom. Shepseskaf, the son of Mycerinus and the last king of the family descended from Sneferuw and Hetep-heres I, used the characteristic massive masonry of Dynasty IV in his mastaba at Dahshûr (Mastabat-el-Faraon). But in Dynasty V the pyramids had become smaller and far less solid in construction, although in other ways an advance was made in the structural use of stone.

In metal working, in the manufacture of vessels of stone and pottery, in wood working, and in all the other crafts, the men who worked for the royal family of Dynasty IV exhibit an excellence which may have been attained before their time but was certainly never excelled in later times. The beautiful gold-cased furniture of Queen Hetep-heres I, the mother of Cheops, has now been recovered with all the joints, tenons, and mortises of its woodwork preserved in the shrunken wood, or indicated by the marks on the gold cases. The carrying chair in its graceful lines and restrained decoration is a singular testimony to the skill of the craftsmen and their artistic sense. The silver anklets decorated with dragon flies inlaid with turquoise, lapis lazuli, and carnelian would be a notable achievement for the jewelers of any age. The panels inlaid with faience and gold, some in well-known and others in quite unexpected patterns, the gold hieroglyphics on the carrying chair, the gold and copper toilet implements, and three small gold vessels, and above all the wonderful reliefs on the door-jambs of the bed-canopy, reveal the invention, the skill, and the distinguished taste of the family of Hetep-heres. For most of these objects appear to have been taken from her own palace. Hetep-heres was the mother of Dynasty IV; and her descendants were the kings under whom the Egyptian architects and sculptors were to produce the most famous of Egyptian monuments — the pyramids of Giza, the Great Sphinx, and the portraits of Chephren and Mycerinus.

The chief gods of this family, as recorded in their inscriptions, were Ra, Horus, Ptah, and Thoth; the chief goddess was Hathor-Mistress-of-the-Sycamore-Tree, but the frog goddess Hekat was also a favorite and Neith is mentioned. The god of the dead was Anubis. Osiris does not occur in any of the inscriptions of the family. The temple services were probably similar to those of later times, consisting of the care of the property of the god, the presentation of offerings and prayers for the well-being and prosperity of the king and of individuals. The king was Horus, son of Ra, and when he died became Ra

¹ See C. M. Firth in *Annales*, 1924–1930.

in the heavens. The temple services were probably similar to those of later times, and apart from the care of the buildings, the statues, the altars, and the equipment of vessels and implements, consisted of glorifications and the presentation of offerings intended to gratify and propitiate the gods. In addition to daily services there were great festivals in which the whole community participated. The temple staff and the services were supported by endowments of lands and fixed proportions of various sources of royal income, and the king appears to have been the chief person named to the gods in the temple ceremonies. In the great festivals held in temples of the capital city the king "appeared" in full royal regalia or in a ceremonial dress of peculiar traditional form. But of course every participant in the festivals and in the ordinary services profited in some way; and there was a multitude of private offerings and prayers on behalf of individuals which were duly paid for and duly booked as part of the income accruing to the priests and officials of the temple. Each temple appears to have had its separate and independent organization. As far as can be seen there was no national religious organization. The two greatest religious functionaries of which we know were the high-priest of Ptah at Memphis and the high-priest of Ra at Heliopolis.

The temple services were mainly for the benefit of the living. The provision of a satisfactory life after death was secured by elaborate tombs of various kinds and by private endowments of agricultural land. The belief which lay behind the funerary customs and practices is found all over the world. Life after death went on as it did on earth. The spirit or *ka* of the dead had the same physical needs as when living — food, drink, sleep, amusements, and sports, and the desire to see his family life going on around him. The spirit lived as a member of a familiar community, not as an isolated soul dwelling in darkness or among strangers. In the Egyptian prehistoric period the household furniture and the personal equipment of the man or woman were buried in the grave, and that practice continued all through the first six dynasties and with modifications until very late times. The pyramid age beginning with Dynasty III was characterized by the use of elaborate tombs of the mastaba or pyramid type in which, in addition to the supply of food and furniture placed in the burial-chamber, an elaborate apparatus was invented consisting of paintings, inscriptions, and painted reliefs placed on the walls of the offering chambers in order to provide further for the daily necessities of the dead. It was a futile endeavor on the part of the men of the pyramid age to provide all the growing host of the spirit world for all time with the simulacrum of the life they had enjoyed on earth. The endeavor was doomed to failure and went far to ruin the economic basis of life of the Egyptian state during the Old Kingdom.

The written remains of the pyramid age are surprisingly abundant considering the antiquity of the period. We have a large number of the funerary offering formulas, several copies of the early form of the negative confession of the dead, the magical texts found in the pyramids of Dynasties V–VI, a number of autobiographies of important men, several wills and testaments, four or five royal decrees, and certain later copies of more ancient writings which include annals, wise sayings, medical recipes, and folk stories. All these combine to give a general picture of the culture which the ruling family assisted to create and in which they lived. The proverbs of Ptah-hotep were a characteristic product of this age of simple human materialism, in which men lived for themselves and their immediate families. The inclination must be checked to read into this life the ideals or intellectual activities of our own time.

The administration of the country was on a simple monarchical basis. The king was a god and the appointing power to all offices. Even offices which passed from father to son required royal confirmation of each heir in turn. The thing which was prized most highly by every biographer was the favor of the king. The position of the king was secured primarily by the fighting forces of his clan and of allied and subordinated clans. In Dynasty IV the military organization covered the whole country and its boundaries with a network of garrisoned forts or fortified cities. The army was organized probably on a tribal basis, with the central command at the capital city, and controlled by orders given in the name of the king. Its work consisted mainly in the maintenance of the peace, the support of the civil authorities, the protection of royal expeditions into the desert or into Nubia, and the suppression of revolt. The commander-in-chief was usually but not always a prince of the royal family. The civil administration appears to have been highly organized also, with a central authority at court and provincial governors appointed by the king. The royal income consisted of that from the king's personal estate

and from the biennial collection of taxes of various sorts. The administration of the king's personal estate was separate and was not essentially different from the administration of a private agricultural estate. The income passed apparently with the tax receipts into a common treasury. In any case the tax receipts were treated by the king as private income. The treasury as a receiving office was divided into two departments, an Upper Egyptian treasury and a Lower Egyptian treasury, and these again were subdivided into stores for gold and silver, cattle, grain, etc.; but all departments were under one head which was in charge of all records of receipts and payments. Payments were made by written orders given on the authority of the king through the chancellor. All the officials at court were paid thus according to fixed allowances and standing orders. The method of payment of the provincial governors and their staffs is obscure. The governors, who usually owned large private estates, may have been nominally unpaid officials. But their subordinates were of course on salary, either paid from local receipts or from the treasury; and it is natural to suppose that the provincial as well as the court officials enjoyed perquisites which never appeared in the books of the treasury department. In addition to the ordinary administrative expenditures there was a constant stream of unusual payments by the king — special favors shown to individuals, as when Mycerinus ordered fifty men to work on the tomb of Debehen. In every reign there was also a series of endowments for temples and for funerary chapels, and payments for new construction; and of course the king appears to have acquired new estates from time to time, but whether by payment from the treasury or by confiscation remains uncertain.

The great pyramids built by the Department of Works give visible proof of the wonderful organization and high efficiency of that department. One branch had charge of the exploitation of the mines and quarries of Egypt and Sinai. At Magharah in Sinai, where copper and turquoise were obtained, and in the alabaster quarry of Hatnub, inscriptions have been found recording visits of royal expeditions of Dynasty IV. In the granite quarries of Wady Hammamât and Assuan the records include inscriptions of Dynasties V and VI, but the Assuan deposits were certainly worked in Dynasty IV. The white limestone of Turah, the nummulitic stone of Giza, the basalt of Abu Zabel, were also exploited; and at places which cannot be so definitely named, gold, copper, various mineral colors, sulphate of lime, natron, salt, and various other substances were systematically extracted. All these activities and the ensuing transport of materials to the capital were among the duties of the public works service. In fact the transport organization provided the nomenclature of a large department, the divisions of which were called "crews," further subdivided into watches; and these crews appear to have extracted the granite blocks from the masses of stones at Assuan, to have transported them to the site of the structure for which they were intended, and actually to have set them in place. The stone workers who prepared the granite blocks for setting and dressed the walls after the structure was finished apparently belonged to a separate division. The drawing of the plans, the marking of the plan on the foundations and of the leveling lines on the walls were also the work of the department, but probably of a separate architectural division. The public works department constructed the pyramids and mastabas of the royal family, the palaces, and the temples, and made the gardens, the canals, and the artificial lakes of the king's estates. The irrigation works in the provinces were under the provincial governors, who probably had works organizations similar to that of the court and no doubt directly connected with the larger organization.

The trading expeditions to the Sudan were under the governor of Assuan but were directly responsible to the court. The inscriptions of the leaders of these expeditions give accounts of their travels but unfortunately do not throw much light on the manner of trading. They supplied the king with ivory, ostrich feathers, ebony and other woods, leopard and panther skins, resins and other vegetable substances, gold, black slaves, and other products of the southland. Similar expeditions went by ship from the Red Sea ports opposite Thebes to Punt (a land on the Somali coast?) and brought back similar products. Other expeditions went by sea to the Syrian coast to obtain cedar of Lebanon and no doubt much else. Olive oil was certainly imported from Palestine and Syria during Dynasty IV. Even a wider trade with the Greek Isles may be suspected, but direct information is lacking. These trading expeditions were entirely different from raiding parties or military expeditions looting foreign countries, and were in fact royal merchandising parties sent out by the king in his personal capacity just as his private estates were administered, but with the prestige of the king of Egypt and with the resources of his king-

dom. The goods brought back to Egypt went into the royal store-houses, not for sale but for the use of the royal family and such persons as might be favored by the king with presents.

The work of the administration was controlled and regulated by a careful system of written records and accounts. The head of every administrative department, the king's estate, the king's household, every temple, and every judicial body, had a separate organization of scribes, and every higher official had at least one writer attached to his office. Letters were written and documents prepared; copies were made to be retained and other records were kept of all orders and transactions, including receipts and expenditures in the most minute detail. It was probably the king's personal office of scribes which kept the clearing-house for all the administrative documents and general archives. The archives of the king contained those records on which the annals such as the Palermo stone and the Turin Papyrus were based, but it seems clear that certain great temple archives also kept copies of documents which emphasized the royal acts of greatest interest to the priests of the temples in question. Unfortunately, in Egypt the material used was papyrus and most of these written records have decayed or been eaten by white ants. In Babylonia, where the records were written on clay and baked, an enormous mass of such documents has been preserved to us. It should never be forgotten that writing in both Egypt and Babylonia was invented for practical purposes and came only secondarily to be used to preserve what may now be called literary productions.

Such in brief was the Egypt of Dynasty IV, of the family descended from Sneferuw and Hetepheres I. The time was not far from the climax of the great creative period of Egyptian culture. The high attainments of the Egyptians of that distant age exceed anything the world had known before in architecture and sculpture; and the expenditure on mighty monuments which have resisted destruction until our day exceeded that of any period of Egyptian history.

In considering the great work of this family it is of the highest historical interest to follow its effect in the succeeding generations. During the next two dynasties, Dynasties V and VI, Egyptian culture in all its phases was well maintained and in some ways still progressive. It is noticeable, however, that the royal pyramids were less expensive, smaller in size and less solidly built; and the great fields of royal mastabas, such as were laid out on a unified plan at Giza, are wanting. This change in the resources of the royal family is symptomatic of the change in the general economic situation. Some of the finest and most expensive mastabas of high officials were built at Saqqarah during Dynasties V and VI, and in Upper Egypt the provincial leaders provided for themselves a series of well-cut and finely decorated tombs hollowed in the limestone cliffs. Certainly the evidence points to a more general distribution of wealth instead of the extreme concentration so marked in Dynasty IV. In Dynasty VI, especially towards the end, a distinct loss of craftsmanship is visible in the sculpture. At the end of that dynasty came the extraordinarily long reign of Pepy II (94 years) in which, except for the signs noted above, the Egyptian monarchy seemed to be fixed on unalterable foundations. His successor, Mernera II, ruled a year or so and then, as far as we can see, came chaos. That was about three hundred years after the death of Mycerinus. The Egyptian social state was built on a framework of clans each occupying its own part of the valley and held in union by military power. The development of Egypt during the pyramid age had resulted in the breakdown of the force which held the country together and the state broke up into its tribal units or into small tribal confederations. This condition of decentralization lasted for about three centuries. There appear to have been almost no great men during this period. The multitude of tombs which have been excavated in Upper Egypt show a pitiful degeneration of the sculptures of the Old Kingdom, and the whole grave furniture is on the same comparative level, although many of the owners claim titles which in Dynasties IV-VI were held by royal princes and the highest officials. It is manifest that no one commanded the resources necessary to the training of great craftsmen. There was a dead level of wealth and of cultural attainment.

The cause has often been sought in some change in the river. The physical basis of life in Egypt has always been the black agricultural land of the valley and its delta, and so it remains today. It is obvious that any considerable drop in the level of the river bed would affect irrigation, but under a stable government the necessary alterations could have been carried out in a few decades or less. Any

variation in the supply of water, which depended on climatic conditions in central Africa which are of a very unchanging nature, would also have been only temporary. There is no evidence of any alteration in the river or the climate which would justify ascribing to natural causes the impoverishment of Egypt at the end of the pyramid age.

The cause of the long period of depression was certainly political, and the political cause was itself due to economic reasons. I have said that the extravagance of the royal family of Dynasty IV exceeded that of any other period. The pyramids are the outward and visible sign of this extravagance. From the point of view of Egyptian culture, the effects of their construction were of incalculable benefit — the training of craftsmen probably assembled from all over Egypt, the advance of technical methods, the creation of new forms, the invention of tools, the disciplining of large bodies of workmen to united action, and the development of a highly specialized department of public works. The workshops of the Giza pyramids were in fact great schools of the arts and crafts from which knowledge was spread all over Egypt. But on the other hand the unproductive use of bodies of twenty to fifty thousand workmen during the century of the building of the pyramids must have made a great difference in the personal estate and the resources of the kings. To make the matter clear, let us suppose that the same labor had been expended on the making of irrigation and drainage canals and in bringing new land under cultivation. The cost in food and oversight would have been the same but an enormously productive property would have been created which would have increased the wealth and power of the king. The labor was no doubt forced Egyptian labor (*corvée*), a form of taxation which persisted until quite recent times. In all probability the rations of these workmen were supplied from the royal treasury; and certainly the great staff of overseers and master-craftsmen were both maintained and generously rewarded by the king. Thus not only was the accumulation of a surplus by the king seriously affected, but the conditions were prepared for widespread discontent both among the peasantry and among the provincial chiefs whose resources were diminished by the withdrawal of able-bodied men from the fields.

Another factor in the dissipation of the king's estate in Dynasty IV was the distribution of the landed property among the numerous children of the monarch. In the case of Meresankh III, a granddaughter of Cheops, a list of eleven fields is preserved which from their names had been bequeathed by Cheops to Hetep-heres II and passed on to her daughter's funerary estate. We know the names of some thirty to forty other estates from the mutilated and imperfect lists in the Giza mastabas; and it may be estimated that several hundred fields of Cheops passed into funerary endowments. These were of course only a part of the property distributed among his children. Similar facts are known for the reign of Chephren; and a proportional distribution may be inferred for Radedef, Mycerinus, and Shepseskaf. In addition there were grants of land to the funerary estates of the kings themselves, to temples, and to royal favorites. The holdings of the king in agricultural land in the time of Cheops and Chephren must have been very large, but we have no evidence of the method by which the kings acquired this land. If it was acquired by purchase, it was a very wise use of the accumulated surplus of the royal revenue — a surplus that was in the main physical, consisting of grain, cattle, serfs, metals, and other materials. If the land was taken forcibly, and in that term I would include any quasi-judicial procedure in the king's name, then the acquisition must have led to widespread grievances among the land-holding class. In either case, the property was dissipated by bequests and gifts instead of passing *en bloc* to strengthen the power of his successor. It is almost axiomatic that the rivalry in ostentation between the two main branches of the family of Cheops tended to increase the expenditure on tombs and grants of land.

The economic effect must not be overlooked of the funerary endowments, which assumed such great proportions in Dynasty IV and continued unabated during Dynasties V and VI. The income of this land was used to support a growing body of funerary priests who performed no productive service whatever and were of no military value in maintaining national discipline. By the end of Dynasty IV hundreds of agricultural fields had passed from the possession of the royal family to that of private persons whose only service was the bringing of sham offerings and the recitation of formulas to provide the spirits of the dead with spirit food and drink. This example was followed by all well-to-do families at court and in the provinces. The endowments were subdivided by inheritance during Dynasties V and VI to the

ultimate limit, and the personnel of the funerary service proportionally increased. The strength of the royal family and of the land-owning families was weakened and a great number of small estates created. The effect was a general leveling of the extreme inequalities of wealth visible in the reign of Cheops.

The breakdown of Dynasty IV, one of the greatest of the Egyptian dynasties, was inherent in the extravagant constructions and the dissipation of the royal estate. The dissensions in the family under these circumstances resulted in such military weakness that a coalition of three strong men, Weserkaf, Sahura, and Neferirkara, who by Egyptian folk-tradition were brothers, was able to displace the royal family of Sneferuw and Hetep-heres and take the throne as the first three kings of Dynasty V. The new royal family of Dynasty V does not seem firmly established until the reign of the sixth king, Neweserra. The antecedents of the family are obscure, but it is clear that Neweserra at least was allied by marriage with the older family. During Dynasties V and VI the amount expended on pyramid-building became less and less, a symptom rather of the decreasing wealth and power of the kings than of a lessened desire for extravagant ostentation. The strength of the monarchy was visibly diminished and the time came when, at the end of Dynasty VI, united Egypt yielded to the disruptive influence of the tribal elements of which the population was composed.

The military monarchy of Egypt had been created by Menes, the first king of Dynasty I, and firmly established by a civil administration brought to a high level by Menes and his successors. Our knowledge is hampered by the paucity of details. But the resources and the power of the kings increased with natural ups and downs until the time of Cheops. The period of great extravagance may be said to have begun with Zoser, the first king of Dynasty III, and certainly reached its maximum in the reigns of Cheops and Chephren. And from that time of maximum extravagance begins the decline which ended in the dissolution of the military monarchy established by Menes. Traditionally, the first six dynasties have been divided into an archaic or protodynastic period, which includes either Dynasties I-II or Dynasties I-III, and into the Old Kingdom, which includes either Dynasties III-VI or Dynasties IV-VI. At present I divide them as follows:

- a. Protodynastic Period, Dynasties I-II; the period of crude-brick architecture.
- b. Old Kingdom, Dynasties III-VI; the period of stone architecture.

These divisions are cultural and may of course be varied by the view which the historian takes of the cultural development. Politically the period is all one, the period of the rise and fall of the first organized administration of a united Egypt. Nothing comparable in extent and permanence was developed in the nearly coeval monarchies of Mesopotamia. The first Egyptian monarchy lasted about a thousand years, favored by the geographical situation of the land. The position of Mycerinus and his ancestors of Dynasty IV in the history of this monarchy is clear. Their time was the climax of the whole period; but they preceded and induced the decline which ended with the disruption of the government. The mighty monuments they built have persisted to our day and in some tombs the colors are still bright after nearly five thousand years. They wasted the substance of the land, but the modern world is richer in knowledge and in artistic possessions because of that very human failing.

APPENDICES

APPENDIX A

THE DEBEHEN INSCRIPTION AND THE *HER*-PYRAMID

THE whole of the Debehen inscription turns on the meaning of the words *r gš hr* (*det., pyramid*). This expression has received generally the obvious translation "beside the *Her*-pyramid" and the *Her*-pyramid has been variously identified with that of Mycerinus, one of the small pyramids south of the Third Pyramid, and even with that of Dedefra at Abu Roash. It is now certain that the name of the pyramid of Mycerinus was "Mycerinus-is-divine" and the context of the Debehen inscription has always excluded the pyramid at Abu Roash. The suggestion of Professor Breasted¹ that the *Her*-pyramid was one of the three small pyramids is made nearly impossible by the fact that the ground under them on the north is two to three meters lower than the floor of the pyramid temple of the Third Pyramid. They were far less advanced than the Third Pyramid at the death of Mycerinus, and it would be impossible to see the Debehen tomb under the cliff from the top of any one of them as it stood during the construction of the Third Pyramid. There remains the unfinished pyramid north of the Mycerinus valley temple. This structure would satisfy the requirements of the inscription; but I am of the opinion that the unfinished pyramid was begun by Shepseskaf after the death of Mycerinus. Moreover, the use of the name of a pyramid without including the name of its owner is unusual in the Old Kingdom, and *hr* alone would hardly be the name of a pyramid.

The solution I think lies in the meaning of the word *gš*, which should not be translated "side," but "domain," "estate," "administration," or something similar, as in the phrases *gš pr* and *gšw pr*. In the inscription of Werekhwuw,² a priest of Mycerinus who lived in Dynasty V, the title *imy-r} gš imy-wrt hr* (*pyramid*) *c}* is claimed by this man. This same expression *gš imy-wrt* occurs repeatedly in the quarry marks on the granite casing in the Mycerinus pyramid temple, parallel to *gš ntr* (?), *gš tr* (?) *nšwt*, and accompanied in all three cases by the words *hmwt smyt*. There seems to me no reason to doubt that the *gš imy-wrt* was the name of a domain or administration which along with other domains supplied craftsmen for the work on the pyramid and in the quarries, and probably provided their rations. Now the Debehen inscription makes it clear that Mycerinus was going to the site of the Third Pyramid. The conclusion is obvious that the preposition *r* in the phrase *r gš hr mr* (?) should be translated "to," "towards"; and the place referred to was the site of the Third Pyramid. The word *gš* seems to mean the central working administration, almost the modern expression "works"; and *hr*, simply "the pyramid-cemetery" which included at the time the large pyramid and the three small pyramids. The word *hr* is probably related to *hry-t* "cemetery," "tomb." The name *gš imy-wrt* probably continued in use to designate a department of works, and the expression *hr* might also have been applied to another pyramid cemetery after Mycerinus; but the priest Werekhwuw, who served the Third Pyramid, and was buried not far from the valley temple, may easily have been alive in the reign of Mycerinus and served as the overseer of the *gš imy-wrt*, while it was employed on the building of the Third Pyramid.

The text of the Debehen inscription is very imperfectly preserved, but is best given by Professor Sethe.³ With the interpretation proposed above, the translation becomes:

- Line 2. "As for this tomb, the king of Upper and Lower Egypt, Mycerinus [living forever] caused it to be made, when [His Majesty was upon] the road to the works of the pyramid cemetery in order to see the work of making the pyramid "Mycerinus-is-divine."
- " 3. [His Majesty commanded to come] the director of [transport] together with the great-master-of-stone-workers (High-priest of Memphis?) and the stone-workers.
- " 4. They were standing before it (the Debehen tomb) in order to see the work of making [this tomb], [and His Majesty] assigned 50 men to work on it every day; and decreed to (?) them the completion of the *wa'bat* (i.e., a part of the tomb).
- " 5. His Majesty ordered that [no man should be taken] for any forced labor, other than working on it, until it was finished.
- " 6. His Majesty ordered moreover the clearing of the site.....this tomb.
- " 7. His Majesty ordered.....in order to clear the site.....
[His Majesty ordered] to come the two treasurers of the god; His Majesty said.....
- " 8. (Illegible except the words: that which they gave)
- " 9. (First half illegible).....
His Majesty decided (?) that he would go round the works decreed (or, that he should go around, as Breasted translates).
- " 10.in bringing (?) it, the bringing of stone from Turah in order to case therewith the chapel, together with two false doors for this tomb.
- " 11. By the master of transport, together with the great-master-of-stone-workers (high-priest of Memphis?) together with the royal mason, it was come
- " 12.the bringing of a statue for me, living and very great

¹ Breasted, *Ancient Records I*, p. 94, note c.

² Sethe, *Urkunden I*, p. 47.

³ Sethe, *Urkunden I*, pp. 18-21. See also Professor Breasted's translation in *Ancient Records I*, p. 94.

- " 13.as a daily ration.
To-day it is finished on its mountain together with its *wa'bat*.
- " 14.(half a line).
together with two statues of the assistant, of which one
- " 15. was of.....(and the other of).....feast of Apis in the temple
- " 16.(half a line)
[He made] these that he might be honored before his lord.
- " 17.(half a line) for my father and mother.
They built.
- " 18. (half a line gone) green cosmetic, black cosmetic.....
- " 19. (incomprehensible)
- " 20. An order of the king was made to the overseer of.....to make a tomb [100?] ells in length,
- " 21. 50 ells in width, andells [in height].....more than made my father while he was alive.
His Majesty gave moreover.....(end of inscription, as far as executed).


The tomb mentioned in lines 20 and 21, is much larger than the Debehen tomb and must be a mastaba built for Debehen by his son who appears to have prepared the inscription. This mastaba may have stood on the cliff above the rock-cut tomb. Unfortunately the name of Debehen's son has not been preserved.

APPENDIX B

DESCRIPTION OF BURIALS AND OBJECTS FOUND IN THE COMMUNAL BURIAL OF THE ROMAN PERIOD IN ROOM (27) OF THE MYCERINUS PYRAMID TEMPLE

THE room (27) is divided into seven spaces by the six columns which stand in a row across the middle of the room. These spaces are lettered *t, u, v, w, x, y, and z* from north to south. The space *z*, between the sixth pillar and the south wall was left until the last for clearing on account of the apparent insecurity of the roof. In *t* (East) at 230 cm. from the roof, and 160 cm. below the surface of the drift sand, two human skulls, a human leg and pelvis, and some leg bones of a camel were found scattered. Practically on the same level were the bodies:

- No. 1. Wrapped in rough linen caked with resin, stiffened with a wooden rod up the back from feet to head. Lying face down, head south. *tu, E, -230 cm., Photo. C 454.*
- Nos. 2, 3. Like No. 1, and underneath it. Photo. C 455, 289, 290.
- Nos. 4-10. Fragments of mummies similar to No. 1. Under break in roof. On the breast of No. 7, a small piece of oxidized bronze. *uvw, -230 cm. Photo. B 30, 31.*
- No. 11. Body wrapped in linen with painted plaster coating. On back, head west. *u, E, -280 cm.*
- Nos. 12-17, 19. Mummies similar to No. 1. On back, head south. *v, E, -280 cm.*
- No. 18. Skull of a cow, under foot of No. 11. *w, E, -280 cm.*
- Nos. 20-22. Mummies similar to No. 1. Upright on feet against east wall. *v, E, -300 cm. (heads).*
- Nos. 23-32. Mummies similar to No. 1, lying at various angles. Disturbed. Some scattered bones. Beside first pillar on the north side, some large green glazed cylinder beads (07-2-11). *tuw, -300 cm.* In the right hand of No. 23, (Photo. B 130) was a bronze coin (Roman), Photo. C 419. (07-2-95.)
- Nos. 33-42. Mummies and parts of mummies similar to No. 1. Nos. 33, 34 with heads west; No. 35 with head east; Nos. 36-40 with heads south; No. 41 broken up; No. 42 head east. No. 40 was on a board. *tuw, -330 cm. Photo. C 299, 447, 448.*
- On the same level in the sand:
- 07-2-12 Two-handled cooking pot of red-brown ware, ribbed. Photo. C 490, 424. Half filled with organic matter and remains of insects. Diam. 22 cm. Beside No. 33.
- 07-2-13 Similar pot without handles. Photo. C. 496. Same contents as 07-2-12. Diam. 21.5 cm. Beside No. 40.
- 07-2-14 Skull and other bones of a camel. Beside No. 40.
- 07-2-15 Long pole (from a mummy, or carrying-rod for a coffin). L. *ca.* 180 cm.
- 07-2-16 Strip of mummy cloth coated with plaster and painted. Beside No. 38.
- 07-2-17 Scarab of green glazed steatite. At the head of No. 40. Photo. C 2890 2/1, 4/1. Name of *Menkheperra.*
- 07-2-18 Fragments of a large two-handled jar like Photo. B 220, of smooth brown ware.
- 07-2-19 Wooden mask from a coffin.
- Nos. 43-44. Omitted.
- Nos. 45-46. Mummies like No. 1. At angles, head NW.
- No. 47. Mummy with reed stiffening between layers of wrappings. Head lost. On the neck, a mass of bead necklaces and amulets.
- 07-2-20 String of small dark blue glazed ring-beads, with a small spiral shell at intervals of from 18 to 25 beads. Longer series of small beads occur, but seem to be due to the breaking of the shells. There were either three strings, or the same string passed three times around the neck. At places there are groups of larger beads, but both sizes are on the same string.
- 07-2-21 String of similar small blue glazed ring-beads, with slender barrel-shaped white glazed beads at intervals of from 8 to 15 beads. One spiral shell in the middle in front.
- 07-2-22 String of larger bright blue ring-beads, with black glass ball-beads, slender barrel-shaped white glazed beads at irregular intervals (3 to 8 beads). One spiral shell.
- 07-2-23 String of split cowries (l. *ca.* 18 mm.), and bright blue glazed cylindrical beads (l. *ca.* 16 mm.), alternating. One bead is a short twin cylindrical bead.
- 07-2-24 String of bright blue glazed cylindrical beads (l. *ca.* 16 mm.), separated by groups of colored beads. These groups are very irregular, but usually contain two smaller cylindrical beads (l. *ca.* 10 mm.), with separators of colored ring-beads (sometimes missing). The colors are red, yellow, green, and blue.
- 07-2-25 String of disk-beads (diam. 5 mm.), black glazed and white glazed alternating. Occasionally two of a kind fall together, owing perhaps to breakage.
- 07-2-26 String of small red glazed ring-beads with single greenish-yellow ring-bead at intervals of two to four beads. Some blue beads break the order at intervals.
- 07-2-27 String of split cowries.
- 28 Carnelian bead, Photo. B 613, No. 1.
- 29 Two gilded bronze breast plates, Photo. B 613, Nos. 2 and 4.
- 30 Pomegranate, paste, Photo. B 613, No. 3.
- 31 Two-handled flask, green faience, Photo. B 613, No. 5.
- 32 Naked boy, Haroeris, blue faience, Photo. B 613, No. 6.
- 33 Naked boy, Haroeris, green faience, Photo. B 613, No. 9.

- 34 Dog-headed ape, green faience, Photo. B 613, No. 7.
 35 Finger-ring with scarab as bezel (was on finger). Photo. B 613, No. 8.
 36 Four figures of Bes, bright blue glaze, Photo. B 613, Nos. 10, 14, 15, 16.
 37 Large *udat*-eye, bright blue glaze with black iris and hair parts, Photo. B 613, No. 11.
 38 Seated cat-headed goddess, large size, beautiful bright blue glaze, Photo. B 613, No. 12.
 39 Small standing figure of cat-headed goddess, bright blue glaze, Photo. B 613, No. 13.
- No. 48. Broken bones and boards. *t*, -330 cm.
 No. 49. Mummy like No. 1. Wrappings decayed; on back, head west. *t*, -350 cm.
 Nos. 50, 51. Skulls, at head of No. 53.
 No. 52. Mummy wrapped as No. 1. On back, head south. *wv*, -350 cm. At feet, outside:
 07-2-40 Figure of Bes, bright blue faience; h. 51 mm. Photo. C 421.
 41 *Udat*-eye, blue faience; l. 17 mm. Photo. C 421.
 07-2-42 Blue beads, cylindrical, annular, and multiform annular. Photo. C 421, on left.
 West of head:
 07-2-43 Small blue Bes-figure, small blue *udat*, a date seed, some blue beads, cylindrical, annular, and multiple annular. Photo. C 421, on right.
 About 50 cm. west of feet:
 07-2-44 Wooden figure of a girl (an ornament from a piece of furniture). H. 18 cm. (excl. dowels). Photo. C 485, 486, 487.
- No. 53. Broken mummy, like No. 1, in decayed coffin of plastered wood, stained red on the inside. *wv*, -350 cm. On the pelvis:
 07-2-45 A scarab of faded glazed steatite. Photo. C 2890, 2/4, 4/4; 419, 1/2.
 At head of coffin, outside:
 07-2-46 One-handed jug of red-brown ware with whitish slip. H. 17.5 cm. Photo. C 492, 493.
 Between No. 52 and No. 53:
 07-2-47 Fragment of skirt of alabaster statue.
 Under feet of No. 52:
 07-2-48 Fragment of basis of alabaster statue.
- Nos. 54, 55. Mummies like No. 1. No. 54, a child, on back, head south; No. 55, adult, wrappings gone, on back, head north. *wv*, floor level. Photo. C 302; B 96, 97.
- No. 56. Body in a wooden coffin. Body was wrapped (1) in cloth (linen?), (2) in a reed mat, (3) in coarse cloth. Laid in a thin wooden inner case, which was heavily plastered. This was in a heavy wooden coffin. The bend at the shoulders of the coffin was made by a mortised joint. The lid was fastened with wooden mortises. The body was extended on the back, head west, hands on pelvis. The body was a male (Dr. Elliot Smith and Dr. Derry), but beside it in the coffin were the bones of a very young baby (perhaps intrusive). These bones were scattered through the coffin, having been disturbed, and a number of small objects beside the legs of the man seemed to come from the baby.
 07-2-49 Four bracelets of twisted fibre.
 50 Two blue glazed plaques, with *udat*-eye in relief on one side. Photo. C 409.
 51 Some blue beads and cowrie shells. Photo. C 409.
 Outside the coffin on the south was:
 07-2-52 A twin dish of wood. Photo. C 484.
 At the feet, but whether in or out of the coffin unclear:
 07-2-53 *Udat*-eye, blue glaze. L. 61.5 mm. Photo. C 2889, 406.
 54 Figure of a cat-headed goddess, green faience. H. 48 mm. Photo. C 2889, 406.
 55 Figure of a sow, greenish-blue faience. L. 36 mm. Photo. C 2889, 406.
 56 Figure (broken) of Isis and Horus, green faience. H. 24 mm. Photo. C 2889, 406.
 57, 58 Two figures of Bes, one green, one blue faience. H. 54 mm., and 25 mm. Photo. C 2889, 406.
 59 Cylindrical beads, green faience.
 60 Double cone beads, faceted, of horn (?).
 61 Cowrie shells.
 62 Skull of a monkey (?)
- No. 57. Disturbed skeleton, fragments of wrappings, and reed mat (cf. No. 56). On back, head south. Was in a wooden coffin.
- No. 58. Mummy on back, head south. *u*, -350 cm.
 On breast:
 07-2-63 String of small shells and blue beads. Photo. C 422. See also 07-2-101.
- Nos. 59-69. Mummies, like No. 1, more or less broken. Several bundles of reeds among them. *wxz*, -300 cm. Scattered in the débris were the following:
 07-2-64 Pair of gazelle horns.
 65 Blue glazed amulet, seated cat-headed goddess, beautiful blue color; was at SE corner of fifth pillar. Photo. B 612 above. H. 64.5 mm.
 07-2-66 Two green glazed plaques, ca. 12 × 10 mm., with *udat*-eye on one side and *waz*  incised on the other. These were west of No. 65. Photo. B 612 above.
 67 Scarab, green glazed steatite. Was beside No. 65 on the east. Photo. B 612, 2/4; C 2890, 1/2, 3/2.
 68 Scarab, green glazed steatite. In black dirt north of 07-2-63. Photo. B 612, 3/3; C 2890, 2/2, 4/2.
 69 Upper part of a figure of a cat-headed goddess, black paste, gilded. Photo. B 612, 2/1; C 407.
 70 Figure, cat-headed goddess, standing, dark blue faience. Photo. B 612, 2/8; C 407.
 71 Five *udat*-eyes, blue glaze. Photo. B 612, 3/2, 4/1-4; C 407.
 72 Ivory plaque, ca. 15 mm. square. Photo. B 612, 1/12; C 407.
 73 Three electrum earrings. Photo. B 612, 1/8-10.
 74 Barrel-shaped blue glazed beads. Photo. B 612.

- 75 Cylindrical blue glazed beads. Photo. B 612.
 76 Four carnelian beads. Photo. B 612, 1/1-4.
 77 Pebble pendant. Photo. B 612, 3/1.
 78 Three small pendants. Photo. B 612, 1/5-7.
 79 Amulet, head-rest, blue glaze. Photo. B 612, 1/11.
 80 Small figure of a cat, blue glaze.
 81 Miscellaneous beads.
 82 Fragments of woven fibre (basket?).
 83 Part of a sandal of woven fibre.
- Nos. 70-79. Stack of ten mummies with reed or pole stiffening; heads mostly west. In *x*, between the fifth and sixth pillars.
 07-2-84 Small vase of clear glass. H. 37 mm. Photo. C 2879, 1/2. Above No. 71.
 Beside left wrist of mummy No. 71:
 07-2-85 Scarab, green glazed steatite. Photo. C 2890, 1/3, 3/3.
 86 Scarab, green glazed steatite. Photo. C 2890, 2/3, 4/3.
 87 Plaque, green glazed steatite, *Menkheperra* in rectangle on one side, two crocodiles on the other. Photo. C 2879, 1/1.
 88 Ivory plaque. Photo. C 2879, 3/1.
 89 Bottle-amulet, blue glaze. Photo. C 2879, 2/2.
 90 Two *udat*-eyes, blue glaze. Photo. C 2879, 3/2-3.
 91 Cowrie shells and green glazed cylindrical beads. Photo. C 2879, 4/1-3, 5/1-6.
- On the floor, west of No. 72:
 07-2-92 Large two-handled jar of smooth drab-brown ware. Photo. B 220.
 Beside the sixth pillar, on the north:
 07-2-93 Large two-handled jar of red-brown ware. Photo. B 221.
- Nos. 80-85. Stack of six mummies in decayed wooden coffins.
 In the SW corner of the room, on the floor:
 07-2-94¹ Large two-handled jar of smooth red-brown ware. Photo. B 220.
 Below these and beside them on the east, was a confused mass of bones, cloth, and mummy cases, badly decayed. On the floor were:
- Nos. 86-87. Mummies, wrappings decayed, each lying on back, head south.
 A number of beads, amulets, and other small objects, were collected from the mass of débris in various parts of the room, as follows:
 Between north wall and first pillar:
 07-2-96 Bronze coin, Roman. Photo. C 419, 1/3.
 97 Scarab, green glazed steatite. Photo. C 409.
 98 Scarab, green glazed steatite, inscription worn off. Photo. C 409.
 99 Bronze plate with four pegs (model table, or plate to be fastened to wood). Photo. C 409.
- Between the second and third pillars:
 07-2-101 Large *udat*-eye of bright blue glaze, with cowrie shells, spiral shells, cylindrical and ring-beads of blue glaze. Photo. C 414, 2878.
- In the same section, lower down:
 07-2-102 Scarab, blue faience, lion and crocodile. Photo. C 415, 2890, 1/1, 3/1.
 103 Figure, cat-headed goddess, blue faience. Photo. C 415.
 104 Three *udat*-eyes of blue faience — two *ca.* 25 mm. long, and one *ca.* 10 mm. long. Photo. C 415.
 105 Cylindrical blue glazed beads. Photo. C 415.
- Between the third and fourth pillars, perhaps belonging to No. 58:
 07-2-106 Figure of cat-headed goddess, blue faience. H. 58 mm. Photo. C 422.
 107 Figure of naked boy, Haroeris, worn blue faience. H. 36 mm. Photo. C 422.
 108 Bronze coin, Roman. Photo. C 419, 1/1.
- On floor débris, just south of third pillar:
 07-2-109 Bracelet of split cowries, found together with heavy cord of twisted fibre. Photo. C 418.
 110 Two blue faience finger-rings, broad bands, open work. Diam. 31 mm., and 28.5 mm. Photo. C 418.
- Between the fourth and fifth pillars, with a mass of painted cloth:
 07-2-111 Small triangular bronze spear-head, with short hollow haft. L. 28 mm. Photo. C 417, Pl. 23 e.
 112 Figure of a cat-headed goddess, standing, green faience. H. 36 mm. Photo. C 417, Pl. 23 e.
 07-2-113 Small *udat*-eye, of green faience. L. 10 mm.
 114 Lot, split cowries, small spiral shells, and blue glazed beads of the following forms: cylindrical, annular, short twin cylindrical. Photo. C 417.
- In débris between the sixth pillar and the wall:
 07-2-115 Two *udat*-eyes of blue faience. L. 38 mm., and 25 mm. Photo. C 412.
 116 Small plaque with incised *udat*-eye, blue faience. L. 11 mm. Photo. C 412.
 117 *Menat*-amulet, green glaze. L. 18 mm. Photo. C 412.
 118 Figure of cat-headed goddess, seated, blue glaze. H. 34 mm. Photo. C 412.
 119 Figure of Isis seated, with Horus on her lap, very rudely cut, green faience. H. 30 mm. Photo. C 412.
 120 Cylindrical and ball-beads of blue-green faience. Photo. C 412.

¹ 07-2-95 is the Roman coin found in the hand of the mummy No. 23, see above, pp. 20, 259.

APPENDIX C

PROVENIENCE LIST OF OBJECTS FOUND IN THE MYCERINUS VALLEY TEMPLE¹

In the great court:

- Middle, south of stone pathway: In surface layer of mud-débris,
No. i. Copper *hes*-vase, see Chap. X, 2, No. 1.
No. 347. Copper harpoon, single barbed, length, 8.6 cm., see Chap. X, 2, No. 19.
- In floor débris,
No. iii. Rough jar, R. W. IV-3.
- Middle, over stone pathway: In floor débris,
+ No. 33. Bowl-stand, R. W. XXII-2.
- Middle, north of stone pathway: In upper mud-débris about on surface of decay of first temple,
No. ii. Shattered nome triad, No. 13, slate.
- In floor débris,
+ No. 34. Coarse "flower-pot," type XXV-1.
+ No. 35. Ring-stand, R. W. XXIV-5.

In the sanctuary:

- Room (III-1): In débris of decay on floor of second temple,
No. iii. Alabaster basis, statue No. 21.
No. iv. Alabaster basis, statue No. 20.
No. v. Alabaster basis, statue No. 19.
No. vi. Alabaster basis, statue No. 18.
No. vii. Alabaster, torso of statue No. 18.
No. viii. Alabaster, head of statue No. 18.
No. ix. Alabaster, head of statue No. 22.
No. x. Alabaster, head of statue No. 23.
No. xi. Slate, fragments of triad, statue No. 15.
No. xii. Yellow stone, unfinished statuette No. 33.
- On mud floor of first temple,
No. i. Half of a mussel-shell.
No. ii. Bits of blue-gray plaster from walls.
- Room (III-2): On floor of second temple,
No. i. Diorite, unfinished statuette, No. 27.
No. ii. Diorite, unfinished statuette No. 29.
No. iii. Diorite, unfinished statuette No. 32.
No. iv. Diorite, unfinished statuette No. 39.
No. v. Diorite, statuette No. 38.
No. vi. Slate, fragments of jackal, No. 45.
No. vii. Water-worn offering slab and upright supports, alabaster.
No. viii. Four small model jars, alabaster; in NW. corner.
No. ix. Six model bowls, alabaster; NW. corner.
No. x. Three flint flakes, type VI; NW. corner.
No. xi. Granite jar, III; in entrance doorway.
- In débris of first temple, under wall of second temple,
Nos. 1-3. Fragments of flint knives, type III.
Nos. 4, 5. Fragments of alabaster statues.
No. 6. Fragment, bone of animal.
- In floor débris of first temple,
No. 36. Copper point, see Chap. X, 2, No. 16.
No. 37. Four fragments of model jars, alabaster.
Nos. 38, 39. Five small fragments of faience vase (?), Chap. X, 6, No. 7.
+ No. 44. Small model jar, R. W. XLIII-1.
+ Nos. 45, 46. Two model bowls, R. W. XLIV-2.
Nos. 47-52. Eight fragments of vessels; 7 of alabaster, one of limestone; I, V-c, and X-a.
No. 53. Small lump of malachite.
No. 54. Fragment of a flint knife.
No. 63. Two large jars, R. W. III-1.
- Room (III-3): On floor under bulged north wall,
No. i. Diorite, unfinished statuette, No. 28.
- Near floor in débris,
No. ii. Diorite, unfinished statuette No. 25.
No. iii. Diorite, unfinished statuette No. 26.
No. iv. Hard reddish stone, unfinished statuette No. 34.
No. v. Crystal eye from wooden statuette, No. 50 a.

¹ Items preceded by a cross (+) are illustrated in Chapter IX, Pottery.

- Room (III-4): North end in surface débris of first temple,
 No. viii. Diorite, unfinished statuette No. 31.
 No. ix. Diorite, unfinished statuette No. 35.
 No. x. White-veined red stone, unfinished statuette No. 37.
 No. xi. Fine limestone, squatting statuette No. 43.
 In lower part of door-block, door to (II-2),
 No. vii. Ivory figure of Mycerinus, No. 48.
 + No. 41. Small shoulder jar, R. W. X-1.
 + No. 42. Small shoulder jar, R. W. X-2.
 No. 43. Fragment of vessel, black and white porphyry.
 Under same door-block,
 No. 40. Fragments of coarse jar, R. W. IV, with remains of white plaster on the inside.
 In middle or corridor, practically on floor,
 No. i. Slate triad No. 9, first on south.
 No. ii. Slate triad No. 10, second on south.
 No. iii. Slate triad No. 11, second on north.
 No. iv. Slate triad No. 12, first on north.
 In thieves' hole south of triads, and below the floor,
 No. v. Slate pair statue No. 17.
 No. vi. Fragment, slate triad No. 14.
- Room (III-5): In floor débris of first temple,
 No. 31. Fragment, alabaster jar, type I-c.
 No. 32. Potsherd, large jar, R. W. III.
- Room (III-6): In floor débris under bulged wall,
 + No. 62. Rough jar, R. W. IV-3.
- Room (III-7): On the floor (original contents),
 No. i. Large number of fragments of stone vessels; about one-sixteenth of the whole corpus of stone vessels.
 In floor débris under bulged wall,
 No. 1. Copper chisel; length, 17 cm.; Chap. X, 2 (14).
 No. 2. Half of squat jar, alabaster, type V c.
 Nos. 3-9. Large fragments of alabaster vessels, types I c and V c.
 No. 64. Coarse "flower-pot," type XXV.
- Room (III-7 to 8): on wall between, thrown out of (8),
 No. i. Decayed copper pan, Chap. X, 2, No. 2; upside down over Nos. ii-xiii.
 No. ii. Model *hes*-vase, copper, Chap. X, 2, No. 3.
 No. iii. Model jar, copper, Chap. X, 2, No. 4.
 No. iv. Model shoulder jar, copper, Chap. X, 2, No. 5.
 No. v. Six model bowls, copper, Chap. X, 2, No. 6.
 No. vi. Five model pans, copper, Chap. X, 2, No. 7.
 No. vii. Flint wand of Cheops, Chap. X, 3.
 No. viii. Crystal, model jar.
 No. ix. Slate, model jar.
 No. x. Crystal, model bowl.
 No. xi. Slate, two model bowls.
 No. xii. Hematite, model bowl.
 No. xiii. Yellow coloring matter.
- Room (III-8): On floor,
 No. i. Heavy layer of broken stone vessels, about one-third of the corpus of stone vessels.
 No. ii. Fragments of cylindrical cup of faience, Chap. X, 6 (1).
- Room (III-9): On floor,
 Nos. 22-30. Nine large fragments of stone vessels; three marble and three alabaster; types I, III, X.
- Room (III-10): On floor,
 Nos. 10-21. Twelve fragments of stone vessels; seven alabaster, one marble, two diorite, two porphyry; types I, IV, V c, and X; and potsherds.
- Room (III-11): High up in the débris,
 No. i. Traditional offering jar, R. W. IV-3.
 Nos. ii, iii. Coarse "flower-pot," type XXV-3, two examples.
 No. iv. Large jar, R. W. III-2.
 No. v. Brazier (?), type R. W. XL.
- Room (III-12): On the floor,
 No. i. A heavy layer of fragments of stone vessels, about one-third of the corpus of stone vessels, see Pl. 66 b, c.
- Room (III-14): Under NW corner by doorway in floor débris,
 No. 1. Alabaster bowl-jar, type X d.
 No. 2. Diorite bowl with recurved rim, type XI b.
 No. 3. Lump of malachite.
 Under south wall,
 No. 4. Large fragment of the leg of a large alabaster statue.
- Room (III-16): On floor,
 No. i. Layer of fragments of stone vessels, about one-tenth of whole corpus of vessels.
 On surface of decay,
 No. ii. Copper sheath for wooden beam.
- Room (III-17): In upper débris,
 No. i. Crystal eye from a wooden statuette, No. 50b.

- Room (III-18): In upper débris, surface of decay of first temple,
 Nos. i-iii. Three statuettes, Nos. 30, 36, 41 a; not close together.
 And pottery, see room I-4, below.
- Room (III-19): In NW corner on 20 cm. of débris, a group of pottery,
 + No. 1. Pointed jar, R. W. IX-1.
 + No. 2. Flaring bowl, R. W. XXXIX-1.
 + No. 3. Shallow bowl, R. W. XXVII-5.
 + No. 4. Coarse "flower-pot," type XXV-2.
 + No. 5. Bowl with three knob feet, R. W. XXXIII-3.
 + No. 6. Tall bowl-stand, R. W. XXII-1.
 + Nos. 7, 8. Two rough traditional offering jars, R. W. IV-2.
 + No. 9. Small jar, W. S. R. V-5.
 No. 10. Coarse "flower-pot," type XXV.
 No. 11. Large jar, type III.
 + No. 12. Rough offering jar, type R. W. IV-3.
- Corridor (III-20), northern magazine corridor:
 On floor opposite room (III-6),
 No. i. The diorite offering table (type XII) and 45 fragments of stone vessels.
 No. ii. Three model bowls of bronze.
 On floor between rooms (III-11) and (III-12),
 Nos. 1-22. Fragments, 22, of stone vessels; alabaster, granite, grey limestone, diorite, and marble.
 On floor, under east wall, between rooms (III-14) and (III-15).
 No. iii. Eight fragments of stone vessels.
- Corridor (III-21), exterior corridor:
 Opposite sanctuary, in débris on floor,
 + Nos. 55, 56. Two big basins, R. W. XXX-1.
 + Nos. 57, 59. Two rough jars, type R. W. IV-4.
 + No. 58. Coarse "flower-pot," type XXV-3.
 + No. 60. Shoulder jar, flat bottom, R. P. XVII-1.
 No. 61. Alabaster dummy jar.
 Opposite great court, in débris above floor,
 No. 366. Bowl with recurved rim, R. P. XXXIII-1.
 No. 367a. Seven coarse "flower-pots," type XXV.
 + No. 367b. Bulging jar, R. W. V-4.
 + No. 368. Two tall coarse jars, R. W. IV-5.
 + No. 369a. Large basin, R. P. XXXIV-1.
 No. 369b. Pointed jar, W. S. R. VIII-1.
 Opposite sanctuary in upper débris,
 No. i. Three coarse "flower-pots," type XXV-3.
 + No. ii. Pointed jar, W. S. R. VIII-2.
 No. iii. Spherical jar, type R. P. XV-2.
 No. iv. Bowl, round bottom, rim, type R. P. XXXII-3.
- In SW. angle over (III-21), in high débris,
 No. 37. Large basin, R. W. XXXIV-1.
- Over (III-21), between rooms (I-1) to (I-10) and south wall,
 No. 34. Squat jar, flat bottom, type R. P. XIX.
 No. 35. Bottom of small jar, R. W. V.
 No. 36. Coarse "flower-pot," type XXV-3.
 No. v. Mass of fragments and chips from broken statues of Mycerinus, Chephren, and Shepseskaf —
 a workshop for making model stone vessels.
- Among the house walls, over southern magazines and exterior corridor:*
- Room (I-4): In débris below floor level above (III-18) (q.v.),
 No. i. Unfinished diorite statuette of Mycerinus, No. 30, upper half.
 No. ii. Diorite statuette of Mycerinus, No. 36, upper half.
 No. iii. Granite statuette of woman, No. 41a, lower part.
 No. iv. Fragments of statues and stone vessels.
 No. v. Potsherds of types XIX, XXV-4, XXXIII-1, XXXVI, and XXXVII.
- Room (I-8): In débris filling room,
 Nos. 32, 33. Bases of jars, R. P. XIX (?), two examples.
- Room (I-9): In the débris filling room,
 Nos. 30, 31. Two coarse "flower-pots," type XXV.
- Room (I-11): In débris below floor level,
 No. i. Crystal eye, set in copper, from wooden statue, No. 50.
 No. ii. Small bowl, R. W. XXXII-3.
 No. iii. Flint flake, type V.
- Over northern magazines and walls and northwest quarter of court:*
- Room (I-17): In débris above floor,
 + No. 314. Flaring bowl, two legs, R. W. XL-1.
- Room (I-18): In the débris above the floor,
 No. 22. Small jar, R. W. V-2.
 + No. 23. Basin, flat bottom, rim, R. P. XXXVI-2.
 Nos. 24, 25. Bases of large jars, R. W. III, two examples.
 No. 26. Rough jar, R. W. IV.
 No. 27. Coarse "flower-pot," type XXV.

- No. 28. Neck of large jar, R. W. III.
 + No. 29. Flat bottomed bowl, R. P. XXXVIII-1.
- Under floor, upper layer,
 No. 56. Pointed jar, Db. W. VIII-1.
 + No. 57. Ring-stand, Db. W. XXIV-1.
 No. 58. Small jar, W. S. R. V-1.
- On lower floor, above floor débris of court,
 See room I-57 b, Nos. 177-183.
- Room (I-19): In débris above floor,
 No. 47. Tray, R. W. XXVI-1.
 No. i. Fragment of alabaster lion's paw.
- Room (I-20): In débris of room,
 No. 15. Small jar, R. W. V-5.
 Nos. 16-18. Two coarse "flower-pots," type XXV.
 + No. 19. Small model jar, R. W. XLIII-6.
 No. 20. Base of small jar, R. W. V (?).
 + No. 21. Bowl, round bottom, R. P. XXVIII-2.
- Below floor, in court débris,
 Nos. 59, 60. Two coarse "flower-pots," type XXV-2.
- Room (I-21): In débris of room,
 No. 12. Large jar, W. S. R. III-2.
 + No. 13. Small jar, R. W. VI-1.
 No. 14. Medium sized jar, R. W. V-6.
- Below the floor,
 No. 61. Bowl, high recurved rim, R. P. XXXIII-1.
 No. 62. Small jar, R. W. V-7.
 No. 63. Rough jar, R. W. IV-3.
 No. 64. Ring-stand, W. S. R. XXIV-3.
 No. 65. Fragments of pan, R. W. XXXIII-1.
- In floor débris of court,
 + Nos. 168, 169. Two model saucers, R. W. XLIV-2.
 No. 170. Tubular bead, faded blue faience, 21 × 5 mm.
 No. 171. Lump of corroded copper.
 No. 172. Small model offering jar, R. W. XLIII-3.
 No. 173. Flint chip.
 No. 174. Bowl, rim, R. P. XXXII-2.
 No. 175. Fragment large jar, W. S. R. III.
 No. 176. Bowl, flat bottom, R. W.
 Nos. 184-225. Forty-two large fragments of nearly as many stone vessels, types I, IV, V c, and X; mostly of alabaster, but 5 diorite, 4 marble, 3 basalt, and 1 red and white breccia; also a mass of smaller fragments from similar vessels.
 Nos. 226-228. Three sandstone cores from tube borings.
 No. 229. Flint flake.
 No. i. Six fragments of small faience inlays from a *hes*-vase; Chap. X, 6, No. 4.
 No. ii. Three tubular beads, blue faience.
- Room (I-22): Under floor, in floor débris of court,
 Nos. 66-72. Seven rough jars, R. W. IV-4.
 Nos. 73, 76. Two flaring bowls, R. W. XXXIX-1.
 No. 74. Coarse "flower-pot," type XXV.
 No. 75. Tall bowl-stand, R. W. XXII-2.
 No. 77. Small model jar, R. W. XLIII-2.
 No. 78. Fragment of rim, R. W. bowl.
 No. 79. Flaring bowl, R. P. XXXIX (?).
 No. 80. Flat pan, smoked exterior, R. W.
 + Nos. 81, 85. Shallow bowl, R. P. XXVII-4.
 No. 82. Base of jar, R. W. XVIII-5 (?).
 Nos. 83, 84, 86-91. Misc. potsherds.
- Room (I-23): In débris in room,
 No. i. Arm of statue, decayed wood, nearly life-size.
- Room (I-24): Under floor,
 No. i. Large jar, Db. W. II-1.
- Room (I-25): In débris of court,
 + No. 1. Squat jar, R. P. XIX-1.
 + No. 2. Bowl, flat bottom, rim, R. P. XXXVII-2.
 + No. 3. Bowl, round bottom, swell rim, R. P. XXXI-1.
 + Nos. 4, 5, 7, 10. Four coarse "flower-pots," type XXV-5.
 + No. 6. Bowl, shallow, drooping rim, R. P. XXVII-3.
 No. 8. Small jar with tubular spout, W. S. R. XI-1.
 No. 9. Bowl-stand, R. W. XXII-2, but thicker and lower.
- Room (I-26): Under floor, in floor débris of court.
 No. 133. Large fragment of heavy porphyry squat jar, type III-a.
 No. 134. Small model jar of alabaster.
 No. 135. Fragment of limestone vessel.
 No. 136. Part of a flint knife, type III.
 No. 137. Six small lumps of malachite.
 No. 138. Fragment of syenite jar, type III.

