

THE METROPOLITAN MUSEUM OF ART  
DEPARTMENT OF EGYPTIAN ART

VOLUME IV

EDITED BY  
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THE METROPOLITAN MUSEUM OF ART

THE TREASURE  
OF  
EL LĀHŪN

BY  
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DIRECTOR'S LIBRARY  
ORIENTAL INSTITUTE  
UNIVERSITY OF CHICAGO

NEW YORK  
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## PREFACE

WHEN, early in 1914, the British School of Archaeology in Egypt discovered the treasure of el Lāhūn the disposition of it became a serious problem for Professor (now Sir) Flinders Petrie. Since the Cairo Museum already possessed the treasures of Dahshūr, of which that of el Lāhūn was, to a large extent, a duplicate, Sir Gaston Maspero, then Director General of Antiquities in Egypt, retained only the crown and half of the gold tubing belonging to the wig (no. 6), the pectoral of Amen-em-ḥēt III (but without the necklace, no. 8, which had not then been identified as belonging to it), one of the inlaid scarabs (no. 22), and the mirror (no. 26). This choice left practically all the elements essential to the study of the arrangement of the jewels together in the share of the British School. To what extent should the treasure be dispersed further?

From the point of view of archaeology, Petrie's decision was a fortunate one. It is a fundamental principle of the British School that all its finds shall be deposited in public institutions in proportion to the sums which the institutions themselves have subscribed to the work, or the sums which have been subscribed by private individuals who have designated them as the depositories. In this instance Petrie realized that the part of the jewelry which had fallen to the School in the division was of a value out of all proportion to the subscriptions credited to any one institution. On the other hand he felt that another division of the treasure would be unthinkable. He therefore proposed that one of the subscribing museums should receive the treasure in return for a special contribution to the School approximating the treasure's market value, and that this contribution should be used toward future work for the benefit of the other institutions and for the furthering of Egyptology in England. Naturally, this proposal was presented in the first instance to English museums, and only after all of them had failed to make an adequate response was it laid before museums abroad. The negotiations were proceeding during the summer of 1914, when the outbreak of the War automatically eliminated all the museums of Europe.

Since friends of the Metropolitan Museum had long been contributors to the work of the British School, Petrie had already invited Albert M. Lythgoe, Curator of the Museum's Egyptian Department, to enter the negotiations. The sum involved was neces-

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sarily a considerable one, but Henry Walters, the Second Vice-President of the Museum, offered to contribute to it, and the Trustees making an appropriation from the Rogers Fund to supplement Mr. Walters' contribution, the treasure finally became the property of the Metropolitan Museum in 1916. German submarines had recently sunk a vessel containing an important shipment from our Expedition in Egypt, and it was decided therefore to leave the treasure in a bank vault in London until the end of the War. Thus it was only in 1919 that the jewelry was brought to New York, and it was not until December of that year that it was placed on exhibition.

If there ever was any criticism of Petrie's insistence that his share of the treasure be kept intact, that criticism has long since died away. Had the treasure been dispersed before its ancient arrangement had been discovered, it is very unlikely that we should ever have arrived at a true appreciation of its original appearance. The Egyptians made glorious compositions of their jewels. Mere festoons of assorted beads were not their ideal, and if the Lāhūn jewelry had been further dispersed, it would probably have remained always in the deplorable state in which the Dahshūr treasures have been for the past forty years.

Petrie made the first announcement of the discovery in *The Times* of May 20, 1914, and followed it with preliminary descriptions of the treasure in the *Illustrated London News* of June 20, 1914, and in *Ancient Egypt* and the catalogue of the exhibition at University College, London, of the same year.<sup>1</sup> After the arrival of the jewelry in New York, Lythgoe summarized Petrie's preliminary reports in the *Bulletin of The Metropolitan Museum of Art*. At about the same time an article of mine in *Ancient Egypt* suggested arrangements of the two girdles and the pectorals essentially as they are given in the following pages, and shortly afterwards Mace in the *Bulletin of The Metropolitan Museum of Art* and in *Ancient Egypt* described his reconstructions of the first and second jewel caskets. It was only after these articles were written that *Labun I: The Treasure*, by Guy Brunton became available, with the full account of the circumstances of the discovery. The last stages of the clearing of the treasure tomb, undertaken immediately after the War, were described by Petrie and Brunton in *Labun II: The Pyramid*. Since then the objects in Cairo have been published by Vernier, *Bijoux et orfèvreries (Catalogue général du Musée du Caire)*. Finally, Petrie's account of the discovery and of the negotiations by which the treasure came to the Metropolitan Museum is given in his *Seventy Years in Archaeology*, 1932.

<sup>1</sup> See below, Key to References Cited, p. xiii.

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The first steps toward the restoration of the jewelry of el Lāhūn were made by Petrie and Brunton in the field, but fear of theft prevented them from working openly and with deliberation there. The division with the Cairo Museum was a second handicap, and the War, following so soon after the arrival of the British School's share in London, completely stopped further study by the discoverers. For these reasons the earliest publications of the jewelry fall far short of giving a satisfactory picture of the treasure. They do give the circumstances of the discovery and to that extent Brunton's *Labun I* will never be superseded. The justification for the present republication of the jewelry is that subsequent study and experiment have made possible new suggestions regarding the arrangement of the elements which, if accepted, should be a guide to the treasures of Dahshūr, as well as to that of el Lāhūn, and thus add to our appreciation of Egyptian jewelry in the period of its perfection. To this end design and use have been the principal purposes of this restudy of the jewelry, rather than technical processes of manufacture.

Some details naturally remain vague in spite of every effort to define them, but I believe that at least we now have a reasonably clear conception of the elements composing the treasure of el Lāhūn. The two restored caskets (nos. 1, 2), three others now totally lost (nos. 3-5), and the original positions of all five caskets in the tomb constitute a line of investigation by itself, and are treated in the second chapter of this book—following a review of the historical data in the first. The third chapter is devoted to the jewelry, which I believe to have comprised a crown (no. 6), three necklaces (nos. 7-9), two girdles (nos. 10, 11), thirteen wristlets, armlets, and anklets (nos. 12-20), extra gold clasps for jewelry or possibly for clothing (no. 21), and four scarab finger rings (nos. 22-25). The fourth chapter describes the toilet objects—a mirror (no. 26), a shaving set (nos. 27-29), and thirteen cosmetic dishes, pots, and jars (nos. 30-42).

The plans in the first chapter have been redrawn from the original publications by Lindsley F. Hall, who has also prepared the other illustrations in the text.

H. E. W.

September, 1933

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THE TREASURE OF EL LĀHŪN

## CHAPTER I

### SIT ḤAT-ḤOR YŪNET AND HER TOMB

IN 1887 B.C. King Se'n-Wosret II died and was buried in the pyramid which he had built on the desert edge beside the branch of the Nile which flowed into the Fayyūm, at the point which the Arabs today call el Lāhūn. Close to the pyramid on its southern side, and between the walls which encircled it, four pits had been dug in the rock leading to subterranean tomb chambers provided for women of Se'n-Wosret's family. Three of these women may have died in his lifetime, but the King's Daughter Sit Ḥat-Ḥor Yūnet—"The Daughter of Ḥat-Ḥor (Goddess) of Denderah"—was fated to survive him at least two score years, her tomb beside the pyramid meanwhile standing open awaiting her.

Tombs of  
Se'n-Wosret II's  
family

Since we know that Sit Ḥat-Ḥor Yūnet was the daughter of a king, we may safely assume that her father was Se'n-Wosret II, who had provided her tomb and had presented her with some of her jewels. Perhaps she was the daughter of his old age, for she lived through the thirty-eight years from 1887 to 1849 B.C. during which her brother—or perhaps her half-brother—Se'n-Wosret III was king and into the reign of her nephew, Amen-em-ḥēt III. The latter also presented her with jewelry before her death, which took place sometime shortly after his accession.<sup>1</sup>

Sit Ḥat-Ḥor  
Yūnet's affiliations

Beyond the fact that she was a King's Daughter<sup>2</sup> we have no definite evidence of what her position was in the royal family. It has been suggested that she was the queen either of her brother or of her nephew, but there is no proof that this was the case.<sup>3</sup> None of her surviving belongings give her a higher title than that of princess,

<sup>1</sup> Petrie and Brunton, p. 16, describe the pottery placed in her tomb at the time of her burial as characteristic of the early part of the reign of Amen-em-ḥēt III.

<sup>2</sup> The title on her Canopic jars (M.M.A. 16.1.45-48; Brunton, p. 19, pl. xiv; Lythgoe, *Bull.*, 1919, fig. 22) and on her large magic alabaster jar (M.M.A. 21.2.62; Petrie, *A.E.*, 1920, p. 67; Petrie and Brunton, pp. 16, 42, pls. xxv, xxvi).

<sup>3</sup> Petrie held this view (see *Cat.*, 1914, p. 8, and Brunton, pp. 27, 42) largely because he believed that the plumes on her crown were appropriate only to an heiress queen and that her titles as such a queen were given on a fragment of granite found in her plundered tomb. On the other hand, Brunton, p. 21, and Petrie and Brunton, p. 15, suggested that the fragment of granite had strayed in from a neighboring tomb and did not belong to Sit Ḥat-Ḥor Yūnet, and Lythgoe, *Bull.*, 1919, p. 20, felt certain that she was not the wife of Amen-em-ḥēt III. See below, p. 26.

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and had she been the queen of either of her father's successors, we might expect that she would have been buried beside her husband's pyramid rather than her father's.

Her contemporaries

Of Sit Ḥat-Ḥor Yūnet's contemporaries there are two of whom we shall have occasion to make frequent mention in the study of this jewelry. The King's Daughter Sit Ḥat-Ḥor may well have been an older sister. She too received jewelry from Se'n-Wosret II, and from Se'n-Wosret III as well, and she was buried beside the pyramid of the latter king at Dahshūr.<sup>4</sup> Mereret, who may have been another daughter of Se'n-Wosret II, became a King's Wife in the reign of Se'n-Wosret III, survived a short time into the reign of Amen-em-ḥēt III, and was buried beside her husband's pyramid at Dahshūr near Sit Ḥat-Ḥor.<sup>5</sup> The jewelry presented to Sit Ḥat-Ḥor and Mereret by Se'n-Wosret II, Se'n-Wosret III, and Amen-em-ḥēt III is so much like that of Sit Ḥat-Ḥor Yūnet that all three sets might well have been made by the same craftsmen.

Of four other women of the Twelfth Dynasty royal family mention will be made from time to time, but whether any of them survived into Sit Ḥat-Ḥor Yūnet's lifetime is a question. Ita, Ita-Weret, Ḥenmet, and Sit Ḥat-Ḥor Meryet belonged to the generation of Amen-em-ḥēt II, who reigned from 1938 to 1903 B.C., and were buried beside his pyramid at Dahshūr.<sup>6</sup> Much of their jewelry has survived, but by the time of Sit Ḥat-Ḥor Yūnet it had become old-fashioned, and even our unpractised eyes can see how much it differs from the treasure of el Lāhūn. A fifth, but apparently later, member of the royal family was the King's Daughter Nub-ḥetepty-ḥred, who was buried beside the pyramid of Amen-em-ḥēt III at Dahshūr.<sup>7</sup> The jewelry from her tomb, being purely funerary, only occasionally shows similarities to that of Sit Ḥat-Ḥor Yūnet.

Her appearance

Born in the lifetime of Se'n-Wosret II and dying in the reign of Amen-em-ḥēt III, Sit Ḥat-Ḥor Yūnet must have lived at least forty years, and for aught we know much longer. Had the thieves not entirely destroyed her body, we might have learned at what age she died, and we might also have gathered something of her personal appearance. However, we may be certain of one thing from an examination of her jewelry. She was an exceedingly small person indeed according to our standard—probably very short

<sup>4</sup> De Morgan, I, pp. 57 ff.; for detailed references to the women of Dahshūr see index.

<sup>5</sup> *Ibid.*, pp. 63 ff. Her name is once written "Meryet" (*ibid.*, p. 69, no. 44).

<sup>6</sup> De Morgan, II, pp. 38 ff. Dr. Bull calls my attention to the fact that "Ḥenmet" is perhaps an abbreviation, and that the full name may be (as on her Canopic box, *ibid.*, p. 68) "Ḥenmet-nefer-ḥedjet," usually a queen's title. "Sit Ḥat-Ḥor Meryet" is sometimes abbreviated to "Sit Ḥat-Ḥor" (*ibid.*, p. 75, line 2 on the cover of the sarcophagus).

<sup>7</sup> De Morgan, I, pp. 107 ff.

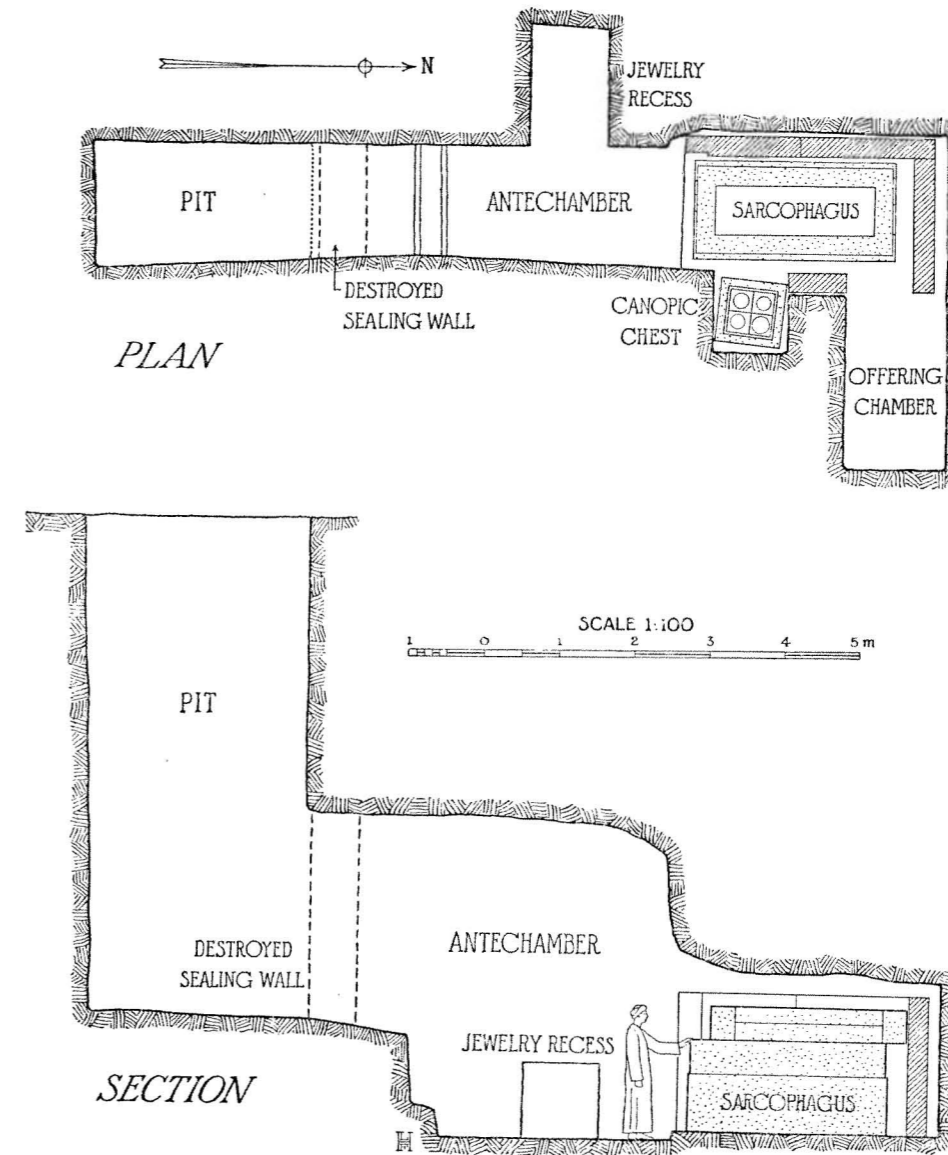


FIGURE 1  
PLAN AND SECTION OF THE TOMB OF SIT ḤAT-ḤOR YŪNET (REDRAWN FROM BRUNTON, "LAHUN I," PL. XXII, AND PETRIE AND BRUNTON, "LAHUN II," PL. XXII)

and certainly very slender, with a slim throat and remarkably delicately formed wrists and ankles.<sup>8</sup>

Her tomb

The tomb<sup>9</sup> which King Se'n-Wosret II had prepared for his daughter was the smallest and in some ways the roughest of the four on the south side of his pyramid (fig. 1). An oblong pit in the pavement descended through the rock to a depth of 6.60 m. At the bottom, on the north, there was a roughly quarried antechamber 3.50 m. long, with its floor 1.50 m. below the bottom of the pit. Opening off the antechamber there was a crypt lined with limestone masonry and practically filled by a gigantic red granite sarcophagus, plain and rather rough-hewn, which nearly hid a recess for the Canopic jars at one side and a small offering chamber beyond. On the level of the floor in the west side of the antechamber there was a small recess, in which was stored Sit Ḥat-Ḥor Yūnet's jewelry, little more than 1 m. high and 1 m. wide and about 1.60 m. from front to back.<sup>10</sup>

Its first flooding

As we have noted, the tomb had stood open from the reign of Se'n-Wosret II until that of Amen-em-ḥēt III, waiting for over forty years for its owner's burial. During that time the rains had washed in dust and mud from the pyramid court until the whole floor was covered with 15 cm. of hard-packed clay, and even the wooden Canopic box, which had been placed in the tomb when it was first constructed, contained a layer of mud 2 or 3 cm. thick.<sup>11</sup>

Burial of Sit Ḥat-Ḥor Yūnet

The burial party made no effort to remove this accumulation. Without digging away the mud they hastily put the four alabaster Canopic jars into the box on the mud layer within it, closed it, and put on the lid of the massive limestone chest in which the box sat. Into the offering chamber behind the sarcophagus they put a large alabaster jar with a magical inscription, a set of funerary furniture, of which no more has survived than the lid of a small alabaster ritual oil jar and some scraps of copper, and offerings

<sup>8</sup> Senebtisi, who lived less than a century before Sit Ḥat-Ḥor Yūnet, was very little more than 140 cm., or 4 ft. 7¾ in. tall (Elliot Smith in Mace and Winlock, p. 119). In the XVIII Dyn. royal family there were a number of short and slender women. One of the family of Amen-hotpe II was only 145.5 cm. tall (Elliot Smith, p. 38); Princess Meryet-Amūn, 147 cm. (*ibid.*, p. 7); and Queen Meryet-Amūn, 154.5 cm. (Winlock, *Meryet-Amūn*, p. 83). The average stature of ten women of the XVIII Dyn. royal family was only 156.3 cm., or 5 ft. 1½ in. Sit Ḥat-Ḥor Yūnet's jewelry, as restored and published in the following pages, has actually been tried on a young woman 146 cm. tall (4 ft. 9½ in.) and found to fit perfectly.

<sup>9</sup> Brunton, pp. 12, 17 ff., pls. xxii, xxiii; Petrie and Brunton, pp. 15-16, pl. xxii, this latter apparently a memory sketch without scale.

<sup>10</sup> Brunton, p. 12, pl. xii.

<sup>11</sup> *Ibid.*, pp. 19, 22-23, "Layer A," pp. 42-43.

of beef and fowl in plain pottery dishes.<sup>12</sup> The body, decked with its funerary jewelry, was placed in the sarcophagus in a wooden coffin gilded at the corners like the Canopic box and with an inlaid eye panel on the side. The lid of the sarcophagus was then slid into place. The jewelry and wigs in their five boxes were pushed into the recess (fig. 2), on the mud layer there, and the tomb was then sealed up. Without much question the sealing was a wall of brick or stone at the bottom of the pit, and after it was built the pit must have been filled to the top with stones and earth and paved over so as to be hidden completely.

How long the body of Sit Ḥat-Ḥor Yūnet remained undisturbed in the tomb is a matter of some uncertainty. Within a century after her death the country was drifting into a chaotic condition which ended in foreign invasion, and the treasures buried in and around the pyramids of the Twelfth Dynasty kings were too well known to have been overlooked by the impoverished peasants. It was probably in this period that the thieves broke into the tombs of the family of Se'n-Wosret II.<sup>13</sup> They dug down into the stone and earth filling of the pit of Sit Ḥat-Ḥor Yūnet's grave and broke through the sealing wall at the bottom, into the chamber. Every excavator has seen plundered pits, such as this, from which thieves had removed no more filling than barely necessary to get into the chambers below, and has noticed how the material left in the pits had slipped and slid through the plunderers' entrance into the chambers as soon as the sealing walls were partly broken down. Doubtless this was the case in Sit Ḥat-Ḥor Yūnet's tomb, where the filling of the pit, rolling into the antechamber, would have largely hidden the recess where the jewelry was stored. Scrambling in over the rolling stones and earth, the thieves broke down the wall of the sarcophagus chamber and scattered the blocks behind themselves on top of the filling from the pit in such a way that they covered the jewelry niche without realizing its existence.<sup>14</sup>

Plundering of her tomb

The thieves immediately turned all their attention to the sarcophagus, the lid of which they pushed back and hacked away until they could get within. They then crawled over it into the offering chamber, which they completely pillaged. So far as they

<sup>12</sup> M.M.A. 21.10.51-58; Petrie and Brunton, p. 16. For the four Canopic jars and the magic jar see above, note 2.

<sup>13</sup> Brunton, p. 15, discusses the date of the plundering of an adjoining tomb.

<sup>14</sup> See the sketch made in the tomb, fig. 4 in Lythgoe, *Bull.*, 1919. The finders of the tomb were somewhat mystified by the fact that the jewelry had not been discovered by the thieves (Petrie, *A.E.*, 1914, p. 99). They seem to have felt that the pit was never filled (Brunton, pp. 43-44), but this appears to me highly improbable, and I believe that the pit filling was largely responsible for the escape of the jewelry, as explained above.

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knew, the tomb was then empty of everything valuable, and they left it without any suspicion of the existence of the treasure which lay directly under their feet.

Its later flooding

The pit now stood open once more, and again water poured into it during every rain-storm, carrying mud and sand into the chambers below until the sarcophagus and the Canopic box were nearly buried.<sup>15</sup> The floods poured through the stones into the recess and, with the mud, must have washed in whatever had been dropped by the thieves outside in the pit. A minute crystal eye which belonged to nothing in the recess and which was found under the remains of a tall-legged fourth casket probably entered in this fashion.<sup>16</sup> On top of the remains of the same box lay some crumpled gold leaf which had originally been applied to a perishable material now totally lost.<sup>17</sup> A recent examination of this leaf showed that some fragments are lightly incised with the feathering of a bird's wing and that others came from similar feathering which had also been inlaid with faience. Still other fragments had been applied to some object of indeterminate design or to perfectly plain surfaces. The feathering suggests a vulture or hawk pectoral,<sup>18</sup> perhaps of wood, gilded and inlaid on the front and gilded and engraved on the back. Such a purely funerary, sham ornament would be totally out of keeping with the real, wearable jewelry in the recess, and moreover, to judge from the existing gold foil, only part of such a pectoral could ever have existed there.<sup>19</sup> Hence, it seems safest to assume that with this gold leaf, as with the eye, we are dealing with objects washed in from the pit and in no wise related to the jewelry with which this volume deals.<sup>20</sup>

Slowly the wood of the boxes and the threads in the jewelry rotted in the damp earth, and as one flood followed another the caskets collapsed, their fallen veneering becoming inextricably mixed and confused by the succeeding downpours. In the meantime, the drifting, wind-blown sand on the surface above was filling the pit, until finally, after

<sup>15</sup> The photograph (Brunton, pl. xvi) shows how the mud had penetrated every cranny around the sarcophagus and into the Canopic box (see also *ibid.*, pp. 19, 22-23, 43-44).

<sup>16</sup> *Ibid.*, pp. 24, 36. It is not in the Metropolitan Museum as Brunton supposed.

<sup>17</sup> *Ibid.*, pp. 24, 28. On Brunton's pl. xii the position of the gold foil is marked with small xxx's crossing the top of the crown and extending toward the southwest. The gold leaf is now in the Metropolitan Museum.

<sup>18</sup> Jéquier, p. 71, figs. 183-187.

<sup>19</sup> The foil with incised feathering would cover about 120 sq. cm. of surface. That from the inlaid side would cover about half as large an area—the rest having been inlaid with faience, of which a few bits still exist. The smooth foil would cover about 85 sq. cm., and that of indeterminate design, about 30 sq. cm. The areas are estimated from the weights.

<sup>20</sup> It is to be noted that these objects washed in by the flood are toward the front of the recess. Other scraps of wood may conceivably have been in the mud dug out by the Arabs before Frost was called down the pit. See below.

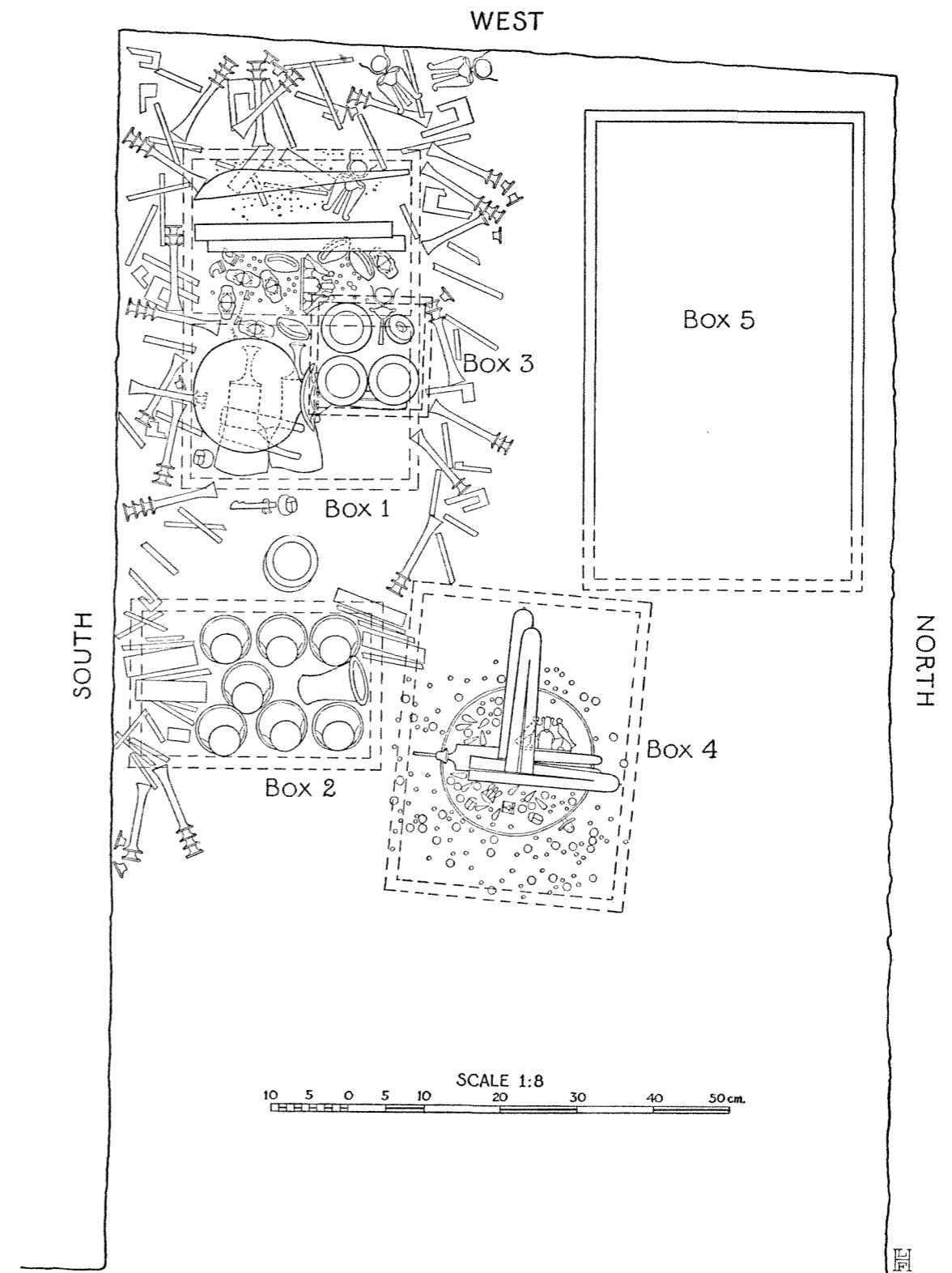


FIGURE 2  
PLAN OF THE RECESS WITH THE TREASURE AS FOUND  
(REDRAWN FROM BRUNTON, "LAHUN I," PL. XII)

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some 20 cm. of mud had been deposited over the wrecks of the caskets, the pit had become completely stopped up and no more water could get into the chambers below. Slowly the mud in the recess dried, the decayed wood rotted away until it was little more than a stain in the mud, and the corroded silver and copper disappeared almost as completely. So the tomb stood for about 3,500 years.

