

BRITISH SCHOOL OF ARCHAEOLOGY IN EGYPT
AND EGYPTIAN RESEARCH ACCOUNT
NINETEENTH YEAR, 1913

TARKHAN II

BY
W. M. FLINDERS PETRIE

HON. D.C.L., LL.D., LITT.D., PH.D.
F.R.S., F.B.A., HON. F.S.A. (SCOT.), A.R.I.B.A.
MEMBER OF THE ROYAL IRISH ACADEMY
MEMBER OF THE IMPERIAL GERMAN ARCHAEOLOGICAL INSTITUTE
CORRESPONDING MEMBER OF THE SOCIETY OF ANTHROPOLOGY, BERLIN
MEMBER OF THE ITALIAN SOCIETY OF ANTHROPOLOGY
MEMBER OF THE ROMAN SOCIETY OF ANTHROPOLOGY
MEMBER OF THE SOCIETY OF NORTHERN ANTIQUARIES
MEMBER OF THE AMERICAN PHILOSOPHICAL SOCIETY
EDWARDS PROFESSOR OF EGYPTOLOGY, UNIVERSITY OF LONDON

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TARKHAN II

INTRODUCTION

1. The work described in this volume was in continuation of that already published in *Tarkhan I*, issued last year. The site is about thirty-seven miles south of Cairo, on the western bank, within half a mile of the railway. Mr. Engelbach arrived there at the end of November and built our huts. On December 4, 1912, I arrived with Mr. Horace Thompson and Mr. North. On the 16th the Rev. C. T. Campion joined our party, and gave most useful help in recording during the season. On the 12th Mr. Engelbach moved a few miles south to Riqqeh, to take up the excavation of a large cemetery there. His very successful work there will appear in the main volume of this year. Mrs. Flinders Petrie came on February 6, 1913, when the drawing began. On February 13 Mr. Thompson moved over to Riqqeh cemetery. The packing up began at the end of February, and I broke up camp and left for Memphis on March 18. I finally left for England on April 16. Mr. Campion and Mr. North were engaged with field recording; Mr. Thompson was entirely on bone measuring; my wife was on drawing, both of Tarkhan objects and also of coffins and tombs at Riqqeh; I was on the field-recording, men's accounts, and photographing.

2. This great cemetery appears to have been the burying-place for the temporary capital of the dynastic people, before the founding of Memphis, and gradually to have decayed during the first century of the growth of Memphis. To get a full view of the population at that critical time is of more importance than at any other period. The six hundred skeletons here recorded and discussed are a larger amount of material than has ever been obtained on one site restricted to so brief a period as about a century. Hence it seemed essential to discuss these remains at some length, as well as to provide all the facts which others can also study. This will account for the prominence given in this

volume to the physical anthropology. For general readers there are summaries of all these results in sections 47 and 58. The site and the period are alike the most important yet known for that subject. The register of the graves of this cemetery is probably the most complete that has yet been published.

The site of Tarkhan is now exhausted, and we shall be moving the camps of the British School farther south, in the course of the general clearance of the country south of Cairo. The Gesiret Abusir, and the desert about the mouth of the Fayum will be our scope for the present winter. I only regret that having to attend unexpectedly to the preparation of the new quarterly journal, *Ancient Egypt*, has shortened my working season by a month.

CHAPTER I

THE VALLEY CEMETERY

3. When closing the excavations in 1912, it was believed that the wide valley, lying between the excavated parts, would be found to contain graves. By accident it had been slightly opened; but the remains found had been carefully reburied without attracting attention. As time would not allow then of doing more at Tarkhan, the visible cemetery on the hills was exhausted, and the valley left alone. The next season, accordingly, we went to Tarkhan to clear this valley. It proved to be a fair season's work, as will be seen by the plan on pl. xlvi. Every grave there shown has been drawn; and all those which contained any early groups of remains we have published in the Register, pls. xxxii to xliii, classified according to date. The few graves of the xith dynasty, which were mainly at the east end, will appear in the volume *Kafr Ammar*, which will contain all the later material of this region.

The plan has the north upwards. The right hand, or eastern, end is that opening on the Nile valley. The western end divides into two lesser

valleys beyond the end of the graves. The relation of it to the rest of the cemetery is shown in the general map (xlvi).

It is obvious that there has been a pathway up the valley, which was generally kept clear of burials; in a few points, encroachments were made upon it, which can be dated in the case of grave 1441 which is of S.D. 80, while 1357 and 1463 at the sides are of S.D. 78. Thus when graves were perhaps fifty years old they were disregarded, the path swerved over them, and a later burial occupied the former path.

The method of clearing this cemetery has not influenced our finding of graves more in one position than another. The valley was divided into parallel strips of fifty feet wide across it; every pair of diggers began at the north end of their strip and worked southward until it proved to be exhausted. Thus the pathway was crossed by each digger in his course of work. It was necessary to give every man his own section, in order to avoid their crowding together around any successful work. Every man wished to exhaust his own ground, and to prevent any one else poaching in it, and the whole was thoroughly explored. For purposes of planning, an axis-line was marked out from end to end of the valley, and a supplementary line at 100 feet north of that, for the more northerly parts.

Each grave when opened was drawn on the register-card at its correct azimuth on the ground; the distance of the N.E. corner was then measured up to the axis, and along to the nearest boundary of the 50-foot strip; the length, breadth, and depth were then noted. The position of the skeleton and the pottery was drawn on the back of the card. Notes were filled in about disturbance, direction of head and face, sex, clothing, coffin; old types of pottery or stone vases were identified from a set of plates of types, and recorded on the card, as well as any other objects found in the grave. The bones were then measured, removed, and the ground finally searched for beads and other small objects.

4. Owing to the low position between hills, blown sand had continually drifted in the valley, and covered the graves. Along the southern side was a steep bank of rock, the wearing side of a former stream, about 10 feet high toward the eastern end. This bed of sand was but slight at the north side, but deepened to 4 or 5 feet on the southern side, completely hiding the graves. It was necessary therefore to remove it entirely, or to search, by pits so close together that no grave could escape notice. The

sand had preserved the graves in many places quite perfectly, so that the upper parts were as complete as when first built. But the low position has been very injurious to the skeletons, the drainage of occasional rains soaking down to the valley floor. Thus the bones were all too much decayed to be lifted out, and only with great care could some of the skulls be preserved.

5. The commoner graves were often found capped with a slightly domed crust of sand mixed with gypsum. At first I took it for the exudation of gypsum often found in Egypt at the drying layer near the surface. But the capping was so regular, and domed, over the graves that it must have been original. It was not apparently burnt plaster of Paris, as the sand was packed quite close in it and the gypsum was all crystalline. It seems, rather, as if the gypsum, abounding here naturally, had been collected, ground up with some water, and used to mix the sand into a paste to spread over the graves, where it soon hardened by re-crystallizing.

6. The more important graves were covered with small mastabas, as shown in the photographs, pls. xii and xiii, and the plans, pl. xiv. Only one grave (the first of the plans, no. 1890), is not shown in the photographs.

Beginning with the most fully illustrated grave, no. 1845, which occupies pl. xii, it should be said that this was the only mastaba containing objects which had not been plundered. The views are taken from the north, east, and west. The first view shows the body in the grave, looking southwards; the stack of offering jars lies outside of a little court for offerings which is seen beyond them. Below this is a nearer view of the grave alone. Here the skeleton is in place, an alabaster bowl lies between the face and knees, and a slate palette over that. Five jars stand around the body. The whole of the stone vases are shown at the foot of pl. iv.

To the right, at the top, is the view of the west side of the grave, looking eastwards. This shows the stack of jars, the small offering court, and the two slits in the brickwork of the mastaba wall, for the offerings to reach the deceased. Below that is a nearer view of the offering court.

At the bottom on the left is the grave, looking southward, with the eastern stack of offerings in place. On the right is a view of the grave from the eastern stack, looking westwards.

The low wall seen around the grave was the retaining-wall of the mastaba, and was filled up with

sand and gravel to the top, forming a flat-topped mound over the grave. This grave is of sequence date 77, or about a generation before Mena. The contents are now at Glasgow.

In the plan, pl. xiv, no. II, will be seen another burial to the west. This was probably not connected, but the small model jars to the south of it seem to belong to this second burial, and not to no. 1845. This is the earliest, the richest in offerings, and the most complete and undisturbed mastaba known. The others will be noticed more briefly.

7. On pl. xiii at the top is no. 1231, the plan of which is on pl. xiv, no. VI. It is built up against a scarp of rock on the north, and has the usual courtyard and stack of offerings on the east side. The filling originally covered it up to the top of the walling. The second slit was cleared after photographing.

Next are two views of no. 740, see plan III on pl. xiv. Neither in this nor the previous grave was there any burial left, beyond four jars which are shown in the views standing over the site of the grave. The walling was very perfect, having the whitewash still remaining on much of the brickwork. The two slits in the brickwork, for presenting the offerings, show very clearly in this. The stack of pottery includes a large round dish, with a little vase standing on the central cup of the dish. The walling round the grave was, of course, filled up with sand, but was left empty after clearing the grave, in order to show the wall better.

Grave 852 had been plundered partially (see plan IV, pl. xiv). It is notable for the delicately built little court of offerings, only one brick on edge for the height in front, and two bricks behind.

Grave 1889, plan V, is mainly denuded, but the plan can be traced. The burials of graves 1889 and 1890 had not been disturbed, for the good reason that there was nothing to be robbed from the bodies.

Grave 1674 (not in these plans) was of the usual type, partly denuded; the two cylinder jars standing by the pit were found in the grave.

The plans on pl. xiv were all measured from two strings stretched at right angles, the measures being plotted direct on to squared paper without writing figures. This is the best method for small constructions, as the plan can be checked at once with the structure, and the nature of the curves and bends are drawn, finally, on the spot. The measuring from fixed cross-lines is the only way to record forms so irregular as these. All of these mastabas, after the planning,

were well protected by a good depth of sand piled over them.

It should be noted that the pottery of the offerings inside the graves is like that used in the towns, as shown by the town of Abydos. But the pottery of the stacks of subsequent offerings is much rougher, and such was never found used in the town. It was made on purpose for the festal offerings; and this indicates that when a pot was once used for an offering to the dead, it could not be taken again for the living, but had to be left as *tabu*, and therefore specially cheap pottery for this purpose was made. Types of pottery found in the stack are distinguished in the Register by being underlined.

CHAPTER II

THE GREAT MASTABAS

(See pl. xviii)

8. ON the plateau level, south of the upper end of the valley cemetery, two large hollows were evident on the desert surface. In the first year of work these were supposed to be deep shafts, a class of tomb which was usually late, uninteresting, and unprofitable. They were left, therefore, to be worked out at the close of the season, during the packing, when it is needful to employ men on large clearances requiring less personal attention. On starting digging there, a trace of brickwork was seen, and the men were therefore placed upon that. Soon it was evident that, whatever the pits were, we had great mastabas to deal with. The outer sides were therefore carefully cleared and measured before emptying the pits, so that the deeper clearance should serve to rebury the detailed brickwork. In the best preserved parts the sides are still 3 feet high; but at the south end of 2038, and the north end of 2050, it was very difficult to trace the original outline. Only by scraping the earth over very carefully could a slight difference of tint be seen at the old faces. It would have been impossible to recover the outline had not the panelled brickwork been built up from the foundation, with the pavement built against it, so that the panelling went down as much as 15 inches below the pavement level. The denuded ground is full of sulphate of lime crystals, which have broken up the soil, so that in its powdery condition the traces of outline were the more difficult to find.

The burial pits had been emptied in early times,

and were merely hollows in the gravel and rock, much weathered and irregular, about 20 feet deep. Nothing whatever of the original construction or burial was found in either of them.

The construction was so evidently regular that the faces were measured on all sides from a string stretched tightly from end to end of each face. Thus the variations from a straight line could be accurately stated. The distances along the faces were measured with a new tape, the errors of which were much less than the variations of form.

9. Before describing these mastabas, it will be well to state the general features of these and other mastabas with which they can be compared.

(1) Gizeh, reign of Zet, 1897 × 831 inches. Bays 10 at side, 4 at end. (*Gizeh and Rifeh*, vi.)

(2) Tarkhan, 1060 Zet, 1340 × 615. Bays 9 and 4 or 5. (*Tarkhan I*, xviii.)

(3) Tarkhan, 2038 Zet, 1265 × 510. Bays 9 and 4. (Here.)

(4) Tarkhan, 2050 Zet, 1393 × 596. Bays 10 and 5. (Here.)

(5) Gizeh, iird dynasty, 2172 × 1113. Bays 14 and 7. (*Gizeh and Rifeh*, vii.)

(6) Meydum, Nefermaat, 4552 × 2472. Bays 28 and 15. (*Medum*, 15.)

(7) Meydum, Rahotep, 2360 × 1330.

Of these mastabas, all have three niches in the projecting part of the side; the two at Gizeh have three niches in the end projections; but the two here described (3, 4) have only two niches in the end projections. Nos. 2, 6, and 7 are destroyed at the ends or not recorded. With this exception, the patterning of the faces of the mastabas is precisely the same from the middle of the ist to the beginning of the ivth dynasty. This shows that it was not merely a matter of the taste of the architect, but that it was a strong type with a structural meaning, which went on being copied. The same type is seen copied on steles of the ist to ivth dynasties, and on the sarcophagi of Menkaura and Khufu-ankh. The origin of it we shall deal with later, after describing the details of these mastabas.

10. Mastaba No. 2038.—The general appearance of this mastaba is seen in the views on pl. xv. The fender wall was found on three sides, but the south side is denuded so much that no trace of this wall remained. On the east side was a projecting entrance; to the north of this, piled against the outside of the fender wall, was a great stack of pottery of the offerings. Besides the pottery types

stated in the Register pl. xliii, there were unbaked clay models of granaries, photographed on pl. xv. Within the fender wall, the corridor is blocked up with a mass of brickwork at the north-east corner. Just before this a later grave had been cut into the mastaba, and roughly bricked up. In the eastern corridor were two graves, 2039, 2040, of which the superstructures were in absolutely perfect condition, (see pl. xv), having evidently been covered with drifted sand very soon after building; probably they had never been seen since the year they were built. These are described below.

The main mass of brickwork has a uniform pattern of panelling on both sides; at the ends the projections are not so wide, and have only two niches instead of three. The style of construction of these niches may be seen in the photograph of the cleared brickwork of No. 2050, pl. xv, which will be described with that mastaba. The sizes of the bricks are the same in the mastaba, the fender wall, and the corridor tombs; they average 9.75 inches long, 4.7 wide, 2.9 thick, varying at most about .2 more or less than the average. The difference between the length and double the breadth shows that they were planned to work with a mortar joint of .35 inches.

The body of the mastaba was built up on the same plan from the foundation; and at the south end, where denuded, it is seen to start 15 inches below the surrounding footing. The footing is 10 inches wide, and raised about 3 inches above the corridor, as may be seen in the photographs, pl. xv. The thick wall of the mastaba varies from 133 inches thick on the north to 153 on the west, see pl. xviii. The outside has the usual batter of about 1 in 12, the inside face is vertical, as in all Egyptian building. On the eastern face, the fourth bay from the south end is paved with wooden planks, like the fourth bay in mastaba 1060. This seems to have been the place for making offerings, though it is not opposite to the pit. The walls are much broken away on both sides near the pit.

11. The interior space was filled with sand and gravel. Along the eastern side of the interior was a sloping descent, which, after reaching the east side of the pit, ended abruptly at about 100 inches over the floor of the pit, which is 220 inches deep. There are no internal walls or linings of brickwork in the pit, and it seems, therefore, that it contained a wooden chamber for the burial. As the length of the gangway only overlaps the side of the pit by 30 inches, the wooden lining must have been close

to the rock side, certainly within 10 inches, as so much as that would only leave 20 inches of doorway. The pit is 127 × 196 inches; possibly the inside of the chamber was 5 × 8 cubits, 104 × 166 inches.

The sides of the pit are very irregular, and have been hollowed out in many places to hold later burials, probably of the xith-xiith dynasties. The loose rubble in the holes was retained by rough walling of bricks, averaging 12.9 × 6.3 × 2.6 inches, much larger than those of the mastaba.

12. The minor tombs 2039, 2040 in the east corridor, are of much value as showing how the upper part of a tomb was finished. The top of the brickwork cover is slightly domed, the sides low and sloping inward, see pl. xv. On the front edge of each tomb are two small recesses, with a slightly raised part at the upper end of the hollow. These seem to be intended as false doors, places of ingress and egress for the *ka*. Some of the original coat of whitewash still remained in these recesses.

After removing a thick coat of mud-plaster the bricks were seen, spaced loosely, somewhat apart, see xvi, 1. There was a row of headers around the top, and 6 × 6 bricks laid parallel in the middle. In cross section they formed an arch (xvi, 2) sufficiently strong to hold up, after the heap of sand had sunk away from supporting them.

On removing the sand to about 3 feet deep, some jars were found, xvi, 3, 4, one of which had the carrying rope on it. These lay on a mat of papyrus; the mat had been much too long for the grave, being apparently a sleeping mat; hence it was bent across, and turned up at one end.

On removing the mat, there appeared the lid of a wooden coffin, formed of loose boards (see 2040 in pl. xvi, 5); the mat was close enough to prevent more than a very small amount of sand and gravel from falling through. On lifting the boards, the burial was seen (as in 2039, pl. xvi, 6 kept at Cairo). In front of the body, 2039, were calf-bones of an offering; a handful of ribs lay upon the body and behind the elbow. In front of 2040 was a leg-bone of a calf. Both bodies had the head to north, face east, on left side. Inside the coffin, 2039, were two cylinder jars, 50 *l*, and a large jar on the pelvis. Outside, on the north, were pieces of an alabaster bowl, 24 *v*. Inside the coffin, 2040, were six pottery jars, as registered, and at the S.E. corner an alabaster dish, 9 *h*. This burial is kept as a group at Munich.

A curious feature in each grave was a vertical reed in one corner, S.W. in 2039, S.E. in 2040. This rose

up to the brick covering, and it may be supposed that it was put in the corner before filling the grave, in order to mark the exact position for the place of the superstructure. It may have been, however, for a path for the spirit. In Central Africa those who die of small-pox have a reed stuck in the side of the grave; along this reed the disease can escape. (Werner, *British Central Africa*, p. 289.)

The coffins were very slightly made of loose, thick boards, scarcely connected with a few dowels; the end boards were slightly recessed into the sides, the ends of each board left rough. The purpose was simply to retain a clear space for the body, and the coffins were probably only put together in the pit, and had no separate existence previously. The boards had mostly been re-used, having the slits in them for bindings, which proved that they had been house-timbers.

13. Regarding the period of this burial there was no dating material in the mastaba. The two subsidiary burials are of S.D. 80, in the reign of Zet, by the forms of the pottery; and the offerings laid outside the mastaba are of S.D. 81, or perhaps of 80; but they may easily be slightly later than the mastaba itself. This may therefore be put to the reign of Zet, like the mastaba in the valley at Gizeh. The pot-marks on the external offerings (see pl. xx) have been compared with those of the Royal Tombs: three are of the reign of Den, and three of Semer-khet. This evidence is entirely independent of that of pottery types, and agrees with the evidence from the forms of the jars. No other graves were found around this mastaba, though we searched the whole floor of the corridor.

14. In the mastaba 2050, the general design was closely the same, except that there was no sloping descent to the chamber, and no external vestibule to the corridor. The arrangement of the brickwork is shown in detail from a bay of the eastern face, of which I cleaned the joints (see the photograph xv, 5). This view of the layer of bricks is taken looking rather forward, so that the vertical faces at the sides of the bay appear to converge below. The main false door recess is seen in the middle, at the sides are the narrow recesses which border it, and the recesses in the sides of the bay; farther out, on the right, is seen a narrow recess of the projecting part. It will be observed that two sizes of bricks were used, one of 9.65 × 4.6 × 2.6 inches for the body of the mastaba; while the more detailed work of the narrow recesses and projections was formed

of lesser bricks, $6.8 \times 3.3 \times 2.6$. The difference between the two sides in laying the bricks is due to their breaking joint between the courses, and different course patterns occurring on opposite sides. It should be said that in the plans, pl. xviii, where vague rounded outlines are put in, the detail cannot be found, owing to decay or denudation; the vague outline is given to complete the plan to the eye, where no measurement of details was possible.

15. Along the north corridor, slight traces of three raised squares of brickwork were noticed. On cutting behind these, three graves were found, numbered 2051, 2053, 2054. The arrangement of these was closely the same as in the two graves just described.

Grave 2051 is opposite the S.E. corner of the mastaba. The fender wall has been entirely destroyed here, but the grave was intact. On clearing it, jars were found lying on the mat (xvii, 1). Removing the mat, the coffin lid appeared (xvii, 2). Opening the coffin, the body was found complete (xvii, 4), head to north, face east, the left hand placed on the forehead, the right on the knees. A broken walking-stick lay in front of it. Two jars, 50 s, 65 k, were behind the head, 65 l before the head, and 65 k before the feet. The coffin was $34.9 \times 19.0 \times 14.6$ outside. (Horniman Museum.)

Grave 2053 was similar. A large jar 76 m lay on the mat over the coffin. The body (xvii, 6) was a little shifted by the head rolling forward. At the head was the jar 65 n, before the feet three jars, 50 s. Below the feet and pelvis was a leg-bone of a calf. The coffin measured $34.2 \times 20.5 \times 18.4$ inches inside. (Brussels.)

Grave 2054 had a grass mat, like those made to-day, in place of the papyrus mat of the other graves, half-way down, upon the coffin (xvii, 3). On lifting this, the loose boards over the coffin were seen. On raising them, the coffin appeared nearly empty; but in the N.W. corner (xvii, 5) lay the bones of a duck; with them were two jars 59 h, 65 f. The coffin was of the full size for human burial, measuring 38 to $40 \times 22.6 \times 19$ inches, larger in fact than the other two coffins. (Cambridge, Ethnological Museum.)

16. In the south corridor was the most remarkable grave (2052). A long low bench of brickwork projected from the fender wall, see the end view xix, 1, and the front view in xix, 2. It was divided across by two shallow grooves, in what had originally been three equal parts; the east end had, however, been

broken away in the first digging here, before any building was known.

In the plan xviii will be seen the dotted outline of the pit below, and the full-line outline of the brick bench. The fender wall is omitted above the pit in order to show its south side. Along the rest of the fender, the line shows the foot of it, and the edge of the black gives the top edge of it.

On digging into this grave we found, first, three heads of donkeys, placed one under each division of the bench, lengthways, facing east. Removing these, a wedge-shaped trench was opened containing the bodies of the donkeys, back up, with the legs doubled up beneath them. The skull and bones of fore-leg and hind-leg are shown in xix, 3. These are the only ancient skeletons of donkeys yet discovered in Egypt; they are now in the Cairo Museum, and the Natural History Museum, South Kensington.

From the careful mode of burial of these donkeys, with a regularly built grave over them, and from the burial of a duck in a wooden coffin of full human size, we must conclude that these were the favourite animals buried with the master, much as the household were buried with the kings of this age.

The later history of this mastaba was curious. It had been completely cleared of sand between the walls, except at the north end. Large quantities of straw, and of twigs for fuel, had been stored in it, much as the Egyptian now stores fuel in pits on the desert. Afterwards these deposits were covered with blown sand. The central pit had been entirely rifled, and from it were dragged out a great pile of linen cloth of various qualities, and the fine set of alabaster jars, iv, 2. Also a wooden handle of an adze, iii, 5, and another wooden handle, viii.

Near the western side of this mastaba, a burial of a man in a basket had been placed in a pit in the brickwork. As the skeleton and basket were perfectly preserved, I solidified them with paraffin wax, and this burial is now complete in the British Museum.

17. Having now described these mastabas, there remain the questions of the accuracy and method of the building of them. At first view, it was evident that they were very regular and straight, and measures were therefore taken to test the precision of the building. For the sides, a thin white string was stretched tight from end to end, as nearly parallel to the face as could be estimated. Then offsets were taken from that to the face and to the depth of the bays. The strings proved on measurement to be placed parallel to the average face to within $.1$ inch, while the varia-

tions were up to ¼ at either end ; hence the string is taken here as parallel to mean face.

First, the mean variation of the outer faces from a true line was measured at about two dozen places. This was, in fractions of an inch :

	Outer face.	In face of bay.	Recess of bay.
2050 S.	. . '23	'5	'7
2050 E.	. . '47	'6	1'4
2038 E.	. . '44	'54	'9
2038 W.	. . '57	'73	1'3

Thus on each side measured, the outer face was the more accurate line, and the back of the false-door recesses the least accurate. This proves that the outer faces were the construction lines, and the bays were measured off from them. The average error, of less than half an inch on a hundred feet, when building in mud brick, with a thick coating of mud plaster, is very good.

The accuracy of the spacing of the divisions was measured with a new tape, and, in the most accurate part, checked by a wooden rod the whole length of a block-and-bay. In the first place, it is clear that the lengths were set off from one end, leaving often a surplus or deficit of 1 to 3 inches on reaching the other end. It may be that the bounding faces were not built accurately in line with the marks of setting out the work, but in that case we should find large errors at both ends, whereas they occur only at one end. To reach the mean dimension intended, we must, then, exclude these terminal errors. We shall call a bay and projection together a "group." Obviously a group can be measured in two ways, according as we start from either end ; each side of a bay will serve as a point in one of the two series. Both series A and B are stated here ; the mean values of the dimensions are given, with the mean error of work put below each.

	Series A.	Series B.	Bay.	Projection.
2050 S.	. . 107'6	107'3	46'4	60'6
		'2	'6	'8
2050 E.	. . 130'7	130'4	47'7	82'6
		'4	'8	'6
2050 W.	130'9	130'7	47'9	82'8
	'7	'6	'5	'5
2038 E.	. . 130'6	130'5	46'1	84'8
	'6	1'7	1'4	'9
2038 W.	. . 130'7	131'1	47'0	83'4
	'5	'8	'5	1'0

The first result is that the errors of the whole groups are, in all but one side, much less than the errors of the constituent bay and projection. The groups were therefore set out as a whole, and then subdivided. The east front of 2038 shows how the north sides of the bays (series A) were three times as accurate as the south sides of the bays (B); this indicates that a rod of the length of a group (130'6 inches) was used to set out the work. Had it been laid out by a long measure like a tape, both series would have been equally accurate. There is, however, another view to be taken into account. The total lengths may be right, and the subdivisions badly made. On testing this, we find that the group by the total is in 2050 E, 130'65; in 2050 W, 131'0; in 2038 E, 131'0; in 2038 W, 131'0. The agreement of three out of four examples seems to show that the total was scrupulously laid out, and then subdivided less carefully, perhaps by a cord.

The lengths on the long sides of the mastabas are evidently intended to be alike. The average of all is 130'7 (mean error '15) for the group; composed of 47'2 (m. e. '6) for the bay, and 83'4 (m. e. '7) for the projection. These dimensions remind us of the frequent dimensions in the Great Pyramid, which in the best examples are 47'04 and 82'52. The proportions of 7 to 11 thus used, if followed here, would give on 130'7, 47'52 + 83'16; or on 131'0, 47'63 + 83'37. These dimensions are far within the mean error of the work. Thus it seems that the cubit of 20'79 was divided into 7 palms, and the bay was 16 palms, while the projection was 4 cubits. Whether at this date the ratio of radius to circumference had influenced the choice of these figures, we cannot say; looked at from that point of view, the projection is the diameter of a circle, whose half circumference is the length of the whole group.