- No. 140. Faience inlay, sign for "king of upper Egypt."
 No. 141. Fragment of arm of alabaster statue.
 No. 142. Base of large jar, W. R. III.
- Room (I-27): On the floor,
 Nos. 157, 158. . . Two limestone cores from tube borings (for model dummy jars).
 No. 159. Fragment of diorite bowl.
 No. 160. Headrest, limestone, block form.
 No. 161. Two coarse "flower-pots," type XXV-3.
- Under the floor,
 Nos. 230-232. . . Three fragments of vessels — alabaster, marble, limestone.
- In upper débris of room,
 No. 42. Small model, cup of limestone.
- Room (I-28): Under floor,
 Nos. 162-167. . . Potsherds from jars of types IV, X, VIII, bowl-stand XXII-2, bowls, etc.
 No. i. Fragments of W. S. R. jar painted with name of Mycerinus.
 No. ii. Basketful of fragments of stone vessels.
- Room (I-30): In débris in room,
 Nos. 38, 39. Two coarse "flower-pots," type XXV-3.
 + No. 40. Large jar, W. S. R. III-4.
 + No. 41. Large jar, W. S. R. III-5.
 + No. 2. Small jar, W. S. R. VII-2.
- Room (I-32): In débris in room,
 No. 11. Coarse "flower-pot," type XXV.
 No. 55. Flaring bowl, flat bottom, R. W. XXXIX-2.
 No. i. Fragment of statuette No. 52.
- Room (I-33): In débris in room,
 + No. 54. Small pot with spout, W. S. R. XI-2.
- Room (I-34): In floor débris of court,
 No. 46. Limestone jar, canopic form; h., 26 cm.; diam., 18 cm.
 No. 52. Base of rough jar, R. W. IV.
 + No. 53. Pointed jar, W. S. R. VIII-3.
- Room (I-36): In floor débris of court,
 No. 48. Coarse "flower-pot," type XXV.
 Nos. 49, 50. . . . Two bowls, round bottom, moulded rim, R. W. XXXII-2.
 No. 51. Shallow bowl, R. W. XXVII-4.
- Room (I-38): Under floor, in upper débris,
 Nos. 1-15. . . . Fifteen flints, 5 flint knives (fragments), 10 flakes.
- Under floor, in floor débris of court,
 + No. 257. Spherical jar, R. P. XV-2.
- Room (I-39): Under floor, in floor débris of court,
 No. 44. The base of a small model bowl of crystal (see Chap. X, 3).
 No. 45. A copper point (see Chap. X, 2, No. 15).
- Room (I-40): Under floor of lower granary,
 Nos. 92-97. . . . Six coarse "flower-pots," type XXV-3.
 No. 99. Bowl with rim, probably R. P. XXXII-2.
 No. 100. Tray, R. W. XXVI-1.
 No. 101. Shallow bowl, R. P. XXVII-3.
 Nos. 102-107. . . Potsherds, mainly bowls.
 No. 108. Large jar, Db. W. II-1.
 + No. 109. Large jar, R. W. III-2.
 + No. 111. Bowl with rim, R. P. XXVII-1.
- Room (I-50): Under walls of room and over surface of decay of granary,
 No. 1. Beads and amulets, see Chap. X, 5.
 No. 2. Cloth bag containing oxidized mass of copper tools (adzes and chisels), see Chap. X, 2, Nos. 11 and 13.
- Room (I-51): In débris in room,
 No. 116. Ring-stand, W. S. R. XXIV-3.
 No. 117. Ring-stand, Db. W. XXIV-1.
 No. 118. Ring-stand, R. W. XXIV-5.
 Nos. 120, 122. . . Two bowls, R. P. XXXII-2.
 No. 121. Bowl with recurved rim, R. P. XXXIII-1.
 No. 123. Squat jar, R. P. XIX.
 Nos. 124, 127. . . Two rough jars, R. W. IV.
 No. 125. Flaring bowl, flat bottom, R. W. XXXIX-1.
 No. 126. Coarse "flower-pot," type XXV-5.
- Room (I-52): In débris in room,
 Nos. 128, 129. . . Two rough jars, R. W. IV.
 Nos. 130, 131. . . Two coarse "flower-pots," type XXV-4.
 No. 132. Coarse bowl, a broader form of "flower-pot" type, fragment.
- Room (I-54): In débris in room,
 + No. 143. Ring-stand, W. S. R. XXIV-4.
 + No. 144. Squat jar, R. P. XIX-2.
 No. 145. Flaring bowl, R. W. XXXIX-2.
 + No. 146. Small globular jar, B. P. XII-1.
 No. 147. Rough jar, R. W. IV.

- No. 148. Coarse "flower-pot," type XXV.
 No. 149. Core from tube boring, diorite.
 + No. 150. Silver cylinder seal of an official of Chephren, see Chap. X, 4, No. 1.
 No. 156. Twisted copper chisel, length, 5 cm., see Chap. X, 2, No. 17.
- Room (I-55): Under floor of granary,
 No. 16. Flint flake.
 No. 17. Fragment of W. S. R. jar with part of a lotus in green paint, see Chap. X, 8 j.
 No. 18. Long copper shaft; length, 22.5 cm.; diam., 0.75 cm.; see Chap. X, 2, No. 18.
- On floor of court,
 No. 151. Coarse "flower-pot," type XXV.
 Nos. 152, 153. Two rough jars, R. W. IV.
 No. 154. Small model jar, R. W. XLIII-2.
 No. 155. Large fragment of an alabaster basin.
- Room (I-56): In débris in granary,
 + Nos. 112, 113. Two large jars, W. S. R. III-3.
 + No. 114. Large jar, Db. W. II-1.
 No. 115. Large jar, type uncertain.
- Under the floor, in floor débris of court,
 Nos. 243-252. Nine coarse "flower-pots," six of XXV-2 and four of XXV-3.
 No. 253. Pointed jar, Db. W. VIII-1.
 + No. 254. Basin, round bottom, R. P. XXIX-1.
 No. 255. Rough jar, R. W. IV.
- Room (I-57b): On floor of a room founded of floor débris of court, NW corner leaning against west wall,
 Nos. 182, 183. Two stacks of four trays each, R. W. XXVI-1.
- Adjoining these but leaning against north wall,
 Nos. 179-182. Four stacks of two "flower-pots" each, type XXV-1.
- Room (I-57): Under floor, in floor débris of court,
 No. 239. Fragment of large R. W. bowl (?).
 + No. 240. Flaring bowl, R. P. XXXIX-2.
 No. 241. Large basin, flat bottom, R. W. XXXIV-1.
- Room (I-60): In débris of court,
 Nos. 234, 235. Two bowls, R. P. XXXI-1 and R. W. XXXI-1.
 No. 236. Large jar, W. S. R. III.
 Nos. 237, 238. Jars, flat bottom, R. P. XVIII-3, two examples.
- Room (I-62): Outside room in floor débris of court,
 No. i. Ten fragments of alabaster vessels, types I, III, IV d, V c, V e, etc.
- Room (I-70): In débris of court,
 No. 256. Large jar, R. W. III-5; h., over 48 cm.

In southern part of court:

- Room (I-301): In débris in room,
 Nos. 263-269. Seven flint flakes.
 Nos. 270-274. Fragments of 2 diorite bowls, type X, 2 alabaster jars, type V c, 1 alabaster jar, type I c.
 No. i. Fragment from leg of an alabaster statue and piece from the skirt.
 No. ii. Fragments of faience inlays, see Chap. X, 6, No. 6.
- Under the floor,
 No. iii. Coarse "flower-pot," type XXV-5.
 No. iv. Small jar, W. S. R. V-2.
- Room (I-302): In débris in room,
 No. 258. Bowl, flat bottom, R. W. XXXVII-2.
 Nos. 259-261. Three flint chips.
- Under the floor,
 + Nos. 1-4. Four coarse "flower-pots," type XXV-4.
 Nos. 5, 6. Three flint chips.
 Nos. 21, 25-30, 33, 34. Nine coarse "flower-pots," type XXV-4.
 + Nos. 22, 48. Two bowls, R. P. XXXII-2.
 + Nos. 23, 24, 42. Three bowls, flat bottom, R. P. XXXVII-1.
 + Nos. 31, 32. Two deep basins with spout, R. P. XXXV-1.
 + No. 35. Short-necked jar, R. P. XVI-1.
 + Nos. 36, 37, 45. Basins with spout, R. P. XXXVI-1.
 + No. 38. Bowl with recurved rim, R. P. XXXIII-1.
 No. 39. Half of a mussel shell.
 + No. 40. Bowl, rim, R. P. XXXII-1.
 + Nos. 41, 46. Two bowls with low recurved rim, R. P. XXVII-2.
 + Nos. 43, 44. Pointed basins, rim, R. P. XXX-1, two examples.
 + No. 47. Flat tray, R. W. XXVI-1.
 + No. 49. Bowl, R. P. XXXIII-2.
 + No. 50. Ring-stand, Db. W. XXIV-2.
 + No. 51. Pointed basin, rim, R. P. XXX-2.
 + No. 52. Pointed basin, rim, R. P. XXXII-3.
 No. 53. Flint chip.
- Room (I-303): In débris in room,
 + No. 275. Round bottomed jar with neck, R. P. XVI-2.
 No. 276. Coarse "flower-pot," type XXV-4.
 No. 277. Rough jar, R. W. IV.

- Nos. 278-280 . . . Fragment of diorite bowl and two fragments of alabaster jars.
 Nos. 281-283 . . . Fragments of three flint knives, type III.
 Nos. 284-294 . . . Flint flakes.
- Room (I-304): In débris in room,
 Nos. 295-296 . . . Fragments of flint knives, types II and III.
 Nos. 297-299 . . . Flint flakes.
 Nos. 300-301 . . . Two bowls, flat bottom, R. W. XXXIX-2.
 + No. 302 Model saucer, R. W. XLIV-2, four examples.
 + No. 303 Model jar, R. W. XLIII-4.
 Nos. 311, 312 . . . Coarse "flower-pots," type XXV-5, two examples.
 No. 313 Rough jar, R. W. IV.
- Under the floor,
 No. 1 Circular, dome-shaped lid of canopic jar, alabaster.
 No. 2 Bowl, R. W. XXXI-1.
 Nos. 3, 4 Two half mussel shells.
 + No. 5 Jar, W. S. R. V-2.
 No. 6 Two-legged flaring brazier (?), R. W. XL-1.
 Nos. 7, 8, 11, 12 . . . Four flaring bowls, R. W. XXXIX-3, but smaller.
 No. 9 Small jar, R. W. V-6.
 No. 13 Five coarse "flower-pots," type XXV-5.
- Room (I-305): In débris in room,
 No. 307 Jar, W. S. R. V-6.
 + No. 308 Small globular pot, R. W. VII-1.
 + No. 309 Small jar, flat bottom, B. P. XIII-1.
 No. 310 Coarse "flower-pot," type XXV-5.
- Under the floor,
 Nos. 1, 2 Two coarse "flower-pots," type XXV-5.
- Room (I-306): In débris in room,
 No. 304 Flint flake.
 No. 305 Rough jar, R. W. IV.
 No. 306 Coarse "flower-pot," type XXV-4, with hole in bottom.
- Room (I-307): In débris on floor,
 No. 1 Tall basin, R. P. XXXIV-1.
 No. 2 Large jar, W. S. R. III-2.
 No. 3 Large jar, R. W. III.
 No. 4 Bowl-stand, R. P. XXII-2.
 No. 5 Limestone jar, canopic form.
 No. 6 Limestone basin, roughly rectangular.
- In débris in room,
 No. i Four coarse "flower-pots," type XXV-5.
 No. ii Flat tray, R. W. XXVI-1.
 No. iii Fragment of jar, R. P. XIX.
 No. iv Pointed jar, W. S. R. VIII-1.
 No. v Bowl, flat bottom, R. P. XXXVII-2.
 No. vi Twenty-three flint flakes.
- Room (I-308): In débris in room,
 No. 315 Rough jar, R. W. IV-3.
 No. 316 Fragment of flint knife, type III.
- Under the floor,
 No. i Seven coarse "flower-pots," type XXV-5.
 No. ii Two large jars, W. S. R. III-3.
 No. iii Bowl, round bottom, R. P. XXXI-1.
 No. iv Bowl, flat bottom, R. P. XXXIX-2.
 No. v Two flint flakes.
- Room (I-310): Under the floor,
 + Nos. i-iv Four small jars, R. P. XVIII-5.
 No. v Two coarse "flower-pots," type XXV-5.
 No. vi Pointed jar, W. S. R. VIII-1.
 No. vii Three bowls, flat bottom, recurved rim, R. P. XXXVII-2.
 No. viii Bowl, flat bottom, recurved rim, spout, R. P. XXXVI-1.
 No. ix Five flint flakes.
 No. x Small model jar, R. W. XLIII-2.
 No. xi Basis of porphyry statuette No. 40.
- Room (I-311): Under floor,
 No. 1 Two-legged, flaring brazier (?), R. P. XL-1.
 Nos. ii-v Fragments of four alabaster vessels.
- Room (I-314): In débris in room,
 No. 317 Fragment alabaster jar, type I-c.
 + No. 318 Jar, W. S. R. V-1.
 No. 319 Handle part of flint knife, type II or III.
 No. 320 Boring core (dummy jar) of limestone.
 Nos. 321, 322 . . . Two coarse "flower-pots," type XXV-5.
 Nos. 323, 324 . . . Two bowls, tapering base, R. P. XXXII-2.
 No. 325 Small model jar, R. W. XLIII-4.
 Nos. 326-328 . . . Three flint flakes.
 No. 329 Rough jar, R. W. IV.

- Under the floor,
 No. i. Oval tray, R. W. XXVI-1.
 No. ii. Pointed jar, W. S. R. VIII-1.
 No. iii. One flint flake.
- Room (I-315): In débris in room,
 No. 294. Fragment of alabaster jar, type I-c.
 No. i. Limestone door socket, high up, in NW corner.
- Under the floor,
 Nos. 330, 331. Two bowls, tapering base, rim, R. P. XXXII-2.
 Nos. 332, 333. Two flint flakes.
- On floor of court,
 Nos. 1-5. Five coarse "flower-pots," type XXV-5.
- Room (I-316): Under floor,
 Nos. 334, 335. Two flint flakes.
 No. 336. Blade of flint knife, type III.
 No. 337. Flint flake.
 No. 338. Alabaster, model jar.
- On floor of court,
 + No. 364. Flaring bowl, flat bottom, R. W. XXXIX-3.
 No. 351. Pointed jar, W. S. R. VIII-1.
- Room (I-317): Under the floor,
 Nos. 339-341. Three flint flakes.
 Nos. 342, 348. Fragments of flint, wide flakes.
 + No. 349. Squat pot with spout, Db. W. XI-1.
 + No. 350. Tall bowl-stand, R. P. XXI-1.
 No. xii. Three coarse "flower-pots," type XXV-5.
- On the floor of the room,
 Nos. i-v. Five coarse "flower-pots," type XXV-5.
 Nos. vi-x. Five pointed jars, W. S. R. VIII.
 No. xi. Alabaster jar, type V-c.
- Room (I-318): In débris in room,
 No. i. Ring-stand, Db. W. XXIV-1.
 No. ii. Two coarse "flower-pots," type XXV-5.
 No. iii. Small model jar, R. W. XLIII-4.
 No. iv. Large jar, W. S. R. III-3.
 No. v. Bowl, flat bottom, rim, R. P. XXXVII-2.
 No. vi. Fragment of flint knife.
 No. vii. Fifteen flint flakes.
 No. viii. Two fragments of statuette No. 41 (a woman).
 No. ix. Fragment of statuette, No. 51.
- Room (I-319): In débris in room,
 Nos. 343-346. Four flint flakes.
 No. i. Two fragments of statuette, No. 40.
- Room (I-320): Under floor, in court débris,
 No. i. Deposit of fragments of a large alabaster statue, of which fifteen were large fragments; several of these belonged to the arm of statue No. 18 and the rest to statue No. 24.
- Room (I-321): In débris in room,
 No. i. Two-legged brazier (?), R. W. XL-1.
 No. ii. Coarse "flower-pot," type XXV-5.
 No. iii. Rough jar, R. W. IV.
 No. iv. Small jar, R. W. V-3.
- Under the floor,
 + No. v. Pointed jar, W. S. R. VIII-1.
 No. vi. Small jar, R. W. V.
- Room (I-322): Under the floor,
 No. i. Coarse "flower-pot," type XXV-5.
- Room (I-323): In upper débris in room,
 No. i. Fragment of alabaster stela with name *Ra-wer*.
- Room (I-324): In débris in room, just above floor,
 + No. 365. Shoulder jar, R. P. XVIII-4.
- Room (I-325): In débris in room, near floor,
 + No. 352. Squat jar, R. P. XX-1.
- Room (I-326): In débris in room,
 No. 356. Two-legged brazier (?), R. P. XL-1.
 + No. i. Small jar, R. W. V-3.
 + No. ii. Small squat jar, R. P. XIX-3.
- Room (I-327): In débris in room,
 No. 357. Two coarse "flower-pots," type XXV-5.
- Room (I-328): In débris in room,
 No. i. Small jar, R. W. V-3.
- Room (I-329): Under the floor,
 + No. i. Spherical jar, R. P. XV-1.
- Room (I-331): In floor débris of court,
 No. 353. Copper harpoon, single barb; length, 5.3 cm.; see Chap. X, 2, No. 20.
 No. 354. Curving piece of copper, unidentified purpose; length of arc, 8.5 cm.
 + No. 355. Bowl, round bottom, R. P. XXVIII-3.

- No. i. Two coarse "flower-pots," type XXV-5.
 No. ii. Small globular pot, R. W. VII-2.
 No. iii. Rough jar, R. W. IV.
 No. iv. Flaring bowl, flat bottom, R. W. XXXIX-1.
 No. v. Three flint flakes.
- Room (I-332): In floor débris of court,
 + No. 358. Tall wine jar, type Db. W. I-1.
 No. i. Wrist of a life-size alabaster statue.
- Room (I-334): In floor débris of court,
 No. i. Several slabs of limestone set on edge as if to form a table.
- Room (I-335): In floor débris of court,
 No. i. Pointed jar, Db. W. VIII-3.
- Room (I-338): Under floor,
 No. i. Copper axe blade, see Chap. X, 2, No. 9.
 No. ii. Copper adze blade, see Chap. X, 2, No. 10.

Houses in southern magazines of vestibule:

- Room (I-355): In débris filling room,
 No. 370a. Model jar, alabaster.
 No. 370b Twelve model jars (boring cores), limestone.
 No. 370c. Model bowl, alabaster.
 No. 370d Seventeen model bowls, limestone.
 No. 371. Squat jar, porphyry, type III.
 + No. 372. Tall wine jar, Db. W. I-1.
 No. 372b Flaring bowl, R. W. XXXIX-1.
 + No. 389. Bowl-stand, R. W. XXII-2.
 No. 389b Bowl with recurved rim, R. P. XXXIII-1.
- Under the floor,
 No. i. Two bowl-stands, R. W. XXIII-1.
- Room (I-356): Under the floor — i.e., in (III-356),
 No. 379. Five bowl-stands, R. W. XXIII-2
- Room (I-357): under the floor — i.e., in (III-357),
 No. 390. Bowl-stand, R. W. XXII-2.

Houses east of front of temple:

- Room (I-359): On floor of room,
 No. 378a. Base of pointed jar, W. S. R. VIII.
 No. 378b Rough jar, R. W. IV-3.
- Room (I-361): In débris of room,
 Nos. i, ii. Two rough jars, R. W. IV-3.
 No. iii. Steatite cylinder seal, see Chap. X, 4, No. 3.
- Room (I-364): In débris above floor,
 + No. i. Rough jar, R. W. IV-1.
 No. ii. Coarse "flower-pot," type XXV-5.
- Under the floor,
 No. iii. Rough jars (four), R. W. IV-4.
 No. iv. Mass of fragments of alabaster vessels and also of alabaster statues.
- Room (I-365): In débris above the floor,
 No. i. Three coarse "flower-pots," type XXV-5.
 No. ii. Rough jar, R. W. IV-4.
 + No. iii. Shoulder jar, R. P. XVIII-1.
- Under the floor,
 No. iv. Coarse "flower-pot," type XXV-5.
- Room (I-366): In débris above the floor,
 No. 376. Large R. P. jar.
- Under floor,
 No. i. Two coarse "flower-pots," type XXV-5.
 No. ii. Two rough jars, R. W. IV.
 No. iii. Base of large jar, R. W. III.
 + No. iv. Small jar, B. P. XIV-2.
 No. 373. Rough jar, R. W. IV-3.
 + No. 374. Small bag-like pot, B. P. XIV-1.
 No. 375. Base of small R. P. jar, about like type X.
 + No. 383. Shoulder jar, R. P. XVIII-1.
 No. 384. Twelve small model bowls, R. W. XLIV-1.
 Nos. 385-388. Four model jars, R. W. XLIII-1, 6, and 7.
- Room (I-367): In débris on floor,
 No. i. Coarse "flower-pot," type XXV.
 No. ii. Rough jar, R. W. IV-3.
 + No. 377. Shoulder jar, R. P. XVIII-3.
- Under the floor,
 + Nos. iii-vi Four model jars, R. W. XLIII-4, 6, 9, 12.

In houses in southern magazines of vestibule:

- Room (I-372): Under the wide wall assigned to second temple,
 + No. i. Eleven model bowls, R. W. XLIV-3.
 No. ii. Limestone boring core (model jar).

- No. iii. Two model bowls, of limestone.
 No. iv. Two flint flakes.
 No. v. Small model jar, R. W. XLIII-3.

Under the floor,

- No. vi. Fragment of an alabaster statue.

Room (I-373): Under floor,

- No. i. Piece of alabaster slab with holes bored in it; from this the cores, with which small model jars were made, were obtained by boring with the tube borer.

In anteroom of vestibule:

Room (III-377): In débris of room,

- No. 381. Small R. P. bulging jar.
 No. i. Limestone decree of Pepy II (on east side of room, against the pier south of the outer doorway, on about one meter of débris).
 + No. ii. Greater part of the alabaster pointed vase, type VIII-b.

In northern magazines of vestibule:

Room (III-379): In upper débris,

- + No. 379. Alabaster shoulder jar, type V a.

On the floor,

- No. i. Tall bowl-stand, R. P. XXII-1.
 + No. ii. Flat-rimmed circular tray, R. W. XLII-1.
 No. iii. Rough jar, R. W. IV-3.
 No. iv. Bases of two flat-bottomed flaring bowls, type XXXIX.

Corridor (III-380): On the floor,

- No. i. Basin with horizontal rim, R. W. XLI-1.

Room (III-382): On the floor,

- No. i. Small jar, R. W. V-3.

Houses in the NE quarter of great court:

Room (I-384): Under the floor, débris of court,

- Nos. 1, 2. Two squat jars, R. P. XIX-2.
 Nos. 3, 4. Two coarse "flower-pots," type XXV-5.
 No. 5. Pointed jar, W. S. R. VIII-1.
 No. 6. Small jar, R. W. V-3.
 No. 7. Medium jar, R. W. III-2.
 No. 8. Base of large jar, R. W. III-5.
 No. 9. Small squat jar, R. P. XIX-3.
 No. 10. Base of a flaring bowl, R. W. XXXIX.

Room (I-391): Under the floor, débris of court.

- No. 1. Six coarse "flower-pots," type XXV-5.
 No. 2. Globular jar, R. P. XV-2.
 + No. 3. Jar, ovoid with neck, R. P. XVI-3.
 No. 4. Bowl, flaring, R. W. XXVII-2.
 No. 5. Large fragment of a quartzite hammer.
 No. 6. Fragment of an alabaster statue.

Room (I-392): Under floor, in court débris,

- No. 1. Globular jar, R. P. XV-2.
 No. 2. Bowl, R. P. XXXII-2 (inverted over mouth of No. 1).
 No. 3. Three coarse "flower-pots," type XXV-5.

Room (I-395): Under floor, in court débris,

- No. i. Twelve fragments of alabaster statues; one basis of diorite, statuette No. 42; broken porphyry statuette No. 40; among the alabaster fragments, statuette No. 46.

Room (I-396): In floor débris of court,

- No. i. Small jar, Db. W. V-4.
 No. ii. Steatite cylinder seal, see Chap. X, 4, No. 2.

APPENDIX D

RECONSTRUCTION OF BUILDING OPERATIONS AT THE TEMPLE OF CHEPHREN

DR. HOELSCHER, after describing the marks and the excisions found by him in the floors and the stones of the Chephren temple, bases on these marks two reconstructions of building operations so different from those described in Chap. V of this book, that I feel obliged to discuss them in detail. The three suppositions are as follows:

- (1) That the Chephren masons used a sort of metal-shod wooden tongs drawn upwards and lifting the dead weight of the block of granite in order to set it in place in the wall.
- (2) That the Chephren masons used a simple wheel pulley.
- (3) That the raising of monoliths was accomplished by means of a wooden platform.

The evidence cited for the use of tongs¹ consists of:

- (a) A series of holes in the pavement under the front edge of granite casing similar to those at the Mycerinus pyramid temple and a series of holes under the back edges of the same.
Comment: The second series of holes which Dr. Hoelscher assigned to the granite are actually, as shown by his detailed plan (Blatt XVIII), under the front edge of the limestone core and were lever holds for adjusting the core stones just as the front series were for adjusting the granite casing blocks. The theory of the tongs requires that the holes of the two series should be opposite each other, while as a fact they are seldom or never opposite.
- (b) Holes on the backs of the granite blocks and bosses on the front afforded holds for the tongs.
Comment: Evidence is actually given of only one hole low down on one side (front?) near the end of a block. The idea of the bosses was, I think, taken from the granite casing of the Third Pyramid. Now of all the stones of the pyramid casing handled by us, not one had bosses suitable for such a grip or had holes on the back or sides. Nor did a single one of the black granite blocks found in the Mycerinus pyramid temple have bosses sufficient for the use of tongs or any holes whatever. Moreover, the hollowing of the core-wall to take the rough back of the stone in the Mycerinus pyramid temple made the use of tongs as described quite impossible.

Thus the theory of the use of tongs is in reality not justified even by the evidence at the Chephren temples and is flatly contradicted by the evidence of the Mycerinus temple. It may be added that the lifting of a dead weight of 5 to 7 tons of granite by the use presumably of simple wheel-pulleys and a scaffolding is not worked out by Dr. Hoelscher beyond a single rope attached to the tongs, and certainly presents difficulties too great to appear plausible, in the face of the actual evidence.

For the use of the simple wheel-pulley, no evidence whatever is adduced. This pulley merely changes the direction of the pull exerted, and I would be willing to admit that the Egyptians may have used a granite beam with polished grooves for changing the direction of the pull.

The scaffolding which Dr. Hoelscher reconstructs was based on a very regular system of holes in the foundation floor around the twelve statues in the upper court of the Chephren pyramid temple. Now there can be no doubt that these holes were used to take the upright posts of a wooden scaffolding. The question arises whether they were used to erect the statues or for some other purpose:

- (a) The statues were probably erected after the construction of the granite wall against which they stood with the back plate of the statue in a niche in the wall; a bearing stone with polished and greased grooves set on top of this wall would have served the purpose of changing the direction of the pull as well as one attached to a scaffolding. If the statues were erected first, the wall further west must, in any case, have already been in place and would have served equally well for setting the bearing stone.
- (b) The sockets in the floor show that the monolithic statues were erected in the same manner as the monolithic pillars — (1) tilted to an angle of 35°–45° with the front end resting on the front edge of the socket, and (2) then pulled over, revolving on that edge. The fact that the Chephren sockets have no slopes would not materially affect the operation. Of course the use of a construction plane is not excluded.
- (c) The statues were certainly in an unfinished state when erected, probably not further advanced than our statue V (see Statues).
- (d) Scaffolding is known to have been used by the sculptors in working on the finishing stages of large statues.² The finishing of these large statues, requiring months of labor, demands the use of scaffolding.

It is for these reasons that I have felt compelled to reject Dr. Hoelscher's ingenious reconstructions mentioned above. They seem to me in themselves impossible, and all the holes which gave rise to them can be explained logically and clearly by the use of levers, ropes, man-power, and sculptors' scaffolding; things which are beyond doubt.

¹ See Hoelscher, *Chephren*, pp. 74–76, Ills. 62–67.

² See Newberry, *Rekhmara*, Pl. XX.

APPENDIX E

QUARRY MARKS AND MASONS' MARKS ON PLS. XI AND XII

IN ADDITION to the levelling lines, vertical lines for the horizontal measurements of the rooms were also found on the limestone core-walls of the Mycerinus pyramid temple, accompanied in three cases by written notes (see Borchardt, *Ne-weser-re*, p. 153), as follows (see Pl. XI, Copied by Mr. Alan Rowe):

- iv. In room (24), north wall, second course, 95 cm. from the dressed end of the stone in (22); triangle pointing west; red painted.
- xii. In room (27), east wall, second course, 898–903 cm. (about 17 ells) from the main E–W axis of the temple, painted red line, 5 cm. wide, accompanied by the word *ršy* “south,” levelling lines of 5th and 6th ells, and crew-name (see below). The levelling line for 5th ell was drawn over crew-name, the word *ršy* and the vertical mark.
- xiv. In great court (5), west wall, first course, about a meter north of the north end of the portico (?), with crew-name and remains of 2-ell line; painted.
- xix. In room (10), north wall, first and second courses, at 95 cm. from the dressed northwest corner of the room; with triangles pointing east; all incised; see No. xx.
- xx. In room (10), south wall, first course only, at 25 cm. from undressed southwest corner of room; incised and painted red. Nos. xix and xx are opposite each other, 24.6 meters west of the line of the c.b. casing in the court (5), and may have marked the face of the projected granite casing of the west wall of room (10).
- xxvb. On the same stone as No. xiv, on the south face in portico (?), at 210 cm. (4 ells) from the eastern face of the stone; painted line, 5 cm. wide; triangle, pointing west.
- xxvii. Corridor (13), north wall, second course, first stone (after upright end stone) from west; painted red; with red ell-lines of 5th and 6th ells and black sloping line marking top of second course of the projected granite casing; beside the vertical line is the word *mš* (perhaps remains of *šmš*). The vertical line and the 6-ell line are drawn over older graffiti, which seem to be the idle sketches of a skilled workman. The *mš* is of the time of the vertical line (fresher than the graffiti).
- xxviii. In the great court (5), north wall, first course, second and third stones from east end of wall; at 5.25 m. (10 ells) from the inner northeast corner of the core-walls, and 3.68 m. (7 ells) from the projected face of the granite casing in that corner; at 42 ells from the face of the granite casing on the west side of the court and 23.1 m. (44 ells) from the face of the core-wall on the western side; painted vertical line, and painted 3-ell line. To the east of the vertical line and under the 3-ell line, a red painted inscription: *šmš* . . . (?). Underneath is written from east to west “46 ells, 45 ells, 44 ells.” East of the inscription is a sloping upright line with an irregular triangle on the east side, 60 cm. from the vertical line. On top of the 3-ell line is a short vertical line 24 cm. from the long vertical line. At 80 cm. west of the long vertical line, is drawn a flight of three steps behind which is written “1 ell” (perhaps the difference between the figures 44, 45, 46.)

Nos. xix and xx were incised with a fine point, and No. xx was overpainted in red. All the other vertical lines were red painted, usually about the same width as the levelling lines but Nos. xii and xxvb were 5 cm. wide. Triangles were drawn on the side in Nos. ix, xix, and xxvb (see also xxviii) and may have been drawn originally on all vertical lines. Such triangles are well-known (see Borchardt, *Nefer-ir-ke-re*, pp. 52–55), but their significance is unclear. Perhaps they mark the direction from which the distance was measured when the vertical line was set.

In mark No. xii, the word *ršy* “South,” if it belongs to the vertical line, must indicate the southern wall of the room which was to stand north of that line and was never built (at any rate in stone). It is possible that the word is the distinguishing mark of the crew-name (see below).

No. xxviii is the most interesting of these marks. For the interpretation of the note, see Borchardt, *Ne-weser-re*, p. 153. Borchardt translates the mark reproduced in No. xxix: “Südliche Richtlinie des Grabhauses.” Our inscription, which was weathered, gives the word *šmš* quite clearly followed by a sign which is not any of those used for the cardinal points but may be the sign ⓪ or † . The next word is *mš*, referring to the court or the temple; and was possibly followed by another sign. The “46 ells, 45 ells, 44 ells” appear to refer to the limestone core-wall at the NW angle of the court, for the distance from the vertical line to the eastern face of the western core-wall of the court is 44 ells. Possibly the stepped figure indicates that this wall was to be stepped to permit a batter in the granite casing of that wall. It is, I take it, only an accident that the distance southward to the main E–W axis of the temple (noted by Mr. Rowe) is 45 ells while it is 44 and 46 ells respectively to the sides of the paved pathway.

In addition to the horizontal levelling lines and the vertical base lines, every limestone block in the core-walls seems once to have borne a crew-name. This name was written in red paint on both sides of each stone and originally may also have been written on the top. Mr. Rowe noted two cases, Nos. i and xii, in which the levelling lines had been drawn *over* the crew-name; and after a joint examination, we were both agreed that the crew-names were written on the stones previous to their being set in the walls. A confirmation of this conclusion is found in the limestone block on the eastern side of doorway (14) which is set on end with the strata vertical instead of horizontal, an abnormal position, and on this stone the inscription stands also on end, having been written along the horizontal strata as in all other stones.

Most of the crew-names which were preserved were found behind the crude-brick casing. The copies, made by Mr. Alan Rowe, are reproduced in Pls. XI and XII, as follows:

- (1) Wall between rooms (13) and (24), second course, second stone from west, on each side of western end of stone:
 - i. On north face, in room (13).
 - ii. On south face, in room (24).
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw wʒḏt sʒ*.
 Distinguishing mark: antilope (?).
- (2) Wall between rooms (13) and (24), second course, first stone from west, on each side of western end of stone:
 - iii. On north face in room (13).
 - iv. On south face in room (24).
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw nḏs (?) sʒ*.
 Distinguishing mark: the sign *wḏᶚ*.
- (3) Wall between rooms (13) and (15), first course, first stone from east; a block set on end:
 - v. On northern side in room (15); inscription, upright.
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw nḏs (?) sʒ*.
 Distinguishing mark: an ibis (?).
- (4) Wall between rooms (13) and (15), second course, third stone from west, on east end of stone:
 - vi. On south face in room (13).
 The only legible mark is the sign *sʒ*.
- (5) Wall between rooms (14) and (26), second course, third stone from north end of wall:
 - vii. On the east face in room (14).
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw nḏs (?) sʒ*.
 Distinguishing mark: not preserved.
- (6) Wall between rooms (20) and (36) to (37), same wall as last-named, second course, second stone from north:
 - viii. On east face in room (20).
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw wʒḏt sʒ*.
 Distinguishing mark: jackal with feather (Cynopolis nome?).
- (7) Wall between rooms (20) and (37), same wall as last two, second course, first stone from north:
 - ix. On east face in room (20).
 - x. On west face in enclosure (37N).
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw wʒḏt sʒ*.
 Distinguishing mark: the sign *fʒ* (*ʒtp*).
- (8) Wall north of rooms (16) to (20), second course, second stone from west:
 - xi. On south face in room (19).
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw nḏs (?) sʒ*.
 Distinguishing mark: ibis (?).
- (9) Wall between rooms (22) and (27), second course, third block south of doorway (25):
 - xii. On west face in room (27), with end of inscription invisible behind the masonry of the later north wall of (27); for levelling and vertical lines, see above, p. 273.
 - xv. On east face in room (22).
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw wʒḏt sʒ*.
 Distinguishing mark: *wʒt* ("road"), not visible in No. xii.
- (10) Wall between rooms (10) and (37S), second course, third stone from south:
 - xiii. On west wall in enclosure (37S).
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚsmrw wʒḏt sʒ*.
 Distinguishing mark: *ḏʒ* (*?wḏʒ?*), see drawing.
- (11) Wall on west side of court (5), north of portico (?), first course, first stone at corner of portico:
 - xiv. On east face in court (5).
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw nḏs (?) sʒ*.
 Distinguishing mark: ibis (?).
 - xxva. On same face higher up to left, a 5-ell line.
 - xxvb. On south face in portico, vertical line and 3-ell line.
 For No. xv, see above No. 9.
- (12) South wall of room (10), second course, third stone from west:
 - xvi. In middle of north face, above 5-ell line.
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚsmrw nḏs (?) sʒ*.
 Distinguishing mark: not preserved.
 - xxiii. On same face, east end, 5-ell line and mark.
 - xxiv. On same face, west end, 5-ell and 6-ell lines and marks.
- (13) Pyramid G III-a (see Vyse, *The Pyramids of Gizeh*, II, p. 48):
 - xvii. On roofing slab in burial chamber.
 Inscription: *ᶚprw Mnkʒwrᶚ-ᶚthw wʒḏt (?) sʒ (?)*.
 Distinguishing mark: not preserved (?); the restoration was suggested by Mr. Rowe.

Before discussing the crew-names, I continue here the list of marks on Pls. XI and XII, to permit a complete view of the material:

- xviii. Room (10), south wall, second course, second stone from west.
 Lines and marks for 5-ell, 6-ell, and 7-ell levels.
- xix. Room (10), north wall, first and second courses, near northwest corner.
 Incised vertical line and painted lines and marks for 2-ell, 3-ell, 5-ell, and 7-ell levels.
- xx. Room (10), south wall, first course, at 25 cm. from undressed southwest corner.
 Vertical line, incised and painted (see p. 273).

- xxi. Room (10), north wall, first course, second stone from west.
Ell-mark for 3-ell level.
- xxii. Room (10), east wall, second course, first stone from north.
Line and mark for 4-ell level.
- xxiii. See No. 12, above.
- xxiv. See No. 12, above.
- xxv. See No. 11, above, for both *a* and *b*.
- xxvi. Room (13), south wall, second course, third stone from west (near unset granite block, S a 1).
Inscription: the sign *sm3-t3wy* written twice, 80 cm. apart; and over the western sign, the word *hmwt*. The latter word is anomalous on limestone. The sign *sm3-t3wy* might be a distinguishing mark.
- xxviii. See p. 273, above.
- xxix. For comparison with No. xxviii, from *Ne-weser-re*, p. 153.
- xxx. Room (36), south wall, second course, near doorway to room (26); Dyn. VI.
Obscure marks.
- xxxi. Room (29), southern foundation wall of kernel structure, south face, fourth stone from east; Dyn. IV.
The sign *in*, twice, once upside down; white limestone.
- xxxii. Room (34), east face, small block of white stone in third foundation course of kernel structure.
Perhaps a date; the black outline is the edge of the stone; Dyn. IV.
- xxxiii. Room (13), south face, under granite block S a 4, on limestone (in foundation platform).
Three disconnected signs: *mr*, *in*, and *nfr*.
- xxxiv. Room (29), limestone foundation block under granite pavement, on west face, seen in thieves' hole.
The sign *nfr*(?) and an obscure mark.
- xxxv. Room (34), east face, fourth foundation course of kernel structure.
The sign *in* written vertically.
- xxxvi. Room (33), south wall, first course, third stone from west.
The sign *gs* and an ibis (?); Dyn. VI masonry; perhaps an older block reused.

The following were found on limestone blocks in Pyr. G III-*a* and its temple and copied by Mr. Rowe:

- xxxvii. Pyr. G III-*a*, south face, a block in one of the lower courses.
The word *wmt*(?) between two *gs*-signs, irregularly placed.
- xxxviii. Pyr. G III-*a*, east face, a block about half way up; a triangle with four vertical strokes inside it.
- xxxix. Pyr. G III-*a*, west side, about half way up.
- xl. Pyr. G III-*a*, north face, near base: *gs*
- xli. Temple of G III-*a*, room (12), north side, limestone foundation block, = *gs mhty* and an obscure mark.

Returning to the subject of the crew-names, the words *ḥprw Mnk3wrḥ-thw* obviously mean "The working-gang (named) Mycerinus-is-drunk"; and *ḥprw Mnk3wrḥ-smrw*, "The working gang (named) Mycerinus-is-one-who-excites-love" (see Prof. Sethe in Borchardt's *Sahure II*, pp. 85-86). The meaning of the word *ḥprw* is fully exposed by Prof. Sethe (*loc. cit.*) as "boat's crew" and "working gang," and in the temple of Sahura, such gangs are represented with implements in their hands. Mr. Rowe has collected the following names of *ḥprw*:

- (1) Dyn. II, Nefer-ka, Barsanti, *Annales*, VII, pp. 266-281.
 - (a) *ḥprw Nfrk3-šb3* . . . *ḥnw* . . . : Inscription No. 1.
ḥprw Nfrk3 šb3 ndš (?) *s3* . . . : Inscription No. 28.
See also Inscriptions Nos. 41, 49, and 55.
"The gang, Neferka is a teacher (?)."
 - (b) *ḥprw Nfrk3-smrw šrw*: Inscriptions Nos. 19 and 20.
"The gang, Neferka is friendly"
- (2) Dyn. IV, Cheops, found by Mr. Rowe in small chambers above the burial chamber; all the crew-names were written on the limestone blocks in the side walls.
 - (a) *ḥprw Ḥr-mḏdw-wḥ-t3wy*: Inscription C 4, chamber 3, west wall.
"The gang. The Horus Mededuw-is-the-purifier-of-the-two-lands."
 - (b) *ḥprw Ḥr-mḏdw-wḥ*: Inscription C 35 (chamber 4, west wall), C 51-56 (chamber 4, south wall).
"The gang, The Horus Mededuw-is-pure (or the purifier)."
 - (c) *ḥprw Ḥwfw-smrw*: Inscription C 82, top chamber roof block.
"The gang, Cheops-excites-love."
 - (d) *ḥprw ḥdt-Ḥnm-ḥwfw-šm(t)* . . . : Inscription Nos. 1 (chamber 2, W), 5 (chamber 3, W), 36 (chamber 4, W), 40-48 (chamber 4, N), 87-88 (chamber 5).
"The gang, The-white-crown-of-Khnumkhuwfuw-is-powerful"
- (3) Dyn. IV, Mycerinus; see above.
 - (a) *ḥprw Mnk3wrḥ-thw*: Nos. i-xii, xiv, xv, xvii.
"The gang, Mycerinus-is-drunk."
 - (b) *ḥprw Mnk3wrḥ-smrw*: Nos. xiii and xvi.
"The gang, Mycerinus-excites-love."
- (4) Dyn. V, Sahura; Borchardt, *Sahure II*, pp. 85-86.
 - (a) *ḥprw ḥr-nb Ḥr-thw*: "The gang, The Gold-Horus Horus (Sahura) is drunk."
 - (b) *ḥprw S3ḥwrḥ-mrw*: "The gang, Sahura-is-beloved."
 - (c) *ḥprw S3ḥwrḥ-špššw*: "The gang, Sahura-is-splendid."
- (5) Dyn. V, Newserra: see *loc. cit.*
 - (a) *ḥprw Nwšrrḥ-smrw*: "The gang, Newserra-excites-love."
 - (b) *ḥprw Nwšrrḥ-mrw*: "The gang, Newserra-is-beloved."

Prof. Sethe translates all these names as exclamations, "How-splendid-is-Sahura," and so forth.

After the crew-name in the Mycerinus texts follows one of two phrases, *wjdt sʒ* or *ndš(?) sʒ*. The word *ḥprw* designated originally a boat crew, and would have been divided into watches (*sʒ*) named after the parts of the ship. In Egyptian (see Sethe, *Ä.Z.*, 54, 3), the names used for the parts of the ship are given in the religious texts of the Middle Kingdom (see *Urk. V*, p. 151).

The nomenclature of the boat watches was transferred to the watches or companies of priests and workmen, and the names of these are preserved in Old Kingdom texts, in the tomb of Mereruka (see Daressy, *Mem. de l'Inst. Egypt.*, 1900, p. 555) and in the mastaba D 47 (see Mariette, *Mastabas*, p. 306). The list is as follows:

	Ship-parts	Watches	Watches
	M.K.:	Meri, O.K.:	D 47, O.K.
Starboard	<i>imy wrt</i>	<i>imy wrt sʒ</i>	<i>šhd hm-kʒ imy wrt sʒ</i> . <i>šhd hm-kʒ sʒ imy wrt</i> .
Port	<i>tʒ wr</i>	<i>tʒ wr sʒ</i>	<i>šhd hm-kʒ sʒ tʒ wr</i> .
Bow	<i>wjdt</i>	<i>wjdt sʒ</i>	<i>šhd hm-kʒ sʒ wjdt</i> (and <i>wjdt sʒ</i>)
Stern	<i>imy ndšt</i>	<i>ndšt sʒ</i>	<i>šhd hm-kʒ sʒ ndš</i> .
—	—	<i>imy nfrt sʒ</i> .	

The fifth watch, *sʒ imy nfrt*, occurs also on an obelisk from Saqqarah (*Urk. I*, p. 58).

In the Mycerinus inscriptions, the words following the name of the crew are therefore *wjdt sʒ* "bow-watch" and *ndš sʒ* "stern-watch." The normal order of the words seems to be *sʒ wjdt* and *sʒ ndš*. In the case of *sʒ imy wrt*, in D 47, two different men are called *šhd hm-kʒ sʒ imy wrt* in one case and *šhd hm-kʒ imy wrt sʒ* in the other. I doubt whether the order indicates any essential difference in meaning. In the list above, the word *ndš* is qualified by a question mark. This was due to the difficulty of distinguishing between the sign *ndš* and the sign *wr*; but after careful consideration, I believe the sign to be *ndš*.

The third element of these crew-inscriptions is the mark which I call the distinguishing mark. It was of a slightly larger size than the other signs of the inscription, and was irregularly placed on the stone, usually after the rest of the inscription but in two cases (Nos. vii and xii) before, in two cases (Nos. ii and x) underneath, and in one case (No. xiii), before and behind but lower down.

The classification and distribution of the inscriptions was as follows:

I. The crew, Mycerinus-is-drunk; nine stones found in walls of E-W axis of temple.

- (a) The bow-gang (*wjdt sʒ*), found on four stone, p. 274, Nos. 1, 6, 7, 9.
 (1) Distinguishing mark: antelope (?); one stone, No. 1.
 (2) Distinguishing mark: jackal with feather; one stone, No. 6.
 (3) Distinguishing mark: *fʒ(ʒtp)*; one stone, No. 7.
 (4) Distinguishing mark: *wʒt*(road); one stone, No. 9.
 (b) The stern-gang (*ndš sʒ*), found on five limestone blocks, p. 274, Nos. 2, 3, 5, 8, 11.
 (5) Distinguishing mark: *wḏc*; on one stone, No. 2.
 (6) Distinguishing mark: ibis (?); on three stones, Nos. 3, 8, and 11.
 (7) Not preserved on one stone, No. 5.

Stone No. 1 (bow-gang) and stone No. 2 (stern-gang) adjoin each other in the wall between rooms (13) and (24). In the wall south of rooms (14) and (20), in the second course, the first and second stones are marked "bow-gang" and the third, "stern-gang." The other stones are isolated. The three "ibis (?)" blocks were also far apart.

II. The crew, Mycerinus-excites-love; two stones both in walls south of E-W axis of temple.

- (a) The bow-gang (*wjdt sʒ*), found on one stone, No. 10.
 (8) Distinguishing mark: *dʒ(wḏʒ ?)*; stone No. 10.
 (b) The stern-gang (*ndš sʒ*), found on one stone, No. 12.
 (9) Distinguishing mark: not preserved.

It is clear that the whole construction force which built the temple was divided into crews (*ḥprw*) of which the names of two are here preserved. For Cheops, we have the names of four, and for Sahura, three. The number of crews used by Mycerinus is therefore not necessarily limited to these two. Each crew was divided into "watches" (*sʒ*) of which normally there would be four or five, here represented by two names, the bow-watch (*wjdt sʒ*) and the stern-watch (*ndš sʒ*). The numbers of workmen included in these organizations were extremely large. I would estimate 200–250 men to each "watch," or 800–1000 to each "crew." Gangs of 200–250 men are unwieldy unless subdivided in working gangs of 10–50 men, suitably led by overseers (see p. 11, gangs of 18 men used in removing granite blocks from above inner temple). I suggest therefore that the distinguishing marks are the designations of the smaller gangs which composed each of the "watches."¹

The inscriptions on the granite blocks were also in red but were very different from those on the limestone blocks (see Pl. XII). Each seems to have contained four elements which were written as if they were separate marks, not parts of a sentence. The fullest inscriptions were usually on the front face of the stone but the blocks S a 1 (unset) and S a 3 had a full set of marks both in front and on top; and marks were found on the undressed tops and sides of other stones. The list is as follows (written from right to left unless otherwise stated):

¹ These signs may have formed sentences; but I do not believe that the circumstances permit the assumption that these distinguishing marks were used to mark the place of the stones on the architect's plan as in the case of the Abusir pavement (see Borchardt, *Sahure II*, pp. 91–96).

Corridor (13).

Block:

- N a 1. *gš* . . . *imy wrt* . . . *ḥmwṯ* . . . mark, *ḥn* written above, twice.
- N a 2. *gš* . . . *imy wrt* . . . *ḥmwṯ smyt* . . . mark, *b*, above.
- N a 3. *gš* . . . *imy wrt* . . . *ḥmwṯ smyt* . . . mark, *it* written above, twice.
On top, the sign *šw* or *nšwt*.
- N a 4. *gš* . . . *imy wrt* . . . The mark, *mš* . . . *ḥmwṯ smyt*.
On top, the sign, *mš*.
- S a 1. = S b o: on the east side,
ḥmwṯ smyt . . . ibis (?) . . . *imn* (?) . . . *gš* (reversed direction).
On top, mark, ibis (?) . . . *ḥmwṯ smyt* . . . *gš* . . . *imn* (?) . . . mark, ibis (?), upside down.
- S a 2. On front, the mark, *ḏcm*.
On undressed east face, *gš* . . . the mark, *ḏcm*.
- S a 3. On front, written on its side and crossing plaster of joint, *ḥmwṯ smyt* . . . *imn* (?) . . . the mark, *wšš*, written vertically and apart, above the other signs.
On top, the mark, *wšš* . . . *gš imn* (?) . . . *ḥmwṯ smyt*.
- S a 4. *gš* . . . *ḥmwṯ smyt* . . . *imn* (?) . . . mark, *ib*, to the left.
- S a 5. *imn* (?) . . . rest illegible except for mark (?), *ḥšt* (?), above.
- S a 6. Illegible.
- S a 7. On front, mark, *wr(ḥw)* followed by two strokes . . . *gš* . . . *šw* (or *nšwt*) with *tr* (?) under it . . . *imn* (?) with *ḥmwṯ* under it . . . *smyt*.
On the undressed west face, the mark, *wr* (?) . . . *gš* . . . *imn* (?), written twice upside down and once from left to right.
- S b 1. Mark, *šn* . . . *ḥmwṯ smyt* . . . *gš imn* (?).
- S b 2. *gš* . . . *šw (nšwt)* with *tr* (?) under it . . . mark, *ḏcm* . . . *ḥmwṯ smyt* . . . *imn* (?); and out in front, *ḏcm*, upside down.
- S b 3. Mark, *šndwt* (?) . . . *gš* . . . *šw (nšwt) tr* (?) . . . *ḥmwṯ smyt*. The mark is repeated on the top and on the west side.

Portico (?). South end: the isolated black granite block has a vertical line and a star on the face.

Room (24). On the front and west faces stands *gš* and *ḏcm*. On the front is also an obscure sign which may be *imn* (?).

The word *gš* is a constant element and may be assumed to have stood on every block. The term, *ḥmwṯ smyt* “desert workshop” (or similar), is also a constant element occurring on every block on which the inscription is legible. The phrase, *imy wrt*, stands on each of the four blocks set together on the north side of room (13), and follows the word *gš*, but is not grouped with it. On the southern side of that room, the corresponding word is *imn* (?) (𐩧 hawk on a standard) which appears in ten inscriptions on seven stones (S a 1, S a 3, S a 4, S a 5, S a 7, S b 1 and S b 2) and is probably merely illegible on S b 3. But an additional element, *šw(?nšwt?) tr* (?) (*tr* written under *šw*), is introduced after *gš* in S a 7 (front), S b 2, and S b 3, in two cases and probably in all three, in addition to *imn* (?). The sign, *šw(?nšwt?)*, occurs also inexplicably on top of N a 3. Finally every block had a fourth, a variable, element, that which I call the distinguishing mark as in the limestone inscriptions. The marks of N a 1 to N a 4 read from right to left: *mš it b(w) ḥn*. Those of S a 2 to S a 7 read also from right to left: *wr(?ḥw?) . . . ḥšt ib(det.?) wšš ḏcm*. And those of S b 0 to S. b 3 read also from right to left: *šndwt ḏcm šn bš (?šḥt?)*. These rows of signs could be fitted into sentences but the attempt seems futile in view of the paucity of the material. The sign *ḏcm* occurs twice in corridor (13) (S a 2 and S b 2) and a third time in room (24).

In spite of Professor Borchardt's clear evidence of the use of setting sentences for casing and paving slabs, I am unconvinced of the application of that principle to the explanation of the “distinguishing marks.” The absence of any designation of the courses, the fact that the casing had been begun in 32 places (including 77 stones in the first course, and four stones of the second course, and the very small gaps in the east wall of the court casing), all seem to me to be objections. The mere fact that the temple required at least five courses of about 215–250 stones each, with a total of 1200 to 1500 granite blocks, seems to me to make the suggested procedure impractical. I am unable, however, to suggest any very clear explanation, and must leave the facts for future consideration.

APPENDIX F

LIST OF INSCRIPTIONS¹

THE inscriptions found in the Mycerinus temples may be grouped in the following classes:

- (a) Inscriptions left by the builders in the course of construction of the temples.
 - i. Painted on the limestone blocks (see pp. 63, 76a, 78b, 79, and App. E).
 - ii. Painted inscriptions on the granite blocks (see pp. 82c, 83, and App. E).
- (b) Inscriptions on stone slabs or stelae which give royal records or decrees concerning the temples. Insc. Nos. 1-4, below.
- (c) Seal impressions on mud sealings made by royal officials in connection with the temple service, see pp. 19, 32.
- (d) Inscriptions on objects made by Mycerinus or Shepseskaf and deposited in the temples.
 - i. On statues and statuettes, see pp. 108-115 (Nos. 2, 9-12, 18-21, 39, 42, 43, 48).
 - ii. On pottery vessel, see p. 238 (j).
 - iii. On vessel inlaid with faience, see p. 236.
- (e) Inscriptions on older objects deposited in the temples.
 - i. On flint wands, see pp. 18, 36, 233-234.
 - ii. On stone vessels, see pp. 102-104, 179.
- (f) Inscriptions on objects found in the temples but not certainly belonging to the original deposits.
 - i. Seal cylinder of Chephren, see pp. 104c, 234.
 - ii. Model stone vessels of Prince Kay, see pp. 55, 199x.
 - iii. On private statuettes, see pp. 113-115 (Nos. 41-44, 46, 51).
 - iv. On private stelae.

STELAE OF SHEPSEKAF

No. 1. *The Decree of Shepseskaf*

The original dedication of the temple is contained in the inscription on the large stela of King Shepseskaf. This stela is preserved in eight fragments found in the débris of the portico of the pyramid temple (see pp. 13, 15, and 31, and Pl. 19b; No. 07-1-3 and 4). Seven of the fragments fit together to form the top and right side, while the eighth fragment is from the left side. The stone is about 22 cm. thick, and I estimate its width at 67 cm., its height at over 85 cm., exclusive of the unscribed lower edge. The stone is rather hard local nummulitic limestone of a brownish color.

Across the rounded top runs horizontally from right to left a cartouche: *nšwt-bity špšš-kš-f*.

Vertical line 1, with signs facing right: *hr špššy-ht rnpt m ht sp tpy ipt kš Cw[t]* "The Horus, Shepsesykhet, year after the first census, counting of the cattle, large and small, . . ."

Vertical line 2: *ir-n-f m mn [w-f n i] t-f*. At this point the line is interrupted by a cartouche which crosses the middle of the stone horizontally and interrupts four or more lines. Inside the cartouche is the title and I reconstruct as follows: *nšwt-bity [r^c-mn-kšw]*. "He made as his monument for his father, the king of Upper and Lower Egypt, [Menkauwra]". Below the interruption, line 2 continues with the words *wdn* (det., bread, etc.).

The space above the horizontal cartouche was taken by one of those forms so common on the O.K. decrees with horizontal and vertical lines combined. Immediately over the cartouche are two horizontal columns not separated by a line: *ir wdn* (det., bread, beer, cake). . . .

wšhw (?)

Thus in the year after the first census of his reign, Shepseskaf endowed the temple of his father, Mycerinus. If the first census fell in the second year, the year here referred to is the third year of the reign. I conclude that the temple was finished by Shepseskaf in his second or third year, probably in the third.

The eighth fragment from the left side bears parts of four vertical lines. Line X + 1 shows only the left ends of three signs, the upper of which is the corner of the sign for pyramid. Line X + 2: begins with the lower part of a cartouche, part of the name of the Third Pyramid: *[r^c-mn]-kšw ntry n rdy*

Line X + 3: . . . *n (?) -šn (?) hmw* (det., man + woman) *r*

Line X + 4: . . . *tw nht w^cbw-f ir (?) m*

The text is much too fragmentary to reconstruct but it is obviously dealing with the Mycerinus pyramid and with the priests of the funerary service.

No. 2. *The Stela at the Outer Entrance of MPT*

The bottom part of a stela of the same stone and general character as No. 1 was found in a heap of débris just outside the entrance to the Pyramid Temple, MPT (2). The upper part of the fragment was badly weathered and broken off above the weathering. The stone was 23 cm. thick and 73 cm. wide. The height as preserved was 108 cm., but at the bottom a space (43-49 cm. high) was unscribed and the longest line of inscription was only 30 cm. high. (See pp. 13, 31, Pl. 19d; No. 07-1-21.)

¹ See Pl. A following p. 281.

The fragment presents the ends of eight vertical lines of inscription with signs facing to the right.

Line 1: . . . *ir r gš nšwt ḏd mdw-f*. “. . . , made in the presence of the king who says.”

Line 2: . . . [*nšwt-bity r^c-mn-kšw*] *m r^c-mn-kšw-ntry*. “. . . [Mycerinus] in the pyramid, Mycerinus-is-divine.”

Line 3: . . . *w^cbw ḥr-f ḏt* (*ḏt* written under lines 3 and 4).

Line 4: . . . *š* (*det.*, *abstract*)-*f nb ḏt* (see line 3).

Line 5: . . . *r^c]-mn-kšw-ntry*.

Line 6: . . . *ksn*. Line 7: . . . *w*. Line 8: . . . *t*.

The text is sufficient to establish that we have a decree of some king concerning the pyramid of Mycerinus. The similarity to the stone and cutting of the Shepseskaf stela suggested that this fragment might be part of that stela. Even the lines are the same width. The text excludes, I think, that possibility. In any case, Stela No. 2 is earlier than the decree of Dyn. VI, and may be by Shepseskaf.