Its discovery

Petrie's excavations at the pyramid of el Lāhūn in 1889-1890 did not include the clearing of the south side of the pyramid. His second campaign at el Lāhūn began on December 6, 1913, and just two months later his workmen uncovered the mouth of the burial pit of Princess Sit Ḥat-Ḥor Yūnet. For five days the clearing proceeded uneventfully. The pit and the antechamber were emptied, and the sarcophagus and the Canopic box were laid bare. It was on the afternoon of February 10, 1914, that the native workmen turned to the recess in the antechamber, having like the ancient thieves put all their first efforts on the burial crypt.<sup>21</sup>

The first few hacks into the mud in the recess uncovered some of the gold tubes from the wig. F. P. Frost of Petrie's expedition was called down the pit by the native workmen, and he cut into the mud until he could see the diadem. Petrie himself was laid up with a sprain at the time and could not negotiate the descent, so Guy Brunton went down into the tomb and took over from Frost. There he stayed day and night for the next five days and later for two days more. With extraordinary patience he whittled away the mud with a penknife and even picked it out with a pin as he dug into the inextricable confusion of ivory and gold veneers from the caskets and the thousands of beads of the jewelry. Nothing was damaged. Nothing was even scratched. Every bit of mud from the recess was taken to the camp and methodically washed, in order that no scrap of inlay and not one minute bead should be overlooked, and I think we may rest assured that no surviving object was lost in this, one of the most laborious pieces of excavating on record in Egypt.

Condition of the treasure

It is not in the least surprising that the arrangement of the jewelry and of the boxes could not be grasped during the arduous task of clearing the recess. The mud in which they were buried had been stirred and kneaded by the ancient floods until the beads were suspended in it like raisins in a cake, and to Brunton in that narrow hole, cutting into the mass from one side, everything must have seemed in hopeless confusion. He had none of the wood of the caskets, no thread of the jewelry, and nothing of the wigs,

<sup>21</sup> Accounts of the discovery and the work in the tomb will be found in all of the articles listed in the Preface. The most detailed is that given by Brunton, pp. 17 ff., 22 ff.

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and even though he had recovered all the gold and hard-stone elements of the jewelry and the greater part of the inlays of the boxes, the original arrangement of the jewels and of the caskets could only be retrieved after years of study and experiment.

Of essential importance in such a study has been the plan which Brunton drew to show how the elements of the treasure lay in the mud in the recess.<sup>22</sup> It should be realized that he could not see all these elements in situ at once. Under such circumstances a plan has to be made more or less blindly, the details being seen only piecemeal, and while Brunton's drawing is obviously to scale in its general features and shows some of the objects with reasonable accuracy, many of the latter appear more or less as symbols drawn in a cursory, free-hand manner. Therefore, for the purposes of our re-study of the treasure we have redrawn the plan (fig. 2), showing the objects to scale and at the same time attempting to preserve their relative positions as closely as possible. Naturally some distortions may have crept into such an adaptation, but they probably do not materially affect the conclusions drawn from it in the following chapters.

Plan of the treasure in position

<sup>22</sup> *Ibid.*, pl. xii.

## CHAPTER II

### THE BOXES

#### (1) *Jewel Casket (Plate I B)*<sup>1</sup>

Restoration of the first box (no. 1)

The fact that the first jewel casket of Sit Ḥat-Ḥor Yūnet exists at all today is due to the patient, conscientious work of Brunton and of Mace—the former painstakingly retrieving all the ivory and gold veneer from the hard-caked mud in which it was embedded in the tomb and then, in London, beginning the sorting of the fragments by shape, size, and thickness; and the latter completing the sorting in New York and ingeniously restoring the casket. The difficulty of the task which Brunton and Mace undertook becomes apparent when it is realized that not one scrap of wood had survived except as a powdery black punk and that the swirling, muddy floods had washed the pieces of veneer about and mixed many of them with those from the second casket.

The starting point for the restoration was the arrangement of the panels of decoration from the four sides. On the long sides there were six Ḥ hieroglyphs alternating with five “false doors” and on the ends four Ḥ hieroglyphs and three “false doors.” The ivory frames of all these elements were reasonably complete and so were the broad ivory slabs above them, and therefore the widths of the narrow strips of ebony between them could be determined with certainty. The panels so made up were 38.5 cm. and 25 cm. long and 20 cm. high. The ends of the ivory pieces showed that they had been masked by a wooden frame, which overlapped them and must have projected slightly in front of them. Its width was given by the gold casing of the feet of the casket as 3 cm.

Dimensions of the first box

Thus it followed that the box was 44.5 cm. long and 31 cm. wide, to which should be added 1 cm. on all four sides for the projection of the ivory cornice. For the height, which Mace made 37 cm., the curved ivory ends of the lid, the ivory cornice with its gilded torus below, the frame, the panels, and the gold casings of the feet were all certain, and only the length of the legs remained in question. Inside, the box must have measured about 42.5 cm. long and 29 cm. wide. It could not have been less than 28 cm. wide inside and have held the mirror as it obviously did.

<sup>1</sup> M.M.A. 16.1.1 (the casket restored), 16.1.49 (silver bolt), and 16.1.50 (bronze seal knobs); Brunton, pp. 23, 25-26, 37-41, 43-44, “Area E”; Mace, *Bull.*, 1920, p. 151, and *A.E.*, p. 4.

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All the exposed woodwork of the casket appears to have been made of Sudanese ebony. The braces under the long sides were wood sheathed in silver, both of which materials had to be restored since they had almost wholly perished in the damp. The gold sheathings of the feet showed that such braces had not existed across the ends, and Mace placed there two stout bars of ivory which were of exactly the right length.<sup>2</sup> Two seal knobs of bronze<sup>3</sup> were found, about 2 cm. in diameter across the slightly convex tops, from which they tapered, conelike, to long, flattish tongues, one of which had been clinched over inside the wood of the box, where it was from 1.5 cm. to 2 cm. thick (fig. 5). Mace has restored them as silver plated.<sup>4</sup>

Decoration of the sides

The ivory veneer of the decorated panels was cut in thin slabs—one large one for the top of each panel and one for the frame around each Ḥ and for each “false door.” The Ḥ pillars had doubtless been carved of wood, but nothing remained of them except the shells of gold which had sheathed their cores. Each had been made in two parts—one the column and the other the capital—joined together behind by a hidden rib, which projected at the top and bottom as a tenon to hold the column in place. The centers of the “false doors,” which originally consisted of strips of blue faience, had bleached white in the damp and therefore had to be restored. The “roll” at the top of each “false door” was represented by a piece of carnelian, slightly convex and framed in gold. One of these carnelian pieces had been lost from its gold frame before the casket was placed in the tomb, and it also has been restored.

The shape and the direction of the curve of the lid were fixed by the ivory veneering from each end. From the decoration of the top there were four Ḥat-Ḥor heads (fig. 3). Their faces were stamped out of sheet gold; the eyes were inlaid with black and white stone and the eyebrows with blue faience. Above each head, between its golden horns, was a sun’s disk of polished carnelian framed in gold and silver. The locks of hair descending on each side of the face were built up of alternate stripes of gold and faience, ribbed across horizontally and ending in solid gold curls coiled around circular carnelian weights. The pectorals were framed in gold with carnelian and faience inlays between. All the faience and all but a few scraps of the silver frames of the sun’s disks had perished and have been restored.

Decoration of the lid

<sup>2</sup> Suggested to him by a XII Dyn. toilet box in the Louvre, inventory no. 1392.

<sup>3</sup> See below, Appendix, p. 73.

<sup>4</sup> In which he appears to have been guided by information given him by Brunton, who described them in *Labun I*, p. 40, as “of silver (or perhaps copper).”

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Perhaps the only uncertainty in Mace's restoration of this box is his omission from it of the three carved panels of ivory which give the names of Amen-em-ḥēt III.<sup>5</sup> They probably belonged to one or the other of the first two caskets, for no ivory was found in the débris of the fourth or the fifth and it seems very unlikely that they belonged to the small third casket. Furthermore, they must have come from a lid, for there is no conceivable way of introducing them into the decoration on the sides of either of the first two caskets, and also, being somewhat thinner at one end than at the other, they probably were inlaid in a curved surface. Brunton had no record of their exact position when found, and, while he admitted that they might have come from the second casket,<sup>6</sup> he was struck with their identity in length (8.5 cm.) with the Ḥat-Ḥor heads from the lid of the first casket and suggested that these three panels should alternate with the four heads. Mace was at first of the same opinion,<sup>7</sup> but in the end he felt that this combination was too crowded for the lid of the first casket and after long consideration he placed them on the second. In this decision he probably erred, and I should suggest that the three ivory name panels and the four Ḥat-Ḥor heads were set in a row across the lid of the box (fig. 3).

There is very good reason to believe that the interior of the casket was divided into compartments and perhaps provided with trays or drawers, but what the arrangement may have been we shall probably never be able to determine with satisfactory clearness. In the recess there was a quantity of ivory veneering which could have had no place on the exteriors of the first two caskets and not much of which could have come from the small third casket.<sup>8</sup> Especially to be noted are two rectangular slabs, 25.5 cm. long, 1.8 cm. wide, and 0.4 cm. thick, which had floated on top of the jewelry toward the far end of this first casket in a way which can reasonably be explained only by the supposition that they were part of the veneering of interior fittings in the box (fig. 2). Furthermore, there is a peculiar silver bolt (fig. 5), 6 cm. long and still engaged in a silver staple which had been riveted into wood somewhat less than 1 cm. thick.<sup>9</sup> The

<sup>5</sup> Brunton, pl. xi; Lythgoe, *Bull.*, 1919, fig. 24.

<sup>6</sup> Brunton, p. 38; Petrie, *A.E.*, 1914, p. 99.

<sup>7</sup> Lythgoe, *Bull.*, 1919, p. 26, fig. 23, a sketch restoration which is probably correct.

<sup>8</sup> An inventory is given by Mace, *A.E.*, pp. 5-6.

<sup>9</sup> The bolt is the "copper implement" which Brunton, p. 37, pl. xii, recorded from memory. One of the scarab rings, which had washed around in the liquid mud and had caught on a pronglike end of the staple, confused Brunton as to the nature of the object. For an analysis of the silver debased with copper, see below, Appendix, p. 73.

Interior fittings

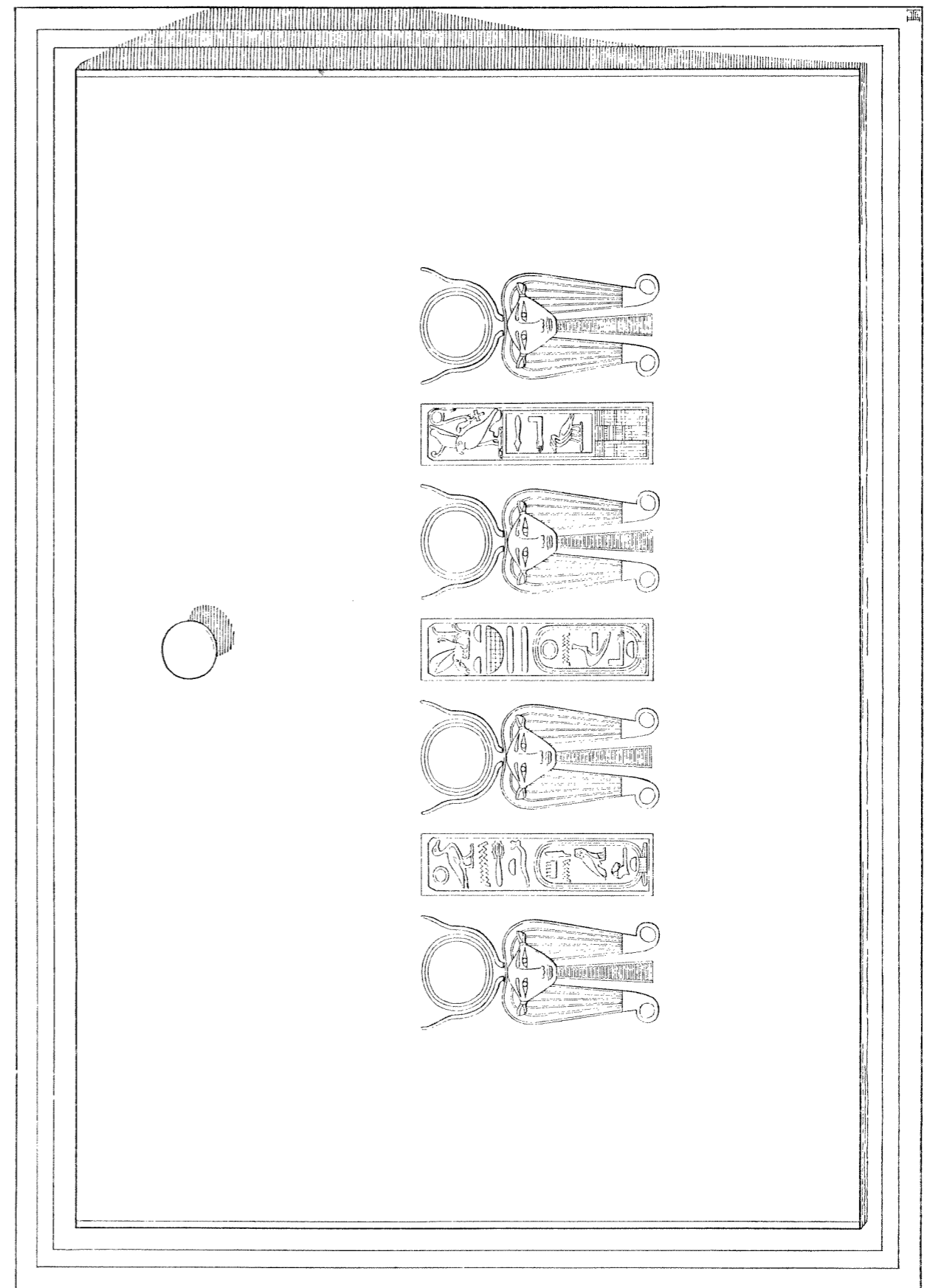


FIGURE 3  
PROPOSED RESTORATION OF THE LID OF THE FIRST CASKET (NO. 1). SCALE 1:2



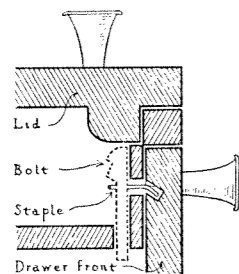
typical Egyptian bolt used on doors has a knob in the middle which allows it to slide freely between two staples on the door but prevents its removal. This Lāhūn bolt has the knob at one end and therefore, unlike the usual door bolt, must have been completely removable. Its peculiar knob was probably designed so that it could be drawn with the tip of the finger, and a contemporary box from Thebes<sup>10</sup> gives a very probable explanation of the function of this bolt as the locking device for a drawer. That there were at least two interior compartments is suggested by the way the contents lay in two distinct lots, the jewelry in one end and the mirror and shaving sets in the other, grouped in such fashion that a partition in the exact center of the box would have separated them. Smaller and lighter elements, it is true, had been washed around after the collapse of the box and of any partition which there may have been, and the silver bolt had rolled entirely out of the box when the end fell out, but the heavier toilet articles and the pectoral seem not to have been disturbed.

Contents of the first box

At the back of the far compartment the wristlets (no. 12) and the anklets (no. 13) had been placed, clasped and standing upright. Beside them, and nearer the central partition, lay the two girdles (nos. 10, 11) and the claw necklace (no. 9) with six armlets — three with lions (nos. 14, 15) and three with motto fasteners (nos. 16-18). On top of this group lay the pectoral of Se'n-Wosret II with its necklace of beads (no. 7). In the near compartment of the casket were the toilet articles. The gold-handled razors (no. 27) lay on the bottom, side by side, with their cutting edges face to face, and between their handles was the silver saucer (no. 30). The smaller razors (no. 28) lay across the larger ones, and on top had been placed the mirror (no. 26). Without much doubt the two whetstones (no. 29) were in the same compartment. The only pieces of jewelry near this end of the box were two scarab rings (nos. 22, 23), which to judge from their nearness to the bolt may have been lying in the end of the drawer to which the bolt belonged or in a compartment above it.

Position in the recess

The casket was placed by the burial party in the far left-hand corner of the recess. The position in which Brunton found the ivory veneer from the far end of the lid indi-



<sup>10</sup> M.M.A. 26.7.1438; Carnarvon and Carter, pp. 55-56, pls. XLVIII, XLIX. The shallow upper part of the box is fitted to hold a mirror and has two small compartments on either side of one end. Underneath there is a deep drawer for toilet vases, the end of the drawer being the entire end of the box. (The illustrations given by Carnarvon and Carter show these arrangements clearly.) When the drawer was closed it was locked with a bolt, now lost, which slid through a metal staple inside the drawer end and dropped into a hole in the bottom of one of the small compartments in the upper part of the box. The bolt must have been practically identical with the one from Lāhūn and must have worked as the accompanying diagram shows.

cates that the front of the box with the seal knobs was along the left-hand, or southern, wall. We shall see that the second and third caskets with the alabaster and obsidian vases stood on top of it.

Decay of the first box

The first floods soaked this casket thoroughly, and gradually it decayed in the slowly drying mud deposited around it.<sup>11</sup> The weight of the jar-filled boxes on top of it gradually forced its near right-hand corner open, and the eventual fall of the second casket sent the end of the first swinging around like a door toward the left-hand wall and pushed the lid back and up toward the back of the recess. Hence it was that Brunton found one of the feet of the near end of this first casket under the alabaster jars of the second, and inlay from its end along the wall to the left of the jars, and also that he found three of the Ḥat-Ḥor heads from its lid toward the back of the recess, thrust high up above the rest of the débris there. The drawer had fallen outward at the same time, and hence its silver bolt lay outside the box, toward the front of the recess. Succeeding floods completed the disintegration of the wood, and bit by bit the veneer fell off around the sides of the box as they then stood.

Most of our modern museums contain some example of the toilet and jewel boxes of the Middle Kingdom, but none richer or finer than this first and largest casket of Sit Ḥat-Ḥor Yūnet has survived. Similar boxes had existed at Dahshūr, though it is doubtful whether even they were as lavishly decorated. In any case there is but a hint of their appearance to be gained now. Sit Ḥat-Ḥor had a chest about 30 cm. square, incrustated with gold wire and inlaid with hieroglyphs in silver which set forth, apparently, her title and her names.<sup>12</sup> Mereret had a chest suggestive of the first casket from el Lāhūn. It was inlaid with gold, from it come two golden Ḥat-Ḥor heads like those in the lid of the Lāhūn casket, and like the Lāhūn casket it had legs with silver braces.<sup>13</sup>

Similar jewel caskets

(2) *Jewel Casket Used for Oil Jars (Plate I A)*<sup>14</sup>

Of the second casket the wood had entirely perished, but Brunton was able to recognize the general scheme of the decoration as consisting of broad panels of ivory alternating with narrow strips of ivory and of wood. The veneers stood in reasonable order

Restoration of the second box (no. 2)

<sup>11</sup> Brunton, p. 44, supposed that the decay took place before the floods, but this is improbable. Ebony would not have rotted in a dry tomb in Egypt.

<sup>12</sup> De Morgan, I, pp. 58-59, p. 63, no. 29.

<sup>13</sup> *Ibid.*, p. 64, p. 67, no. 25, p. 72, no. 69; Vernier, 53094-5, 53103.

<sup>14</sup> M.M.A. 16.1.2; Brunton, pp. 23, 25, 37-38, 43, "Area D"; Mace, *Bull.*, 1920, p. 56, and *A.E.*, p. 5.

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at either end of the box, and the similar veneers from the sides could be segregated from those of the first casket without much question. Beyond this there was little or nothing for Mace to go on in restoring the box. Furthermore, it must be remembered that when he restored it he did not have Brunton's publication with the few and meager details which it contains, and that he himself was somewhat skeptical of the accuracy of his results.

Decoration and dimensions

As he restored it, the general form of the casket is practically a replica of the first, 35 cm. long, 24 cm. wide, and 25.5 cm. high to the top of the lid. Again the starting point for the reconstruction was with the veneered panels of the sides, in which plain slabs of ivory alternated with "false doors" built up of strips of ivory and colored woods, the widths of the wood being fixed by the long, horizontal ivory slabs at the top. So far the elements of the panels seem to be arranged in the only possible way, with a minimum length of 29.3 cm. and height of 12 cm. for the long sides, and a length of 18.4 cm. for the shorter ends. Mace, however, arbitrarily increased the length of the panels to 30.4 cm. and 19.3 cm. respectively and their height to 12.4 cm. by the addition of a border of wood. In this he probably erred, for he seems to have restored the box a little too large for the pattern which the contents make in Brunton's plan of the recess, and I should suggest that the box as he restored it is between 1 and 2 cm. too long and too wide.

Having the same evidence that he had in the case of the first casket to prove that the panels were sunken, he set them in a 2 cm. frame with plain feet. Not realizing the existence of a third decorated casket, he took the gold beading, which I think belonged to it, and put it on the second box.<sup>15</sup> Such a torus beading he felt needed a cavetto cornice, and there being no ivory for it, he made it of ebony. He had a few fragments of inlay from the curved ends of the lid but not enough to show whether the lid curved across the box as it did on the first casket or lengthwise as is more common.

Decoration of the lid

For the decoration of the lid, Mace arbitrarily used the three ivory panels with the names of King Amen-em-ḥēt III which probably belonged on the first casket, surrounding them with a border of ivory and colored wood. Brunton mentions the fact<sup>16</sup> that plain plates of ivory veneer appeared underneath the alabaster jars which this casket contained. As the box lay the lid was underneath, and therefore it seems very probable that there was an ivory and colored wood veneer on the lid in keeping with that

<sup>15</sup> He was misled by a coincidence. The length of the eight 15 cm. sections was practically equal to once around this box as he restored it.

<sup>16</sup> Brunton, p. 25.

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on the sides. There are a quantity of strips of ivory for which no place could be found on either of the first two caskets, as well as two large plates of ivory 28 cm. long and 7.3 cm. wide.<sup>17</sup> These last may well have made a solid central panel on the lid, surrounded by narrow strips of ivory and colored wood.

When this casket was placed in the tomb it contained the eight alabaster oil jars (nos. 35-42), but there seems good reason to believe that it was not originally made for them. Boxes for such jars<sup>18</sup> are usually provided with a movable interior tray on legs—or sometimes a fixed board—pierced with eight holes arranged to hold the jars in two rows of four each. This establishes the proportions of such boxes as twice as long as they were wide. Not only has the box belonging to Sit Ḥat-Ḥor Yūnet the wrong proportions (3:2), but the jars lay in it in a way which precludes the possibility of their having been crated in a tray or otherwise. Hence it would seem likely that this was really an unpartitioned jewel casket put to a use for which it was not originally intended.

Contents and use

The burial party placed the second casket across the near end of the lid of the first casket. There it stood, slightly tilted on the sloping cover of the box under it, long enough for the contents of the oil jars to solidify. Being up in the air it escaped the damp of the first floods and must have still been sound when the lower box had already begun to decay. Gradually its weight burst out the rotted corner of the latter. Down tumbled the second casket, landing bottom uppermost but still intact. Probably at the start it slipped slowly, allowing its cover to fall off first and some of the jar lids to slide out, but the final crash came with enough of a shock to shiver some of the alabaster jars within.

Position in the recess

### (3) *Cosmetic-Jar Casket*

The alabaster oil jars were together in one box, and it seems to me altogether plausible that the similar obsidian toilet jars had their own special casket as well, especially since certain circumstances of the finding cannot be readily explained otherwise.

Existence of the third box (no. 3)

The four obsidian toilet jars (nos. 31-34) were unearthed in a neat group with their lids in place, but the three largest ones were upside down.<sup>19</sup> It is unlikely that they would have been purposely so placed in the tomb—filled as they were with cosmetics

<sup>17</sup> Mace, *A.E.*, pp. 5, 6.

<sup>18</sup> Those from Dahshūr are mentioned below, pp. 68-69 and note 13. Numerous others are known.

<sup>19</sup> Brunton, p. 26, pl. XII.

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—and impossible that they would have fallen in so neat a pattern unless they had all fallen together in one common receptacle. A box 14 cm. square inside, with four equal-sized compartments or a tray with four circular holes, would have held them, the three larger jars securely in place and the small kohl pot only loosely. This last would have been able to roll around as the box turned over, and hence it is not surprising to learn that it was more or less upright when found.

Traces of such a box can be recognized, I believe, among the débris from the recess. Brunton describes gold foil which had been applied to eight wooden moldings 15.5 cm. long, beveled at each end.<sup>20</sup> He also noted at the back and side of the first casket, close to the wall and high up, copper nails with gilded heads 4 mm. in diameter, which had served to attach a thin silver band about 2 cm. wide to a reddish wood. In at least one case this band was about 15 cm. long.<sup>21</sup> There is also among the objects from the recess, now in the Metropolitan Museum, the gold plating from two hemispherical bosses, from 14 to 15 mm. in diameter. They may have been of wood and have been fixed to a flat surface with metal nails through their centers. There was also a small bronze seal knob (fig. 5) about 10 mm. in diameter and 16 mm. long, with the end burred where it had been riveted in wood from 6 to 7 mm. thick.<sup>22</sup> None of these objects have any obvious place on the first casket, near which they were found, and it is a noticeable fact that their dimensions would agree admirably with the dimensions of such a box as has been postulated for the toilet vases.

The little box must have been about 14 cm. square inside and apparently 15.5 cm. square outside. The material was a reddish wood. Twice around it there was a narrow gilded beading, and it was bound with silver, studded with gold-headed copper nails. It is not impossible that it was inlaid with some of the ivory veneer for which we can suggest no other definite employment.<sup>23</sup>

The position of the box in the recess can be stated with some assurance. We have seen that the second casket was placed on top of the first across the end of the lid. This third casket must have been behind the second casket, and like the latter, being above the reach of the earlier floods, it was still in sound condition when the first casket had already begun to decay. When the end of the first casket gave way its lid fell, and the

<sup>20</sup> *Ibid.*, p. 39. See above, p. 17, note 14, and p. 18.

<sup>21</sup> Brunton, pp. 25, 39.