Lastly, the depths of the bay, and false-door recess, from the front face, are :

2050 S	. .	20'8	31'9
2050 E	. .	20'9	29'3
2038 E	. .	21'5	31'4
2038 W	. .	21'7	31'3

The errors of these from a straight line have been already stated at the beginning of these measurements.

The squareness of the mastabas was measured by putting marks on corresponding faces of the bays on opposite sides, and then reading the angle between this cross-line and the side face by a box-sextant.

18. Besides the two great mastabas there were also other tombs, which were probably similar, but which are so much denuded that little or nothing remains of the structure. To the west of 2038 was a deep pit in the rock (No. 2056), 183 × 110 inches, or over 15 feet on the north and 9 feet on the east. At 58 to 80 inches from the west side was a brick cross-wall from north to south; the western space was subdivided again into two offering chambers, the northern 64 inches long × 58 wide, the southern 46 × 58 inches, with a wall 12 inches thick between them. These walls were built upon 30 inches of sand in the pit, and were 40 inches high. In the north chamber was a bowl of black and white porphyry, as type 24g, but twice as large.

To the west of mastaba 2050 was a pit (No. 2055) 241 × 103 inches, or over 20 feet on the north and 8 feet on the east. It seemed to have had a brick mastaba over it, of which the only remains were the edge of the footing at 170 from the pit on the east, and the fender wall 38 outside of that. The pit was 160 deep on the east, for 43 inches; after a rock wall of 18 inches thick, it deepened to 195 in a middle chamber 120 N. × 95 W.; another rock wall of 16 inches cut off a western chamber 44 × 95. In the large chamber was the alabaster stool, pl. i (Cairo Museum), and portions of another. From the pottery found loose in the filling of the chamber this is to be dated to S.D. 81, or the reign of Den-Setui. A large quantity of worked flints were found, see pl. vi.

19. A fine grave, 1973, of this age was found on the top of the plateau, between these mastabas and the mastaba 1060 found last year. It had probably been looted, so far as the body is concerned, for the bones were scattered, and there was a small hole in the covering; but the funeral offerings were complete. After clearing about 6 feet of gravel we reached a bed of brickwork, which had been only slightly disturbed and replaced. On removing this, we found a pit cut in the limestone rock (pl. xix, 4), which had two very thick bed-poles, lying from end to end to support the roofing. The top of the coffin appeared, but there was no lid, and it was full of sand and gravel. A large store of big jars stood at the north end. The pot-marks on these are given in pl. xx. On clearing out the coffin, xix, 5, two more jars were found, and others lay along the east side. In the south-east corner was a large group of stone vases and dishes, shown in pl. iv; four cylinder jars, four dishes of slate and alabaster, two bowls of alabaster, and a vase of yellow limestone, broken.

This is the largest group of fine vases that I have ever seen from one tomb. Forty flint flakes also lay in this corner, pl. vii. The coffin was peculiarly made (pl. viii), the ends halved in to the sides, and then a square V-trough of wood covered the corners and hid the joint. This covering was matched by an equal projection, as a footing around the base. The whole group of stone vases is now in the Fine Art Museum, Boston, Mass. The coffin was too much rotted to be removed.

20. We may now turn to the question of the origin of this architectural form of panelled mastaba. In the previous year's work we found many examples of the house timbers, which had lashing-holes in them adapted to building up into a panelled wall (*Tarkhan I*, pl. ix, x). These completely confirm the conclusions from the forms in stone and brick (especially the sarcophagus of Khufu-ankh) which point to a wooden origin. It has been objected that such forms of brickwork are known in other countries, from Mesopotamia to Germany. But in all such cases it is probable that wooden architecture was the earlier, and originated the type. Owing to the modern spread of brick and stone work, the older wooden architecture has fallen out of memory in Europe. But when we look at the great royal tombs entirely built of wood in the ist dynasty, at the magnificent wooden palace of Attila surrounded by a great city of wood, at the glorious wooden temples of Japan, at the wooden architecture of early India, further India and Polynesia, at the wooden castles and fortresses of Saxon England, or at the wooden architecture of Norway, we see that wood is the essential building material of early man, and that brick and stone are but modern substitutes.

21. The mastaba, then, is the substitute for the great wooden houses of the king or chief; and as the special type of bays and projections is found to be constant for many generations, it evidently was copied from some fixed type of wooden building. We must remember that a great chief's house was used by night as well as by day. By day, in Egypt, it was needful to be able to open the house widely, or to close it altogether, so as to let in abundance of cooling breezes or to keep out dust-storms and extreme heat. It was thus requisite to have the system of a great number of small doorways easily closed; usually with a single board door, and therefore narrow. Sometimes these openings were wider, and were then barred across to prevent men and animals entering, as is shown in the house model in

a wooden coffin (*Tarkhan I*, xxviii, 1). Thus the row of bays, each with a door recess, and panelling of overlapping boards on each side of it, became the type for free cooling and ventilation, with the power of quickly closing the openings against dust-storms.

The use by night is essentially for sleeping quarters for the chief's retainers, so as to secure his safety. In all parts of the world—be it Polynesia, Africa, or in the life of the Norse sagas—the chief sleeps with his household of retainers, ready for fight if he be attacked. Where no fire-hearth is the focus, they would naturally sleep round the sides of the great hall. Each space between the openings of the doors would be a sleeping place; and then—as now—the Egyptian disliked draughts, and would protect himself with a screen from the door opening at his head and feet. Hence would naturally arise the type of sheltered sleeping places, recessed back in the hall from the door openings; and the type of external projections and bays of doorways would be the necessary result of the utilitarian necessities of the chief's household by night and by day.

The girdle of graves in a row around all sides of the mastaba (as at Gizeh) for the long sleep of the household, were copied from the custom of sleeping all round the great hall at night. Probably at first a chief was buried in a pit in the midst of his house, much as various burials in the floors of houses have been found in Egypt, and are usual in other lands. Then a brick substitute for the house was built, when the successor wished to keep the actual living house, and to ensure greater safety for the deceased chief.

We see thus, in the necessities of the case, a complete explanation for the forms of the early Egyptian architecture, and no feature or requirement appears to be left outstanding and unexplained.

CHAPTER III

THE DESCRIPTION OF PLATES

22. THE plates under this head will be described in order, as they stand.

Pl. i. Amulets from grave 1552, S.D. 77, full size. At the top is a falcon of sard, and a long pendant; another pendant is at the side; next is a conical piece of copper, then a seated baboon of copper; lastly two beetles cut in a dark green stone, apparently serpentine stained with copper. The baboon is the

oldest copper amulet known. (University College, London.)

At the right. One of the lids of very thin beaten copper. As such are not known to fit vases found in the same graves, it seems likely that they were intended for covering the powdered eye-paint on the palettes. Small ivory vase, grave 1419, S.D. 77, (see iii, 9) (Cairo). Ivory box formed of 5 plates of ivory, and a lid: the sides were joined by diagonal pins which have perished; it has been stained green by copper ore lying near it. (See iii, 11.) Grave 1479, S.D. 78 (Univ. Coll.). Spoon of ivory formed as two hands for the bowl, and arms for the stem (see ii, 4); grave 1805, S.D. 78 (Manchester). Spoon of ivory with square bowl (see ii, 3); grave 1331, S.D. 77 (Cape). Small ivory spoon with wavy handle (see ii, 9); grave 1660, S.D. 77 (Manchester). Disc of ivory, engraved with lines, perhaps a spindle whorl, (see ii, 14); grave 1205, S.D. 78-9 (Cape). Head of an animal in clay.

Ivory spoon with engraved bowl (see ii, 5), showing three birds, a crocodile, and four leaves, a pattern entirely new to us. Grave 1925, S.D. 78 (Cairo).

Below is a limestone kneeling figure, closely like the large figure found at Hierakonpolis; the very large ears are characteristic of the early figures. Grave 1333, no dating; this figure was placed before the face, scale $\frac{1}{2}$. (Univ. Coll.) The stone to the right of it is natural, but seems to have been kept for its half-animal form, like the baboon stones at Abydos. Below are two ivory bangles, with a curious knob on each. All of grave 1333.

To the right is an entire group from grave 1528, S.D. 80?. Fish palette at top, with jasper pebble grinder. Four ivory bangles. Between them two amethyst beads, and two sard buttons (one with piercing upward); under those is a sard scorpion amulet and two pendants. Below are pieces of galena and iron oxide, and small green glazed beads. At the base is a copper bangle and two alabaster jars. (Munich.)

Alabaster stool or low table (see viii), grave 2055, S.D. 81: this form was quite unknown before. (Cairo.)

Copper knife, the largest known (see iii, 6): grave 1917, S.D. 77 (Manchester). Copper adze of the largest size, like one found last year: grave 1933, S.D. 78 (Cairo).

Pl. ii. Most of the spoons have been referred to in the previous plate. The rest have their grave

numbers and sequence dates placed with them, so that description is needless.

23. Pl. iii. 1, is a bird's bone sheath for, 2, an ivory hair-pin, grave 753, S.D. 77 (Cape). 3, 4, two ivory rods, grave 1304, S.D. 78. 5, wooden handle for a light adze, grave 2050, S.D. 80. 6, 7 (see pl. i), 8, shell armlets, grave 702, S.D. 77; such were very common, but in almost all instances the shell flakes into layers owing to the damp. 9, 11 (see i). 10, ivory ring with four birds' heads, compare ivory ring with four hawks from Abadiyeh (*Diospolis* ix, 23) and with two lions (*Naqada*, lxiv, 78); grave 644, S.D. 81. (Cambridge.)

Pl. iv. The glazed vases will be found given in detail in pl. v. The order here, in rows, is on pl. v, 5, 8, 6, 7; 1, 4, 3, 2; 10, 11, 12.

The group of alabaster to the right shows the splendid vases found with a great mass of linen, thrown out of the chamber of the great mastaba 2050 (see Chapter II). At the left is a small lid of yellow limestone. The second of the four alabaster jars is of very unusual form, and contained ointment; the group is not yet sent to a museum.

The fragment of a vase with the name of Normer was found in grave 1982, with a large group of objects, S.D. 78 (Reading).

The largest group of stone vases was found in an un plundered private grave on the hill, 1973, see base of pl. xix. The whole group is shown together here, pl. iv. The first, pear-shaped, vase is of yellow limestone; the cylinder jars are alabaster, as also are the two top bowls, and two right hand bowls; the two left hand bowls are of slate. (Boston.)

At the bottom on the left is a green-glazed pot, imitating a coiled basket and lid; grave 2057, S.D. 77. (Manchester.) Next is a similar pot of black clay with white pricked pattern; grave 2033, no date. (Univ. Coll.) To the right are the three alabaster vases and slate palette from grave 1870 (scale 1 : 5).

Pl. v. The green glazed vases were found surprisingly often in the valley cemetery, which was by no means a place for the upper classes. They show that glazing was a common art at the beginning of the 1st dynasty, and not restricted to the wealthy. The numbers of the graves and the dates are placed on the drawings. The distribution of these has been, 4, 6, 7, 10, Cairo; 1, 5, Manchester; 2, Leipzig; 3, Munich; 8, University College, London; 9, Brussels; 11, New York. 12, 13, see pl. iv.

24. Pl. vi. The corner of a slate, with an outline figure of a man, holding a mace and a staff; the

dress is the primitive girdle with ends tied and hanging down in front, such as continued to be worn by fishermen in the pyramid age. This slate shows that such was the usual dress for active life in the Mena period. It is from grave 1579, S.D. 78. (Univ. Coll.)

Two large jars were found, of very fine clay, and beautifully made as to solidity, regularity, and smoothness. As both bore royal names (pl. vi, 2, 3), marked before baking, it seems that such jars were produced at the royal pottery (see forms in pl. xxx, 74 b.g.; and see copies in xx, i, 2). One bore a name hitherto unknown, which seems to read *hâti*, the forepart of a lion, probably meaning chief or leader, later written *hâti-o*. A mace is drawn at the side of the falcon name. (Univ. Coll.) The other has the name *nar* or *nor*, written with the fish; and below the falcon name, *mer*, the hoe. The style of this accords with the previously found jars marked by Nor-mer (*Tarkan I*, xxxi, 68; *Royal Tombs I*, xliv, 1); and the writing of the fish alone in the palace sign, accords with the sealings in *Royal Tombs II*, xiii, 91-2. The hoe *mer* must then be equivalent to the chisel *mer* which usually accompanies the fish in the King's name. This supports the idea that NOR alone is the falcon name, and that MER is a second name, a personal name, or *nesut* name, or *bati* name, or *uaset* name, or any other of the separate names that may have belonged to this king in one of the early principalities. If *mer* is here a personal name, then we should also regard *hez* as a personal name of HATI. The two names must both be before Aha, as from his time onward the palace top was always flat. As Nor immediately precedes Aha, from all we yet know, therefore Hati must be placed shortly before Nor. (Manchester.)

Lower on the plate are alabaster vases. A finely veined bowl from grave 1908, S.D. 81?, scale 1 : 4, is now at Brussels. Beside it is a bowl from grave 1845, together with the slate and small cup below (see sect. 6), S.D. 77 (Munich). The tall vase from grave 1801, S.D. 78, is curious for having a circular patch inserted; scale 1 : 4 (Univ. Coll.). By this is a portion of a ribbed lid of yellow limestone, probably an imitation of a coiled basket lid; grave 1552, S.D. 77, scale 1 : 4. The cones of alabaster below are described with pl. ix.

The large group of flakes is part of a great quantity found in a mastaba grave 2055; for these and the rest, see the next plate.

25. Pl. vii. Only one pear-mace (1) was found



in the cemetery: it is of the usual white limestone, from grave 985, S.D. 78 (Brussels). A rough disc mace (2) was in grave 1666, undated. The butt (3), grave 738, of S.D. 78, is like the knife in *Abydos* I, xvi, 11, of S.D. 77. The long scraper (5), grave 1247, S.D. 78 (Reading), is like *Ab.* xvi, 4 of S.D. 78. The end of a thin flat knife (6), grave 619, S.D. 77, is like a piece found at Abadiyeh of S.D. 78 (*Diospolis*, vii, U 74). The rough knife (7), grave 1344, S.D. 77, is like *Ab.* xvi, 17, 47 of S.D. 76-7 and 77-8. The curiously flat square-handled knife (8), grave 1266, S.D. 78 (Cairo), is like *Ab.* xvi, 43, of S.D. 78. The finely curved knife (9), grave 1982 (Reading), must be dated to S.D. 81 by the general contents of the grave, and the piece of a jar of Normer must have been a century old when buried. The knife is exactly like that in grave 158, dated to S.D. 81 (*Tarkhan* I, vii, 6), and is well dated by the butt and the tip to S.D. 80 and 81 (see those of the reigns of Zet and Den, *Abydos* I, xiv). It is also like one in the Gizeh mastaba dated to Zet (*Gizeh and Rifeh*, iv). Thus out of six flint knives, closely comparable to other dated ones of Upper Egypt, four are of the same date as those, one is a stage earlier, another is a stage later. It must be noticed (1) how very closely flint knives can be dated by style and form, usually to a single step of sequence; (2) how quickly style changed, for such close dating to be possible; (3) how there is not the least lag in style between Abydos, Tarkhan and Gizeh, but that a style spread over the whole country in a single generation. The rougher flint flakes and scrapers, vii, 10-51, are much less detailed and less typical. Grave 2055 is dated to S.D. 81; and when we compare the scrapers of Merneit (*Abydos* I, xv) and that of xxi, 123, we cannot say that there is any discrepancy in date.

26. Pl. viii. First are two elevations, and a plan, of a curious wooden coffin, in the fine grave 1973, where the great group of stone vases, pl. iv, was found; see the views at foot of pl. xix. This coffin had a raised footing cut in one block with the sides and ends; and the same appearance was carried out, up the corners, by angle pieces, each cut out of a single block (see plan). These angle pieces thus hid the joints at the corners. It was too much decayed to be brought away.

The two stone tables on slight feet are similar to the wooden table found last year (*Tarkhan* I, xi, 23, xii, 7). The upper stone one here, pl. viii, from grave 1982, is of S.D. 81, and the table from grave 136 is also of S.D. 81.

The alabaster stool with legs is described with pl. i; and the conical lid with pl. iv. The wooden handle was also found in the same tomb, the great mastaba 2050.

Pl. ix. In grave 2039 was a portion of a clay sealing shown in fig. 1. It most resembles in style the sealing 28 in *Royal Tombs* I. This is of Merneit, corresponding to the beginning of 81 (*Tarkhan* I, 3), and grave 2039 is estimated at 80 by the pottery; but its great mastaba to which it belongs is 81. The styles of seals thus agree in their dating at Abydos and Tarkhan. Fig. 2 is on the alabaster vase of Normer, and already described in pl. iv.

Fig. 3 is a painted inscription on a cylinder jar, grave 1549, S.D. 78, closely like the inscriptions of King KA at Tarkhan (*T. I*, xxxi) and Abydos (*Ab.* I, iii). This, however, appears to read NR, and it seems as if it might be a variant of the name of Nor usually written with the fish. It is of the same age as that king, by the pottery in the grave. (Univ. Coll.)

The alabaster cones 4 to 9 were found singly or in pairs (717 and 728). Being thus found in four different graves, and never more than two together, it seems that they are not likely to be gaming pieces. It is possible that they may be weights. The agreement of 985 and 980 grains is very close; the double of 478.2 is 956.4. Yet 845.3 and 872.6 can hardly be any other multiple of the standard; if so, a great variation must have existed. 144.8 is a sixth of 869 grains, close to 872.6. The most likely multiples are accordingly entered below these, with the unit suggested by each. There is a possibility that the apparent weights found at Naqada might follow the same unit (*Naq.* 54) and be 20×141.5 , 50×153.8 , 4×147.5 , 25×159.6 grains. These suggest an early form of the *qedet* of 140-154 grains. At present all we can do is to record, and wait till more definite evidence is found. (Univ. Coll.)

The pottery 10-19 is of a class different from any yet known in Egypt, and seems to be foreign; the photographs of it are in pl. lxxi. The clay is very smooth, usually light brown, but varying to buff in fig. 11. The band of colour is usually red haematite, but in fig. 11 it has been reduced to black in the baking. The fabric is thin, and in some it is very thin and hard. The only suggestion that has been made about it is that it bears a resemblance to Euphratean pottery. The date is all of S.D. 81, in graves 1904 (Univ. Coll.), 1907 (Munich), 1923 (Brussels), 1942 (Leipzig); 1910 (Cairo), 1919 (Man-

chester), 1957 (Cairo) are not dated. All of these graves are about half-way up the eastern slope of hill Q, see map pl. xlviii. In two instances, alabaster vases were found with the foreign pots, and are given here in figs. 13, 16.

Another group of foreign pottery of much later date may be noticed, figs. 20-24. The black-ware handled vase is clearly late Hyksos (*Gizeh and Rifeh* viii B, 91), and the little *bilbils*, 22, 23, are Syrian (*Gizeh and Rifeh* viii, 51, viii A, 67, viii B, 99, 101). With these was the thin brown bowl of Egyptian style, degraded from the thin bowls of xiith dynasty (see *Gizeh and Rifeh* xxv, 27). A very small alabaster kohl pot, 24, was in the group; and also a scarab reading *Er.dy.ra*, a blue glazed pendant and two little glazed cups, shown in the photograph pl. lxxi. (Univ. Coll.; 1 *bilbil* Cairo.)

Fig. 25 is a later Syrian flask, of the xviii dynasty (Cairo). The head-rests 26-28 are probably of iind to ivth dynasty. The form of the columns in 28 is very interesting architecturally, as they are fluted with very narrow raised ribs on the cylindrical surface, and end above in a square abacus. There are no actual columns preserved anywhere near this age, though indicated in the Meydum hieroglyph; hence this model is of great value as showing the development of the wooden architecture which has perished.

Pls. x, xi, will be dealt with in discussing the skeletons and method of burial, in chapter V. The five attitudes are described in sect. 48.

Pls. xii, xiii, xiv have been dealt with in the account of the Valley Cemetery, chapter I.

Pls. xv, xvi, xvii, xviii, xix have been dealt with in the account of the Great Mastabas, chapter II.

27. In pls. xx, xxi, the marks on pottery are classified according to their age. The greater part are from the large graves 2050 and 2026 of S.D. 80, and 2038, 1982, 1973 of S.D. 81. We may compare them with those in the Royal Tombs.

Nos. 1 and 2 have been described in pl. iv.

Fig.	Royal Tombs i.	Kings.	S.D.
9	209-216	Zet-Merneit	80-81
10	1015	Zet	80
11	1073-8	Zet-Azab	80-81
36	1362-3	Merneit	early 81
37	552-565	Zet-Azab	80-81
38	960-3	Merneit	early 81
39, 41	1020-1	Merneit, Semerkhet	81, 82
42	568-573	Zet-Merneit	80-81

Fig.	Royal Tombs i.	Kings.	S.D.
43, 55	456-482	Den-Qa	81-82
49	271-3	Zet-Azab	80-81
50	346-376	Merneit-Qa	81-82
52	536	Den	81
54	var. 10-103	Semerkhet?	82?
57	1117-20	Den-Semerkhet	81-82
58, 59	1091-4	Den	81
65	669-696	Zet-Qa	80-82
68	802	Merneit	early 81

Figs. 64, 77, are more complete on the vase in *Tarkhan I*, lvi, 76 *d*, showing that originally the sign represented a man with an implement. The dating of S.D. 80 down to fig. 42 accords with that at the Royal Tombs, it being questionable, whether the tomb of Merneit should be called 80 or 81. The dating of S.D. 81 from figs. 49 to 59 accords in all cases except that of fig. 54. This is compared here to the similar fortress names of Semerkhet; but the form differs, as the falcon is here in an inner square, which is never found in the case of Semerkhet; and, as the name is lost, it might be of an earlier king. Looking at the fragments of the name left here, it seems like the place name most frequently mentioned under Den (best compared with *Royal Tombs II*, xx, 163). All these potters' marks (except one) were therefore contemporary at Abydos and Tarkhan, as we also found to be the case last year (*Tarkhan I*, 28).

28. Pls. xxii, xxiii, xxiv. The cemetery of this year being earlier than most of that worked last year, the slate palettes were far commoner. Here for the first time a regular *corpus* of types has been formed. They are arranged in systematic order, and numbered so as to allow of other types and varieties being inserted. All the entries of slates in the Register (pls. xxxii to xliii) follow the numbers of this *corpus*. It is hoped that in future all slates will be registered similarly, so as to be comparable for study. The forms hardly need any remark as they are familiar before, and the statistics of their types in the periods 77 to 80 are given in section 56, chapter V, on Methods of Burial. They are rare after 78; 93 per cent. of them are dated to 77 and 78, only 7 per cent. after that. Thus they became extinct as soon as the dynastic race was well established, the old prehistoric customs quickly vanishing. This is one of the most marked and sudden changes, indicating an essential difference in the people. The finest slate 10 *d* was kept at Cairo, and half of all the others were

taken at the museum, to be sold regardless of their history and dating, thus being lost to science.

Pls. xxv, xxvi, xxvii. These plates continue the *corpus* of stone vases published in *Tarkhan I*, xxxii to xlv, supplementing that series with new forms and varieties, numbered so as to fit those already published. The whole *corpus* of both years is used in the Register. The finest of the alabaster vases were ransomed back from the Cairo Museum, for distribution in series, properly dated. The great majority, however, were halved at the Museum, and thus half were lost to future reference.

Pls. xxviii, xxix, xxx, xxxi. These plates similarly continue the *corpus* of pottery, published in *Tarkhan I*, xlvi to lviii. The chief part of the fresh matter is the series of painted patterns on cylinder jars under type 46. Half of all the pottery was taken at the Cairo Museum.

Pls. xxxii to xliii. The Register of graves is on the same system as that in *Tarkhan I*. The only differences are that the attitude of the body in positions 1-5 (sect. 48) is stated under A.T.; in S.D. 77, 78, and 79 a column is used for references to types of the *corpus* of slates, following the stone vases; and in S.D. 81 a column is used for the foreign pottery, following the general pottery. In both the stone vases and slates, a small *c* prefixed to the number shows that the specimen has been taken at Cairo for the sale-room, and is lost to future reference. Ticks placed after a number, as 37", show the number of examples.

29. Pls. xlv, xlv. An entirely new scheme of Register is here formed for the beads. Hitherto no attempt has been made to record beads uniformly, with due regard to size and variety. Some larger strings of beads have occasionally been drawn; but the great bulk of them have escaped record of any useful kind.

Here each class of bead is taken separately, eight classes in all; most of these have further varieties of form, such as ball, cylinder, and drop beads. Then every bead found is registered in both dimensions, duplicates omitted. The register is graphic so that the general results of size can be seen at a glance.

To take the first: there is the section of the smallest bead of its class, small green glazed pottery beads, magnified 20 times, showing the outline over all, and the size of the hole through it. This bead is that of grave 678, the number at the top right-hand corner of it. Next above that is 874, showing where the corner of the beads of grave

874 would come if lodged in the same bottom left corner of the diagram, like 678. So at the extreme top right will be seen 1707, showing where the beads found in 1707 would reach to if lodged in the same opposite corner of the diagram. The absolute size in decimals of an inch is marked along the left and top of each diagram, each 1/20th of an inch diameter being marked by a ruled line.

The lines put over many of the numbers show the form of the bead, whether straight cylinder, barrel, drop form, etc.

The second diagram is really an extension of the first, on half the scale, the corner where the first diagram would come being marked on the second.

In the Carnelian, the fourth diagram, it will be seen how closely they keep to the same proportion of length to breadth; the numbers all lying in a narrow belt, not spreading out in either length or breadth alone.

When broken lines extend from a number, it shows that there is a range of variation of the dimensions.

From such diagrams it is easy to see what is the range of variation of every form, and whether barrel, cylinder, or drop forms are of any different sizes; to trace what the date is by the grave number of any particular size; to see whether the type is closely defined or variable; and to find exactly what beads resemble any that may be found in future. For the occurrence of beads in burials, see section 57.

Pl. xlvi. The plan of the cemetery has already been described fully in chapter I.

Pl. xlvii. These are the plans of hills which were not fully worked last year, in which the graves found this year are incorporated.

30. Pl. xlviii. The general map of the whole site is given here, built up of the sectional maps of both volumes on Tarkhan. The relation of the cemetery to the railway and station has already been given on pl. lxix in *Tarkhan I*. The valley cemetery probably extended almost to the modern canal; but has been buried under the Nile mud, which has risen about 30 feet in level since the date of the burials. The excavations were limited by the water level, the rise of which has swamped the lower end of the cemetery. For connection with official maps, the two modern Arab domed tombs are here entered; but otherwise modern tombs have been ignored, to avoid confusion.

31. Pls. xlix, l, li. The actual measurements of

the long bones are stated in these tables, as measured and prepared by Mr. Horace Thompson, on the plan of those which I designed in *Dendereh*. Each measurement is marked by the number of the grave. Such a method of stating the material has the advantage that the distribution can be seen at a glance, and the most important results are obvious without any extraction. It is true that for correlation of different bones it is necessary to write out tables from these diagrams; but such is also the case when measurements are published of each skeleton together. In no form of publication is any result visible without further work, except in a diagram arrangement such as this. The curves of the results follow in the succeeding plates, and are discussed in the next chapter, on Early Egyptian Skeletons.

Pls. lii to lix. These are described and discussed in the chapter just named.

Pl. lx. The mode of extracting results from the jaw is stated in the latter part of chapter VI on The Skulls and Jaws.