No. 3. *Decrees of Menera (?)*

In the portico, MPT (7), in the same débris as the Stela No. 1, we found forty-one fragments of thin limestone slabs inscribed with decrees (see p. 15a, Pl. 19 e-i Pl. A, 2-5). After considerable labour certain fragments were fitted together as shown on Pl. 19, but it was impossible to establish contacts between the larger fragments thus constructed. I concluded that the fragments came from at least two different stelae because of the different width of the margin below. These decrees were manifestly of the form of known decrees of Dyn. VI (see No. 4, below) (see weill, *Décrets Royaux*).

One fragment (Pl. 19 h) from the right-hand edge of one of the slabs bears in a frame the Horus-name *ḥ^cw* (Menera) of Dyn. VI. One at least of the stelae is to be dated to that reign. The other is probably of about the same time (perhaps Pepy I).

On the basis of appearance and margin, I assign Pl. 19, e, i, and g (Nos. 7 and 8, counted from left above) to decree No. i, that with a wide border (4 to 4.4 cm.) below, while I group Pl. 19 f and g (Nos. 6, 9-13) to decree No. ii, with narrow lower border (ca. 3 cm.). There remain some unassigned fragments and the accuracy of the grouping is of course open to question.

Decree No. i

The fragment Pl. 19 i (Pl. A, 3) of 14 pieces, measures 31 cm. high by 40 cm. wide, and comes from the right side of the slab next to, or very close to, the date. At the top are the determinatives of five vertical lines which represent a list of officials, to whom the decree is to apply. In the extreme lower right corner is the word *ḏt*, probably to be read vertically [*m šwt*] *ḏt*, cf. Borchardt, *ÄZ.*, 42, Pl. I. It is possible, I think, that we have here an exhortation, not a prohibition. The long list of prohibitions of the Dahshur decree is wanting, but the next line, a compound line, bears some resemblance to line 21 of that decree (see Borchardt, *ÄZ.*, 42, p. 10). Our decree, however, is dealing with a different matter, the pyramid or the pyramid temple, not the pyramid city, and I interpret our line as a command to assemble (or similar) a certain class of priests determined with man + woman (perhaps simply *rmt*) and another class determined with three men, in order to (*r*)

(a) “make the purification of your pyramid enceinte and your temple”

irt ḥ^cw nw imy-ḥr-k ḥt-ntr-k

(b) “that you may read the writing (rescript) to the craftsmen . . .

šd[ḫ]-k sš n ḥmwt . . .

The fragment Pl. 19 e (Pl. A, 2) consists of three pieces which join. This is from the lower left corner of the stela. The maximum measurements are 44 cm. high by 25 cm. wide. On the right is a space with horizontal lines giving a list of offerings each with the figure 1 at the end. The words: . . . *bšš 1*; . . . *mḏt 1*; and . . . *š wrt* are legible. At the bottom is the end of a horizontal line: . . . *t n-k*. Left of a dividing line follows a broad vertical column of small signs. On half the width above stands *d, rn(?) n*, suggesting something like “My Majesty set the name of”: *nš[wt-bity r^c-mn-kšw]* (*det.*, *king*) *ḥr bnbnt tn m kšt kšty ḥr ḏd . . . (?)n . . .* “The King of Upper and Lower Egypt on this cap-stone in the work of the sculptor and said (?) . . . ‘Let not’.” The negative may have been followed by a double vertical line. After the break, at the bottom, stands on the right *n(?)*-*š* and on the left *tp-ḥwy*. The last vertical line gives the end of the usual formula; *nšwt ḏš r gš ḥtm*. “The king himself was present at the sealing.”

These two pieces yield a height of over 44 cm., and a combined width of over 25 + 40 = 65 cm. These decrees of Dyn. VI are usually much wider than their height and I assume that at least one section of 20-30 cm. is missing between the two fragments (e and i). To this missing part I would assign the fragment (two pieces) Pl. 19 g, (Pl. A, 5 No. 7), because it also refers to *bnbnt tn*. Above on right several horizontal lines:

iš pw . . n

[*bn*] *bnt tn*

and on the left of the vertical, *m kšt* Below this a horizontal line crosses the fragment: . *i(ship) m(?)* . . . *r išbt* and there are other traces of signs along the lower broken edge.

Several other fragments on Pl. A, 5, as Nos. 8 and 10 may belong to decree No. i but they contain only isolated words.

Decree No. i deals with the pyramid of Mycerinus and in particular with the setting of a *bnbnt*, — the cap of a pyramid or of an obelisk. In mastabas of Dyn. VI at Giza, it was a common practice to set up *two* obelisks one on each side of the false door and/or one on each side of the doorway to the inner offering room. These are usually quite small, from 60–120 cm. in height. A pair of obelisks might have been set up in the inner sanctuary (Dyn. VI) of the MPT but we found no trace of them. From later times several cap-stones of granite are known, inscribed with the name of the king. These seem to have been set on pyramids. I think that the *bnbnt* referred to is the cap-stone of the pyramid itself which had never been set in place by Shepseskaf when he completed his father's pyramid and temple, or was replaced for some reason at the time of this decree.

Decree No. ii

The decree No. ii has a margin at the bottom of only 3 cm. and consists of the fragments, Pl. 19 f, and g, Nos. 12 and 13 (Pl. A, 4, 5). The largest of the fragments, Pl. 19 f is 25.5 cm. high and 22 cm. wide and appears to be from the left middle of the slab. The fragment (of four pieces) is divided by an incised vertical line down the middle. To the left are traces of a horizontal line, below which are the ends of four or five horizontal lines bounded by a vertical which reads: *r gš hr-šn*. Partially separated from the last-named vertical line comes another vertical line: . . . *nšwt-bity r^c-mn-kšw m r^c-mn-kšw-ntry*. To the left of the middle incised line is a broad blank space, the upper part of which is broken away. Then comes a narrow vertical line of inscription: . . . *hr (pyramid)-k dt my wnt im* . . . Two horizontal lines at bottom: *hnc šnwt* . . .

*mytt iryt m [dt (?)]
r nhh.*

This relates apparently to a restoration of the temple, MPT.

The fragment, Pl. 19, No. 13, is from the lower edge: to the right the ends of two horizontal lines read: . . . *šn* and . . . *r-š*. To the left stand three horizontal lines: *šmr mr ht* . . . *r irt rwqdw [t(det., stone)] tp m hr* . . . "In order to make the . . . before the pyramid-enceinte (?)".

The other fragments contain only isolated words and signs.

No. 4. Decree of Pepy II

(Pl. A, 1.)

The decree of Pepy II was found high up in the débris of the anteroom of the valley temple (see p. 38, March 24). I concluded that it had been on the wall of the later portal structure and had been brought down to the level at which it lay by the action of sebbâkheen.

The inscription was very badly preserved as the stone was weathered. The stone measured 30 cm. high by 52 cm. long (and 8 cm. thick) while the rectangle containing the inscription measured 25 cm. high by 42 cm. long. In a broad line on the right stands: *hr ntry-h^cw hšt sp 50 (?) ibd 3 šht hrw 6 (?)*, that is the sixth (?) day of the third month of the overflow season of the 50th (?) year of Pepy II. On a horizontal line above stands the usual formula: *wđ nšwt* "The King commands." The name and title of the official or officials named is illegible except for the name of the pyramid (*r^c-mn-kšw-ntry*) to which he or they were attached. The tops of the first three vertical lines of the text give the titles of three men:

- (3) "The hereditary prince, king's son, and *imy-is*, Akhet-em-hem(?)"
- (4) "The nomarch, sole companion, *imš-c*, Pepy-Yema (*imš*)"
- (5) "The nomarch, sole companion, overseer of the Pharaoh's garden, Khnum-hetep."

Under these a horizontal line gives the name and titles of a fourth person:

- (6) "The lector-priest, scribe . . . *išfi* (?).

Below this a large space shows now only isolated signs, but at the bottom quite clear stands: "In the pyramid city of the King of Upper and Lower Egypt Mycerinus-is-divine."

Then follow seven vertical lines (Nos. 6–12). Line 6 begins with an illegible word, *rmš nb r-š wp-hr išfi pn hft wdt [-nhmi] dt*. "[No] people shall [enter ?] it except this Yeshfi according to that which [My Majesty] has commanded, forever (?)"

Line 7: *dy-t pr rmš nb* Not very certain.

Line 8: evidently continues line 7: *n nfr-kš-r^c-mn-^cnh mr-n-r^c-h^c-nfr* "of the pyramid of Pepy I and the pyramid of Menera."

. *r it iht nb m nwt (det., pyramid) tn iw wđ hmi hwt nt nwt tn*

" . . . in order to take anything from this pyramid city (for) My Majesty commands the protection of this pyramid city."

Line 9: very difficult to see anything; perhaps below: *n mrwt w^cb šd* . . . "for the purpose of purifying and holding services . . ."

Line 10: continues line 9, giving other purposes of entry and adds: "[for the King of Upper and Lower Egypt Men]-kauw-[ra] forever."

Line 11: *m wd hr nswt-bity [Mn-k3w-r] ʿnh dt r nhh*. "As is commanded for Mycerinus living forever and ever."

Line 12: *nswt ds r gs htm* "The king himself was present at the sealing."

No. 5. *Fragments of Inscribed Alabaster*

In the débris of MVT two fragments of inscribed alabaster were found. One small irregular fragment, measuring 2×5.3 cm., which had been broken from the face of a larger monument (altar or stela), was found in the sand in a thieves' hole in the northern wall of the court (see p. 37, Jan. 1-7). It bore incised in two vertical columns the names "Min-nakht" and "Ra-wer." Below the left-hand column is the sign ś (?). (Pl. A, 7.)

The other fragment, measuring 9.5×5 cm., was also broken from the face of a larger monument, perhaps the same as the first-named fragment. It was found in the upper part of the débris of decay in the last series of rooms of the southern side of the court (room 323) in association with fragments of statues of Mycerinus (later period of plundering for stone) (see p. 38, Feb. 18-23 and Pl. 46 g). Down the middle of the fragment runs a raised band inscribed . . . *wrw hb* On each side facing the raised band stood a figure of a man in relief with a plain staff in the far hand and a \dagger wand in the near hand, but only the staves and wands are in evidence. On the wand stands a horizontal line of incised inscriptions: — *sm rʿ-wr*.

Probably both fragments are from the tomb of Ra-wer excavated by Selim Effendi Hasan north of the MVT.

No. 6. *Limestone Lintel*

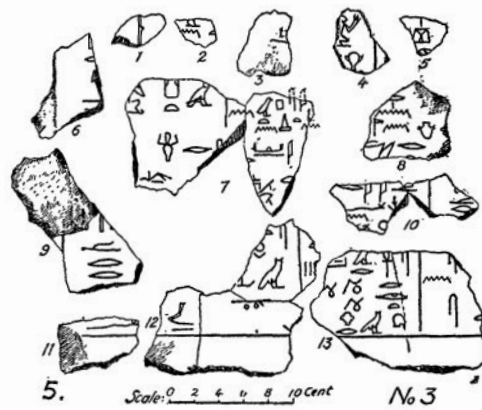
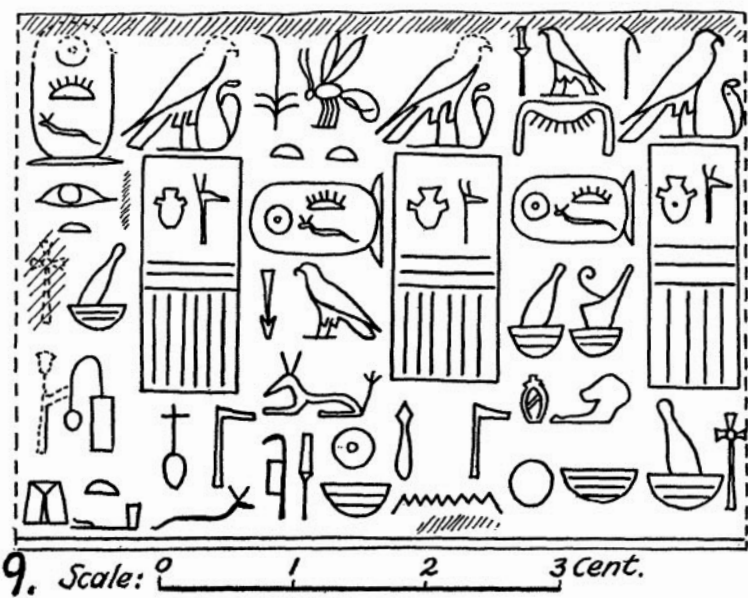
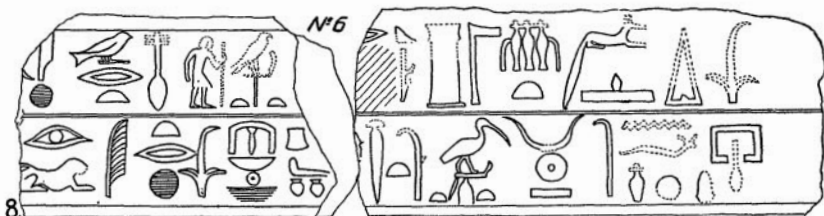
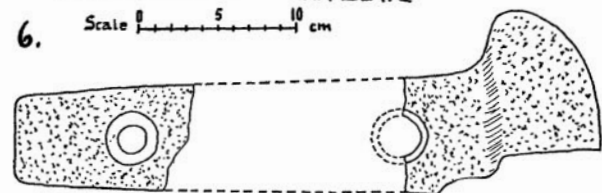
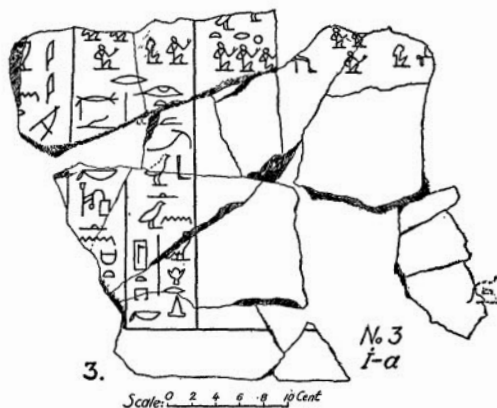
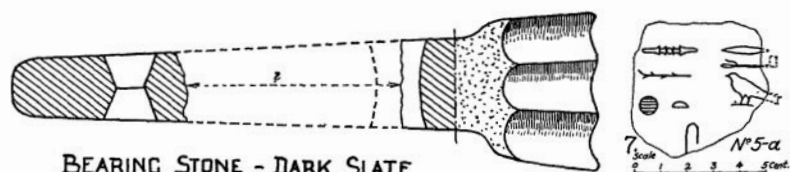
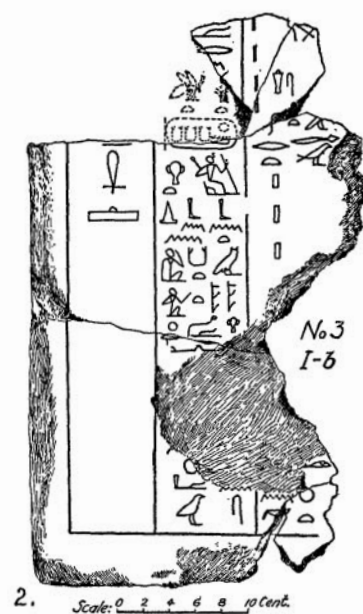
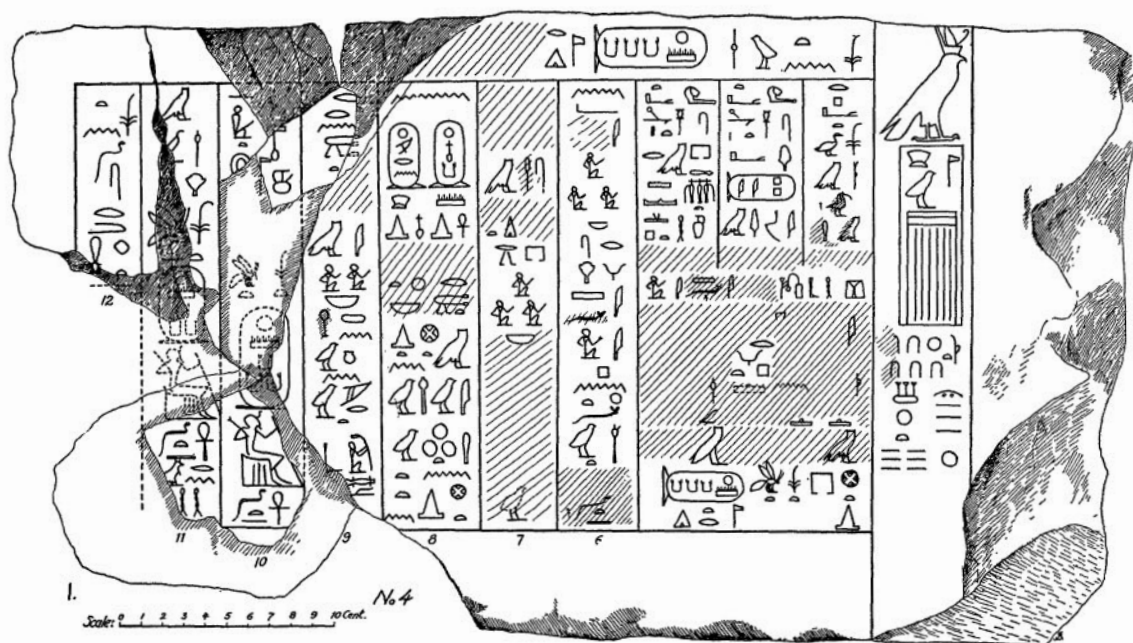
Two fragments of yellowish limestone were parts of a lintel from a door or a false-door, and bore one of the ordinary *dy nswt htp* formulas used at Giza in Dyn. IV-VIII (see Pl. 64 d, e; Pl. A, 8). I connect this lintel with the square burial pit in the southern wall of the vestibule room (III-377). The inscription is in relief and the name is \dagger

These two fragments were in the same disturbed débris as the decree (No. 4, above) of Pepy II but lower down (about 30 cm. above floor) in the doorway from (III-377) to the court. It is possible that the lintel belonged to a c.b. mastaba of Dyn. V which was destroyed in the course of the restoration of Pepy II (?). The finding of the stone is recorded in the diary under date of March 26, 1910.

The inscription reads: "(1) May the king give an offering, Anubis foremost of the Hall of the Gods, May [he] be buried in the westland in a good old age, honored [before the great god]. (2) Funerary offerings for him at the beginning of the year, the Thoth-festival, the first of the year, the *w3g*-festival, and every day, the king's clansman, Yerruw".

No. 7. *Inscription of the Cylinder Seal of Silver*

The cylinder is described in p. 234 except for line 6, which reads: "Scribe of the archives (which are called) *irt-nd* (?)—*hdt-Hʿfrʿ* (see Pl. A, 9). The golden Horus-name in line 2 is: *wšr-šhm Hʿfrʿ*.



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"dumped débris," any material thrown in as filling or cast aside, falls in gravity slope of material
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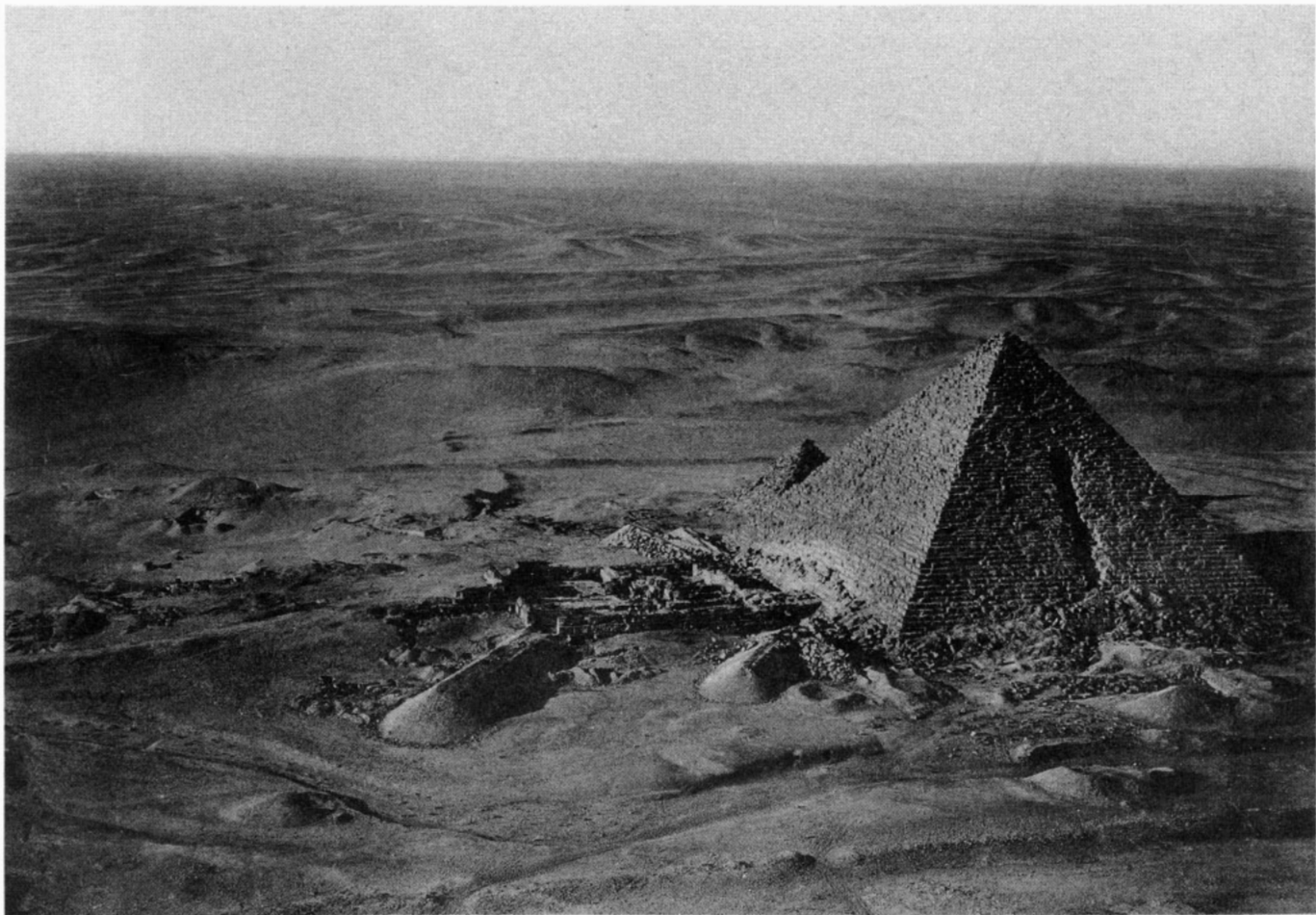
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a. Micerinus Pyramid Temple, seen from the Second Pyramid, looking down to south. Previous to excavation. December 1, 1906.



b. Micerinus Pyramid Temple, seen from the Second Pyramid, looking down to south. After excavation. April 16, 1907.



a. Mycerinus Pyramid Temple, outer temple, seen from the Third Pyramid, looking down to east. Previous to excavation, December 1, 1906.



b. Mycerinus Pyramid Temple, seen from the Third Pyramid, looking down to east. After excavation, May 18, 1907.



a. M. P. T., court (5), with layers of debris, looking north, January 9, 1907.



b. M. P. T., entrance doorway (2), looking east, stela 07-1-21 as found, January 6, 1907.



c. M. P. T., portico (7), pillar-sockets south of temple axis, looking west, May 10, 1907.



d. M. P. T., portico (7), pillar-sockets of western row, north side, looking west, May 10, 1907.



e. M. P. T., footway across court (5) and entrance corridor (3), looking east from center of court, June, 1907.



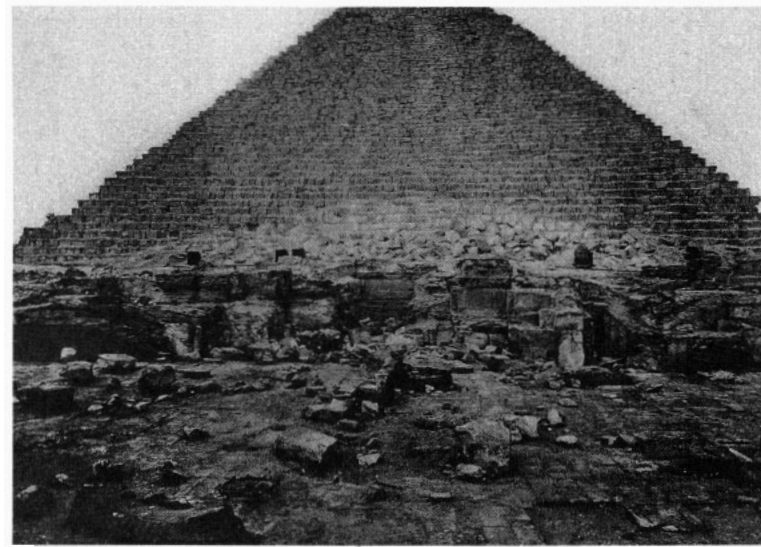
a. M. P. T., portico (7) and screen-wall, looking south, February 7, 1907.



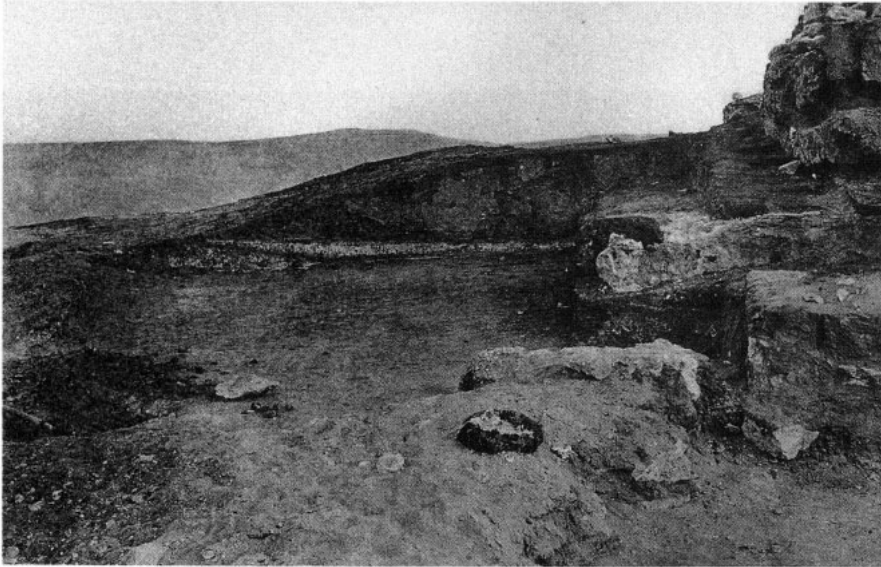
b. M. P. T., court (5), N. W. quarter with doorway (12), looking northwest, February 7, 1907.



c. M. P. T., court (5), east wall, south part, emplacements for granite casing, looking down to N. E., June, 1907.



d. M. P. T., court (5), portico (7) and offering room (8), from eastern side of court, looking west, June, 1907.



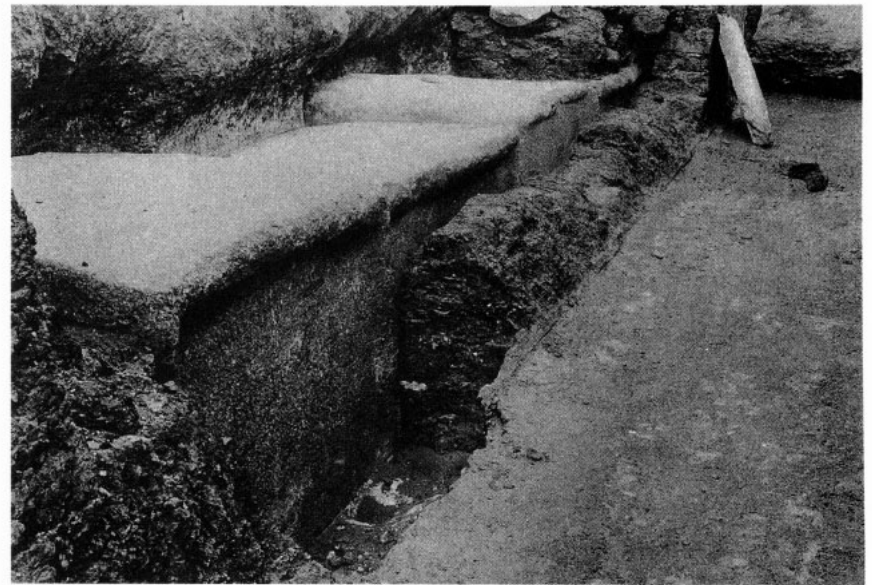
a. M. P. T., causeway corridor, western end, looking south, June, 1907.



b. M. P. T., causeway corridor, western end, looking west into temple, June, 1907.



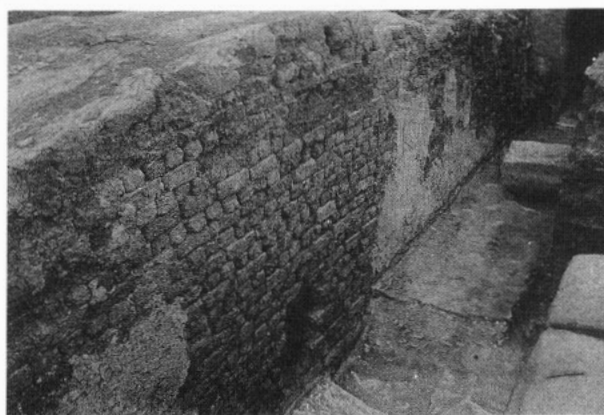
c. M. P. T., northern corridor, (13), looking east, February 10, 1907.



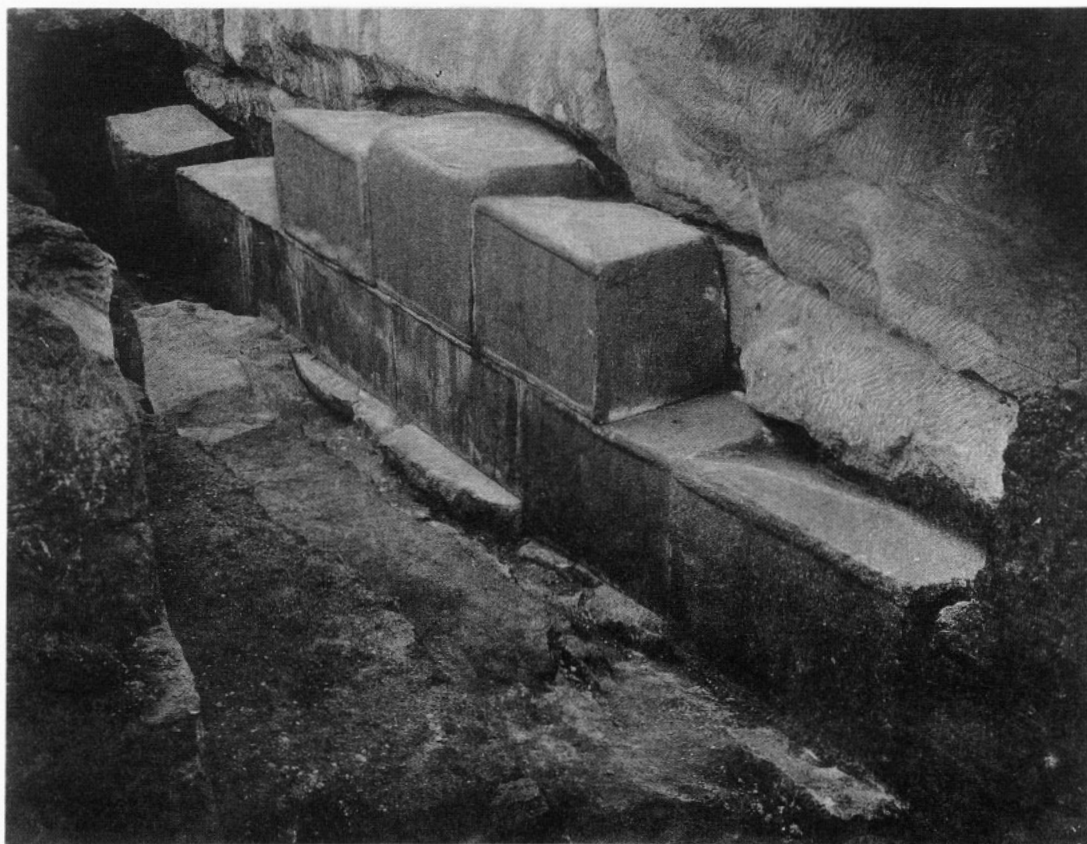
d. M. P. T., northern corridor (13), north wall, black granite casing, looking N. E., May 27, 1907.



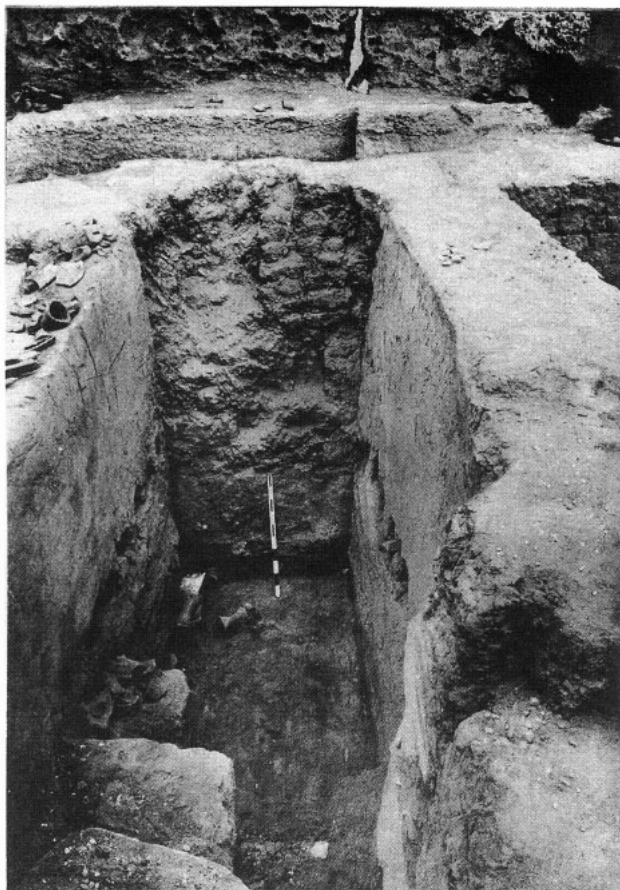
a. M. P. T., northern corridor (13), north wall, granite casing, looking down to E. N. E., October, 1923.



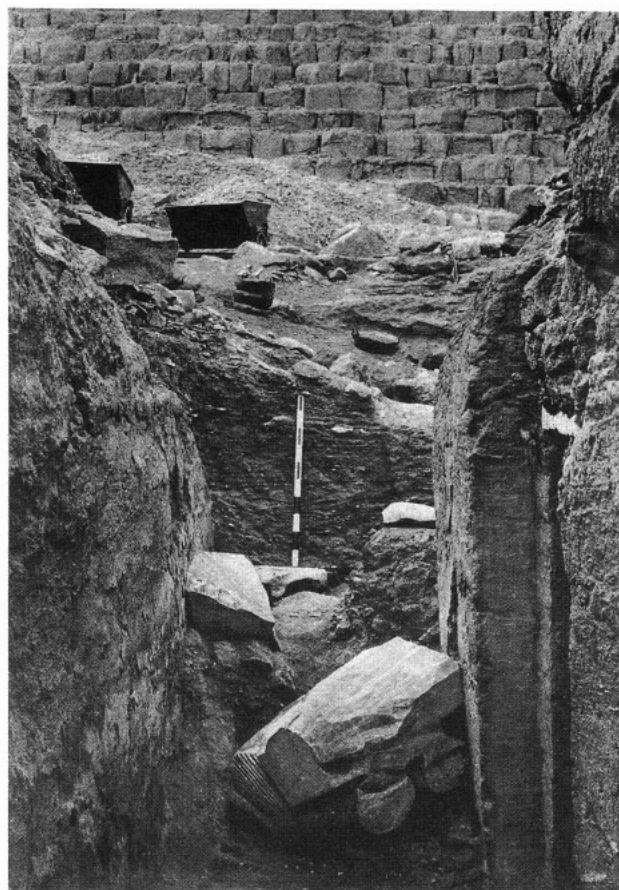
b. M. P. T., northern corridor (13), south wall, crude-brick casing partly stripped of plaster, looking down to W. S. W., October, 1923.



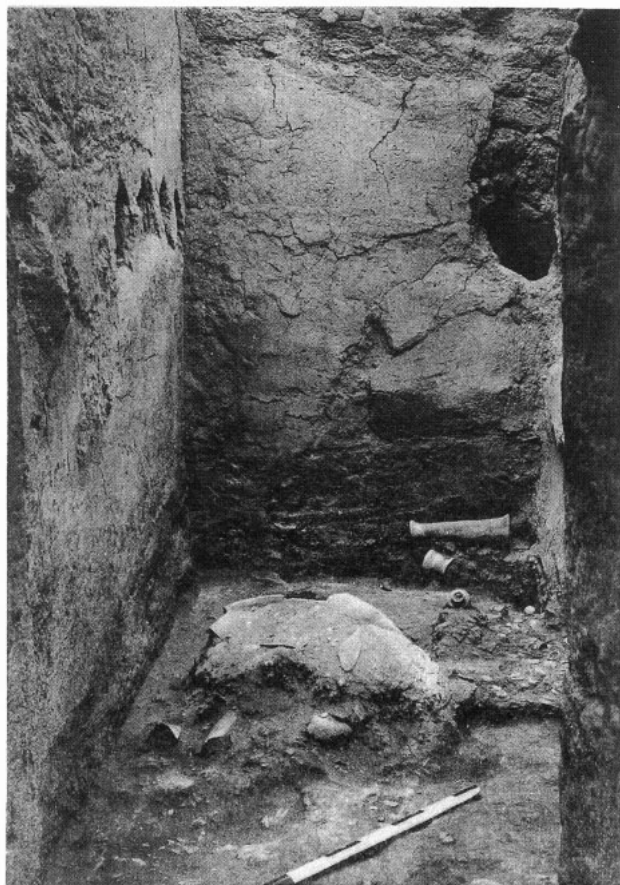
c. M. P. T., northern corridor (13), south wall, black granite casing, looking southeast, October, 1923.



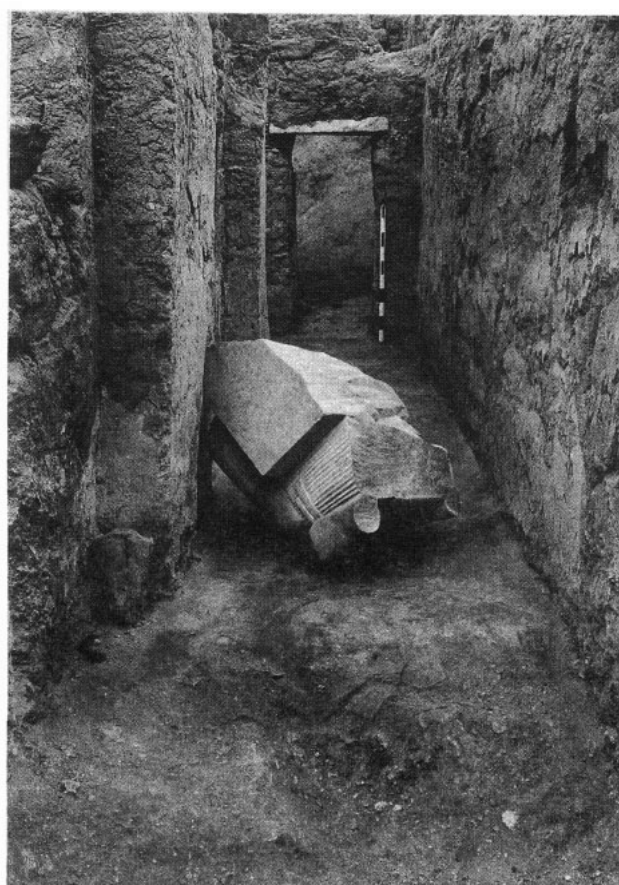
a. M. P. T., magazine (17), looking down north, January 22, 1907.



b. M. P. T., corridor (15), looking west, fragments of statues as found, January 23, 1907.



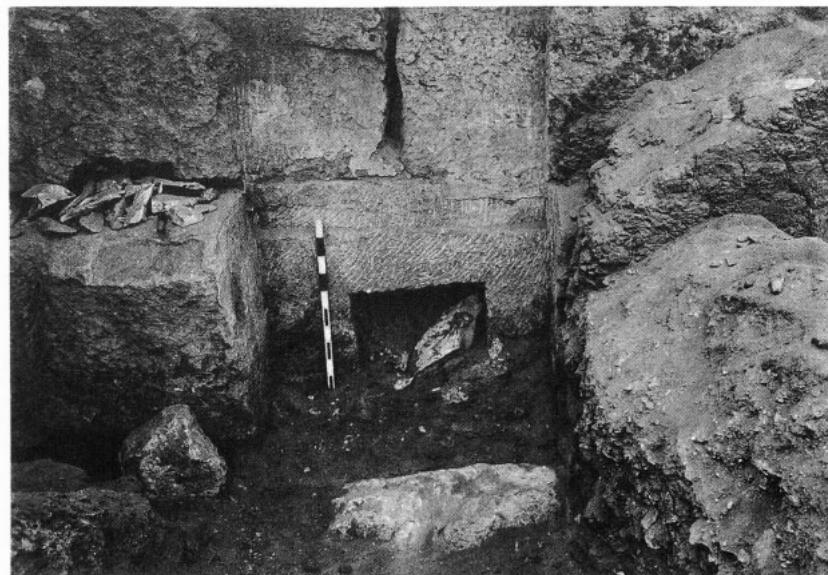
c. M. P. T., magazine (18), looking north, January 22, 1907.



d. M. P. T., corridor (15), looking east, knees of statue No. 1, as found, January 23, 1907.



a. M. P. T., fragments of statues, outside magazine (20), looking southwest, April 14, 1907.



b. M. P. T., magazine (20), fragments of statues in drain-hole, looking north, January 20, 1907.



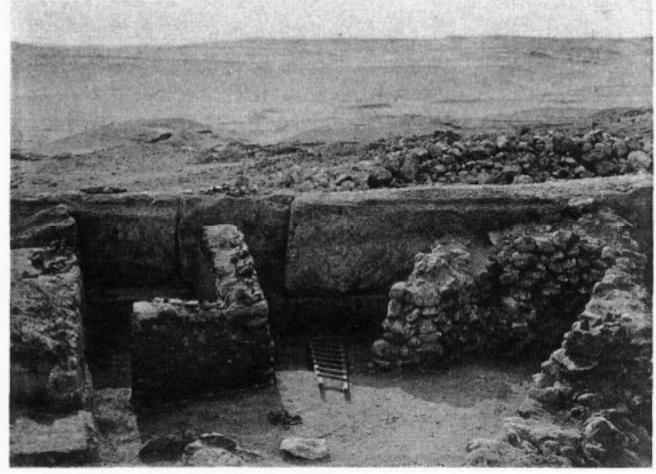
c. M. P. T., alabaster head and other fragments, outside drain-hole, looking south, April 14, 1907.



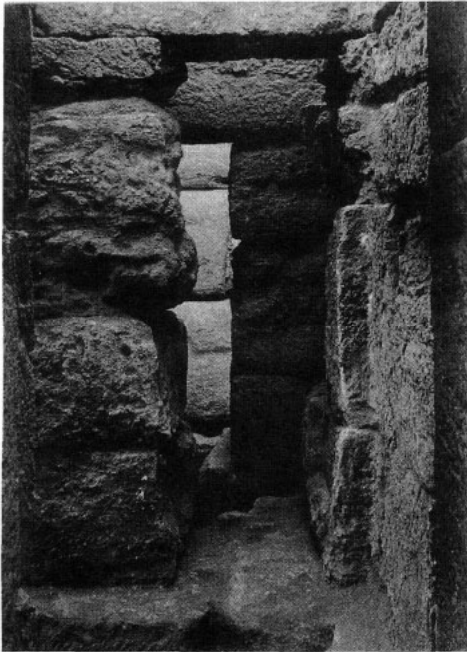
d. M. P. T., near view of alabaster head and other fragments, looking north, April 14, 1907.



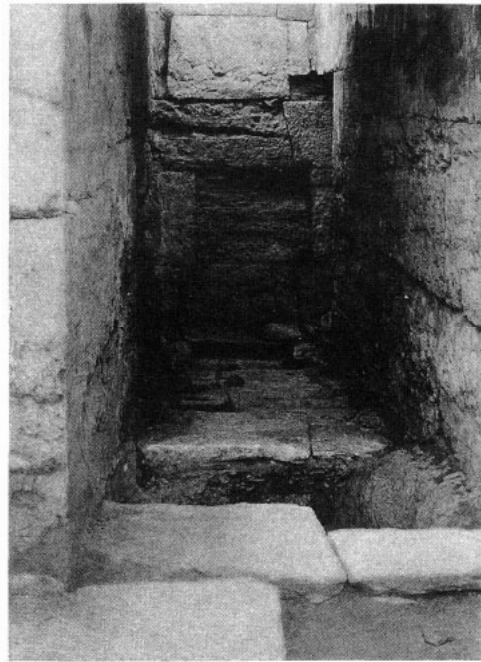
a. M. P. T., crude-brick walls, south of western end of causeway, looking east, June, 1907.



b. M. P. T., room (11), looking south, January 9, 1907.



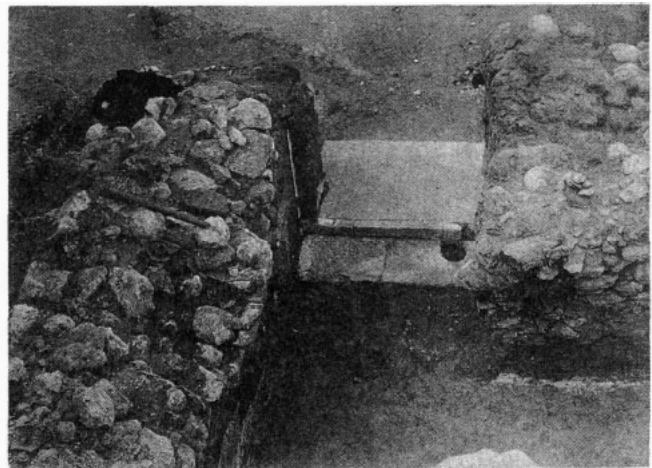
c. M. P. T., looking west from room (26) to room (31), October 18, 1923.



d. M. P. T., corridor (28), sloping floor, looking north, April 5, 1907.



e. M. P. T., room (36), Roman stair on sand, looking east, April 4, 1907.



f. M. P. T., room (36), doorway, looking down north, April 12, 1907.



a. M. P. T., inner temple and magazines of outer temple, looking down to east from the pyramid, June, 1907.



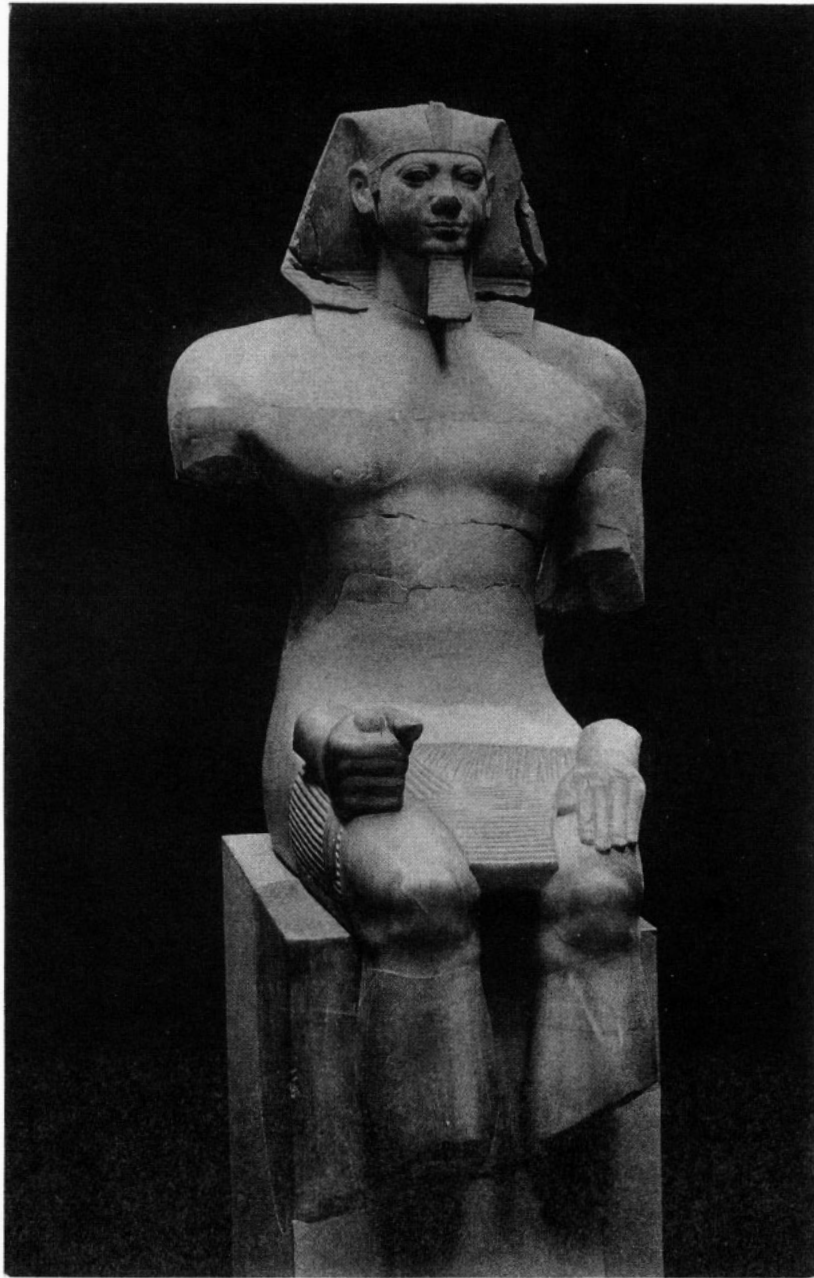
b. M. P. T., inner temple and construction plane, looking north, June, 1907.



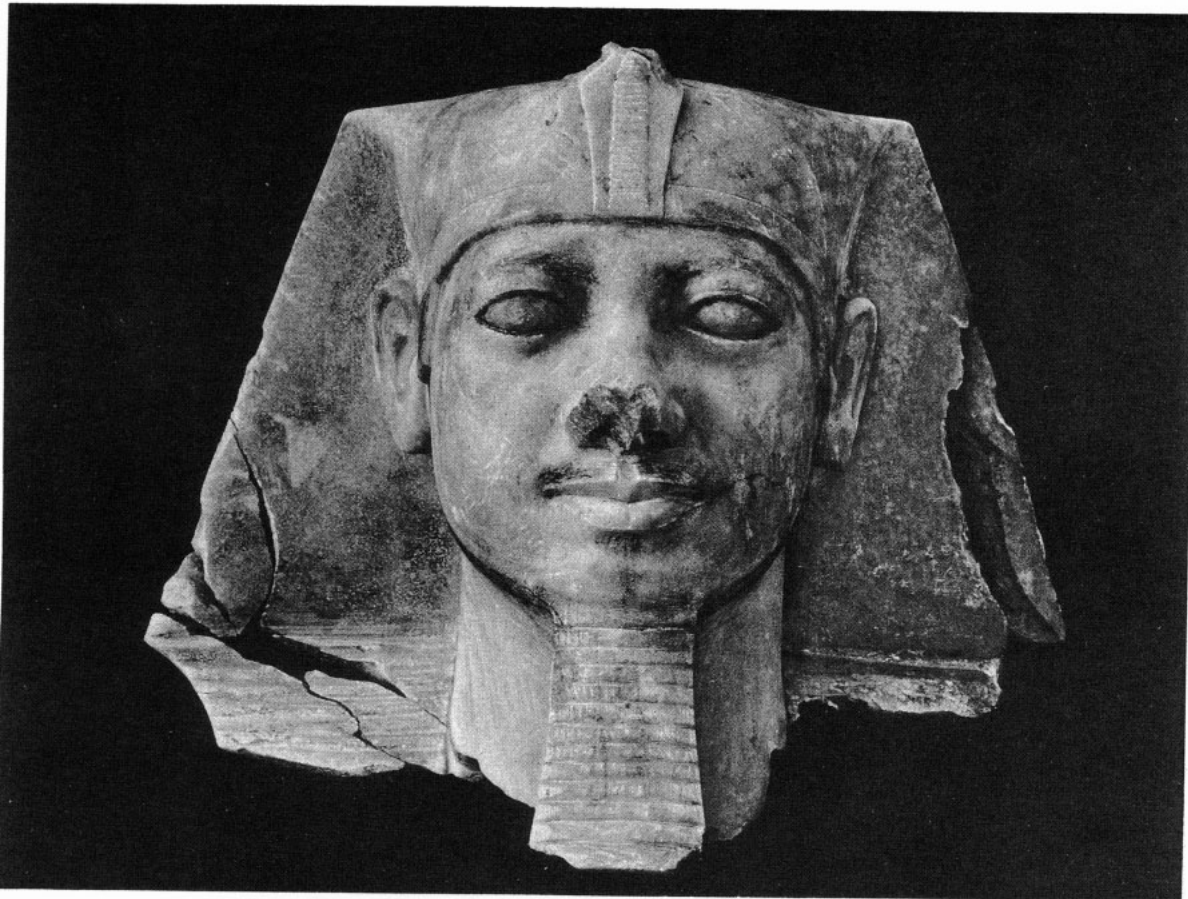
a. M. P. T., room (29), granite pavement and granite casing of pyramid, looking northwest, October 20, 1923.



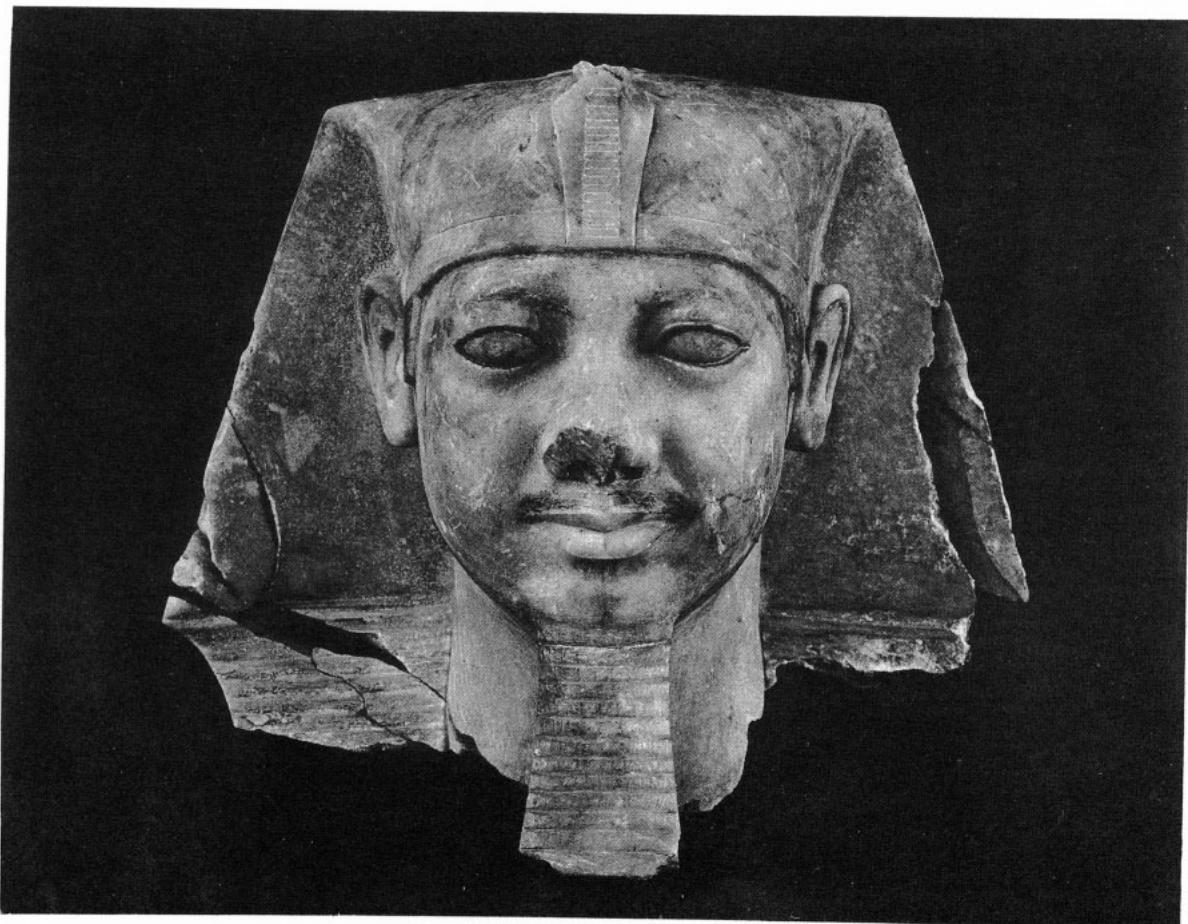
b. M. P. T., room (29), granite pavement and walls of Turah limestone, with room (27), beyond, looking down to east, October 17, 1923.