<sup>22</sup> M.M.A. 16.1.51.

<sup>23</sup> See above, p. 14, note 8.

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second casket rolled down and over toward the front of the recess with the third tumbling upside down after it. Hence it happened that the obsidian vases lay not only above the mirror which was inside the first casket but also above one of the Ḥat-Ḥor heads from the lid of that casket,<sup>24</sup> and that the silver edging and the gold-headed nails from this third casket were found above the débris of the first.

### (4) *Crown Casket*

Of the fourth casket nothing now survives. In fact Brunton did not suggest that it had ever existed, contenting himself with calling it "Area B."<sup>25</sup> However, it is inconceivable that the crown, the wig with which it seems to have been associated, and the group of jewelry found with them would have been put into the recess unprotected. Heavily weighted with gold as the wig was, it could not have floated out of the fifth box during the floods. Nor can any evidence of robbery be adduced in respect to any other objects in the recess, and therefore we must eliminate any suggestion that the crown and its associated jewels were found as they had been left by thieves. On the other hand the crown group was found in a strictly circumscribed area exactly as the contents of a rotted box would have lain in the mud, and we can even hazard a few suggestions as to how such a box must have been fashioned.

To have held the crown as it lay—and the crown does not appear to have been disturbed materially—the casket must have been at least 28 cm. wide and 38 cm. long inside. I think that we may assume, too, that it was at least as deep as it was wide, for when found the contents still lay at various levels throughout a depth of 20 cm. and naturally we must allow for a settling of the wig which it contained. Again there is good evidence that it stood on legs at least 20 cm. high and probably higher. Its contents lay in the mud at an altitude 20 cm. greater than the contents of the first two caskets, and that is exactly what we should expect to have been the case if, before the bottom of the box had rotted out, mud had been deposited underneath it and around the legs on which it stood.<sup>26</sup> Of the decoration we have, unfortunately, no evidence whatsoever.

At the time when the box was put in the tomb the first thing which had been placed in it must have been the wig with the gold tubes strung on the plaits. On top was laid

<sup>24</sup> Brunton, p. 26.

<sup>25</sup> *Ibid.*, pp. 23-24, 43, pl. xii.

<sup>26</sup> It was in this mud that the small crystal eye was found. See above, p. 8.

Remains of the third box

Appearance of the third box

Position in the recess

Existence of the fourth box (no. 4)

Form of the fourth box

Contents of the fourth box

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the circlet of the crown (no. 6) with the plumes and streamers dismantled. Inside the circlet were then laid the two lapis lazuli scarabs (nos. 24, 25), two armlets with motto clasps (nos. 19, 20), the smallest of the lion armlets (no. 15), and the Amen-em-ḥēt III pectoral with its necklace coiled around (no. 8). On top of all, the plumes and streamers of the crown were laid crosswise.

This fourth casket must have been the last put into the recess in the tomb. It appears to have stood in front of the first and fifth caskets almost exactly midway between the two sides of the recess and a little over 50 cm. back from the opening.

### (5) *Large Wig Chest*<sup>27</sup>

The fifth was the largest box of the lot, but obviously it was also the plainest and apparently intended for more homely uses than the other four.

The outside width, 36.5 cm., and the height, 25.4 cm., could be accurately determined. The length was more than 55 cm. but it could not have been greater than about 63 cm., if the fourth box occupied the position in the tomb which I have supposed. The sides—and we may assume the lid also—were of ebony somewhat more than 1 cm. thick. The bottom was of cheaper material. Two copper nails about 3 cm. long found behind the end against the wall may well have been parts of the two seal knobs. Of decoration no trace has survived.

Brunton found the box empty except for infiltrated mud. He argues most convincingly, however, that it was a wig chest. The fact that the wig which must have existed originally in the fourth box had left not a trace is ample explanation of the emptiness of this fifth chest. Middle Kingdom wig boxes of comparable size have been found at Lisht,<sup>28</sup> and we may assume that this box contained extra wigs—perhaps of a longer and fuller fashion than the one in the fourth box.

The fifth box, one of the first to be put into the recess, was pushed into the far right-hand corner.

<sup>27</sup> Brunton, pp. 24-25, 41, 43.

<sup>28</sup> Gauthier, p. 50, dimensions, 47 by 68 cm.; Mace and Winlock, p. 105, dimensions, 35 by 60 cm.; Lansing, *Bull.*, 1933, p. 26, fig. 39, dimensions, 27 by 57.5 by 15.3 cm.

## CHAPTER III

### THE JEWELRY

BEFORE 2000 B.C. the customs and beliefs of centuries had established amuletic properties for certain jewels which made them appropriate for the dead, and these were still being used for the dead long after the fashions for the living had changed. The “broad collar” of cylindrical beads with hawk-headed or semicircular shoulder pieces, bracelets and anklets of beads to match the collar, and a bead belt with a skirt of strands of beads hanging from it were commonly listed among the jewels of the dead in the catalogue of offerings painted inside the Middle Kingdom coffins.<sup>1</sup> The body of Sit Ḥat-Ḥor Yūnet had been decked with all or most of these ritual jewels, but the robbers made away with all but a few beads from them when they broke open her coffins, and her funerary jewelry need not concern us here.<sup>2</sup>

Fortunately, however, for those of us who prefer to picture a living rather than a dead princess, the wealthier Egyptians could afford more than simply to have their bodies decked with the amuletic jewelry of the dead. They could take with them into the tomb such jewels as they had actually worn during their lives and the very toilet articles which they had used, packed in caskets from their dressing rooms, to be hidden safely under the floors or in closets in the walls of their tombs. The three treasures of Sit Ḥat-Ḥor, Mereret, and Ḥenmet found at Dahshūr, and the treasure of Sit Ḥat-Ḥor Yūnet from el Lāhūn are of this class. That the treasure of el Lāhūn consists of the actual jewelry and toilet articles which belonged to a great lady of the court, one of those who set the fashion and style of her day and generation, gives to it a peculiar

<sup>1</sup> Jéquier, pp. 41 ff. For the diadem see below. Examples of Middle Kingdom burials with the appropriate jewels of the dead more or less complete might be multiplied indefinitely. At Dahshūr King Ḥor and the Princesses Nub-hetepty-hred, Ita, Ḥenmet, and Ita-weret were so equipped (De Morgan, I, pp. 99, 112, and II, pp. 52, 58, 74). It is a noteworthy fact that the typical funerary jewels formed no part of the jewelry of those three finds at Dahshūr which were not on the bodies of the dead—those of Sit Ḥat-Ḥor, of Mereret, and of Ḥenmet. An example of funerary jewelry—mixed, however, with imitations of the jewelry of daily life—is given by Mace and Winlock, pp. 57 ff.

<sup>2</sup> Brunton, pp. 30, 43, noted with surprise that the treasure in the recess did not include any “broad collar” with cylindrical beads. That such a collar and a funerary girdle of beads were on the body was proved by the discovery of 39 cylindrical collar beads of carnelian and 7 girdle beads of green faience in the sarcophagus chamber in 1920 (M.M.A. 21.10.55; Petrie and Brunton, p. 16).

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interest. There is nothing unreal, nothing magical, and nothing primarily religious here. All is inspired by a very vital love of beauty and a very living vanity.

Naturally it is not to be supposed that no other real jewelry which had actually been worn in daily life during the Middle Kingdom has ever come out of Egypt. Such jewelry has been found, but rarely under circumstances comparable to those of the treasures of Dahshūr and el Lāhūn, where the separation can be made with certainty between the ornaments of the changing styles of life and those of the changeless fashions of death. And, moreover, admitting that the jewelry of Dahshūr equals it, no jewelry has ever been found in Egypt—real or funerary—excelling that of Sit Ḥat-Ḥor Yūnet in fineness, in richness, or in beauty.

THE CROWN

(6) *Circllet and Wig (Plates II-IV)*

All the component parts of the crown were found together as they had been placed in the fourth box, but the wig had perished in the successive floods. The gold tubing from the wig, lying under the rest of the contents of the box, showed that it had been put in the casket first. On top of it was placed the circllet from which the plumes and streamers had been dismantled, and these last were laid crosswise on top of all.

The circllet<sup>1</sup> is made of a thin, flexible band of burnished gold 27 mm. wide and 0.4 mm. thick, which has been formed into a hoop 190 mm. in diameter.<sup>2</sup> As found it was very slightly wider across the head from side to side than it was long from front to back. On the front there is soldered a gold plaque with a slot into which slides a tongue of T-shaped section at the base of a removable uraeus. The serpent is of gold openwork incrustated with lapis lazuli, carnelian, and paste, the last now white but originally green. Its head is of lapis lazuli with eyes of garnet, framed in gold. At regular intervals around the circumference of the circllet are riveted 15 rosettes, each one consisting of a cut-out gold base plate, from 22 to 24 mm. in diameter, to which are soldered cloisons contrived to hold inlays of carnelian and paste—the latter now white but in all probability originally blue and green. The design is an elaborated cross of lotus flow-

<sup>1</sup> Cairo, *Livre d'entrée* 44919. (There is a reproduction in the Metropolitan Museum, 31.10.8, shown in pls. II, III.) Petrie, *A.E.*, 1920, p. 67; Brunton, pp. 24, 26, pls. v, XI, XIII; Vernier, 52641; Lythgoe, *Bull.*, 1919, p. 8; Winlock, *Bull.*, 1933, p. 157.

<sup>2</sup> Vernier, p. 202, noticed that the gold band had been lengthened by splicing and soldering into it a piece 46 mm. long. This cannot have been done to alter the length of the completed circllet since it would have thrown the rosettes, etc., out of place, but must have been done during the manufacture.

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ers with a lily pad in each quarter. On the under side of the rosette at the back, opposed to the uraeus, and of the two rosettes on the opposite sides of the circllet there are soldered pairs of small gold rings from which are suspended and hinged double streamers, those at the sides 197 mm., and those at the back 193 mm. long. Inside the back of the circllet is riveted a tube topped with a solid, plain gold papyrus flower into which fits a stem at the bottom of a removable pair of plumes, projecting 215 mm. above the circllet. The streamers and the plumes are cut out of perfectly plain sheet gold like the circllet, so thin that the plumes would have waved slightly with every movement of the wearer's head.

Some 1,251 small gold tubes<sup>3</sup> found scattered under the circllet and nowhere else in the tomb must, to follow a suggestion of Brunton's, have been disposed on the wig. Of them, 877 tubes average 9 mm. in diameter and about 6.5 mm. in length; 374 smaller tubes average no more than 4 mm. in diameter and about 4.5 mm. in length. All are cut from longer tubes, made of thin sheets of gold bent over and burnished on a cylindrical form until their overlapping edges have almost disappeared. The smaller ones are of much thinner metal than the larger and in some cases are slightly ribbed, round and round. The total length of the smaller tubes when strung end to end comes to about 167 cm., and of the larger to about 570 cm.

Scattered around as they were in the mud, nothing could be learned on the spot of the original arrangement of these, and it has only been by experimenting with an actual wig that we have been able to make any definite suggestions. The wig on which they must have been worn was, without question, one of those long full coiffures which covered the wearer's shoulders, and the tubes must have been strung as long, continuous stripes of gold on the plaits. They could not have been scattered, one by one, along the plaits, for there was no way of fixing them in place so that they would not slide down. In continuous stripes they could have been prevented from falling entirely off the wig by the bindings which finished the plaits at the bottom. The question of the number of such stripes of gold on the wig was one on which we made many experiments. Finally, however, we noticed that the total lengths of both the large and the small beads are divis-

<sup>3</sup> Cairo, *Livre d'entrée* 44923: 482 larger and 84 smaller tubes. M.M.A. 16.1.25, 26: 395 larger and 290 smaller tubes. Brunton, p. 27, pl. x; Vernier, 52669. There are discrepancies between Petrie's notes (used by Brunton), Vernier, and the actual counts and dimensions of the tubes in New York and Cairo. (For information about the tubes in Cairo I am indebted to a recent letter from Brunton.) The figures given in *Labun I* are only a rough approximation made by Petrie in the field from the weights he used in estimating the backshish for his workmen, and I have disregarded them.

Crown in the fourth box (no. 6)

Construction of the circllet

Gold tubes from the wig

Reconstruction of the wig

ible into shorter strands very nearly 238 mm. in length—24 such strands of the larger beads, and 7 of the smaller. Such strands arranged around the head naturally fall into a pattern with a narrow stripe between every four thick stripes, and their length is such that all the gold strands reach just over the shoulders of a young woman used by us as a model.<sup>4</sup> The streamers from the sides of the circlet fall exactly on the shoulders themselves. Experiment showed that the strands at the sides of the wig should be a few millimeters longer than those at the back, just as the side streamers are longer than the back ones, in order that all should appear to finish evenly when the wig was being worn.

It is of course impossible to say that no other arrangement could have been followed in antiquity, but after trying numerous others I personally feel that the chances are that Sit Ḥat-Ḥor Yūnet wore her crown and wig very much as we show them.

Altogether the coiffure which Sit Ḥat-Ḥor Yūnet wore must have been a more or less heavy burden, no matter how softly and snugly it fitted her head. The circlet weighs 280 grams, the gold tubing about 500 grams,<sup>5</sup> and the modern wig on which we have placed it—and which probably does not differ materially from the original one worn by the princess—weighs 700 grams more. The total thus comes to 1,080 grams, or 3 pounds and 4 ounces.

The circlet of Sit Ḥat-Ḥor Yūnet was more than a meaningless ornament. The uraeus on the brow, an attribute of royalty, places its wearer among the immediate relatives of the king himself. The high plumes were an attribute of the goddess Ḥat-Ḥor, who was in some of her manifestations a patroness of love and of beauty, and the attributes of that goddess would naturally be thought appropriate to the ladies of the king's *ḥarīm*.<sup>6</sup> Even the fillet itself had a history of a full thousand years by Sit Ḥat-Ḥor Yūnet's day.<sup>7</sup>

At active occupations and in windy weather a mass of thick hair around the face is apt to be a nuisance, and nothing is more natural than to tie a cord around the brows


<sup>4</sup> See above, p. 6, note 8.

<sup>5</sup> Vernier and Brunton are in practical agreement on the weight of the circlet. I have calculated the weight of all the tubes from those in the Metropolitan Museum, and the total agrees with Brunton's statement (from Petrie's notes) that they weighed a little over a pound.

<sup>6</sup> Brunton, pp. 27, 42, suggests that the plumes were the insignia of "the heiress queen" and quotes two examples from the XVIII Dyn. and from the Ptolemaic period. From this assumption comes the theory that Sit Ḥat-Ḥor Yūnet was a reigning queen (see above, p. 3). That the plumes were positively not insignia of such high rank in the XVIII Dyn. is amply shown by the pictures of kings' concubines in the Theban tombs of Mene-na (no. 69; Wreszinski, 25 a) and Pa-iry (no. 139).

<sup>7</sup> Two excellent histories of the Egyptian circlet are those in Jéquier, pp. 43 ff., and Williams, *Jewelry*, pp. 54 ff.

to confine it, or at least to keep it back out of the eyes. There is scarcely need of listing any of the innumerable ancient Egyptian pictures of such simple, purely utilitarian tape fillets. It goes without saying also that the idea of decorating such fillets is very primitive. Fishermen stuck water lilies through them in the sham fights in canoes which were a part of the fantasias held on the big estates of the Old Kingdom.<sup>8</sup> The early peasants sowing grain in the scorching, hot fields knotted cool green grass around their brows in pleasantly rustic fillets.<sup>9</sup> The upper classes, even as early as the First Dynasty, made their fillets of a plain band of gold.<sup>10</sup> Here were all the essentials of the circlet of historic times—flower decorations and goldsmith's work.

In the Fourth Dynasty the circlet was a band of flexible gold just long enough to go around the head and with holes in the ends for linen tapes to be tied behind in a bow-knot.<sup>11</sup> Around the band there might be big, chased-gold rosettes projecting on stems from the head,<sup>12</sup> or there might be cloisonné flower patterns,<sup>13</sup> usually of the marsh plants which the sailors wore—the lotus and sometimes papyrus plants—with young birds nesting among them.<sup>14</sup> In the Fifth Dynasty the linen tapes were disappearing and the circlet was being made up entirely of goldsmith's work—the bowknot at the back becoming a pair of lotus plants and the two ends of the tapes two streamers of metal. Such circlets were often worn in the late Old and in the Middle Kingdom by the gentry when they went fishing or fowling in their canoes<sup>15</sup> and by their womenfolk when they accompanied their husbands.<sup>16</sup> There still seems to have been association with the water, however, for in Middle Kingdom coffins they were called 

Development of  
the circlet

<sup>8</sup> Davies, *Plabbetep*, II, pl. xiv, and *Gebrāwi*, II, pls. v, xx.

<sup>9</sup> Petrie, *Medum*, pl. xxviii.

<sup>10</sup> Reisner, *Naga-ed-Dêr*, pp. 31, 144, pl. 9, fig. 54.

<sup>11</sup> Circlets found at Gizeh (Selim Hassan, and Schäfer and Andrae, p. 260). For the linen tapes see Petrie, *Medum*, pl. ix.

<sup>12</sup> See last note. I should interpret L. D., II, pl. 71, as a curious drawing of such rosettes seen in profile.

<sup>13</sup> On the statue of Nofret (Borchardt, *Cat. gén.*, no. 4) the white circlet stands vertically away from the hair, and I assume that it was of silver, and that the flowers, therefore, were of cloisonné work.

<sup>14</sup> See the Gizeh circlets in note 11, above, and De Morgan, *Recherches*, p. 199.

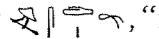
<sup>15</sup> Both types exist side by side in the V Dyn. See Bissing, *Gem-ni-kai*, I, pls. xv, xxi, and Borchardt, *Saihu-re*, II, pls. 33-38, 53, 54.

<sup>16</sup> Petrie, *Medum*, pl. x; L. D., II, pls. 46, 60, 73, 90, 97; Davies, *Gebrāwi*, I, pls. iii, v, vi, xi, xii, xviii, and II, frontispiece and pls. iii, v, ix; Newberry, *Bersheh*, I, frontispiece and pls. viii, ix, xxix, and *Beni Hasan*, I, pl. xlvi, and II, pls. xxviii, xxix, xxxv; Blackman, pls. vii, xvii. Dancing girls in the Old Kingdom wear such circlets occasionally (L. D., II, pl. 36, and Davies, *Gebrāwi*, II, pl. xvii).

Weight of the  
crown

Attributes on the  
circlet

Origin of the  
circlet

or , "rower's" or "boatman's fillet."<sup>17</sup> In the Old and Middle Kingdoms everyone wore the boatman's fillet — the king with the uraeus,<sup>18</sup> the nobles, naturally, without — but during the Middle Kingdom, for some obscure reason, the boatman's fillet began to be classed as a king's crown which was shown among the amuletic articles in the coffins. After the Middle Kingdom with a uraeus on the brow it became strictly a part of the insignia of royalty,<sup>19</sup> and the people in general adopted new styles — broad bands of bead and cloisonné work hanging down on their foreheads and tied with tasseled cords behind.<sup>20</sup>

The circlet of Sit Ḥat-Ḥor Yūnet belongs midway in the development we have just reviewed. The tapes at the back are represented by the gold streamers — but without either the bowknot or its derivative, the papyrus flowers — and as an extra embellishment other tapes are represented at the sides by additional gold streamers. And the lotus flowers so characteristic of the early fillets are represented by highly stylized rosettes. Such rosettes were destined to become simplified out of all semblance to a lotus, but they remained even into the Empire as characteristic ornaments for the head.<sup>21</sup>

The decoration of the hair to relieve the monotony of its dark mass goes back to the dawn of history, when it was a fashion to wrap the plaits spirally with tapes of thin gold.<sup>22</sup> Tubes like those of Sit Ḥat-Ḥor Yūnet are perhaps unfamiliar, for they have rarely survived, but at least one of the princesses at Dahshūr — in all probability Ḥenmet — had a wig decorated with such tubes, and they have been found at Lisht and elsewhere.<sup>23</sup> If such tubes are anything more than simple decoration, it is possible that

<sup>17</sup> Winlock, *J.E.A.*, p. 231; Jéquier, p. 47. There are not many representations of Old Kingdom or Middle Kingdom sailors wearing such fillets. Cf. Davies, *Gebrāwi*, I, pl. iv; the models in Reisner, *Cat. gén.*, 4847, 4899, 4900; and two models in the Metropolitan Museum, 11.150.9 and 26.3.155.

<sup>18</sup> Borchardt, *Ne-user-reʿ*, pl. 16, and *Šaḥu-reʿ*, II, pls. 33-38.

<sup>19</sup> Representations on the monuments are numerous. Four actual fillets have been found. In the XII Dyn.: King Ḥor (De Morgan, I, p. 100, figs. 234, 235, 238, pl. v, c, e) and Princess Nub-ḥetepty-ḥred (*ibid.*, p. 112, nos. 1-3, pl. v, g, f; Vernier, 53111-2); in the XVII Dyn.: Nub-kheper-Rēʿ Intef (Boeser, III, p. 8, pls. xviii, xxii; Winlock, *J.E.A.*, p. 231); in the XVIII Dyn.: Tut-ankh-Amūn (Carter, pl. lxxv). The last has hinged streamers like that of el Lāhūn.

<sup>20</sup> For traces of an actual XVIII Dyn. type of fillet see Winlock, *Meryet-Amūn*, fig. 2. Random examples of the innumerable representations on the monuments are Davies, *Nakht*, pl. xii, *Ramesside Tombs*, pls. vii, viii, and *Nefer-ḥotep*, II, pl. vii.

<sup>21</sup> For the XII Dyn. see the headdress of Senebtisi below; for the XVIII Dyn., Princess Nefru-biti in Deir el Bahri (L. D., II, 8; Rosellini, pl. xix, 24) and a fillet in the Metropolitan Museum (Winlock, *Bull.*, 1933, p. 159; for the XIX Dyn., Queen Ta-Wosret (Davis, pls. 13, 14; Vernier, 52644).

<sup>22</sup> Schäfer, *Goldschmiedearbeiten*, no. 2.

<sup>23</sup> Mixed with the beads, apparently from De Morgan's second season, there are at least 463 such tubes with diameters uniformly 4 mm. and lengths on an average slightly greater than 4 mm. (Vernier, 52820, 53057-8, 53092, 53118,

they may have originated in the long stems of the water lilies which adorn the circlets. More fanciful were the rosettes sewn over the wig of Senebtisi,<sup>24</sup> and of somewhat similar nature were the gold checkers on the wig of a statuette found in the mouth of Senebtisi's pit at Lisht.<sup>25</sup>

Few actual crowns have been found in Middle Kingdom tombs, and they have little in common with that from el Lāhūn except their floral motives. There were in the tomb of Ḥenmet at Dahshūr two crowns which had obviously been worn in daily life and two plain gold bands which also appear to have been head circlets.<sup>26</sup> All were found among the jewels in the offering chamber, just as the crown of Sit Ḥat-Ḥor Yūnet was discovered. Both crowns are essentially flower chaplets. One consists of strands of loosely plaited gold wires sewn over with minute green flowers and blue berries and caught together in four places by larger papyrus rosettes. In the other, rosettes are linked together with highly conventionalized floral forms. A simpler and less expensive crown, found on the body of Senebtisi at Lisht,<sup>27</sup> is of gold wire loosely plaited like the foundation of the first crown of Ḥenmet but without the flowers or rosettes, although rosettes, as we have noted, were sewn on her hair. In the front there is a curious knot, possibly floral in inspiration and vaguely reminiscent of the conventionalized flower forms of Ḥenmet's second crown. From a Twelfth Dynasty tomb at Thebes comes half of still another, even simpler circlet, of three strands of silver wire lashed together and provided with a loop, apparently at the back, for tapes.<sup>28</sup>

Other XII Dyn. crowns

## THE NECKLACES

(7) *Pectoral of Se'n-Wosret II (Plates V, VII A-B)*<sup>1</sup>

The earlier of the two pectorals belonging to Sit Ḥat-Ḥor Yūnet was found in the débris of the far compartment of the first jewel casket. In the same place were found

Elements of the necklace (no. 7)

53120, 53124-5, 53128, 53159-60). Three similar tubes, ridged around, probably from Dahshūr, are M.M.A. 26.7.1318-20, each 7 mm. long and 5.5 mm. in diam. (Winlock, *Annales*, M). A single plain gold tube from the excavations of the Metropolitan Museum at Lisht is M.M.A. 22.1.292. Eight silver hair tubes are reported by Williams, *J.E.A.*, p. 173.

<sup>24</sup> Mace and Winlock, p. 59, pl. xx1; Winlock, *Bull.*, 1933, p. 157. Silver rosettes are reported by Williams, *J.E.A.*, p. 173.

<sup>25</sup> Lythgoe, *Bull.*, 1907, p. 163; Maspero, *Art*, fig. 202.

<sup>26</sup> De Morgan, II, pp. 61-63, nos. 19-28; Vernier, 52859-60, 52863-4, 52942-4.

<sup>27</sup> Mace and Winlock, p. 58, fig. 28, pl. xx1; Winlock, *Bull.*, 1933, p. 157.

<sup>28</sup> Winlock, *Bull.*, 1914, p. 7, fig. 8.

<sup>1</sup> M.M.A. 16.1.3. The pectoral: Petrie, *A.E.*, 1914, p. 98, fig. opposite p. 97 (top); Brunton, pp. 26, 28, pls. 1, vi. The beads: *ibid.*, pp. 29, 33, pl. vii. See also next note.

12 drop-shaped beads of gold, 9 of carnelian, 8 of green felspar, and 8 of lapis lazuli. There were also 12 small turquoise spherical beads and 42 gold spherical beads. Of these last we shall see that the 16 largest conform in size to the gold beads soldered to the two claws of the third necklace and to the amethyst beads on which the claws appear to have been strung. Thus the necklace for the pectoral of Se'n-Wosret II must have consisted of 37 drop-shaped beads, 26 spherical beads of gold, and 12 of turquoise.<sup>2</sup>

String of beads

Although the drop beads from this necklace and those from the other pectoral (no. 8) were mixed shortly after finding, the record shows the number of beads of the different materials which belong in each lot. When we came to string the two necklaces we discovered that the beads readily fell into pairs by material and length, and while our choice of drop beads for this necklace was necessarily an arbitrary one, the differences in length<sup>3</sup> are so minute that any reasonable choice, together with the spherical beads, would make a necklace very close to 82 cm. in circumference. Obviously for a necklace of this length a clasp would be unnecessary, and the odd number of carnelian beads shows that one of that color must have been at the middle of the string at the back of the neck. From this point the beads must have been arranged in repetitions of red, green, and blue toward the front, with every third drop bead of gold. As there were twelve of these last and twelve spherical beads of turquoise, each gold drop must have been followed by a turquoise ball, and each stone drop by a gold ball. Such an arrangement is pleasing and carries out the colors and materials in the pectoral itself with an even spacing throughout the necklace.

Pectoral of  
Se'n-Wosret II

The pectoral in its design is a motto which can be freely interpreted: "The Sun God gives many hundreds of thousands of years' life to Kha<sup>c</sup>-kheper-Rē<sup>c</sup> (Se'n-Wosret II)," the Sun God being represented by the hawks which support the cartouche and the hieroglyphs below it.