32. Pls. lxi to lxxi. These photographs of skulls are each marked with the sex (M or F) and the date, in sequence dates for the Menite period, in dynasties (as xi, etc.) for later periods. All of these skulls are in the hands of Prof. Karl Pearson at University College, London, and will be measured and discussed in his Department of Eugenics. The two elevations are placed together, as they are most required for comparison; the top and base views are seldom to be compared with the elevations, and would only reduce the facility of comparison if inserted between the elevations. The plans are therefore all placed together, after the elevations.

These skulls were, like the other bones, so much decayed by damp that none of them could be lifted without great care. Where the skull had not collapsed by the pressure, an attempt was made to lift it out in a lump of earth; by turning the face upward, it could be carried in both hands from the grave to the store-room. There it was left to dry for a week or two. Then the sand was brushed away from the facial bones, and they were fixed by ladling out superheated paraffin wax, which would penetrate the mass before chilling. When the face was set, the jaw could be dusted and similarly fixed. Then the rest of the outside could be cleaned and paraffined. The skull could now be turned, with care, in any direction. The hardened sand and marl could next be loosened from the inside and shaken out. When empty, the skull could then be dipped safely in a pan of melted

paraffin; and some was allowed to flow inside and swilled around. This dipping must not go on long enough to melt through the paraffin already set in the hollows, but it unifies the whole treatment, and leaves a waterproof coating over the surface. After chilling, the skulls can now be handled as safely as modern examples.

For photographing them, a stand of shelves was made, with each shelf sloping so that its plane pointed to the lens of the camera. Thus the photograph shows only the edges, and not the flats of the shelves, and all skulls are placed in an exactly similar pose to the camera. On each shelf, the skulls were so rotated that the tangent to the brow pointed to the lens. Thus every skull of a group of nine was exactly in the same position to the lens. The slight distortion on the plate does not matter, as no absolute measurements were to be taken from the photographs. The main thing is that all the views are square with the medial plane of the skull, and opposite to the brow. A half-lens was used (rapid symmetrical) of 12 inches' focus. The common defect in photographing statuary is to place the camera opposite to the centre of the head, and so distort the profile by an oblique view from behind its plane, which is the worst position. Actually the brow pointed to one side of the lens, so that the optic axis should be slightly in front of the brow in about the mean plane of the features. The horizontal plane is that of the teeth or chin; the disadvantage of being thus below the centre (only 3 or 4 inches on 5 feet distance) is more than compensated by getting rid of the shelf surface spoiling the definition of the outline. The skulls were all levelled to the Frankfort plane (orbito-auricular), and blocks of soap were found to be best for supporting them; the soap can be cut to any height, and the basal points slightly bedded in the surface to give a steady support. The background was a white sheet hung some feet behind the shelves; and each shelf threw a shadow on the skull below it so that a good contrast was obtained against the background. The outlines here are entirely untouched, except slightly at the base where the block supports hid the contacts. No blocked outline is worth anything for accuracy, but these can be taken as absolutely certain elevations of the skulls. In the plans the upper side should be accepted and not the lower, as sometimes the shelf slightly interfered with the outline. The shelf has been blocked out here with great care, using a magnifier, but the form must be taken only from the top half.

The pottery on pl. lxxi is already described in the account of pl. ix.

Pl. lxxii. Besides the preservation of the skulls above noted, measurements of 334 skulls were taken as they lay in the grave; only 13 of these could be preserved as above. These measurements are discussed in chapter VI on Early Egyptian Skulls, and the results are shown in this plate. The separate measurements are not published, as it seems best to issue them with the more detailed measures that will be taken on the series brought to England. The general result, bearing on the conclusions from the long bones, is what is necessary to be given here.

Prehistoric (Petrie, Warren)	738
(of which dateable in detail)	222)
o and ist dynasty (Petrie, Thompson)	614
(only counting adults with complete legs)	
(Positions recorded in 1912-13)	969)
Nubian survey, various early dates (Reisner, Elliot Smith)	180
ivth dynasty, Meydum (Petrie, Garson)	15
vth dynasty, Deshasheh (Petrie, Petrie)	41
vith—xiiith dynasty, Denderah (Petrie, MacIver)	121

There is unfortunately a great difference in the amount of material of the various periods; but the ivth dynasty will be better studied when Dr. Reisner's series from Gizeh may be published. For the present only the skeletal measures are dealt with here, as it was found by a preliminary search of measurements of 330 skulls from Tarkhan that the distinctive groupings were not so clearly shown by the skulls as by the long bones. On the skulls see sects. 32, 59—61.

34. A short statement is due as to the method of extracting results from this mass of measurements. The measured lengths were all *maxima*, for the conditions of measurement with the bone lying half buried in sand did not admit of any reference of spacial planes. For forming the diagrams, the ordinary crude method of counting the numbers in consecutive spaces of 5 millimetres, by no means shows the full results. There is no reason, for instance, why spaces of 270—274, 275—279, should be taken, rather than 271—275, or 272—276, as a scale of division of the material. Hence the only logical method is to count the number in the spaces 270—274, 271—275, 272—276, 273—277, 274—278, and enter the total of each space upon its central number. This will give a much finer gradation of detail than arbitrary selection of one chain of spaces, and ignoring of the other chains which overlap it. The question is thus raised; What size should each group be? The larger the group the more it eclipses casual variations; but if too large it would also eclipse the larger and significant variations due to different classes of material. The size of the group must, then, be fixed by considering the amount of casual variations likely to arise, and the distance apart of what may seem to be real changes of material. In the present work, the casual variations may be perhaps, on an average, 2 mm. for differences of right and left, 2 mm. for possible changes in the bone, 3 mm. for errors of

CHAPTER IV

EARLY EGYPTIAN SKELETONS

33. As studies advance, much more detail and discrimination must be observed, beyond the rough general terms which belong to the first stage of research. In 1879 the College of Surgeons' catalogue only recognised "ancient" and "modern" Egyptians, only one date was given, and that with an absurd misprint. Twenty years later we were at least distinguishing the main periods of the civilisation, and writing of "prehistoric" Egyptians, probably ranging over 2,000 years. Now, fourteen years later, it behoves us to discriminate at least every 500 or 1,000 years in time, and four or five different districts of Egypt.

The large mass of material from my work at Tarkhan, measured last winter, so greatly consolidates our knowledge, that some general review of the position is now suitable. The new material being moreover all of one site, and within a single century, it is not subdivided among different categories as much of the previous material must necessarily be, where we begin to discriminate details. It is by far the largest mass of observations of a single period and place yet collected; and it belongs to the most important age—the critical junction of the prehistoric and historic peoples. We owe the collection of these measures to Mr. Horace Thompson, who took them all in the graves, from which the bones were too rotted to be removed whole.

It will aid our view to state, approximately, the amount of skeletal material now available of the different early periods, naming the discoverer and the measurer.

estimating the length on a scale laid over the bone, and reading in awkward positions in a narrow pit. These would result in a total variation of 4 mm. The differences of type appear to be from 5 to 15 mm. Hence groups of 5 mm. would be a very suitable size of scale. On adding up the total examples of each of the last digits of the recorded numbers, it appeared that there was considerable prejudice for or against some numbers, which would only be eliminated by taking groups of 10; such groups did not appear to extinguish the differences of type suggested by smaller groupings of 3 or 5; and it was, therefore, thought better to slightly smudge the significant grouping, in order to get rid of the casual variation. For the Tarkhan material, therefore, groups of 10 were counted; while for the Naqadeh and Denderah material, which was measured in much better circumstances, groups of 5 were counted. Inasmuch as really every observation should have a probability curve of its own, and the total curve be the sum at any point of all the constituent curves, it would be theoretically the best process, to form curves by different sized groups, of 3, of 5 and of 10, and then add these curves together, thus giving a three-step curve to each observation. This was done for the four curves of humerus + radius, and femur + tibia, male and female of each; but the result did not seem to show any clear superiority in distinctiveness beyond that of the groups of 10. As possibly the principle might be questioned, it has not been used in the present results.

The diagrams are all lettered here, and reference will be made by the letter. On the diagrams J to R, the middle example, or median, is marked with M, in order to compare them readily.

35. *Humerus, Female*, Pl. lii, Diagram A. This is a fairly normal curve, the observed points falling pretty equally on either side of a true probability curve, marked by the dotted line. The actual examples are shown by the columns of spots below; the sums of groups of ten millimetres are taken at every millimetre, and marked by the short vertical lines. There is a slight excess at the extremes, and a hump at about 272 with a hollow at 282. The symmetry at the extremes and about the top shows that the curve cannot be fitted closer, and the hump at 272 seems to be due to some cause lowering the numbers about 280, but does not seem to indicate any distinct group.

Radius, Female, B. This is the most regular of all the curves, the only general deviation of the actual quantities from the dotted theoretical curve

being in the higher numbers. Probably a slight sacrifice should be made at the lower numbers by narrowing the dotted curve, as in the diagram F where a closer fit is attained. It might be supposed that the deficiency of large female radii was due to some being wrongly attributed to males. But on looking at the male curve, it is seen that the secondary curve on the main one is deficient rather than in excess from 247 to 250.

36. *Female Curves*, Pl. liii, C. Comparing the observations on the humerus, radius, and clavicle, shown by the continuous lines, with the theoretical curves of dotted lines, it is seen that they are in fairly close agreement, and that there is no evidence of any secondary curve superposed. We must conclude, then, that at the beginning of the first dynasty, the female population was of a uniform type, without any recent intrusion of a different type.

37. *Male Curves*, Pl. liii, D. The case, however, is quite different with the males. Here each curve is irregular, with a secondary curve superposed on the left, showing a lesser size of bone than the main curve. Hence it seems that the male population was of two types. The main body agrees with the measures of the female population; the differences being, in humerus 28, against 25 and 28 at Denderah; in radius 24, against 25 and 24; in clavicle 18, against 16. The minor body is of rather smaller type than the main body, in each dimension.

38. *Humerus*, Pl. liv, E. In order to see more clearly the relation of the uniform female type to the double male types, the two curves are superposed, with the maxima one over the other. The female points (see also A) are worked with a vertical line, the male points with a horizontal line. The excess over the normal curve (dotted) of the males, is measured off and reproduced below, where the successive points are marked, and the mean curve dotted between them. This excess forms a symmetrical curve, showing that it is probably due to an intrusive type mixed with the main type. The area of the female curve is 54 per cent. of the whole, the main male 42, and the male minority 4 per cent.

Radius, Pl. liv, F. Here we see much the same distribution. The female curve is homogeneous (see also B), while the male curve has a large peak to the lower side. The excess of this peak above the normal curve is extracted and shown below as a small separate curve. The area of the female curve is 54 per cent., that of the corresponding male curve 41, and the male minority 5 per cent.

Clavicle, Pl. lv, G. The female curve here is very homogeneous as we saw in diagram C, while the male curve has a low group as usual. The slight excess in the lowest part of the female examples is probably due to including a few not fully grown. The area of the female curve is 54 per cent., and of the male curve 42. The male minority put out below is 4 per cent.

39. On examining the measures of the leg-bones, in neither of them could the same double curve be detected as in the arm-bones; and it appeared as if no distinct difference of type could be distinguished in them. But when the sum of femur and tibia was added, then a strong grouping appeared in the male, and probably some sub-varieties in the female also.

Femur + Tibia, Pl. lv, H. Here the separate points are set out in detail, but for distinctness the resultant curves should be inspected on the following diagrams J, M. The most prominent result is a very steep peak rising from the normal male curve, showing a very closely related minority, more sharply distinguished than in the previous curves. The excess of this peak over the normal curve is set out as the minority curve below. It amounts to 4 per cent., while the female is 56 and the normal male 40 per cent.

Though this minority is not at all represented in the female curve, shown above in H, yet there are some curious resemblances between the female curve and that of the male majority. In the female curve is a sharp peak at 794, and a lesser peak in the male curve at about 8 mm. above the corresponding point. Also at 690 is a peak, and a corresponding peak in the male curve at about 10 mm. above the equivalent point. We may perhaps expect that these show two small tribes, both male and female, in the population, one 7 per cent. larger, the other 6 per cent. smaller than the majority, and with women rather smaller in proportion to the size of the men. The actual number of each of these two tribes would be only about a twentieth of the population.

40. The next consideration is the comparison of the results from Tarkhan (dating just before and after the beginning of the first dynasty), with the results from other sites and other early periods. The material for this comparison is published in the following work, *An Investigation on the Variability of the Human Skeleton*, by ERNEST WARREN, 1898 (*Phil. Trans. Roy. Soc.* vol. 189, pp. 135-227), dealing with the measurements of 738 skeletons collected by me in the prehistoric cemetery of

Naqadeh. Subsequently by the study of the pottery, and introduction of Sequence Dates, I was able, from our records of types, to give relative dates to 222 of these measured skeletons. These were subdivided into three classes: 65 were of the first period down to 42 S.D.; 127 of the second period, 43-69 S.D.; while 30 were of S.D. 70 and later, separated in order to see if there were a tendency to approximate to the dynastic type. The sex of these was checked over by the later determination, published with the cranial measurements in *Biometrika* i, 466, 1902. The three periods named are entered in separate lines at the top of each diagram. Where there are ten or more examples, their resulting curve (or polygon) is given, and dots placed to show the instances; where there are fewer, the separate instances are marked with heavy dots which will at least indicate whether they agree or disagree with other results.

The material from Tarkhan is published in the tables in the present volume.

The points marked IV show the median of 12 male bodies from the cemetery of Meydum, of the beginning of the ivth dynasty, published in *Deshasheh*, p. 27.

The points marked V show the median of 12 male bodies which were found in perfect order at Deshasheh, of the vth dynasty. The points D show the median of 8 male bodies of the same age which had been partly dismembered at Deshasheh, published in *Deshasheh*, p. 27.

The curves of Denderah are from the skeletons of the vith to xiith dynasties, published in *Denderah*, pls. K, M, N. Altogether over 1500 bodies have been measured from my excavations.

The measurements made on the 170 skeletons of early age in the Nubian survey have not been included here; in the first place, they are so distant in source that it is doubtful if they can be brought into certain relation to most of the other material; in the second place the date, though early, is so vague, owing to lack of discrimination of the pottery forms, that it is doubtful whether they should be compared with prehistoric or with early dynastic Egyptians.

41. *Femur and Tibia*, Pl. lvi, J. On looking at the position of M, which marks the median in each curve, it will be seen that the size diminishes from the early prehistoric down to the Tarkhan minority,—the invading people of the ist dynasty. The median size then increases in the ivth; in D, the dismembered bodies of the vth; in V, the perfect bodies of the

vth; and remains much the same in the vith to xiith at Dendereh.

42. The curve of *Individuals* of the Tarkhan minority is reached in the following manner. On each diagram of males is shown a full-line curve of the Tarkhan minority, transferred down from the excess of the Tarkhan whole curve, above the normal probability curve, as fitted to the observations. These minority curves, then, indicate the ranges over which the minority may be found. Now there is no necessity that because any individual occurs within this range on one diagram, that the same individual should occur within the minority range on another diagram; as a fact, most of the individuals in one range occur outside of another range. But if we are dealing with a really different group of people, the individuals of that group ought to occur only within the minority range in each of the diagrams. Hence, to find these individuals, we have to search for those whose measurements shall all of them fall within the minority range of each bone, or so close to them that they may belong to the same group. A table of the measures of such individuals is given on pl. xliii, with some included (marked with ?) which only exceed the range in one measurement. There is no mere repetition by including the whole arm as well as the humerus and radius separately; for the sum of the minima of hum. and rad. is 515 and maxima 558, both beyond the limits allowed for the sum of the bones. Here, then, we have five tests of limits; and, before we allow an individual really to belong to the minority group, he must pass within each of the five limits. Altogether 22 pass in all the limits, and 7 more pass in four out of five limits. Now the size of the minority is about 1/9th or 1/11th of the whole of the males, that is, it should consist of 25 or 30 individuals. Hence we may accept the 22, which pass all the tests, as being clearly of the minority group, and probably also most of the 7, which pass all tests but one.

Having thus extracted the individuals of the minority, we may deal with them as a clear group, which will not coincide exactly with the first full-line curve of the minority, as they have had to pass all five tests, and so are weeded of casual interlopers coming from the majority curve. The full-line minority curve is thus mixed up with casuals from the whole body. The large dots placed along the base of it show the individuals which pass all the tests, and form the unquestionable minority. Over these dots is a curve of small dots which is the curve

of this individual minority, the truest representation of the intrusive minority. Finally this minority is subtracted from the whole curve above, which then comes on the dotted line marked "without minority," and shows what is the true form of the majority curve.

43. On looking over all the diagrams of different periods, Pls. lvi to lix, J to R, it is seen that there is seldom any exception to the general decrease of the body from the early prehistoric down to the minority of the ist dynasty; and that from then, or from the ivth dynasty, the size of the body increased, but did not in general reach the prehistoric size. The clavicle decreases but little, until the minority of the ist dynasty, and then increases again from that to its original size.

To survey the nature of these changes, and to gather from them the general alteration of dimensions from one age to another, we may take the differences from the best-ascertained values—these of the Tarkhan majority—and state the amounts, larger or smaller. In order to render the changes comparable, they are here stated in thousandths of the size of the bone,—not percentage, but per millage.

	Prehistoric.			Tarkhan Ist.		Ivth.	Vth.		Vith to Xiith.
	Early.	Middle.	Late.	Majority.	Minority.		Disser.	Perf.	
Humerus .	+36	+10	+7	0	-48	-38	-10	+16	+7
Radius .	+43	+138	+43	0	-17	-16	+12	+16	+21
Whole arm	+41	+62	+5	0	-53	-35	-7	+9	+5
Clavicle .	+14	+7	+14	0	-69	-46	0	-6	0
Whole leg	+61	+41	+45	0	-19	+3	+34	+44	+33
Average	+39	+52	+23	0	-40	-26	+6	+16	+13

Here three out of five in the middle prehistoric show a decrease from the early, and the only exception is the preposterous length of the radius, mainly among women: otherwise there would be a regular decrease from the early prehistoric down to the minority of the ist dynasty, and then a regular increase up to the perfect bodies of the vth dynasty.

44. Are these changes to be attributed to gradual alterations in a single stock, or to the inflow of different stocks? If this one single stock were in course of gradual change, it would seem impossible to have a sharp pile of a minority curve superposed on a much wider majority curve, as in J. This stamps the inflow of a different stock. Hence it seems probable that the dynastic Egyptians began to filter into the country in the late prehistoric age, and had largely modified the general stock, while the political conquest was carried out by a closely related, compact, clan of the same race, which continued

dominant till the ivth dynasty, and then became gradually mixed in the general population. Such a course of mixture would be like that of the Hyksos and Arab invasions, where a good deal of mixture of an intrusive people took place before the final conquest by a pure body of the same race. The cause in all cases was probably a slow climatic change, at last precipitating a political convulsion.

45. We may now turn to the relative numbers of the population. The minority group is measured by its area above the normal curve which fits the majority; and this varies according to different bones, stated here in percentages of the whole population :

	Minority.	Majority.	
	Male.	Male.	Female.
Humerus . . .	4	42	54
Radius . . .	5	41	54
Clavicle . . .	4	42	54
Femur + Tibia . . .	4	40	56
Mean . . .	4	41	55

The figures show that 1/11th of the male population was intrusive; and there were three women to one of the invading men. On dividing these results into periods of sequence date, the following proportions appear :

s.d.	M.	F.	=	M.	F.
77	149	175		100	117
78	105	113		100	108
79	11	17			
80	16	26			
81	29	14			

The later periods have too few examples to give any safe result of proportion; but it appears that in 77, immediately after the conquest, there were 117 women to 100 men, or 28 women to 11 invading men. About a generation later, in 78, there were 108 women, or 19 women to 11 invaders. As the second generation would not show any disproportion due to killing the earlier race, it may be taken as showing that in the capital, on an average, 11 invaders had 19 women of the country; while the 28 women in the earlier generation of the conquest may include 9 widows, or women captured from a distance. The difference of proportion of these numbers from the bone-measure numbers of 100 men to 122 women occurs from those being from whole bones, while the later table of M and F is of all graves that could be sexed.

46. Another subject of measurement was the stature. This was observed by measuring with a tape from the vertex, along the middle of the spine, from the top of the lumbar curve to the centre of the ball of the thigh, thence to the knee, thence to the heel. Thus, though the bodies were contracted, the living stature, less the skin on vertex and heel, could be measured. This was done for 25 male and 11 female skeletons of the ist dynasty.

The males will be considered apart. The median stature is 1700 mm. (66.9 inches). The following measures give the mean length of the bone for the particular skeletons measured, the mean variation from this in mm., and as a percentage of the bone length; this shows which bones vary most one from another. Next is the bone as percentage of the height, and the mean variation of this ratio as a percentage of the bone; this shows from which bones the height may be most certainly deduced :

	mm.	Mean var.	Var. as % of bone.	% of height.	Var. as % of bone.
Femur . . .	454	18	3.9	265	2.8
F + T . . .	820	33	4.0	478	2.7
Tibia . . .	367	17	4.5	213	3.4
Humerus . . .	322	13	4.0	188	2.8
H + R . . .	567	23	4.1	335	3.0
Radius . . .	244	12	4.9	144	3.8

Here the radius is much the most variable in itself, and in relation to the stature. The tibia is less variable. The humerus and femur are equally good for giving the stature, with a mean variation of 2.8 per cent.; so that 8 examples will give the mean stature with 1 per cent. variation.

The female skeletons are similarly stated, only, instead of the mean variation, the difference between male and female is stated in mm. and as a percentage of the bone. The median stature is 1570 mm. (61.8 inches):

	mm.	M.-F.	% M.-F.	Var. as % of bone.	% of height.	Var. as % of bone.
Femur . . .	405	49	12	3.9	256	1.8
F + T . . .	739	81	11	3.4	472	2.0
Tibia . . .	334	33	10	3.9	212	3.0
Humerus . . .	289	33	11	3.7	187	2.9
H + R . . .	510	57	11	3.7	325	2.9
Radius . . .	224	20	9	4.3	142	3.2

Here the femur is in proportion the shortest bone, and the radius the longest, as compared with the male measures. In other words, the lengths of bones are less differentiated in the females. The amount of

variability in proportion to the bone is rather less than in males; and the variability in relation to the height is much less than in males, in both the leg and radius. In short, man is much more variable than woman in each respect. The living statures may be considered as $67\frac{1}{2}$ inches for men and $62\frac{1}{2}$ inches for women.

Taking the sum of the leg bones as 1000, the sum of the arm bones in the prehistoric and Tarkhan male majority is 700–704, while in the minority and on to the vith dynasty it is 672–677, the minority of males thus fixing the later type. In the females, in the early prehistoric, it is 655, general prehistoric 712, Tarkhan 681, and later 674 to 688. Here the 1st dynasty females have already reached the shorter type of arm.

47. Summary

(Section 33). Measures are published of 892 skeletons accurately dated, and 807 more with vague dates, before the xiith dynasty. The long bones show details of distribution of variation much more clearly than the skulls.

(34). The casual errors are eliminated by counting groups of 10 mm. together, and, by doing this at every single mm., the real variations are more clearly shown.

(35). The female humerus and radius (A, B, pl. lii) at Tarkhan give curves of normal distribution of a single variable, shown in detail.

(36). The female curves (C, liii) (humerus, radius, and clavicle) are all single centred.

(37). The similar male curves (D, liii) are all double centred. The bigger type is that proportional to the female curves; the smaller type of man has no distinct female parallel here.

(38). The female and male results for humerus, radius, and clavicle (E, F, liv, G, lv) show a male minority in excess of the norm; this is extracted apart and given as a separate result below.

(39). (H, lv). Leg bones do not show a distinct grouping when separate, but have very marked grouping when added together. The regular male minority group is very clear, and also a suggestion of a low and a high group in both male and female, of about 6 and 7 *per cent.*

(40). Measurements of skeletons of other periods for comparison.

(41). Femur and tibia (J, lvi) diminish in each period from early prehistoric down to the Tarkhan

minority of 1st dynasty, and then enlarge to the earlier size in the vth and vith dynasties.

(42). The male minority curve is evident in four bones—humerus, radius, clavicle, and leg—but superposed in each upon a large amount of the majority curve. As, however, the same individuals of the majority curve are not likely to fall within these narrower limits of the minority in all the different bones, we can separate the real minority individuals by their having dimensions within the four groups of the minority. The number that will pass all these four gates accords with the proportionate number forming the minority curve. The minority individuals can then be taken out, and separate curves drawn of their results.

(43). The diagrams (J to R, lvi to lix) of the humerus, radius, and clavicle all show the same changes as the leg bones. There is a continuous reduction in size, altogether 8 *per cent.*, down to the male minority of the 1st dynasty and after that an enlargement, of about 6 *per cent.*, to the vith dynasty.

(44). These changes are probably due to a gradual infiltration of the dynastic people, long before the rule of the 1st dynasty. That they are due to a mixture, and not to a spontaneous evolution, is shown by the sharply defined minority curves standing out upon the general mass. This gradual preliminary change is historically probable by the analogy of the infiltration of the Hyksos, and of the Arabs, centuries before the forcible conquest by a small tribe.

(45). The minority group of invading males was 4 *per cent.* of the whole people, or 1/11th of the whole males, in the capital. There was a large excess of females, equivalent to about three women to each invader at first, and two women about a life-time later.

(46). The stature was about $67\frac{1}{2}$ inches in men and $62\frac{1}{2}$ in women. The humerus and femur have nearer relation to stature than the distal bones. Men are more variable in each respect than women.

The inter-membral index, or ratio of arm to leg length diminishes sharply from 700 to 675 at the male minority of the 1st dynasty, and continues thus to the vith. On the other hand, the female type dropped from 710 to 680 at the 1st dynasty, and continued thus onwards. It is curious that the shortening of the arm, belonging to higher races, should have been effected on the female type in the general first dynasty people, while in the male type it only began then among the minority.

CHAPTER V

METHODS OF BURIAL

48. HAVING now dealt with the skeletal measurements, the attitude of the body is next to be considered. There are five grades of attitude to be separated; (1) the parallel, with the spine, femora, and tibiae, all parallel, and head bent forward on to knees, evidently the result of bundling the body, tightly tied together, as found in some coffins (pl. x, 1450, 1477). (2) Sharply bent thighs, 10° to 70° to spine (x, 1870). (3) Open angle of thigh 70° to 90° (x, 1411). (4) Square hip (x, 1669). (5) Obtuse hip (x, 1728; xi, 1439). These five grades of attitude are specified in the Register of graves, next after the sex in the body details. On taking the minority individuals only, no clear preference appears for any attitude; but the total is so small (only 26 of known attitude, including those of doubtful grouping) that not much can be concluded from them. Not a single body extended at full length could be assigned to the ist dynasty. Another way of examining the question was to take the average dimension of each bone, in each class of attitude. Only as the (2) sharply-bent were by far the majority, I have not extracted them all, but only taken the whole together, knowing that the class (2) alone must be still more different from the other classes.

MALE						
	Parallel.	All.	Over 70°.	Square.	Obtuse.	Minority.
Humerus	315	318	307	307	302	303
Radius	246	245	238	243	240	234
Clavicle	149	152	155	146	142	142
Fem. + Tib.	810	810	803	804	787	790
Sums	1520	1525	1503	1500	1471	1469
FEMALE						
Humerus	294	290	285	292	293	
Radius	226	222	219	226	224	
Clavicle	138	134	134	133	135	
Fem. + Tib.	756	746	728	749	748	
Sums	1414	1392	1366	1400	1400	

Here we see that while the men show a steady decline in size from those sharply-bent down to those with the obtuse hip, the women do not show a regular progression. This would agree with the fact that the

small invading men were buried in the less contracted attitude. The larger women being buried less flexed may indicate that the minority men selected tall women. There is no clear difference in the proportion of male and female in the different attitudes; and as the graves of the women were more disturbed by plunderers for the sake of their ornaments, and the attitude thus lost, we cannot take notice of small differences.