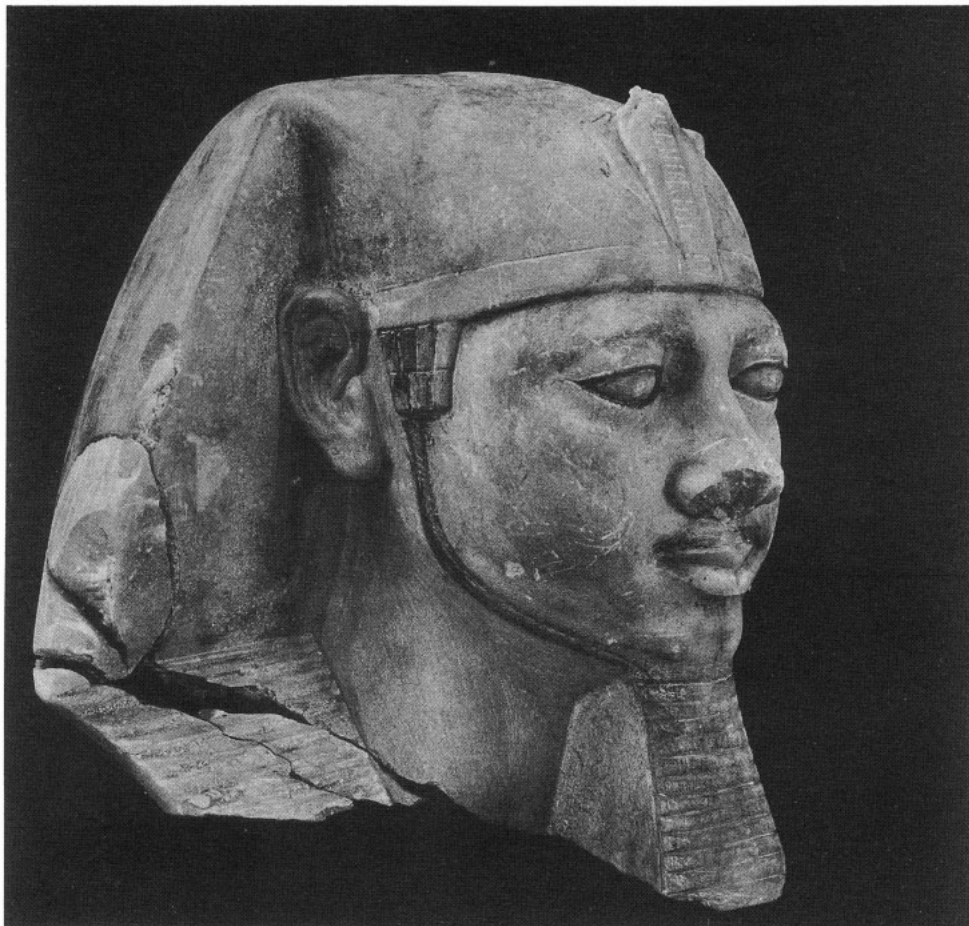
M. P. T., statue No. 1, great alabaster statue of Mycerinus.



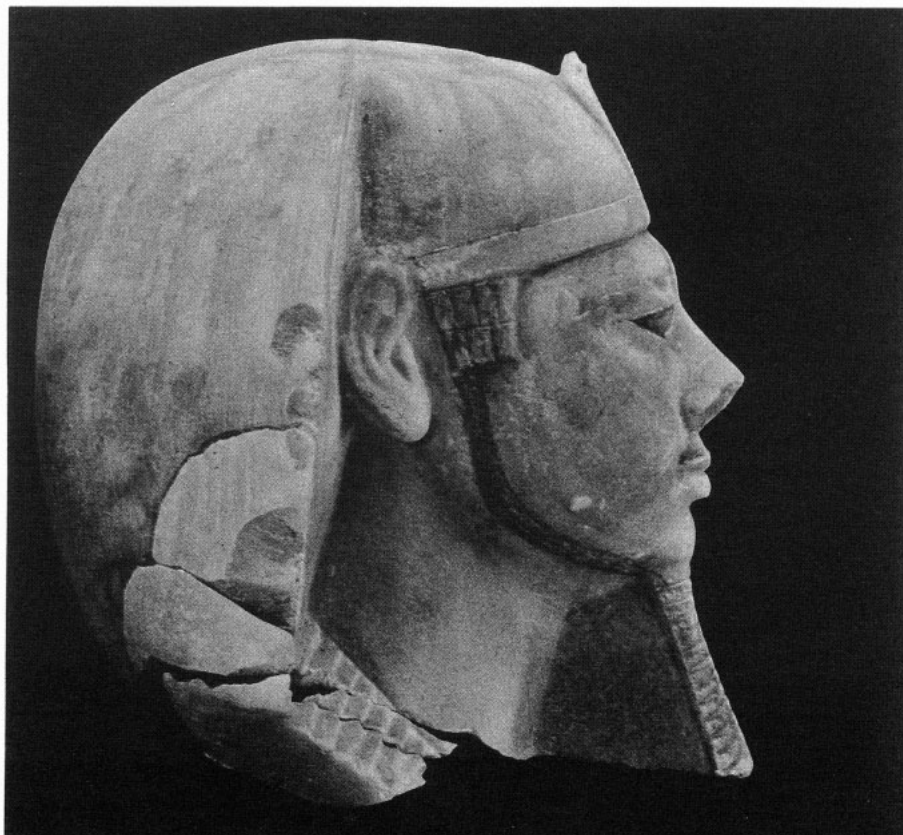
a. M. P. T., head of statue No. 1, great alabaster statue of Mycerinus, front view seen from below (view-point of beholder standing on floor).



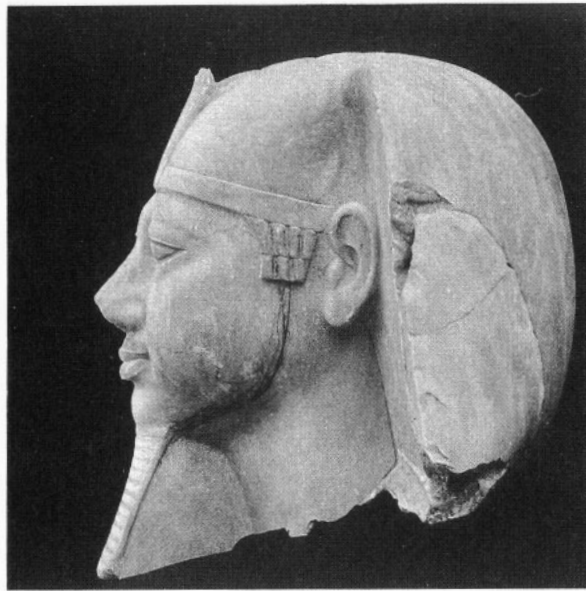
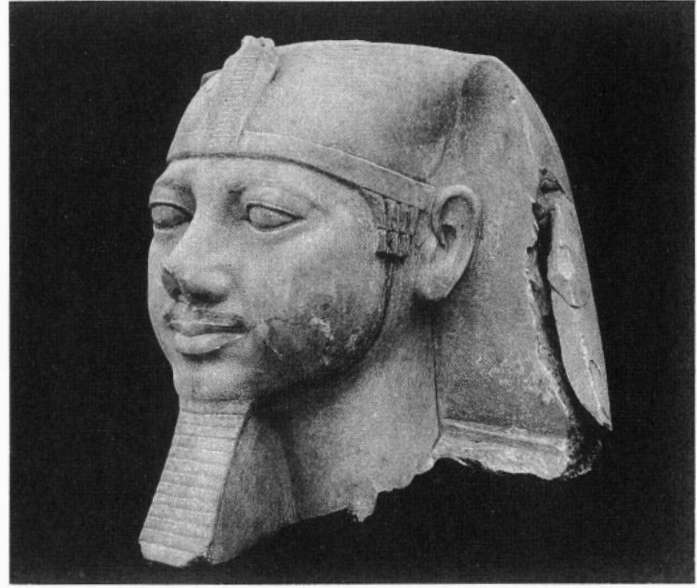
b. M. P. T., head of statue No. 1, great alabaster statue of Mycerinus, front view seen from opposite face (point of view of sculptor).



a. M. P. T., head of great alabaster statue (No. 1) of Mycerinus, right side, three quarters view.



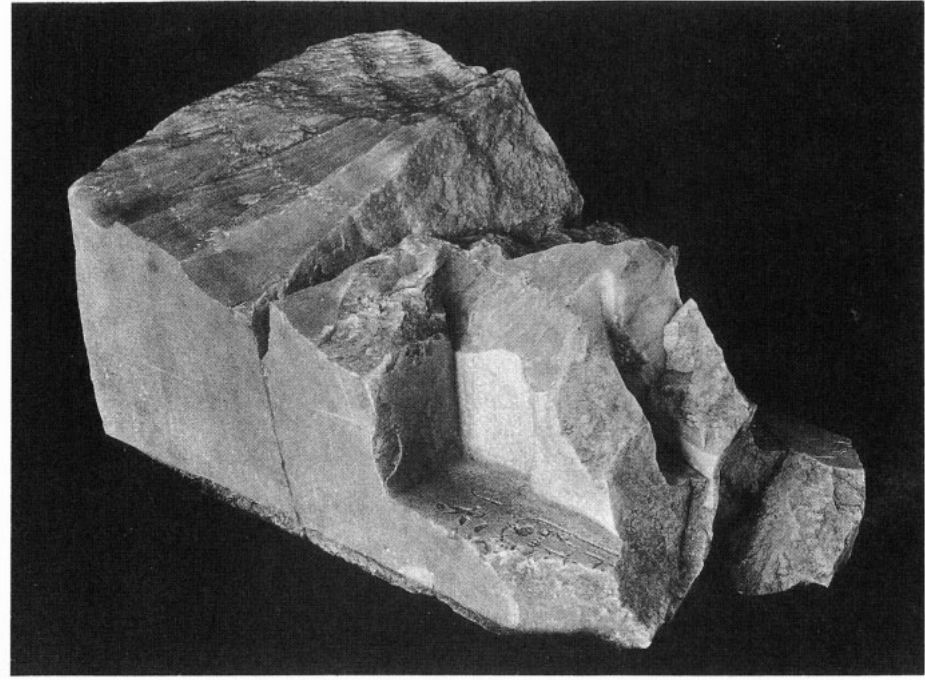
b. M. P. T., head of great alabaster statue (No. 1) of Mycerinus, profile of right side.



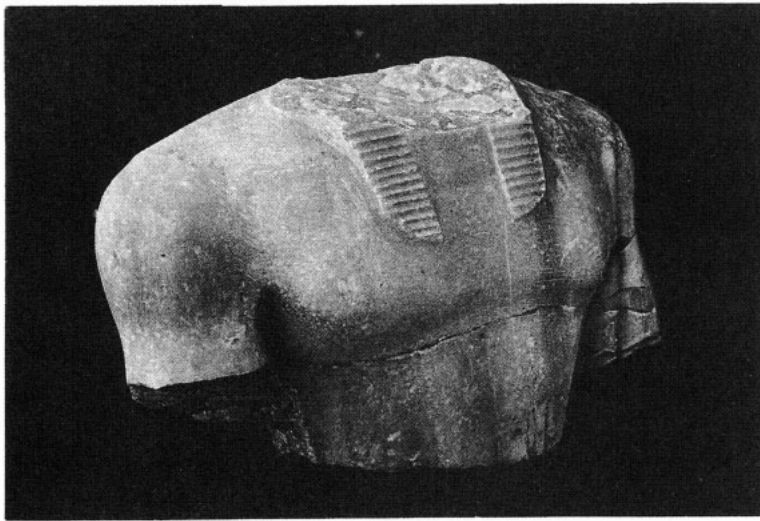
M. P. T., head of great alabaster statue (No. 1) of Mycerinus, left side, four different views.



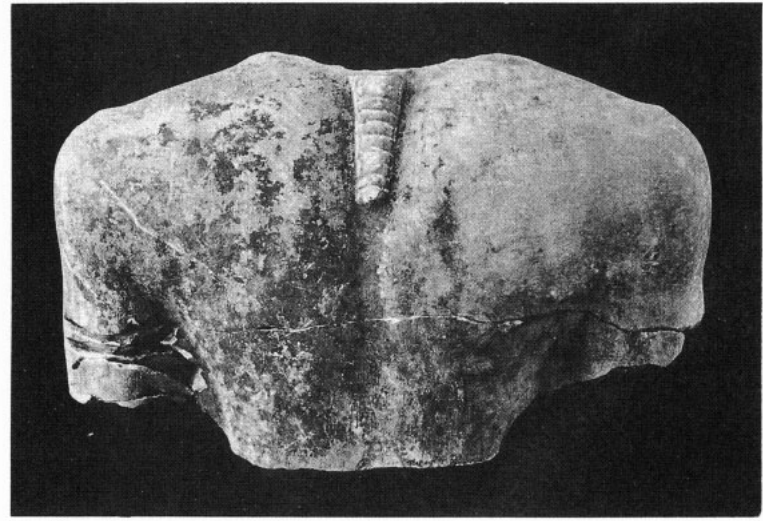
a. M. P. T., knees of great alabaster statue (No. 1) of Mycerinus.



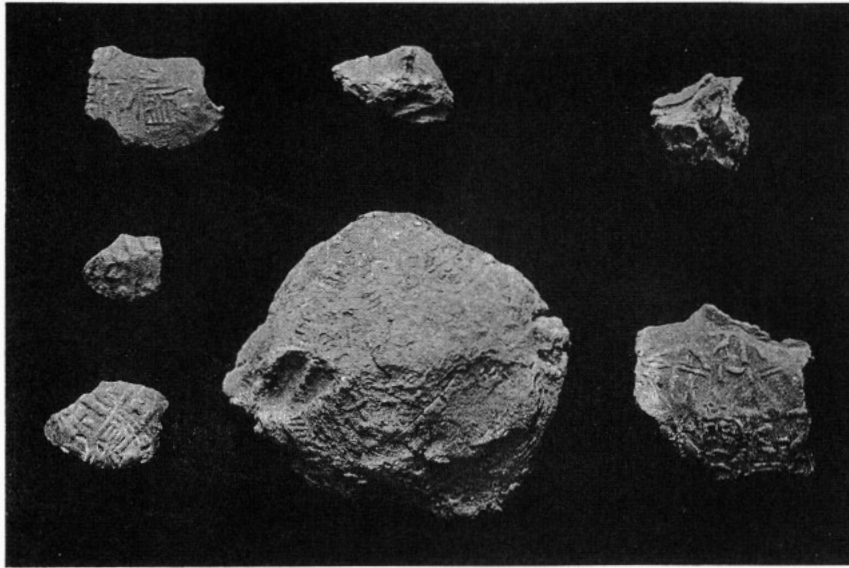
b. M. P. T., feet of smaller alabaster statue (No. 2 c) of Mycerinus.



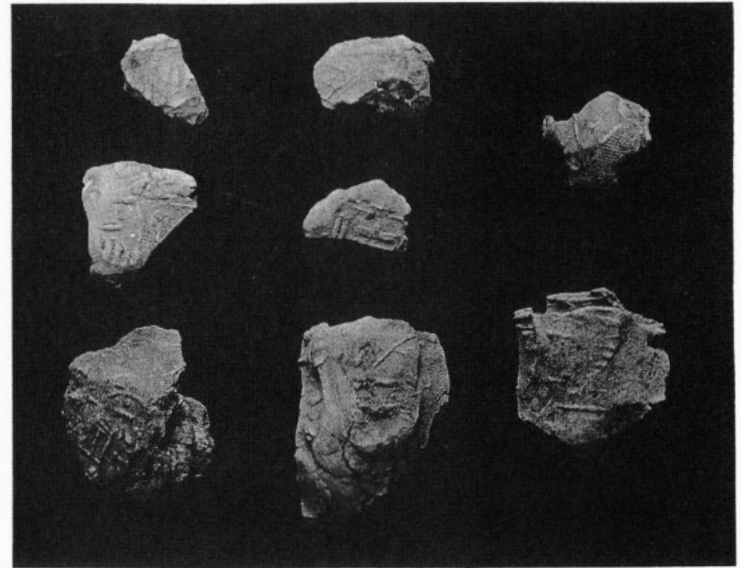
c. M. P. T., torso of smaller alabaster statue (No. 2 a), front.



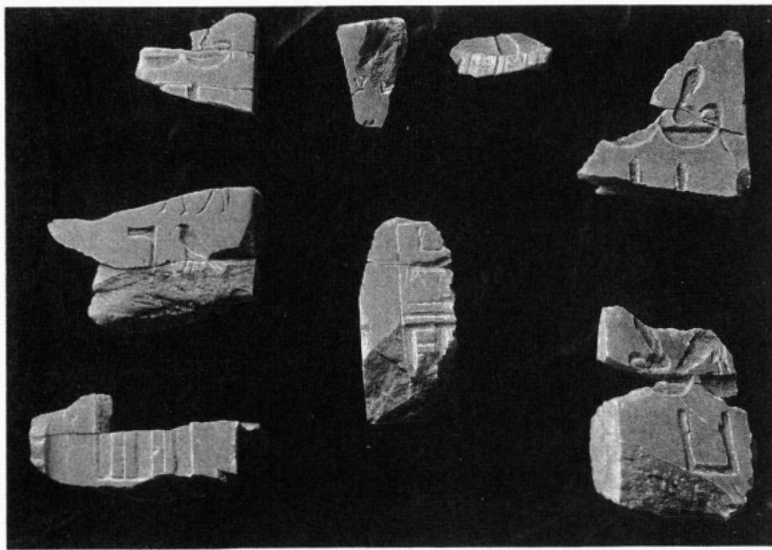
d. M. P. T., torso of smaller alabaster statue (No. 2 a), back.



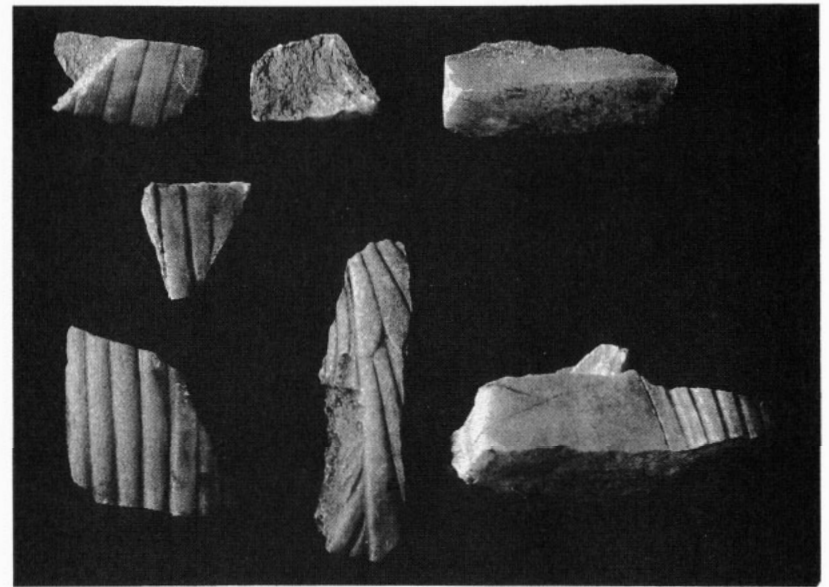
a. M. P. T., seal impressions in mud, from room (No. 22).



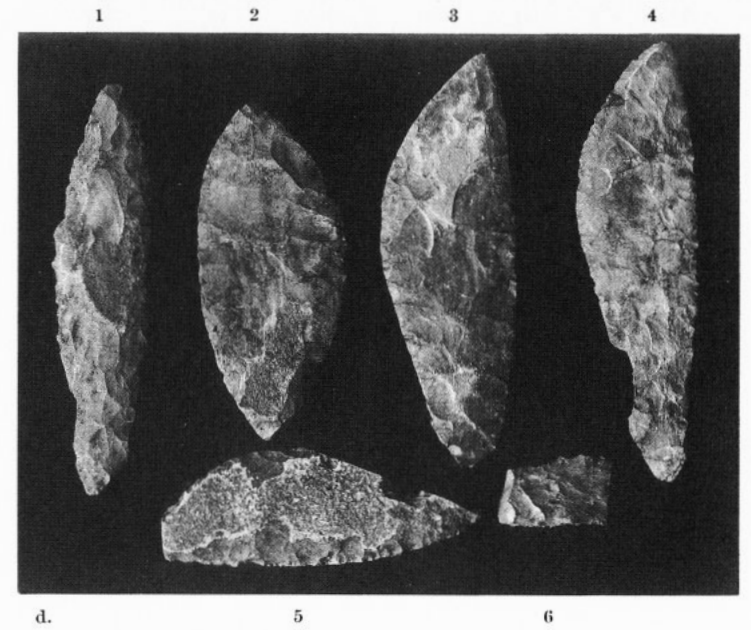
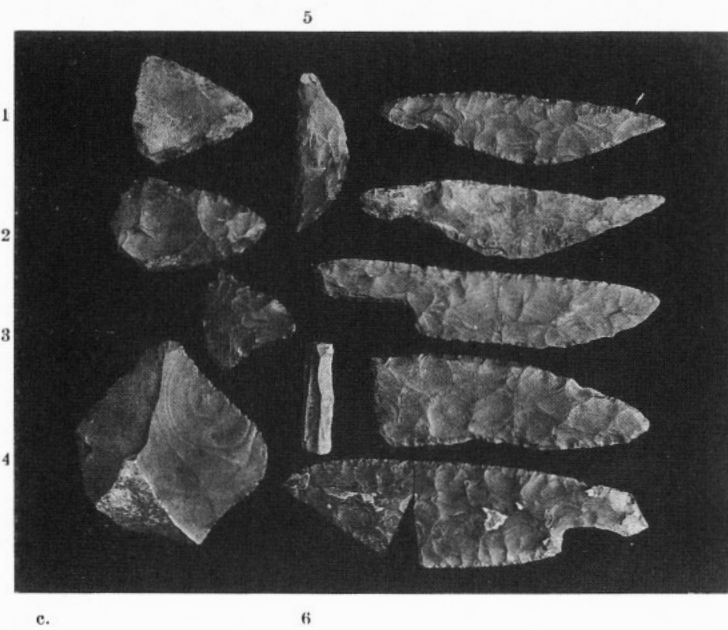
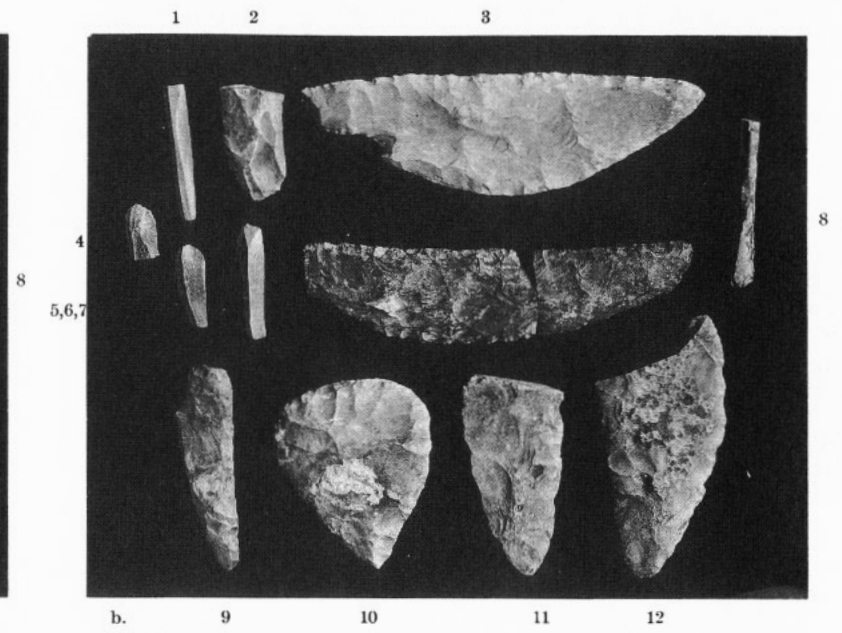
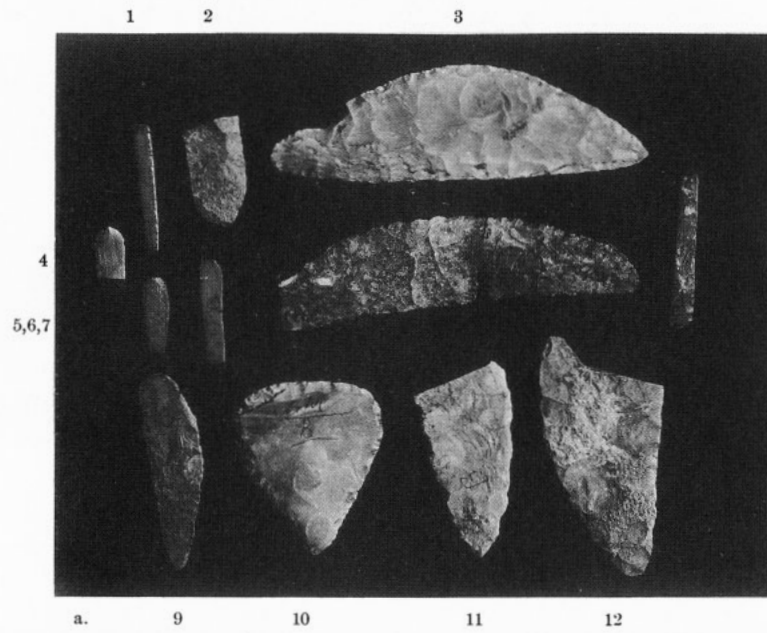
b. M. P. T., seal impressions in mud, from room (No. 22).



c. M. P. T., inscribed fragments of alabaster statue-bases.



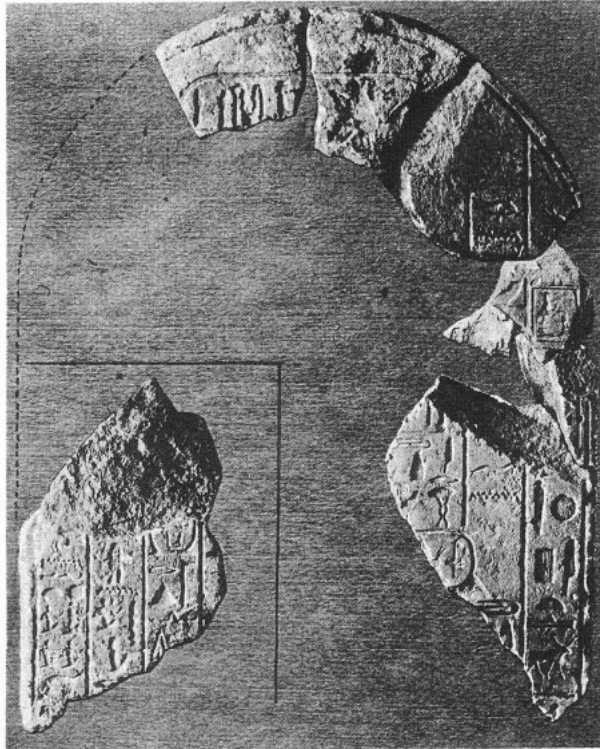
d. M. Q. T., fragments of alabaster statue of queen.



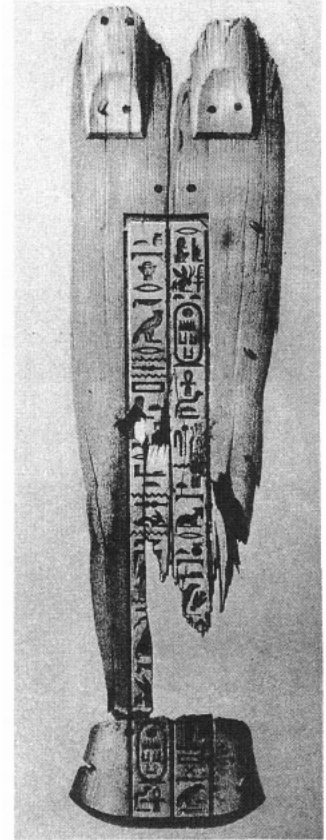
M. P. T., flint knives and flakes from temple magazines.
 a. and b. show both sides of same objects.



a. Flint wand from M. P. T., 14.



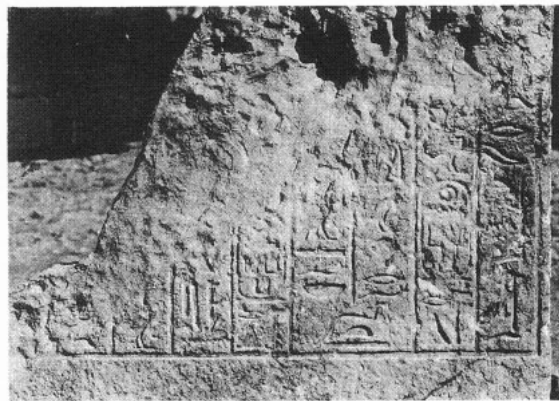
b. M. P. T., limestone stela of Shepseskaf.



c. Perring's sketch, wooden coffin-lid of Mycerinus.



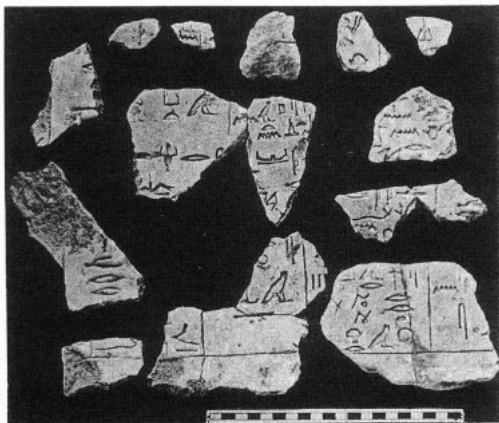
e.



d. M. P. T., limestone stela from entrance.



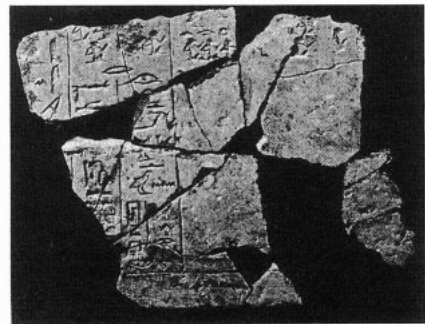
f.



g.

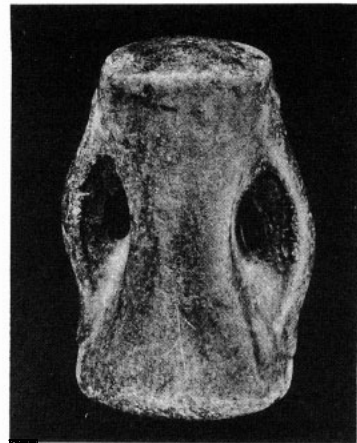
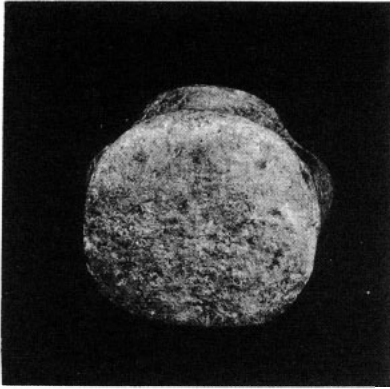


h.

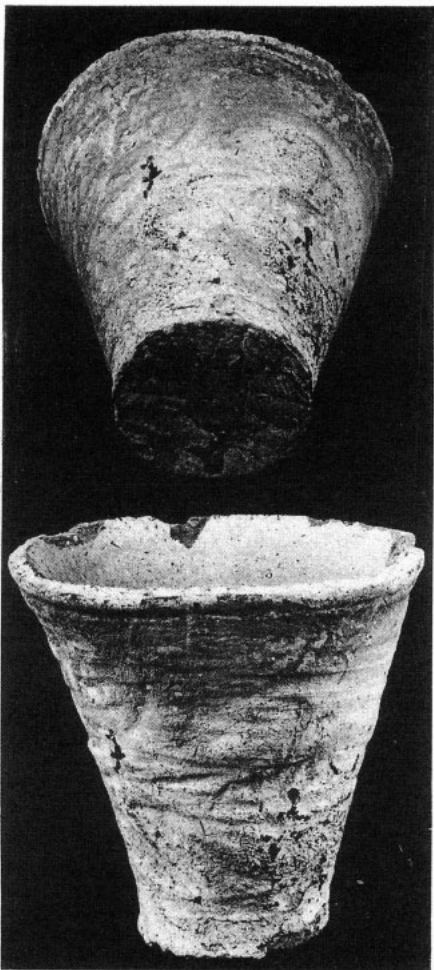


i.

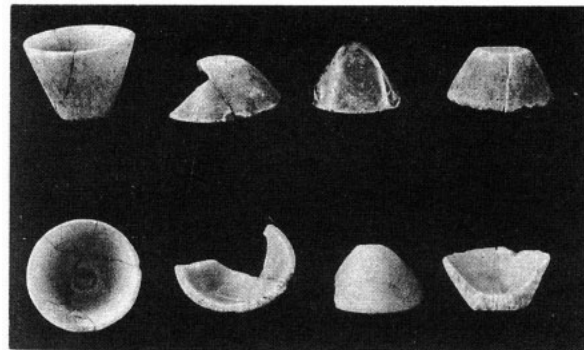
e.-i. M. P. T., fragments of limestone stelae from portico (7).



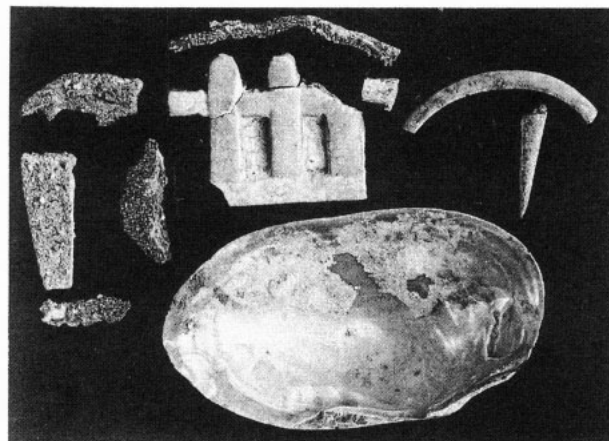
a.-c. M. P. T., black granite hammer from magazine (17).



d.-e. M. P. T., pot, type XXV, from room (36).



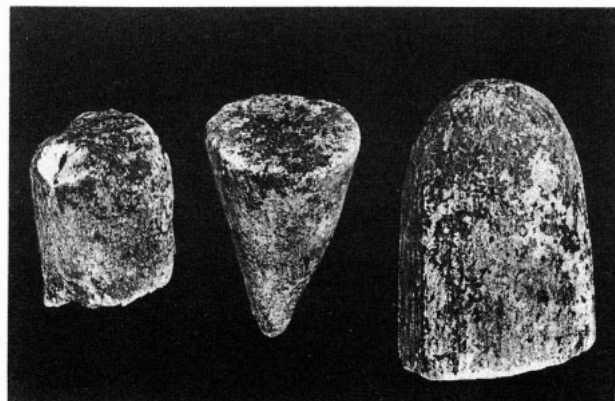
g. M. P. T., models, alabaster and crystal.



h. M. P. T., copper, faience, and shell.



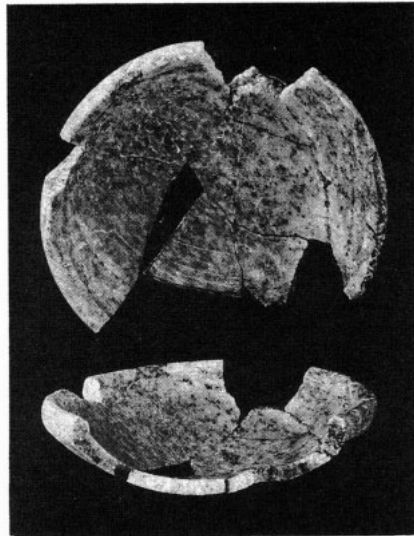
f. M. P. T., models, pottery, types R. W. XLIII, XLIV, from room (18).



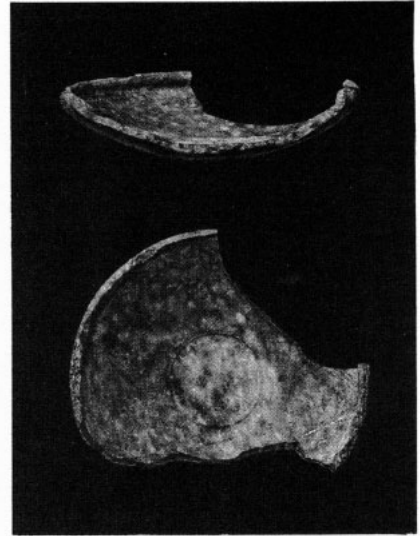
i. M. P. T., plaster cones from magazine (16) and (18).



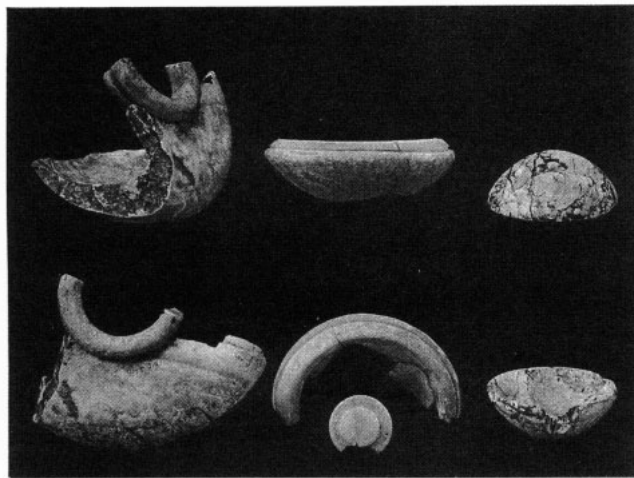
a. M. P. T., diorite bowl, room (27)-sub.



b. M. P. T., diorite bowl, room (27)-sub.



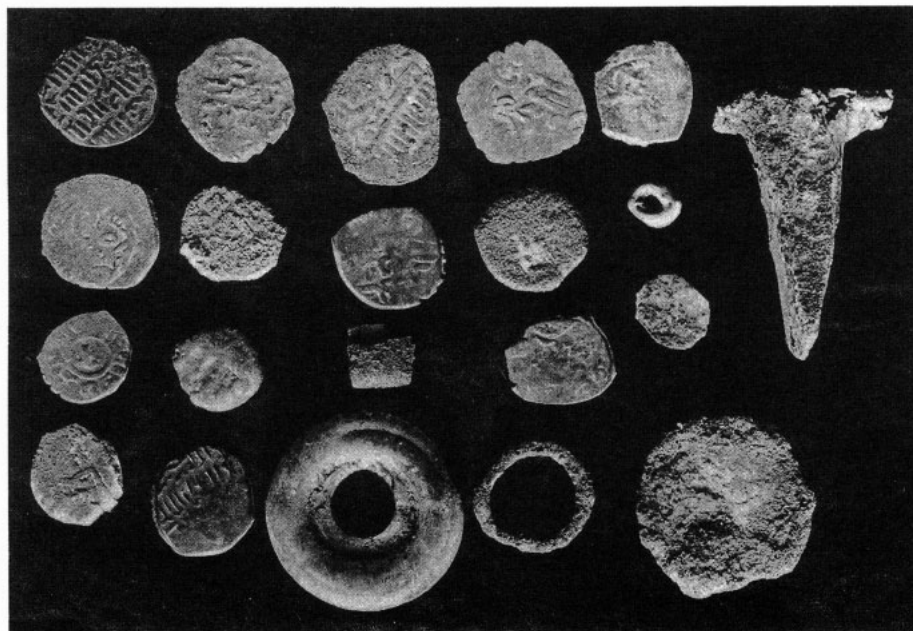
c. M. P. T., diorite pan, room (27)-sub.



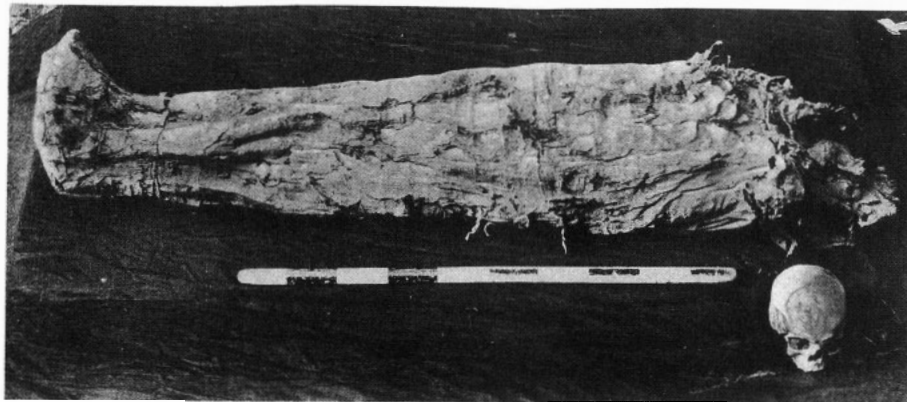
d. M. P. T., alabaster and limestone vessels from room (26)-sub.



e. M. P. T., Athenian silver coins, from entrance corridor.



f. M. P. T., Roman coin, Arabic coins, iron wedge, etc., from room (27) and adjacent.



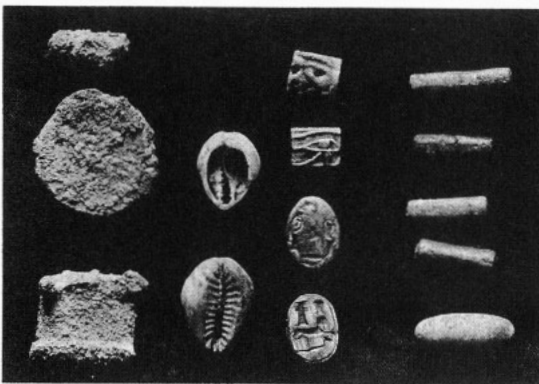
a. M. P. T., mummy No. 23, from room (27).



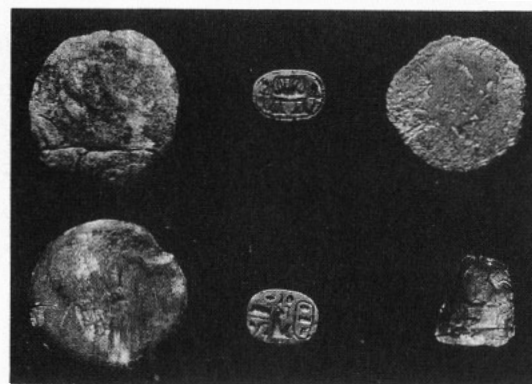
b. M. P. T., mummy No. 23, laid open, coin in hand.



c. M. P. T., mummy No. 23, near view of hand with coin.



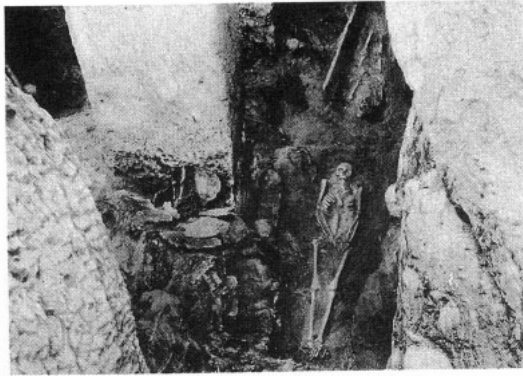
d. M. P. T., Roman coin, scarabs, etc., from room (27).



e. M. P. T., Roman coins, scarabs, etc., from room (27).



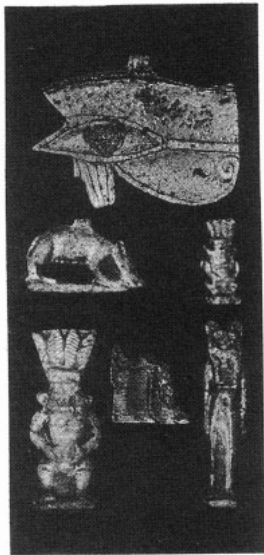
f. M. P. T., room (27), mummy No. 23, as found.



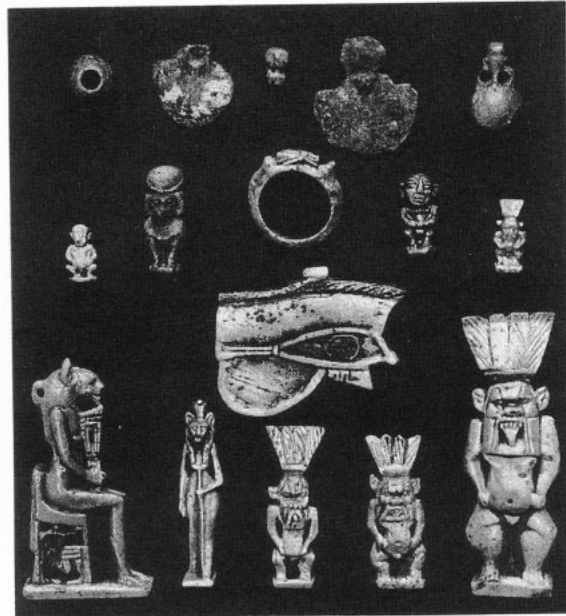
a. M. P. T., room (27), mummies Nos. 54-57, looking down north.



b. M. P. T., room (27), mummies Nos. 70-77, looking down southeast.



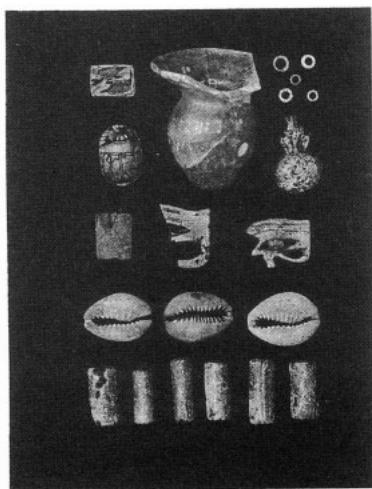
c. M. P. T., amulets from mummy No. 56.



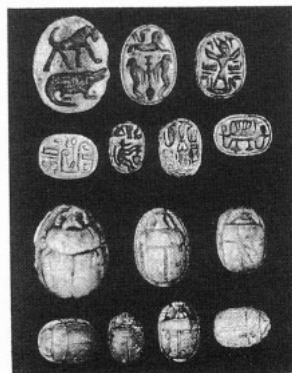
d. M. P. T., amulets from mummy No. 47.



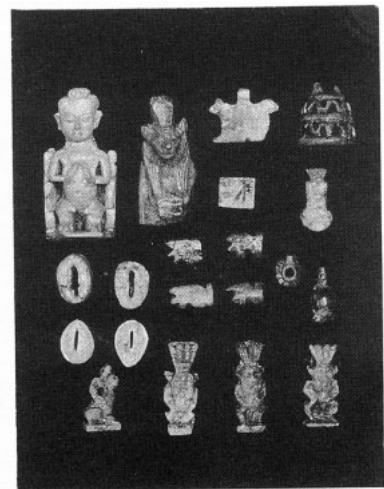
e. M. P. T., faience rings and cowrie bracelet from debris in room (27).



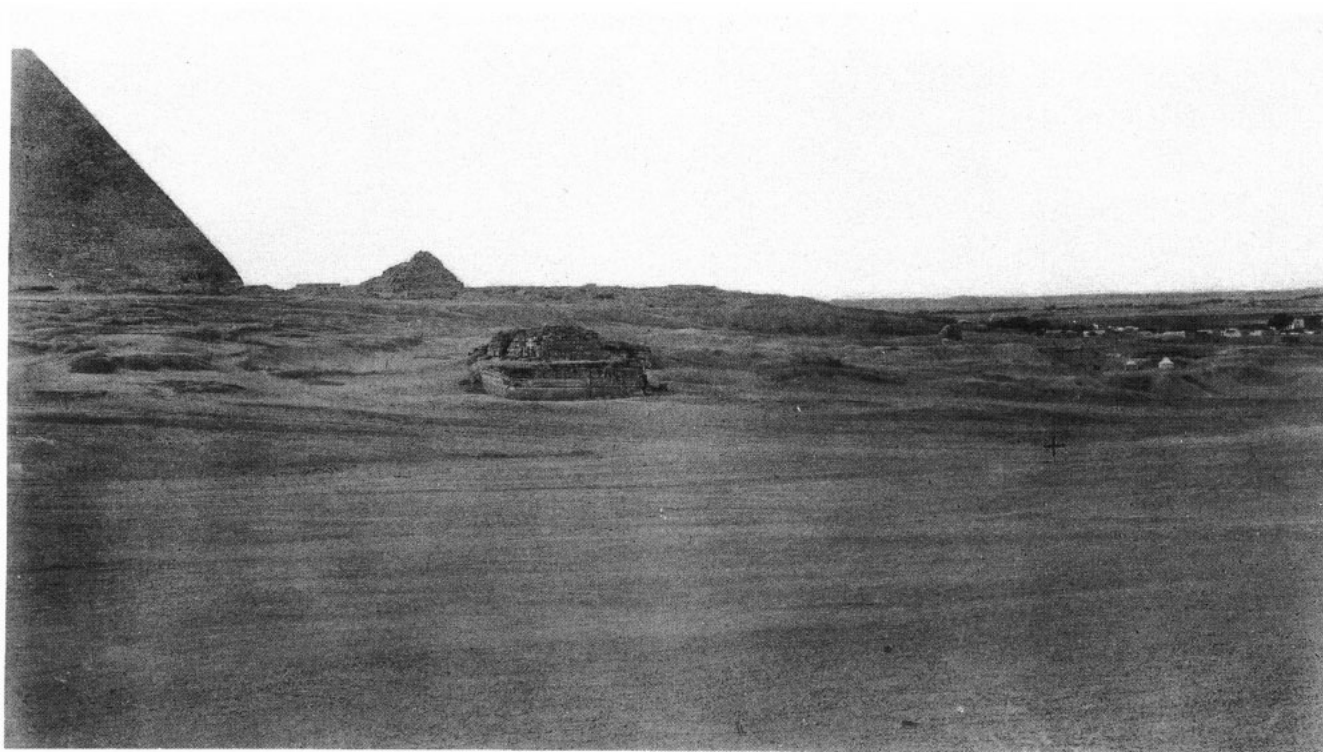
f. M. P. T., glass bottle, amulets, and beads from mummy No. 71.



g. M. P. T., scarab seals and backs from room (27).



h. M. P. T., amulets from room (28).



a. Micerinus Valley Temple, sand in the valley before excavation, site of temple marked +, May 30, 1908.



b. Micerinus Valley Temple, after excavation of western part of temple, looking northwest, February 9, 1910.



a. Mycerinus Valley Temple, surface of decay of the portico and the offering room, after removing sand, looking west, June 20, 1908.



b. Mycerinus Valley Temple, after excavation of western part, looking southeast from the unfinished pyramid, February 9, 1910.



a. Mycerinus Valley Temple, western part, after excavation, looking west (cf. Pl. 25 a), January 28, 1910.



b. Mycerinus Valley Temple, view as Pl. 26 a, after removing the north wall of room (1) of the Second Temple, February 7, 1910.



a. M. V. T., northern magazines looking south over corridor (20), before opening the old doorway to room (2), January 25, 1910.



b. M. V. T., as in *a*, above, after opening doorway to room (2), February 7, 1910.



c. M. V. T., view from south end of corridor (20), through (2) and (4) to (21), February 6, 1910.



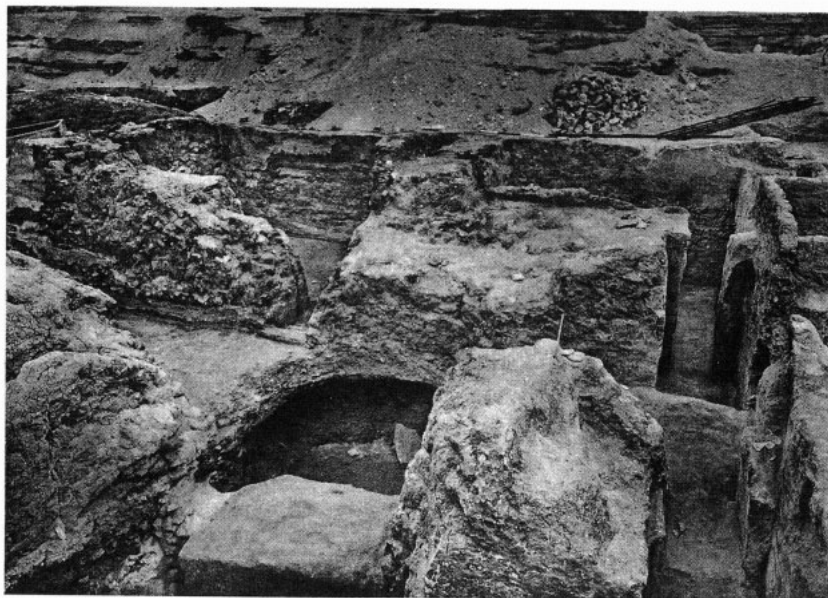
d. M. V. T., southern magazines and corridor (4), looking north with southern wall of the Second Temple in the foreground, February 7, 1910.



a. M. V. T., western wall with rubble revetment, looking north, February 4, 1910.



b. M. V. T., rooms (17), (18), and doorway from (4) to (21), looking south, February 6, 1910.



c. M. V. T., doorways, from (4) to (3), (4) to (19), (4) to (18), and the thieves' hole in (4), looking down east, February 6, 1910.



d. M. V. T., thieves' hole in rooms (4) and (18) in foreground, rooms (I-4) to (I-11) in background, January 21, 1910.



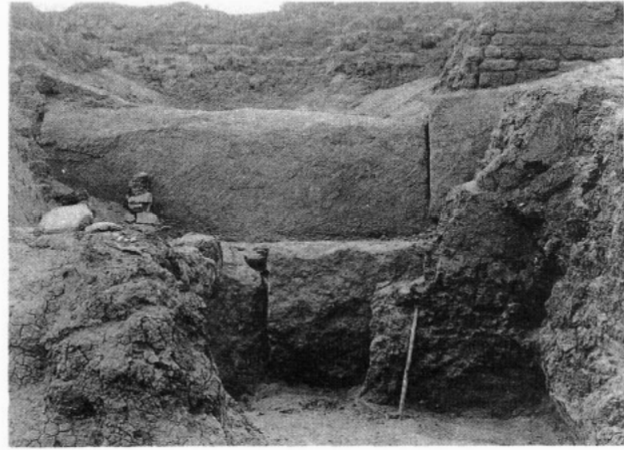
a. M. V. T., causeway corridor west of temple, with drain in floor, looking east, February 13, 1910.



b. M. V. T., doorway from (21) to western corridor, dropped lintel of First Temple half cut away, and above this the brickwork of the Second Temple, looking west, February 5, 1910.



c. M. V. T., deposit of alabaster splinters from statues, found along southern wall of (I-6), January 23, 1910.



d. M. V. T., western end of room (III-7), exposed limestone core-wall (Mycerinus), January 11, 1910.



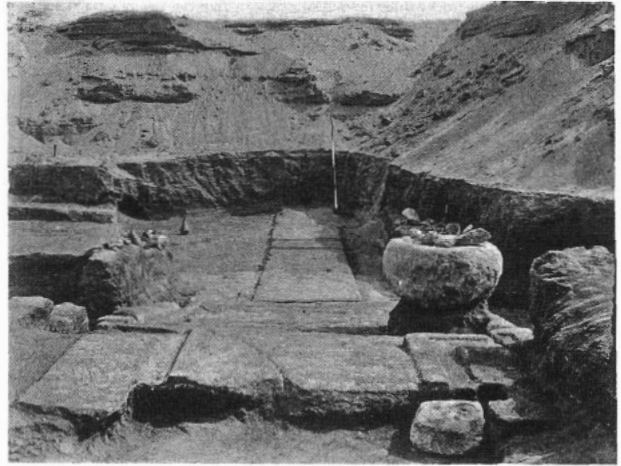
e. M. V. T., steps in doorway from (4) to (3) and exposed limestone core-wall in (18), looking down W. S. W., February 5, 1910.



f. M. V. T., eastern end of (5) and doorway to (4), looking down E. N. E., February 6, 1910.



a. M. V. T., rubble lining of thieves' hole in room (18), looking east, January 13, 1910.



b. M. V. T., doorway from court through screen wall to room (II-1), slab threshold, looking east, February 7, 1910.



c. M. V. T., eastern side of portico, looking down to north, showing foundation of parapet of portico, also adjoining screen wall, February 20, 1910.



d. M. V. T., west wall of (II-1) with doorway to room (2), showing threshold slab of First Temple, looking down N. E., February 6, 1910.



e. M. V. T., doorway from room (1) to room (2), looking west into room (2), February 8, 1910.



f. M. V. T., doorblock of crude brick in doorway from (II-2) to (II-4), seen from (II-4,) looking north, January 25, 1910.



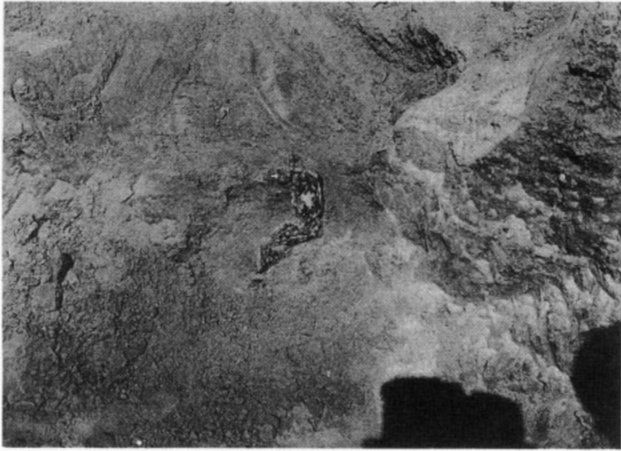
a. M. V. T., court, N. W. quarter, house walls over court and western wall of court, looking west, January 26, 1910.



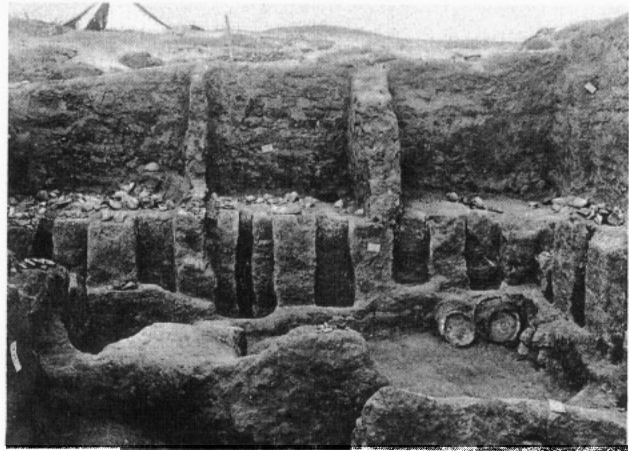
b. M. V. T., court, N. W. quarter, looking west, after partially exposing older niched wall, February 7, 1910.



c. M. V. T., court, N. W. quarter, niched wall of court, looking west, February 17, 1910.