<sup>2</sup> In Winlock, *A.E.*, p. 76, I suggested that this pectoral was suspended from all the drop beads, of which 74 were found in the tomb, combined with 20 gold ball beads which Brunton had not strung in the claw necklace, and the 12 turquoise ball beads. This arrangement was adopted by Lythgoe, *Bull.*, 1919, frontispiece and p. 11. Petrie, however, hesitated to agree (Winlock, *A.E.*, p. 87) but offered no alternative. At that time Brunton's *Labun I* had not appeared, and I did not know that 37 drop beads were found in "Area E" (p. 29), whence came this pectoral (p. 25) and the gold ball beads (p. 26), and that in "Area B" were found 37 other drop beads (p. 29) and under them the pectoral of Amen-em-ḥēt III (p. 24). Brunton states that "owing to a misapprehension these two sets were not kept separate." Hence my then proposed stringing (with a double necklace of drop beads) was obviously at fault. Thirty-seven of the drop beads evidently belong to each pectoral.

<sup>3</sup> The drop beads are graded from 14 mm. to 24 mm. in length (Brunton, p. 29). The spherical beads of turquoise average 5.5 mm. in diam. and those of gold vary from 3 to 6 mm.

Basically the pectoral is of gold.<sup>4</sup> A plate 82 mm. high, 45 mm. wide, and less than a millimeter thick was cut out to the design and upon its front were soldered the thin gold cloisons designed to hold the inlays. The delicately modeled legs of the hawks, fashioned in the round, were likewise separate pieces soldered into place, and two tubes for suspension were soldered onto the back. Into the cloisons on the front were then introduced inlays of lapis lazuli, turquoise, and carnelian with chips of garnet for the eyes of the hawks—in all some 372 minutely fashioned bits of hard stone cemented into place with a ground-lime plaster mixed with some organic adhesive. The hawks are feathered blue and green with red-tipped tails, and they support green sun disks on their heads. The human figure has green flesh, blue hair, and red clothing. The remaining details of the jewel are worked out in the same three colors.

No more exquisitely fashioned example of goldsmith's and lapidary's work has survived from all ancient Egypt, and no lighter and at the same time no more classically restrained design has come down to us to represent the Egyptian jeweler's art. It has been said that the pectoral was conceived to be viewed usually from a respectful distance. Yet it will bear the most intimately close inspection, and the repetition of the details of its design wrought and chased on its back is as marvelously executed as its gayly colored front. In fact, the subtly modeled reverse, with each detail molded and chased with microscopic accuracy, is perhaps even more wonderful than the obverse.

(8) *Pectoral of Amen-em-ḥēt III (Plates VI, VII C-D)*<sup>5</sup>

The second of the two pectorals came from the débris of the fourth casket with 12 drop beads of gold, 10 of carnelian, 8 of green felspar, and 7 of lapis lazuli.<sup>6</sup> No gold or turquoise spherical beads are mentioned as having come from this area, but there is a twice repeated statement that some of the amethyst ball beads were found there.<sup>7</sup> Unluckily neither their number nor their size was recorded, nor were they kept separate from the amethyst beads from the first casket. However, we have no right to disregard Brunton's very definite statement. Accepting it then, it is absolutely impossible to conceive of such amethyst beads as being connected with the crown, the small motto

Elements of the  
necklace (no. 8)

<sup>4</sup> An excellent detailed description is given by Brunton, p. 28.

<sup>5</sup> The pectoral: Cairo, *Livre d'entrée* 44922; Petrie, *A.E.*, 1914, p. 98, fig. opposite p. 97 (in center); Brunton, pp. 24, 29, pls. vi, xi; Lythgoe, *Bull.*, 1919, fig. 8; Vernier, 52712. The reproduction in the Metropolitan Museum, 31.10.11, is shown in pl. vi. The beads: M.M.A. 16.1.4; see above, note 2.

<sup>6</sup> Brunton, pp. 24, 29.

<sup>7</sup> *Ibid.*, pp. 24, 33.



and lion armlets, or the two scarabs found there. Again, to say that they lay loose in the box is a very unsatisfactory way out of a difficulty. The one logical explanation remains that there must have been 38 of the smallest amethyst beads in this casket, and that they were part of the necklace of the Amen-em-ḥēt III pectoral. In size they would have been appropriate, and furthermore the necklace requires such spherical beads to make it of a length comparable to the other pectoral chain. The possible objection that amethyst introduces an unexpected color into the necklace need give no trouble. Actually the deep violet of the spherical beads alternating with the brilliant hues of the drop beads results in a remarkably effective color scheme.

String of beads

The 37 drop beads from this necklace were graded in pairs like those from the first pectoral. With the smallest amethyst ball beads included the circumference of the necklace works out to about 82 cm., as does that of the Se'n-Wosret pectoral. Any arrangement of the colors and materials must necessarily begin with the placing of the odd lapis lazuli bead in the center at the back of the neck, and further combinations are again necessarily variations of the usual red, blue, green order of the Egyptian conventions, with every third drop bead of gold.

Pectoral of  
Amen-em-ḥēt III

While the pectoral repeats the design of that of Se'n-Wosret II, merely changing the cartouche to that of the throne name of Amen-em-ḥēt III, there is an extraordinary falling off from the technical perfection of the earlier one. In general the construction is the same, but the goldwork of the Amen-em-ḥēt pectoral is apparently slightly lighter,<sup>8</sup> and, among the inlays, for turquoise a green composition has been substituted which has bleached white in the dampness of the tomb. Red carnelian sun disks on the hawks' heads and amethyst eyes for the hawks are among the unimportant variations in coloring. It is, however, in the general execution that the deterioration of the goldsmith's work is obvious, and the backs of the two pectorals show this most strikingly. The outline of the second lacks the airy lightness of the first pectoral; the details are clumsy; the subtle, low relief has been flattened out, and the chasing is heavy and stumbling in comparison with the work of Se'n-Wosret's jeweler.

Similar pectoral  
necklaces

It would be useless to try to define the stages in the evolution from the primitive ornament which the prehistoric Egyptian hung on a cord around his neck, through the development of the ornament into an amulet, and then into the more or less elaborate motto-like pectoral of Sit Ḥat-Ḥor Yūnet. Suffice it to say that by the Twelfth Dy-

<sup>8</sup> Brunton's measurements make the second pectoral about 1 mm. longer and wider than the first, but the weight about 1/5 oz. avoirdupois less.

nasty the elaborated pectoral was fully developed, and it remained in vogue throughout the rest of Egyptian history.

Princess Sit Ḥat-Ḥor had a pectoral of Se'n-Wosret II comparable in design and meaning with those belonging to Sit Ḥat-Ḥor Yūnet. The necklace appears to have been composed of 37 drop beads — 10 of gold, 10 of carnelian, 9 of green felspar, and 8 of lapis lazuli. The ball beads were all gold.<sup>9</sup> In this case the odd green bead was at the back, every fourth bead was gold, and the order was red, blue, green — ending with a red bead next the pectoral. Such a necklace would be strikingly like the two from el Lāhūn and must have been about as long.

In the jewel casket of Queen Mereret there were two pectorals — one of Se'n-Wosret III and one of Amen-em-ḥēt III — both lauding the triumphs of the king, as befitted the jewels of a King's Wife.<sup>10</sup> Either one of these was placed in the casket without a necklace or — what is much more likely — the beads of one necklace have been scattered during and since their discovery. There is reason to believe that there was once a string of gold, carnelian, lapis lazuli, and green felspar drop beads, of which some are now in the Cairo Museum and others were once in the MacGregor Collection.<sup>11</sup> As with the Amen-em-ḥēt III pectoral of Sit Ḥat-Ḥor Yūnet, the spherical beads may well have been of amethyst, of which there were a large number in this tomb.<sup>12</sup> The other pectoral — perhaps that of Se'n-Wosret III — was obviously suspended from a string of 43 drop beads and 86 spherical, all of gold.<sup>13</sup> In this case 2 spherical beads accompanied each drop bead. The number of beads is greater here than in the two el Lāhūn ex-

<sup>9</sup> Pectoral: De Morgan, I, p. 60, no. 1, pls. xv, xvi, xx1; Vernier, 52001. Drop beads: De Morgan, I, p. 63, no. 35, pl. xviii. Vernier appears to be badly confused; these beads are probably under 53123, 53126, 53127, 53129, and perhaps other numbers. Ball beads: De Morgan, I, p. 63, no. 32, pl. xviii. De Morgan's text gives 30 "perles rondes, or," but the total count of the spherical beads in pl. xviii comes to 27 more than the total count of spherical beads of different sorts mentioned in the text. Furthermore, it can be demonstrated that there were thefts from this treasure at the time it was found (Winlock, *Annales*). I assume, therefore, that there were at least 38 gold spherical beads which could belong in this necklace.

<sup>10</sup> De Morgan, I, p. 64, nos. 1-2, pls. xix-xx1; Vernier, 52002-3. Among Mereret's scarabs, five bear the titles of a queen, to which rank she clearly rose before her death.

<sup>11</sup> There is one unnumbered stone drop bead in De Morgan, I, pl. xxiv. Vernier, 53123, 53126-7, 53129, appears to list a total of 82 drop beads, which is 45 more than came from the tomb of Sit Ḥat-Ḥor, whose beads appear to be included among them. For 16 more drop beads which may have come from this tomb see Winlock, *Annales*, J.

<sup>12</sup> See below, p. 36, note 26.

<sup>13</sup> De Morgan, I, p. 65, no. 9, pl. xx11; Vernier, 53055-6. De Morgan shows 98 spherical beads in this string (Vernier only 96). Of these 98 I assign 12 to the claw necklace from this treasure, which would reduce the length as given by De Morgan from 89 to about 82 cm.

amples or the other Dahshūr example, but the drop beads are shorter and the circumference of the string was again 82 cm.

It must be more than a coincidence that all the Dahshūr pectorals are associated with drop and with ball beads,<sup>14</sup> and furthermore that all the necklaces reconstructed from them should be of the same length—82 cm. in circumference.

This length is such that on small women, as these princesses undoubtedly were, the pectoral ornaments would hang below the breasts, as far down as the parting of the ribs. On first thought this strikes us as being lower than is appropriate to the term “pectorals,” and it probably is lower than was customary in the Eighteenth Dynasty. However, there is evidence that in the Twelfth Dynasty at least such ornaments were worn as low as our reconstructions indicate. The daughters of Thūty-hotpe of el Bersheh are shown with the bottom of their “pectorals” almost as low as the top of the pelvis, and Thūty-hotpe himself wore his “pectorals” even lower.<sup>15</sup>

(9) *Claw Necklace (Plate IX)*<sup>16</sup>

Sit Ḥat-Ḥor Yūnet's third necklace was found in the far compartment of her first jewel casket.<sup>17</sup> Brunton recognized its general arrangement, and we have made only such modifications in his stringing as depend on the number of beads available.

The two ball beads soldered to the top of each claw make it certain that in addition to the claws the necklace consisted of a double row of spherical beads. Besides those now strung with the first pectoral there were 16 spherical beads of gold of the same size as those soldered to the claws, and these gold beads were associated in the tomb with amethyst beads. Of amethyst ball beads 291 altogether were found, varying in diameter from 9 to 4.5 mm. Of them we have seen that 38 of the smallest probably came from the pectoral in the fourth casket. The 253 remaining must have come from the first casket, and of these we shall see that 140 of the largest are required for the leopard-head girdle.<sup>18</sup>

<sup>14</sup> A few examples of later date tending to show the continuous association of drop beads with pectorals in the XVIII and XIX Dyns. are in Winlock, *A.E.*, p. 76, note 1, figs. 2, 3.

<sup>15</sup> Newberry, *Bersheh*, I, frontispiece and pls. xxix, xxxiii. Note especially the frontispiece, where the top of the girl's pelvis is drawn. The pectoral on the coffin of Senebtisi was, apparently, equally low (Mace and Winlock, frontispiece and fig. 23).

<sup>16</sup> M.M.A. 16.1.7; Petrie, *A.E.*, 1914, p. 98; Brunton, pp. 32-33, pl. viii; Lythgoe, *Bull.*, 1919, p. 12, fig. 10; Winlock, *A.E.*, pp. 85-86, fig. 8.

<sup>17</sup> Brunton, p. 26. The finding place of the claws is nowhere mentioned in the text, but they show clearly enough in the middle of the first casket (Brunton, pl. xii, “Area E”).

ard-head girdle.<sup>18</sup> There were thus not more than 113 of the amethyst beads available for this necklace, which with the claws and the 16 gold spherical beads would be too short a string to be passed over the head. Hence a clasp is necessary, and when one of the small square-knot fasteners is added the necklace has a circumference of 33 cm.,<sup>19</sup> which is just sufficiently long to encircle the base of a slender woman's neck. The exact placing of the claws and of the 8 gold beads in the center is, of course, entirely arbitrary, but as here arranged the two claws lie on the ends of the clavicles of a person as small as we have assumed Sit Ḥat-Ḥor Yūnet to have been.

Each claw, 31 mm. in length and hollow, is made of two identical sheets of hammered gold, skillfully soldered together around the edges. On top of each are soldered two hollow beads made in the same manner.<sup>20</sup> These beads and the gold and amethyst beads strung with them are from 4.5 mm. to 6 mm. in diameter. The stone beads are of an unusually deep, rich violet colored amethyst which cannot be distinguished from the beads of the leopard-head girdle (no. 11), and there seems little doubt that both jewels come from the hands of the same makers and were intended to be worn together.

Animal or bird claws are very natural objects for primitive man's personal adornment, and it is not surprising to find them imitated in stone in prehistoric Egypt.<sup>21</sup> By the Middle Kingdom they had become accepted elements in fashionable jewelry.

Princess Sit Ḥat-Ḥor appears to have had a necklace almost identical with that of Sit Ḥat-Ḥor Yūnet. The pair of claws<sup>22</sup> and the amethyst<sup>23</sup> and gold ball beads<sup>24</sup>

<sup>18</sup> See below, no. 11. This girdle must have had beads in multiples of 28. Even the removal of one lot of 28 beads from it would make it more than 10 cm. shorter than the cowrie girdle, and we must therefore consider the number of beads assigned to it by us as final.

<sup>19</sup> Brunton, pl. viii, made the collar 44 cm. long, but he introduced into it gold beads which obviously belong to the first pectoral and amethyst beads which we put with the second.

<sup>20</sup> One of these beads was broken off in antiquity as Brunton states; the Metropolitan Museum has recently had it soldered back in place.

<sup>21</sup> Petrie, *Amulets*, p. 13, pl. ii, 24.

<sup>22</sup> De Morgan, I, p. 62, no. 23, pl. xviii; Vernier, 53144-5.

<sup>23</sup> De Morgan, I, p. 63, no. 36, pl. xviii; Vernier, 53121. De Morgan says 240 beads, but there are 27 more spherical beads on pl. xviii than his text calls for. Vernier gives 248 beads. For 10 more beads which may belong to this tomb see Winlock, *Annales*, F. In addition to the claw necklace there must have been either another single string of amethyst beads or a double string including some of the double gold beads described in the next note.

<sup>24</sup> De Morgan, I, p. 63, nos. 30-31, pl. xviii; Vernier, 53131(?). No. 30 is “vingt perles doubles, or; voir planche xviii,” but the plate shows 11 pairs. No. 31 is “six perles rondes doubles.” In the MacGregor Collection there was another double bead (Winlock, *Annales*, G), making a total of 18 double gold ball beads among Sit Ḥat-Ḥor's jewels. Some perhaps went with a separate double string of amethyst beads.

Manner of wearing pectorals

Claw necklace (no. 9)

Its reconstruction

Elements of the claw necklace

Similar claw necklaces

were all found. Aside from the length, which remains uncertain, the only differences between this necklace and that of Sit Ḥat-Ḥor Yūnet were trivial. All the gold beads—which may have been more numerous in Sit Ḥat-Ḥor's necklace than in Sit Ḥat-Ḥor Yūnet's—were soldered together in pairs, a very practical scheme, for the two strings of the necklace were thus securely held together at several points.

Queen Mereret also had a necklace of this type. Again there were the two claws,<sup>25</sup> and there were an ample number of amethyst<sup>26</sup> and 12 or more gold spherical beads.<sup>27</sup> Such elements would make a necklace practically identical with that of Sit Ḥat-Ḥor Yūnet except that there would have been one or two fewer pairs of gold beads in the center.

A very instructive pair of claws came from the tomb of Ḥenmet.<sup>28</sup> Judging from their suspension rings these claws were hung from a necklace of very fine beads. The interesting thing about them is that they are covered all over with a feather pattern which suggests that they are birds' claws rather than lions' (as has often been supposed), and, as a matter of fact, their form agrees better with the Egyptian representation of a hawk's claw than with anything else.<sup>29</sup>

A Twelfth Dynasty necklace from Abydos had silver claws strung with 60 oval amethyst beads arranged in 3 strands.<sup>30</sup> The combination here is instructive. The beads in this case bridge the gap between the claw necklaces with amethyst ball beads and Ḥenmet's necklace with claws strung on minute beads, and suggest that these last beads were probably oval.

<sup>25</sup> De Morgan, I, p. 67, no. 20, pl. xxii; Vernier, 53169-70.

<sup>26</sup> The total number found is as usual questionable. De Morgan, I, p. 66, no. 13, lists 252 beads, but pl. xxiv shows 256. So does the photograph in Vernier, 53054, though the text there gives 248. De Morgan, I, p. 66, no. 12, pl. xxiv, and Vernier, 53069, contain 38 more identical beads. Ten more amethyst beads (Winlock, *Annales*, F) may also belong to this tomb. The maximum number is thus 304, of which probably at least 160 are required for the leopard-head girdle from this treasure, and perhaps some for the pectoral.

<sup>27</sup> De Morgan, I, p. 65, no. 9, contained 98 spherical gold beads, of which only 86 were required for the pectoral necklace from this tomb. There are thus 12 beads available in Cairo, and there were 3 others in the MacGregor Collection (Winlock, *Annales*, G) which may belong here.

<sup>28</sup> De Morgan, II, p. 59, no. 11, pl. v; Vernier, 52911-2.

<sup>29</sup> Among the claws in Petrie, *Amulets*, p. 13, one is the actual claw of a large bird, perhaps a vulture.

<sup>30</sup> M.M.A. 04.18.13; Ayrton, p. 8, pl. xii. The beads with which Currelly there suggested these claws had been strung actually belonged to a bracelet (of a type known from Lisht and Thebes), the clasps of which were found in the tomb. As strung by us with 60 amethyst beads the necklace is 29 cm. long, but having strings instead of a clasp it was adjustable on the wearer's neck to any length. For two identical claws of electrum from a similar necklace see Garstang, *Arabab*, pp. 5, 25, frontispiece.

*(10) Cowrie Girdle (Plate VIII)<sup>1</sup>*

In the far compartment of the first casket there were found 8 large gold cowrie shells. In the same place there were 32 acacia-seed beads of gold, cast in pairs side by side, 31 similar single beads of green felspar, and 31 of carnelian.<sup>2</sup> Brunton and Petrie, noticing that the double thread holes of the pairs of gold beads were the same distance apart as those in the cowries and considering the numbers, realized that they belonged together. When the treasure of el Lāhūn arrived in New York, I joined the carnelian and felspar beads with the cowries and the gold beads and first suggested the restoration of the girdle as it has ever since been exhibited in the Metropolitan Museum and as it is here shown.<sup>3</sup>

A circlet of eight cowries has eight intervals and into each naturally go two pairs of the gold acacia beads. I think that we may have no hesitation in assuming that there should be 32 of each kind of stone bead so that, like the gold beads, 4 of each kind could be threaded in each interval. This does not mean necessarily that the missing beads were lost during the extremely painstaking excavations. They are very easily broken—one of them was discovered cracked in two—and two of them may well have been split and lost while Sit Ḥat-Ḥor Yūnet was still wearing the girdle, without unduly marring its appearance. In any case we have felt justified in restoring one green bead and one red bead. The number of acacia beads between the cowries thus being fixed, the color arrangement is, of course, arbitrary.

The 8 cowries are from 47 to 47.5 mm. long, the gold beads 9 mm., and the stone beads 10 mm. The total circumference of the girdle when clasped is 84 cm., and on a small woman it would rest on the widest part of the hips and cross the lowest part of the abdomen. A girdle of this length could be slipped over the head and arms, but the fact that one of the cowries is a sliding clasp made it much easier to put on.

Both faces of 7 of the cowrie shells were made independently,<sup>4</sup> with such accuracy

<sup>1</sup> M.M.A. 16.1.5; Petrie, *A.E.*, 1914, p. 98; Lythgoe, *Bull.*, 1919, p. 10, fig. 9; Brunton, pp. 25, 30, 33, pls. III, VII; Winlock, *A.E.*, pp. 74 ff., fig. 1.

<sup>2</sup> Brunton was mistaken in his statement that there were 32 felspar beads and 30 carnelian.

<sup>3</sup> Petrie endorsed this suggestion (Winlock, *A.E.*, p. 87), and it has been accepted by Vernier, 53074, 53136.

<sup>4</sup> Petrie in a very carefully detailed technical description of the making of the cowries (Brunton, p. 30) states that the faces of the shells were cast by the *cire perdue* method. Cast they may have been, but surely not by a method which required the modeling afresh of a wax positive for each and every one of the 16 shell faces.

Reconstruction of  
the cowrie girdle  
(no. 10)

Manner of  
wearing the  
cowrie girdle

The cowries

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that when they were soldered together the seam was invisible and even on the inside the two plates appear to be in perfect alignment. Before each pair of faces were joined there were placed loose in the hollow cavity four or five pellets, about 3 mm. in diameter, made of a 50 per cent copper-silver alloy.<sup>5</sup> Obviously every movement of the wearer's hips must have been accompanied by a tinkling as of little bells, and while it was against the daughters of Zion that Isaiah complained for their tinkling anklets,<sup>6</sup> the daughters of Egypt as well as the daughters of Zion and all their descendants in the East to this day have ever shown their vanity with the same clinking of their jewelry. The eighth shell was the clasp (fig. 4), each half of which was too thin to contain such pellets since it was provided with a flat interior plate. To one plate was soldered an elongated T-shaped tongue and in the other was cut a corresponding groove. In these plates also are the holes through which the thread ends were knotted.

A similar cowrie girdle existed in the treasure of Princess Sit Ḥat-Ḥor, but clearly the elements as published are not complete. De Morgan reports only 6 cowrie shells,<sup>7</sup> each a centimeter shorter than the shells of Sit Ḥat-Ḥor Yūnet's girdle, and only 120 acacia beads of gold, green felspar, lapis lazuli, and carnelian.<sup>8</sup> Another shell with rattling pellets inside, one double and one single gold acacia bead and one carnelian bead, apparently stolen from De Morgan, might be assigned to this girdle,<sup>9</sup> but even with them the total length would be only 72.5 cm. At least another 10 cm. of the girdle has probably strayed, and possibly in this missing part there was another gold cowrie to make the total number 8.

The Queen Mereret likewise had one, or probably two, cowrie shell girdles, but from the publications it is difficult to determine whether any beads were found with the gold shells, or whether the girdles had been unstrung during the princess's lifetime and only the loose, gold shells were buried in her tomb. One set consisted of 8 large shells, each 57 mm. long, in which there are pellets as in those from el Lāhūn. With them are grouped 2 smaller shells, each 50 mm. long.<sup>10</sup> Perhaps with advancing age the

<sup>5</sup> These pellets had corroded inside the shells, to the walls of which they were stuck fast. Recently they were loosened by Arthur Kopp with the aid of selected chemical reagents, and the analysis of the mineral matter which was removed showed their composition. The measurement of the pellets was possible in the case of one of the shells which had partially split along the soldering line. See below, Appendix, pp. 73-74.

<sup>6</sup> Isaiah 3:16, 18.

<sup>7</sup> De Morgan, I, p. 60, no. 5, pl. xvii; Vernier, 53136.

<sup>8</sup> De Morgan, I, p. 63, nos. 33-34, pl. xviii; Vernier, 53123, 53146 (?).

<sup>9</sup> Winlock, *Annales*, A-B. <sup>10</sup> De Morgan, I, p. 65, no. 7, pl. xxiii; Vernier, 53074.

Similar cowrie girdles

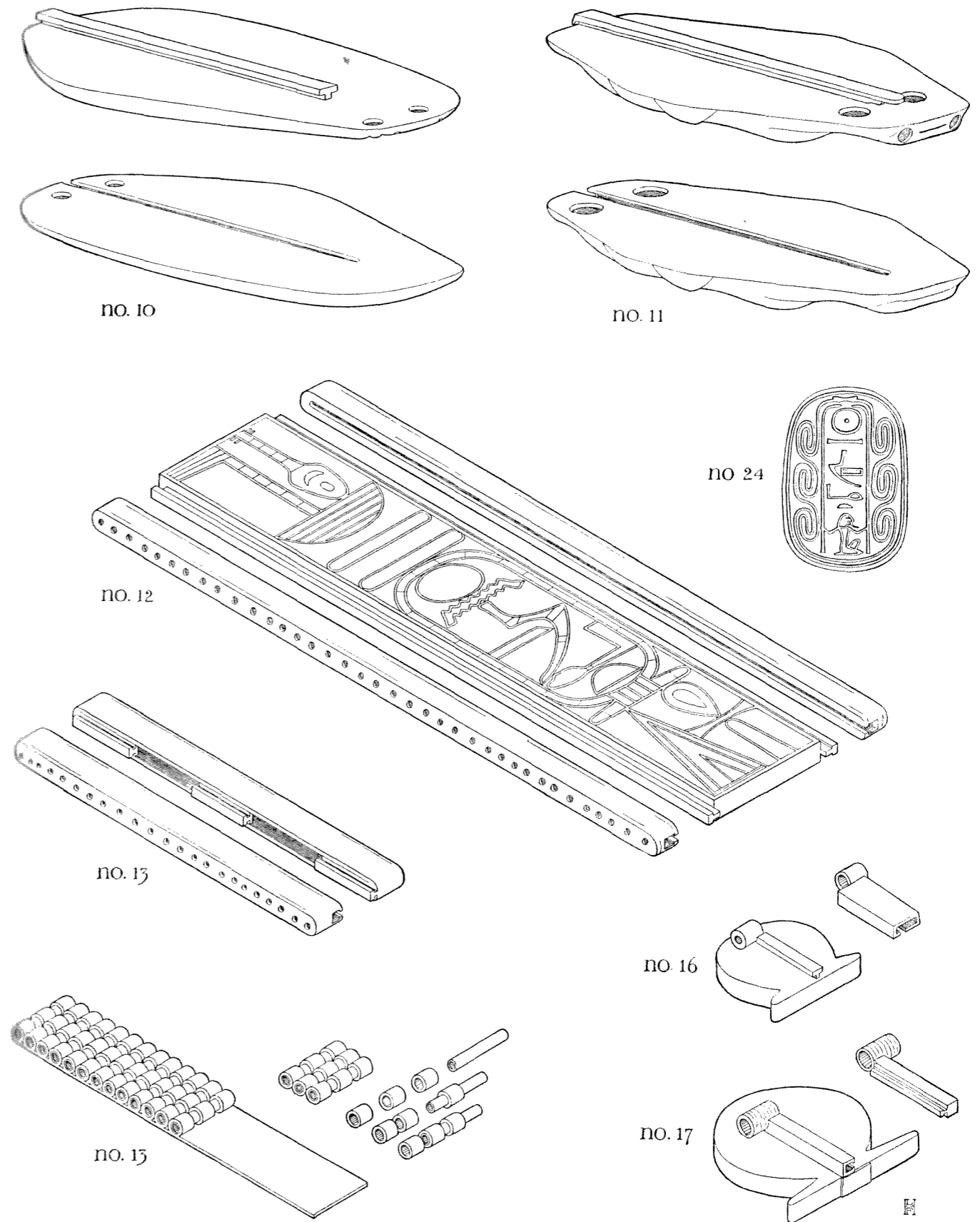


FIGURE 4  
DETAILS OF THE JEWELRY. SCALE 3:2

princess had to lengthen her girdle and added to a conventional set of 8 shells 2 others, acquired at a later period, which did not match her original set. She also had 12 little shells, each of which was only 16 mm. long.<sup>11</sup> Even if the thread holes of all these shells are so placed as to make it possible to assemble them in one girdle, the numbers of each sort make symmetrical combination difficult, and therefore it seems probable that Mereret once had a girdle of large cowries like that of Sit Ḥat-Ḥor Yūnet and another of small shells.