The total numbers recorded in different attitudes are, parallel 93 (15 per cent.), sharply bent over 350 (57 per cent.), open angle 82 (13 per cent.), square at hip 58 (10 per cent.), obtuse at hip 30 (5 per cent.), total 482. This includes the burials of the hill cemeteries. When we examine the proportions in different periods, we do not see that there was any distinct tendency to increase or diminish. Nor does there appear any connection between attitude and skull measures, nor much between attitude and sex, except that the square and obtuse hips occur in 29 females and in 35 males, where the normal proportion would have been 25 males.

49. The position of the body was usually with the head to the north or to the south. In the prehistoric burials the head is regularly to the south; whereas the servants of Qa (end of ist dynasty) were buried with head to north in five graves, and only in one to south. In the dynastic times, the head to the north was usual. Here in the beginning of the ist dynasty we are in the midst of the change from head south to head north. Yet we do not find any progressive change going on. The total numbers of both years' work—on hill and in valley—are as follows:

HEAD DIRECTION									
Total.	s.d.	Numbers.				Per cent.			
		N.	E.	S.	W.	N.	E.	S.	W.
347	77	111	19	192	25	32	6	55	7
299	78	98	27	150	24	33	9	50	8
71	79	20	0	42	9	28	0	59	13
132	80	36	3	75	18	27	2	57	14
115	81	47	2	58	8	41	2	50	7
5	82	3	0	2	0	60	0	40	0
969		315	51	519	84	33	5	53	9

It seems impossible to be certain of any progressive change, unless there were a slight diminution of north and increase of south from s.d. 77-8 to 79-80, yet this is countered by the proportion in 81. The head to east seems to have given place to head west. It is curious that the change, if any, should be the reverse of that over a longer period.

On separating into male and female, the tendency is seen for males to be buried head south, and females head north. The total numbers in the excavations of both years together are:

	Numbers.				Per cent.			
	N.	E.	S.	W.	N.	E.	S.	W.
Male	100	18	212	28	28	5	59	8
Female	136	26	183	38	35	7	48	10
741	236	44	395	66	32	6	53	9

50. The directions of the face, in both years' results, are:

Total.	s.d.	Numbers.				Per cent.			
		N.	E.	S.	W.	N.	E.	S.	W.
333	77	22	112	14	185	6	34	4	56
289	78	25	87	25	152	9	30	8	53
70	79	8	18	1	43	11	26	1	62
129	80	17	29	4	79	13	23	3	61
111	81	8	47	2	54	7	42	2	49
5	82	0	2	0	3	0	40	0	60
937		80	295	46	516	8	32	5	55

Here the face to the east was less usual from S.D. 77 down to 80, while the face to the north became commoner; the western facing varies, but not regularly. This direction may also be regarded—and perhaps more naturally—as lying on the left or right side. The numbers in both years' work are:

s.d.	Numbers.				Per cent.			
	Male.		Female.		Male.		Female.	
	R.	L.	R.	L.	R.	L.	R.	L.
77	15	135	15	163	10	90	8	92
78	17	96	17	98	15	85	15	85
79	1	17	2	20	6	94	9	91
80	4	22	2	40	15	85	5	95
81	8	40	0	21	17	83	0	100
82	0	2	0	0	0	100	0	0
	29	312	36	342	9	91	9	91

Here there is seen a decrease of the usual left-side posture in both male and female, from S.D. 77 to 78; after that the numbers are not large enough to warrant a conclusion.

51. On separating the bodies with hip joint square or obtuse, there are some differences to be seen. As there are 58 of this class the results are not likely to be merely casual. The percentages are:

	Head.				Face.				Side.	
	N.	E.	S.	W.	N.	E.	S.	W.	R.	L.
Total	32	6	54	9	8	31	6	55	11	89
Square	45	5	40	10	10	43	5	42	5	95

The square and obtuse attitudes therefore are only half as often on the right side as the generality are; and they are more often with head north and face east, while the generality lie with head south and face west. In short, although the prehistoric direction with head south had given way largely at this time, yet the square burials went a good deal further toward the regular historic direction, with head north. This accords with the result from bone measurements, that the prehistoric had been approximating largely toward the invading type; yet that type when it came in pure was quite distinct.

52. The size of the graves differs much, according to position: those on the hills (cleared in 1912) were larger and richer than those in the valley (1913). The median sizes in different periods are:

s.d.	Hills.	Valley.
77	69 × 35	45 × 25
78	70 × 41	45 × 25
79	70 × 40	46 × 27
80	63 × 40	48 × 28
81	61 × 36	51 × 31

As the dynasty went on, the richer diminished the size of grave on the hills, and the poorer increased the size of grave in the valley.

53. On referring to the plan of the valley cemetery, it does not appear that any part of it was occupied exclusively at one period. As a whole the graves nearer the valley mouth—to the east—are of the earlier period, for the good reason that the space was too closely occupied to encourage later use. Yet at the western head of the valley, and at all intermediate parts, there is almost an equal number of graves of 77 and of 78 S.D. The small number of graves of 79 and 80 are also widely scattered, but those of 81 are in the lower half of the valley. None of these later graves, however, are in the thick band at the valley mouth.

There can be no doubt that the graves extended over a large area in front of the valley. Our excavation of the graves eastward was only checked by their lying in the water, with the remains rotted, and under 8 or 10 feet of sand; but they continued as far as we turned the ground. Some hundreds of feet farther east we dug a well, and at once came on a similar grave with pottery. Several hundred feet still farther east is a sand-bar across the line of the valley, rising above the Nile mud, and indicating that there is a very shallow depth of cultivated mud soil over the desert sand in this region. The water level has

risen 30 feet since this cemetery was formed, and it is to be expected that the cemetery should be near the ancient limit of cultivation. It is probable that the burials would begin where the ground was 10 feet or so over the ancient cultivation, or 20 feet beneath the present cultivation. The area of this cemetery would then be two or three times the extent of the part which remains now high enough to be accessible. From the distribution of graves of the later age being up the valley, it is probable that the part now buried out of reach was mainly used in S.D. 77.

Two other questions of distribution remain. The graves with the square or obtuse attitude of burial are mostly in the upper part of the valley; the middle of them is about two-thirds along the whole of the graves. There is but little grouping, four lie close together at the west end, and seven lie within 100 feet at two-thirds up. The graves of twenty-five individuals presumably of the male minority, are very similarly distributed, with the middle about two-thirds up the valley, but only slightly grouped. It thus seems that neither the minority nor the square burials were isolated from the population with any separate place of burial.

54. The size of the coffins varies like that of the graves. The hill coffins of 77-78 S.D. are 52 x 24 x 22; those of the valley 44 x 23 x 15, smaller in every direction.

55. In the materials of the coffin, there is a marked change; while in the hill burials there is only one basket before S.D. 79, yet in the valley there are eighteen in 77 and eight in 78, or averaging half as many as the wood coffins. This agrees to the valley burials being those of the poorer people. The totals for both years are—

s.d.	Wood coffin.	Tray.	Basket.	Pottery.
77	37	..	19	1
78	48	3	8	..
79	10	6	3	..
80	14	9	6	..
81	21	7	6	3

There is a slightly greater proportion of wooden coffins for men, and of baskets for women.

56. The use of slate palettes was continuous to S.D. 79, and then suddenly ceased. In S.D. 77 they are in 31 *per cent.* of the graves; in 78, 34 *per cent.*; in 79, 29 *per cent.* of the valley graves, practically equal throughout, but they only occurred in 7 *per cent.* of all the graves in S.D. 80. They are found with 12 *per cent.* of male burials, and with 40 *per cent.* of

female. Allowing for robbed graves, probably half of the women and a quarter of the men were buried with palettes. The proportion of types is the same in male and female burials. The numbers of the main types in each period are—

s.d.	Square.	Round.	Birds.	Fish.
77	49	17	20	19
78	45	17	8	6
79	6	2
80	6	1

This includes the hill and valley graves, and shows how the geometrical forms outlasted the animal forms.

Comparing hill and valley in the period S.D. 77-79, the slates occur in less than a fifth of the hill graves, and in a third of the valley graves; probably they were twice as common among the poorer valley people as they were among the richer hill people.

57. Beads were used by both men and women. Taking both hill and valley, there are—

s.d.	Male.	Female.	Per cent.	
			M.	F.
77	13	34	9	19
78	6	26	5	22
79	..	2	..	20
80	3	7	..	30
81	4	1	..	10
	26	70		

The percentage is only taken on the valley graves, as there are so few graves in which the sex was determined, on the hills. It appears that beads are thrice as usual with women as with men. Considering how most of the graves were robbed, and that the robbers always disturbed the neck and wrists to get the beads, it seems probable that nearly all the women had beads on the body, and perhaps a quarter of the men.

58. Summary (compare on p. 20):

(Section 48.) The flexure of the body is classed in five stages, see pl. x. From the sharply flexed to the least flexed there is a uniform decrease in the size of the male bones; indicating that the more minority there was present, the less flexed was the burial. This only applies to male burials. In female burials this was reversed; it is possible that the men of the short invading minority selected the taller women, and thus the burials of these women would be according to the fashion of the minority. The square and

obtuse attitudes occur in 40 per cent. more men than is proportionate to the women, indicating that the men adopted the invaders' fashion earlier than women.

(49). The direction of the body is recorded in 969 graves of the 1st dynasty at Tarkhan. There is no regular change traceable in the proportion of the prehistoric position—head south—to the historic position—head north. The only change is the disappearance of the small number of head east, being transferred to head west.

Regarding sex, there are a quarter more men than women head south, and the reverse proportion to the north.

(50). The direction of the face, or the side on which the body lay, may be considered as either of them determining the other. The side—right or left—shows early a slight increase of right side, but nothing distinctive. The face direction, however, goes with the head direction. Head north, face east, diminishes; head east, face south, diminishes; head west, face north, increases, throughout the period S.D. 77–81.

(51). The square and obtuse attitudes are more constantly on the left side than the generality of burials. Apparently this later, or dynastic attitude is strongly with left-side burial.

(52). The valley graves are only about two-thirds of the size of the hill graves; but they gradually increase as time advances.

(53). On the whole, the earlier burials are nearer the valley mouth; and the minority type being of higher class are farther up the valley. The greater part of the cemetery seems to be now inaccessible under water.

(54). The coffins in the valley are much smaller than those on the hills.

(55). The cheaper baskets are not used in the early hill graves, but are common in the valley.

(56). Slate palettes were twice as common among the lower class burials of the valley, as among the hill burials. They practically disappear at S.D. 79. Square forms last on into the latest graves. Evidently the slate palette belonged to the earlier and poorer people, and was rejected by the richer invaders. About half the women and a quarter of the men had them.

(57). Beads were very common; probably nearly all the women were buried with necklaces and armlets of beads, and perhaps a quarter of the men. Even after much robbing of beads, they remain in a fifth of the women's graves.

CHAPTER VI

EARLY EGYPTIAN SKULLS

59. THE measurements of the skulls do not appear to serve as criteria for the distinction of groups in the same manner as those of the long bones, already discussed. This is partly due to the lesser number, partly to the much greater complexity of the elements of the skull. The length, which is looked on as the main dimension, is formed of three separate bones, which grow with various curvatures, and meet at various angles. The number of variables, and the many causes of variation, render it far less likely that significant differences will be found in the skull than in the long bones, where only a single element of growth is involved.

60. The material for study is in two classes. The most numerous, but perhaps less accurate, are the measures taken from the skulls as they lay in the ground, like those taken of the long bones. The other class will be the measurements to be taken from the paraffined skulls, now in the charge of Professor Pearson at University College, and published here only in photograph, pls. lxi to lxxi. These two classes do not much overlap, as Mr. Thompson did not take many measurements from those skulls which were removed in a lump of earth, to be dried and preserved. In all there are 334 skulls measured in the graves (143 M, 191 F), the resulting curves of distribution of which are here published (pl. lxxii). There are 65 skulls photographed here, now in Professor Pearson's hands. Of these two classes, only 13 are in common.

As regards the accuracy of the measurements in the graves, 13 skulls thus measured, which are now in London, were re-measured for comparison. The differences comprise (1) errors of measurement, probably all in the first series; (2) changes by gravity in lifting the weak skull, full of earth, from the grave; (3) changes by emptying and cleaning the skull, which would scarcely hold together until paraffined; (4) changes due to soaking with paraffin, lifting while soft, and settling during hardening. The average difference found, owing to all these causes together, is 1.6 mm. in length and breadth. The grave measurements are rather too small horizontally, averaging .6 mm. in length and .4 mm. in breadth less than the final measures, or the skull may have expanded in length and breadth. On the other hand, the height (in the five cases in common) averages 3 mm. too large in the grave measures. It is unlikely that the

grave measures should be in error in opposite directions in the two dimensions; and therefore it seems most likely that the various causes of difference stated above have resulted in a flattening out or settlement of the skull, averaging $\frac{1}{2}$ mm. in horizontal measures, and 3 mm. shortening of the height. If such changes have taken place, it is certain that they would not act uniformly; so that a part of the 1.6 mm. average difference of the two series of measures must be due to the variations in the changes.

61. The curves here given (pl. lxxii) are taken entirely from the grave measures. It will be seen that a fluctuation of 1 or 2 mm. will not at all affect the general nature of much larger variability shown by these curves. Hence the question of these small errors may be disregarded in our present view.

In setting out these curves, the skulls of bodies which we have already separated in this book, as belonging to the male minority, are here taken separately. The curves of males are only here formed from the majority. The minority, of which there are not enough samples to form a curve of distribution, are marked by spots along the base of the curve to which they correspond. The median example is marked by M in each curve and group. In length, it is seen that the majority median is 189, the minority 3 mm. less. In breadth, the majority is 136.5, the minority 2.5 mm. less. In height, the majority is 136, the minority 3 mm. less. It may perhaps be thought that differences of 3 mm. are not significant in so wide a distribution. It may be stated in another way; the minority are 9 under, and 4 over, the majority length; 8 under, and 3 over, the breadth; 6 under, and 1 over, the height. Such a preponderance, always more than 2 to 1, cannot be disregarded.

It appears, then, that the skulls of the minority males were about 3 mm. smaller in each dimension than those of the majority. Or in percentage differences, 1.6 per cent. in length, 1.8 in breadth, 2.2 in height; thus making a total of 5.6 on contents. The average difference in the long bone measures is 4 per cent. on the length of the bone, as already stated in the last chapter. In every respect, therefore, it appears that the invading minority were a smaller race than the native majority.

62. *The Systematic Study of Jaws*

In the uncertainty as to how the jaw should be measured or defined, a preliminary search of the material is needed. For this purpose, a drawn out-

line of each jaw was made; and as it was for comparative purposes only, it was taken by laying the side of the jaw on paper, outlining it about to the bicuspid, then sighting the front part at a tangent to the front. This does not give any statutory dimension, but it shows well the general shape and size of the jaw for comparison.

How to gather some conclusion from these drawings was not obvious. They were looked at in various ways; but though they vary greatly, no distinct grouping could be made, the gradation appearing continuous. A list had been extracted of the male minority, as shown by the grouping of the long bones, such minority being presumably the invading race. Hence the most promising search was by comparing the jaws of the minority group with those of the majority of males.

As it was quite unknown what detail might prove distinctive, it was necessary to compare the mean of one group with that of the other. For the six jaws of the minority it was obvious that they could be superposed (lx, A), and the mean could be found by a median line drawn between the variations (lx, B). In order to adjust them together, the working surfaces were fitted one to the other, the plane of the teeth being a main plane; and the articular surfaces one over the other, on a perpendicular from the plane of the teeth. The difficulty lay in compounding 42 outlines of the majority. These were broken up into 6 groups of 7 each at haphazard. All of the seven were compounded, and a mean outline of each group drawn (lx, C), and then the six mean outlines of groups were compounded, and an outline drawn thus representing the mean of the whole 42 jaws (lx, D). After that it was possible to compare the mean of the minority group with that of the general group (lx, E). The full outline is the general mean, the dotted line is the minority mean. For this comparison, the whole form of the jaw is adjusted, and not only the working surfaces. It will be seen that the form is almost identical; the only clear differences being that in the minority the molars rise higher, and the chin is less full. This height of the hinge above the plane of the molars can be safely measured off from the drawings. In the general group the height is $35\frac{1}{2}$ mm.; in the minority group it is 31 mm.

We have had to deal with a complex form with many variables. By superposition, and taking a mean composite, the differences between two groups are found; then it becomes possible to extract the difference in an exact numerical form.

So far we have been dealing with jaws entirely as conditioned by the working surfaces. This is however only a likely supposition and not a necessity. It might be as reasonable to adjust jaws together by the whole outline. If this is done, it does not seem to make any notable difference in the mean, except that the chin in the minority group then very closely agrees to the majority (lx, F). The plane of the teeth still remains different in the two groups, whichever way the examples are adjusted.

That this difference is really significant, amid the natural variations, we can state in another way. The mean of the majority is $35\frac{1}{2}$ mm. for the height of the

joint over the molar plane; 5 of the minority are much less than this, and only 1 is larger. Or, otherwise, the mean of the minority is 31 mm.; 33 of the majority exceed this, and only 7 are smaller. Thus taking the median of either series as a standard, it divides the other series in the proportion of 5 to 1.

The net result of the whole examination is that the majority and minority jaws were of the same form, but the minority molars grew $4\frac{1}{2}$ mm. further up in the lower jaw, with presumably less to correspond in the upper jaw. In short the heavy growth of the teeth was, in the minority, transferred from the skull to the lower jaw.

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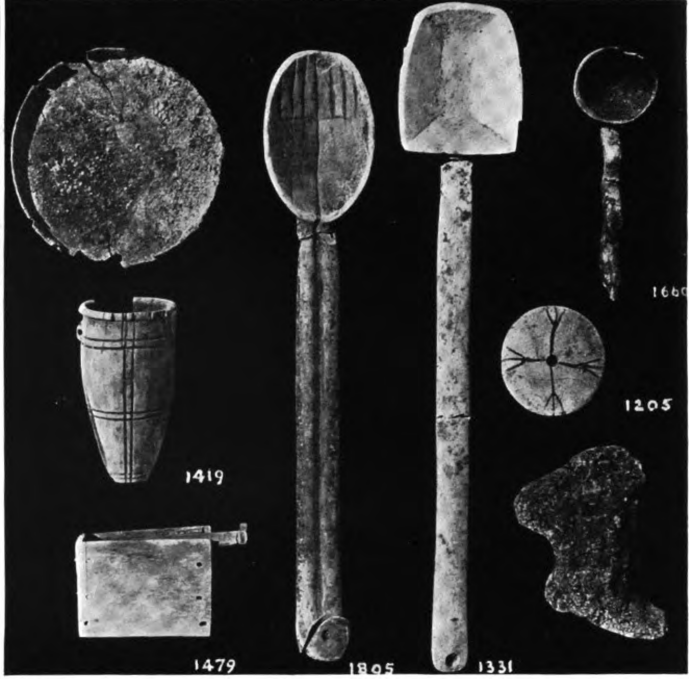
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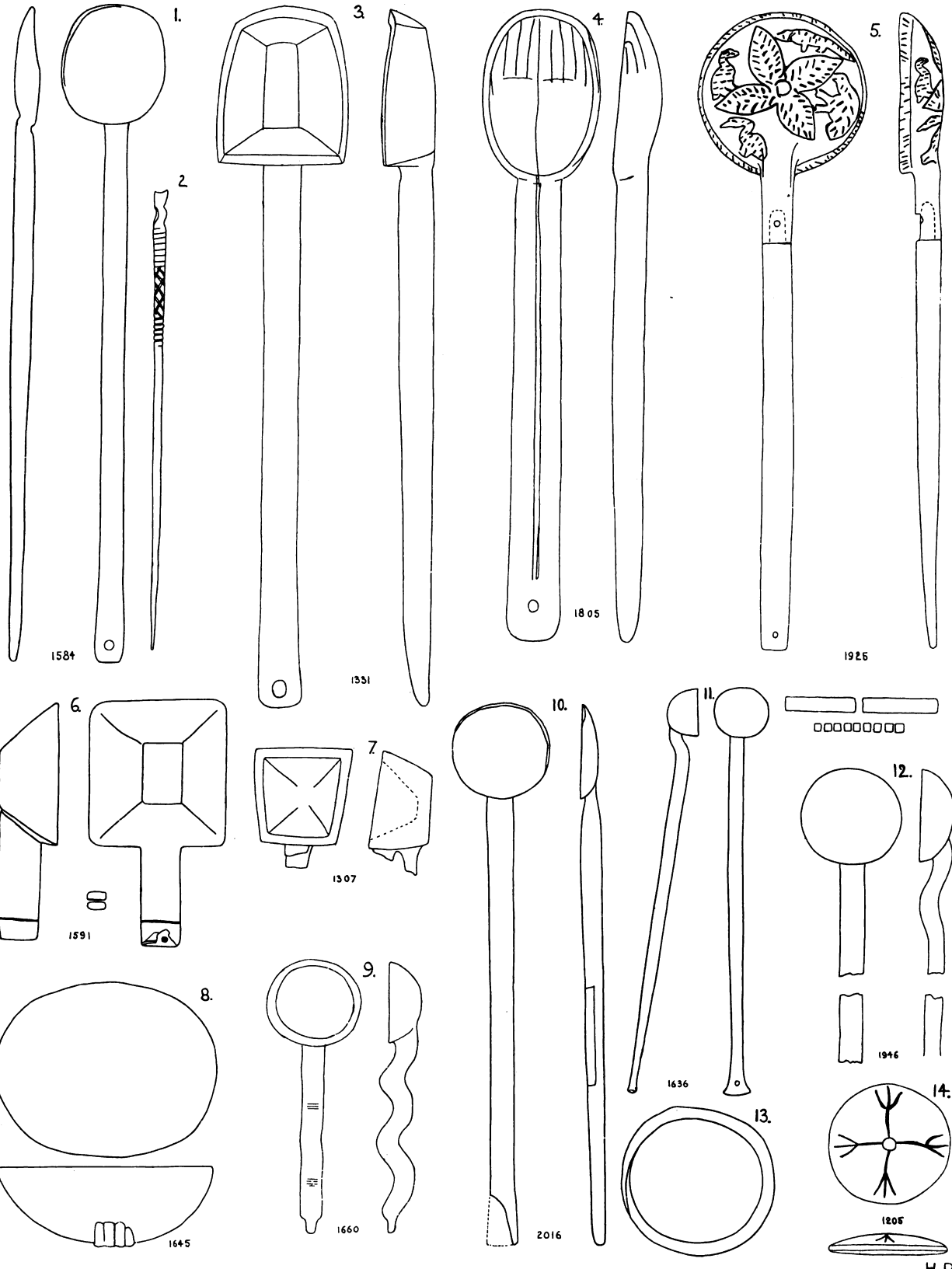


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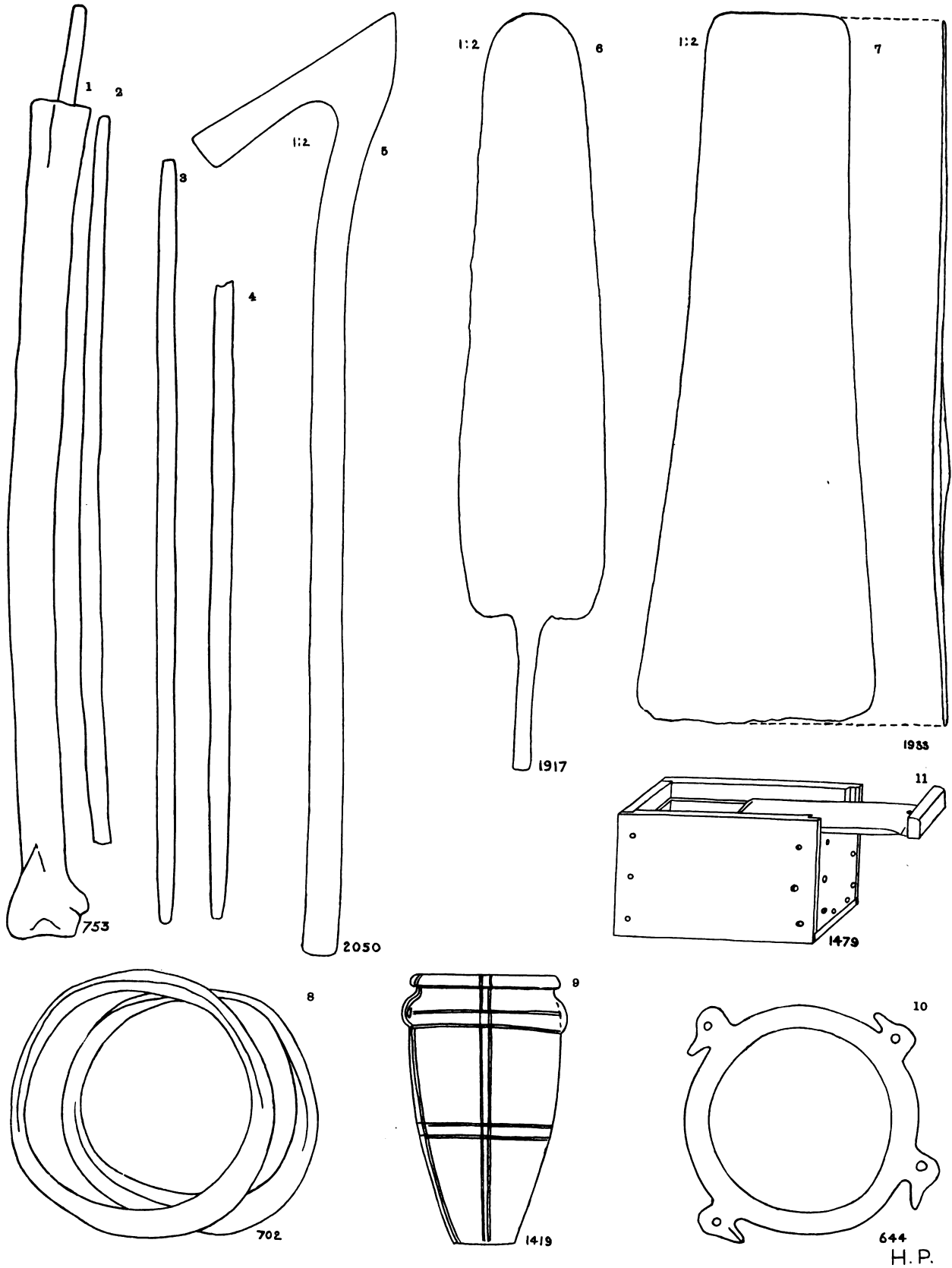
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TARKHAN. IVORY SPOONS.

11



H.P.