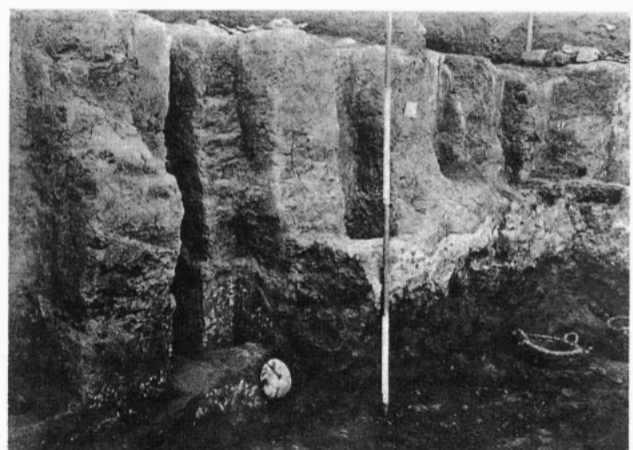
a. M. V. T., room (I-23), decayed arm of wooden statue in debris, looking N. E., January 20, 1910.



b. M. V. T., court, N. W. quarter, pottery on floor of (I-57-b), looking west, February 5, 1910.



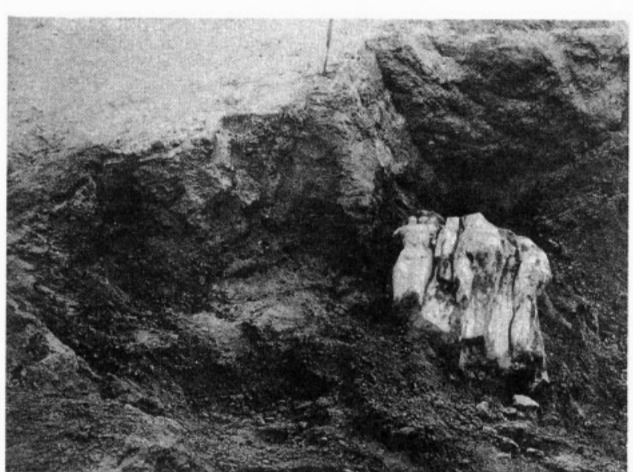
c. M. V. T., court, granaries (40), (43), (53), (54), (55), looking east, February 15, 1910.



d. M. V. T., court, (I-57-sub), plaster on niched wall and alabaster jar thrown out of magazines, looking north, February 10, 1910.



e. M. V. T., court, N. W. quarter, same stage as 31-c, February 13, 1910.



f. M. V. T., shattered triad (No. 13), as found in debris of court, looking east, January 19, 1910.



a. Mycerinus Valley Temple, court, southern half, looking east, March 5, 1910.



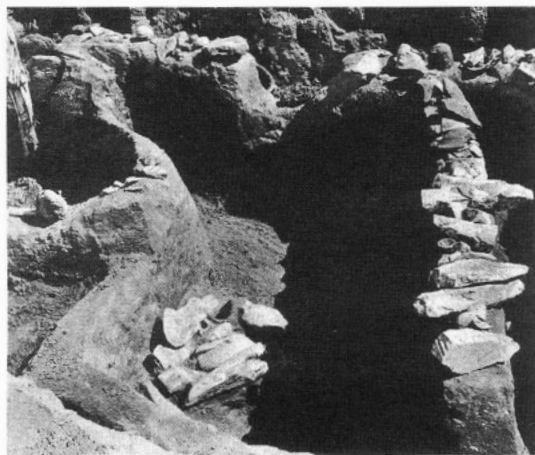
b. Mycerinus Valley Temple, court, looking north, March 11, 1910.



a. M. V. T., room (I-302 sub), pottery on floor of court, looking down east, February 26, 1910.



b. M. V. T., court, middle drain basin and pathway, looking west, March 9, 1910.



c. M. V. T., room (I-320), fragments of large alabaster statues under floor, looking south, February 28, 1910.



d. M. V. T., vestibule, ante room (III-377), limestone decree of Pepy II, looking east, March 24, 1910.



e. M. V. T., vestibule, northern magazine corridor, (III-380), stair, looking north, April 1, 1910.



f. M. V. T., court N. E. quarter, looking north, April 1, 1910.



a. Mycerinus Valley Temple, vestibule and houses east of temple, before removing wall of vestibule of Second Temple, looking N. N. W., March 15, 1910.



b. Mycerinus Valley Temple, same as a, after removing wall of vestibule of Second Temple, March 15, 1910.



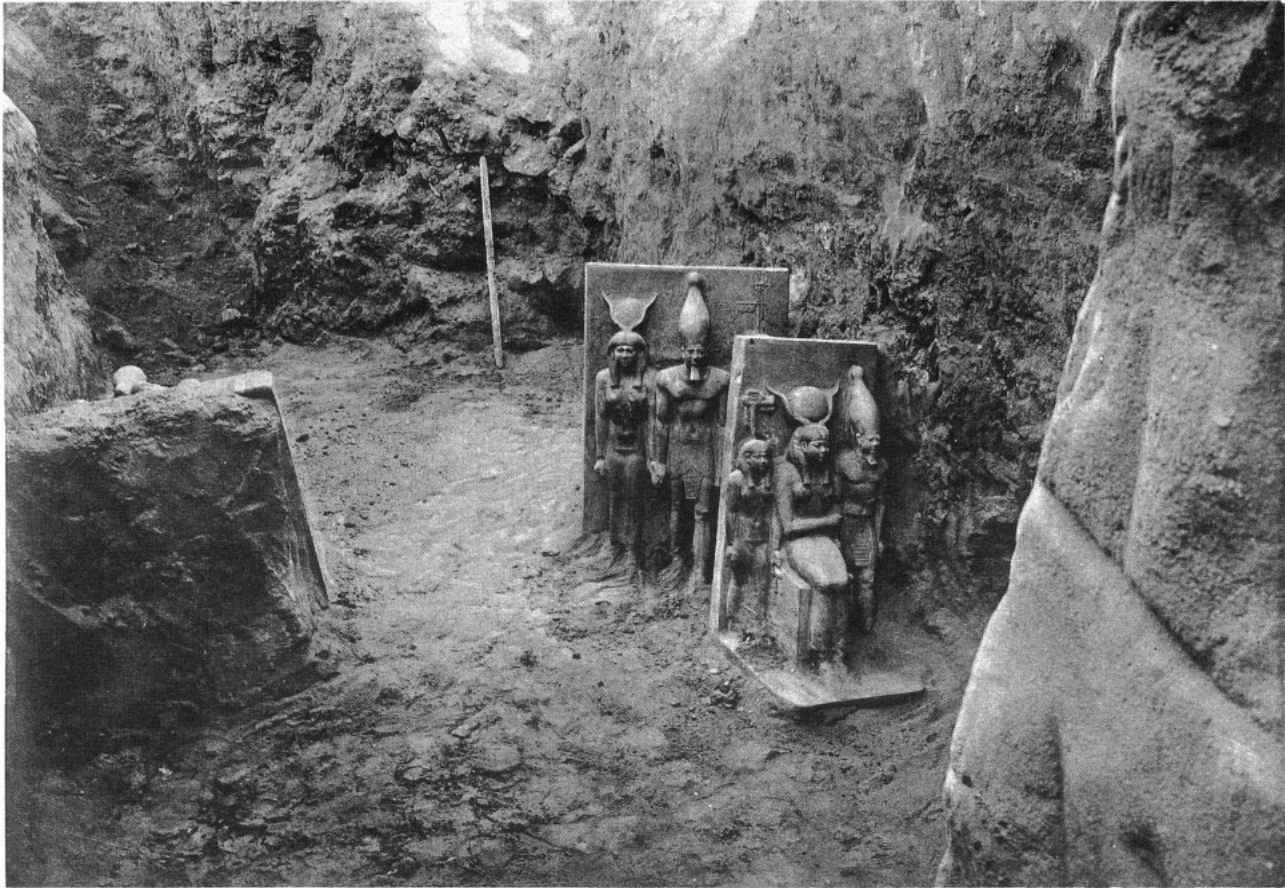
a. M. V. T., corridor (4), the four triads as found, looking north, July 10, 1908.



b. M. V. T., later house walls above (III-4), (III-5), and (III-17), looking north, July 11, 1908.



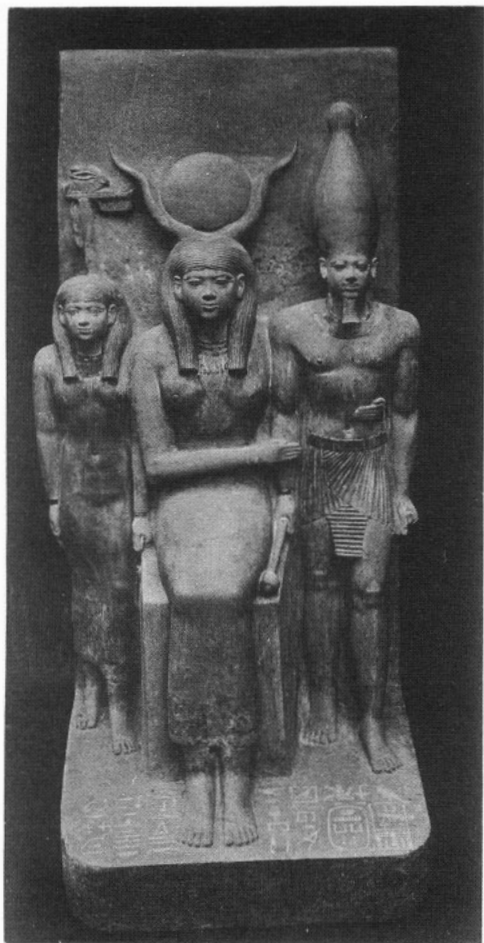
c. M. V. T., corridor (4), triads Nos. 9 and 12, partly exposed, looking down to S. W., July 10, 1908.



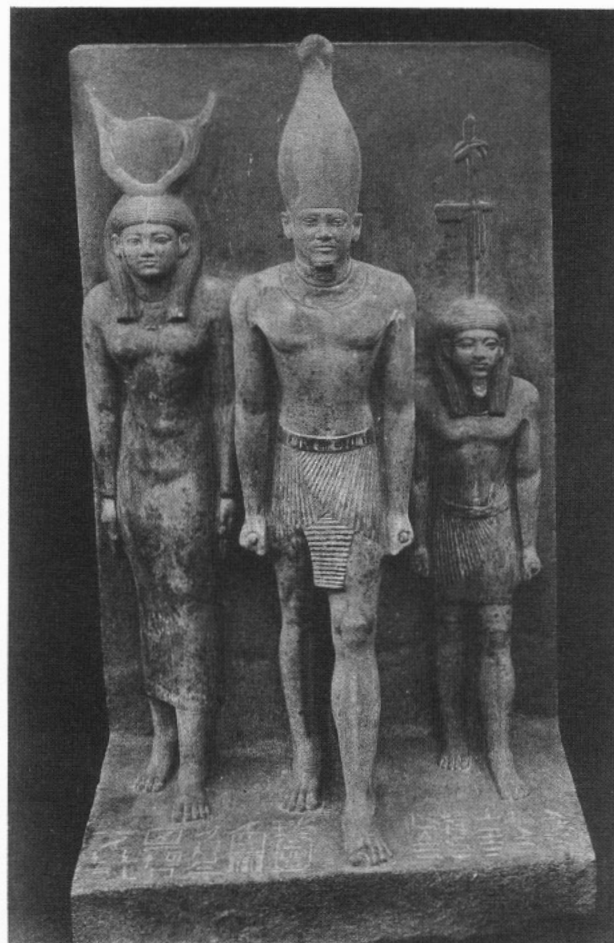
a. M. V. T., corridor (4), triads No. 9 (in front) and No. 12 on right, looking south, July 12, 1908.



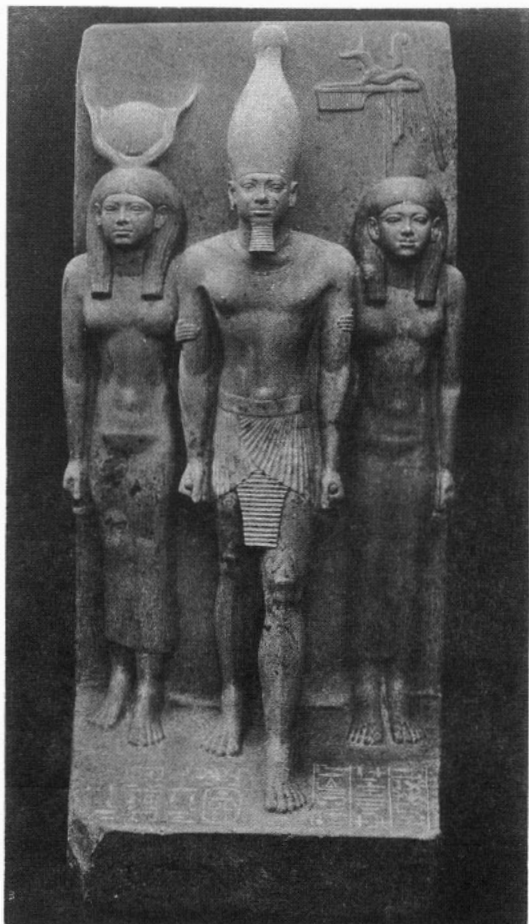
b. M. V. T., corridor (4), triads No. 10 (behind) and No. 11 on right, looking north, July 11, 1908.



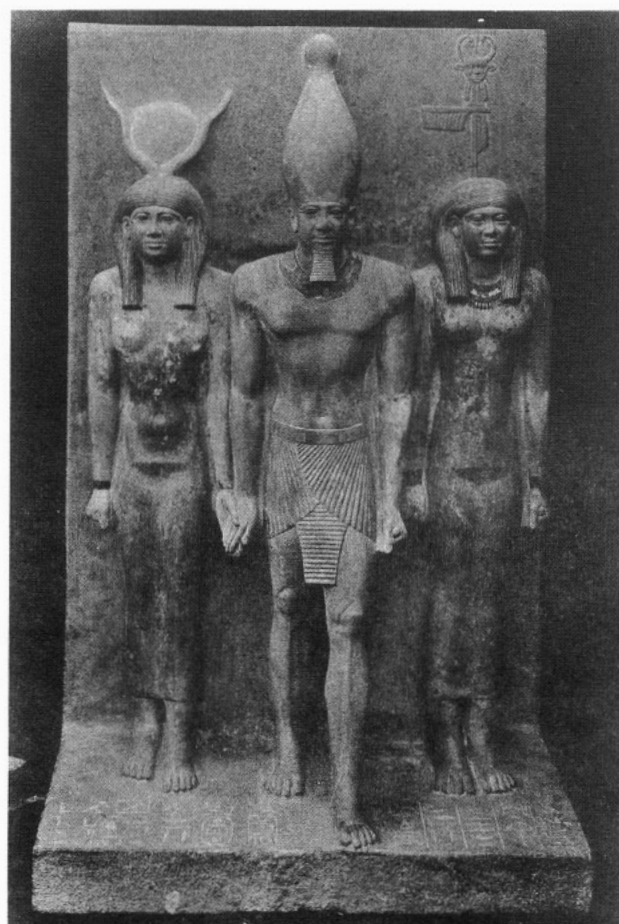
a. M. V. T., nome-triad No. 9, front view.



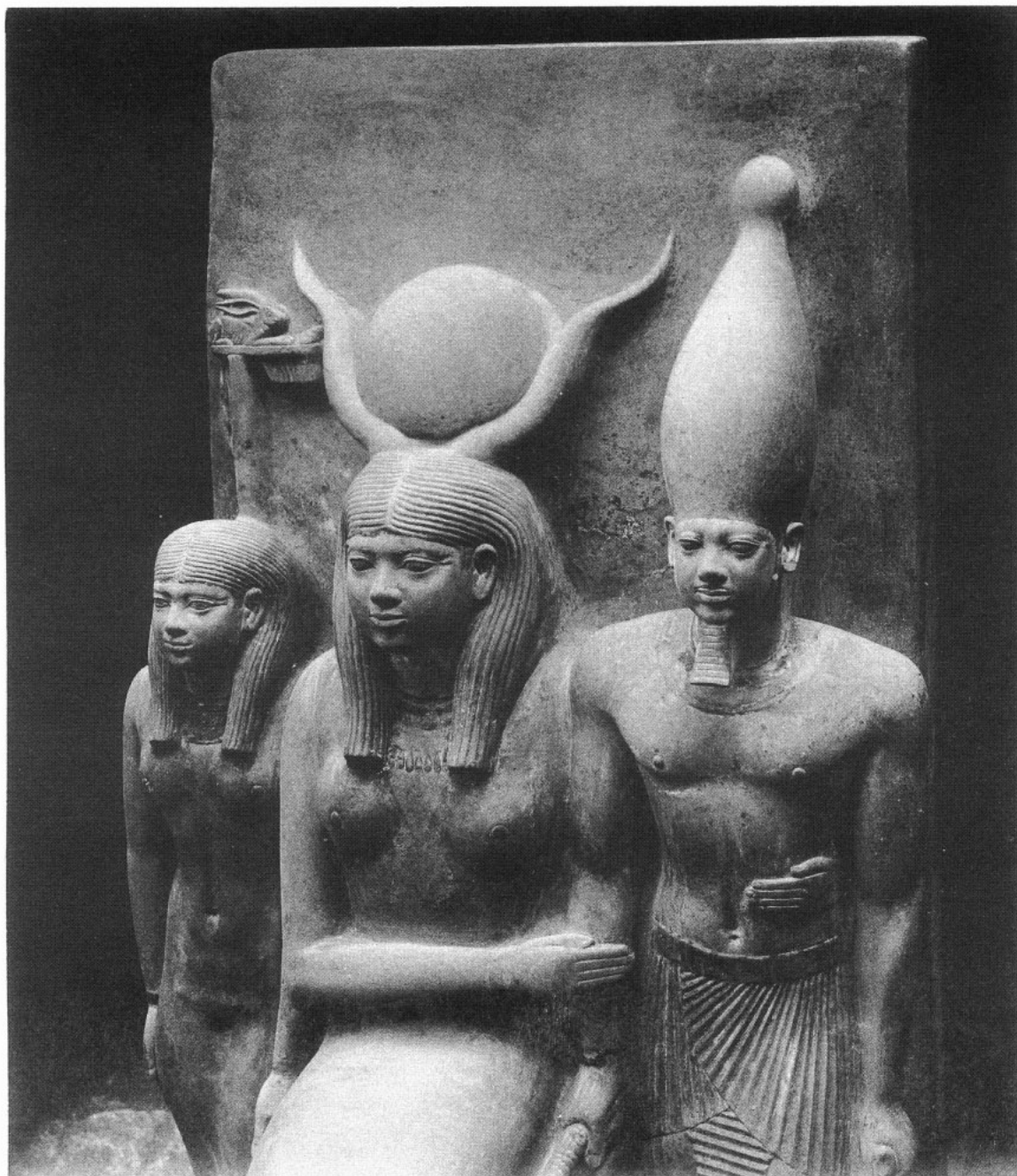
b. M. V. T., nome-triad No. 10, front view.



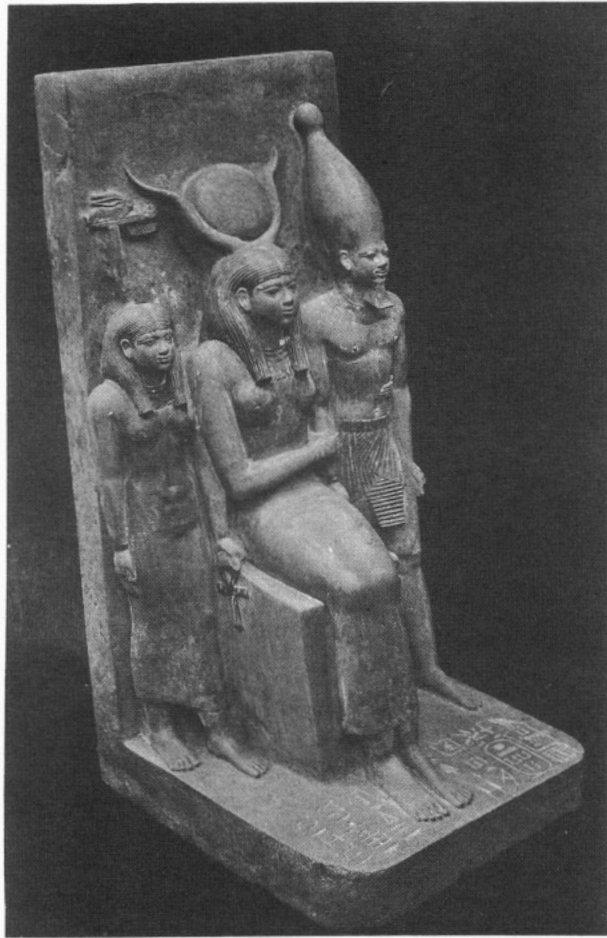
c. M. V. T., nome-triad No. 11, front view.



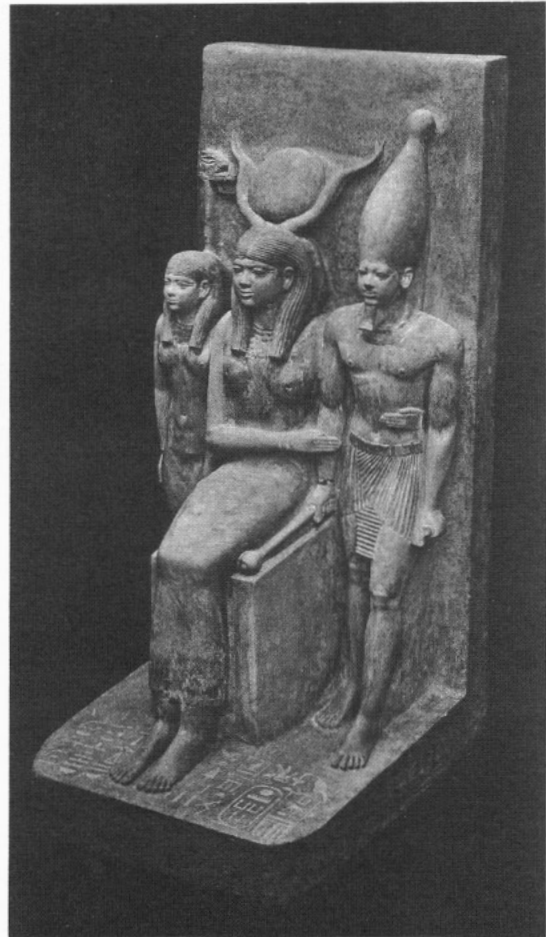
d. M. V. T., nome-triad No. 12, front view.



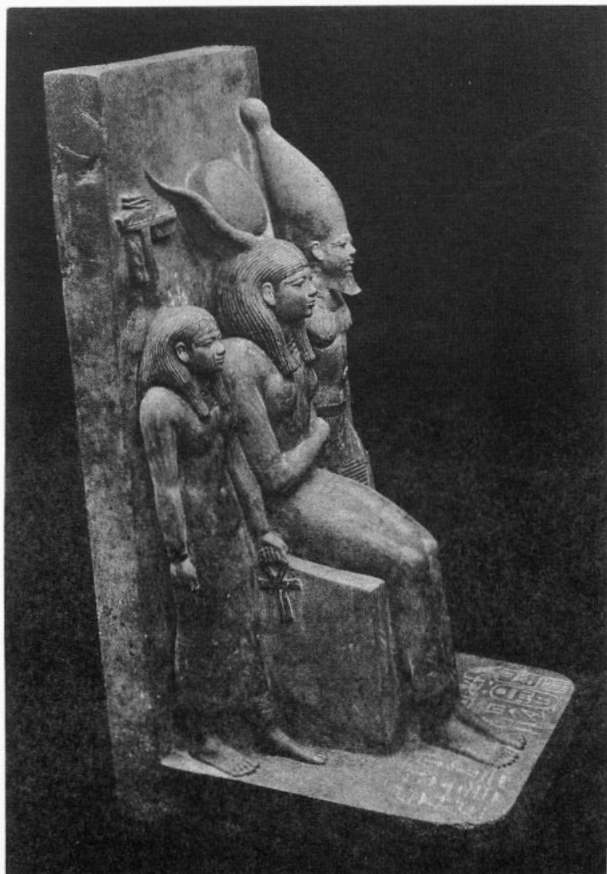
M. V. T., triad of the Hare-nome (No. 9), upper part.



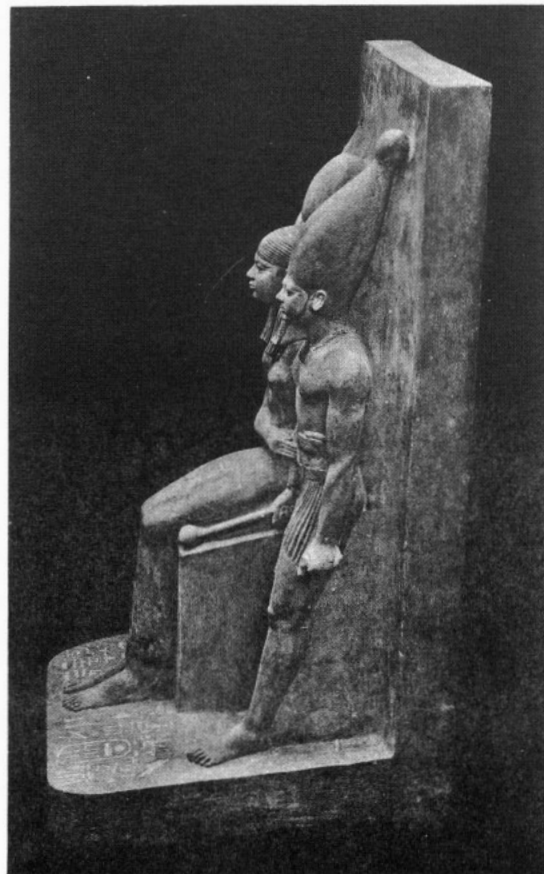
a. M. V. T., triad No. 9, right side, half view.



b. M. V. T., triad No. 9, left side, half view.



c. M. V. T., triad No. 9, right side, three quarters view.



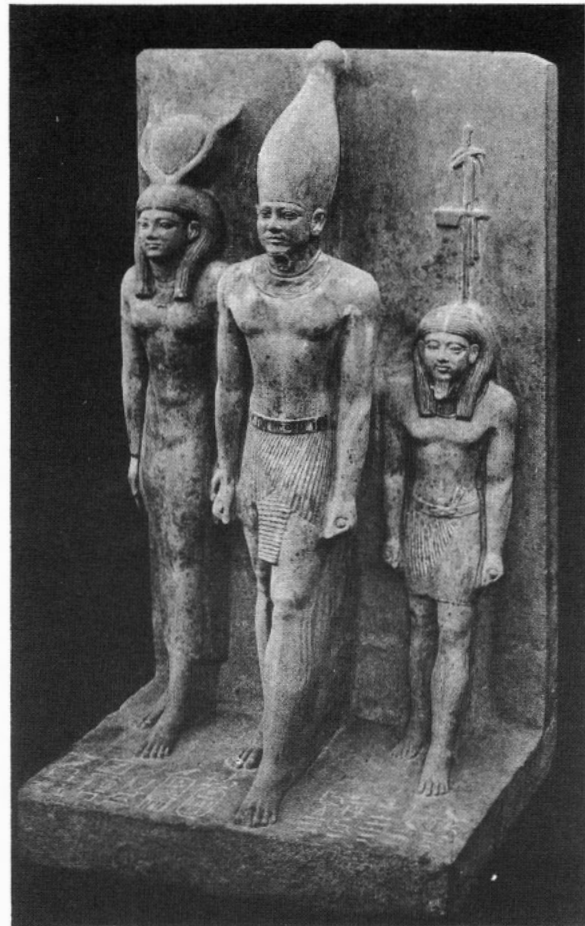
d. M. V. T., triad No. 9, left side, profile.



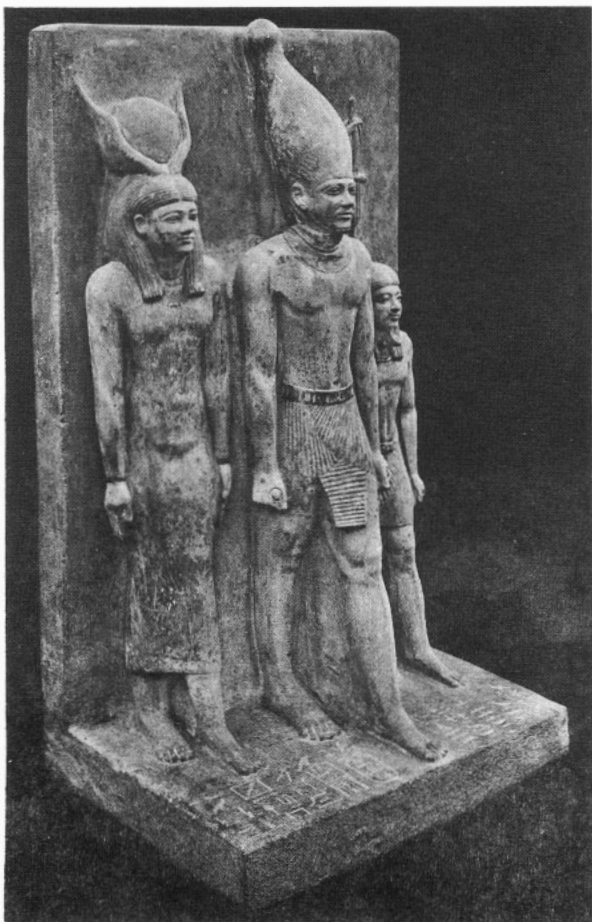
M. V. T., triad of the Theban Nome (No. 10).



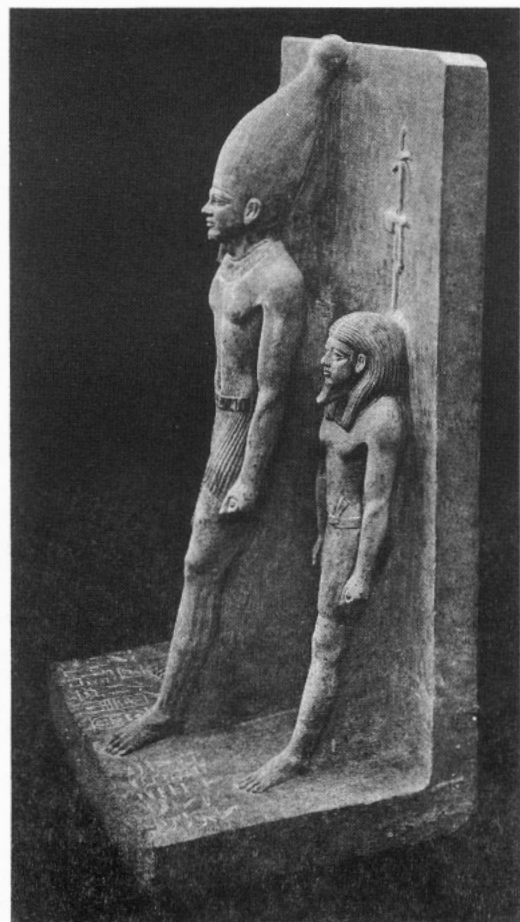
a. M. V. T., triad No. 10, right side, 1-4 view.



b. M. V. T., triad No. 10, left side, 1-4 view.



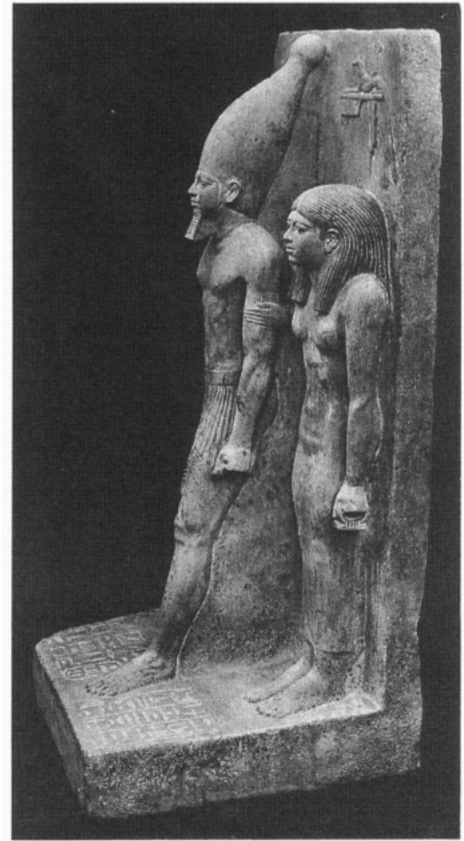
c. M. V. T., triad No. 10, right side, half view.



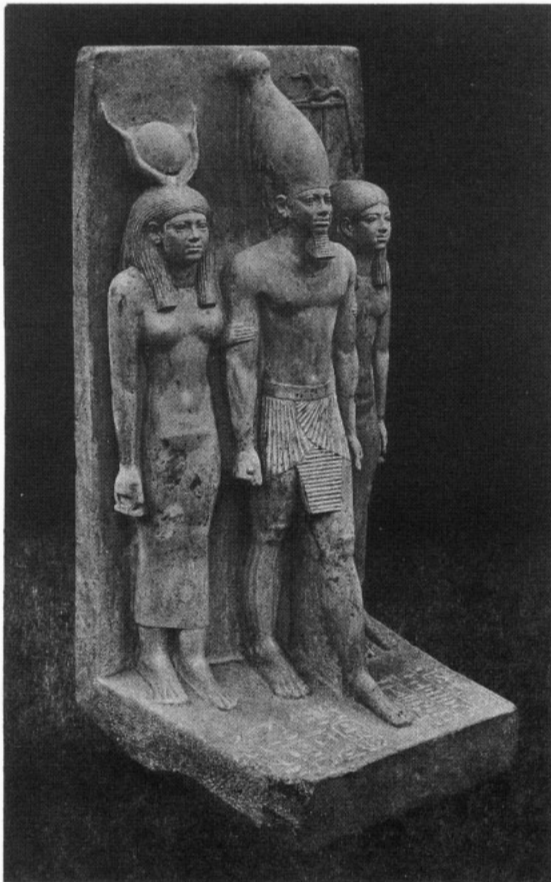
d. M. V. T., triad No. 10, left side, profile.



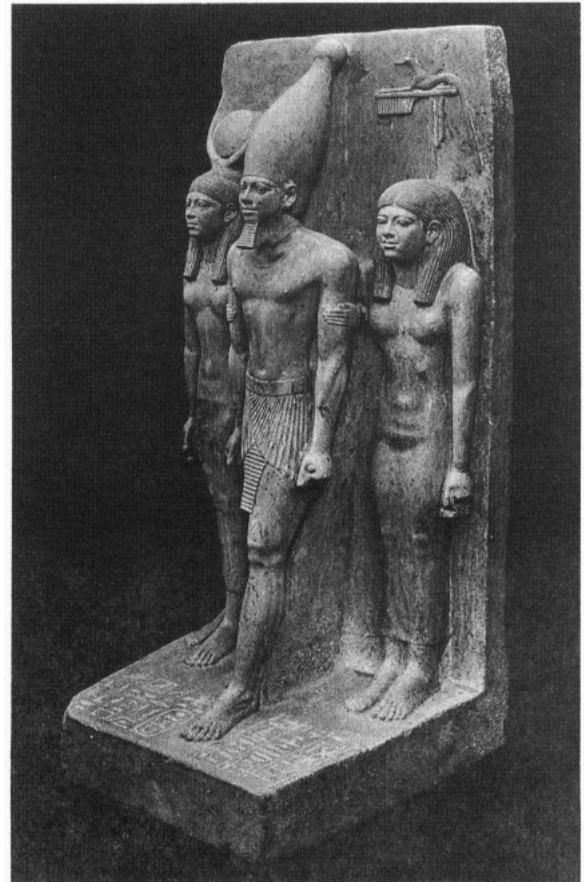
a. M. V. T., triad of the Jackall-nome, No. 11, upper part, large scale.



b. M. V. T., triad No. 11, left side, profile.



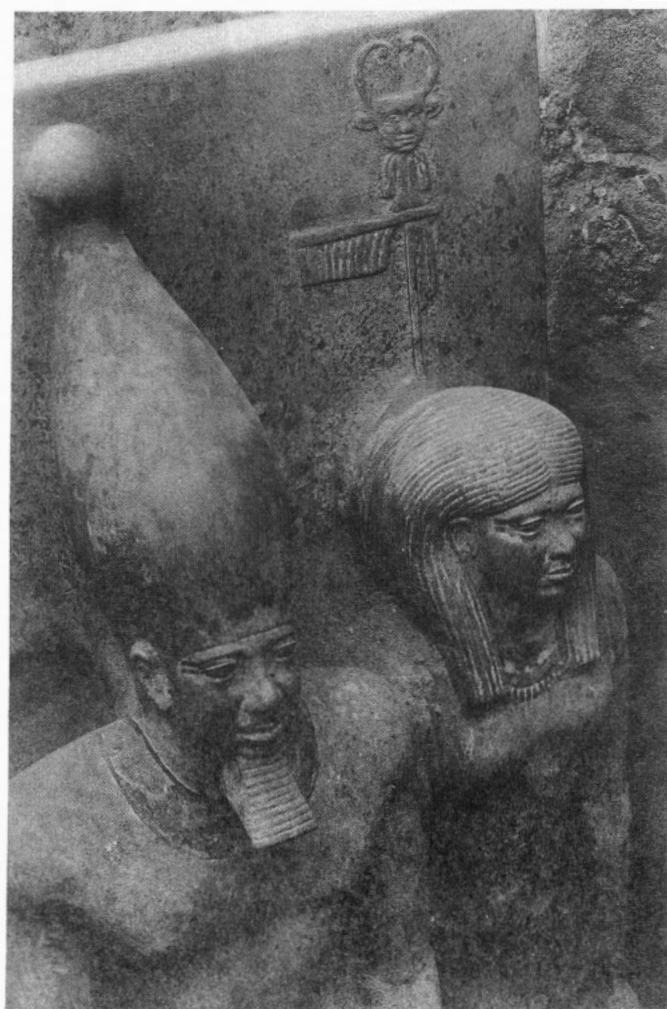
c. M. V. T., triad No. 11, right side, half view.



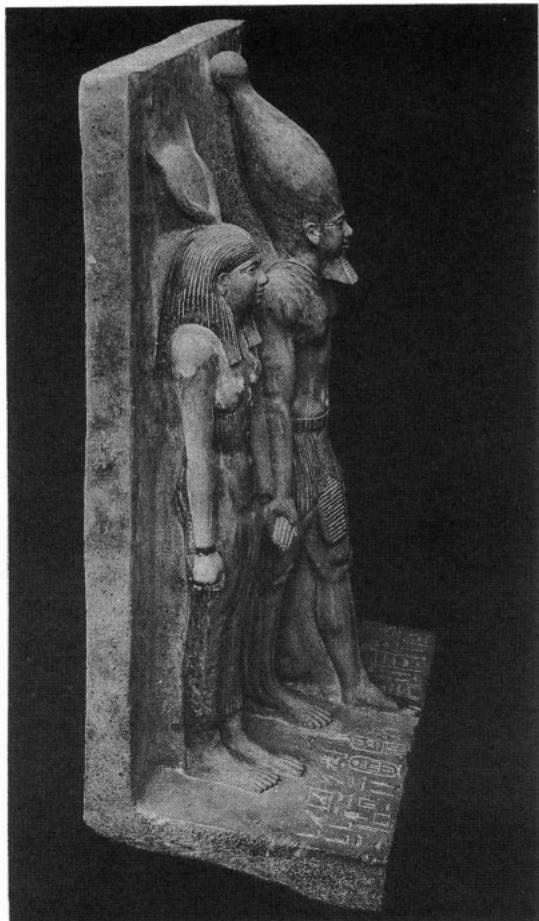
d. M. V. T., triad No. 11, left side, half view.



a. M. V. T., triad of nome of Diospolis parva (No. 12), upper part.



b. M. V. T., triad of nome of Diospolis parva (No. 12), faces of the king and the nome-goddess.



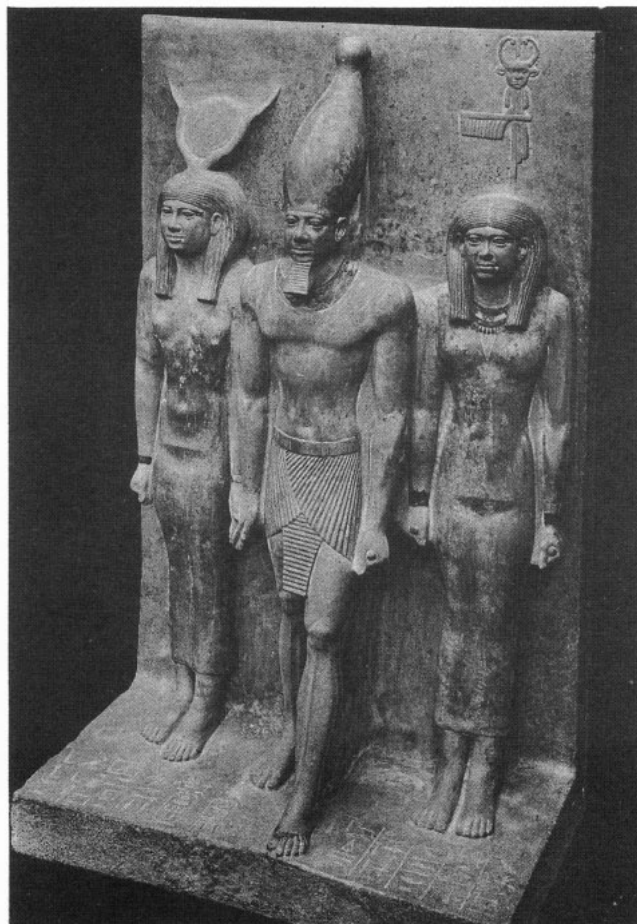
a. M. V. T., triad No. 12, right side, profile.



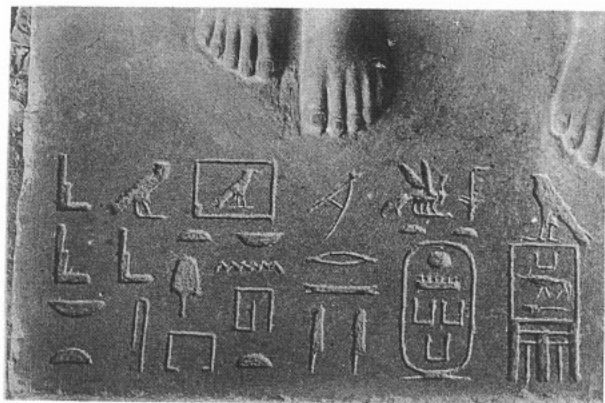
b. M. V. T., triad No. 12, left side, profile.



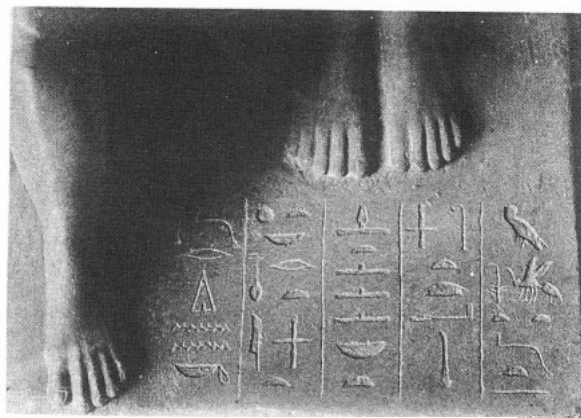
c. M. V. T., triad No. 12, right side, half view.



d. M. V. T., triad No. 12, left side, 1-4 view.



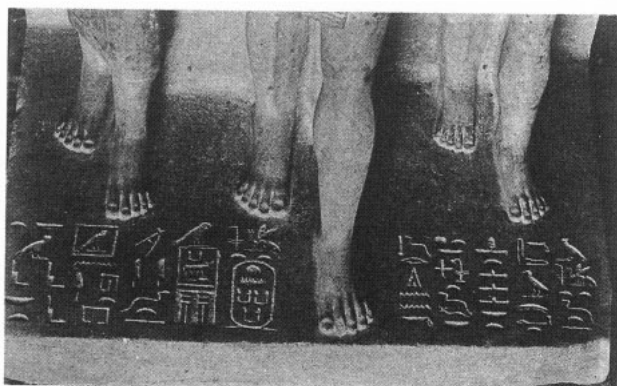
a. Triad No. 12, inscription, left half.



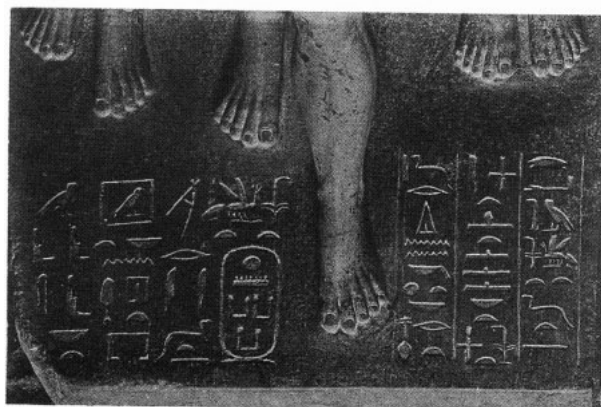
b. Triad No. 12, inscription, right half.



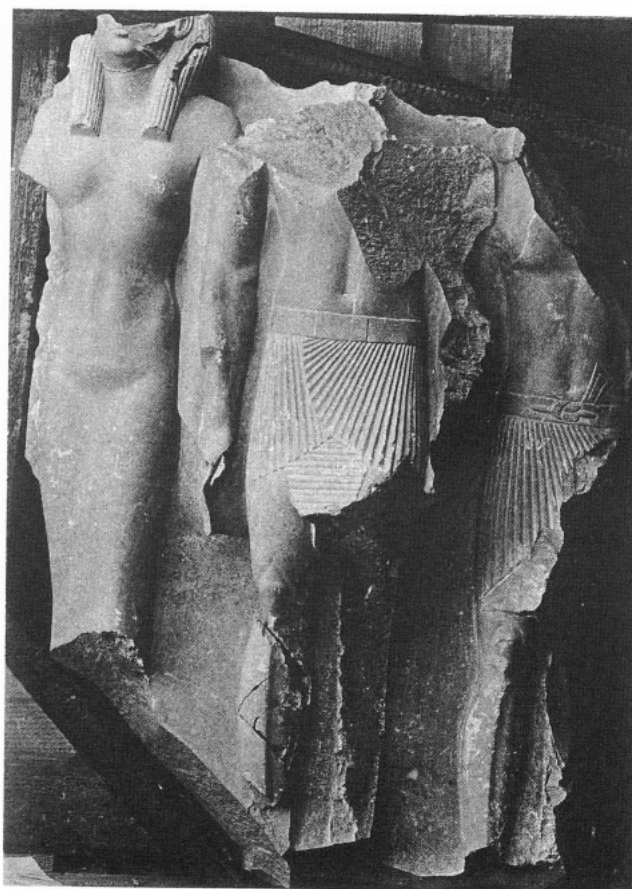
c. Triad No. 9, inscription.



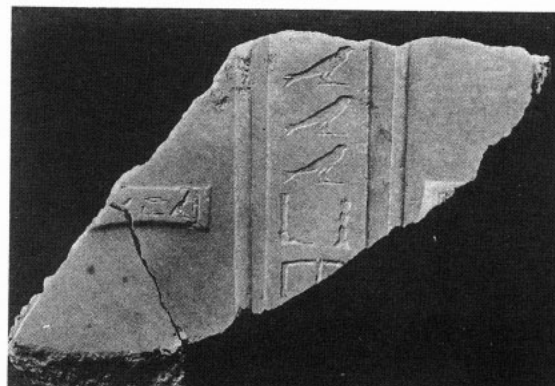
d. Triad No. 10, inscription.



e. Triad No. 11, inscription.



f. Triad No. 13.



g. Fragment alabaster stela, from M. V. T., I-323.



a. M. V. T., room (1) of Second Temple (portico of First Temple), showing four bases and other fragments of alabaster statues as found, looking west, July 16, 1908.



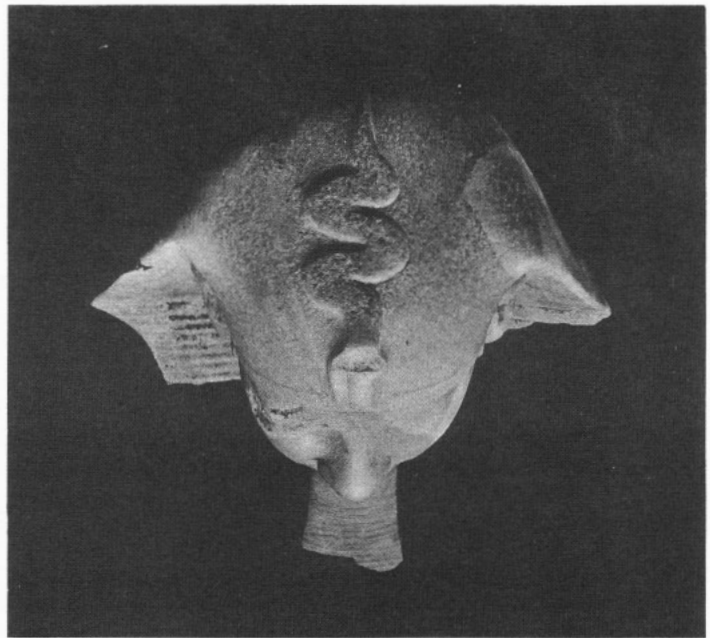
b. M. V. T., alabaster statues No. 19 and No. 18, back and right side (in camp courtyard).



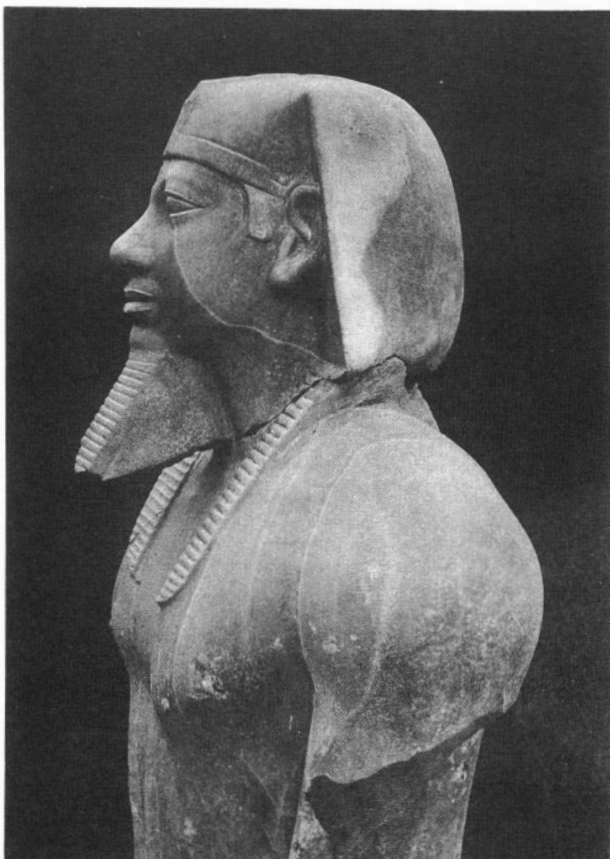
c. M. V. T., alabaster statue No. 19, front and left side.



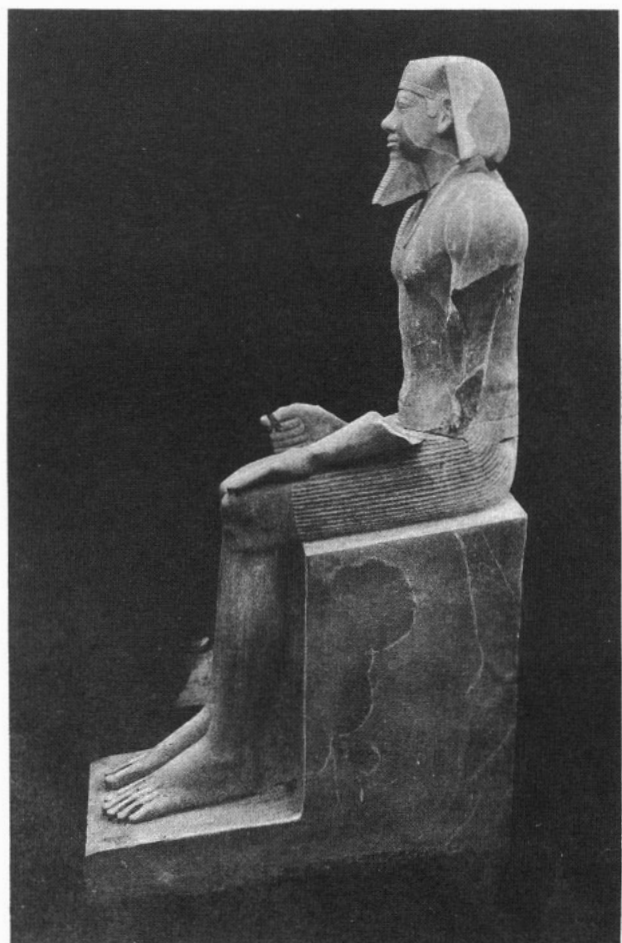
a. M. V. T., alabaster statue 18, front view.



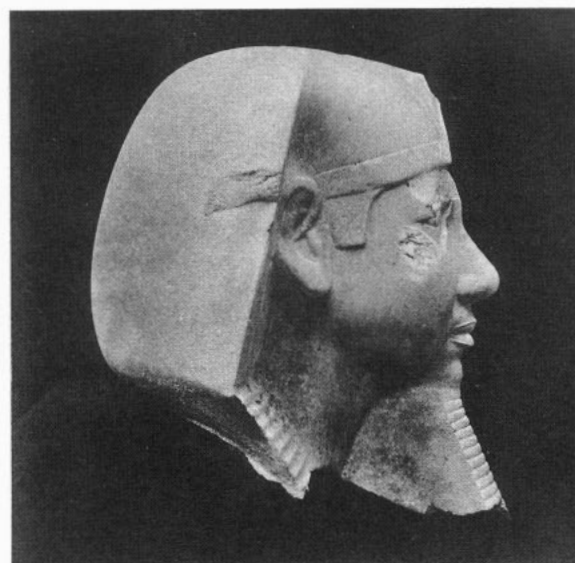
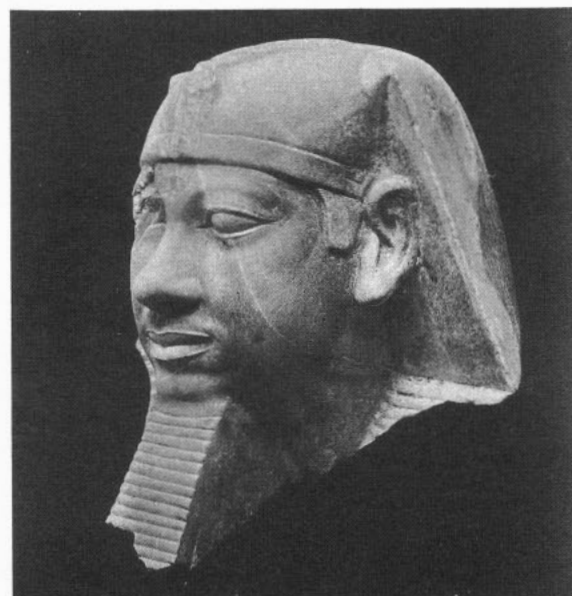
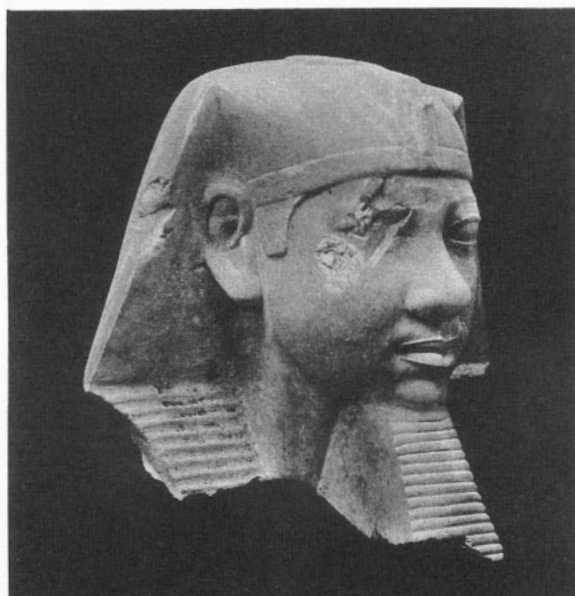
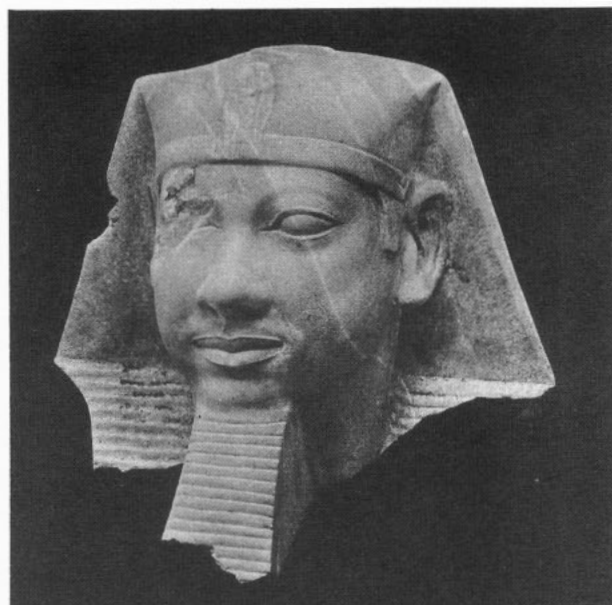
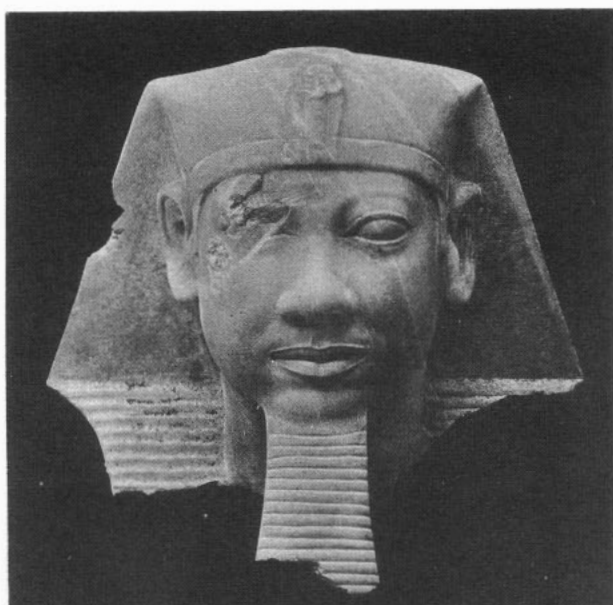
b. M. V. T., alabaster statue 18, top of head, looking down.