Girdles of such small cowries are known from a number of private graves of the Middle Kingdom,<sup>12</sup> and many museums possess isolated shells from them.<sup>13</sup> An interesting element from a cowrie girdle in the Metropolitan Museum consists of two gold cowrie beads soldered together, side by side.<sup>14</sup> The beads are heavy and of excellent workmanship; each is 15 mm. long, and each has a single thread hole, the distance between the holes being 8 mm. This element may come either from a girdle in which all the shells were small and in pairs, or from a girdle with large cowries between which were pairs of smaller shells, just as Sit Ḥat-Ḥor Yūnet's second girdle (no. 11) has pairs of small leopard heads between the large ones.

Girdles with cowries are commonly represented on the little "dolls" of wood or faience so often found in Middle Kingdom tombs. An excellent example is a wooden doll in the Boston Museum of Fine Arts with large gilded cowries modeled in relief around the hips.<sup>15</sup> The faience dolls commonly have girdles merely drawn in black, but the shells are none the less unmistakable.<sup>16</sup> The custom of wearing the cowrie, or *Cypraea*, shell goes back to prehistoric times,<sup>17</sup> and has survived even to this day among Nubian girls. Other kinds of shells besides cowries were considered appropriate to girdles, and in the Seventeenth and Eighteenth Dynasties small conventionalized bivalve shells were com-

<sup>11</sup> De Morgan, I, p. 65, no. 11, pl. xxiv; Vernier, 53165.

<sup>12</sup> A girdle of at least 12 silver cowries, probably strung with amethyst and carnelian ball beads: Winlock, *Bull.*, 1914, p. 17, fig. 8. (When the photograph was taken I did not realize that these shells came from a girdle.) A girdle of at least 10 small gold cowries, perhaps strung on small garnet ball beads: Garstang, *Arabab*, p. 4 and frontispiece. A girdle of at least 9 small silver cowries: Williams, *J.E.A.*, p. 173. Silver cowries from two girdles: Engelbach, pp. 15, 16, pls. xv, xxii.

<sup>13</sup> For example, in the Metropolitan Museum: 2 from Lisht (09.180.1200 and 24.1.28); 4 of unknown provenance (30.8.382-385). All six contain pellets which rattle.

<sup>14</sup> M.M.A. 11.150.52 B; provenance unknown.

<sup>15</sup> Winlock, *A.E.*, p. 81, fig. 6.

<sup>16</sup> From Lisht: Winlock, *A.E.*, p. 77, fig. 4; from Thebes: Winlock, *Bull.*, 1923, p. 22, fig. 15.

<sup>17</sup> Petrie, *Amulets*, p. 27.

monly so worn.<sup>18</sup> Beads shaped like the seed of the acacia, even without the shells, were also commonly used for girdles. Senebtisi wore at her waist a girdle of six rows of minute acacia beads of gold and semiprecious stones, and similar beads of a larger size were found on the body of Princess Ḥenmet at Dahshūr, and at Harageh and Thebes in Middle Kingdom and early Eighteenth Dynasty tombs.<sup>19</sup>

(11) *Leopard-Head Girdle (Plate IX)*<sup>20</sup>

In the jewel compartment of the first casket 7 large double leopard heads of gold were found, and with them 7 small quadruple heads. As in the case of the cowries and the double acacia beads, the distance between the thread holes and the numbers of the two sorts of leopard heads suggested an association to Petrie and Brunton at the time of their discovery, and later I proposed that these leopard heads should be strung with a sufficient number of amethyst beads to make a girdle comparable to the cowrie girdle.<sup>21</sup> Although I was not aware of it when I first proposed this arrangement, together with the leopard heads in the first casket were actually found the majority of the amethyst ball beads.<sup>22</sup> Some of them must belong with the claw necklace (no. 9).<sup>23</sup> As for the number of beads in the girdle, we are limited to multiples of 28, since there are 14 intervals in the double string of beads required. The large pairs of leopard heads being 45 mm. long and the smaller 16 mm. and the beads varying from 6 to 9 mm. in diameter, the only multiple of 28 such beads which will give a circumference to this girdle comparable to that of the cowrie girdle is 140. Since such a combination will make a girdle about 82 cm. long, that number has been adopted.

All the leopard heads were made in two halves and soldered together in exactly the same fashion as the cowries, and one of the large units was a sliding clasp of the same

Reconstruction of the leopard-head girdle (no. 11)

The leopard heads

<sup>18</sup> Petrie, *Qurneh*, p. 9, pl. xxix; Schäfer, *Goldschmiedearbeiten*, no. 33; Vernier, 52733; Winlock, *Meryet-Amūn*, p. 15, pl. xvii A. Princess Nefru-Rēc wears a girdle with such shells in the sanctuary at Deir el Bahri (Rosellini, pls. xix, 23, cxci, 3).

<sup>19</sup> Mace and Winlock, p. 68, pl. xxiii; De Morgan, II, pls. vii, viii; Engelbach, pl. LIII, 74, 75; Lansing, *Bull.*, 1917, p. 18, fig. 12.

<sup>20</sup> M.M.A., 16.1.6; Petrie, *A.E.*, 1914, p. 98; Lythgoe, *Bull.*, 1919, pp. 12, 22, fig. 5; Brunton, pp. 25, 31-32, pl. 11; Winlock, *A.E.*, p. 84, fig. 8.

<sup>21</sup> Petrie accepted this arrangement (in Winlock, *A.E.*, p. 87, and Petrie, *History*, p. 183) and afterwards Vernier (53075), but Lythgoe and Mace hesitated to do so and hence it is only recently that the girdle has been strung as I had suggested.

<sup>22</sup> Brunton, pp. 26, 33.

<sup>23</sup> See above, pp. 34-35.

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sort as that of the other girdle (fig. 4).<sup>24</sup> The remaining 6 large leopard heads were, again, rattles, each containing three or four pellets, approximately spherical in shape and 3 or 4 mm. in diameter. In this case the pellets were small fragments of hard stone—apparently diorite—which when shaken gave off a sharp tinkling note against the gold.<sup>25</sup> In one of the large leopard heads—but in no other—there were traces of corroded copper. In all probability this had nothing to do with the pellets, which were doubtless all of stone, but may very likely have been part of an ancient needle broken off some time when the girdle was being strung.

A similar leopard-head girdle

Queen Mereret had a similar girdle except that hers had 8 large double leopard heads, each 52 mm. long, and no small ones.<sup>26</sup> Again one of the leopard-head units was the clasp and the other 7 contained pellets. In this girdle about one half of the length must have been made up of two strings of amethyst beads, the number of beads necessarily being divisible by 16. The exact number could only be determined by experiment, but 160 seems a likely requirement to produce a girdle of normal size, the rest going to Mereret's claw necklace.<sup>27</sup>

Significance of the leopard heads

Heretofore these heads have been called those of lions, but I do not believe that the Egyptian in representing the lion would have omitted the lion's most prominent feature—his mane. They cannot be the heads of the domestic cat, whose ears are always shown erect. As a matter of fact they are identical, line for line, with the leopard heads on priestly leopard-skin robes, and I have no doubt of their identification as such.

Undoubtedly there was some significance in such a use of the leopard's head. Alone, without the skin, it would not have been a normal primitive ornament and probably, therefore, it had some amuletic meaning, but so far as I am aware its meaning escapes modern explanation.<sup>28</sup> It might be suggested that the two leopard heads are the hieroglyphic signs *ꜥꜥ* (*phty*, "strength"), but in that case we might well expect that the girdle heads would be in profile as the hieroglyphic heads invariably are. On the other hand, in jewelry and the toilet the leopard's head must have had a meaning more ap-

<sup>24</sup> See the technical notes in Brunton, p. 31.

<sup>25</sup> When discovered the pellets were embedded in the fine silt with which the leopard heads had been filled through the thread holes. Simple soaking in water washed out the silt and released the pellets. Their nature could be seen through the thread holes with a microscope.

<sup>26</sup> De Morgan, I, p. 66, no. 8, pl. xxix; Vernier, 53075.

<sup>27</sup> See above, p. 36, note 26.

<sup>28</sup> Brunton, p. 32, quotes examples of the "lion-head, or rather lion-face," as an amulet in the XVIII Dyn. and later.

## THE TREASURE OF EL LĀHŪN

propriate to the possessions of women, in the Twelfth and Eighteenth Dynasties at least.<sup>29</sup> Especially are they prominent on the ends of ivory wands which probably were once women's castanets but which by the Middle Kingdom had become protective amulets of some sort, apparently for the women and children of the household.<sup>30</sup>

### THE BRACELETS AND ANKLETS

The problem of the restoration of the whole class of jewels worn on the arms and ankles is complicated by the fact that most, if not all, had been largely made up of minute beads the threads of which had so completely perished that Brunton could not keep those of the different objects segregated and only noted two cases where even a few still preserved their original order. One of these cases was a wristlet bar with turquoise beads adhering to it uninterruptedly along one side (no. 12) and the second was one of the small lions with strings of beads extending from its hind quarters in the order 7 turquoise, 3 gold, 5 carnelian, 3 gold (no. 15).

The problem of reconstruction

Except as regards the lion armlets (nos. 14, 15) we have felt constrained to make radical changes in the provisional stringing done by the discoverers, since their arrangements of the wristlets (no. 12) and anklets (no. 13) involve a number of unsatisfactory conditions. Requiring 16 gold, composite 15-bead squares, and only having 14, they improvised 2 from small gold beads. They did not use consistently the 20 gold 5-bead bars which they had found. They left open spaces through which the wearer's skin would show, an arrangement which is without valid precedent. Finally they made the wristlets 14.5 cm. in circumference and the anklets only 15.5 cm., whereas there unquestionably should be a greater difference between them.

Our model<sup>1</sup> had wrists 12.5 cm. and ankles 17 cm. in circumference. Measurements made on other individuals, reduced in the proportion that their statures exceeded a woman of Senebtisi's size, and measurements made on other ancient bracelets and anklets

Dimensions of the bracelets and anklets

<sup>29</sup> Bracelet clasps of Uenmet: De Morgan, II, p. 60, no. 12, pl. v; Vernier, 52044-5. Mirror handles of Mereret in place of Hat-Ilor heads: De Morgan, I, nos. 21-22, fig. 139; Vernier, 53104, 53101. Ends of a XVII Dyn. necklace from Thebes: M.M.A. 26.7.1364; Burlington Club, p. 28, no. 29. On the ends of a woman's gold fillet of the XVIII Dyn.: M.M.A. 26.8.09; Winlock, *Bull.*, 1933, p. 159.

<sup>30</sup> Wands: Daressy, 9435, 9438; Petrie, *Objects of Daily Use*, pl. xxvi; Shorter, pl. 1; examples in the Metropolitan Museum, 08.200.19, 30.8.218. Legge, pp. 130 ff., 297 ff., calls them protection against serpents. Murray, pp. 33 ff., calls them horoscopes. So also Petrie and Shorter above. One in the Metropolitan Museum is inscribed "Protection by night" and "Protection by day," and others bear similar invocations, often in favor of children. Such wands have been found with women's belongings (Winlock, *Bull.*, 1932, p. 96).

<sup>1</sup> See above, p. 6, note 8.

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in the Metropolitan Museum confirm these sizes closely. Our reconstruction started, therefore, with an attempt to approximate such dimensions and it proceeded with the assumption that the existing beads are practically all that there were originally. It is true a few turquoise beads are broken, but the number of them is negligible, and we are confident that few if any, broken or unbroken, were missed by the discoverers.

Existing beads

The existing beads are of turquoise, carnelian, and gold, the last cut from slender, drawn tubes. All beads average nearly 2 mm. in diameter and very slightly less than 1 mm. in thickness—the turquoise beads with an average thickness of 0.9 mm. being the thinnest. Thirty-six gold beads were each 2 mm. long. Strung on single threads the total existing lengths are: turquoise, 3943 mm.; carnelian, 2553 mm.; gold, 2464 mm. Approximately 4524 mm. of such beads would be required, together with the existing clasps, bars, and multiple units, to attain an appropriate length for the wristlets (no. 12), and about 3820 mm. for the anklets (no. 13), leaving about 616 mm., which is enough for the lion armlets (nos. 14, 15), but not enough for the mottoes (nos. 16-20) as well.

The proportions of the different colors which may be chosen for the various articles are of necessity arbitrary. Our solution, given below, is naturally not the only possible one, but it is at least plausible and it appears to us to be preferable to any of the many other arrangements which we have tried and abandoned.

### (12) Wristlets (Plates X A, XI A)<sup>2</sup>

Wristlets (no.12)

The pair of wristlets, clasped as when worn, were placed in the jewel compartment of the first casket at its far end with the anklets.

Their bars

Essentially each wristlet was a band of 37 rows of minute beads held together with 6 gold bars, 81 mm. long, and clasped with a slide of practically equal length. Except that the bars were composed of 37 rows of 2 beads each, they were identical with those of the anklets (no. 13). The clasps were of a specialized form.

Their clasps

Such broad and short bands as were the wristlets were not flexible enough for so simple a sliding clasp as the anklets, which could be manipulated so that one clasp bar could slide the whole length of the other. Each wristlet clasp (fig. 4) consists of two narrow grooved members between which slides a member with a tongue on each side. To prevent mixing, the tongues and grooves are numbered on the edges with little

<sup>2</sup> M.M.A. 16.1.8, 9; Petrie, *A.E.*, 1914, pp. 98-99; Lythgoe, *Bull.*, 1919, p. 12, fig. 11; Brunton, pp. 26, 33, 34, 44, pls. iv, xiii, 8.

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notches 0, 1, 2, and 3. Each grooved member is built up, boxlike, with a gold base, sides rounded at both ends and joined at one, and two top strips. The base is drilled for the 37 threads and the top strips, not quite joining, make the open, longitudinal groove for the tongues on the slide. The latter has a sheet-gold back and edges with the T-sectioned tongues soldered along the whole length of the sides. When the bracelet was put on, it was wrapped straight around the wrist with the two grooved members opposite each other, and the slide was then slipped in between them, without any of the twisting and manipulating such as was necessary with the anklets.

The face of the slides is inlaid in gold cloisons with the throne name of Amen-em-hēt III, the two inscriptions opposed one to the other. The background is of carnelian, and the hieroglyphs are inset with a dark blue paste and a green paste, now bleached white, the two imitating lapis lazuli and turquoise.

Our suggested arrangement of the wristlets is based on the following considerations. First, Brunton discovered attached to one side of a wristlet bar turquoise beads running along its entire length, in close contact to it and sometimes two or more deep.<sup>3</sup> Secondly, as we have seen, wristlets should approximate 12.5 cm. in circumference. Thirdly, any reasonable solution should consider the clasps as functional parts of the design. Since the preponderant color in the clasps is the red carnelian background, we have adopted a design of 6 alternating red and green panels of approximately equal width, regarding each clasp as a red panel, and thereby have attained the desired circumference of 12.5 cm. with the threading just slack enough to make the wristlet flexible. In each of the 10 bead panels of the pair of wristlets we have used 425 mm. of stone beads. There are 20 units, each consisting of 5 gold beads soldered in a row, and these we have used at the tops and bottoms of the 10 bead panels, where they serve to prevent the outer rows of beads from spreading. These units we have joined with thin stripes of gold beads, using 274 mm. of them. The number of units—20—fits nowhere else in the jewelry as appropriately as here, but some uncertainty must be confessed as to this arrangement since there are two cases of a pair of beads soldered together<sup>4</sup> and one of three beads so joined, which may be the remains of other units now broken apart. However, it seems impossible to suppose that there could ever have been a sufficient number of them to have been consistently used in the anklets.

Reconstruction of  
the wristlets




<sup>3</sup> *Ibid.*, pp. 26, 33, 34.

<sup>4</sup> These beads measure 1.5 mm. in thickness and have nothing to do with the pairs of beads in the lion armlets.

Such an arrangement meets the three fixed conditions stated above and presents an extremely pleasing and entirely typical appearance.

Similar wristlets

King Amen-em-ḥēt III presented to Queen Mereret a pair of wristlets very much like those which he gave to Sit Ḥat-Ḥor Yūnet.<sup>5</sup> They were somewhat smaller, being only from 63 to 64 mm. wide, but required 36 rows of beads, and the inscriptions were not opposed on the two clasps as they were on those of Sit Ḥat-Ḥor Yūnet. However, they were inlaid entirely in hard stones — carnelian for the background and green feldspar for the hieroglyphs — which is fortunate for us, as they suggest green as the color of the faded white paste of the Lāhūn clasps. Curiously enough no bars are mentioned in the De Morgan publication, a peculiarity which is also true of Sit Ḥat-Ḥor's and Ita's wristlets.

Sit Ḥat-Ḥor<sup>6</sup> and Ita<sup>7</sup> had wristlets with clasps almost exactly alike. Each was 40 mm. long and the central slide of each was a large  hieroglyph inlaid with semiprecious stones. Again no bars are mentioned with either, but minute multicolored beads are mentioned for both — in 16 rows in the case of Ita's and 36 rows in the case of Sit Ḥat-Ḥor's. One of Ḥenmet's pairs of wristlet clasps was like Ita's in size and number of thread holes, but the decorative hieroglyph was  instead of .

Although both Ita<sup>9</sup> and Ḥenmet<sup>10</sup> had bracelets above their elbows, and both had anklets, it is interesting to note that the bracelets with decorative clasps were found on their wrists. We may feel confident, therefore, that the bracelets with elaborate inscrip-tional clasps were worn, as one might expect, as wristlets.

Examples of similar wristlets might be multiplied endlessly from the representations on the monuments and from discoveries in the tombs. To judge from the Middle Kingdom funerary examples<sup>11</sup> it would seem probable that in the Old Kingdom bead wristlets were made up of elongated cylindrical beads, but the Twelfth Dynasty wristlet of minute beads, as found at el Lāhūn and Dahshūr, retained its vogue into the Eight-

<sup>5</sup> De Morgan, I, p. 66, nos. 15-16, pl. xx; Vernier, 52026-7.

<sup>6</sup> De Morgan, I, p. 60, no. 2, pls. xv-xvi; Vernier, 52041-2.

<sup>7</sup> De Morgan, II, p. 53, no. 9, pl. v; Vernier, 52024-5.

<sup>8</sup> De Morgan, II, p. 60, no. 12, pl. v; Vernier, 52044-5.

<sup>9</sup> De Morgan, II, p. 53, fig. 105. On the forearms were solid gold bracelets (*ibid.*, nos. 6-7). On the upper arms there were silver and bead bracelets (*ibid.*, no. 10; Vernier, 52063).

<sup>10</sup> De Morgan, II, p. 55. On the upper arms were nos. 13-16 (Vernier, 52043).

<sup>11</sup> Mace and Winlock, pp. 72 ff., pl. xxvi; Mace, *Bull.*, 1922, p. 8, fig. 5.

eenth Dynasty<sup>12</sup> and later. The clasp of the Lāhūn and Dahshūr wristlets, however, underwent a very practical simplification. The broad, flat slide became a simple pin passing alternately through catches in each end member of the wristlet — a mode of fastening which required far less perfect adjustment of the sliding parts and was consequently much easier to manipulate with one hand.

(13) Anklets (Plates X B, XI B)<sup>13</sup>

The anklets were found with the wristlets in the compartment at the far end of the first casket. It is to be presumed that, like the wristlets, they were clasped when they were put into the box.

Anklets (no. 13)

Each anklet was a band of 23 rows of minute beads held together with 8 gold bars and provided with a clasp. There were found with the anklets and wristlets 14 multiple gold units, each consisting of 3 rows of 5 beads each. The fact that they are built up in three rows, and that the anklet bars are also, and the fact that they are the right number to alternate with the anklet bars have led us to employ them in the anklets. Bars, multiple units, and clasps, strung with the 3820 mm. of beads which we reserved for them, will make a pair of anklets 16.5 cm. long, if threaded just loosely enough to be flexible. Originally the threads may have been slacker.

Elements of the anklets

The function of the bars is to prevent the spreading of the rows of beads of which the anklets were composed. In appearance they are designed to simulate beads from the outside, but for strength and to protect the wearer from their rigid, corrugated surfaces they are backed with smooth plates of gold (fig. 4). The plates are 44 mm. long, 7.5 mm. wide, and about 0.25 mm. thick. Such a size is sufficient for 23 rows of drawn-gold tubular beads, 3 beads to a row. Each row of three beads is strung on a very thin gold tube, which is visible in the spaces between them, and the beads and tubes of the whole series are soldered together and to the plates. The multiple gold units of 5 rows of 3 beads each are made in the same fashion except that their smaller size made the plate unnecessary.

Their bars

As has been noted above, the narrower and longer bands which constituted the anklets were more flexible than the wristlets. In putting on the anklets, the wearer could

Their clasps

<sup>12</sup> Among numerous examples there may be noted: Queen Aḥ-hotpe (Vernier, 52070-1); Princess Aḥ-mosē Tu-meri-si (Winlock, *Bull.*, 1926, p. 8, fig. 4); Queen Meryet-Amūn (Winlock, *Meryet-Amūn*, p. 69, pl. xvii).

<sup>13</sup> M.M.A. 16.1.10, 11; Petrie, *A.E.*, 1914, p. 99; Lythgoe, *Bull.*, 1919, p. 12, fig. 11; Brunton, pp. 26, 33, 35, pls. iv, xiii, 6, 7.



twist them so that the lower edge of one end was brought up to the upper edge of the other end to engage the clasp, which consisted simply of one tongued member and an opposing grooved member (fig. 4). The latter is constructed like the grooved members of the wristlets. The tongued member has a similar base and side plates, and between the latter are soldered three short sections of T-shaped tongue with open spaces between to leave the thread holes in the base accessible.

Reconstruction of  
the anklets

Brunton's observations give no hint on which to start the reconstruction of the anklets, and we have to fall back on a series of assumptions. First, the circumference should be as nearly 17 cm. as possible. Secondly, the 7 gold squares available for each anklet must obviously go into the intervals between the 8 bars, and the end bars should, therefore, be in contact with the clasp units as is the case with the wristlets. Thirdly, accepting the arrangements of the wristlets and of the lion armlets as we propose them, we have left for the anklets 1930 mm. of gold beads, 1215 mm. of turquoise, and 675 mm. of carnelian. The figures are susceptible of only such slight change as would depend on variations of the stringing of the lion armlets.

Given these conditions, experiment will show that any attempt to string the anklets with continuous bands of color from top to bottom results in an unsatisfactory design. The number of bars and of gold squares necessitates the division of the stone beads into 14 stripes—the red stripes very little more than 2 mm. wide and the green less than 4 mm., under which circumstances the color becomes so attenuated as to be ineffective. Therefore we have adopted another design. Any reasonable number of stone beads assigned to the anklets will be close to the ratio of 9 green to 5 red, and the sum, 14, immediately suggests the 7 intervals between the bars, each divided into two by the gold squares, and to fill out the panels made by the squares we have the proper number of beads. These indications suggested the restoration which we have adopted. The design is unsatisfactory in that it brings two large green areas together when the bracelet is clasped, but so long as the wristlets are strung as we have proposed, this remains the most satisfactory solution yet discovered by us for the anklets.

Date of the  
anklets

Petrie and Brunton<sup>14</sup> have called attention to a difference between the wristlet and anklet clasps in handiwork, and this indicated to them a difference in date. The thread holes in the wristlet clasps were drilled from inside the grooved members, somewhat irregularly. Those of the anklets were drilled from the outside and with greater skill,

<sup>14</sup> Brunton, pp. 34-45.

they thought. This suggests the work of two different artisans, and the fact that the general design of the two pairs of jewels obviously varied widely confirms the supposition. Perhaps we cannot demonstrate from such evidence that the wristlets and anklets are of very different dates, but we can say that they were not acquired at one time, or at least as one set.

In the foregoing remarks I have called these objects anklets in spite of the fact that they have sometimes been regarded as armlets.<sup>15</sup> It is true that broad bead bracelets were occasionally worn above the wristlets or above the elbows,<sup>16</sup> but in the Middle Kingdom, at least, I believe that such overloading was the fashion in death rather than in life.<sup>17</sup> Therefore I suggest that when extra pairs of bracelets have been found, they were often actually anklets, which, as we know from the monuments, were frequently worn by Egyptian women, generally narrower than their wristlets.

Mode of wearing

Such anklets in position on Middle Kingdom mummies are perfectly well known,<sup>18</sup> but particularly important for our purposes are the cases of Ita<sup>19</sup> and H̄enmet.<sup>20</sup> Their anklets were to all intents and purposes identical with those of Sit H̄at-H̄or Yūnet. They had plain clasps and 8 bars simulating 3 columns of beads each and were 45 mm. high. H̄enmet's beads, however, may have been oval. The jewelry sets of Sit H̄at-H̄or<sup>21</sup> and of Mereret,<sup>22</sup> which were not found on their bodies, also had in addition to the wristlets pairs of "bracelets" with a plain clasp and 8 bars each, the bars being made to simulate 3 columns of gold beads apiece. These extra pairs, I believe, were all anklets.

Similar anklets

<sup>15</sup> See above, note 13.

<sup>16</sup> It is perhaps sufficient to recall Ita, H̄enmet, Aḥ-mosē Tu-meri-si, and Meryet-Amūn (the last two mentioned above, note 12).

<sup>17</sup> A clear case of such overloading in death is the Princess Amūnet of the XI Dyn., who could never have moved her head if she had worn as many necklaces as were placed around her neck when she was buried (Maspero, *Guide*, no. 3105, p. 308). Tut-ankh-Amūn is another (Carter, pp. 106 ff.).

<sup>18</sup> For example, at Dahshūr (De Morgan, I, pp. 99, 113, pl. xxviii) and at Lisht (Mace and Winlock, pp. 21, 72, pl. xxvi; Mace, *Bull.*, 1922, p. 8, fig. 5).

<sup>19</sup> De Morgan, II, p. 53, no. 8; shown in position in fig. 105. Only one clasp is mentioned, but there are 16 bars.

<sup>20</sup> The record is not immediately obvious. De Morgan, II, p. 55, mentions six bead bracelets on the arms and "*à la saignée du bras*" a bead bracelet and one of solid gold. Legrain (*ibid.*, p. 60) lists the gold bracelet as no. 13 and ten bead bracelets, nos. 12, 14-16. I suggest that the three extra bead bracelets in Legrain's list consisted of one on the other upper arm, balancing the one mentioned by De Morgan, and two on the ankles. De Morgan might have forgotten to mention the other upper arm, but he could not have been three bracelets out in his count on the arms. The anklets were probably two of the six under no. 15.

<sup>21</sup> De Morgan, I, p. 61, nos. 8-9, pl. xvii; Vernier, 52019-19 bis.

<sup>22</sup> De Morgan, I, p. 66, no. 18; Vernier, 52020-1.

Mereret's were, like the others noted, narrower than her wristlets. An interesting point about Sit Ḥat-Ḥor's anklets is that they seem to have been strung with carnelian beads only. The stone beads of Mereret's are not mentioned.