H. P.



3:8 GREEN GLAZED POTTERY



1:8 ALABASTER VASES, 2050

1893	1712	1821	...
1128	1879	1272	1831
1712	1865	1455	

GRAVE NUMBERS OF
GREEN GLAZED VASES
ABOVE



2:5 NARMER, 1982



GROUP 1973



GROUP 1973



4:7 2057

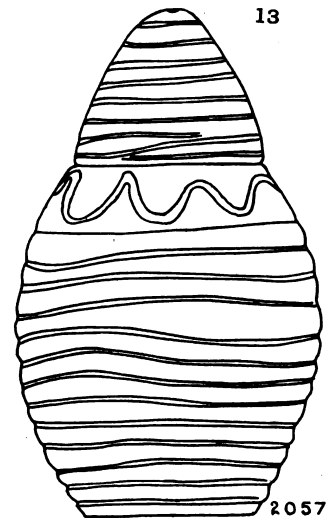
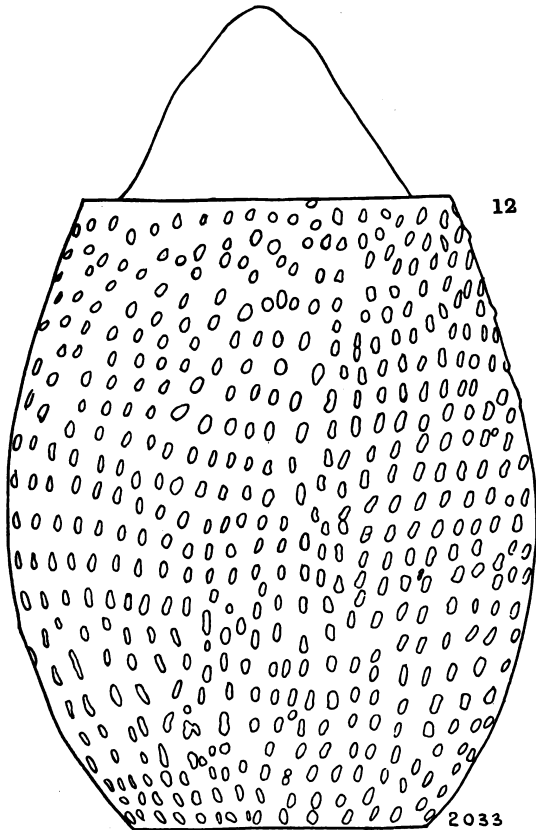
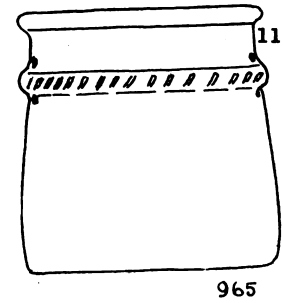
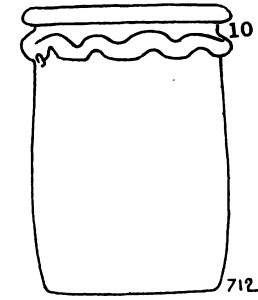
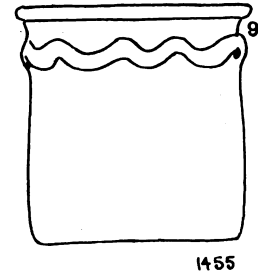
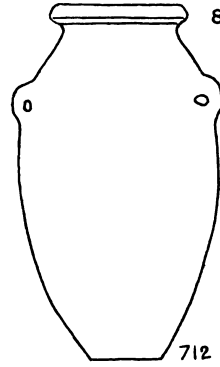
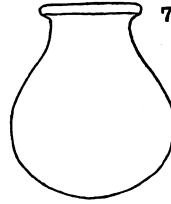
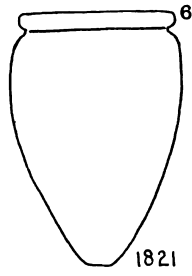
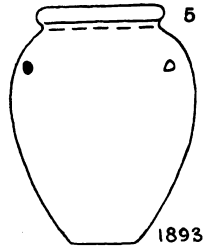
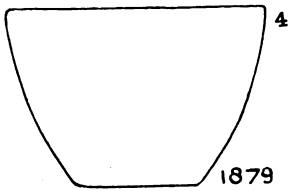
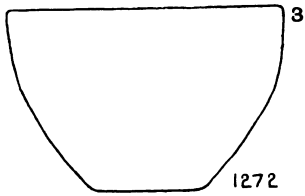
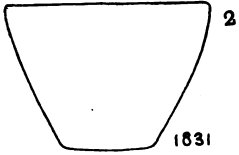
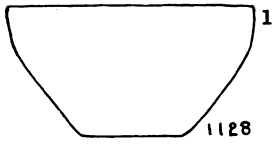
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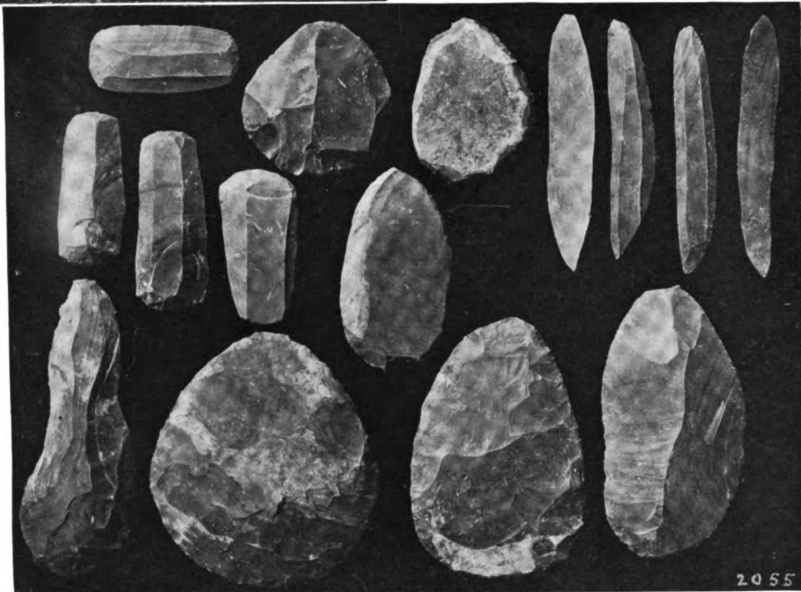
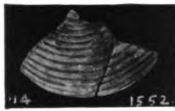
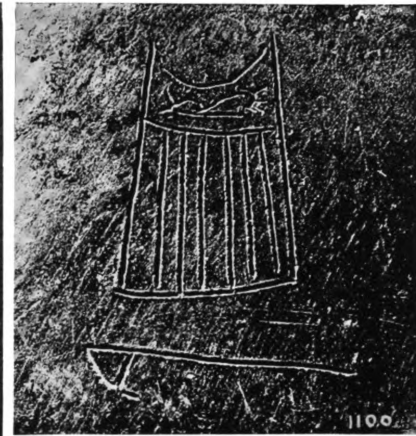
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1:5 GROUP 1870



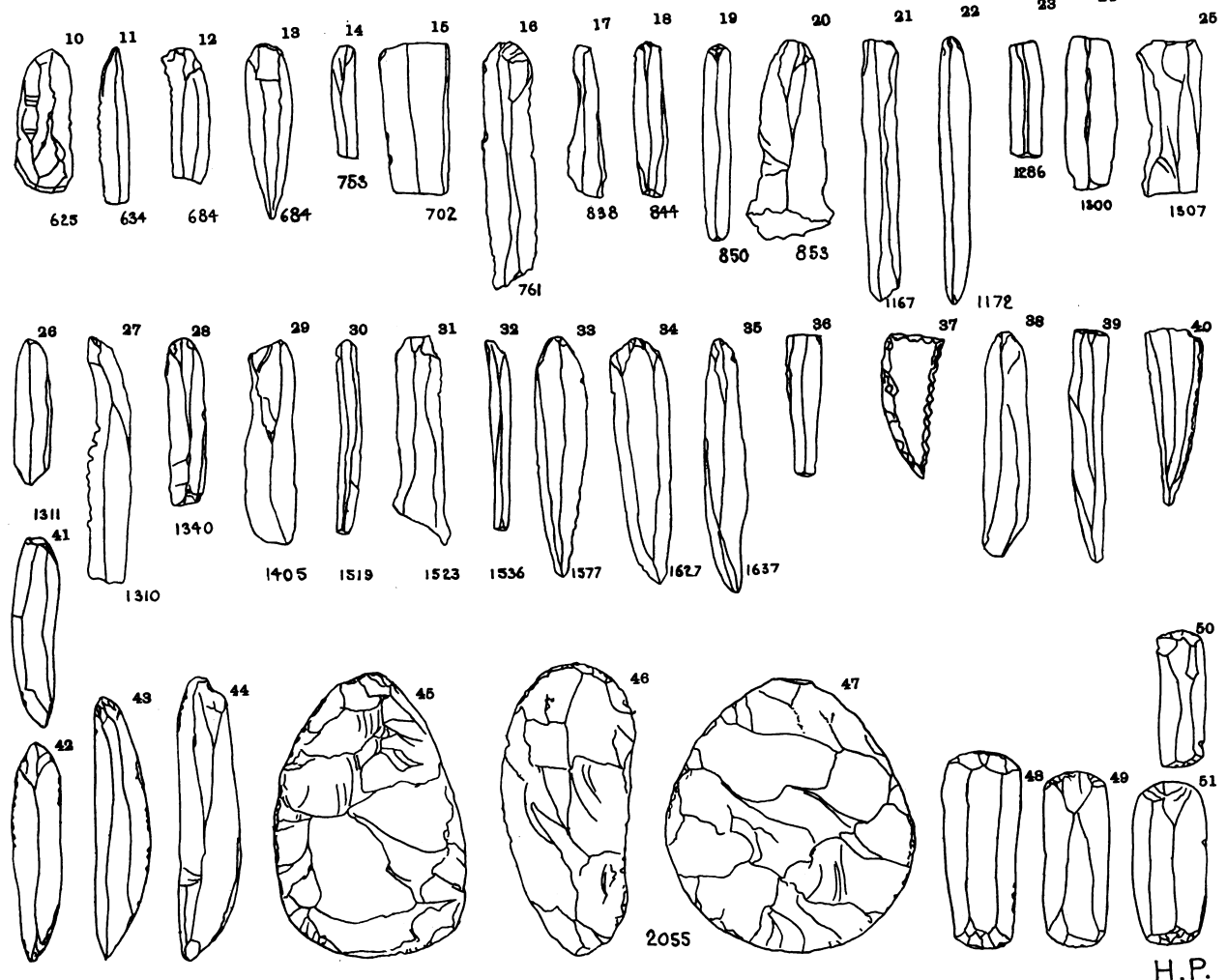
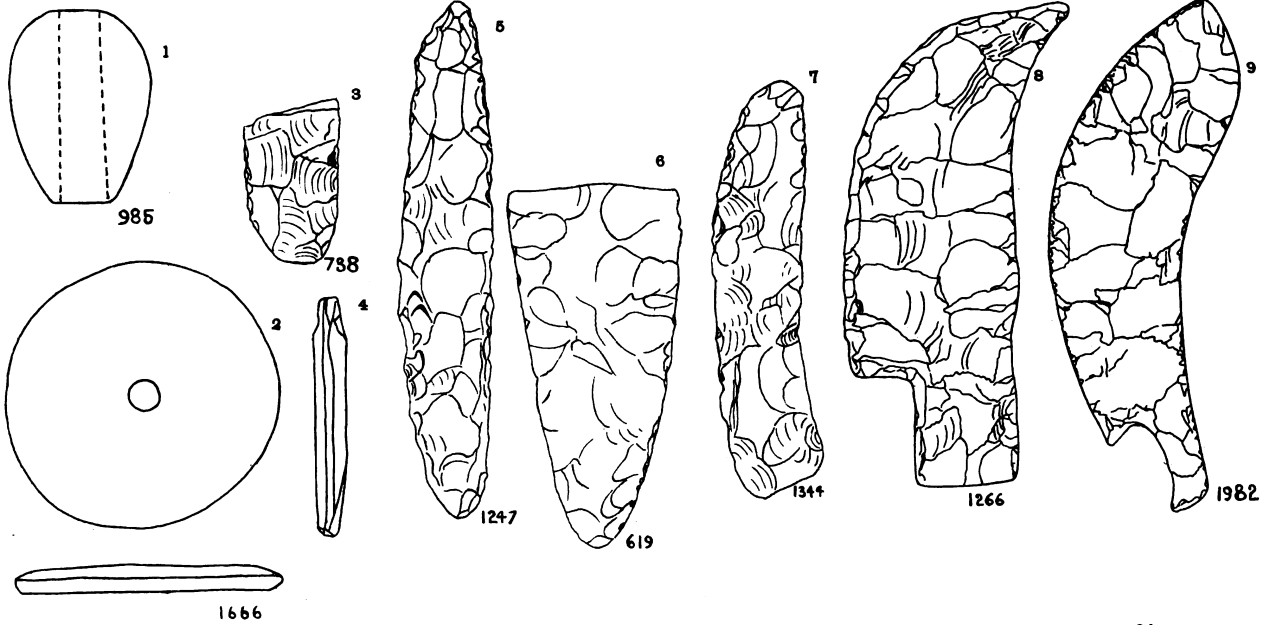
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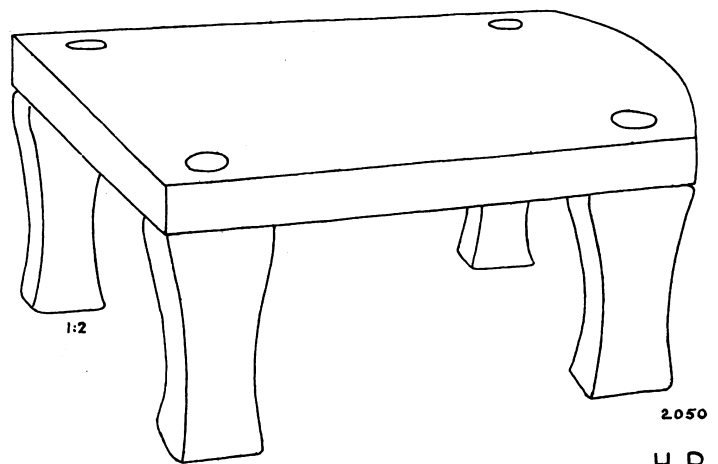
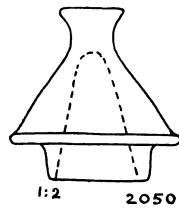
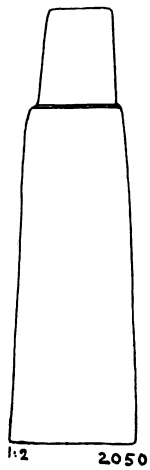
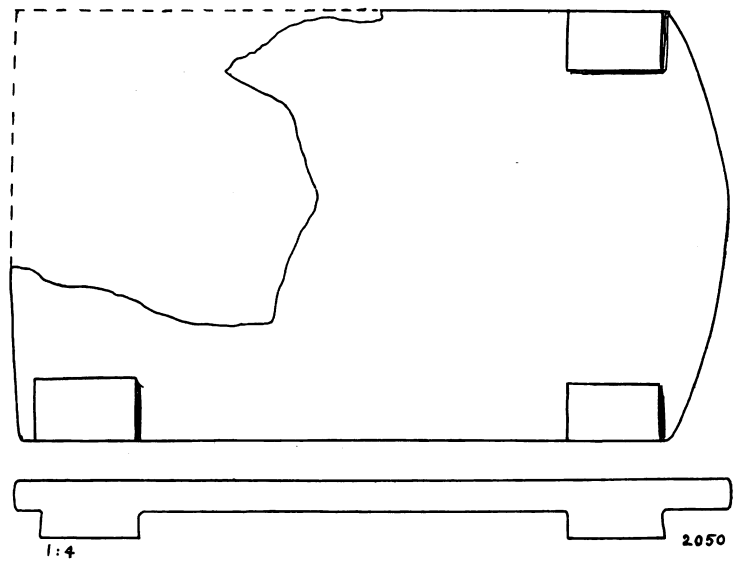
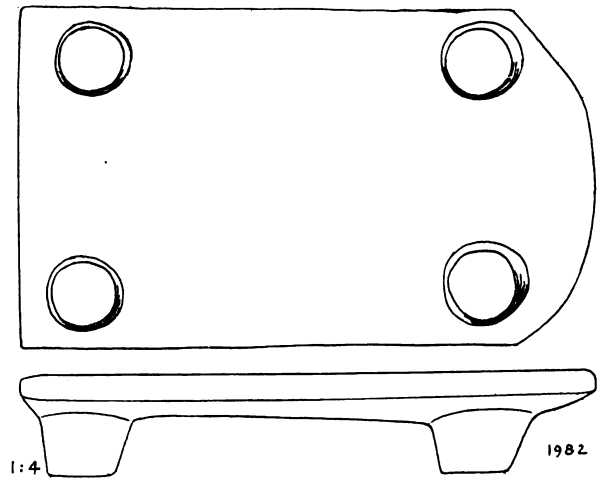
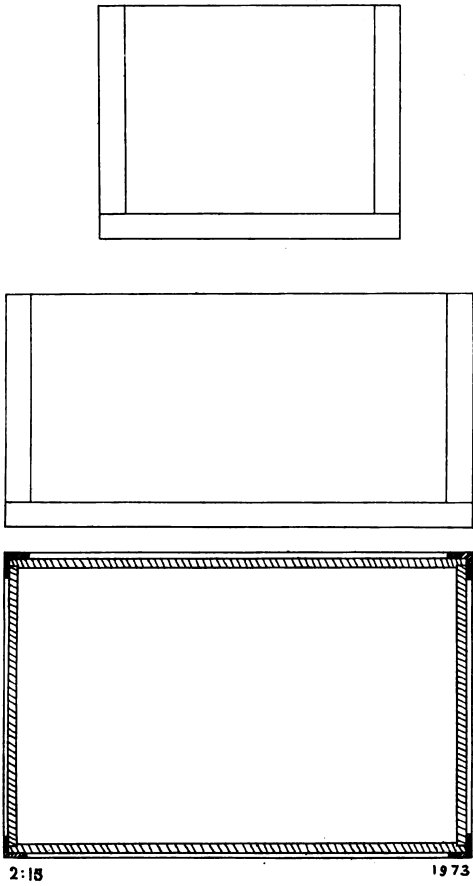
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VII.

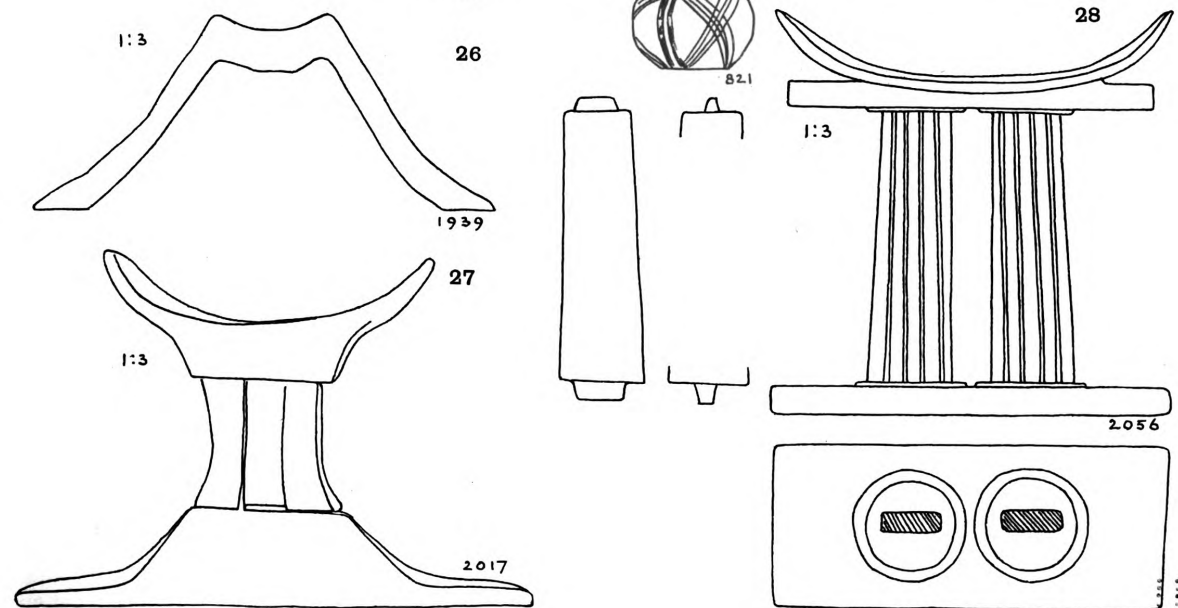
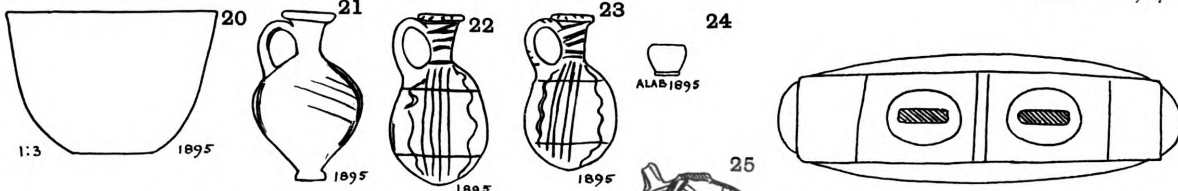
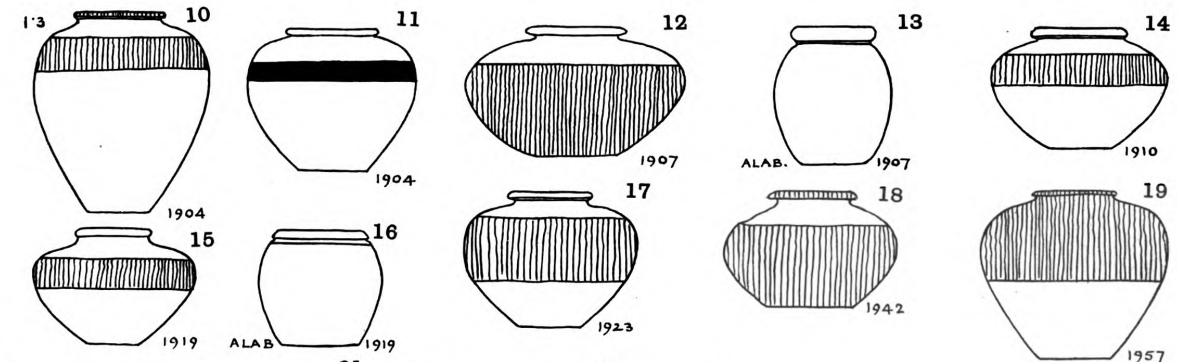
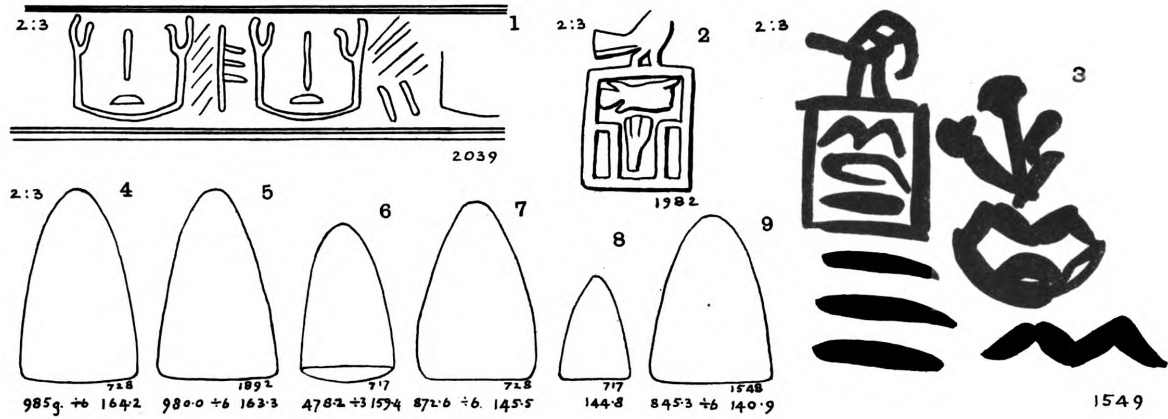


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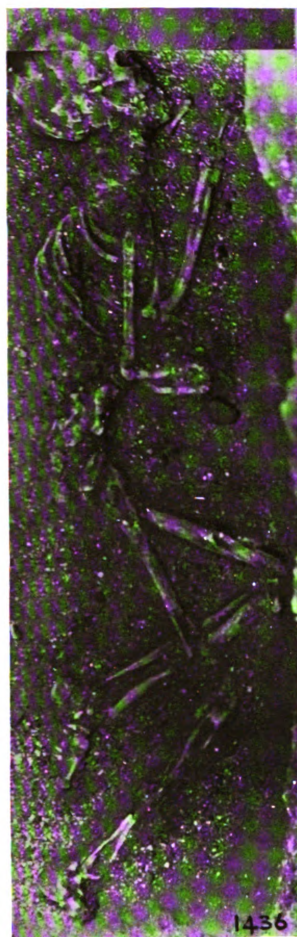
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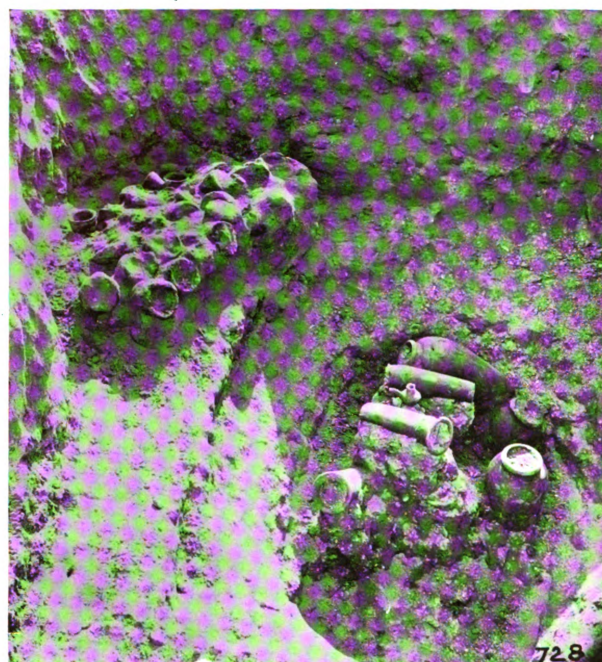


LOOKING UP VALLEY

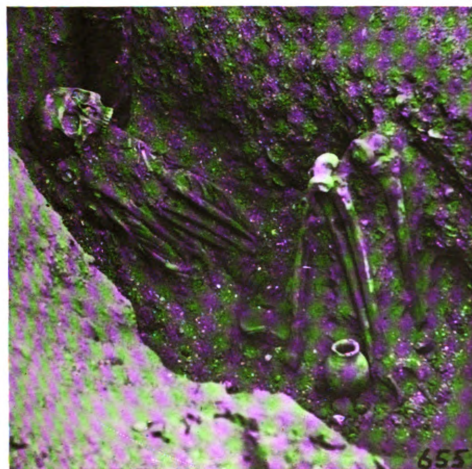
LOOKING DOWN VALLEY TO EAST
CEMETERY VALLEY, TARKHAN