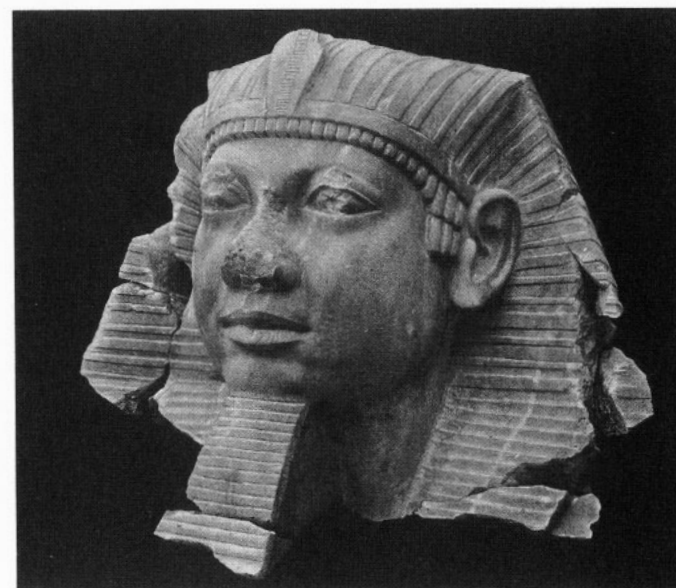
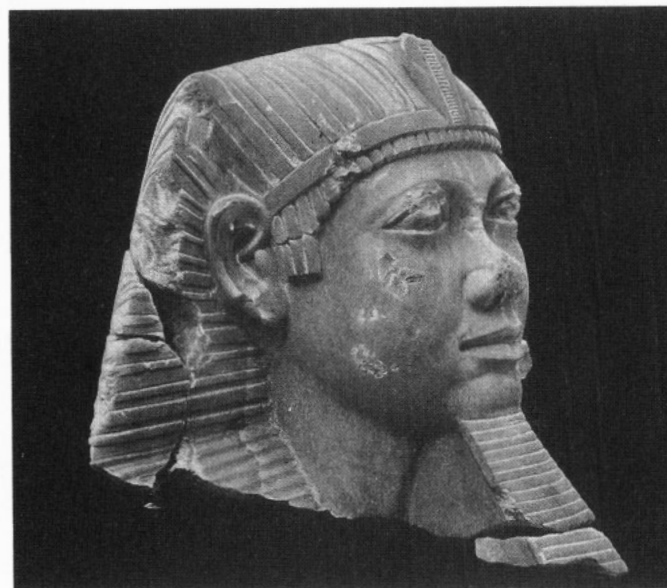
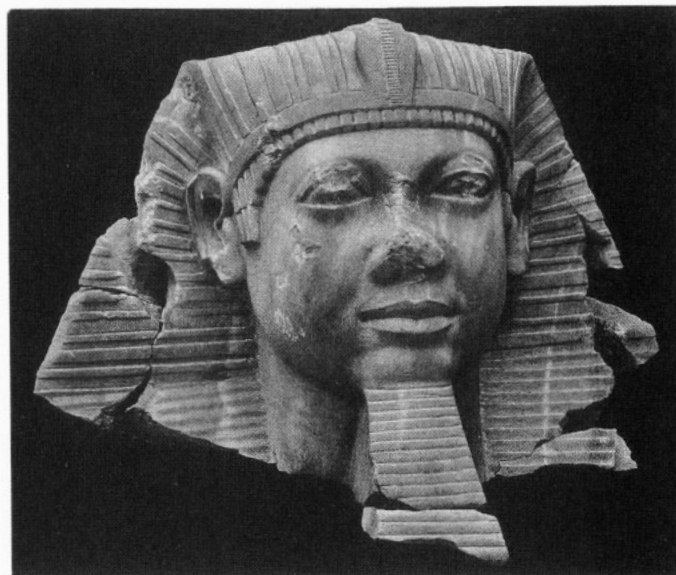
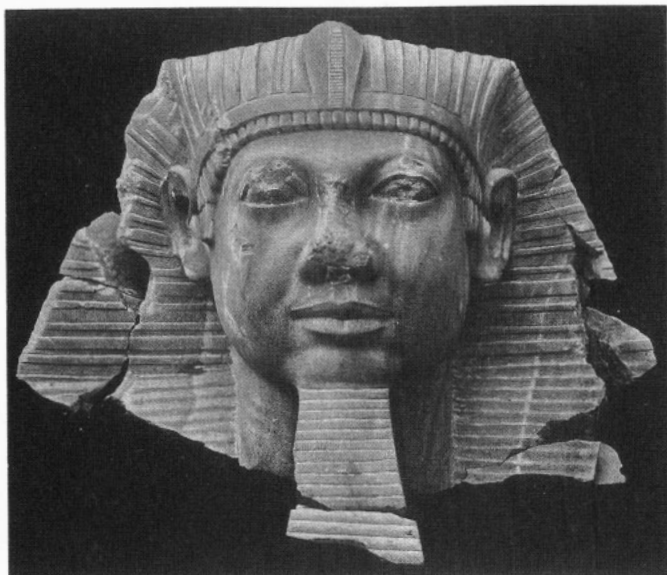
c. M. V. T., alabaster statue 18, torso, profile.



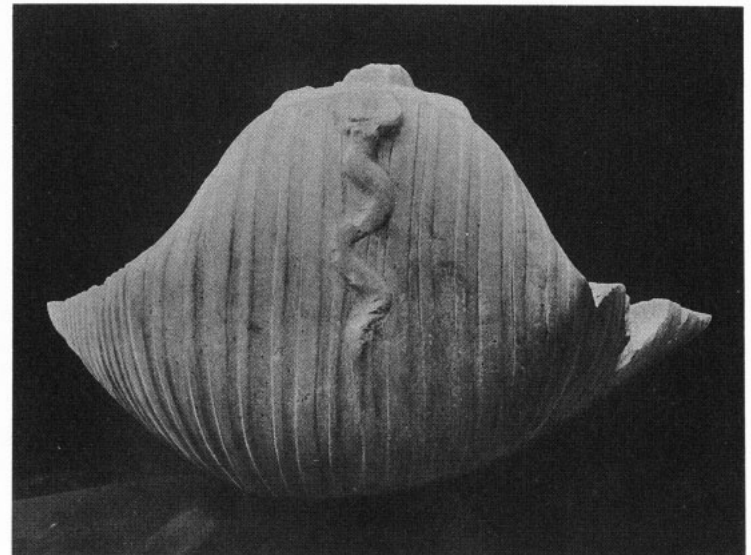
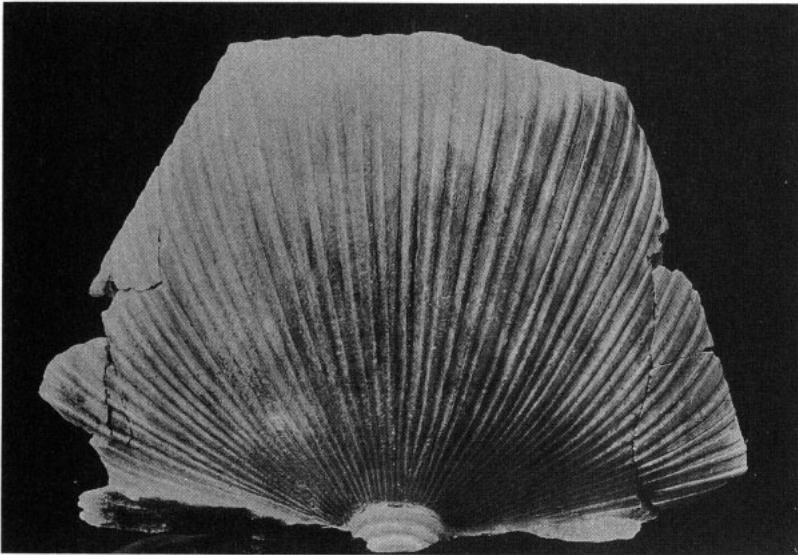
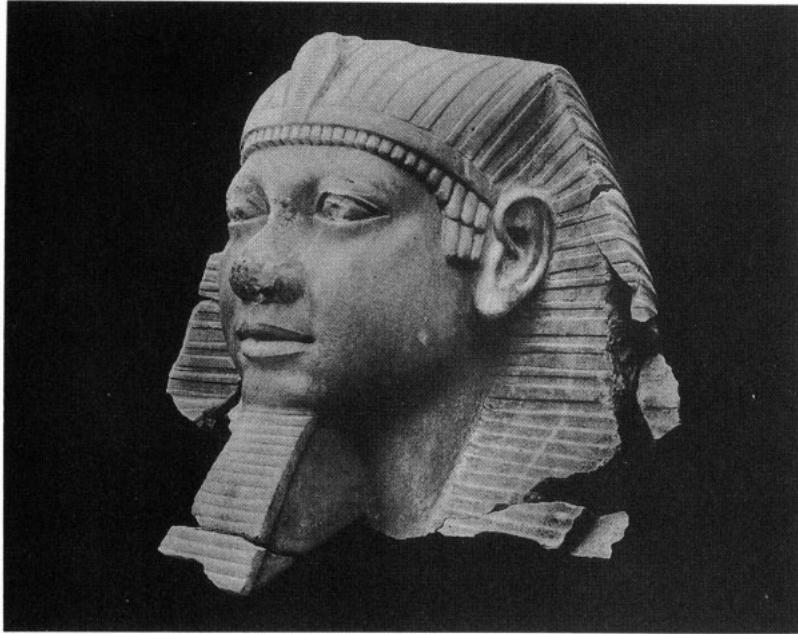
d. M. V. T., alabaster statue 18, left side, profile.



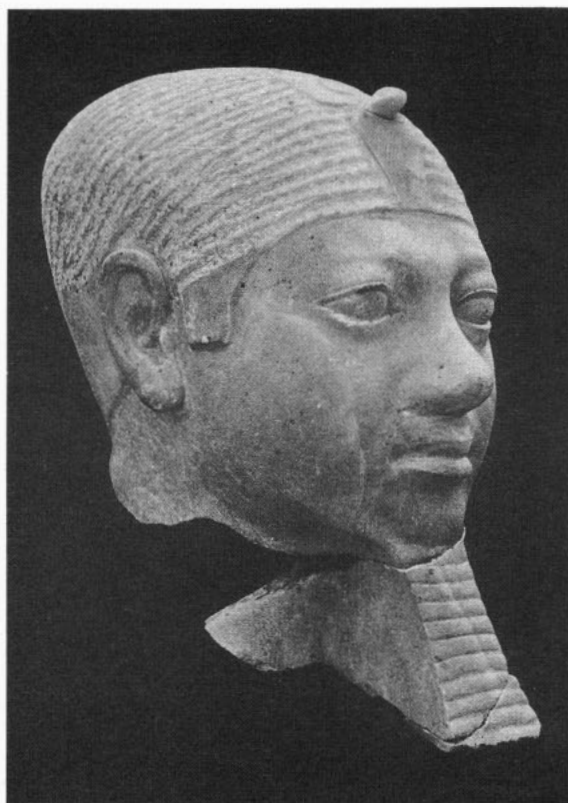
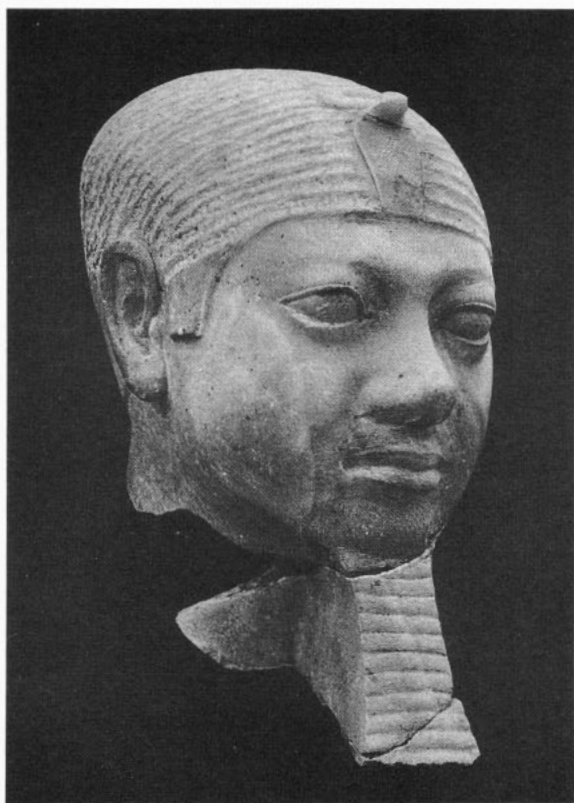
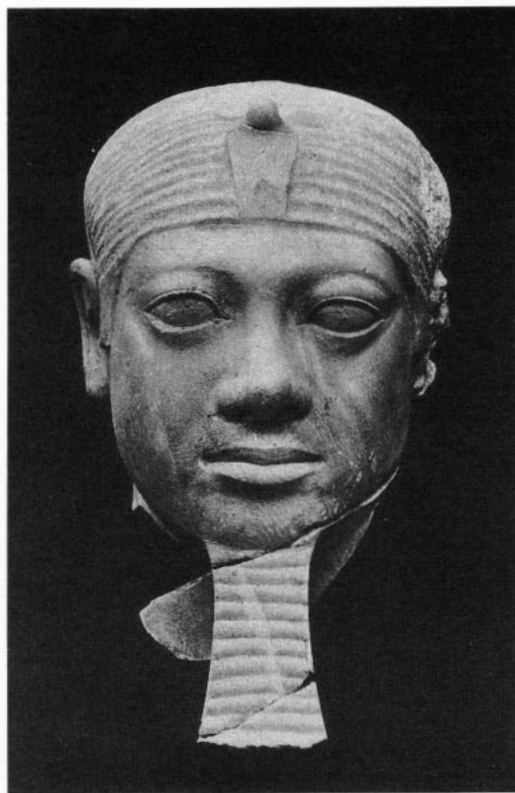
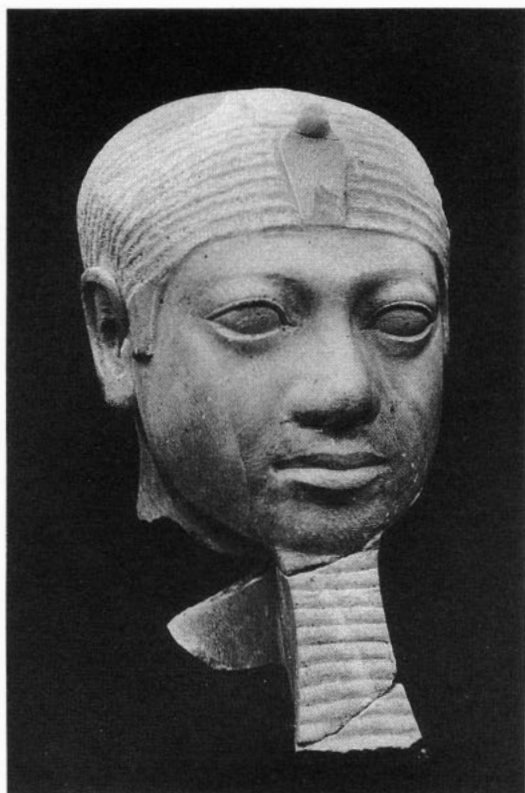
M. V. T., head of alabaster statue No. 18, six views.



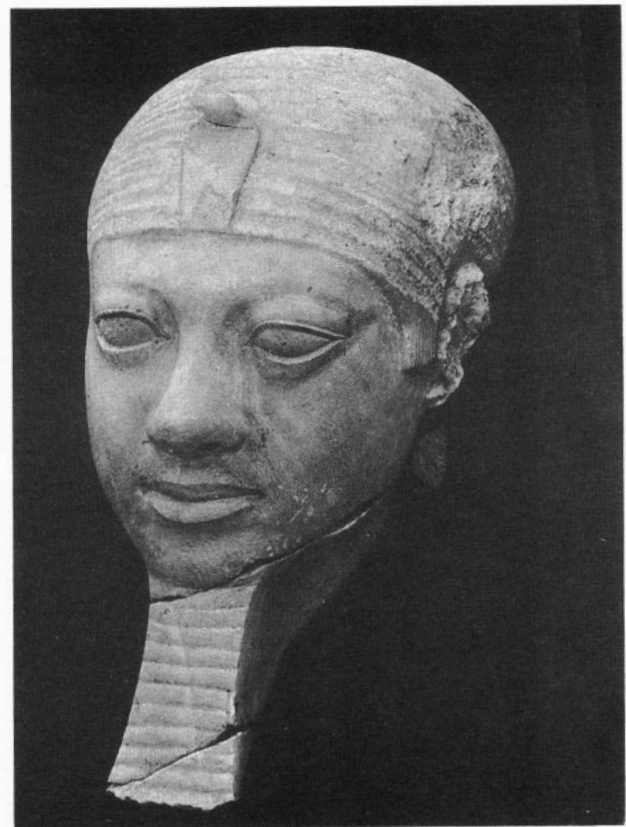
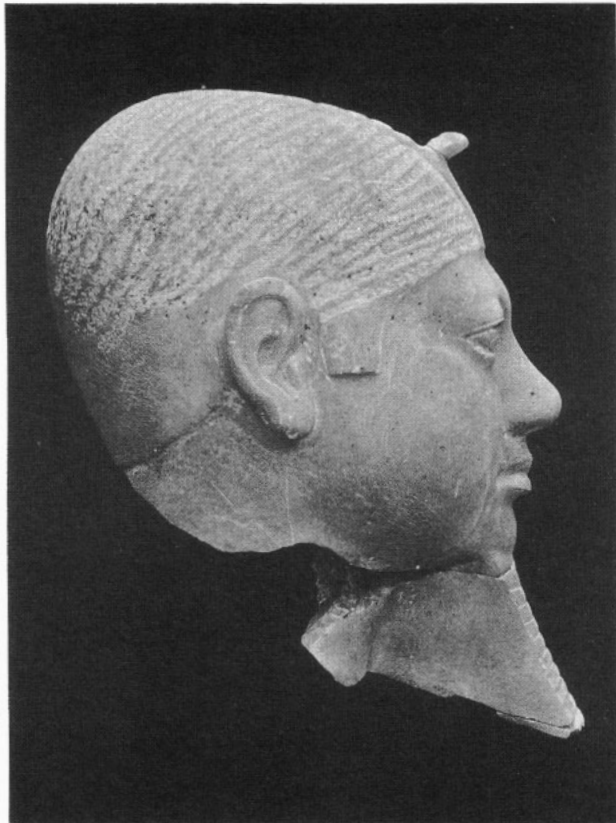
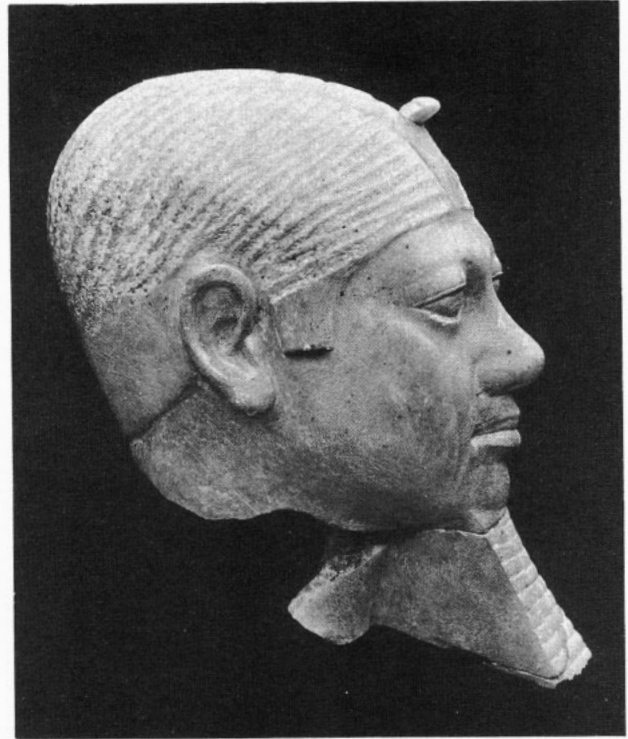
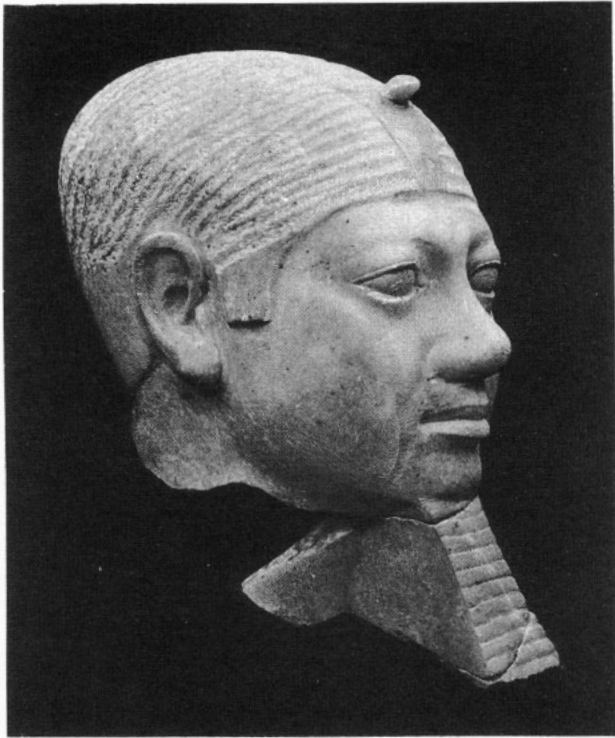
M. V. T., alabaster head No. 22, four views.



M. V. T., alabaster head No. 22, four views, including back of head and top of head.



M. V. T., alabaster head No. 23, four views.



M. V. T., alabaster head No. 23, four views.



a. Looking south over thieves' hole, January 19.



b. Statue partly exposed, looking down to S. W., January 19.

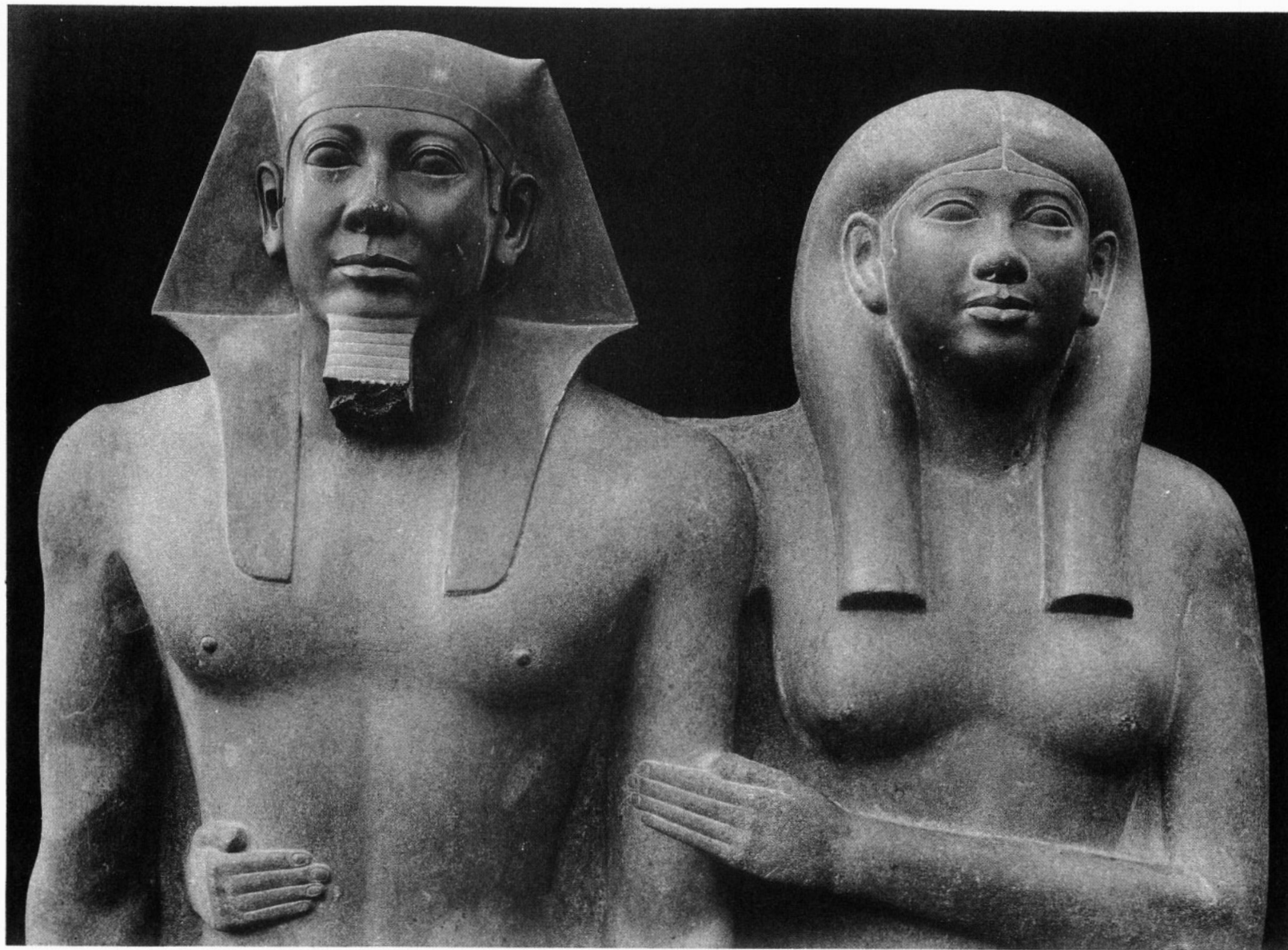


c. Statue standing in bottom of hole, looking down south, January 20.

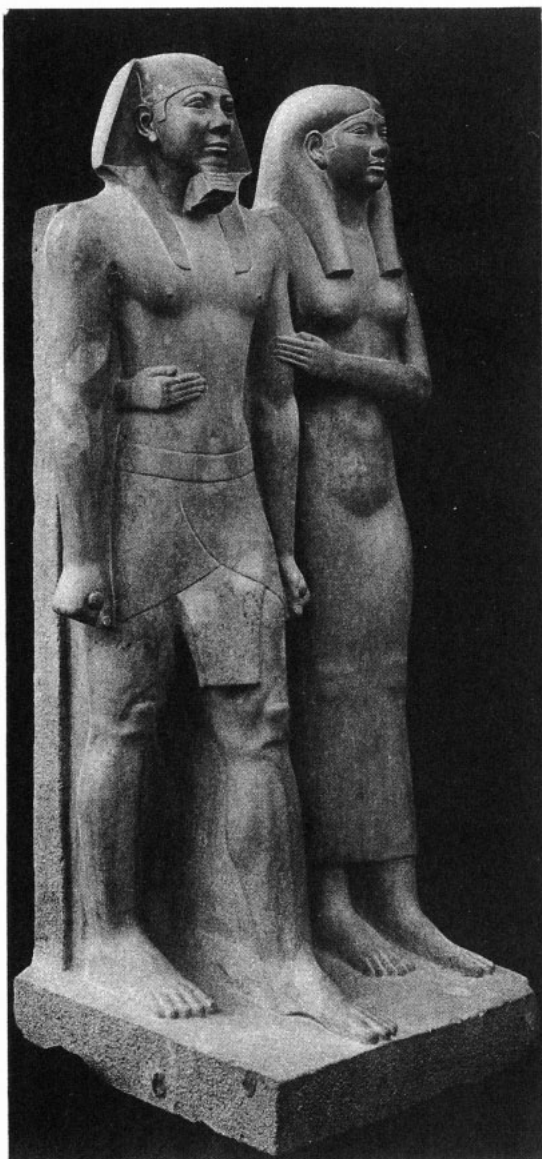


d. Same as c, near view.

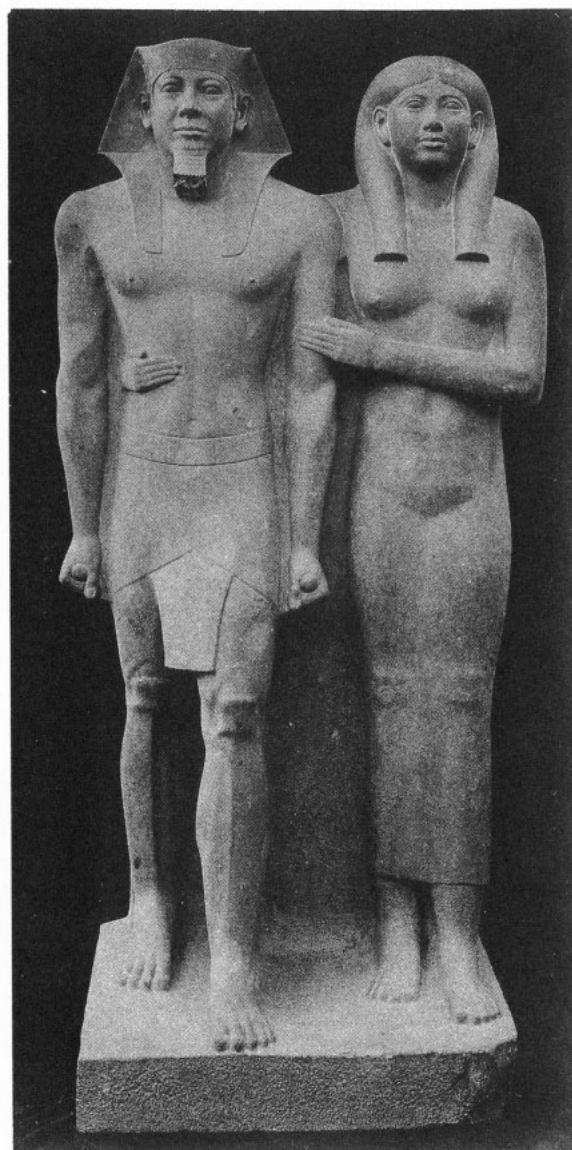
Discovery of slate pair (No. 17) in M. V. T., corridor (4), bottom of thieves' hole, January 19, 1910.



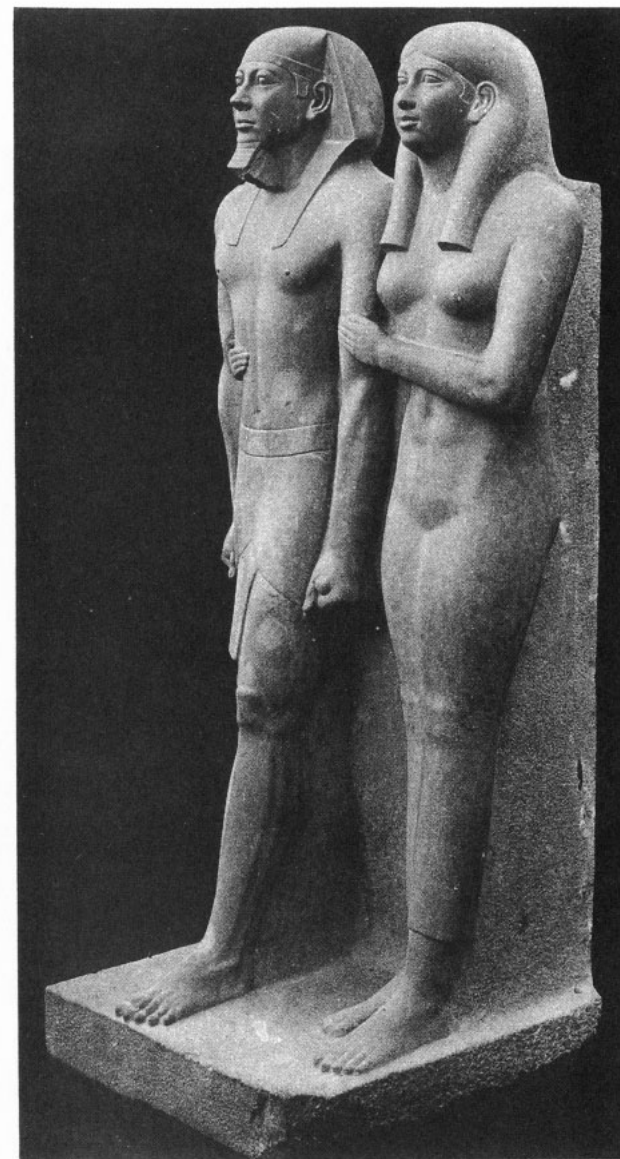
M. V. T., the slate pair, statue No. 17, the upper part. (Torso and heads, front).



a. Right side.

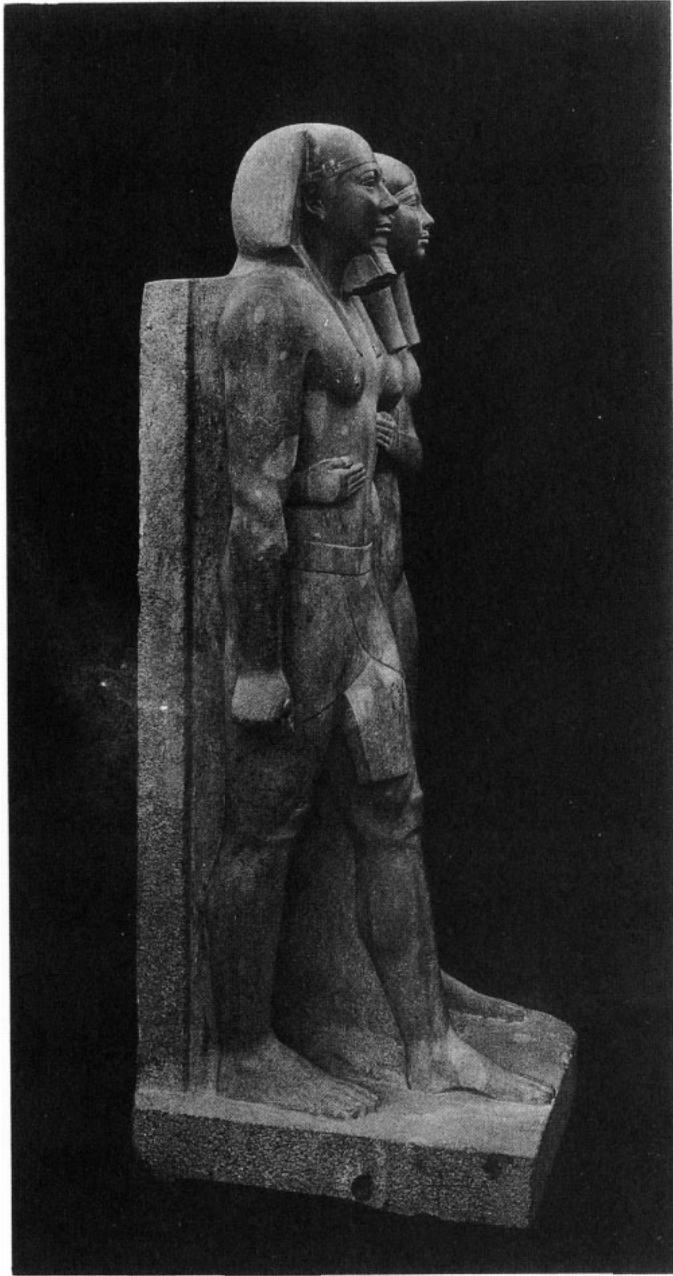


b. Front.

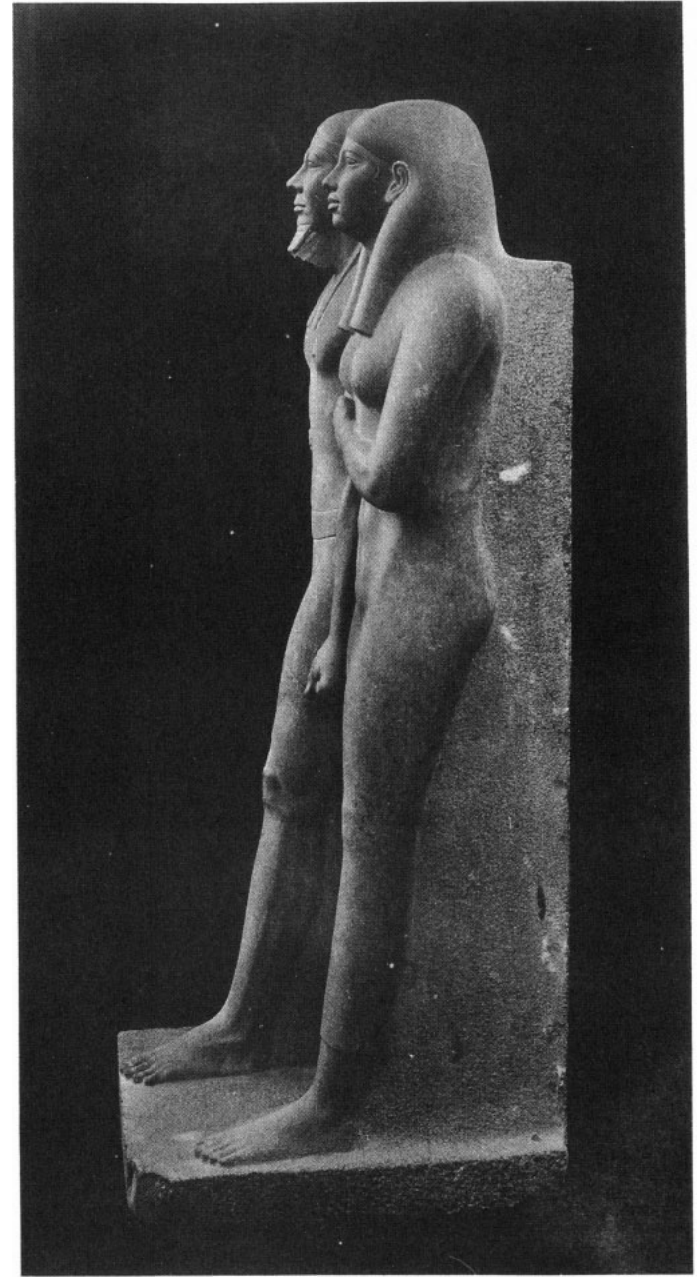


c. Left side.

M. V. T., the slate pair (No. 17), three views.

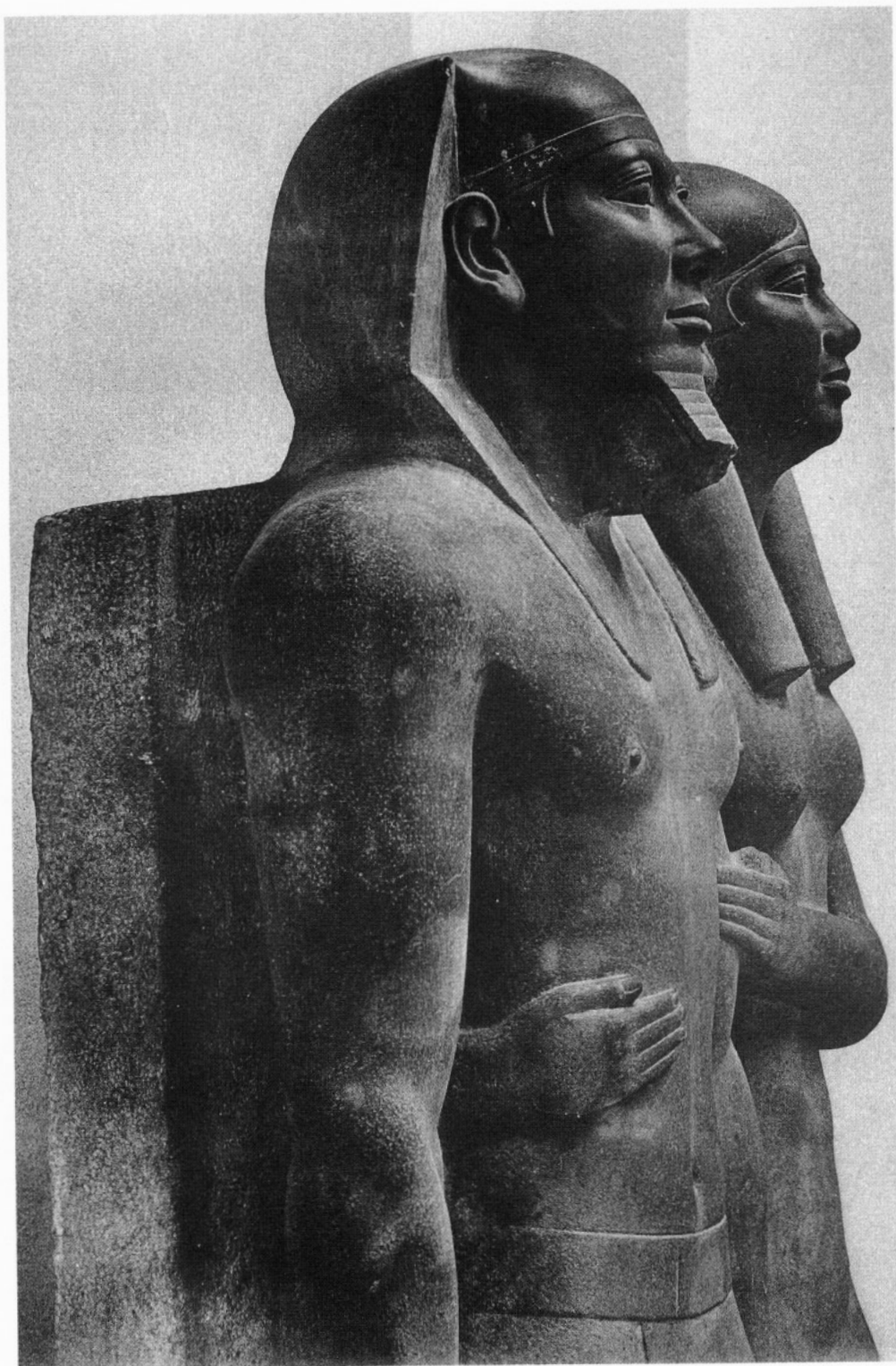


a. Right side, profile.

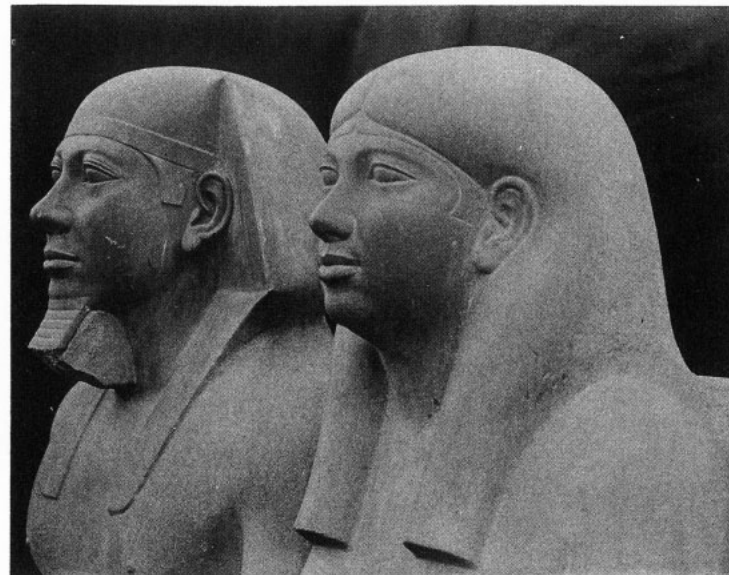
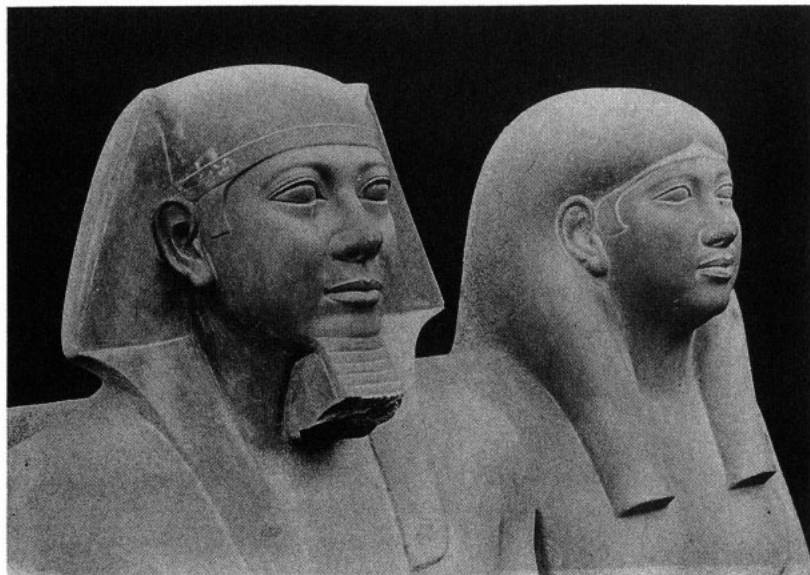


b. Left side, profile.

M. V. T., the slate pair (No. 17), two views.



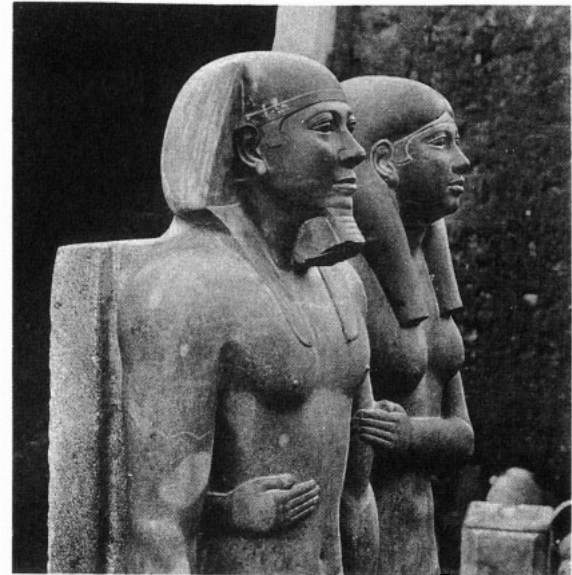
M. V. T., the slate pair (No. 17), upper half, right side, profile.



M. V. T., the slate pair (No. 17), four views of the heads.



a. Upper half, in open air.



b. Upper half, in open air.



c. Upper half, in open air.



d. Heads.

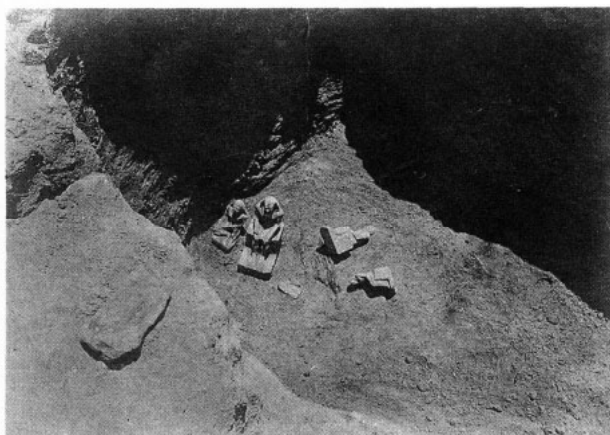
M. V. T., the slate pair (No. 17), four views.



a. M. V. T., room (II-2), west end, looking down S. W; statuettes Nos. 27, 29, 32, 39, and offering table, July 17, 1908.



b. M. V. T., same as *a*, looking west. July 17, 1908.



c. M. V. T., corridor (4), opposite room (5), looking down S. E., statuettes Nos. 31, 35, 37, and 43, July 14, 1908.



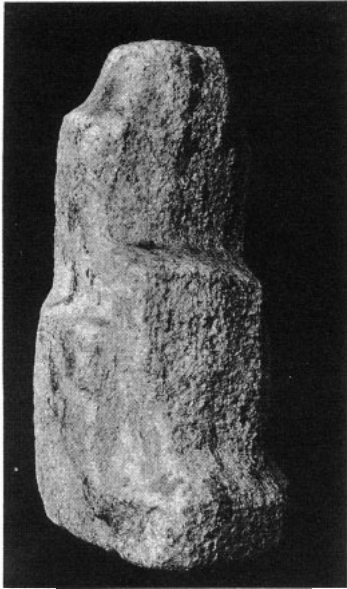
d. M. V. T., room (3), S. W. corner, looking down west, statuette No. 28, January 21, 1910.



e. M. V. T., copper pan upside down on south wall of (8), looking down to S. E., July 19, 1908.



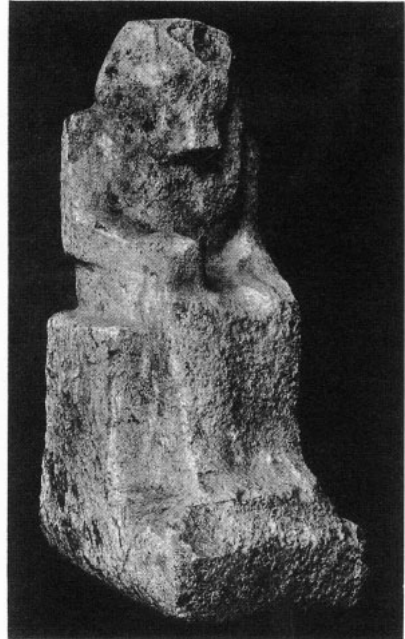
f. M. V. T., deposit under copper pan, looking down S. W., July 20, 1908.



a. No. 25, state I.



b. No. 26, state II.



c. No. 27, state III.



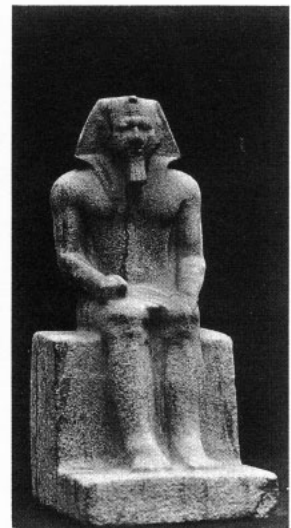
d. No. 29, state IV.



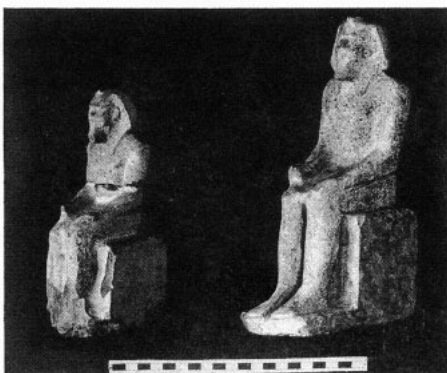
e. No. 28, state IV.



f. No. 32, state V.



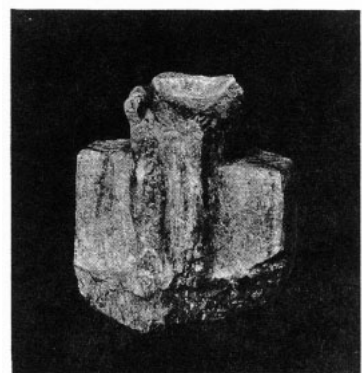
g. No. 35, state VI.



h. Nos. 33, state V and 31, state IV.

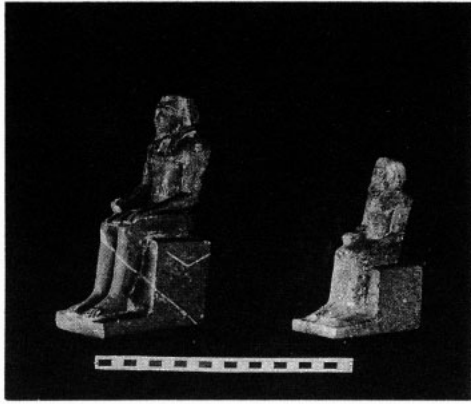


i. Nos. 36, state VI and 30, state IV.

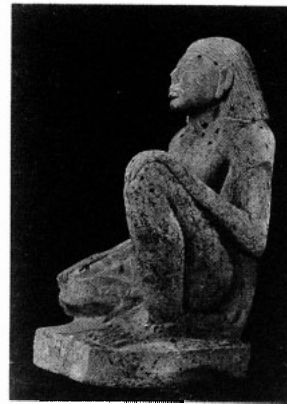


j. No. 42, state VIII.

M. V. T., unfinished statuettes of Mycerinus.



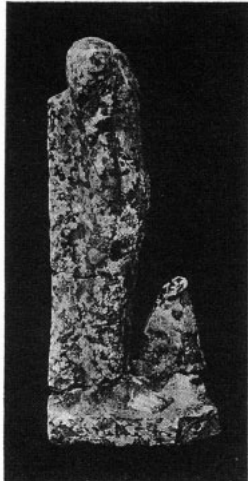
a. Nos. 37, state VII and 34, state V.



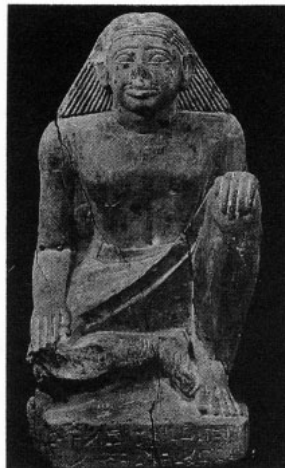
b. No. 43, left side.



c. No. 38, state VII.



d. No. 40, state VII.



e. No. 43, limestone.



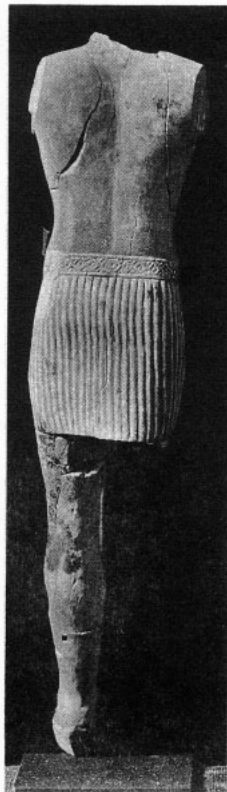
f. No. 44, red granite.



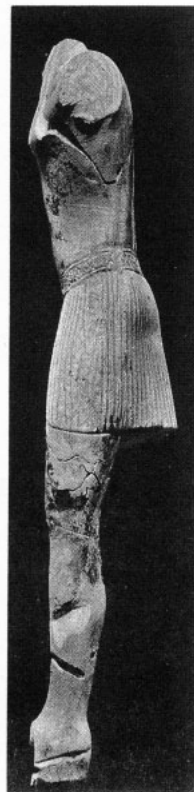
g.



h.

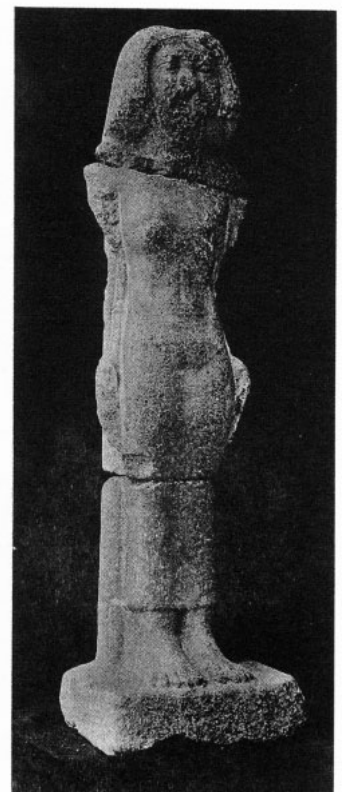


i.



j.

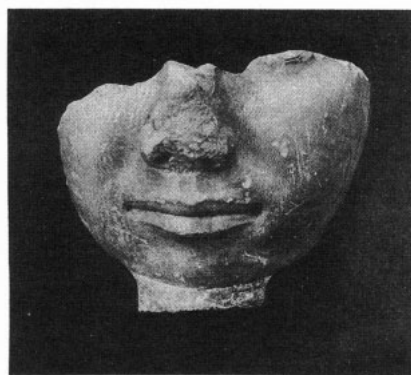
g. h. i. j. No. 48, ivory, four views.



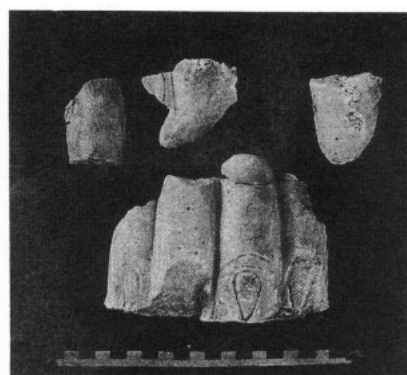
k. No. 41, state VII.



a. Slate jackal, No. 45.



b. No. 24 a, alabaster.



c. No. 47, alabaster.



d. Decree of Pepy II, left half.



e. Decree of Pepy II, right half.



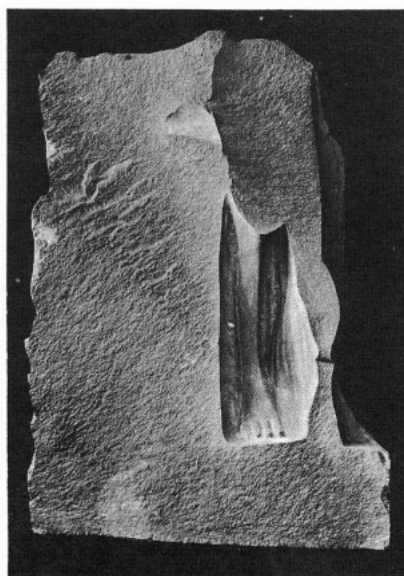
f. No. 46, alabaster.



g. No. 15 b, slate.



j. Impression of seal No. 2.



h. No. 14, slate.



i. No. 46, alabaster.