(14) *Couchant-Lion Bracelets (Plate XII A)*<sup>23</sup>

Four couchant lions of gold, with single thread holes, were found with the jewelry in the compartment at the far end of the first casket. No data on their stringing were discovered in situ, but it should be recalled that in their vicinity were found the majority of the minute gold, turquoise, and carnelian beads.

One pair of lions are soldered onto bases 20 mm. long and 7.5 mm. wide; the other onto bases 17 mm. long and 7 mm. wide. All four bases are square in front and rounded behind, as is usual with those of sphinxes. The thread holes pass longitudinally through the lions, just above the bases. The tails, all curling over the right flanks, were made separately and soldered in place. The bodies, with legs and heads in one, are hollow and of metal so thin that there are holes through to the surface in places. As Petrie suggested, the lions themselves may have been cast from *cire perdue* since they are all from different originals and have variations not entirely due to the finishing done with a graver.

In spite of their minor differences, the four lions are obviously to be regarded as pairs. The two larger are excellently modeled and clearly the work of one man. The smaller pair is slightly cruder.

(15) *Couchant-Lion Bracelets (Plate XII A)*<sup>24</sup>

Of the lions with double thread holes two had been placed in the first and two in the fourth casket. A few of the minute beads with the latter remained in position and showed that behind one of the lions the two threads were strung with 7 turquoise, 3 gold, 5 carnelian, and 3 gold beads—presumably repeating. The number of minute beads in this casket was small, and therefore the lions must have been strung on short threads. With them were found some of the gold square-knot clasps.

These four lions are very similar to those just described (no. 14). They are, however, less skillfully modeled, and they are smaller, the bases of one pair measuring

<sup>23</sup> M.M.A. 16.1.14, 15; Petrie, *A.E.*, 1914, p. 99; Lythgoe, *Bull.*, 1919, p. 12, fig. 14; Brunton, pp. 25, 26, 32, pl. 11.

<sup>24</sup> M.M.A. 16.1.12, 13; Petrie and Lythgoe as in the last note; Brunton, pp. 24, 25, 32, pl. 111.

only 16 by 6 mm. and of the other 14 by 5.5 mm. Furthermore, the bases, although scarcely more than 1 mm. thick, are not simple plates but are built up of upper and lower sheets joined by side strips of gold to form hollow boxes. It is through these bases, and not through the lions themselves, that the threads pass. As in the case of the lions with single thread holes the larger pair are of the better workmanship.

Brunton's data establish the facts that the lions came in pairs; that they were strung on minute gold, turquoise, and carnelian beads; that the strings were not long, because only a few such beads were discovered with the lions in the fourth casket; and that, in all probability, square-knot clasps (no. 21) were used with them. On the basis of these data he strung them in two pairs of bracelets—each with two lions facing each other—and we still show them essentially as he arranged them.

The alterations which we have made are a consequence of the redistribution of the minute beads for the wristlets and anklets (nos. 12, 13). After arranging the latter as we have done, we had 260 mm. of gold beads (including the 36 which are 2 mm. long), 178 mm. of turquoise, and 178 mm. of carnelian. In stringing these beads we have followed in all cases the order, 7 green, 3 gold, 5 red, 3 gold, which Brunton found in the one instance. With the eight lions and four clasps the material available will make four bracelets, each 14.5 cm. in circumference. In each of the double-strand bracelets we have introduced four pairs of gold beads soldered together, which with the lions and the clasps prevent the strands from spreading. Seven such pairs of beads were found, and an eighth, which had obviously broken apart, we resoldered.<sup>25</sup>

The armlets of Ka-mosē, Aḥ-ḥotpe, and Sebk-em-sa'f mentioned below are evidence that lions, sphinxes, or even cats were considered appropriate motives for bracelets. Single or double strands of delicate beads are also known as jewels for the arms. ḤAshyet of the Eleventh Dynasty wore on each arm, just above the elbow, an armlet of two strands of minute silver beads,<sup>26</sup> and Ḳen-Amūn's lute girl of the Eighteenth Dynasty wore single strands of beads on her forearms above her wide wristlets.<sup>27</sup> A length of 14.5 cm. would be too short to go around even Sit Ḥat-Ḥor Yūnet's upper arm, and, unless the lion bracelets were longer, we must assume that she wore them on her forearms.

Mereret had four such lions,<sup>28</sup> the required number for a pair of armlets. Sit Ḥat-

<sup>25</sup> Brunton used four in the lion bracelets and the other three in the anklets.

<sup>26</sup> Like her anklets, Vernier, 52759-60. See Winlock, *Bull.*, 1921, p. 50.

<sup>27</sup> Davies, *Ḳen-Amūn*, II, pl. x A.

<sup>28</sup> De Morgan, I, p. 66, no. 19, pl. xxiv; Vernier, 53096-9.

Lions with single  
thread holes  
(no. 14)

Lions with double  
thread holes  
(no. 15)

Reconstruction of  
the bracelets

Manner of wearing

Similar bracelets

Ḥor, like Sit Ḥat-Ḥor Yūnet, had, I believe, eight,<sup>29</sup> or two pairs of armlets. Single lions in silver are known from Middle Kingdom tombs,<sup>30</sup> and many museums possess them in hard stone. By the Seventeenth Dynasty the fashion had changed somewhat. King Ka-mose wore on his right upper arm a pair of lions strung on a very stout cord, flanking his own cartouche, balanced on his left arm by his dagger, worn Nubian fashion.<sup>31</sup> Queen Aḥ-hotpe's single armlet had the cord made of gold, and the lions flanking the cartouche were now sphinxes, and she, too, probably wore the ornament above her elbow.<sup>32</sup> Related, in a way, is the bracelet of a Seventeenth Dynasty queen, Sebk-em-sa'f, with its rows of recumbent cats facing toward each other from opposite bars.<sup>33</sup>

(16-20) *Five Motto Clasps for Armlets (Plate XIII A-B)*<sup>34</sup>

The mottoes

In the jewelry compartment of the first casket were found two small clasps (nos. 16, 17) in the form of the hieroglyph  $\circ$  (*shen*), meaning "Eternity"; and one (no. 18) composed of the signs  $\text{𓆎}$ , meaning "Joy." In the fourth casket a clasp (no. 19) was found in the form  $\text{𓆎}$ , "All protection and life," and another (no. 20)  $\text{𓆎}$ , "The heart of the Two Gods is satisfied."

The clasps

All five clasps are small. The largest (no. 18) is only 20 mm. high, and the shortest (no. 16) no more than 12 mm. On the back each has a pair of tubes for the two ends of a string. One of these tubes is securely soldered to the back of the motto; the other is attached to a movable slide, which can be slipped on and off. On the smaller *shen* (no. 16) the slide is a box with a groove in one side which slips over a T-shaped tongue on the motto until it is brought to a full stop by the fixed tube (fig. 4). In the other cases the movable tube is attached to a bar with a T-shaped tongue on the side, slipping into a groove in a fixed bar on the motto (fig. 4). The tubes are narrowed at their outer openings to hold knots in the ends of strings.

The metal is in all cases gold, with cloisonné decorations on the front in carnelian,

<sup>29</sup> De Morgan, I, p. 61, no. 12, fig. 130, pl. xvii; Vernier, 53137. These are six lions 18 mm. long, but another pair of identical size, which I believe came from this tomb, is in the Metropolitan Museum (26.7.1313, 1314; Winlock, *Annales*, C).

<sup>30</sup> Ayrton, pl. xii; Garstang, *Burial Customs*, p. 113, fig. 104.

<sup>31</sup> Winlock, *J.E.A.*, p. 261, pl. xvii.

<sup>32</sup> *Ibid.*, p. 254, pl. xvii.

<sup>33</sup> Burlington Club, p. 18, pl. L.

<sup>34</sup> M.M.A. 16.1.16-20; Petrie, *A.E.*, 1914, p. 99; Lythgoe, *Bull.*, 1919, p. 12, fig. 13; Brunton, pp. 25-26, 34, 37, pls. 11, 111, XIII, 10, 11.

in dark blue paste to represent lapis lazuli, and in green paste, now faded white, to represent turquoise.

None of these clasps were found associated with any beads at the time of their discovery. Petrie at first suggested that they were the clasps for the lion bracelets, but their number is not right either in the jewelry of Sit Ḥat-Ḥor Yūnet or in that of Sit Ḥat-Ḥor and Mereret. Ḥenmet had mottoes but no lions. Brunton suggested that they might have belonged on necklaces, but Sit Ḥat-Ḥor Yūnet, at least, lacked necklaces on which they might have been worn. Furthermore, it is clear that they were for show, and if they had been worn on necklaces they would have been hidden under the hair at the back of the neck. In the end Petrie and Brunton strung them on single strands of small gold beads as bracelets.

Our reconstruction of the wristlets, anklets, and lion bracelets leaves no beads at all for the mottoes, and, assuming that the arrangements of those jewels are correct, we are forced to the conclusion either that these mottoes were loose and unstrung when put in the tomb—as some of the square-knot clasps demonstrably were—or that they were the sole decoration of armlets of plain cord, which had totally perished. The latter solution of the problem is the one which we favor, and we have strung them on cords 20 cm. long, which would have gone around the arm above the elbow.

Such motto clasps were very fashionable in the mid-Twelfth Dynasty, and we find Mereret with a set of six containing all Sit Ḥat-Ḥor Yūnet's mottoes, and Ḥenmet with a set of seven, differing only very slightly.<sup>35</sup> Sit Ḥat-Ḥor had only one motto, "The heart of the Two Gods is satisfied," but she had an equally elaborate clasp of which the design was composed of lotus flowers draped over a Ḥat-Ḥor head, and of which the mechanism was similar to the motto clasps.<sup>36</sup>

One of Ḥenmet's three  $\circ$  clasps is draped with knotted papyrus plants, and Mereret's  $\circ$  has a row of rings below it for dangling strings of beads.<sup>37</sup> Both Mereret and Ḥenmet had the  $\text{𓆎}$  motto, the former in three examples.<sup>38</sup> Mereret had the  $\text{𓆎}$  clasp, and Ḥenmet a pair of variants reading  $\text{𓆎}$ , "All protection and life is around (thee)."<sup>39</sup>

<sup>35</sup> She had no "The heart of the Two Gods is satisfied" motto, but she had a  $\text{𓆎}$  (De Morgan, II, p. 63, no. 29, pl. v; Vernier, 52955) and a pair of variants of "All protection and life."

<sup>36</sup> De Morgan, I, p. 60, no. 3, pls. xv, xvi; Vernier, 53142.

<sup>37</sup> De Morgan, II, p. 63, nos. 31-33, pl. v; Vernier, 53077, 52922, 52957. De Morgan, I, p. 68, no. 29, pl. xx; Vernier, 53076.


<sup>38</sup> De Morgan, I, p. 68, no. 30, pl. xix; Vernier, 53079-81. De Morgan, II, p. 63, no. 30, pl. v; Vernier, 52956.

<sup>39</sup> De Morgan, I, p. 68, no. 32, pl. xx; Vernier, 53083. De Morgan, II, p. 63, nos. 34-35, pl. v; Vernier, 52914, 52958.

Stringing of the clasps

Similar motto clasps

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Finally, both Mereret and Sit Ḥat-Ḥor had the  clasp,<sup>40</sup> and still a third such clasp seems to have come from some one of the Dahshūr treasures — perhaps Ḥenmet's.<sup>41</sup>

(21) *Square-Knot Clasps (Plate XIII C)*<sup>42</sup>

Square-knot clasps  
(no. 21)

Seven complete clasps, simulating square knots, and four halves of incomplete clasps were found, some in the first and some in the fourth casket. All are alike, stamped out of thin gold, soldered together, and, so far as mechanism goes, similar to the much larger girdle clasps (nos. 10, 11). Their sizes vary as follows:

Their sizes

15 by 10 mm. Four complete clasps: one now with the claw necklace (no. 9); one now with a lion bracelet (no. 14); two others not strung.

13 by 9 mm. One complete clasp, now with a lion bracelet (no. 14); one grooved half of a clasp.

12 by 7.5 mm. One tongued half of a clasp.

10 by 7 mm. One complete clasp, now with a lion bracelet (no. 15); one tongued half of a clasp.

9 by 6 mm. One complete clasp, now with a lion bracelet (no. 15); one tongued half of a clasp.

Clasps not strung

There is good reason for putting such clasps into the claw necklace and the lion bracelets, but there are no objects to which we can assign the two remaining complete clasps, and obviously the four odd halves cannot have been joined to anything when they were put in the tomb. Clearly Sit Ḥat-Ḥor Yūnet's jewel caskets had long been in use, and in a perfectly natural way odd bits of broken jewelry had found their way into them. The point has its bearing on the mottoes (nos. 16-20) and perhaps on some of the Dahshūr jewels.

Similar square-knot clasps

In addition to an elaborate clasp with flowers drooping from the square knot, Sit Ḥat-Ḥor had fifteen simple clasps like those from el Lāhūn.<sup>43</sup> Mereret had twelve of them,<sup>44</sup> and Ḥenmet two.<sup>45</sup> Senebtisi had a very similar clasp, except that it had tubes

<sup>40</sup> De Morgan, I, p. 60, no. 4, pls. xv, xvi, and p. 68, no. 31, pl. xix; Vernier, 53150, 53082.

<sup>41</sup> Winlock, *Annales*, N.

<sup>42</sup> Those not strung with other jewels are M.M.A. 16.1.52-57; Brunton, p. 34 (omitting two halves of clasps, 10 mm. and 9 mm. long).

<sup>43</sup> De Morgan, I, p. 61, nos. 13-15, pls. xv, xvi; Vernier, 53141. De Morgan's publications call for 29 simple square-knot clasps, but I have only identified 16½ in Vernier, 52917-8, 53149, 53166.

<sup>44</sup> De Morgan, I, p. 66, no. 14.

<sup>45</sup> De Morgan, II, p. 65, no. 53.

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projecting from the knot, as a fastening either for one of her necklaces or for a bead armlet.<sup>46</sup> In Leyden there are two such clasps of unknown date and provenance.<sup>47</sup>

Uses can readily be suggested for such clasps when they appear in limited numbers, but when a single person has a dozen or more, explanations do not present themselves so readily. It is true that in the early Eighteenth Dynasty square knots of gold or semi-precious stones were introduced as elements of double-strand necklaces, but they were not clasps.<sup>48</sup> De Morgan's suggestion that those from Dahshūr were strung in series seems to me improbable when it is considered that each and every one of them could open independently. Solid units would have been simpler and more practical. In conjunction with their numbers, their comparative cheapness should be considered, hammered out as they were from dies. Numbers beyond all need for jewels and cheapness of workmanship suggest as a possibility that sometimes they were sewed on garments as catches, perhaps on the shoulder straps of light dresses. Perhaps the woman who had a supply of a dozen or more in her caskets used some on clothing and others on jewelry.

Use of such clasps

THE FINGER RINGS

(22, 23) *Pair of Inlaid Scarabs (Plate XII B-C)*<sup>1</sup>

The pair of inlaid scarabs was found near the outer end of the first casket as if they had been either in a possible top compartment of the box or in the end of the drawer near the bolt.<sup>2</sup>

Pair of inlaid scarabs  
(nos. 22, 23)

The two scarabs undoubtedly should be considered as a pair in spite of minor differences. Their bases are plain, smooth gold plates; their backs are gold cloisons inlaid with stone. No. 22 has a simple head of lapis lazuli; no. 23, one of pale green felspar carved with some elaboration. Each has the thorax of carnelian, differing slightly in shape, and the elytra striped with lapis lazuli and turquoise — no. 22 with stripes slightly wider than those of no. 23. The sides of both scarabs are also cloisonné work,

<sup>46</sup> Mace and Winlock, p. 62, figs. 31, 32, pls. xxii, xxiii, xxviii. If this clasp did not belong to one of the necklaces, it may have been on the bead armlet (*ibid.*, pp. 21, 74, pl. xxvi A).

<sup>47</sup> Leemans, p. 70, G. 120-121.

<sup>48</sup> Schäfer, *Goldschmiedearbeiten*, no. 35.

<sup>1</sup> No. 22: Cairo, *Livre d'entrée* 44921; Vernier, 52689. Reproduction shown in the Metropolitan Museum (31.10.10). No. 23: M.M.A. 16.1.24; Lythgoe, *Bull.*, 1919, p. 14, fig. 19. Both scarabs: Petrie, *A.E.*, 1914, p. 99; Brunton, pp. 26, 35-36, pls. ii, xi.

<sup>2</sup> See above, p. 14 and note 9, p. 16.

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inlaid with carnelian and with dark blue and green (now white) paste. No. 22 is 16 mm. long and 11 mm. wide; no. 23, 17 mm. long and 10 mm. wide. Each is strung on a slender gold wire, no more than 0.5 mm. thick, the ends of which are wrapped around on each other to form a ring.

(24, 25) *Two Lapis Lazuli Scarabs (Plate XII D-E)*<sup>3</sup>

Two lapis lazuli scarabs (nos. 24, 25)

The lapis lazuli scarabs were found lying inside the circlet of the crown, on the wig in the fourth casket.

Strictly speaking they do not make a pair, although in length they are both 17 mm., in material they are both of lapis lazuli, and both are of a typical Middle Kingdom form. No. 25, however, is plain on the base and while of excellent workmanship is in no wise extraordinary, and the stone, although of good quality, is fissured. No. 24, on the other hand, is inscribed on the base with the throne name of Amen-em-ḥēt III supported by the hieroglyph for "millions of years" and framed on either side by a threefold scroll (fig. 4). The carving is marvelous. The beetle stands partly clear of the base, cut through from side to side between the legs, and to facilitate stringing instead of the usual simple perforation a gold tube has been introduced from end to end. Another rare feature is that the free-standing, fan-shaped front of the head was carved out of a separate piece of stone provided with a tenon to fit into the head.<sup>4</sup> The material is a lapis lazuli of extraordinary clearness and evenness of color, with no visible trace of included minerals.

Similar scarabs

Compared with Mereret's set of twenty scarabs,<sup>5</sup> the Lāhūn set of four is modest. Sit Ḥat-Ḥor had at least five and perhaps nine.<sup>6</sup> Among the scarabs of both Sit Ḥat-Ḥor and Mereret were a pair of presentation scarabs with the names of the kings who gave them—Sit Ḥat-Ḥor's with the name of Se'n-Wosret III and Mereret's with the name of Amen-em-ḥēt III. In addition each had scarabs with their own names, scarabs either with queenly titles or with conventional designs, and others uninscribed. Mereret had, like Sit Ḥat-Ḥor Yūnet, a pair of inlaid scarabs.

<sup>3</sup> M.M.A. 16.1.22, 23; Petrie, *A.E.*, 1914, p. 99; Lythgoe, *Bull.*, 1919, p. 14, figs. 18, 20; Brunton, pp. 24, 36, pls. vii, x.

<sup>4</sup> This piece was found separated in the tomb and glued back in place at the time of discovery (*ibid.*, p. 36).

<sup>5</sup> De Morgan, I, pp. 69-70, nos. 35-54, figs. 146-153, pls. xix, xx; Vernier, 52240-1, 52243-60. De Morgan has two nos. 35 on his plates, one of which is Vernier's 52257. Various confusions by one author or the other make some identifications doubtful.

<sup>6</sup> De Morgan, I, p. 62, nos. 19-22, figs. 132-134, pl. xvi; Vernier, 52233-37. Four other scarabs which may come from this tomb, one inscribed with the name of Se'n-Wosret III, are in the Metropolitan Museum (Winlock, *Annales*, D-E).

THE TREASURE OF EL LĀHŪN

Like the two inlaid scarabs from el Lāhūn, eleven of Mereret's twenty scarabs were on gold-wire finger rings.<sup>7</sup> Such of the scarabs as had no such ring doubtless were worn on the finger with a linen cord. The practice was a common one in ancient Egypt<sup>8</sup> and need not be taken as out of keeping with the rank of a princess, since the slender gold wires themselves were hardly more than threads and were all but invisible. In fact, the scarab finger ring had just originated in the Twelfth Dynasty with the use of a wire instead of a thread, and it was only in the Eighteenth Dynasty that rings, properly so called, were developed from these simple wires. At el Lāhūn and Dahshūr the scarab rather than its setting was still the jewel, and that these scarabs were ornaments rather than seals is clear from the number of them which were uninscribed and from the very shallow engraving of those which bore inscriptions or devices.

Manner of wearing scarabs

THE SETS OF JEWELRY

The pectorals, the wristlets, and one of the scarabs name two donors of Sit Ḥat-Ḥor Yūnet's jewelry—Se'n-Wosret II and Amen-em-ḥēt III. Petrie and Brunton<sup>1</sup> have suggested a division of the whole of the treasure between the two reigns, basing their selections, where no king's name appears, on the presence of paste inlays in some of the jewels and the comparative poorness or fineness of workmanship in others. To Se'n-Wosret II they assign one pectoral (no. 7), the leopard-head girdle (no. 11), the anklets (no. 13), a pair of lion armllets (no. 14), and the pair of inlaid scarabs (nos. 22, 23); to Amen-em-ḥēt III the large casket (no. 1), the crown (no. 6), the other pectoral (no. 8), the cowrie girdle (no. 10), the wristlets (no. 12), a pair of lion armllets (no. 15), the motto armllets (nos. 16-20), and a lapis lazuli scarab (no. 24). Lythgoe approached the question from a somewhat different angle.<sup>2</sup> While Mereret received a pectoral from Se'n-Wosret III, another pectoral, her wristlets, and two scarabs were gifts from Amen-em-ḥēt III. This preponderance of the latter's name and the fact that Mereret was buried beside his pyramid suggested to Lythgoe that the greater part of Mereret's treasure dated from the reign of Amen-em-ḥēt III. So many of Mereret's and Sit Ḥat-Ḥor Yūnet's jewels being identical in design and workmanship, Lythgoe suggested that the greater part of the Lāhūn treasure was likewise of the same reign.

Previous attempts to date the jewelry

<sup>7</sup> De Morgan, I, pp. 69-70, nos. 35, 37-41, 43, 49, 52-54. None of the scarabs of Sit Ḥat-Ḥor in Cairo are on rings, but the four scarabs in the Metropolitan Museum (see last note) which may come from her tomb are all on rings.

<sup>8</sup> For a recently published example found by the Museum's Expedition: Winlock, *Bull.*, 1932, p. 22, fig. 14.

<sup>1</sup> Brunton, p. 42.

<sup>2</sup> Lythgoe, *Bull.*, 1919, pp. 22-24.

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Jewelry of  
Amen-em-ḥēt III

On the whole this last line of reasoning appears to me to be valid. We may assume that with age the rank of Sit Ḥat-Ḥor Yūnet in the royal family increased and that such jewels as the crown were more appropriate to her in the reign of Amen-em-ḥēt III than in that of Se'n-Wosret II. Like the pectoral and the wristlets of Amen-em-ḥēt III the crown has paste for its inlays, and so far we are in agreement with Petrie. The leopard-head girdle is otherwise only known from the similar example of Mereret's, in all probability of the reign of Amen-em-ḥēt III. Mereret's claw necklace is also almost identical with Sit Ḥat-Ḥor Yūnet's, and the combination of amethyst bead girdle and necklace suggests that they belonged together and were worn together. If Sit Ḥat-Ḥor Yūnet's leopard-head girdle and claw necklace were gifts from Amen-em-ḥēt III they may have been intended for wear with his pectoral necklace, which also contained amethyst beads. In fact the amethyst beads of all three jewels are of the same unusual rich dark color and all may well have come from the same source. The wristlets bear the name of Amen-em-ḥēt III and one of the lapis lazuli scarabs repeats it once again.

Thus we have reasons — for the most part convincing — for assigning to the reign of Amen-em-ḥēt III the crown (no. 6), a pectoral necklace (no. 8), the claw necklace (no. 9), the leopard-head girdle (no. 11), the wristlets (no. 12), and one, if not both, of the lapis lazuli scarabs (nos. 24, 25). They could all have been worn at one time and may, perhaps, be taken as a set.

Jewelry of  
Se'n-Wosret II

For Sit Ḥat-Ḥor Yūnet's youth, in the reign of Se'n-Wosret II, we have his pectoral and perhaps the cowrie girdle, but in the case of the latter we have no way of setting a date other than the facts that it is not needed in the assumed Amen-em-ḥēt set and that it makes a most harmonious color scheme with the Se'n-Wosret pectoral.

Undatable jewelry

There is no possible way of telling when Sit Ḥat-Ḥor Yūnet acquired the remaining small objects — her anklets, lion and motto armlets, and inlaid scarabs (nos. 13-23). We have no right to assume, merely because the earlier pectoral is better than the later, that there was a consistent degradation in goldsmith's work throughout the dynasty, and that we may date, as Petrie does, one pair of lion armlets earlier than the others because they are more skillfully made. Nor have we a right to assume that the use of paste for semiprecious stones was an innovation of the reign of Amen-em-ḥēt III, and that all jewels employing paste belong to that period. Sit Ḥat-Ḥor Yūnet lived through the thirty-eight years of the reign of Se'n-Wosret III, and in all probability she received gifts from him as well as from his predecessor and his successor. In this respect

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it must be remembered that many of her jewels are very similar to those which Se'n-Wosret III gave to Sit Ḥat-Ḥor.

Among the boxes, and the toilet articles described in the next chapter, only the first casket is definitely datable and that to the reign of Amen-em-ḥēt III. Again, there is a probability that he was the donor of the larger part of Sit Ḥat-Ḥor Yūnet's belongings, most of which appear to have been new at the time of her death. Razors and whetstones (nos. 27-29) wear out and are not long preserved in use. The obsidian jars (nos. 31-34) show very little sign of wear, and the alabaster jars (nos. 35-42) seem to be primarily funerary. In the case of the mirror alone (no. 26) this argument is not convincing. Such a magnificent object would have been treasured throughout a lifetime and may have been given to Sit Ḥat-Ḥor Yūnet by any one of the three kings under whom she lived.

Date of the  
toilet set

## CHAPTER IV

### THE TOILET ARTICLES

Toilet articles in the first casket

FOR her toilet Sit Ḥat-Ḥor Yūnet possessed a mirror (no. 26), a shaving set (nos. 27-29), a small dish, perhaps for rouge (no. 30), a set of cosmetic and eye-paint jars (nos. 31-34), and another set of jars, for ritual ointments and oils (nos. 35-42). The toilet implements, other than the jars, were all found neatly piled together in the near end compartment of the first jewel casket, and Brunton gathered the impression that they had been wrapped in linen when they were placed there.<sup>1</sup> One can still see traces of cloth on the surface of the mirror at least, and if the implements were not wrapped as Brunton suggests, perhaps the mirror and razors were in the sheaths which the coffin pictures show were customarily provided for their protection.<sup>2</sup>

#### THE MIRROR

##### (26) *The Mirror (Plates XIV, XV)*<sup>1</sup>

The mirror (no. 26)

The mirror lay across the box—that is, lengthwise of the compartment—on top of the razors.

It is a magnificent object, large and heavy—28 cm. in height and weighing 780 grams (about 1 lb. 11½ oz.). The reflector is a thick, elliptical silver disk, slightly wider than it is high, with a tongue embedded in the handle below. The latter consists essentially of a conventionalized papyrus plant with a head of the goddess Ḥat-Ḥor introduced between the stalk and the umbel. The last two elements are of polished black obsidian. The top of the umbel is covered with a plate of electrum, the edges of which are turned down and let into the stone around its upper border. On each side of the handle between the lower border of the umbel and the forehead of the Ḥat-Ḥor faces there is a cavity in which there must once have been the bosslike head of the rivet

<sup>1</sup> Brunton, p. 26. See above under (1) First Jewel Casket.