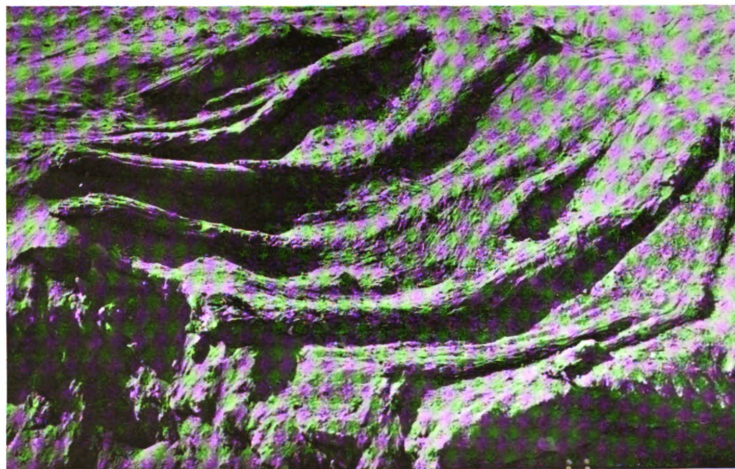
SLATE ON BODY



STACK OF POTTERY ON OLD SURFACE
BY SIDE OF GRAVE



BODY ON BACK, KNEES UP



POLE ROOFING OVER GRAVE



FROM NORTH



FROM WEST



FROM NORTH, NEARER



FROM WEST, NEARER

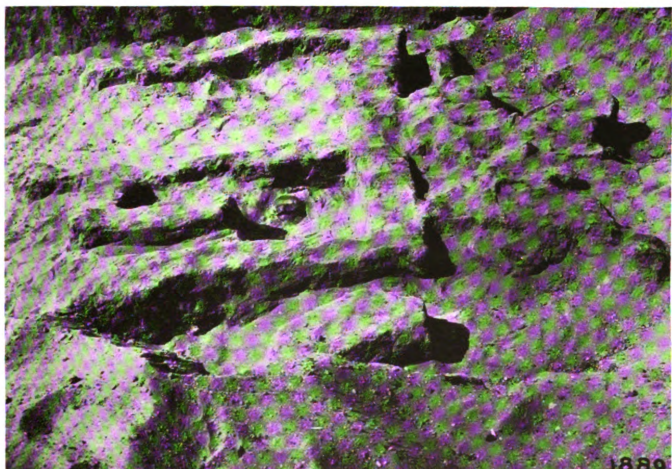
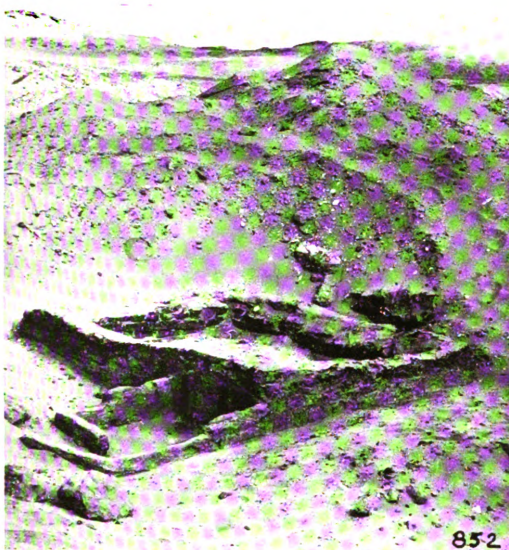
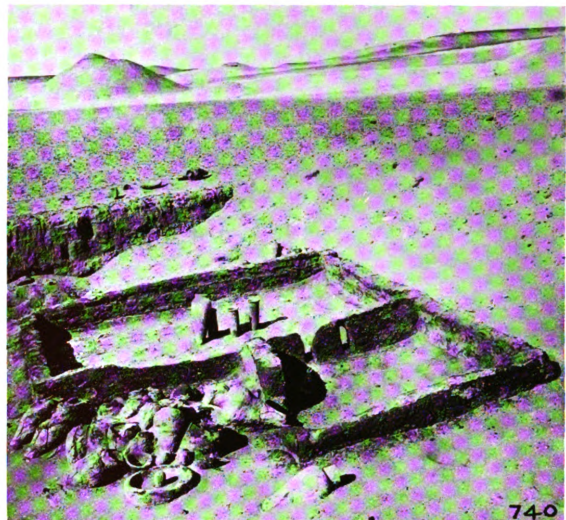
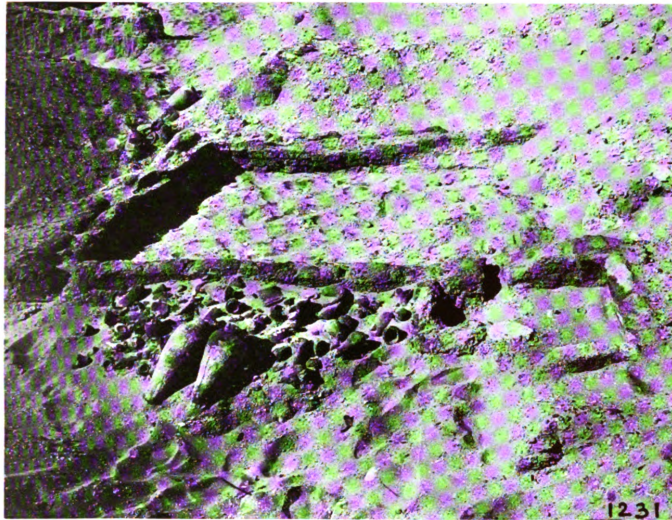


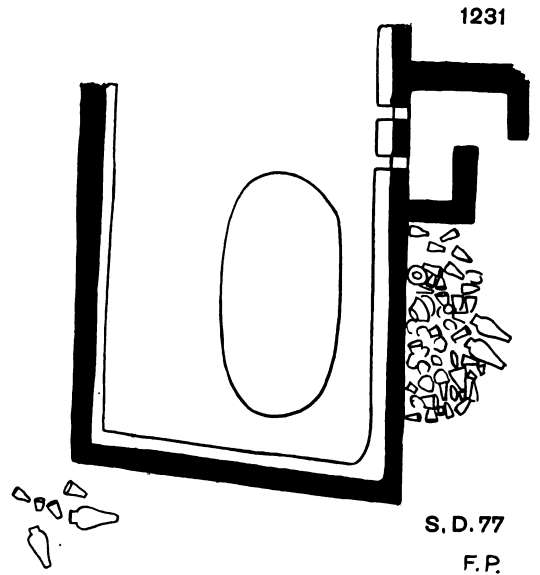
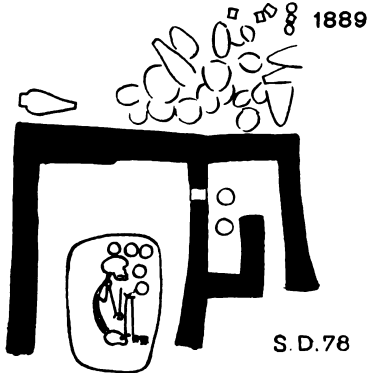
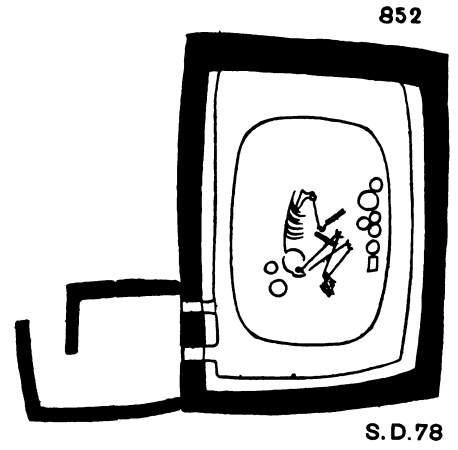
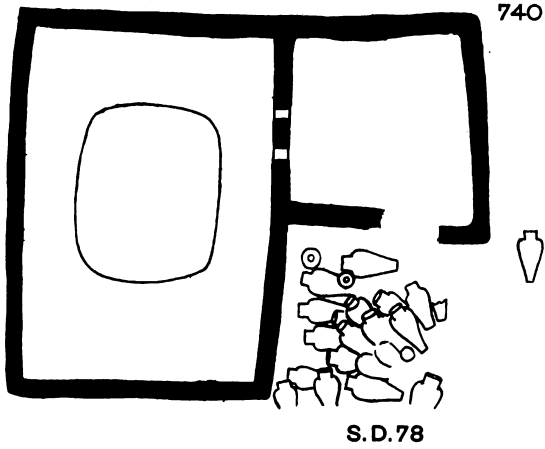
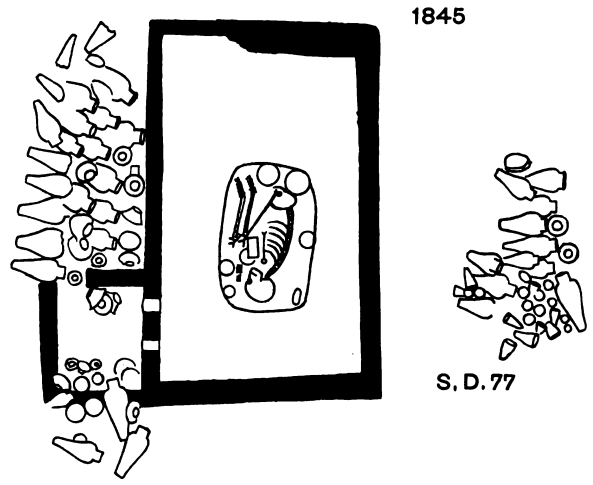
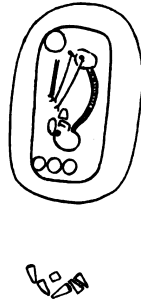
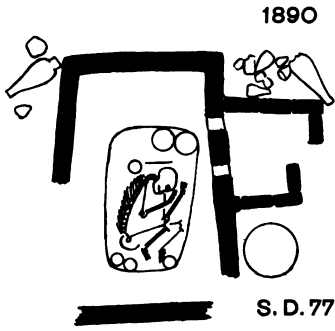
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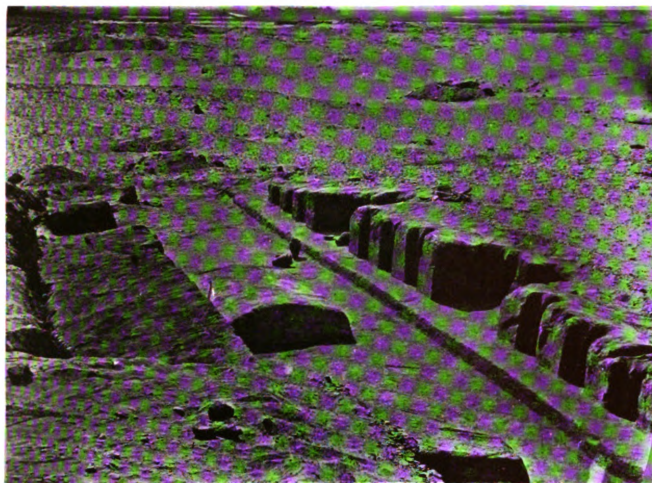


FROM EAST









FENDER WALL AND EAST FACE



EAST FACE



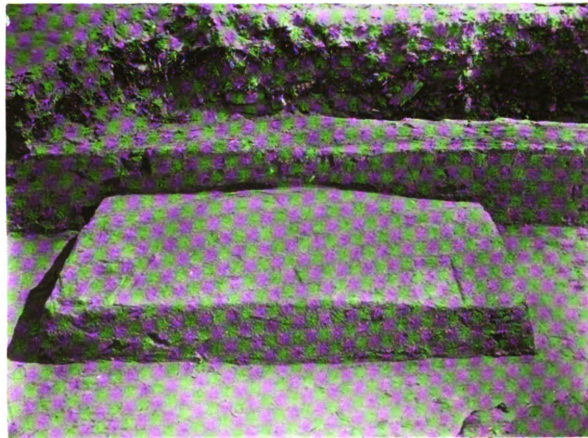
CLAY MODELS OF GRANARIES



GRAVES IN EAST CORRIDOR

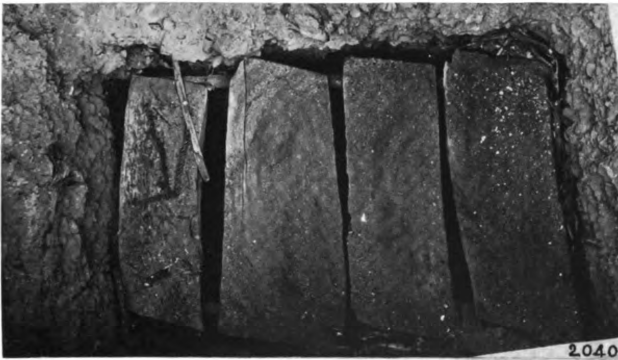
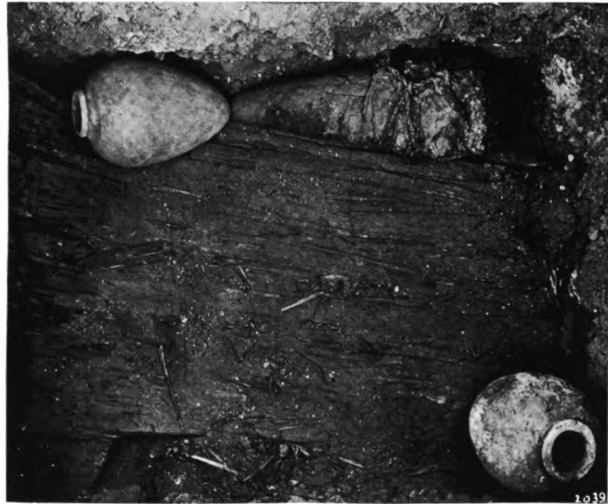


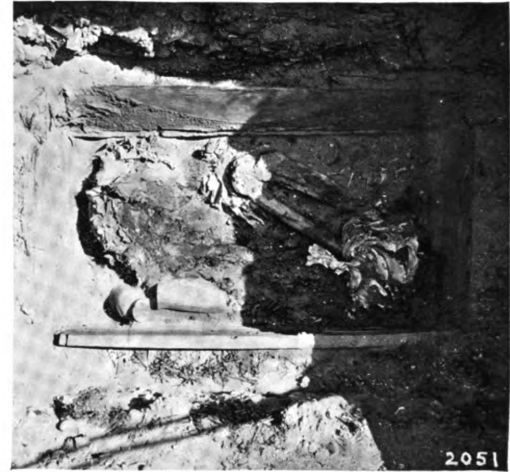
BRICK PLAN OF RECESS, MASTABA 2050



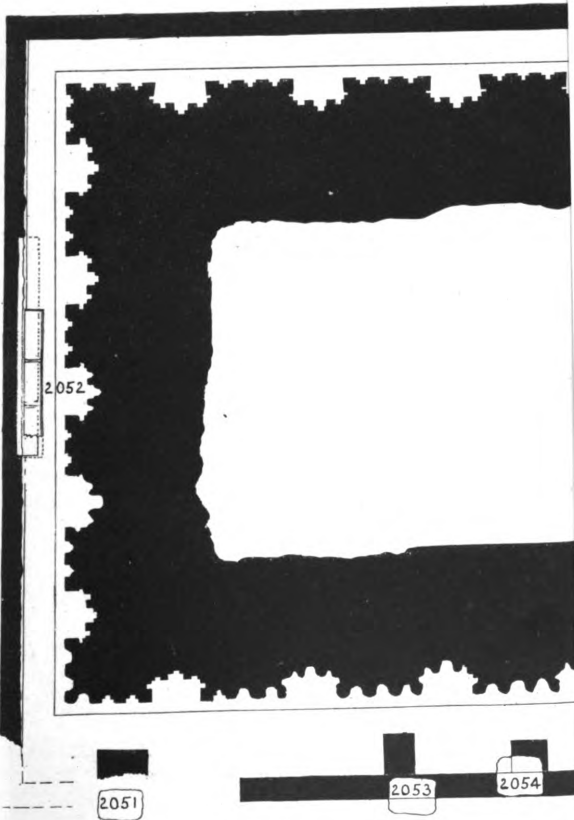
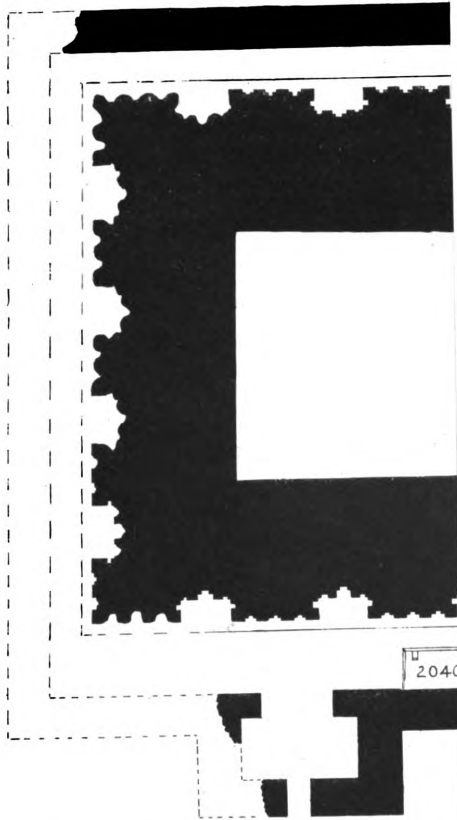
GRAVE 2039, SEE ABOVE

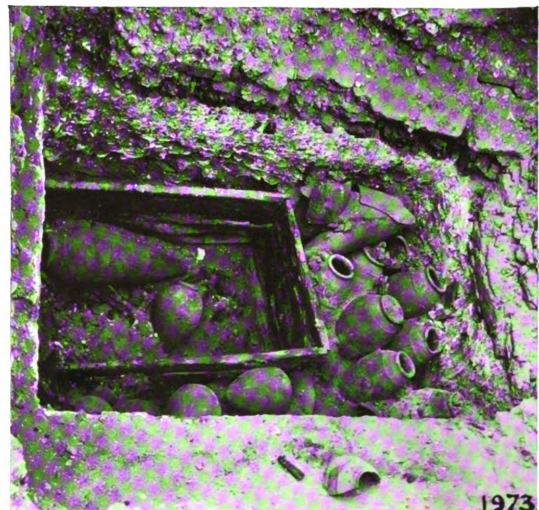
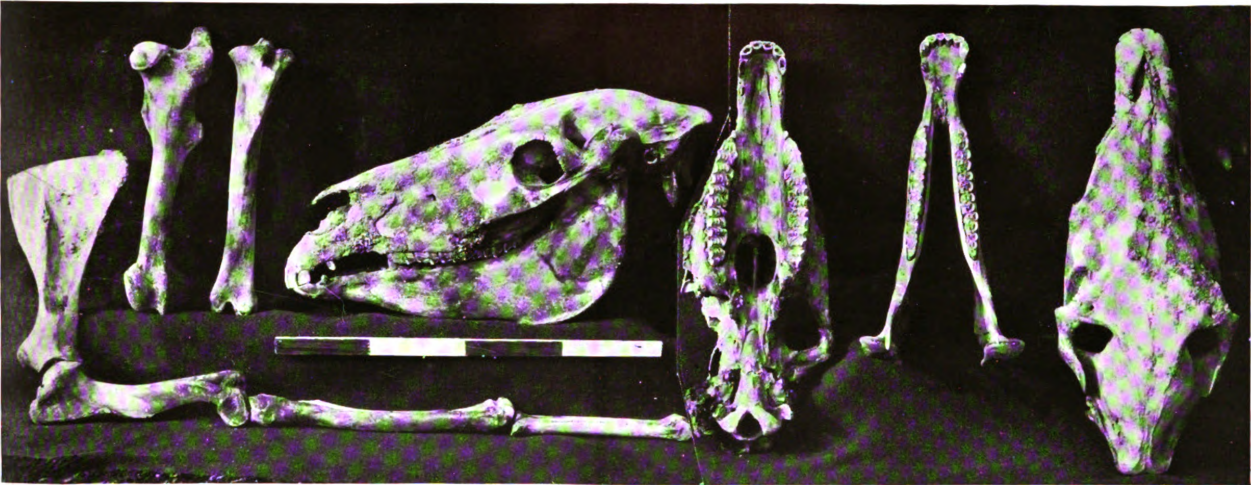
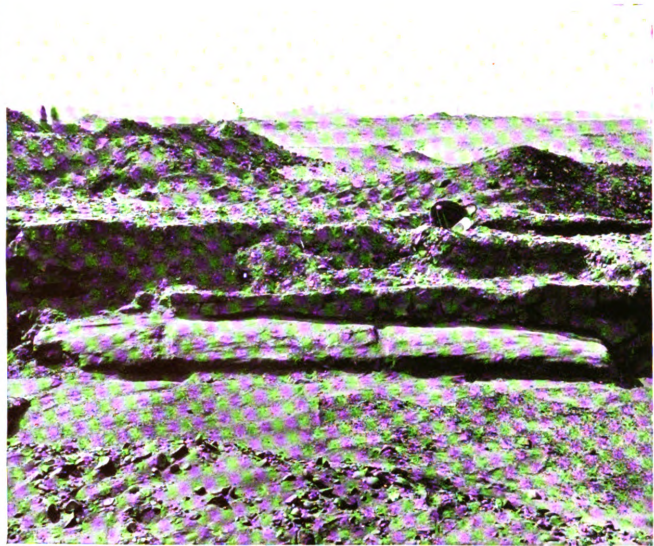


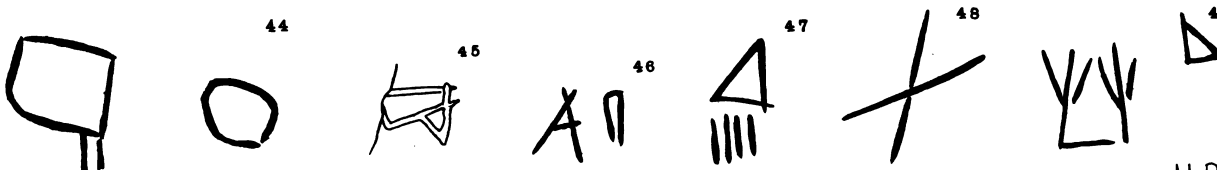
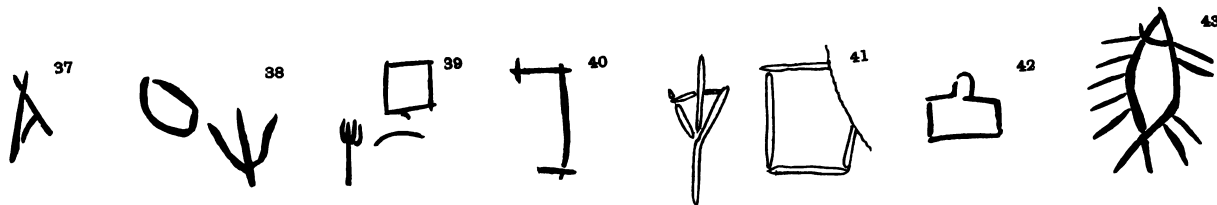
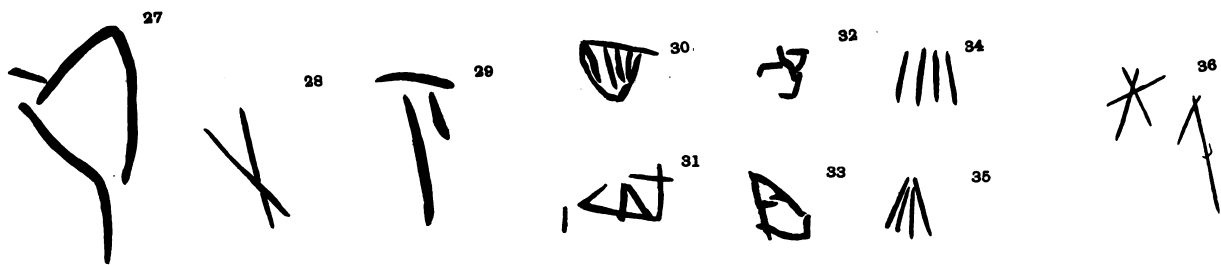
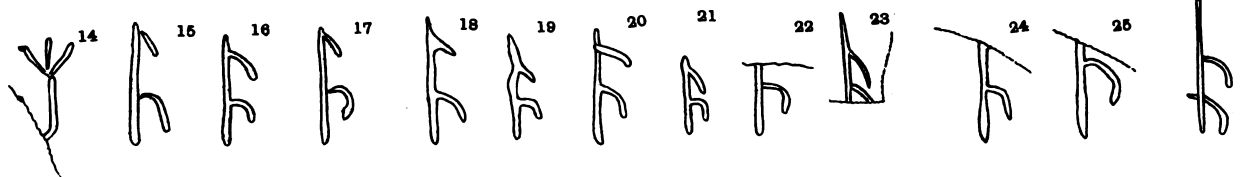
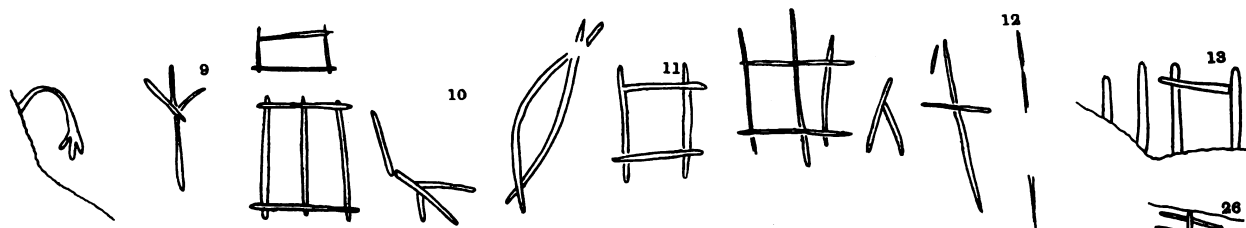
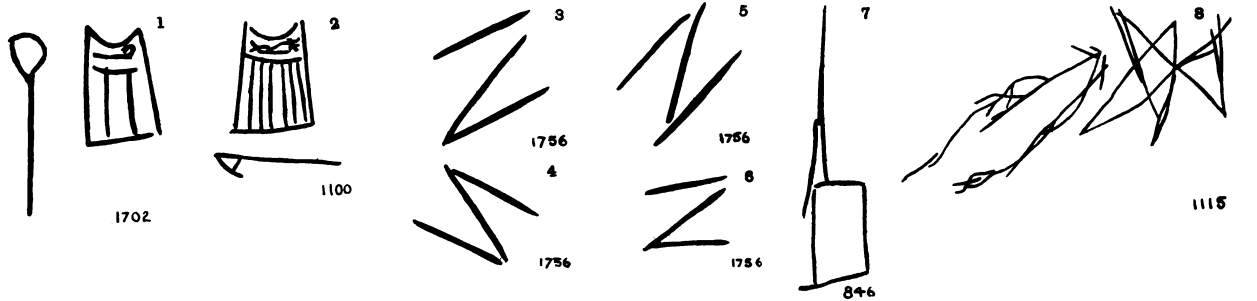