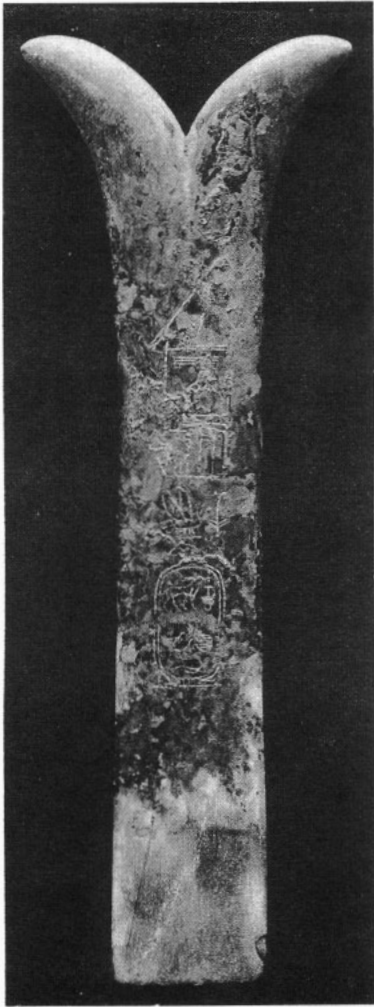


k. Impression of seal No. 3.

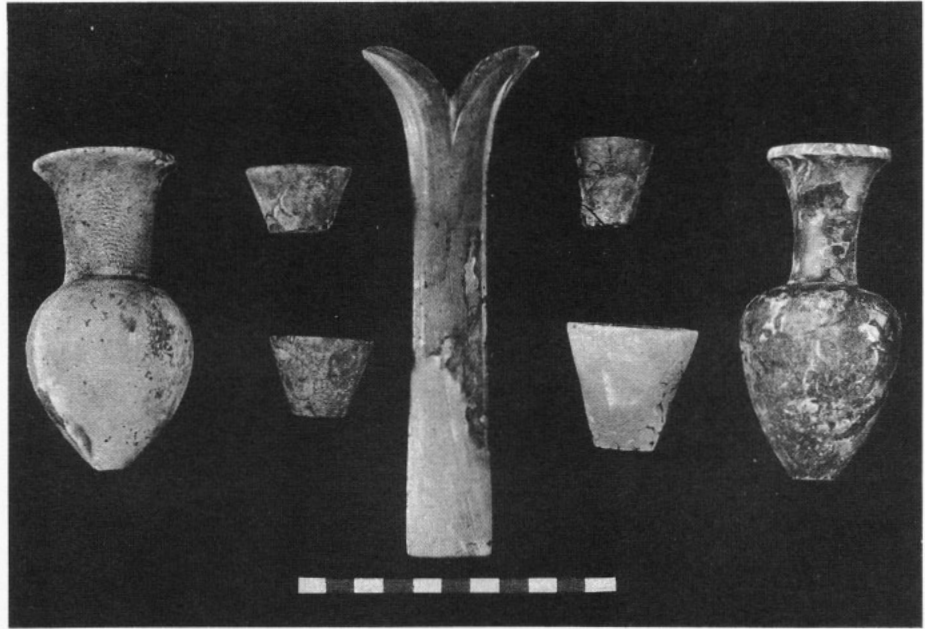


l. Six views of seal No. 1, silver.

M. V. T., miscellaneous objects.



a. Flint wand of Cheops.



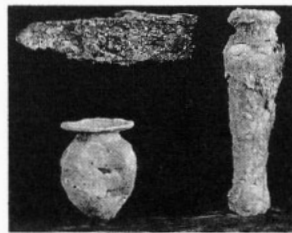
b. Flint wand and magical models of Cheops.



c. Smaller flint wand and other objects.



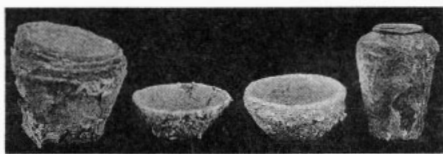
d. Copper vase.



e. Copper models and bent blade.



f. Copper tools and models.



g. Copper models, Nos. 5-7.

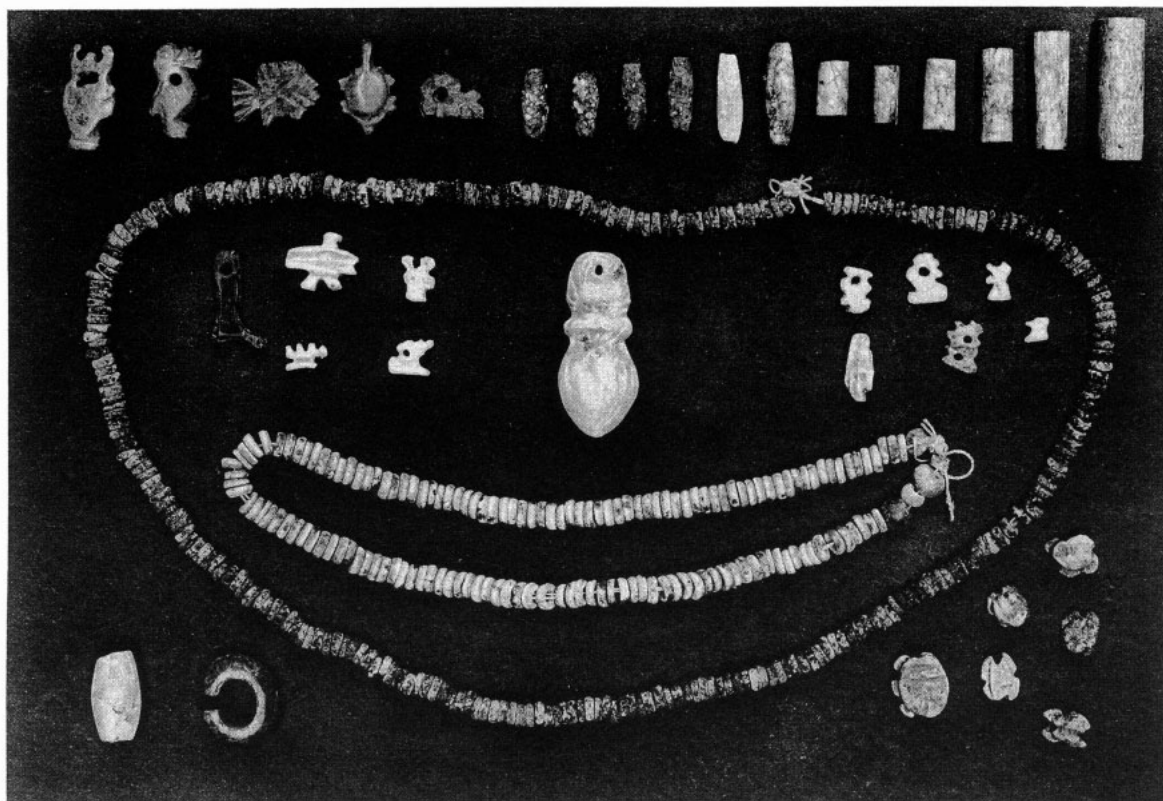


h. Mass of copper tools, No. 11.



i. Copper tools Nos. 9 and 10.

M. V. T., magical models, tools and vessels.



a. M. V. T., beads and amulets from room (I-50).



b. M. V. T., magazine (III-12), broken stone vessels on floor, looking down to W. S. W., January 26, 1910.



c. M. V. T., magazine (III-12), vessels as in b, looking down to east, January 28, 1910.



a. M. V. T., alabaster vessels, types I, V-c, V-b.



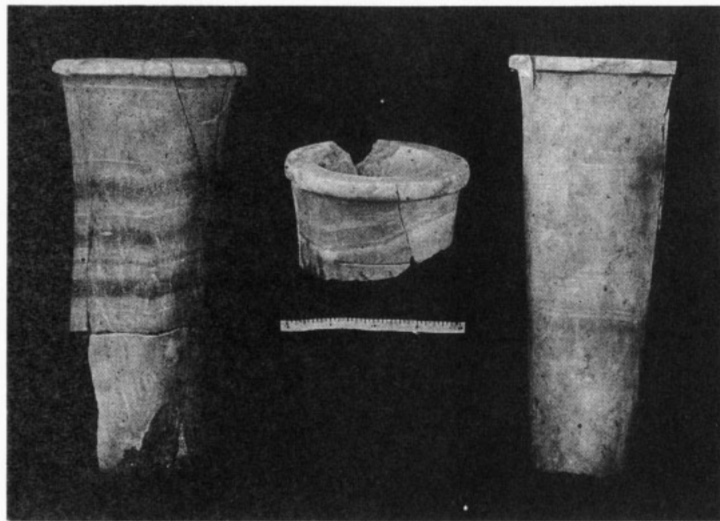
b. M. V. T., alabaster vessels, types IV, V, VI.



a. M. V. T., alabaster vessels, types IX-XIII.



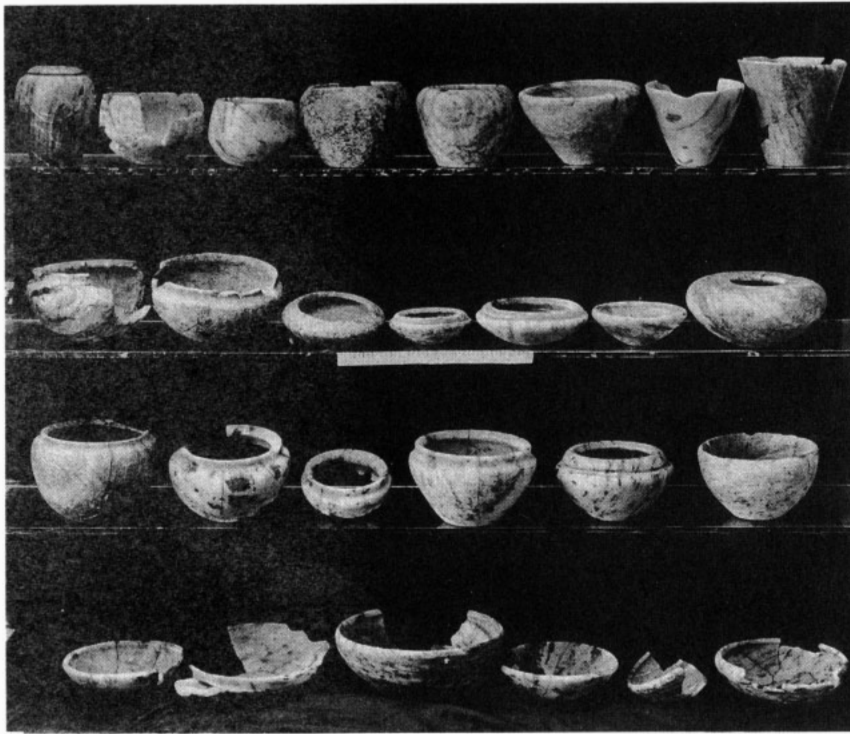
b. M. V. T., misc., stone vessels.



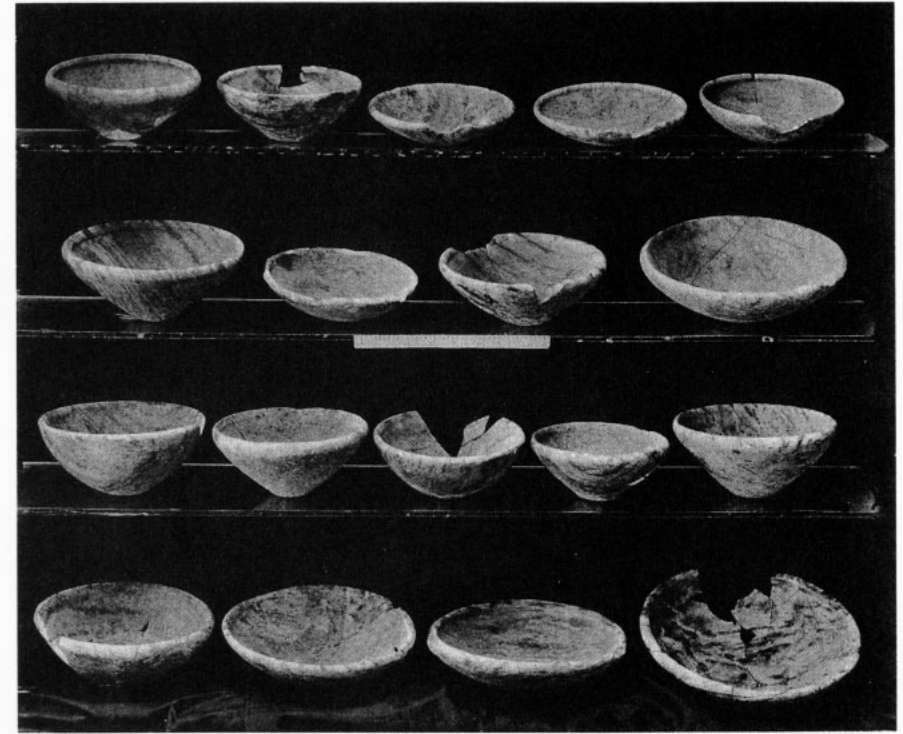
c. M. V. T., alabaster, large type I.



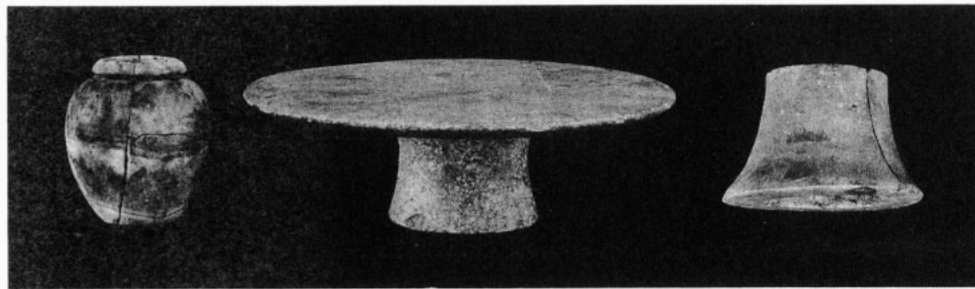
d. M. V. T., blue-veined limestone, types IV, V.



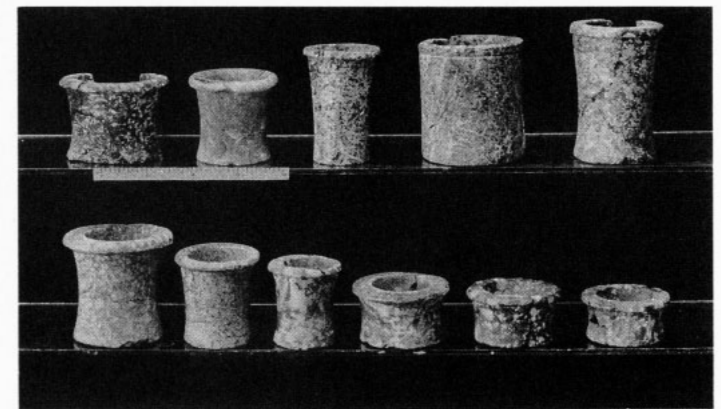
a. M. V. T., diorite vessels, types V, IX, XI.



b. M. V. T., diorite vessels type X.



c. M. V. T., alabaster, diorite. alabaster.



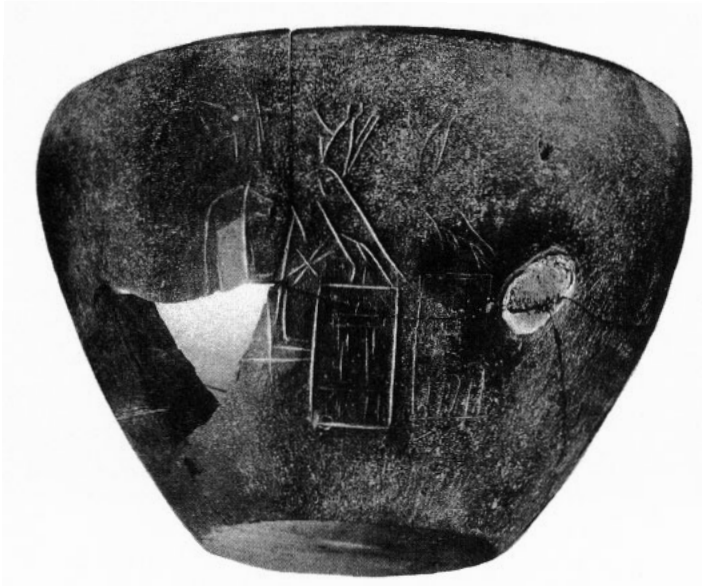
d. M. V. T., porphyry and syenite, type I.



a. M. V. T., porphyry and syenite, type III.



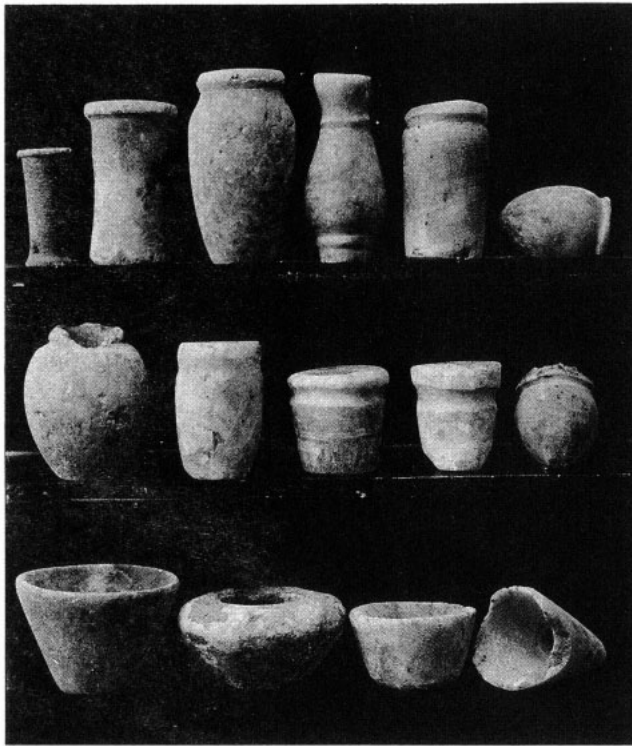
b. M. V. T., porphyry, syenite, etc., types IV, V, X.



c. M. V. T., flint bowl of Neb-ra and Hotepsekhemwy.



d. M. V. T., basalt vessels, types I, II, IV, X.



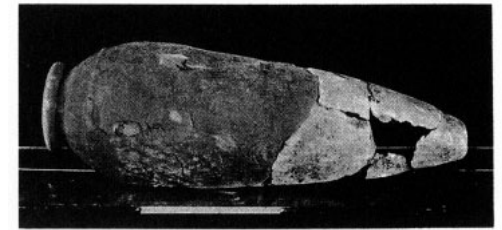
a. M. V. T., alabaster models.



b. M. V. T., alabaster jar.



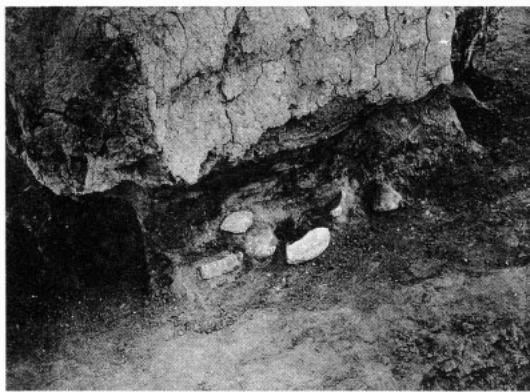
d. M. V. T., pottery, type XXV.



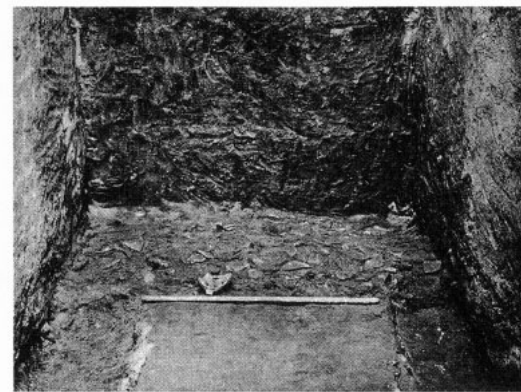
c. M. V. T., pottery, type I.



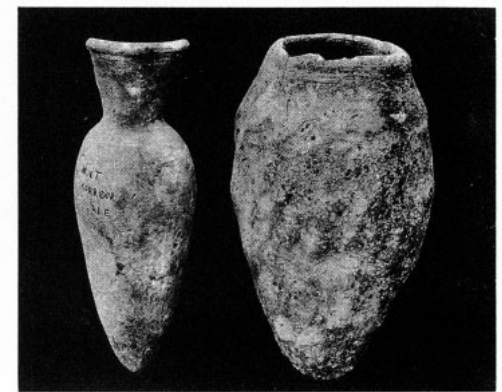
e. M. V. T., pottery, types XXV and II.



f. M. V. T., east wall magazine corridor (III-20), fragments of stone vessels under collapsed wall.



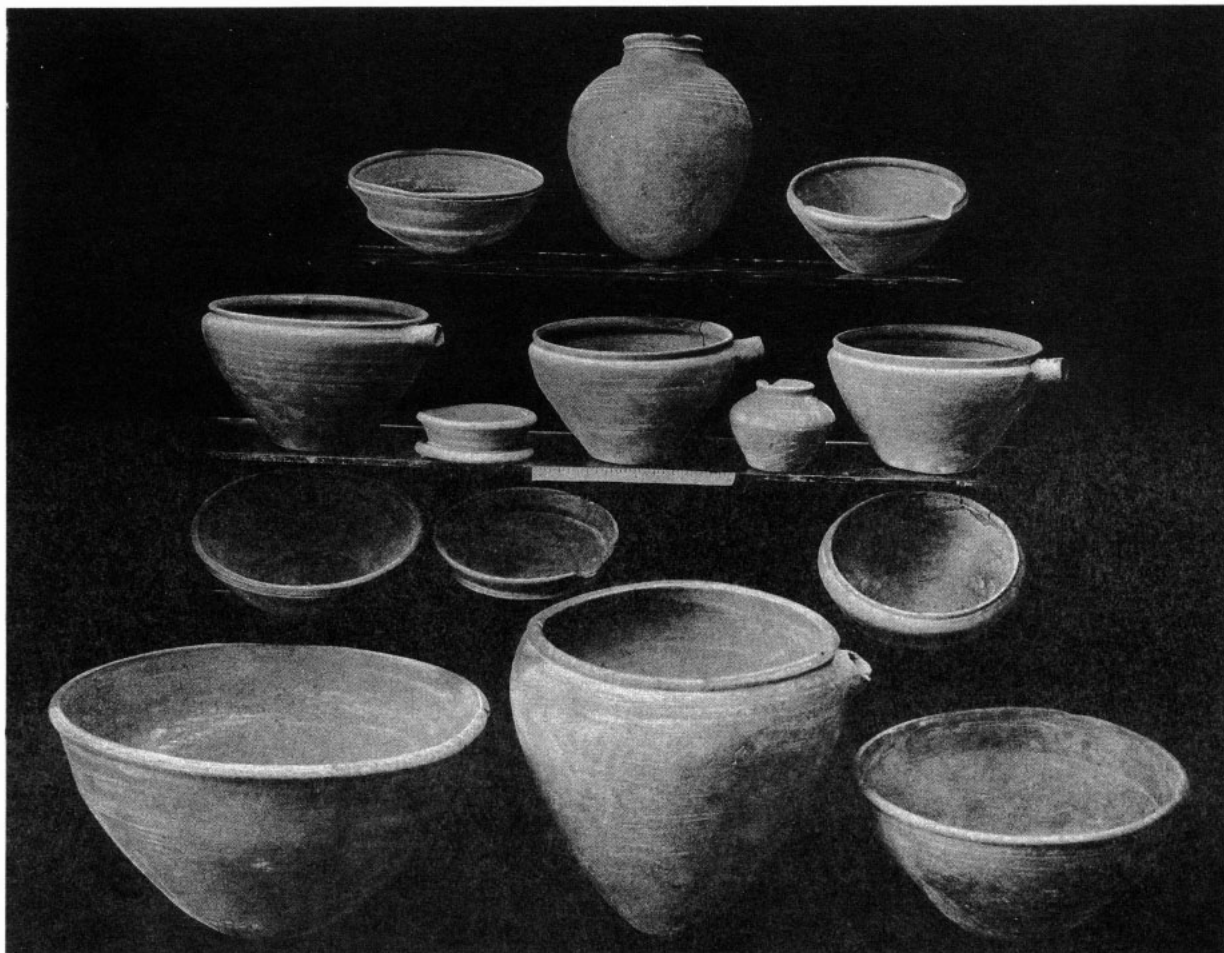
g. M. V. T., mag. (III-10), crushed pottery on floor, looking west.



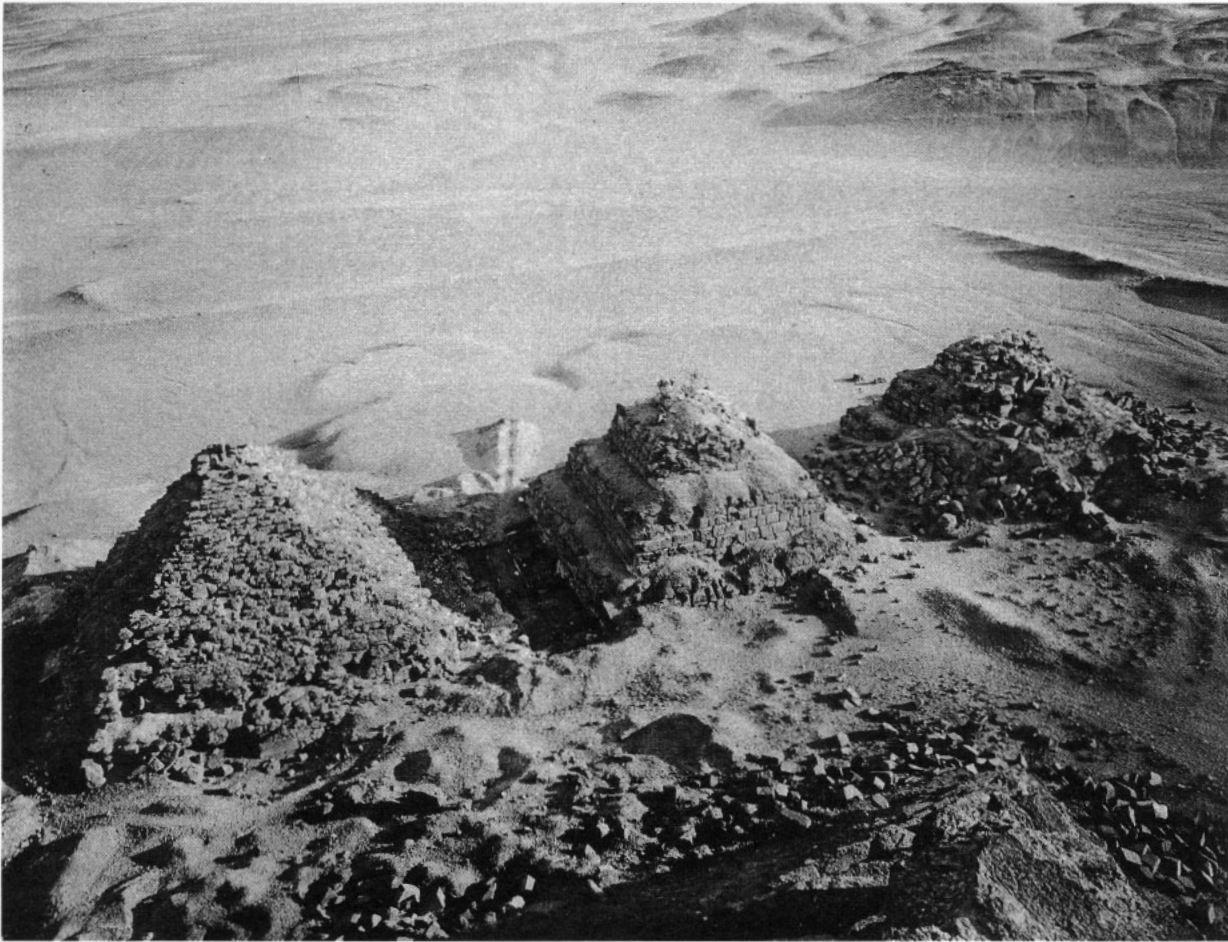
h. M. V. T., pottery, types VIII and IV.



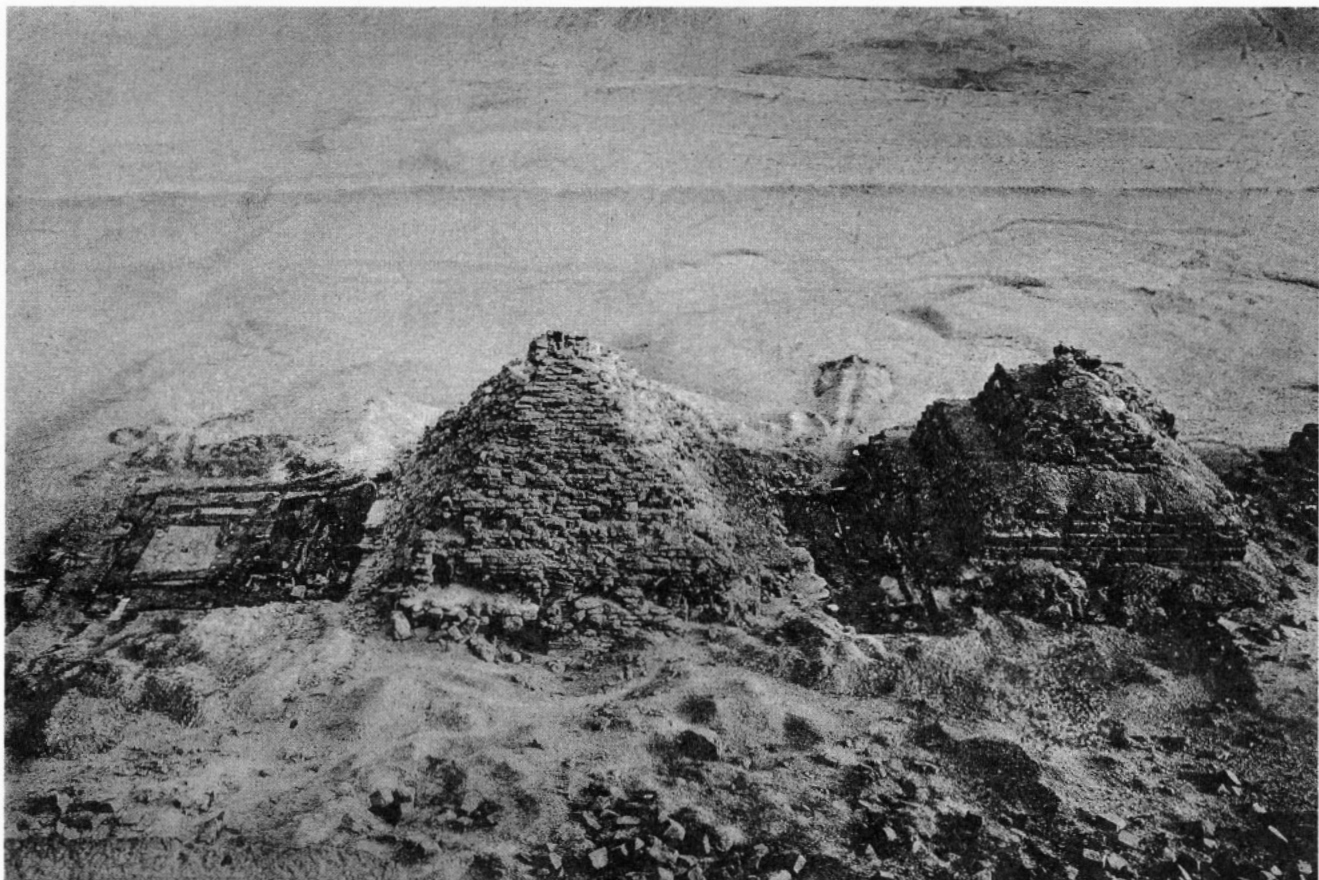
a. M. V. T., pottery, selected types from whole temple.



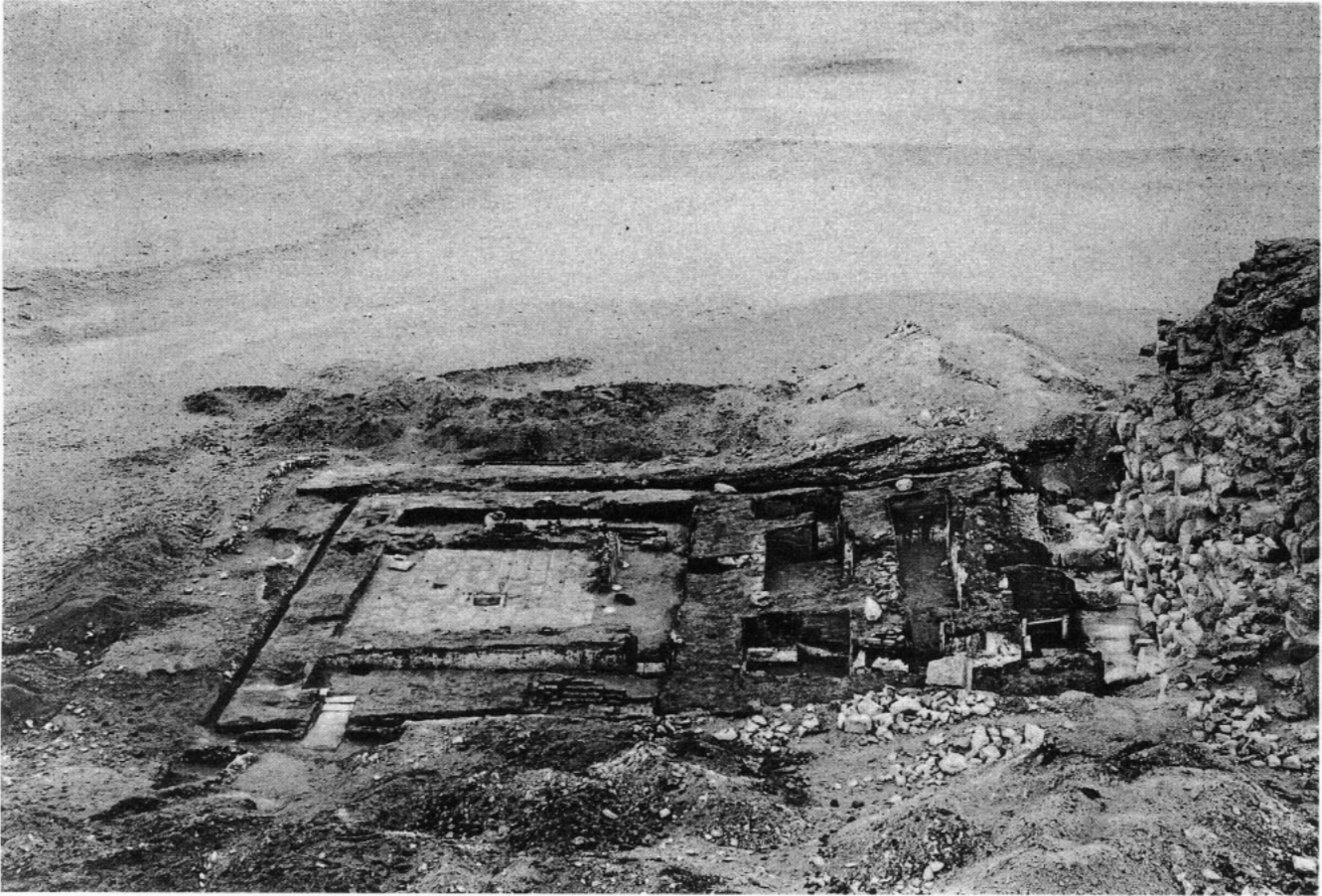
b. M. V. T., pottery from room (I-302 sub).



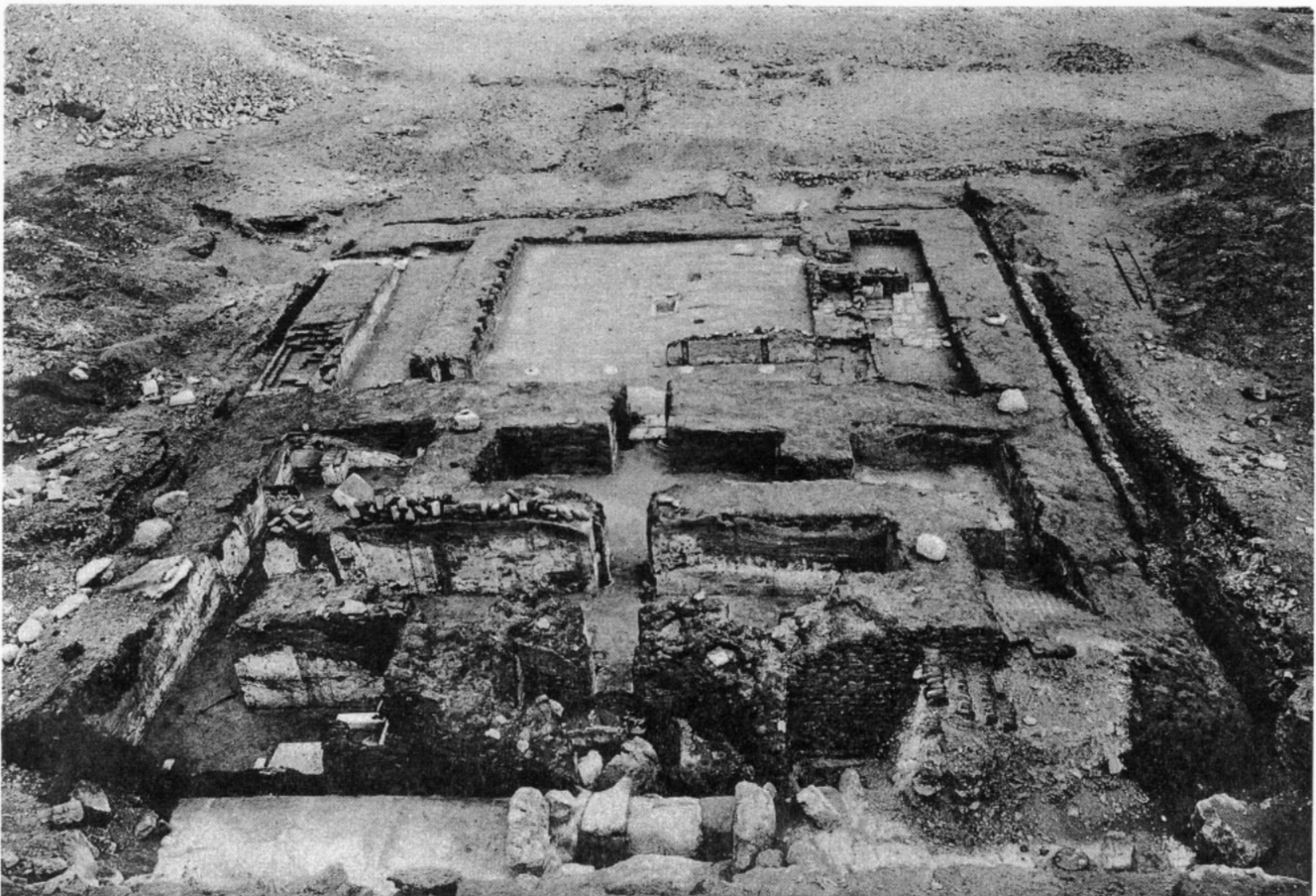
M. Q. T. Small pyramids III-a to III-c, seen from Third Pyramid, looking down S.W., May 1910.



M. Q. T. Small pyramids III-a and III-b with excavated temples, looking down to south, May 1910.



M. Q. T. Temple of small pyramid III-a, looking down to south, May 1910.



M. Q. T. Temple of small pyramid III-a, looking down to east, May 1910.



M. Q. T. Small pyramid III-c, unfinished burial chamber, looking south, May, 1907.



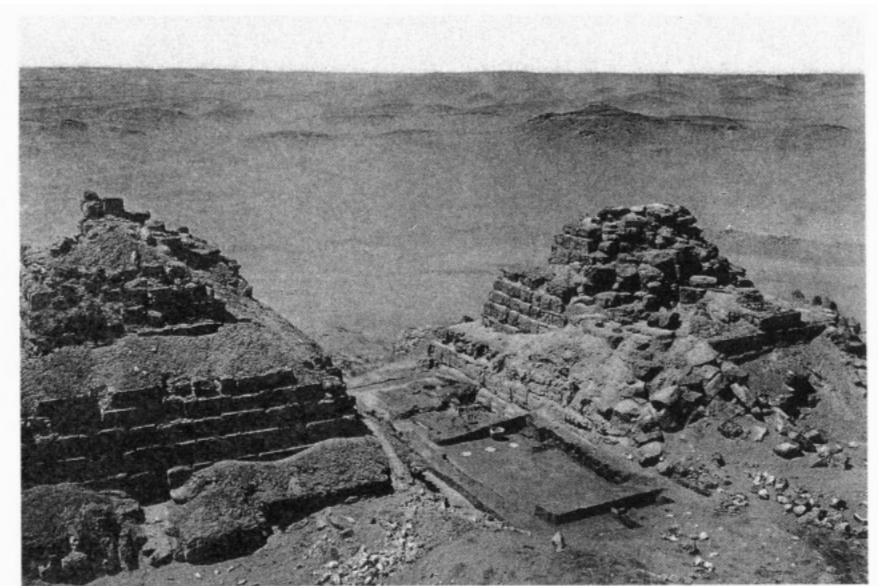
M. Q. T. Small pyramid III-b, temple, looking down to west, May, 1910.



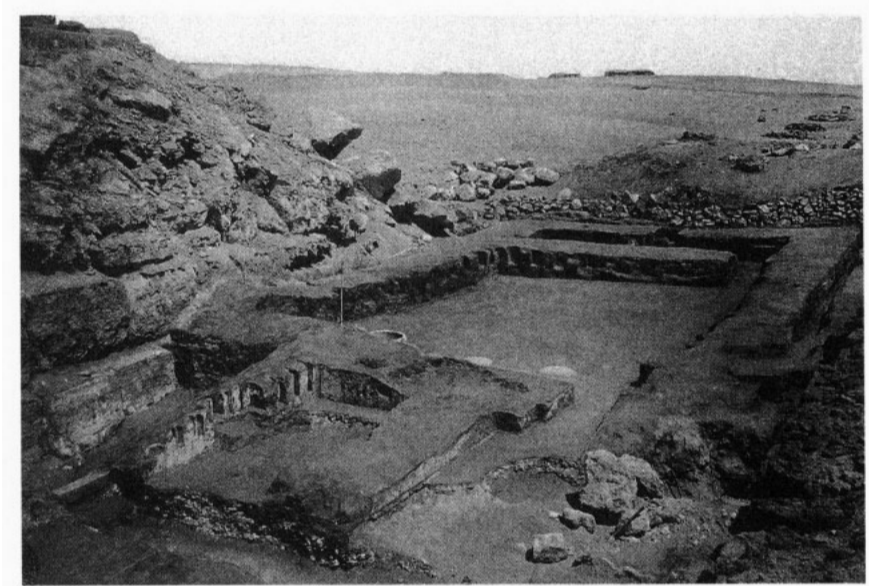
a. M. Q. T. Small pyramid III-c, temple previous to excavation, looking down to southwest, June, 1924.



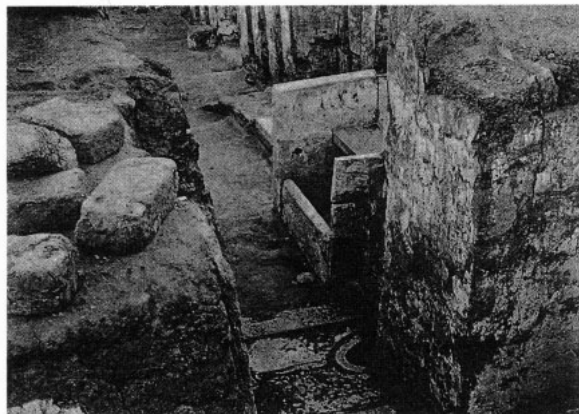
b. M. Q. T. Small pyramid III-c, surface of decay, beginning of excavation of debris of decay in portico, looking down to southwest, July, 1924.



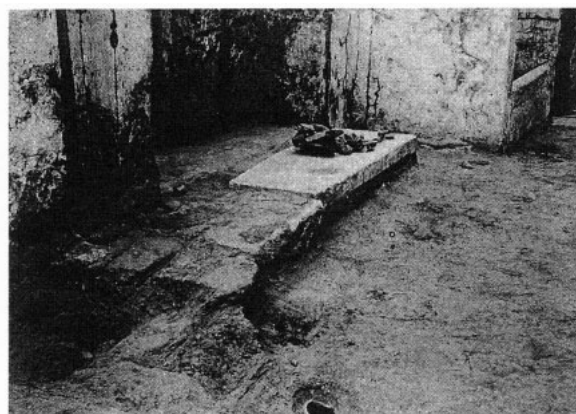
c. M. Q. T. Small pyramid III-c, temple after excavation, looking down to southwest, August, 1924.



d. M. Q. T. Small pyramid III-c, temple, looking N. N. W., August, 1924.



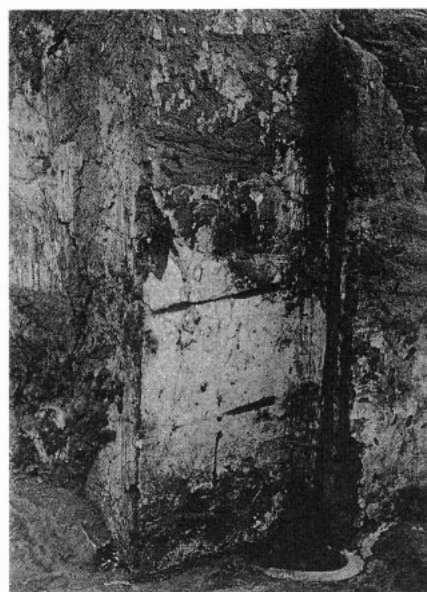
a. M. Q. T. Temple III-a, room (9), slab altar, looking down to S. S. W.



b. M. Q. T. Temple III-a, room (9), northern offering-place, looking N. N. W.



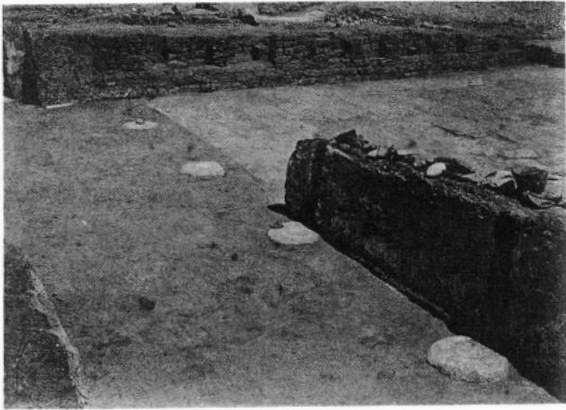
c. M. Q. T. Temple III-a, looking west on axis to pyramid from room (9).



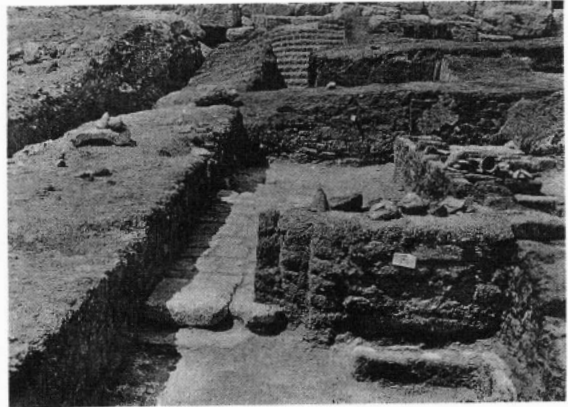
d. M. Q. T. Temple III-a, doorway from (9) to (3), north wall, print of door-leaf on wall.



e. M. Q. T. Temple III-a, room (9), east wall, southern part, brickwork, looking down to east.



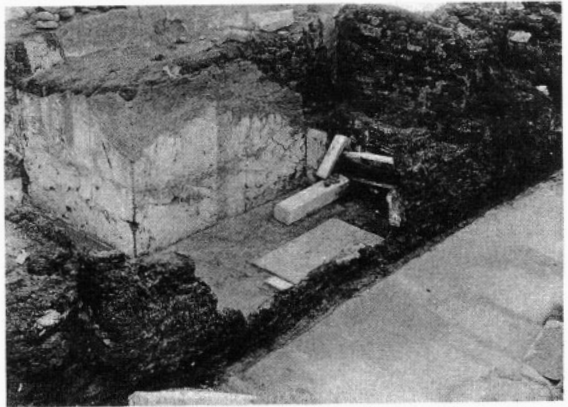
a. M. Q. T. Temple III-a, room (2), portico, looking N. N. E.



b. M. Q. T. Temple III-a, rooms (7), (6), (4), (5), looking west from room (7).



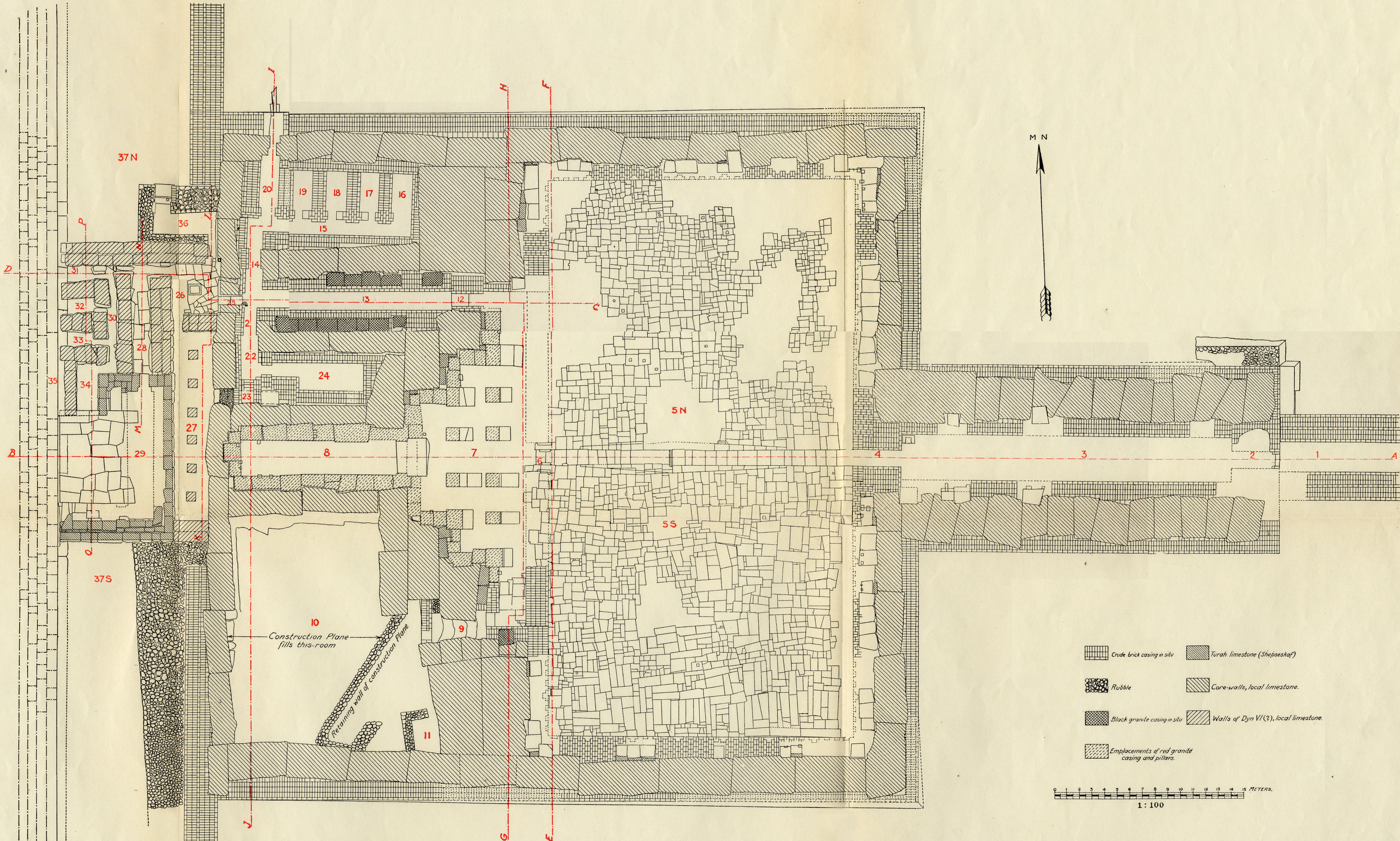
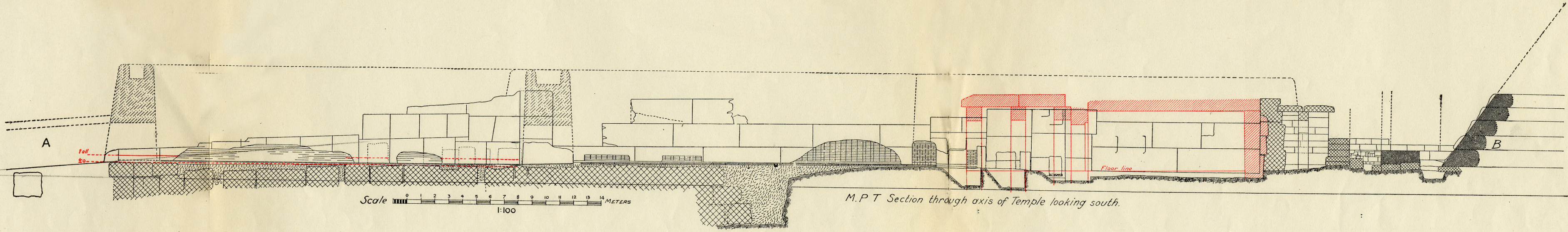
c. M. Q. T. Temple III-a, looking east along axis from doorway of room (12).

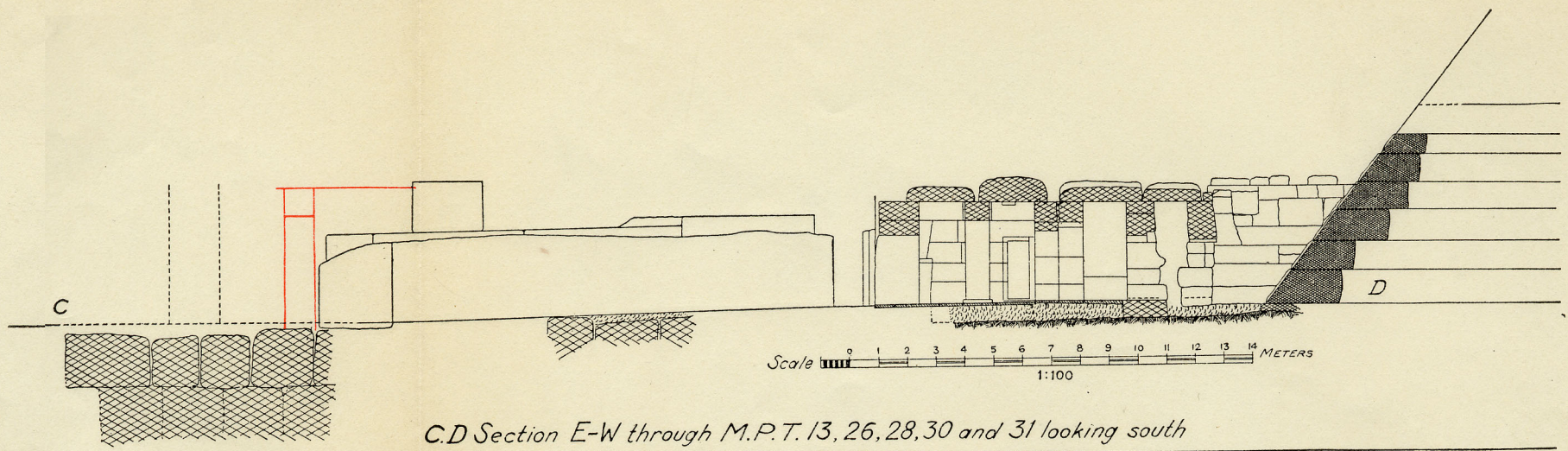


d. M. Q. T. Temple III-a, room (11), looking down to S. E.; in foreground top of course I of pyramid casing.

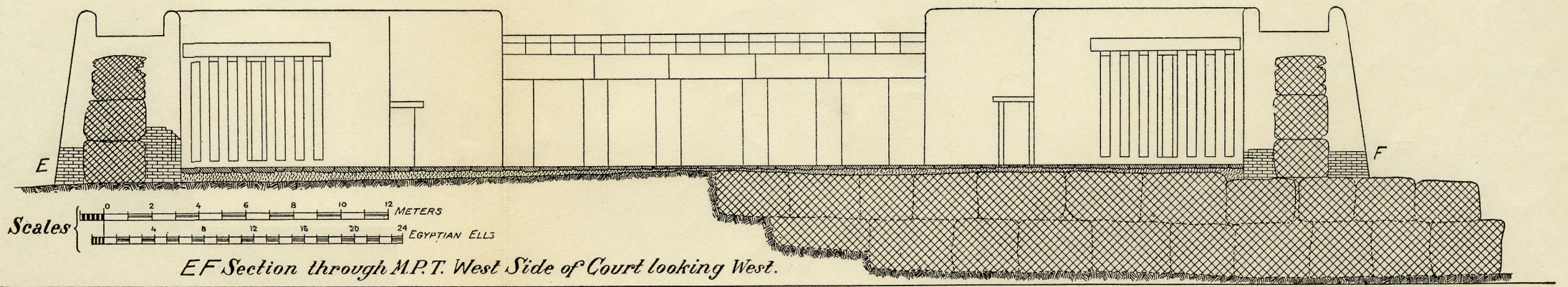


e. M. Q. T. Temple III-a, room (9), looking north.