<sup>2</sup> Jéquier, p. 127, figs. 340-344, p. 135, figs. 365-370.

<sup>3</sup> Cairo, *Livre d'entrée* 44920; Brunton, p. 36, pl. x1; Lythgoe, *Bull.*, 1919, fig. 15; Vernier, 52663; reproduced, pl. xiv, from a replica in the Metropolitan Museum (31.10.9). Very detailed dimensions are given by Brunton and Vernier and need not be repeated here.

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passing through the tongue of the mirror.<sup>2</sup> The two Ḥat-Ḥor faces—identical on both sides of the mirror—and their four ears were cast separately in gold and soldered together. The eyebrows are of lapis lazuli, the lids of silver, the eyeballs of white stone, and the pupils tinted and covered with quartz-crystal. Serving as collar to the Ḥat-Ḥor heads and as binding to the papyrus stalks are four bands of gold cloisonné inlaid with carnelian, lapis lazuli, and a green paste now faded to white. The leaves at the base of the stalks, finishing the handle at the bottom, are of similar workmanship. Four bands of carved and chased gold are inlaid into the handle between the tops of the leaves and the collar. They have the effect of bands of plaited gold wire, but on a close inspection they prove to be solid strips engraved with minute stripes, alternatingly smooth and grained.

In Middle Kingdom tombs mirrors are among the commonest objects found, and mirrors customarily figure among the more or less magic equipment of the dead catalogued and illustrated in the coffin decorations.<sup>3</sup> Those so shown, as well as those which have been found, were often of copper; better, they were of paler bronze or even of gold; and, best of all, they were of silver—for, aside from the fact that silver was the most costly of all metals in the Middle Kingdom, its lighter color gave the clearest reflection. Naturally the members of the royal families had in their equipment the rare mirrors of silver. Sit Ḥat-Ḥor had such a silver mirror, with the handle mounted in gold.<sup>4</sup> Mereret had at least three mirrors, one with a Ḥat-Ḥor handle and two with leopard-headed handles, but as the handles themselves were of wood nothing is left except their fittings.<sup>5</sup> It is obvious, however, that they were very like the handle of the Lāhūn mirror.

The early history of the mirror is obscure.<sup>6</sup> Metal reflectors were probably unknown before the dynastic period, and our knowledge of those in the earliest dynasties is of

<sup>2</sup> Such rivet heads are frequently seen on mirrors, but they are often false, there being no actual rivet pin passing through many of the mirrors on which they appear.

<sup>3</sup> Jéquier, pp. 132 ff.

<sup>4</sup> De Morgan, I, p. 62, no. 24. I have not been able to trace this in either Bénédite or Vernier. De Morgan gives no description.

<sup>5</sup> The elements are described with considerable confusion in De Morgan, I, pp. 67, 68, 72, nos. 21-24, 26-28, 70. Cf. Bénédite, 44082-98; Vernier, 53100-1, 53104-10, 53155, 53161-2, 53178. At my request Brunton kindly examined the elements existing in the Cairo Museum in 1932 and found that he could make up three satisfactory mirrors. This leaves two papyrus ends over (Vernier, 53108, 53162), which suggested to Brunton that there may have been some mixing of De Morgan's finds.

<sup>6</sup> Bénédite, pp. i ff.; Petrie, *Objects of Daily Use*, pp. 28 ff.; Schäfer, *Ä. Z.*, pp. 3-4.

Similar mirrors

History of mirrors

the scantiest. The most primitive mirrors would seem to have had an oval shape most easily described as being like the silhouette of an inverted pear, with the major diameter the vertical one. In the course of the Old Kingdom they became first circular, then most frequently oval with the major diameter horizontal, consciously or unconsciously representing the conventional Egyptian sun's disk. No mirrors with handles have survived from the Old Kingdom, but the Middle Kingdom coffin pictures must represent the accepted type of the late Old Kingdom, and they invariably show the mirror handles in the conventional form of a papyrus plant with the widespread umbel at the top to serve as a guard for the user's hand.<sup>7</sup>

Most mirrors found in Middle Kingdom graves are of this type. The innovations which we see at Dahshūr and el Lāhūn are the introduction of the head of the goddess Ḥat-Ḥor, the patroness of women at their toilets and in their loves and their confinements, and of the head of the leopard, which we have seen there is reason to believe had some now obscure connection with women's adornment.<sup>8</sup> The first appearance of the Ḥat-Ḥor head is at Thebes on a mirror of Princess Amūnet's in the Eleventh Dynasty.<sup>9</sup> This first experiment with the features of Ḥat-Ḥor carved in the papyrus umbel was rather inept and soon gave way to the better-balanced scheme of the Lāhūn and Dahshūr mirrors with the head below the umbel—a design which was destined to remain popular for centuries.

## SHAVING SET

*(27) Gold-handled Razors (Plate XIV)<sup>1</sup>*

Sit Ḥat-Ḥor Yūnet possessed a pair of large gold-handled razors, which lay edge to edge across the end compartment of the first casket.<sup>2</sup> While their gold handles were intact when discovered, their blades were far too corroded for cleaning, and as the razors are now exhibited, the blades have been reconstructed of an alloy identical with the originals and to dimensions very closely approximating theirs.

Analysis<sup>3</sup> of the mineralized blades indicates that they had been fashioned out of a

<sup>7</sup> Jéquier, figs. 357-359, 365-370. I omit from consideration here the mirrors regarded as purely magical or religious objects and therefore mounted on the divine "perch."

<sup>8</sup> See above, pp. 42-43.

<sup>9</sup> Bénédite, 44035.

<sup>1</sup> M.M.A. 16.1.29, 30; Brunton, p. 37, pl. x; Lythgoe, *Bull.*, 1919, fig. 12.

<sup>2</sup> Brunton, p. 26, pl. xii.

<sup>3</sup> See below, Appendix, p. 74.

10 per cent copper-tin bronze. The handles were of gold of over 20 carat fineness, each made up of five thin, wrought pieces so skillfully soldered together that the seams can only be detected with difficulty. Into these handles fitted the narrow tangs of the blades, embedded in a cement of which the base was powdered limestone<sup>4</sup> and the binder was beeswax in one case and resinous pitch or balsam in the other, in both cases doubtless thinned with a volatile oil medium which has since disappeared.

A superficial examination of the corroded blades gave a very fair idea of their original shape, but the far more accurate profiles obtained by Arthur Kopp have been used in making the reconstructions. The densities of the mineral in its present condition and of the original metallic alloy being known, factors were calculated by which the present thicknesses could be reduced to the original. Wherever there was no obvious loss by scaling away from the surface, caliper measurements were taken on the mineralized blades, and these reduced by the factors gave sufficiently accurate sections for both blades (fig. 5).

The two reconstructed razors are each about 17 cm. long and weigh from 175 to 190 grams (about 6½ oz.). Hammered cold out of 10 per cent copper-tin bronze and then ground as the originals were, they can be kept reasonably sharp if frequently honed. Having a wide, curved cutting edge on one side these razors must have been used with a sweeping motion, to which their comparatively heavy weight would have added a great deal of efficiency. The small handles are only large enough for two or three fingers, and it is obvious that the user's thumb and forefinger grasped the blunt-edged lower part of the bronze blade while shaving.

*(28) Chisel Razors<sup>5</sup>*

A pair of narrow razors lay across those with gold handles.<sup>6</sup> Being of bronze, they again were hopelessly corroded, and the original shape would scarcely be evident now were it not for one of Mereret's razors which is obviously of the same type (fig. 5).

They are chisel-like, with a narrow cutting edge across one end. The handle and blade were hammered out of one piece of bronze, the whole implement having been at least 12 cm. long, as nearly as one can now judge. Each handle had a sloping side to

<sup>4</sup> There was iron present, which may indicate a coloring of the cement with yellow ocher, or may be merely an impurity. See below, Appendix, p. 74.

<sup>5</sup> M.M.A. 16.1.31, 32; Brunton, p. 37, pl. xi.

<sup>6</sup> *Ibid.*, p. 26, pl. xii.



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accommodate the thumb and ended in a small knob to fit in the palm of the hand. In this type of razor the narrow cutting edge was obviously designed to be pushed along the surface of the skin.

(29) Whetstones (Plate XIV)<sup>7</sup>

Whetstones  
(no. 29)

There is no record of where the two whetstones were found, but we need have little hesitation in assuming that they were with the razors in the first casket.

They are regularly formed sticks of very fine-grained, indurated white sandstone, 83 mm. and 78 mm. long and in section 15 by 10 and 12 by 7. There is no difference in their surfaces or textures.

Similar shaving  
sets

Mereret had a shaving set which consisted of a whetstone and two razors—one of each of the razor types found in Sit Hat-Hor Yünet's jewel casket.<sup>8</sup> It-en-hab, a woman buried at Harageh in the Twelfth Dynasty, likewise had a razor of each type.<sup>9</sup> If we are to credit the pictures in the coffins, razors came commonly in sets of from two to four, packed neatly in sheaths or wooden cases.<sup>10</sup>

History of razors

The razors from el Lähün are typical of the Middle Kingdom. The origin of the gold-handled razor is to be seen as early as the Third Dynasty, when it had a broad, spatula-shaped blade, with one edge sharpened, and a handle not unlike those on the Lähün examples.<sup>11</sup> By the Middle Kingdom the implement had been specialized and improved. The now projecting, convex cutting edge was not only handy in shaving, but it could be sharpened repeatedly before it was ground entirely out of shape. Such razors were used throughout the Middle Kingdom and only disappeared in the New Kingdom.<sup>12</sup> Just before the Eighteenth Dynasty a combination razor appeared<sup>13</sup>—a long narrow

<sup>7</sup> M.M.A. 16.1.27, 28; *ibid.*, p. 26, pl. xii.

<sup>8</sup> De Morgan, I, p. 71, nos. 66-67, figs. 156, 157, 159; Vernier, 53113-5.

<sup>9</sup> Engelbach, p. 16, pls. xv, xxiii.

<sup>10</sup> Jéquier, pp. 124 ff.; Reisner, *Kerma*, IV, pp. 180 ff.

<sup>11</sup> Quibell, pp. 33-34, figs. 14, 15; Reisner, *Bull.*, 1927, p. 26, and 1929, figs. 10-11 (Tomb of Hetep-her-es); Petrie, *Tools*, pl. LXI, 21, 22. A survival into the XII Dyn. is in Chassinat, pl. xxiii, 3.

<sup>12</sup> For the Middle Kingdom: Jéquier, p. 124, figs. 331, 332; Peet, pl. ix, 22; Reisner, *Kerma*, IV, p. 180, pl. 49; Petrie, *Diospolis*, pl. xxxii, 33, 34; Petrie, *Tools*, pl. LXI, 23, 24. For the early XVIII Dyn.: Garstang, *Arâbab*, pl. xvi; MacIver, p. 161, pl. 63, 10325 A; Reisner, *Arch. Survey*, pl. 65, c, 3—these last two from Nubia.

<sup>13</sup> The type is very common in museums and in publications. An example found with one of the earlier type in a tomb of the XIII to XVIII Dyn. is in Petrie, *Diospolis*, pl. xxxii, 31. Three examples from the Theban cemeteries of the XVII or the early XVIII Dyn. are in Petrie, *Qurneh*, pl. xxv; Carnarvon and Carter, p. 72, pl. LXVI (M.M.A. 26.7.837 B); and an unpublished example from the Birâbeh (M.M.A. 12.182.7).

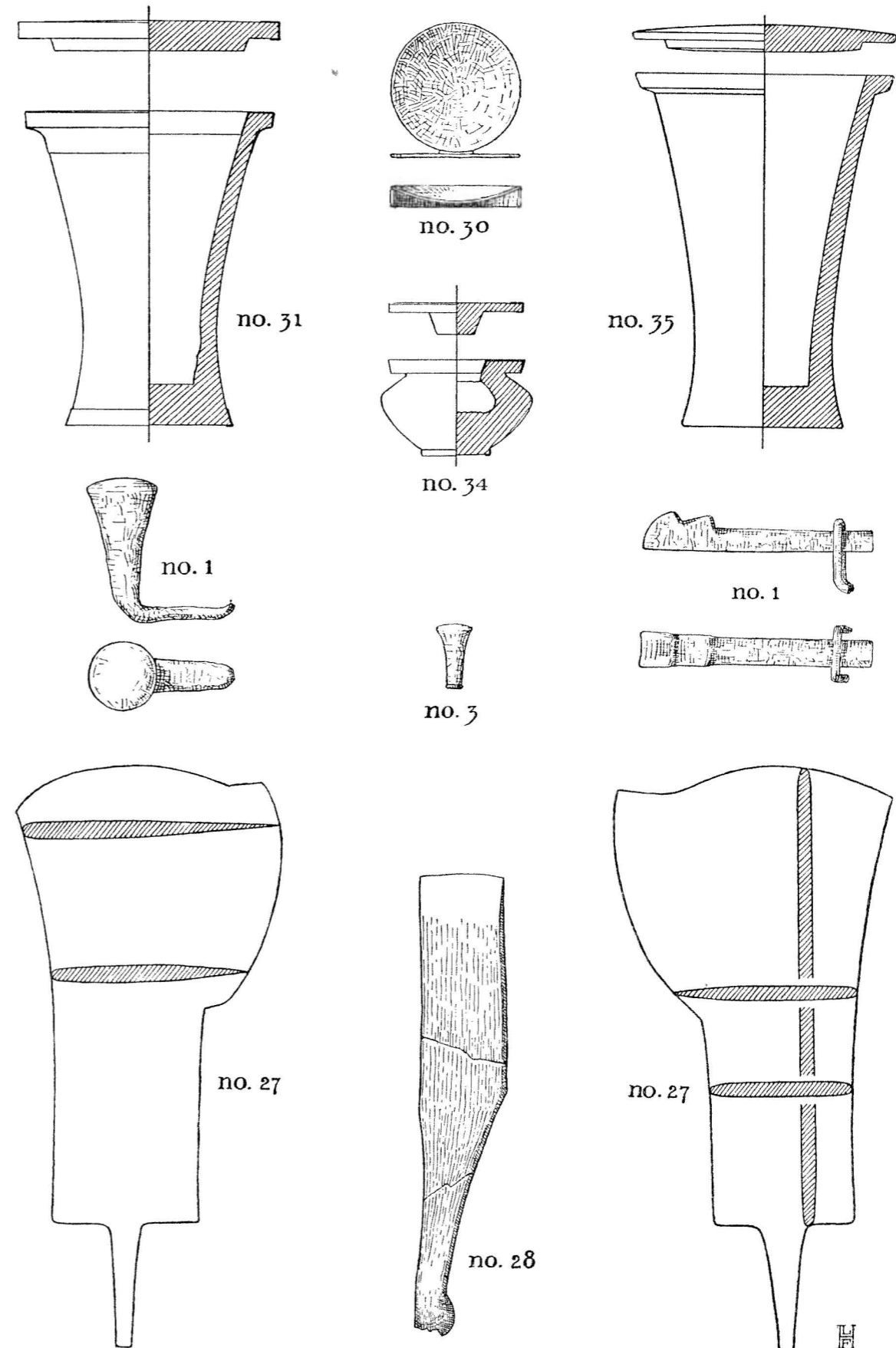


FIGURE 5  
MISCELLANEOUS OBJECTS (NO. 28 AFTER DE MORGAN, "DAHCHOUR, I,"  
P. 72, FIG. 159). SCALE 2:3

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instrument with a convex edge at one end and a chisel edge at the other—and this rapidly ousted the broader Middle Kingdom type from use. At the same time the Lāhūn type of chisel-edged razor underwent a remarkable transformation. In the Eighteenth Dynasty the blade became very broad, and the handle either became broad with it or was sharply hooked. As a further improvement a horn was provided projecting from one side for the fingers, as the blade was now too broad to be gripped conveniently, and such was the commonest razor from the Eighteenth Dynasty onward.<sup>14</sup>

The Middle Kingdom whetstones from Lisht are of the same rectangular type as those from el Lāhūn.<sup>15</sup> For the combination razors of the early Eighteenth Dynasty a triangular-shaped stone was usual.<sup>16</sup>

Types of  
whetstones

TOILET VASES

(30) *Small Silver Rouge Dish (Plate XVI A)*<sup>1</sup>

In the compartment with the rest of the toilet articles—lying, in fact, between the handles of the two large razors (no. 27)—was found a small, shallow silver saucer, 35 by 34 mm. wide, and only 5 mm. deep (fig. 5). The shape is that of the  $\circ$  (*sben*), which we have already found among the armllets, the circular, concave dish proper having soldered to its edge a thin silver frame which makes the outline of the hieroglyphic sign. The material is an impure silver containing perhaps as much as 15.2 per cent of copper.<sup>2</sup>

Such a minute saucer might serve a number of uses on a dressing table. Its possible use as a receptacle for a pinch of rouge occurs to one immediately, for the smooth concave surface of the dish would lend itself excellently to dipping rouge out with the finger tip.

Small silver saucers were part of the toilet equipment of both Mereret and Sit Ḥat-Ḥor. The first<sup>3</sup> had a very similar dish, in the shape of a cartouche  $\square$  (derived from the  $\circ$ ), of almost exactly the same width as the dish from el Lāhūn. Sit Ḥat-Ḥor's small silver dish differs somewhat in type but maintains comparable dimensions.<sup>4</sup>

<sup>14</sup> The whole transition can be seen in Petrie, *Tools*, pl. LXI, 65, 74-79, and Garstang, *Arabab*, pl. xvi.

<sup>15</sup> M.M.A. 15.3.858, 859.

<sup>16</sup> Such stones accompany the three razors from the Theban cemeteries mentioned above, note 13.

<sup>1</sup> M.M.A. 16.1.21; Brunton, pp. 26, 37, pl. XI; Lythgoe, *Bull.*, 1919, fig. 12. The nature of this object has heretofore been a puzzle, but the present solution that it is a saucer has been confirmed by cleaning.

<sup>2</sup> See below, Appendix, p. 74.

<sup>3</sup> De Morgan, I, p. 70, no. 57, fig. 154; Vernier, 53102.

<sup>4</sup> De Morgan, I, p. 62, no. 26, fig. 135; Vernier, 53135.

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(31-34) *Obsidian Cosmetic Jars (Plate XVI A)*<sup>5</sup>

We have seen that the four gold-mounted obsidian cosmetic jars had been placed in their own compartmented box (no. 3) on top of the first jewel casket. Three of them were beaker-shaped jars for unguents, and the fourth was a squat pot for black eye powder—kohl.

Obsidian cosmetic  
jars (nos. 31-34)

All four jars were fashioned with incomparable skill (fig. 5). The material is a flawless black obsidian ground to a soft, lustrous finish. The height of the three beakers with their lids is 86 mm., the diameter of the tops 67 mm., and of the bottoms 44 mm., and so carefully were these jars turned that in no case does any dimension vary more than 1 mm. from the mean. The kohl pot is 27.5 mm. high with its lid, 35 mm. in diameter across the top, and 40 mm. across the middle. In all four cases the edges of the lids and the lips and the bottom edges of the jars are incased in gold. The metal was cut from a stout sheet—not a gold leaf—and very painstakingly burnished on the stone until it fitted snugly and had sharp, crisp edges and an admirably smooth surface.

Although very little was left of the contents of the jars when they were examined in New York, there was enough to get a fair idea of what they had been used for originally. One of the beakers held an organic matter with which was combined 26.8 per cent of iron oxide. This had obviously been rouge, with a base probably of vegetable or tallow grease, containing some gum-resin perhaps, and red ocher as coloring matter. Another beaker contained a gum-resin similar to myrrh, mixed into which were small splinters of a wood which was, doubtless, originally aromatic. The third beaker contained a practically pure resin. These last two were, therefore, perfume jars. The fourth jar—the little squat kohl pot—was of a form which leaves no doubt that it contained powder for application to the edges of the eyelids and eyelashes, since its mouth was only wide enough to admit the little blunt-ended rod with which kohl was put on. Analysis of its contents shows that the material was a mixture of iron oxide (in this instance doubtless the black oxide) and earth.<sup>6</sup>

The cosmetics

The shapes of the cosmetic jars of Sit Ḥat-Ḥor Yūnet are so typical as scarcely to need comment. Jars of these forms are among the commonest finds in Middle Kingdom cemeteries, and endless examples might be cited,<sup>7</sup> but no single set of greater perfection

Similar cosmetic-  
jar sets

<sup>5</sup> M.M.A. 16.1.33-36; Brunton, pp. 26, 36, pl. IX; Lythgoe, *Bull.*, 1919, fig. 16.

<sup>6</sup> Lucas, p. 147, mentions a variety of kohl made of "clay colored with black oxide of iron."

<sup>7</sup> For instance, the contemporary and almost identical gold-mounted obsidian jar from Byblos on the Syrian coast (Virolleaud, p. 284, pl. LXVII).

than that of Sit Ḥat-Ḥor Yūnet has yet been discovered. Mereret had seven jars of costly materials—five beaker-shaped obsidian ointment jars like those of Sit Ḥat-Ḥor Yūnet (but only two of them mounted with gold) and two squat kohl pots similar to the one from el Lāhūn except that they were of unusual materials, lapis lazuli and carnelian.<sup>8</sup> In addition, Mereret had a second, cheaper series of alabaster jars, consisting of seven beakers, of ill-assorted sizes, and one kohl pot.<sup>9</sup> It can scarcely be said that any of Mereret's collection of jars constituted a "set." Sit Ḥat-Ḥor's toilet vessels were likewise of alabaster, but her six beakers and two kohl pots were of such uniform size that they obviously were made to be used together.<sup>10</sup>

(35-42) Alabaster Jars for Ritual Oils (Plate XVI B)<sup>11</sup>

The eight oil jars were found, as has been described above, in the second casket. The jars in the set are of the typical beaker shape, made of finely grained alabaster, very well matched. The heights average 95 mm., the diameters of the lids, 65 mm., and of the bottoms, 42 mm., and, while not quite so uniformly made as Sit Ḥat-Ḥor Yūnet's obsidian jars, no jar varies from the average by more than 5 mm. (fig. 5). They had been filled with their appropriate oils when they were placed in the tomb, and the way in which the box containing them had stood slightly tilted on the sloping lid of the first casket could be seen by the traces left of the solidified oils. In two cases this solidified residue had survived the subsequent floodings of the tomb as a pale pinkish deposit, which on analysis proved to have been a gum-resin.

In the Middle Kingdom it was usual to have a set of eight jars of alabaster of the shape of those from el Lāhūn.<sup>12</sup> A box with these eight oil jars was customarily buried with the members of the royal family at Dahshūr, but in no case was the box as rich as that of Sit Ḥat-Ḥor Yūnet. In every case it was of plain wood, sealed with a cord over two knobs at one end. Inside there was a tray with two rows of round holes, into

<sup>8</sup> De Morgan, I, pp. 70-71, nos. 58-62, pls. XIX, XXV; Bissing, *Cat. gén.* 18772-8.

<sup>9</sup> De Morgan, I, p. 71, nos. 63, 64; Bissing, *Cat. gén.* 18766-71, 18780. Were the beakers only of uniform size, I should suggest that they were a set of ritual oil jars.

<sup>10</sup> De Morgan, I, p. 63, nos. 27, 28, figs. 136, 137; Bissing, *Cat. gén.* 18782-9.

<sup>11</sup> M.M.A. 16.1.37-44; Brunton, pp. 25, 37, pl. IX; Lythgoe, *Bull.*, 1919, fig. 17.

<sup>12</sup> Nub-ḥetepty-ḥred: De Morgan, I, p. 110, figs. 260-262; Bissing, *Cat. gén.* 18722-9. Ita: De Morgan, II, p. 49, fig. 108; Bissing, *Cat. gén.* 18643-50. Ḥenmet: De Morgan, II, pp. 56, 68, fig. 110; Bissing, *Cat. gén.* 18652-9, 18661 (this ninth jar, although found in the box, does not belong to the set). Ita-weret: De Morgan, II, p. 74; Bissing, *Cat. gén.* 18641(?), 18662-8. Sit Ḥat-Ḥor Meryet: De Morgan, II, p. 76, fig. 126; Bissing, *Cat. gén.* 18669-76.

which fitted the alabaster jars as in a crate.<sup>13</sup> As we have seen, the box from el Lāhūn never could have had this arrangement inside, and therefore it would seem to have been a jewel casket impressed into this service.

On the eight jar lids were often written in black ink the names of the seven aromatic oils which were ordinarily listed among the perfumes and fumigants for the anointing of the dead before the funeral meal<sup>14</sup>: (1) Festival Scent; (2) *Ḥekenu* Anointing Oil; (3) Syrian Balsam; (4) *Nekhenem* Oil; (5) Anointing Oil; (6) Best Cedar Oil; (7) Best Libyan Oil. The eighth jar contained a material similar but apparently not ritualistic. Ita's eighth jar was labeled *bnr* (?)—"Sweet Oil"; Ḥenmet's, *ibr*—"Salve"; Sit Ḥat-Ḥor Meryet's, *ḥntyw*—"Myrrh"; and Ita-weret's, *tp.t ḥntyw*—"Oil of Myrrh." In Nub-ḥetepty-ḥred's set the eighth jar, since it did not contain one of the ritual oils, was a little squat ointment vase or kohl pot, without inscription.

Being, by the Twelfth Dynasty at least, of a purely ritual character, these oils, salves, and ointments probably played no part in the toilet of the living, and Sit Ḥat-Ḥor Yūnet's jars were in all probability part of her funeral furniture. Perhaps because another set of this kind may have been placed in her offering chamber<sup>15</sup> or perhaps because this set was in what was actually a jewel casket, these jars alone of all her funerary paraphernalia were placed with her mundane jewelry in the recess. It is a noticeable fact that in the two jewelry recesses at Dahshūr—those of Mereret and Sit Ḥat-Ḥor—no ritual oil jars were found.

<sup>13</sup> Nub-ḥetepty-ḥred: De Morgan, I, p. 109, figs. 258, 259; Bissing, *Cat. gén.* 18721. Ita: De Morgan, II, pp. 49, 55, fig. 105; Bissing, *Cat. gén.* 18642. Ḥenmet: De Morgan, II, pp. 56, 68; Bissing, *Cat. gén.* 18651. Ita-weret: De Morgan, II, p. 74. Sit Ḥat-Ḥor Meryet: De Morgan, II, p. 76. Part of one of the last two boxes is in Bissing, *Cat. gén.* 18660.

<sup>14</sup> If there ever were such labels on the jars from el Lāhūn, the flooding of the tomb would have obliterated all trace of the ancient ink.

<sup>15</sup> See above, p. 6.

Alabaster jars for ritual oils (nos. 35-42)

Similar sets of oil jars

Ritual oils

Their funerary character

APPENDIX

APPENDIX  
CHEMICAL ANALYSES  
BY ARTHUR H. KOPP

The following condensed results of analyses are given without attempt to indicate the special techniques required in many cases or to give all the technical information derived from chemical cleaning treatments and investigations:

(1) *Jewel Casket*

Bronze Knobs (M.M.A. 16.1.50 A-C). See above, p. 13.

Knob 16.1.50 A was sacrificed for analysis; it was completely mineralized and found to have the following composition:

<i>Element</i>	<i>Per cent</i>	<i>Distribution</i>
Copper	63.60	Present $\frac{1}{3}$ as cuprite, $\frac{2}{3}$ as atacamite
Tin	2.88	Probably originally present in the bronze as metals, although present in the mineral as mixed oxides or basic chlorides
Arsenic	1.01	
Lead	0.06	
Iron	0.31	Present as oxide
Calcium	1.45	Probably derived from earthy matter
Silicon	0.15	
Chlorine	11.46	Present as basic copper chloride, atacamite
Oxygen, water	Balance	

Bolt and Staple (M.M.A. 16.1.49). See above, pp. 14, 16.