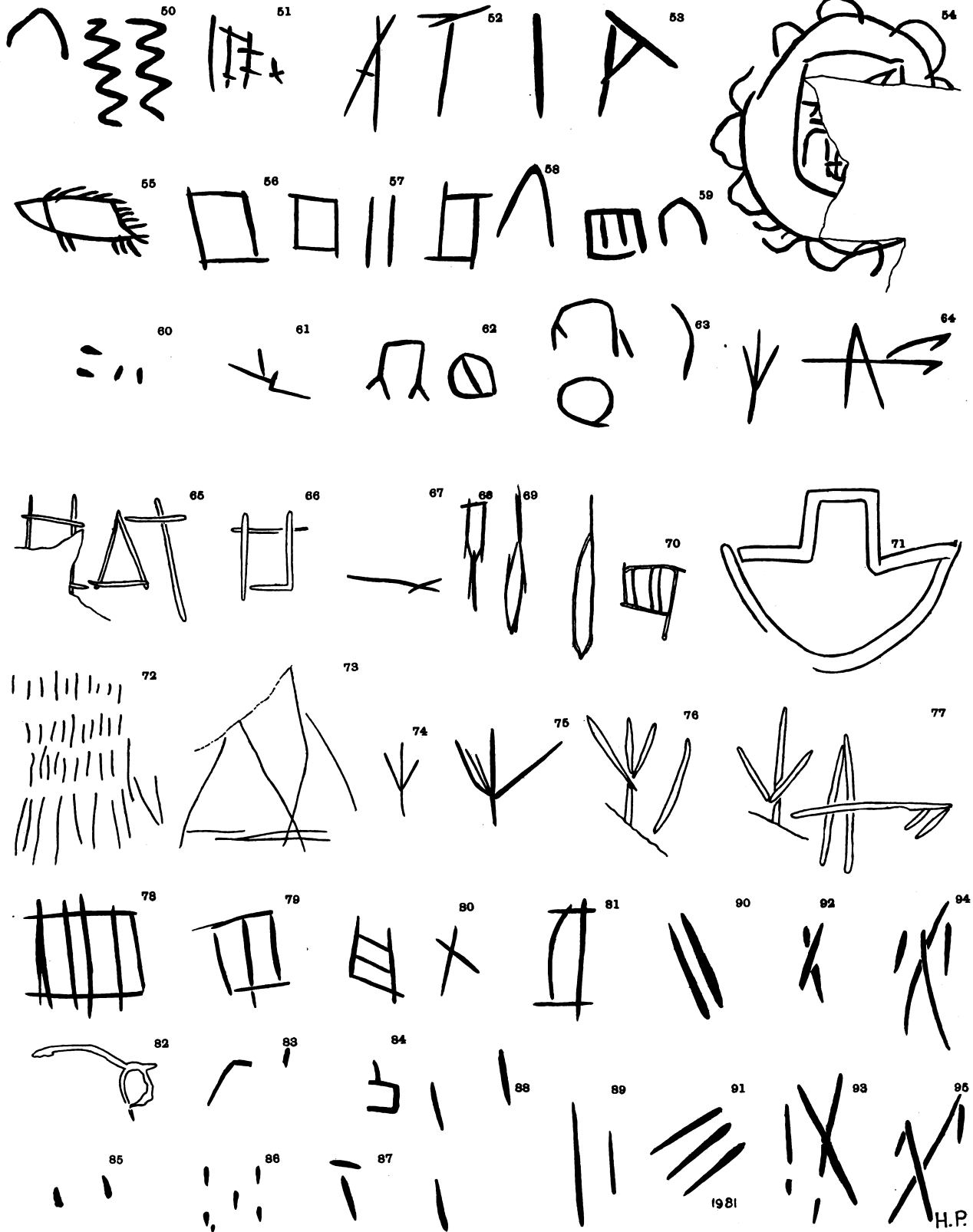
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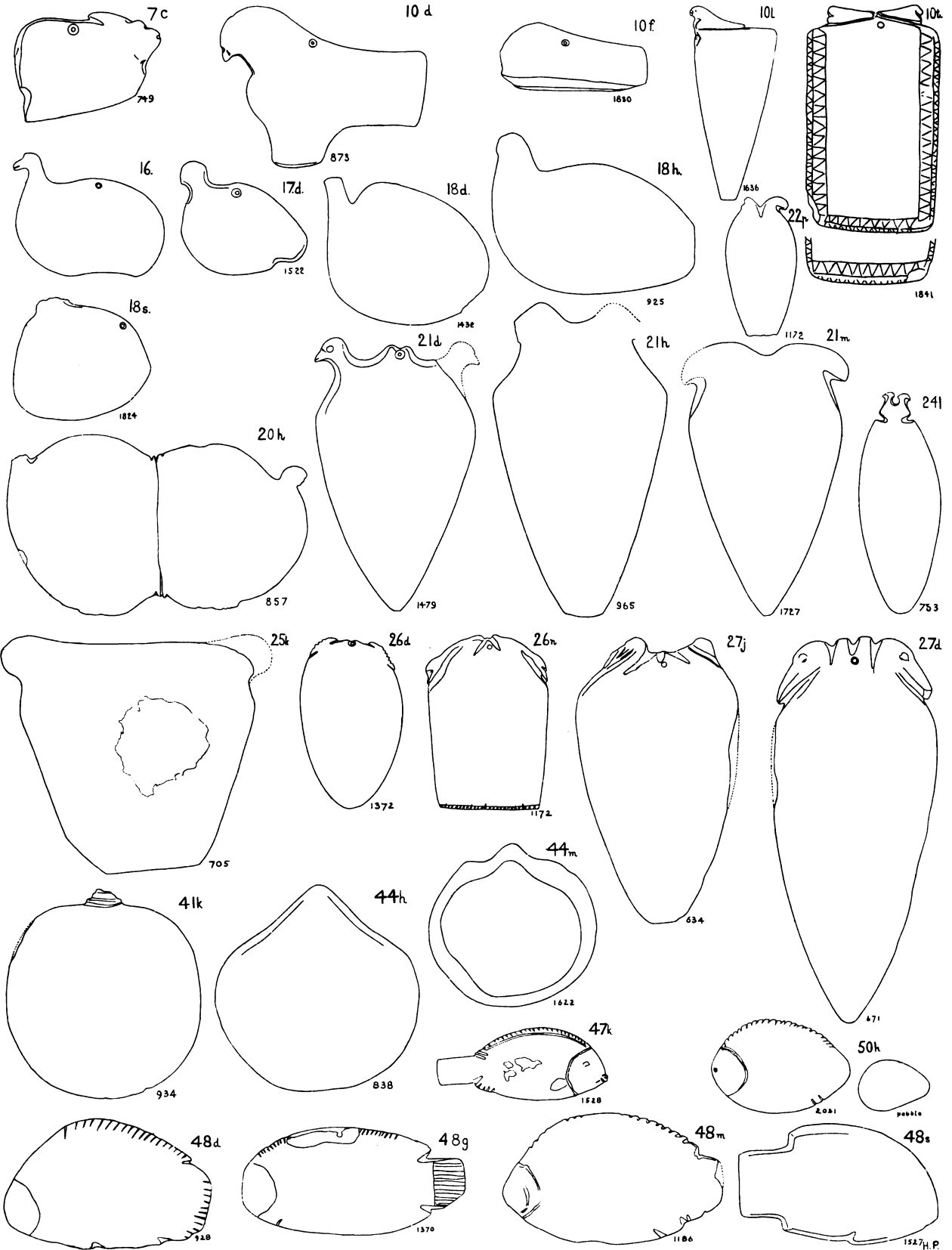


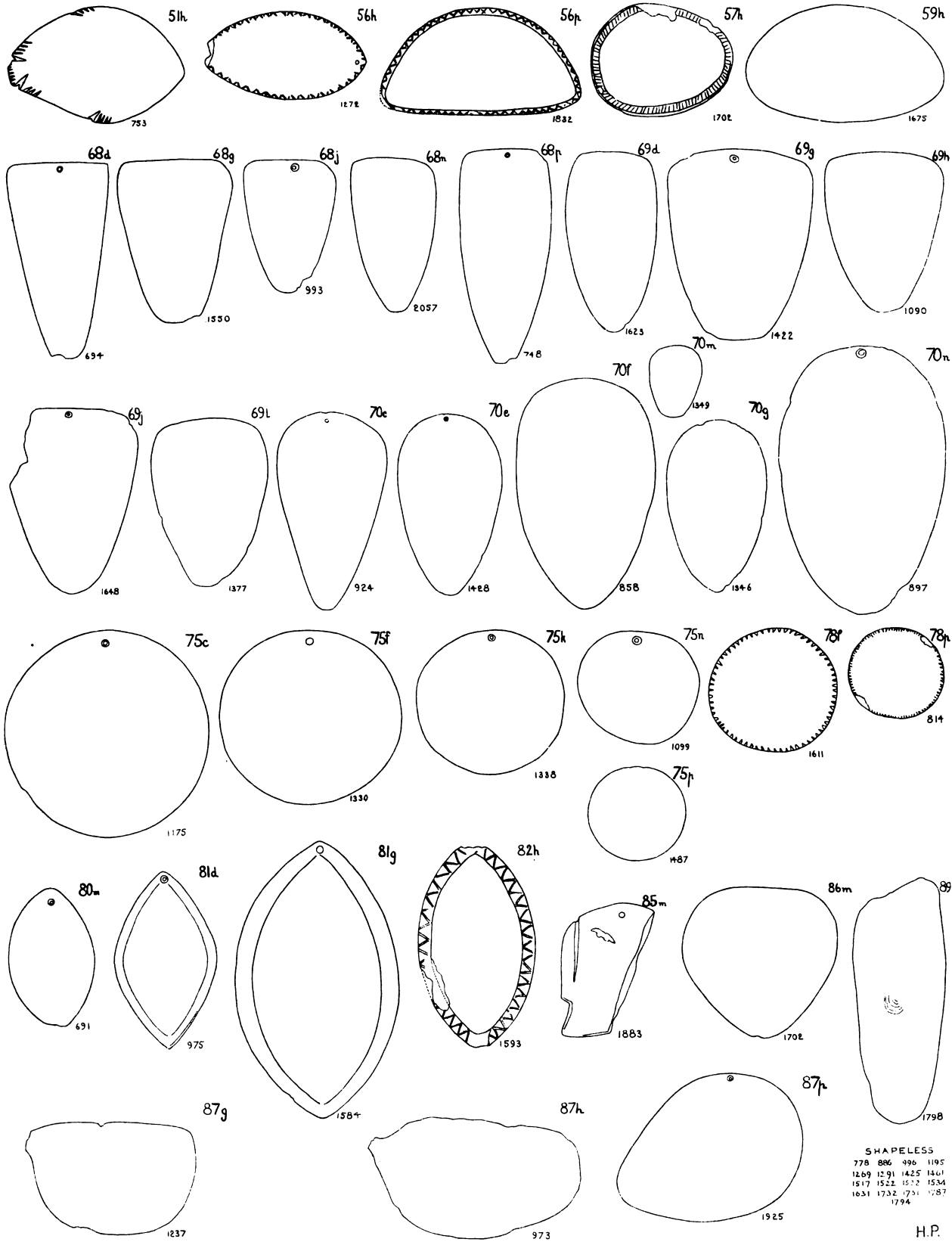


H.P.



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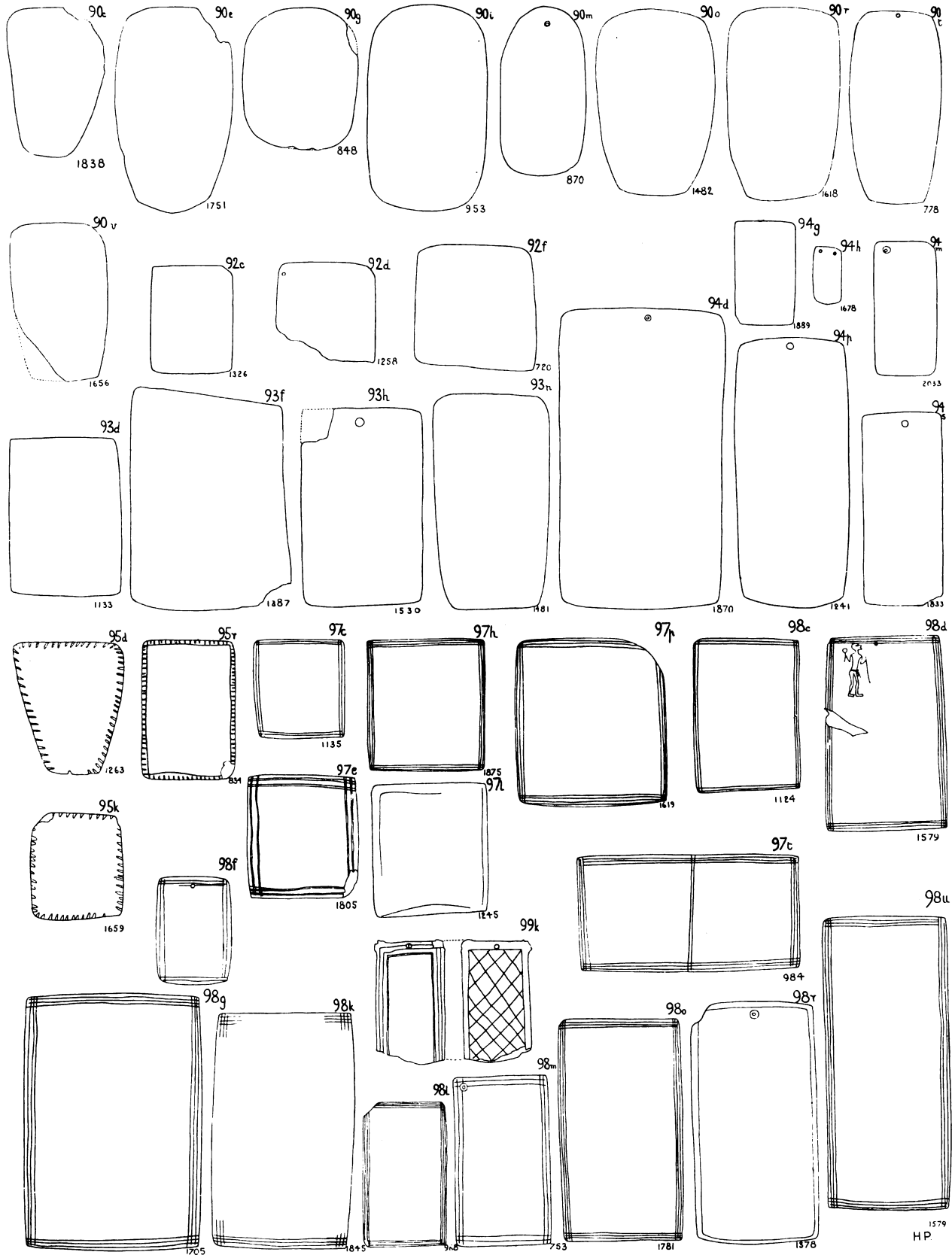


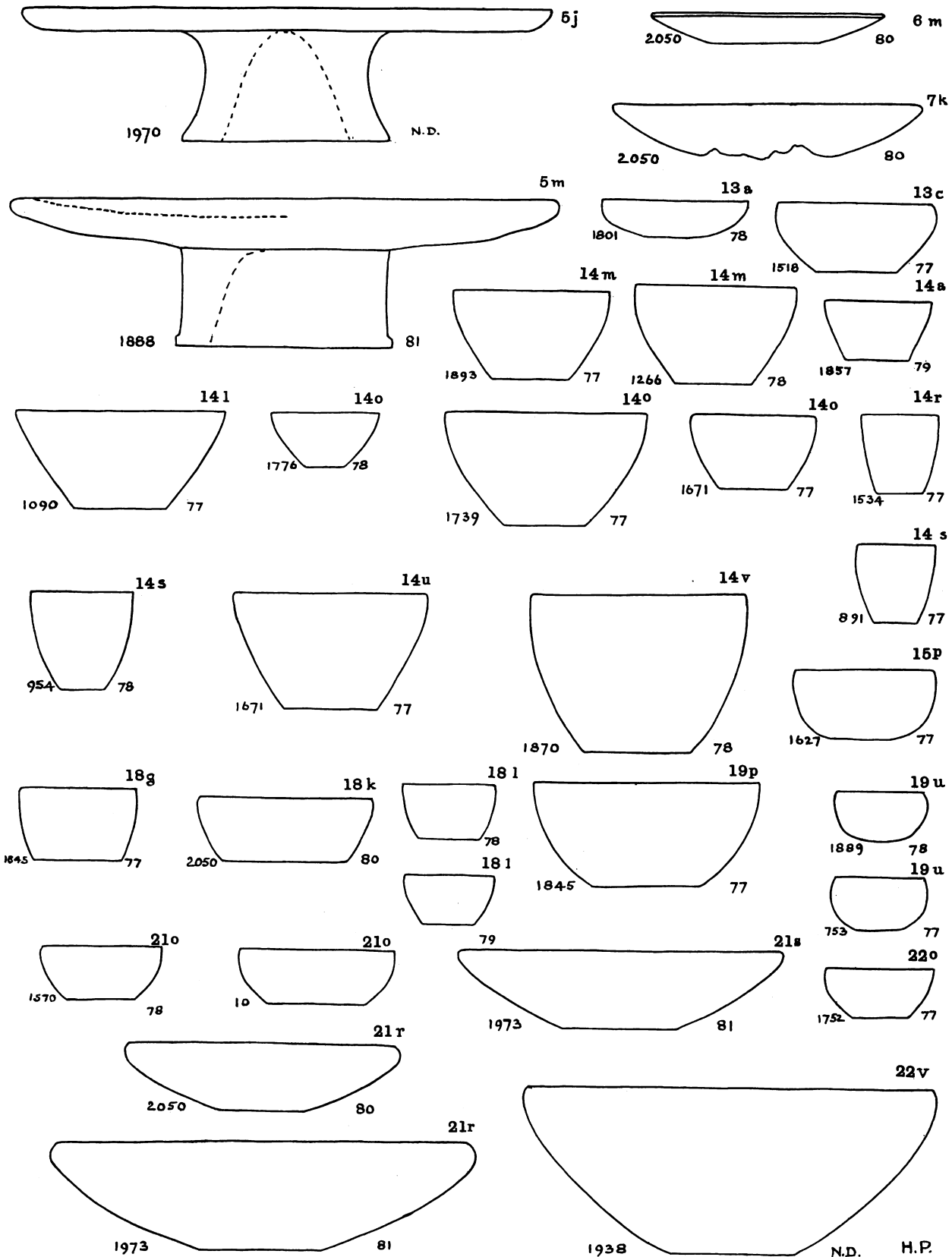


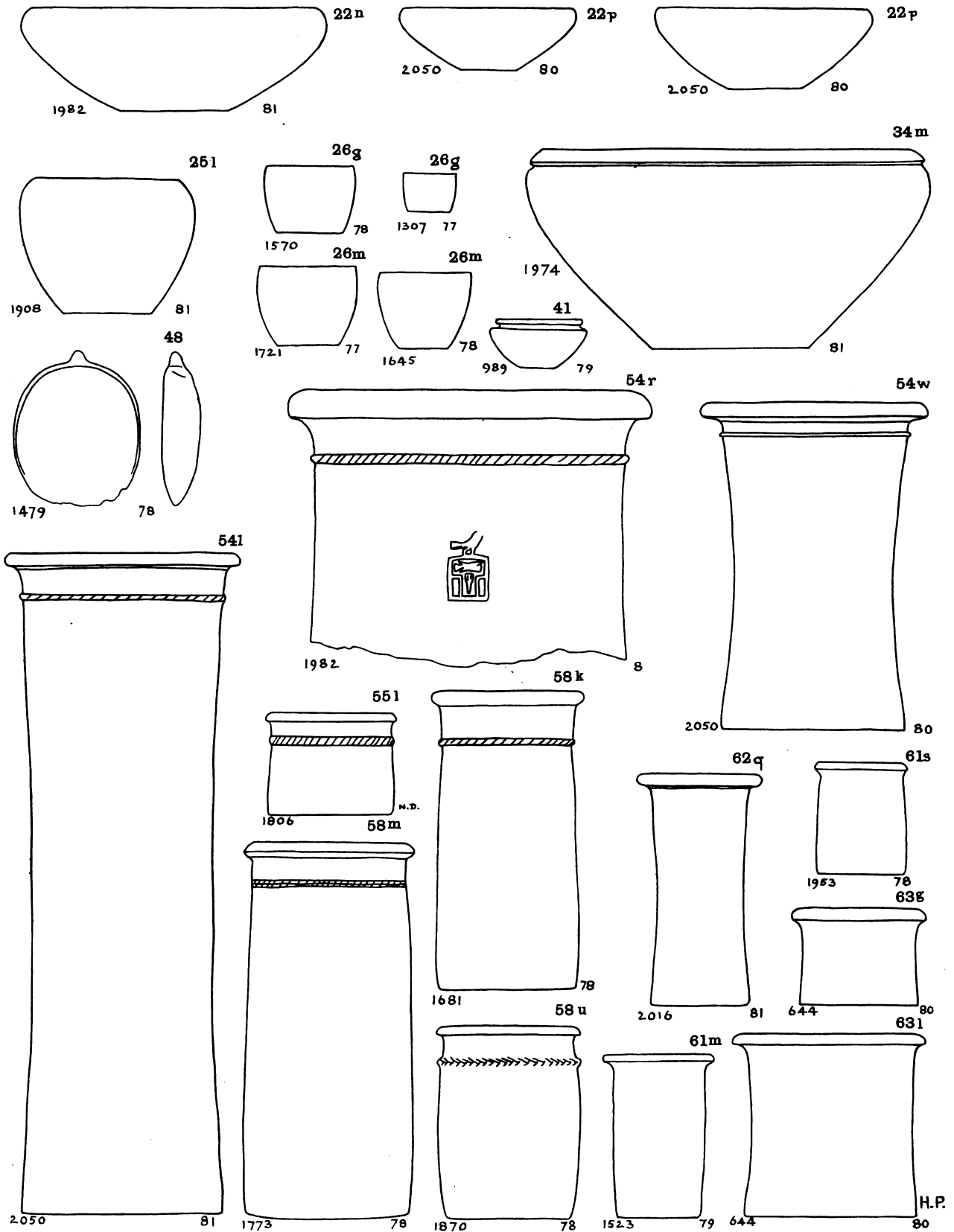
SHAPELESS
 778 886 996 1195
 1269 1291 1425 1461
 1517 1522 1572 1534
 1631 1732 1731 1787
 1794

H.P.

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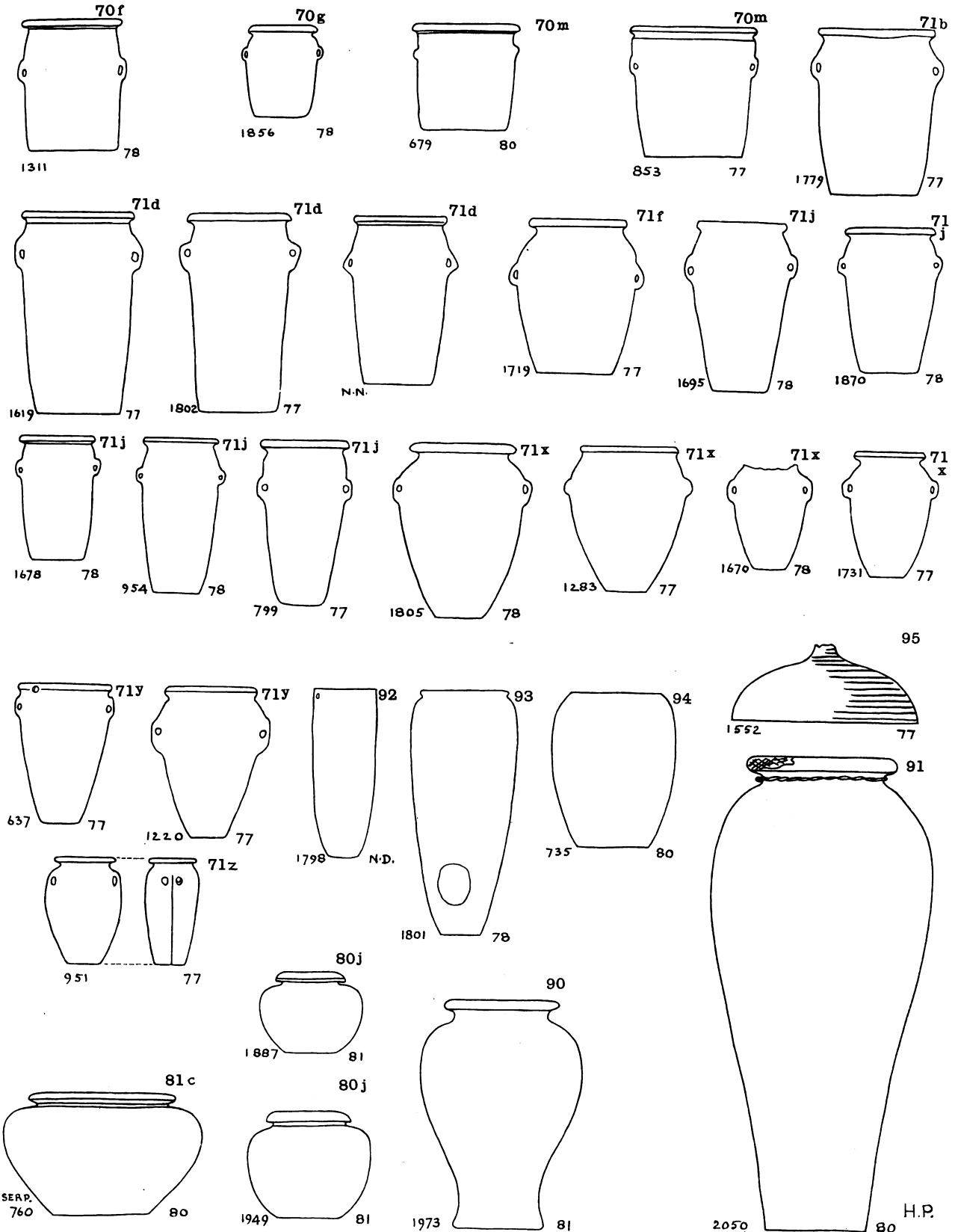




1:3

TARKHAN. EXTRA ALABASTER TYPES, 70-95.

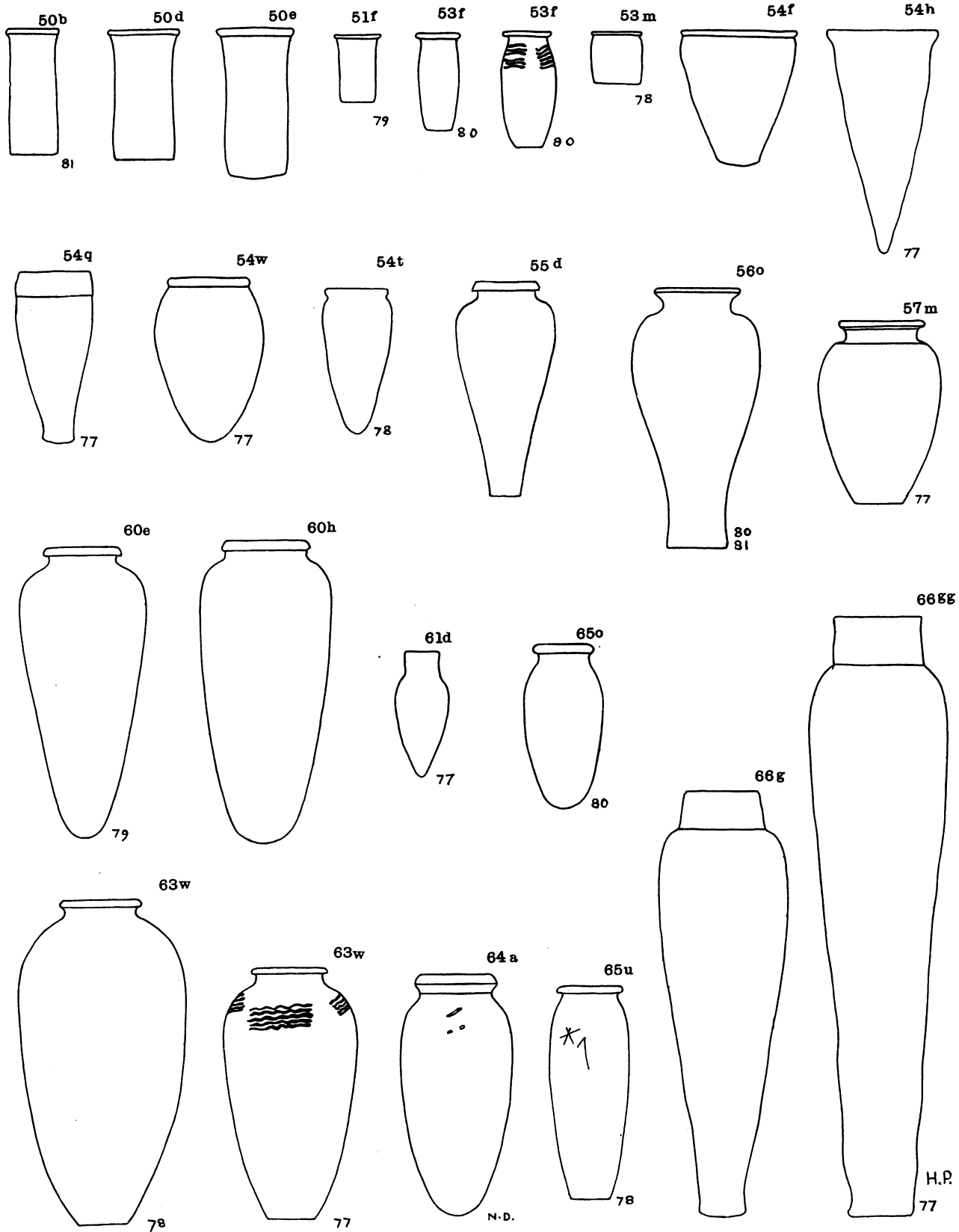
XXVII.