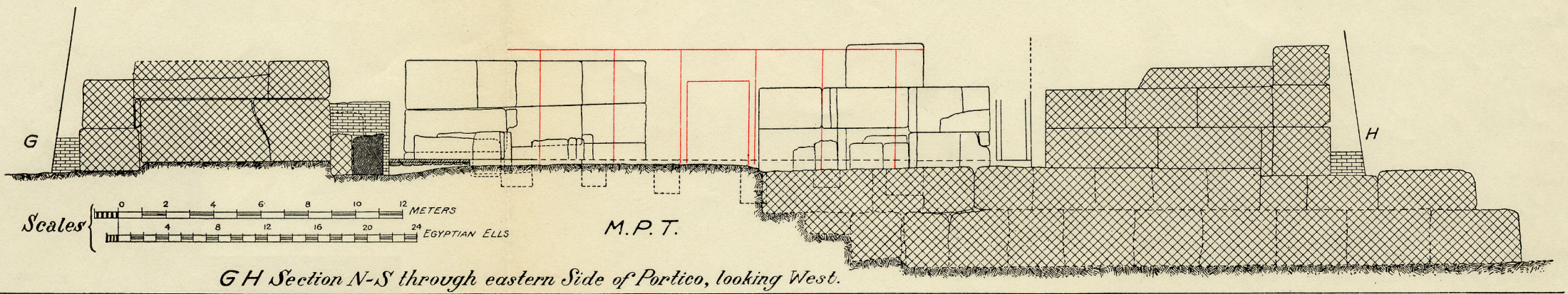




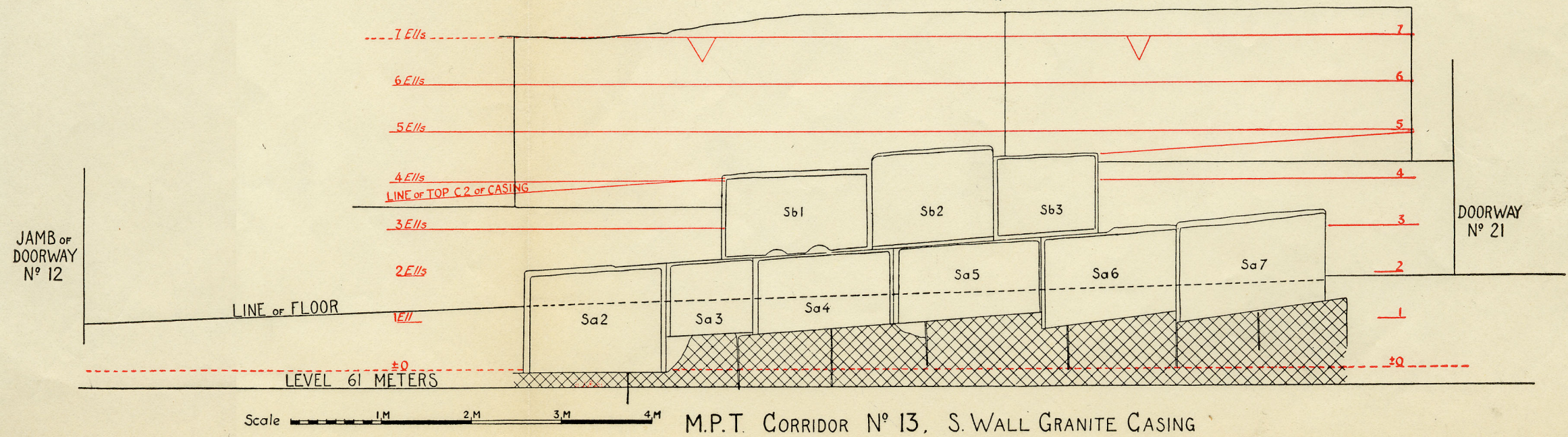
C.D Section E-W through M.P.T. 13, 26, 28, 30 and 31 looking south

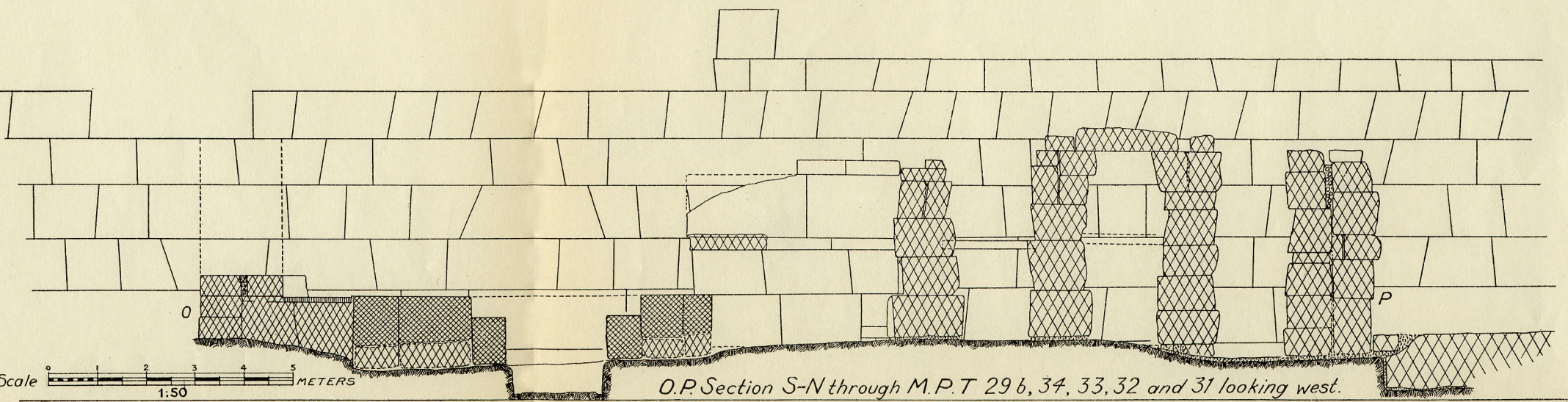
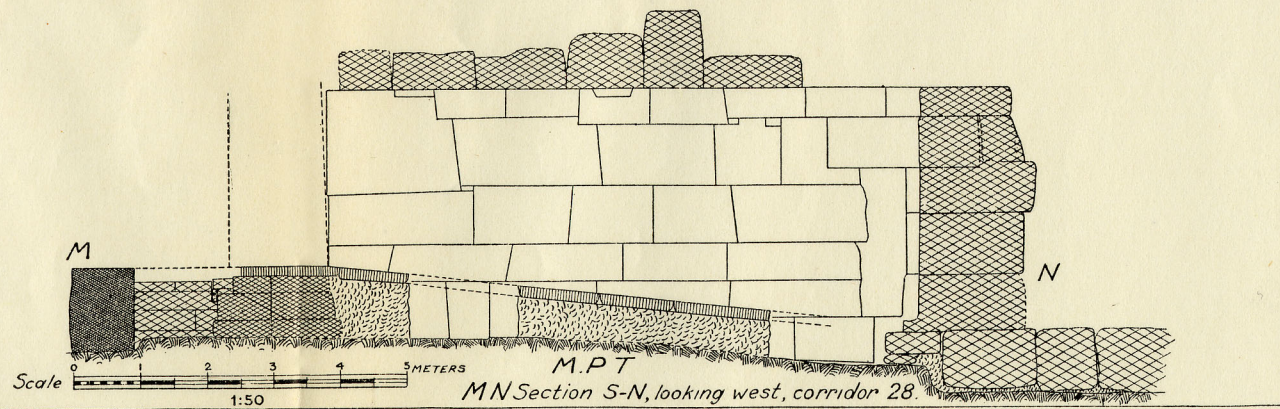
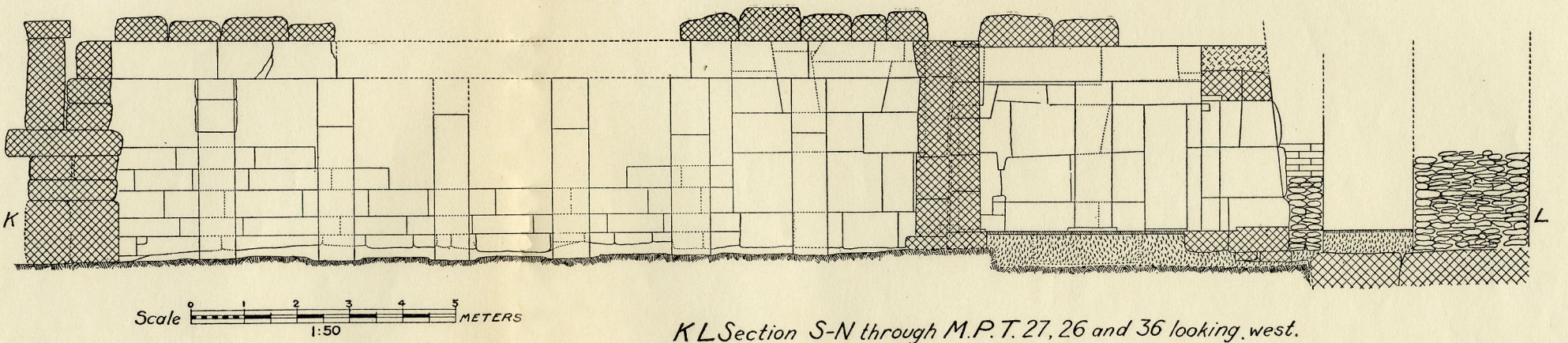
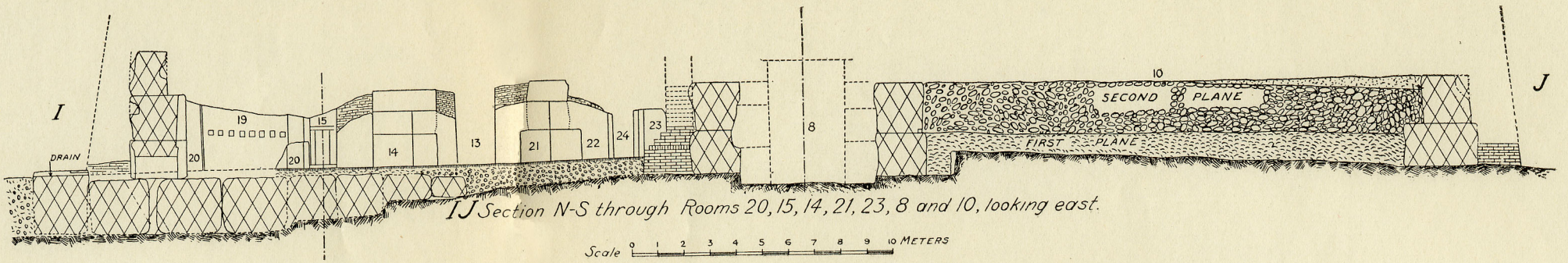


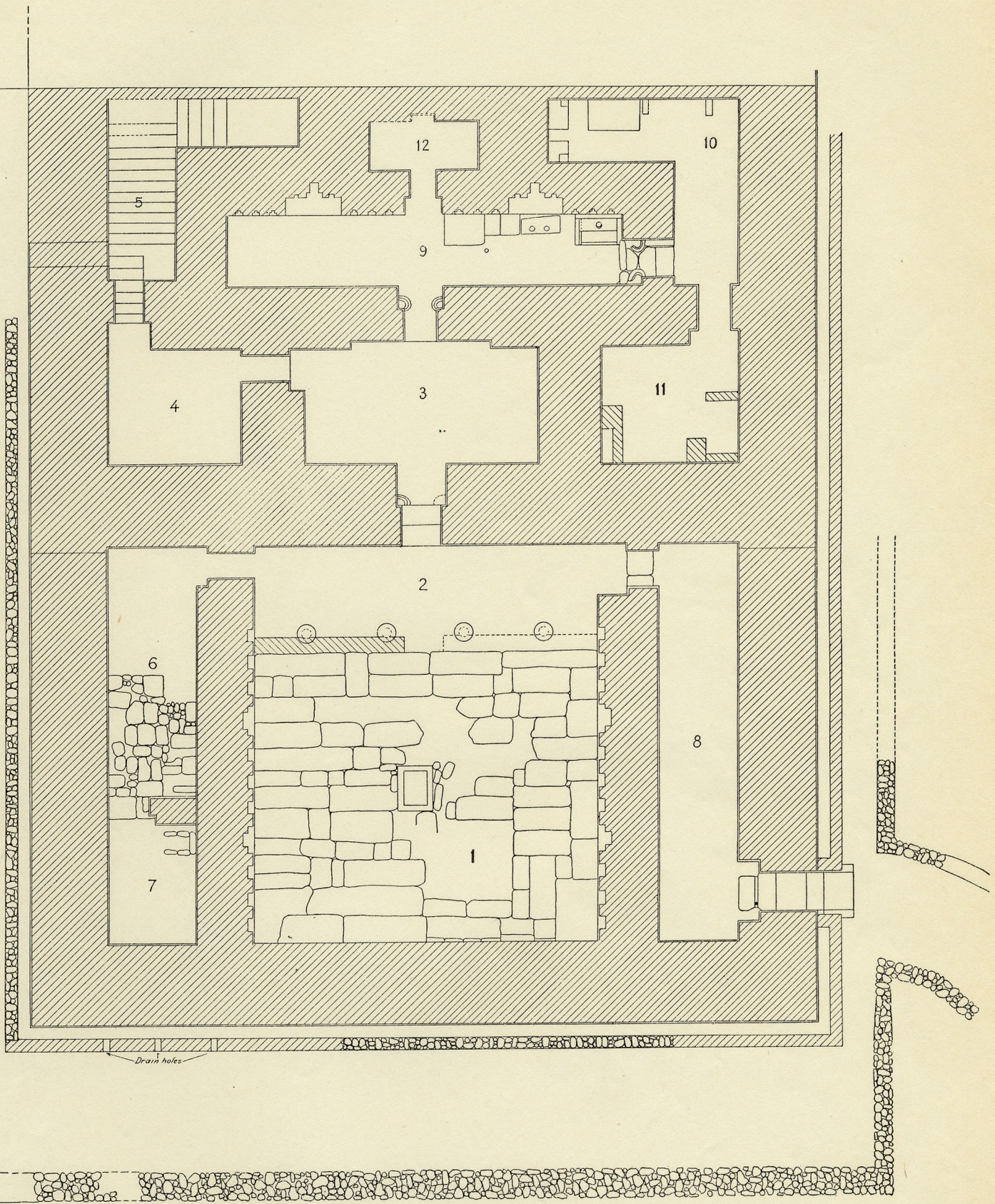
E.F Section through M.P.T. West Side of Court looking West.



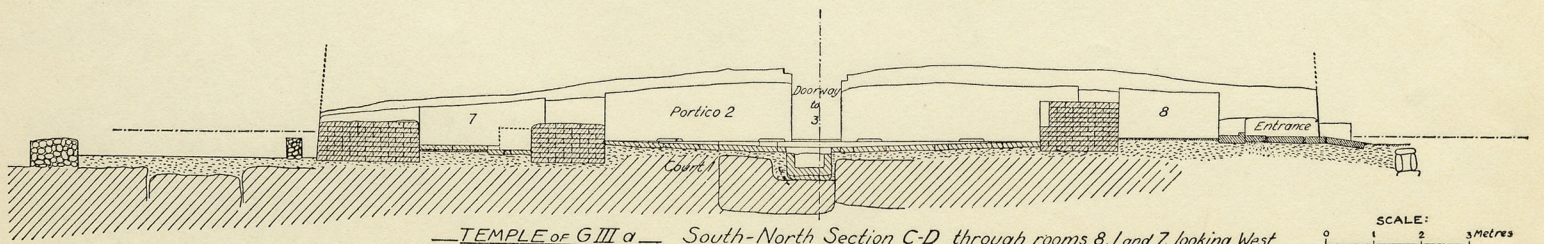
G.H Section N-S through eastern Side of Portico, looking West.





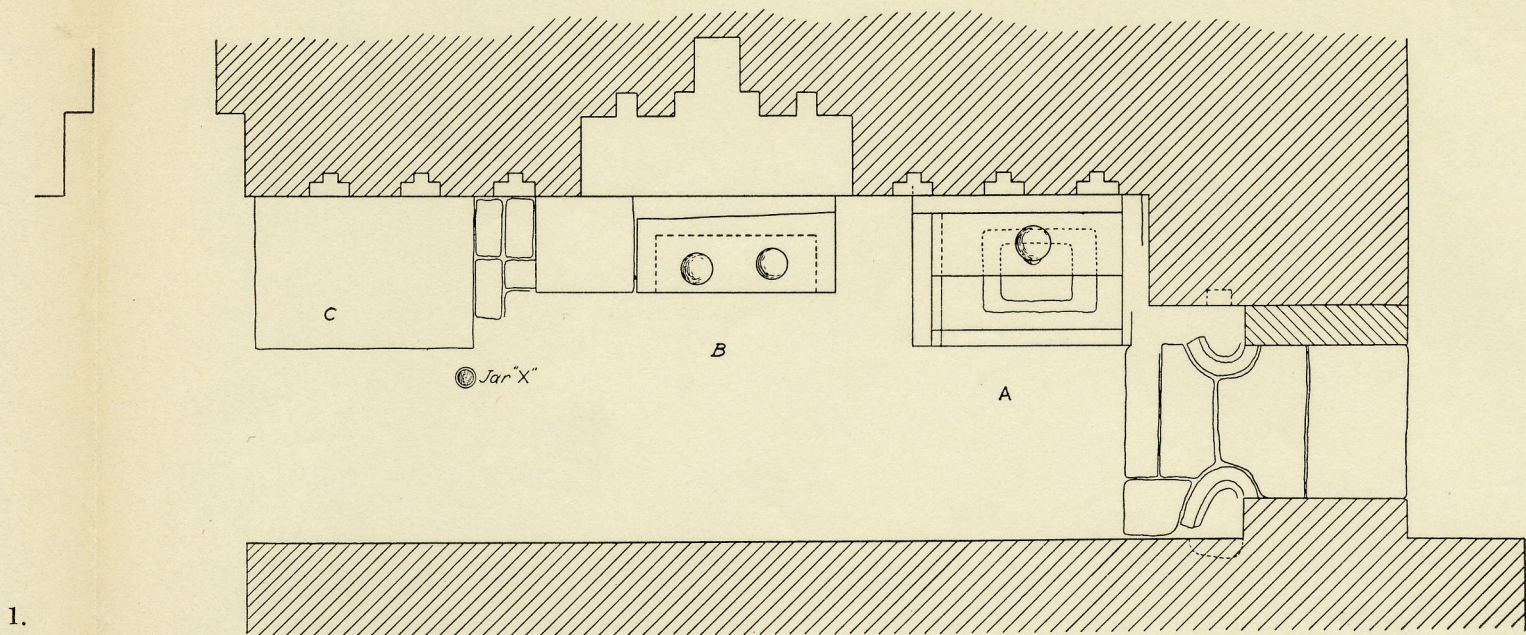


0 1 2 3 4 5 METRES
Scale $\frac{1}{50}$



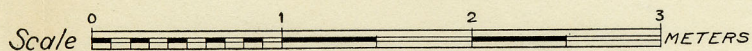
—TEMPLE of G III a— South-North Section C-D through rooms 8, 1 and 7, looking West.

SCALE: 1 2 3 metres

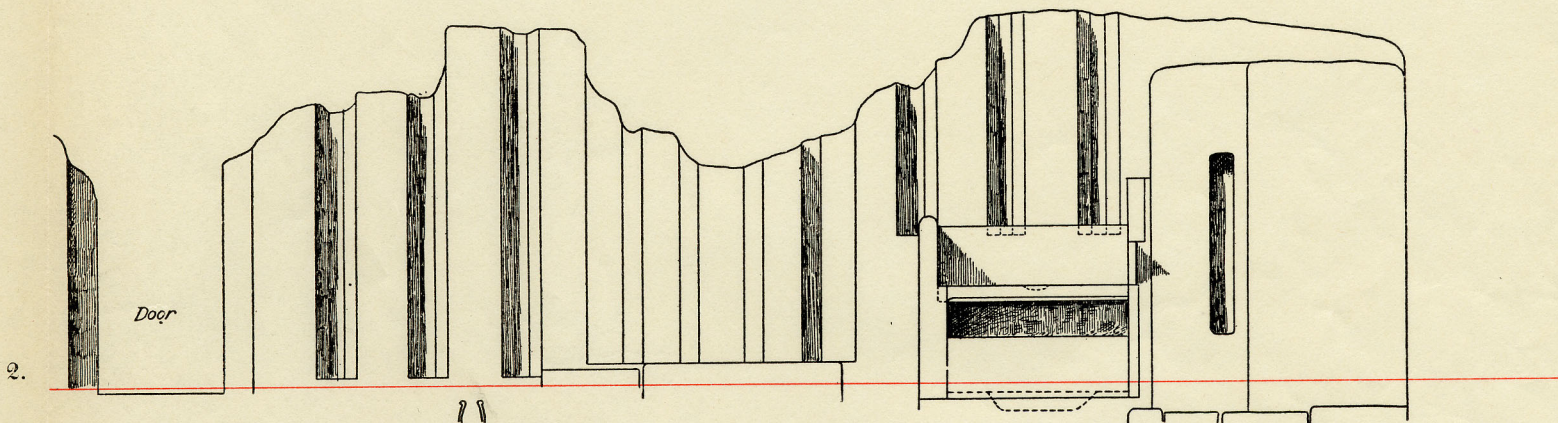


1.

Plan of northern half of west wall of M.Q.T. N°9 showing offering table.

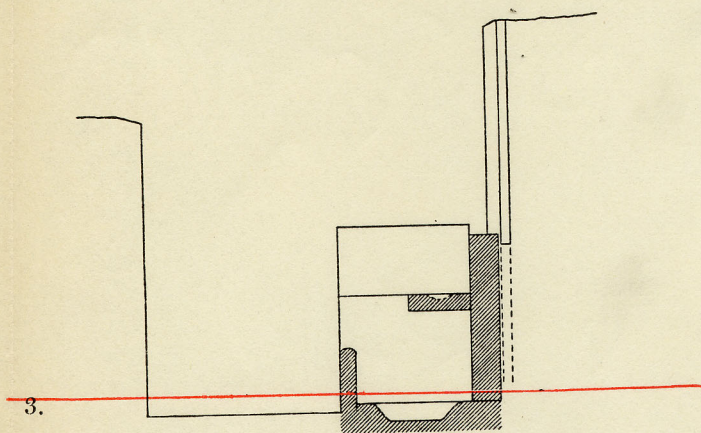


1:20



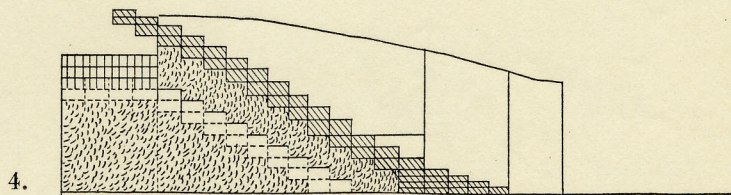
2.

Elevation of West Wall of Offering Hall, North end.



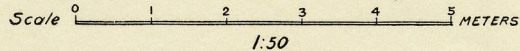
3.

Detail section at "A"

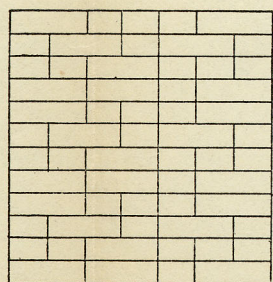


4.

M.Q.T. Section E-F, east-west through room 5.

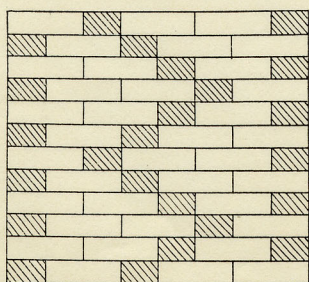


1:50



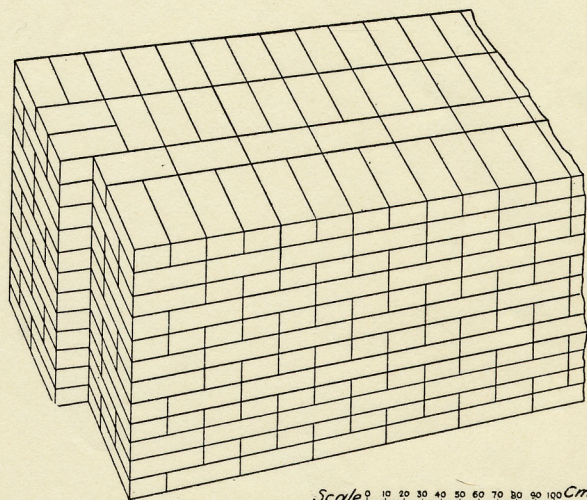
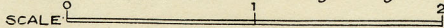
5.

Elevation of Face-bonding M.Q.T. Room 9



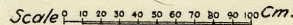
6.

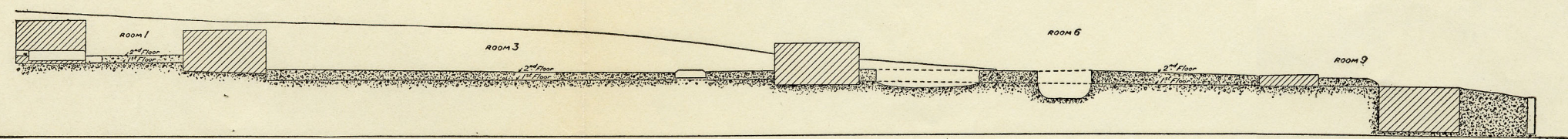
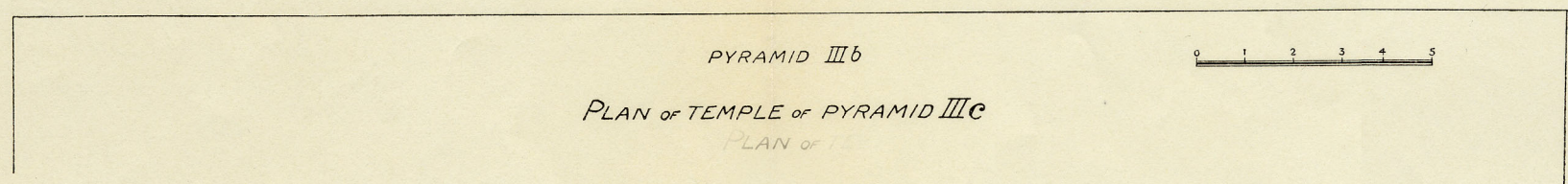
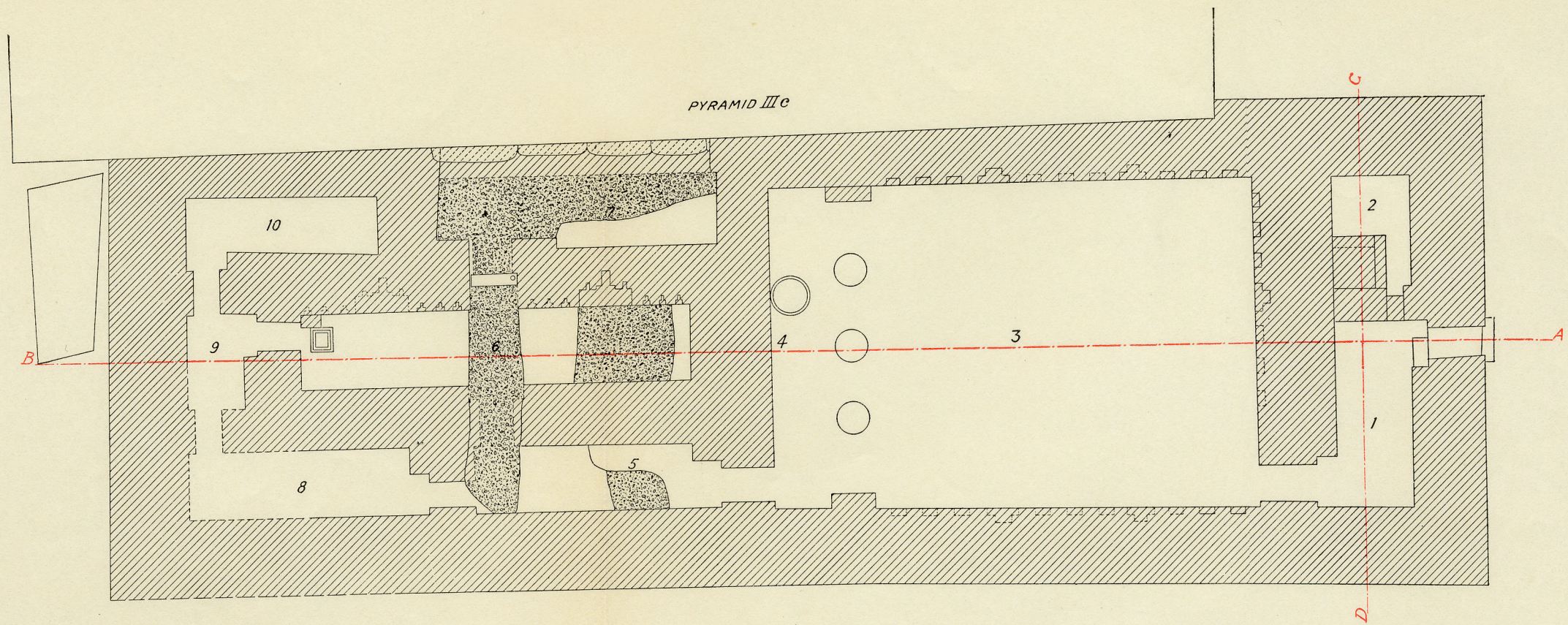
Section east-west through wall between M.Q.T. 3 & 9 omitting irregularities.



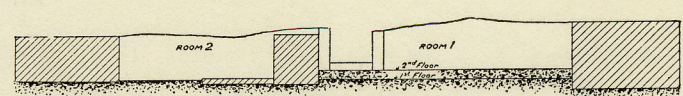
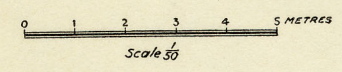
7.

Brick bonding M.Q.T. Room 9.

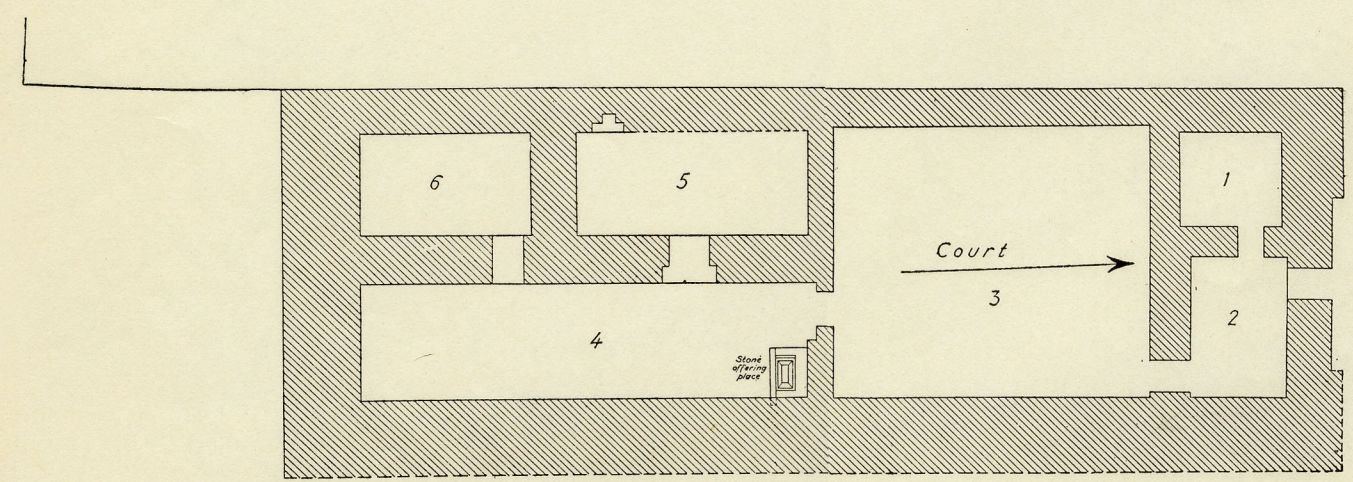
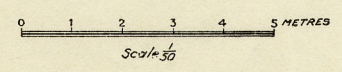




Section AB looking East—Temple of Pyramid IIIc

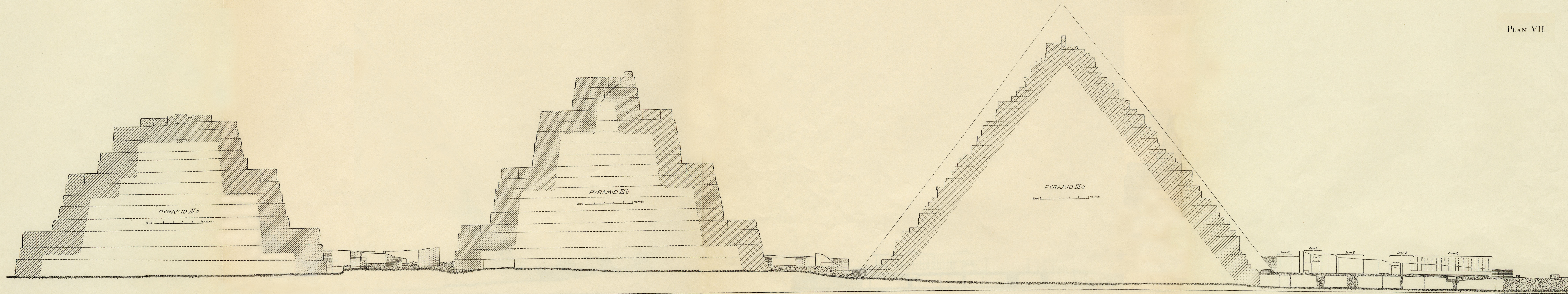


Section C-D looking North through rooms 1 & 2, Temple of Pyramid IIIc



West face of Queen's pyramid

PLAN OF TEMPLE PYRAMID IIIb



EAST-WEST SECTION
THROUGH THREE SMALL PYRAMIDS
SOUTH OF THIRD PYRAMID
AND THEIR CHAPELS
LOOKING NORTH

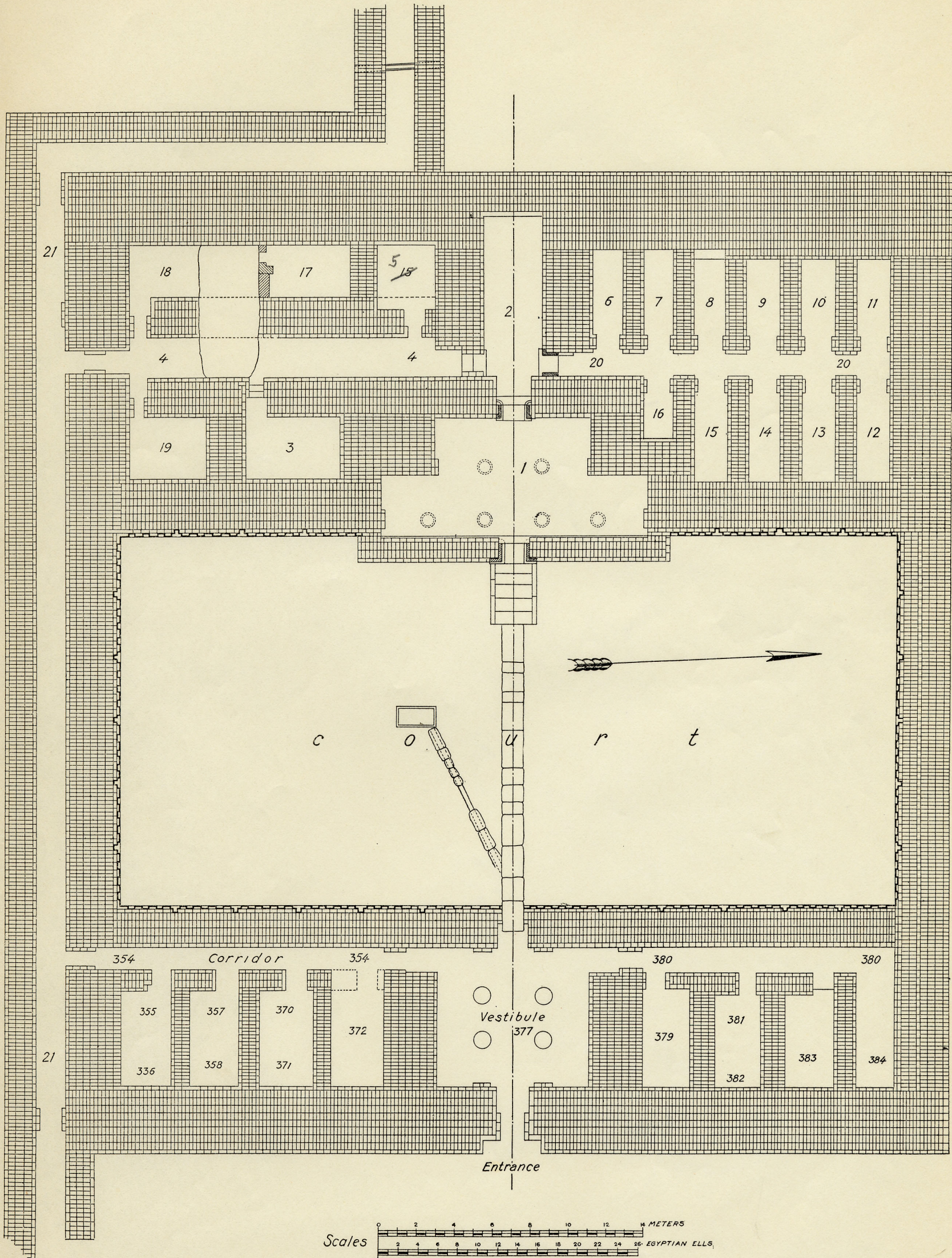
Scale 1 2 3 4 5 METRES

THE VALLEY TEMPLE OF KING MYCERINUS

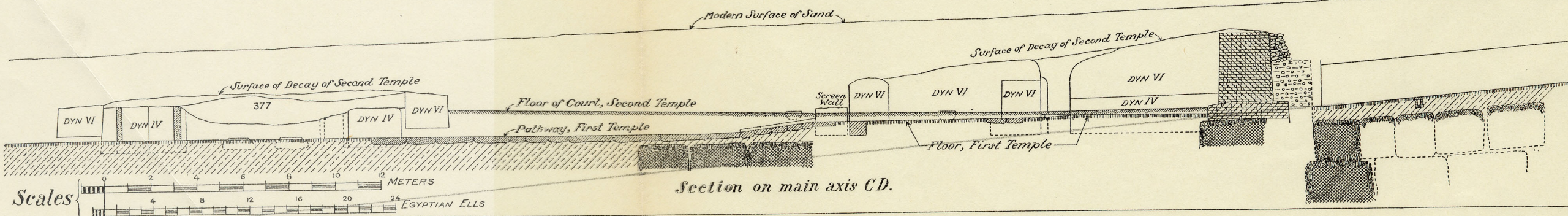
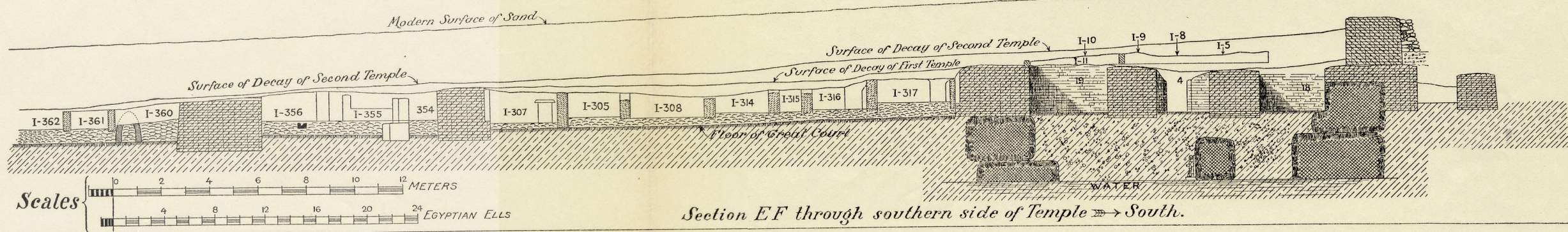
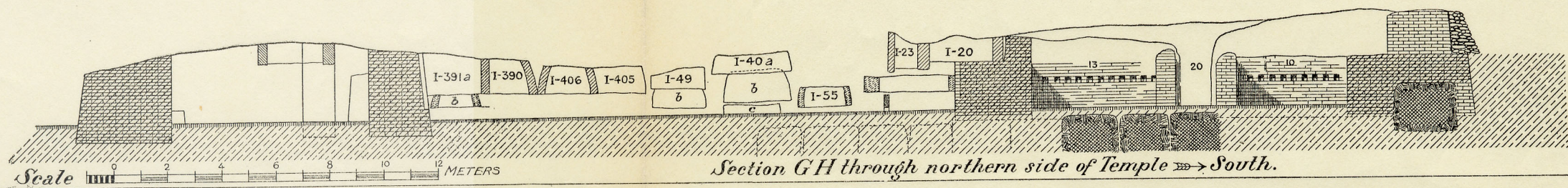
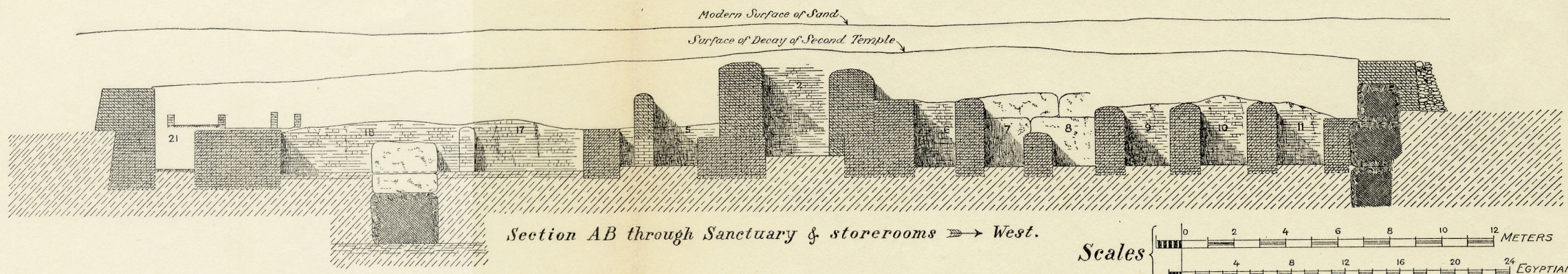


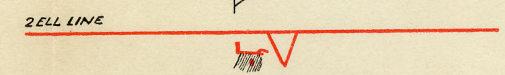
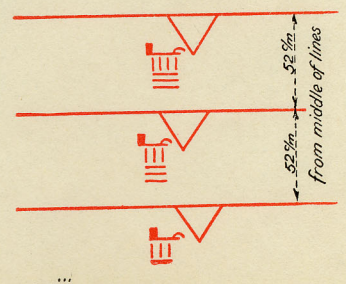
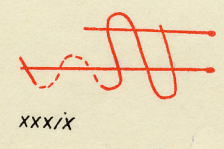
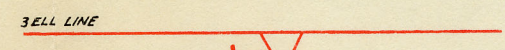
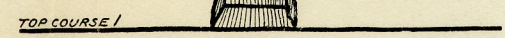
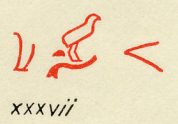
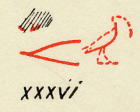
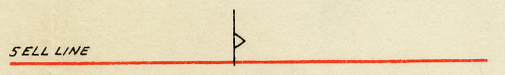
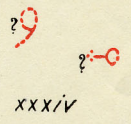
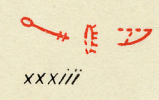
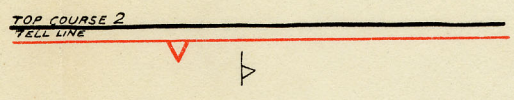
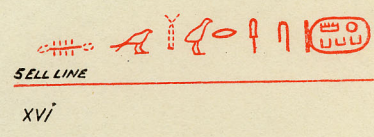
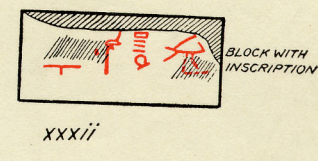
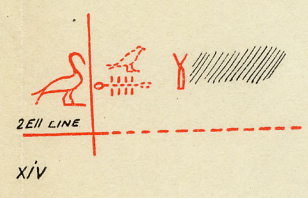
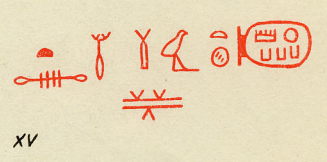
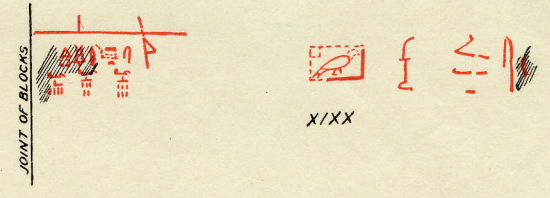
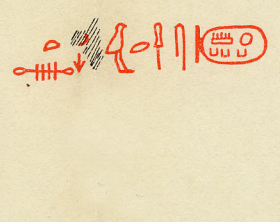
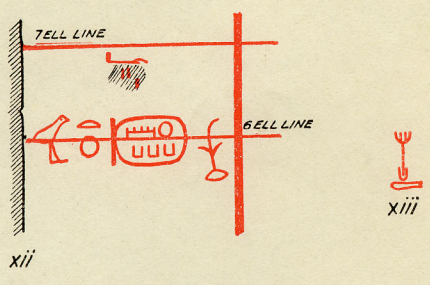
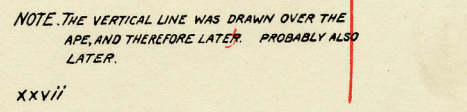
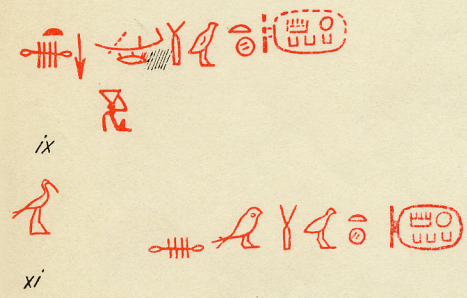
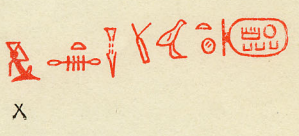
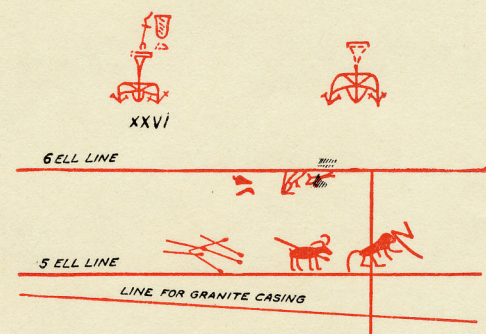
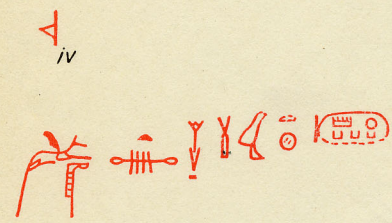
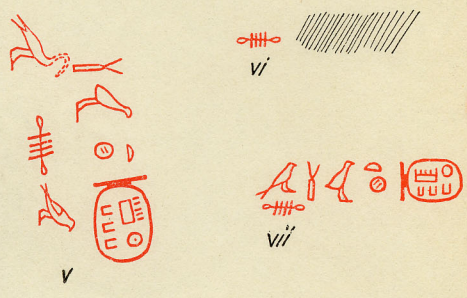
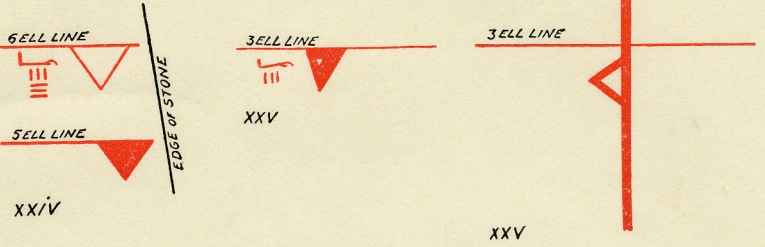
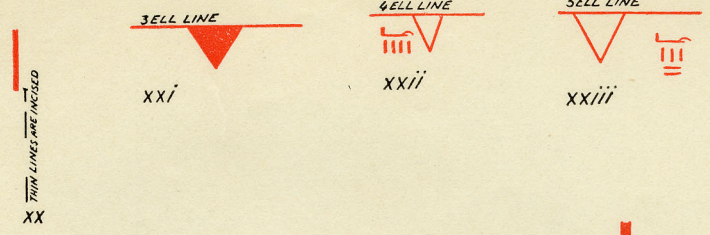
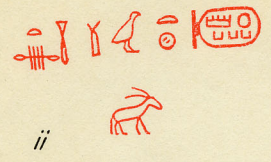
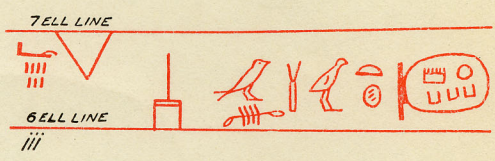
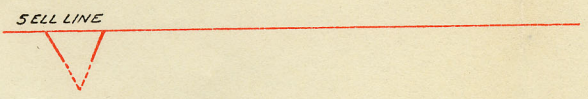
- crude brick First Temple: SHEPSESKAF.
- " " : additions to First Temple.
- " " : Second Temple: PEPI II (?)
- " " : intrusion on floor of court
- " " : walls on floor debris of court.
- " " : " over walls of First Temple.
- " " : indeterminate.



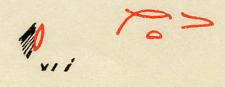
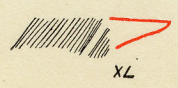


Scales 0 2 4 6 8 10 12 14 METERS
 2 4 6 8 10 12 14 16 18 20 22 24 26 EGYPTIAN ELLS





THE THIN UPRIGHT LINES WITH TRIANGLES ARE INCISED

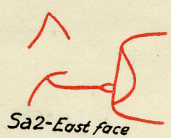




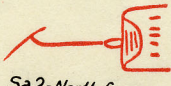
Sa1-East face



Sa1-Top



Sa2-East face



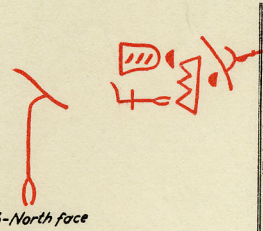
Sa2-North face



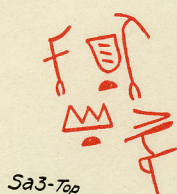
Na1-South face



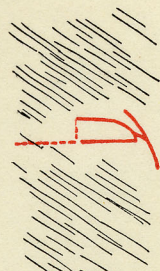
Na2-South face



Sa3-North face



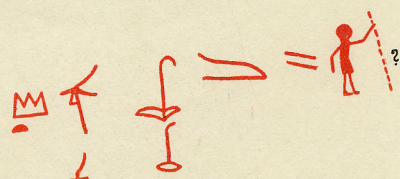
Sa3-Top



Sa5-North face



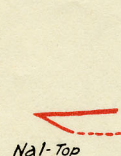
Sa4-North face



Sa7-North face



Sa7-West face



Na1-Top



Na3-South face



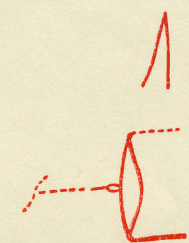
Na3-Top



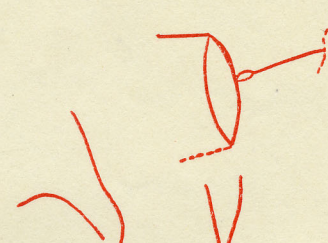
Na4-South face



Na4-Top



Room 24-Granite Block West face.

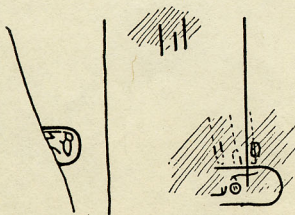


Room 24-Granite Block, North face

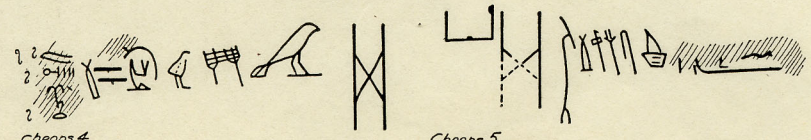


Room 7-South end Granite Block North face.

JOINT OF STONES

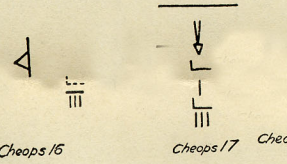


Cheops 1



Cheops 4

Cheops 5



Cheops 15

Cheops 17

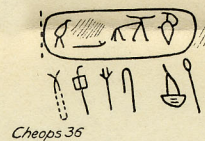
Cheops 18

Cheops 19

Cheops 20

Cheops 29

Cheops 35



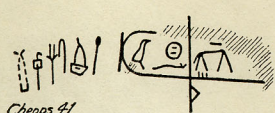
Cheops 35



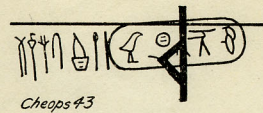
Cheops 37



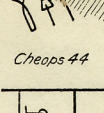
Cheops 40



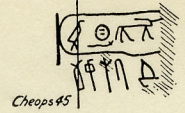
Cheops 41



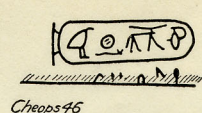
Cheops 43



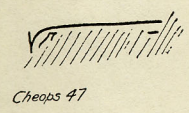
Cheops 44



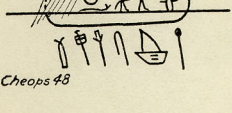
Cheops 45



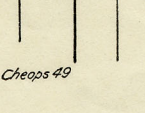
Cheops 46



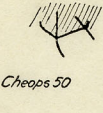
Cheops 47



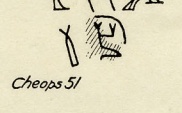
Cheops 48



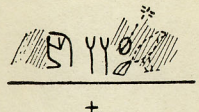
Cheops 49



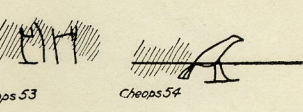
Cheops 50



Cheops 51



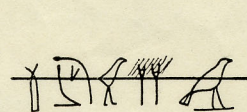
Cheops 53



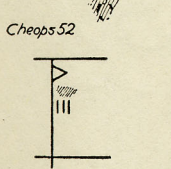
Cheops 54



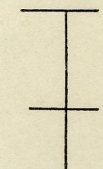
Cheops 56



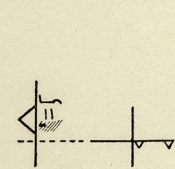
Cheops 56



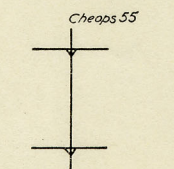
Cheops 57



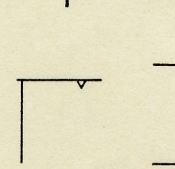
Cheops 58



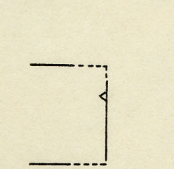
Cheops 60



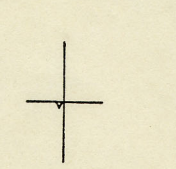
Cheops 61



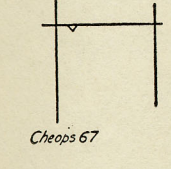
Cheops 62



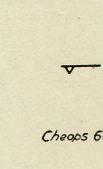
Cheops 63



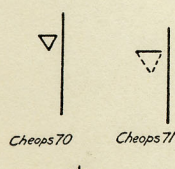
Cheops 64



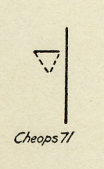
Cheops 67



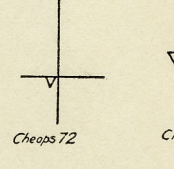
Cheops 68



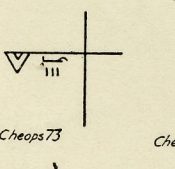
Cheops 70



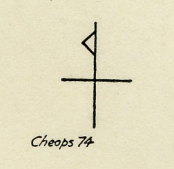
Cheops 71



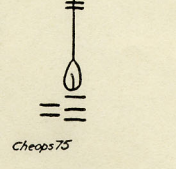
Cheops 72



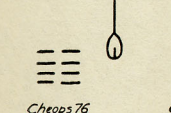
Cheops 73



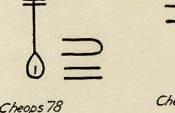
Cheops 74



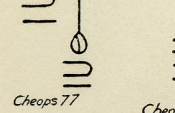
Cheops 75



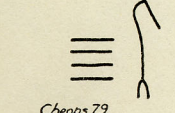
Cheops 76



Cheops 78



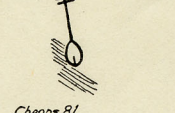
Cheops 77



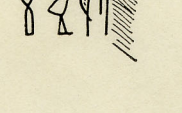
Cheops 79



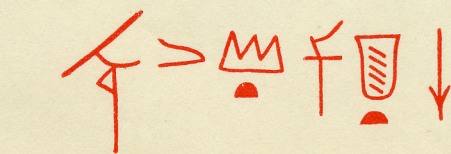
Cheops 80



Cheops 81



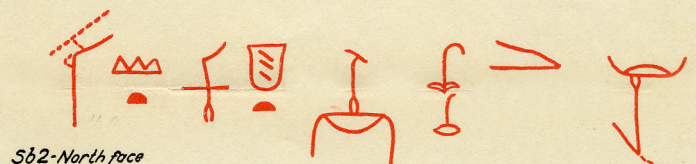
Cheops 81



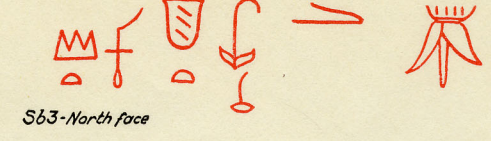
Sb1-North face



Sb3-West face



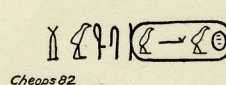
Sb2-North face



Sb3-North face



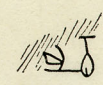
Sb3-Top



Cheops 82



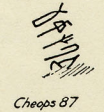
Cheops 84



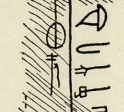
Cheops 85



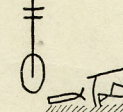
Cheops 86



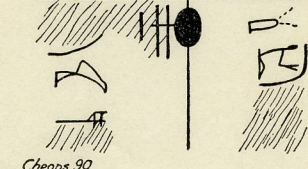
Cheops 87



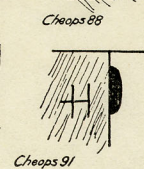
Cheops 88



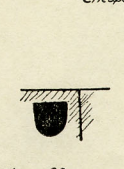
Cheops 89



Cheops 90



Cheops 91



Cheops 92



Cheops 93