The probable composition of the original metal is found to be:

Silver	64.5 per cent
Copper	35.5 per cent

This composition was arrived at by correlating the analysis of the silver bolt as cleaned, with analyses of the material removed in the cleaning process. By itself the analysis of the bolt as cleaned would have been entirely misleading, for corrosion had penetrated deeply, withdrawing most of the copper as mineral to the outer crust of corrosion products and leaving behind only 4.2 per cent copper, with 41.4 per cent silver present as metal and 36.4 per cent present as silver chloride.

(10) *Cowrie Girdle*

Pellets within Gold Cowrie Shells (M.M.A. 16.1.5). See above, p. 38.

The solutions used in dissolving away enough mineralized metal to free the pellets were analyzed:

Silver	0.4000 gm.	Present as silver chloride
Copper	0.4020 gm.	Present as cuprite, atacamite

## APPENDIX

This would indicate a composition of roughly half silver, half copper for the pellets. But for reasons discussed under the analysis of the (1) Bolt and Staple, it is quite likely that the original alloy contained considerably less copper than this.

### (27) Gold-handled Razors

Mineralized Blades (M.M.A. 16.1.29 B, 30 B). See above, pp. 62-63.

	16.1.29 B	16.1.30 B
Per cent tin in mineral	5.75	6.06
Per cent copper in mineral	52.7	48.0
Oxygen, calcium, silicon, aluminum, iron, combined water	Balance	Balance
Per cent tin in original alloy (calculated)	9.8	11.2

Cements in Handles (M.M.A. 16.1.29 A, 30 A). See above, p. 63.

In both cases the major ingredient was calcium carbonate, with some iron oxide and silica and small amounts of organic materials. The latter were of special interest; in 16.1.29 A it was beeswax, while in 16.1.30 A the binder was a balsam or pitch. Probably the cements were originally made plastic with a volatile solvent.

### (30) Small Silver Rouge Dish (M.M.A. 16.1.21). See above, p. 66.

The material removed in the cleaning process was analyzed, and it was found that silver and copper were present in the ratio:

Silver	84.8 per cent	Present as silver chloride
Copper	15.2 per cent	Present as copper minerals

Probably the silver content of the original alloy was much higher, for reasons discussed under (1) Bolt and Staple.

There were also present small amounts of silicon, iron, calcium, and aluminum oxides, taken up from surrounding earthy matter during the corrosion process.

### (31-34) Contents of Obsidian Cosmetic Jars (M.M.A. 16.1.33-36). See above, p. 67.

As these materials consisted partly of organic and partly of mineral matter, ash determinations were carried out, as tabulated here:

	16.1.33	.34	.35	.36
Per cent ash	1.4	10.6	8.2	42.1
Per cent iron in ash	99.0	26.8	7.2	high
Per cent calcium in ash	nil	34.4	30.1	high
Per cent silica in ash	trace	29.6	33.7	trace

Examination of the organic materials was made on separate samples. Because of the small size of the samples, regular chemical techniques were unsuited for this purpose, and even special methods yielded incomplete information. The problem is the more difficult because the origins of most of the substances were probably vaguely defined mixtures like resins, gum-resins, and fats, and also because there is no information available as to how much alteration can be expected with extreme aging of such organic matter.

## APPENDIX

Condensed conclusions based on the evidence are as follows:

Beaker (16.1.34). About half the sample was caked dust or silt, which was eliminated by hand picking. The other material was probably a pigmented paste cosmetic, as its relatively high ash contained 26.8 per cent iron oxide (rouge). What the organic material was is uncertain.

Beaker (16.1.35). One third was caked silt, which was sorted out. The remainder seems to have been a gum-resin, similar to myrrh. A few tiny splinters of ancient hardwood were included in this sample.

Beaker (16.1.33). This material was a resin, 91 per cent alcohol-soluble, having values coming nearest East Indian animé resin, a type of copal or fossil resin.

Kohl pot (16.1.36). This very small sample was largely mineral matter. The ash consisted chiefly of iron and calcium oxides. Originally the specimen may have been a pigmented paste, but this is conjectural.

### (35-42) Alabaster Jars for Ritual Oils (M.M.A. 16.1.37-44). See above, pp. 68-69.

Ash determinations were carried out as in the case of (31-34) Obsidian Cosmetic Jars:

	16.1.40	.41	.42	.44
Per cent ash	58.6	27.9	40.4	61.2
Per cent iron in ash	6.5	6.6	10.4	8.7
Per cent calcium in ash	83.3	75.9	76.9	67.5
Per cent silica in ash	low	10.2	11.7	low

16.1.40. Small sample, largely mineral matter. See ash figures.

16.1.41. Probably originally a gum-resin similar to olibanum (frankincense). Particles of calcite were present, probably derived from the alabaster vessel. The ash analysis also showed high calcium oxide.

16.1.42. High in ash (see table). The organic part was evidently a resin or gum-resin, while the mineral matter was chiefly derived from the alabaster vessel and from silt.

16.1.44. Small sample, very high in mineral matter derived from the containing vessel and from silt. From evidence at present available, it is not possible to state the nature of the organic matter.

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PLATES

PLATE I

- A. (2) Jewel casket used for oil jars. Scale about 1:4. See pp. 17 ff.  
B. (1) Jewel casket. Scale about 1:4. See pp. 12 ff.



A



B

## PLATE II

- (6) The crown. The reproduction of the circlet as mounted on a wig in the Metropolitan Museum. The gold tubes on the wig in front are originals. Scale 2:5. See pp. 24 ff.; pls. III, IV.



## PLATE III

- (6) The crown. The reproduction of the circlet as mounted on a wig in the Metropolitan Museum. View from behind. The gold tubes seen here are all reproductions. Scale 2:5. See pp. 24 ff.; pls. II, IV.



PLATE IV

(6) The crown. The original circlet in the Cairo Museum. Scale 1:2; detail, scale 1:1. See pp. 24 ff.; pls. II-III.



## PLATE V

(7) Pectoral necklace of Se'n-Wosret II. Scale  
3:4. See pp. 29 ff.; pl. VII A-B.



## PLATE VI

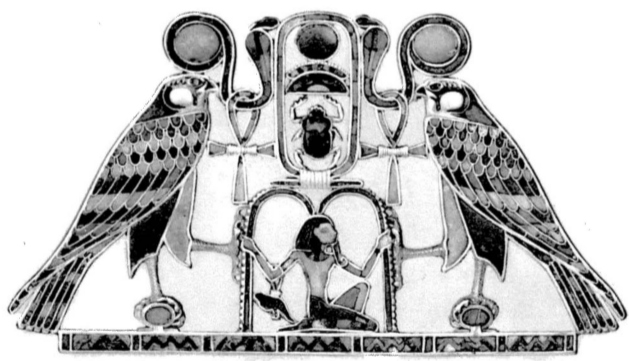
(8) Pectoral necklace of Amen-em-ḥēt III. The necklace is the original; the pectoral is a reproduction. Scale 3:4. See pp. 31 ff.; pl. vii c-d.



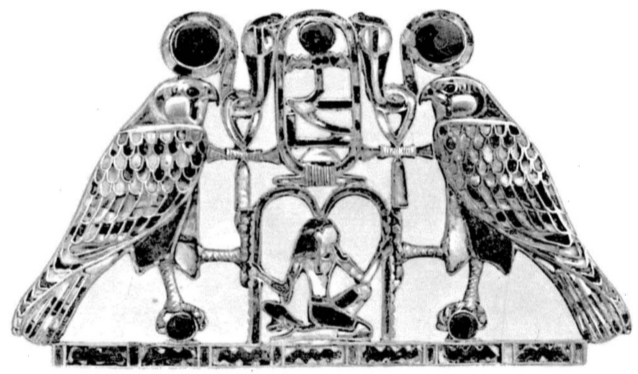
PLATE VII

A-B. (7) Pectoral of Se'n-Wosret II in the Metropolitan Museum, front and back. Scale 1 : 1. See pp. 29 ff.; pl. v.

C-D. (8) Pectoral of Amen-em-ḥēt III in the Cairo Museum, front and back. Scale 1 : 1. See pp. 31 ff.; pl. vi.



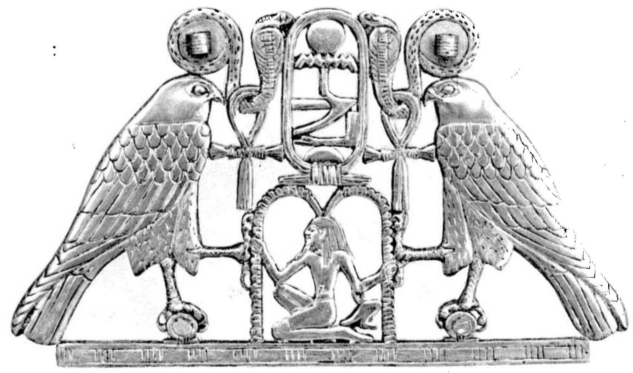
A



C



B



D



PLATE VIII

(10) Cowrie girdle. Scale 2:3. See pp. 37 ff.



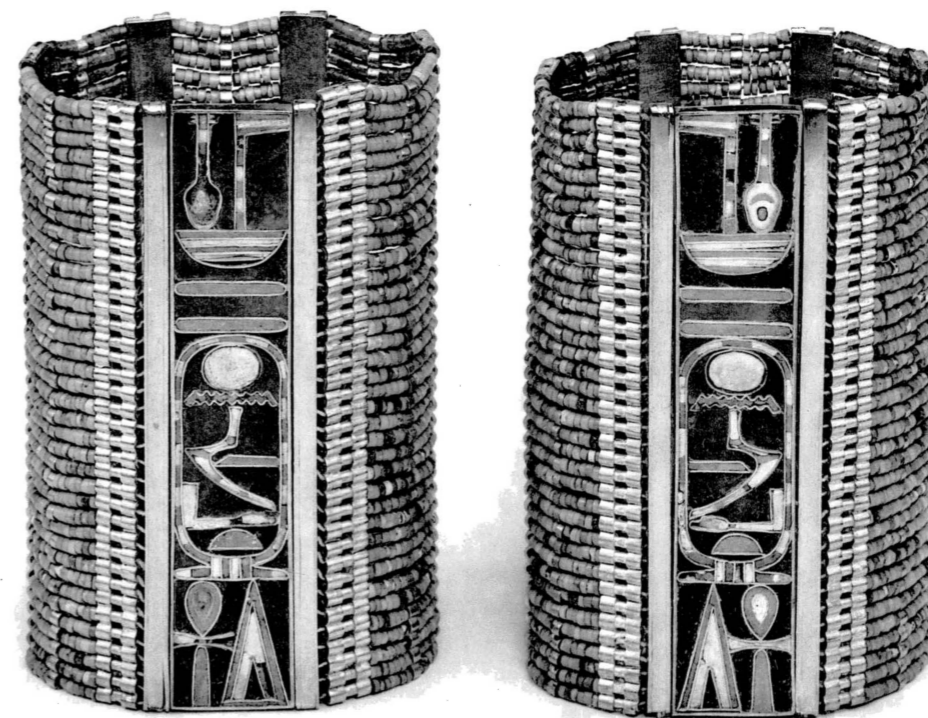
## PLATE IX

(9) Claw necklace and (11) leopard-head gir-  
dle. Scale 2:3. See pp. 34 ff., 41 ff.

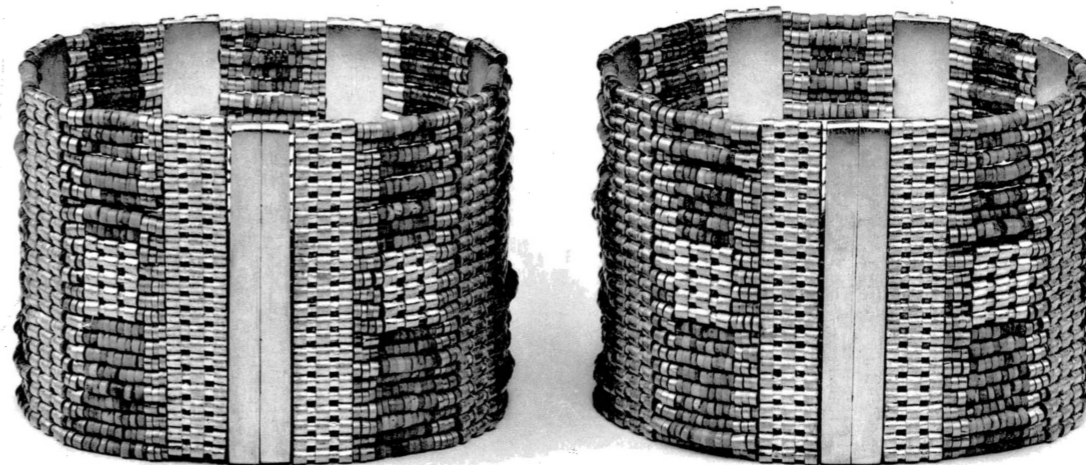


## PLATE X

- A. (12) Wristlets, clasped. Scale 1:1. See pp.  
44 ff.; pl. XI A.  
B. (13) Anklets, clasped. Scale 1:1. See pp.  
47 ff.; pl. XI B.



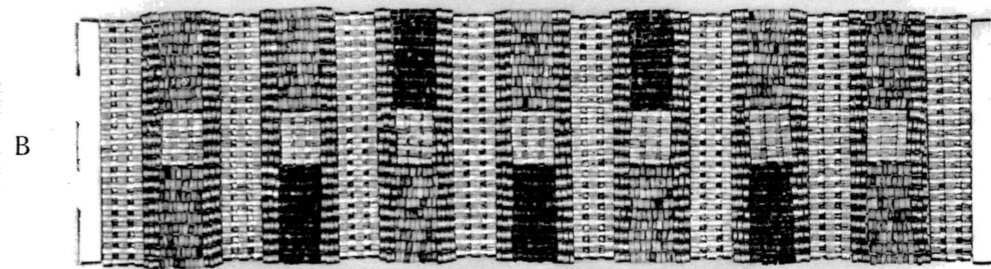
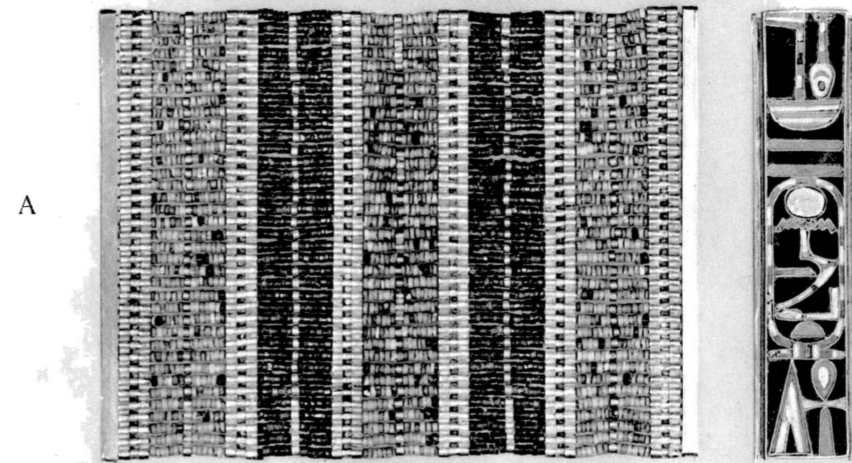
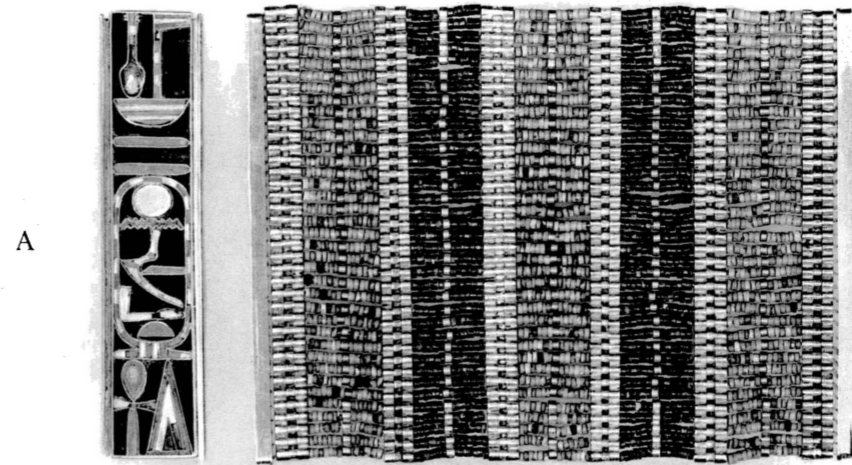
A



B

PLATE XI

- A. (12) Wristlets, open. Scale 3:4. See pp. 44 ff.; pl. x A.  
 B. (13) Anklets, open. Scale 3:4. See pp. 47 ff.; pl. x B.



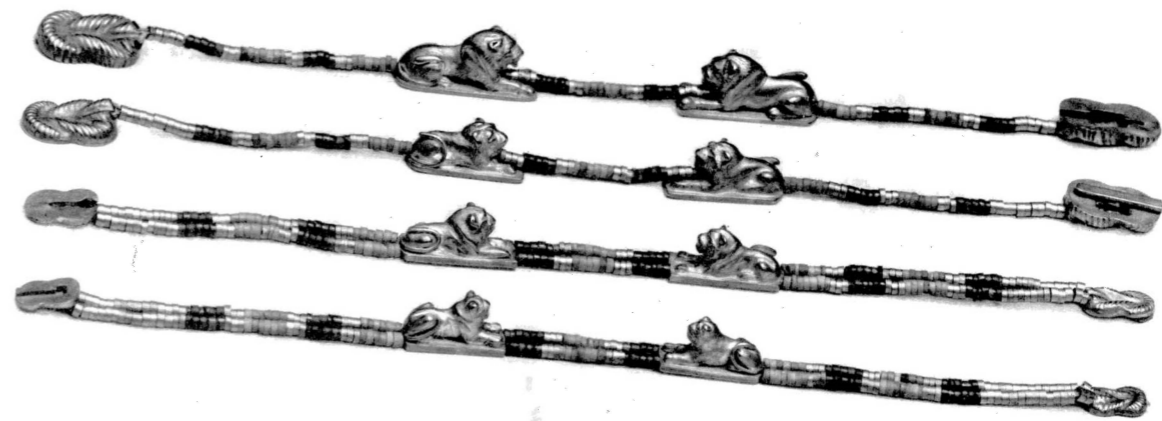


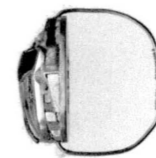
PLATE XII

- A. (14, 15) Couchant-lion bracelets. Scale 1 : 1. See pp. 50 ff.
- B. (22) Inlaid scarab. Scale 1 : 1. See pp. 55 f.
- C. (23) Inlaid scarab. Scale 1 : 1. See pp. 55 f.
- D. (24) Lapis lazuli scarab. Scale 1 : 1. See p. 56.
- E. (25) Lapis lazuli scarab. Scale 1 : 1. See p. 56.

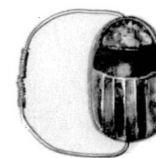
A



B



C



C



D



D



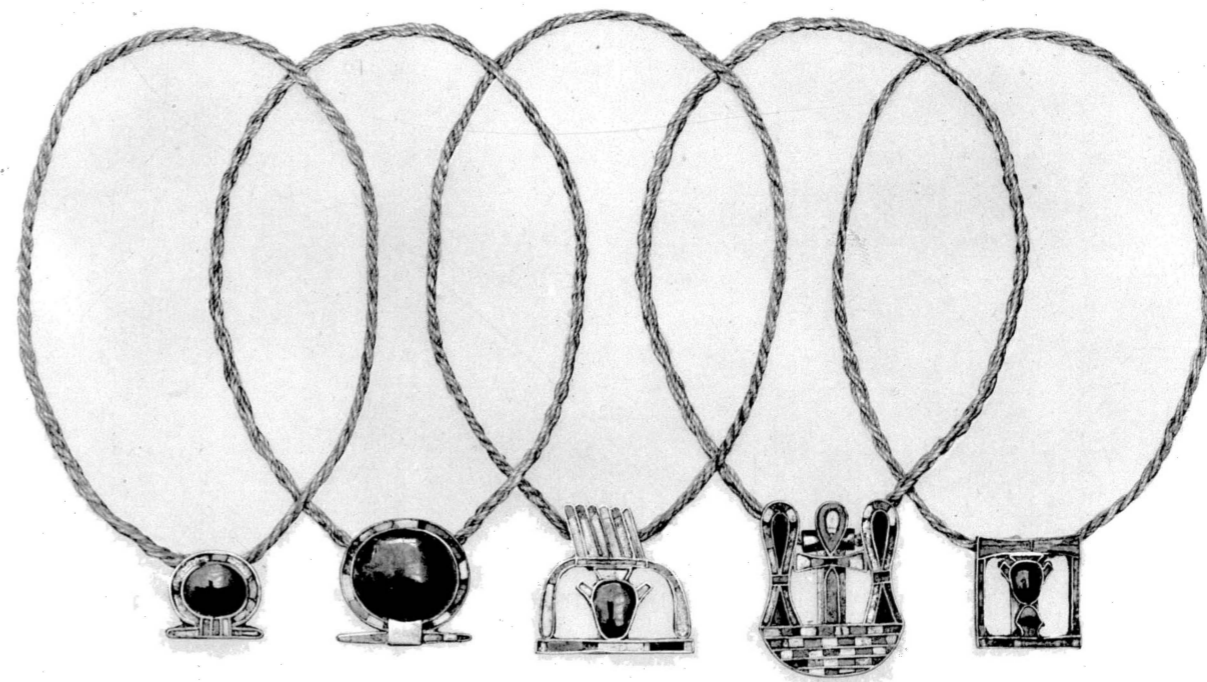
D



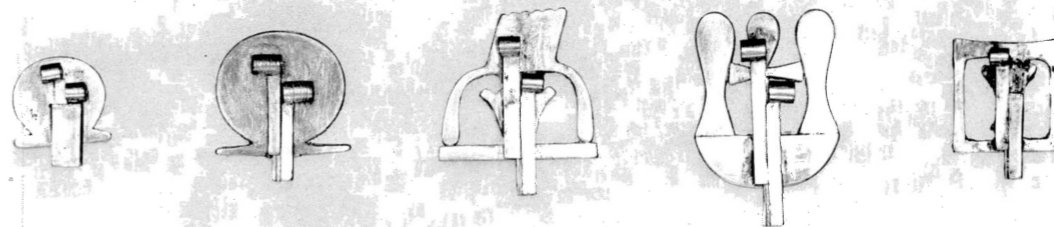
E

PLATE XIII

- A. (16-20) Five motto clasps for armlets, front view. Strung on modern cords. Scale 1:1. See pp. 52 ff.
- B. Same, back view, showing the clasps half open.
- C. (21) Square-knot clasps. Scale 1:1. See pp. 54 f.



A



B



C

## PLATE XIV

- (26) Mirror. Reproduction in the Metropolitan Museum. Scale 2:3. See pp. 60 ff.; pl. xv.  
(27) Gold-handled razors. Restored blades in the original handles. Scale 2:3. See pp. 62 f.  
(29) Whetstones. Scale 2:3. See pp. 64 f.

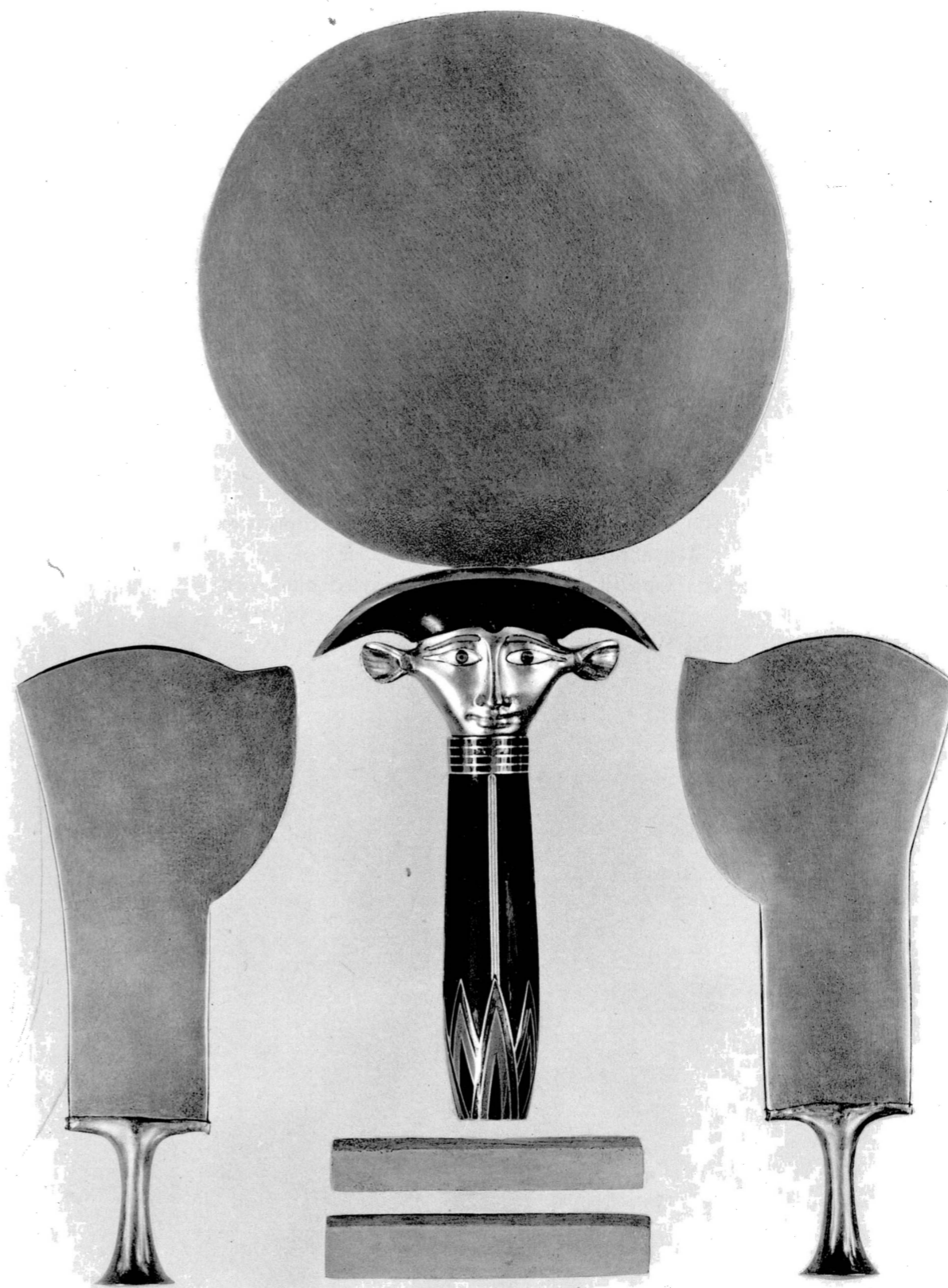


PLATE XV

(26) Mirror. Original in the Cairo Museum.  
Scale 3:4. See pp. 60 ff.; pl. xiv.





PLATE XVI

- A. (30) Small silver rouge dish. See p. 66.  
 (31-34) Obsidian cosmetic jars. See pp. 67 f. Scale 1:2.  
 B. (35-42) Alabaster jars for ritual oils. Scale 1:2. See pp. 68 f.



A



B

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