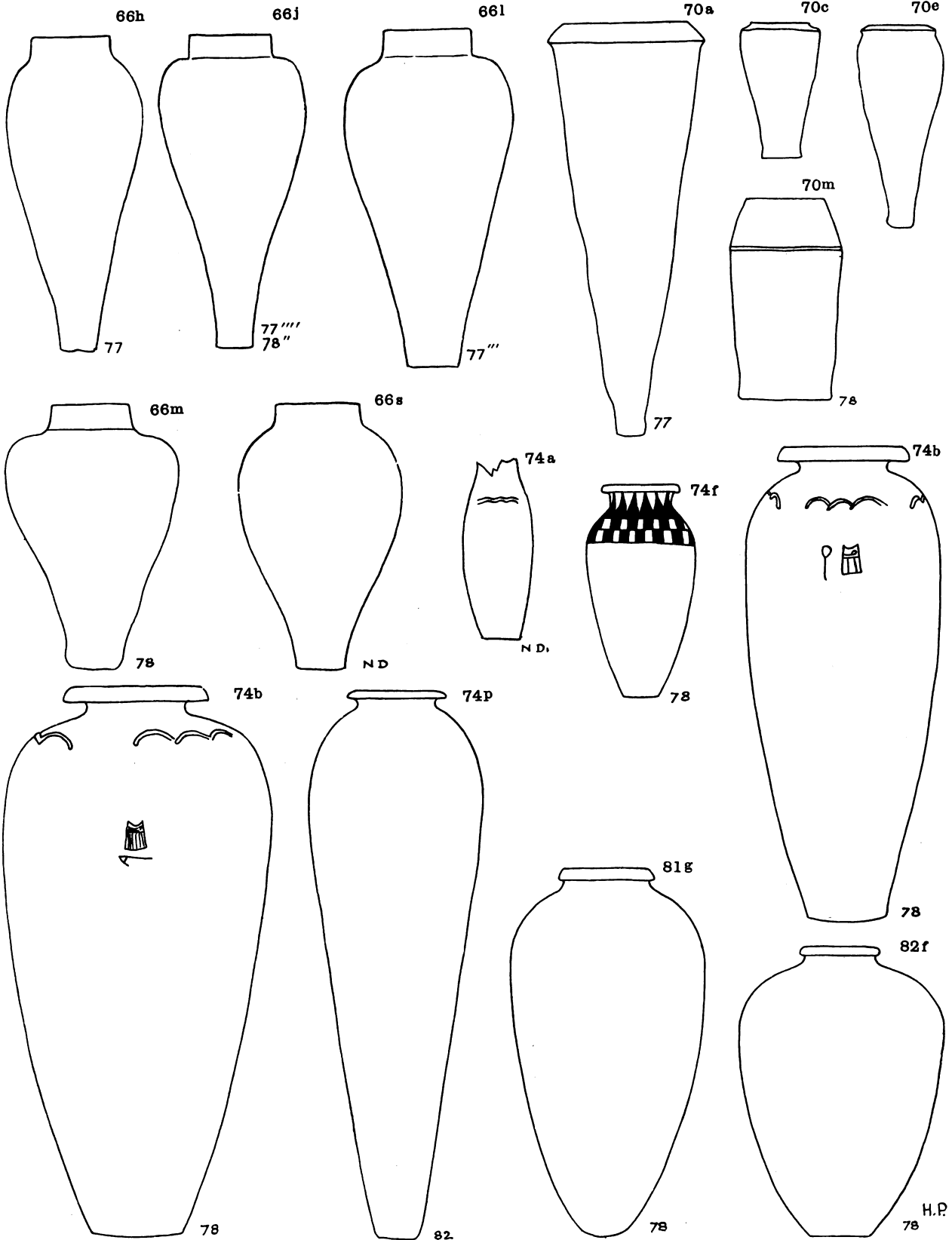
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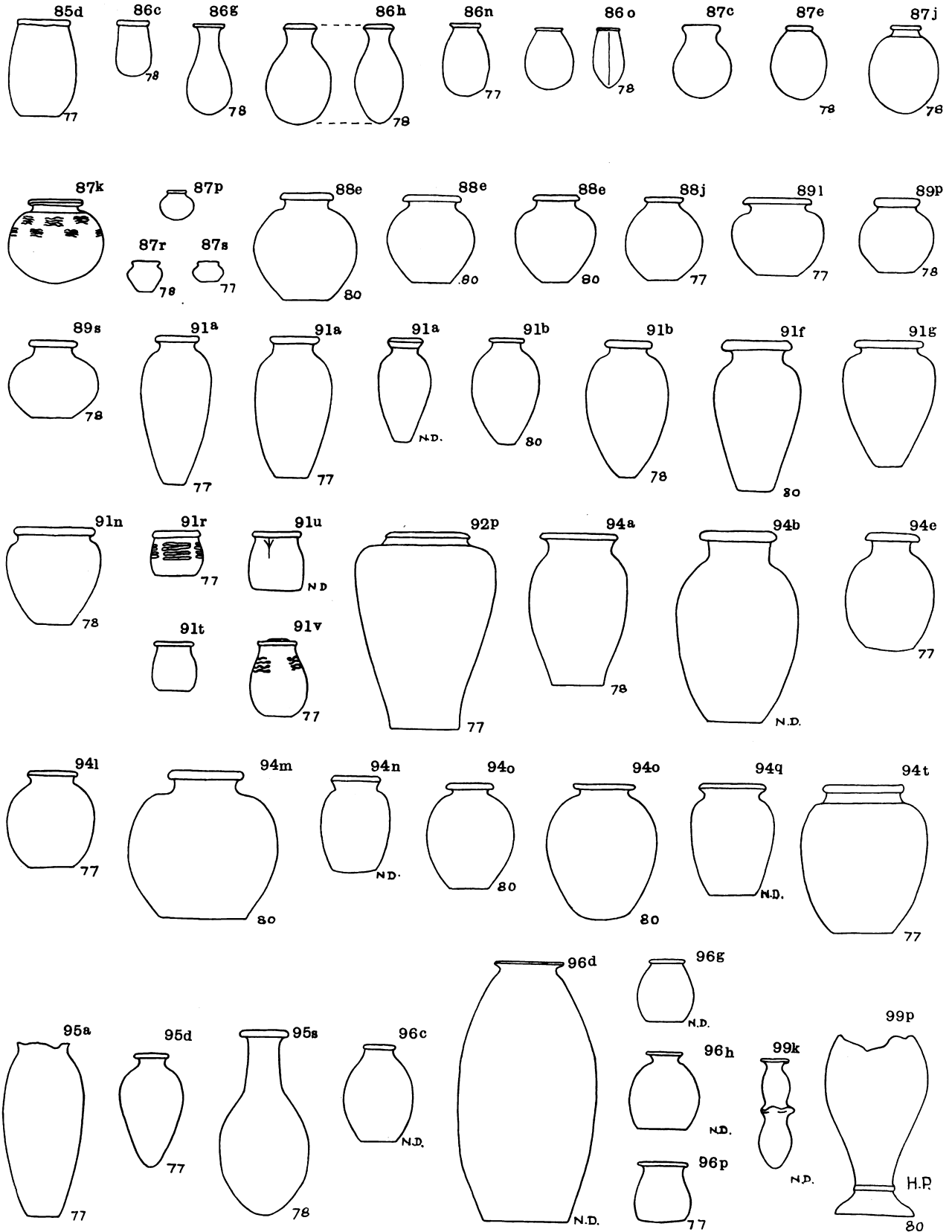
TARKHAN. EXTRA POTTERY TYPES, 50-66.

XXIX.



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77 No.	GRAVE N.E.D.F.	BODY H.F.S.A?	POTTERY	STONE	SLATE	COFFIN L.B.D	BASKET	MAT	COPPER	BEADS
609	28-50-75	S	16r 46d h	60d		38-18				GAL. MALACH.
618	55-30-25	S	46d f			52-27-20				
619	30-53-56	S	46d	67h						
625	35-53-43	S	46d r	66j						
626	28-58-40	S	46 kt	63p 66l						
628	30-60-40	S	46d-f	60j 66h						
634	45-80-60	S	46d 47h	60d g						
637	40-20-60	S	46d	60d						
652	30-50-60	S	46 h	60m						
656	29-43-85	S	46 t	66j						
657	25-35-50	S	46d							
663	30-70-52	S	46f m	60g h						
664	38-73-50	S	46d v							
666	55-80-74	S	46 h m	60 h m 66j						
671	30-50-67	S	46 m	60 m 66j						
677	50-55-65	S	46 h k	60d g						
683	40-75-60	S	46 f	60 h						
684	25-45-80	S	46d							
685	25-27-45	S	46d	66l						
686	30-42-85	S	46d	57m						
691	70-40-60	S	46 h	63j 66l						
696	30-60-75	S	46 k	56f						
698	22-50-45	S	46d	60g						
702	42-20-35	S	46d	60 m						
704	43-28-55	S	46 h	60d-g n						
706	32-48-40	S	46 r t							
714	28-48-55	S	46 l	60d						
716	33-22-50	S	46 p							
723	22-45-48	S	46 f t	60g						
725	20-32-42	S	46 h 47d	60g						
730	24-42-49	S	46 h k	60g j						
732	30-55-75	S	46 k	54s						
733	23-43-50	S	46 h p	66h j						
737	27-63-75	S	46 h-p m	66 j						
743	30-50-60	S	46 b	60d						
749	27-45-60	S	46 h	56f						
751	60-80-80	S	46 f	60g b3j						
752	25-45-80	S	46 m p	56f 60g						
753	23-47-25	S	46 h	60g						
766	22-40-40	S	46 f p	60g						
772	25-50-54	S	46 f	66 j						
776	23-47-68	S	46 f h p	60g						
778	24-46-40	S	46 f h k	60m						
783	35-65-55	S	46 km	60g						
787	30-50-60	S	46 h	60g						
792	35-50-80	S	46 b	66j						
793	28-50-45	S	46 f	66j-l						
794	27-42-55	S	46 h p	63e						
795	20-43-70	S	46 f							
799	28-55-60	S	46 h	66h						
842	40-50-40	S	46 m	66l						
853	40-55-60	S	46 d h	60g j						
854	40-65-45	S	46 h 47d	60 m-n						
857	35-70-48	S	46 d f h m	60 d m						
873	38-50-80	S	46 k	60g-j						
879	26-50-63	S	46 b	66j						
884	25-50-70	S	46 h	60d g						
891	25-50-53	S	46 b d h	60d						
893	30-50-80	S	46 b m	60 j						
897	23-40-100	S	46 m	60 g-j						
898		S	46 f m	66 l						
899	28-50-70	S	46 b	60 g-j						
921	70-40-60	S	46 b d	60d-g						
922	60-25-50	S	46 f h	66 l						
925	45-60-80	S	46 f	60 g-j m						
927	22-53-70	S	46 h	66 l 70a						
928	40-60-80	S	46 b h	60j						
930	30-45-63	S	46 b h	60g						
934	28-55-70	S	46 d f	66j 74a						
936	20-50-75	S	46 h	60g						
938	20-42-65	S	46 h	60d						
940	20-35-80	S	46 d f	66j						
941	30-40-70	S	46 d f	60d						
942	30-50-70	S	46 h	66 l						
943	30-80-75	S	46 h v	60g						
947	50-30-60	S	46 d h	66j						

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XXXIII.

77 No.	GRAVE N.E.D.F	BODY H.F.S.A'	P O T T E R Y			STONE	SLATE	COFFIN L. B. D	BASKET	MAT	COPPER	BEADS
948	30-55-75	S NEF 2	46 h t"	60 dg	66 l							
951	25-45-80	S F	46 f m		66 g							
955	44-55-70	S NWM 1	46 b h	60 g		oval 71z					+ 3 CARN. BARREL	
957	25-42-80	S SE 2	46 f h	60 g j								
960	20-32-80	S NE ch 2	46 f h		66 l							
961	25-60-75	S M	46 f h k	60 g j								
963	32-60-70	S NEM? 2	46 h t	60 g								
964	30-50-55	S SWF 4	46 d t		66 h j							
965	35-55-55	S SWF 3	46 h"									
970	25-55-60	S NEF 4	46 h n	60 g								
971	17-45-70	S SWM 1	46 k m		66 j							
973	35-60-70	S NE 2	46 d		65 r 66 l							
975	22-35-70	O NEF 2			87 s 88 h k 89 d							
978	18-37-75	S SW ch 2	46 h"		66 h l							
980	25-45-68	S NEF 2	46 b h									
991	40-55-35	S NEM 2	46 d	60 h	66 j							
993	25-60-75	S NEF 4	46 d	49 d 60 d		18 t	71 v				+ 37-22-16 POT	
994	20-45-65	S NEF 1	46 d"	60 g g-m								
998	27-45-85	S	46 d f"	60 g								
1090	25-55-55	S NEM		60 g"	66 j							
1091	65-38-70	S WNM 2	46 g m	60 g		14 h, l						
1094		ch			66 l							
1096	25-45-70	S NEM 2	46 h k		66 l							
1097	32-45-75	S SWM 2	46 d h									
1099	30-55-85	S SWF 2	46 b k m	60 g								
1104	25-44-20	S	46 h	60 d								
1107	30-57-73	S NEF 3	46 d"	60 d h	66 h"							
1108	25-43-63	S SW 2	46 f									
1112	20-30-52	S	46									
1113	50-23-60	S ESF 2	46 h	60 h j								
1117	33-52-75	S NEM 3	46 h m		66 j-l							
1120	25-47-45	S M 2	46 d"	61 d								
1125	20-55-75	S	46 h"									
1127	23-45-75	S SWF	46 f h m									
1129	35-54-60	S SWF 2	46 d f	60 g" m	66 h							
1133	27-42-55	S N F	46 m	60 m								
1134	25-55-63	S SWF 2	46 h m	60 m								
1138	25-40-65	S SWM 2	46 d f	60 g								
1141	20-42-77	S NEM 2	46 d"		66 h							
1142	22-50-62	S NEM 1	46 d		87 d							
1147	46-30-42	S W F	46 h"	60 d"								
1149	25-45-65	S SW 2	46 d" k	60 g	66 j							
1156	25-54-70	S SWM 5	46 d	60 m								
1159	23-40-80	S NEM 2	46 f h	60 g h"								
1160	25-38-78	S NEF 2	46 h m	60 m								
1165	25-52-80	S NWM 2	46 h		66 j-l							
1169	22-50-70	S SW ch 2	46 d	60 g								
1170	24-57-85	S EF'	46 d" h	60 m								
1174	29-57-63	S SWM 3	46 h m		66 j							
1178	20-42-62	S SW			66 h							
1180	26-50-90	S NEM 2	46 f m-p	60 g-m								
1181	22-53-100	S SWM 3	46 f h"	60 m								
1182	27-43-55	S SWF 2	46 f m	60 d-g								
1183	18-47-70	S NEM 1	46 h m	60 m	66 l							
1185	30-48-77	S NEM 2	46 m"		66 l							
1186	26-55-80	S SWF 2	46 m"									
1188	21-33-90	S NEF 2	46 d		66 h j							
1189	23-37-92	S NWF 2	46 f	60 g-m								
1191	25-40-72	S NEF 2	46 h		88 g							
1193	23-42-60	S F:	46 m		87 d							
1194	31-43-85	S NEM 3	46 h m		94 t							
1196	18-40-70	S SWF 2	46 d	60 h								
1199	43-25-80	S ES M 2	46 d h		66 j-l							
1200	57-23-80	S ES F 2	46 m p	60 d-g	66 l							
1202	28-47-70	S SWF 3	46 d f									
1211	32-48-85	S SWM 2	46 m	60 h								
1213	15-34-77	S NE ch 5	46 m 47 p		66 l							
1214	25-35-75	S F:	46 m									
1215	25-37-70	O SW ch	46 d	60 m"								
1217	30-52-90	S NEF 1	46 f h"		66 j							
1218	23-56-98	S NWM 2	46 f k	60 d j m	63 e							
1220	23-52-55	S F	46 f	60 g j								
1225	31-57-87	S SWF 3	46 h m p	60 b-d								
1228	27-18-68	S SW ch 2	46 h j									
1232	18-13-70	S ES ch 3	46 d	60 m (STACK)	88 e							
1236	40-20-65	S WNF	46 d									
1237	40-23-75	S F	46 f									

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XXXIV.

77 No.	GRAVE N.E.D.F.	BODY H.F.S.A.T	P	O	T	T	E	R	Y	STONE	SLATE	COFFIN L.B.D	BASKET	MAT	COPPER	BEADS
1246	23-38-67	S SWF	17j	46	Fh											
1249	23-38-90	S SEF 2	3g	46	h"			66j								
1250	24-45-55	S SWF 2		46	km	60j						REED				
1253	15-37-50	S SWF 2														
1258	17-40-85	S SWF 3		46	m	60g				87d						+ BIG METHYST & CARN.
1259	20-50-65	S		46	h					87d						
1260	24-50-90	S SWM 1		46	h											
1261	27-17-70	S WNch								87d						
1273	50-26-90	S WNM 3		46	dh			66j		c25						
1274	50-26-37	S WNM 3		46	Fh	60dg	m					46-19				
1275	30-47-48	S F		46	h"			66jm								+ BLUE-GREEN
1278	24-40-77	S NEF 1		46	d	60g										+ GREEN, WHITE & CARNELIAN GAL.
1283	28-52-75	S SWF 3		46	df"			66h	14m	71x		45-26				+ 5 LONG CARN.
1284	33-55-45	S SWM 2		46	F k	60h		66j"				52-27-16+				+ CARN. & GLAZE MAL
1285	32-60-80	S SWM 2		46	f" m"	60hm						46-20-13				+ WT. & BL. GLAZE
1289	30-50-65	S SWM 2	3g	46	h	60g										
1290	25-40-80	S NEM 2		46	F k	60g										
1295	24-42-85	S WNF 2		46	k 47h	60g	m		19c							
1296	42-25-75	S ES 2		46	h	60g	j									
1299	27-43-90	S NEM 2		46	h m	60	m									
1307	38-22-65	S WN 2		46	h				26d	71rw						+ GREEN GLAZE STONE SPOON CARN. SHELL & BARREL FLINT
1310	48-26-45	S WNF 2		46	d							42-21			PIN	
1312	45-25-47	S WNF 2		46	m 47h	60	m									
1313	31-53-60	S NEM 4		46	h mt	60	m									
1317	28-47-70	S NEM 2		46	fhk											
1319	17-40-80	S SWF 4		46	h											
1327	23-42-70	S SWF 2		46	d	60j										
1328	23-39-60	S SWch 1		46	h m"	60g		66								
1331	35-60-100	S NEM 2		46	h m"	60g		66j								
1337	28-50-70	S SWM 3	14u	46	f mp	60h										+ SQUARE SPOON CARN. BARREL GLAZE
1338	18-40-60	S SWF 2		46	d			66hm				75k				
1339	22-55-57	S SWM 4		46	df	60h										
1340	44-23-50	S W ch		46	h	47p	60m									
1341	25-47-50	S SWM 2		46	h	60h										
1342	30-45-80	S SWM 2		46	f		63d									
1344	33-45-70	S SWM 3		46	f	54n		66jl				WOOD				FLINT KNIFE
1345	23-38-55	S SWM 2		46	d hj	60d										
1347	23-40-80	S F		46	m	60dg										
1348	46-26-80	S SWF 2		46	d h" m	60gh			88u			95k				FLINT KNIFE P.
1350	45-22-70	S ESM 2		46	p	60g										
1361	32-55-90	S NEM 2	8g	46	f	60m										
1363	32-52-105	S SWM 2		46	d'e	60		66hl								
1367	26-48-70	S NEM		46	df m	60j	m									
1370	25-51-95	S SWF 2		46	mt 47d 47d	60d		66l	19j			48g				+ CARN. IVORY PIN
1372	26-44-75	S NE 2		46	f			66l				c26d				+ SMALL GREEN & BLACK GLAZE
1377	20-45-75	S SWF 3	7c	46	h"	60d						c69l				GALENA
1378	32-50-95	S SWF 2	27s	46	h"	47fh	60m					98r				+ BL. GLAZE P.
1379	23-37-75	S SWM 3		46	h"	60h										
1380	23-38-75	S SWF 3		46	f	60j										
1381	26-54-75	S NEM 2		46	m 47f	60m										
1382	22-48-65	S SWM 5		46	f k	47f										
1383	30-50-75	S SWM 3		46	fh			66hj								
1386	25-32-70	S SWch 3		46	h	60h			c14n							FLAT SLATE RING
1389	31-50-35	S SWF		46	k 47h											
1391	25-47-90	S SEF 2		46	kmr	60hm										
1393	35-20-60	S ES ch	3k 8g 17j 19k	46	f" k	60gj										
1397	30-65-95	S NEF 1		46	f	47h 47d	60m									
1400	43-27-50	S ESF 2		46	h	60m										
1402	40-23-70	S ESF 2		46	f	60m										
1413	20-40-65	S SWM 2		46	k	60m										
1414	20-35-50	S NEF 2		46	d											
1418	25-40-80	S SWM 2		46	d h m	60g										
1419	19-42-80	S M 1	12w	46	h"											
1420	25-40-20	S		46	f	60			14n							
1421	26-52	S		46	f											
1422	23-47-60	S SWF		46	f m	60d										
1423	25-35-75	S SWF 2		46	d							69g				
1439	25-30-80	S	3k	46	h	59m	60g									
1443	25-40-80	S NEF 4		46	m	60m										+ LARGE CARN. BARREL GARNET
1445	22-45-80	S SWM		46	k				94?			c80m				
1447	18-30-80	S SWch 2		46	f	60m										
1448	25-45-90	S SWM	3g (3f 7d 46h)	46	df	60g			88g							
1449	26-50-30	S SWF 3		46	h											
1453	45-24-70	S WNF 2		46	km			66m								TUBE SHELL ARMLET
1456	28-55-70	S N M		46	h"	60dg		66j								
1462	28-42-75	S		46	d	60j		66m								
1467	20-40-60	S NE ch 3	27s	46	d											

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XXXV.

77 No.	GRAVE	BODY	P O T T E R Y	STONE	SLATE	COFFIN L. B. D	BASKET	MAT	COPPER	BEADS
1469	18-45-60	S	SWF 1	46 h	60 m					
1476	65-28-80	S	ESM	46 h k m	60 gm	71g c94s				
1478	23-55-85	S	NEM 2	46 h m	60 h					
1481	30-52-90	S	NEF 4	46 f m	60 h	93n				
1482	24-40-90	S	M	46 h m	60 g	c90o				
1484	22-42-90	S	SWM 2	46 d	47dh 60g m					+ CARN. BLUE
1489	55-30-85	S	ENF	46 f	60 j					
1495	27-60-100	S	NWF	46 h k	47 h	66g				
1496	22-38-85	S	NWF 2	46 h						IVORY PIN
1499	20-45-90	S	SWF 2	46 h						
1501	26-57-80	S	SWM 2	46 h k	47 h	73k				
1509	20-50-75	S	SWM 2	46 f	60g					
1510	48-20-75	S	ESF 1	46 h						+ LARGE CARN. GLAZE
1513	32-50-85	S	SWF 3	46 f h	60 h m	c21o				
1516	18-40-52	S	SWch	46 f h	47h					
1517	27-35-110	O		46 d	60 m	66j				
1518	30-50-90	S	F	46 h k						
1519	25-44-90	S	NEF 2	46 h m	60b					
1520	25-42-82	S	NEF 2	46 p	60 h					
1522	22-46-72	S	NWF 1	46 f h						
1524	32-52-95	S	NEF 2	46 r	60g-m		88u	19c		
1534	24-53-70	S	SWM 2	46 h	47h 49l	66		19g		
1535	23-52-80	S	SWM 2	46 h mp	60 g			14r		
1536	20-35-70	S	SW 2	46 m	60g					
1537	25-40-40	S	NEM 2	46 d	47b	60 j				
1538	29-38-85	S	SWM 3	46 h m						
1539	23-39-85	S	SWM	46 m	60g					
1540	18-40-100	S	SWM 2	46 f		66 L-m 73f h				
1542	30-43-85	S	ESF 2	46 df	60 j					
1552	20-40-100	S	SWch 2	46 d	53f 54r 60 h	88g				
1555	22-50-60	S	NEM 2	46 h						
1556	25-45-70	S	SWM 2	46 k p						
1557	30-55-55	S	SWF 2	46 m	47m	60 hj				
1558	25-50-70	S	NE	46 m	60g					
1563	30-54-80	S	SWF 2	46 d k m	60 gj					
1565	24-35-75	S	SWM 1	46 f h	47b	60 h				
1566	20-42-55	S	SWM 2	46 h	60g					
1567	50-24-85	S	ENM 2	46 h	47f					
1573	48-20-65	S	WNF 3	46 h m	60 h					
1582	22-40-80	S	SWF 2	46 d	60 d-g					
1584	30-60-105	S	SWF 4	46 h m	47h 60d h					
1592	28-48-85	S	SWM 4	46 h	60d m					
1593	20-37-70	O	F	46 f h	54w					
1594	22-44-80	S	NEF 3	46 h m	60 g					
1599	30-58-65	S	SWch 2	46 f						
1600	16-40-35	S	ch	46 h						
1601	23-48-75	S	SWM 2	46 df m	60 j					
1602	25-40-50	S	SWM 1	46 d	47d 49dl					
1603	25-55-75	S	NEM 1	46 h m	60 m					
1604	25-43-100	S	SWF 4	46 h	60 g	66h				
1615	20-40-100	S		46 d	60 j					
1617	24-45-60	S	SW	46 h	p 47b 49d 60m					
1618	25-55-75	S	SWM 1	46 h	60 m					
1619	23-46-60	S	NEF 1	46 k p	60 h					
1622	23-40-70	S	SEF 2	46 h p						
1623	20-42-70	S	SW 5	46 d	60 h	66j				
1627	32-55-140	S	SW 2	46 h m	60 h					
1632	20-40-76	S		46 h	60h					
1635	15-30-52	S	SWch 3	46 k						
1636	20-35-90	S	SWch	46 df r	60d					
1638	30-50-40	S	SEM 2	46 k m	60 h					
1642	21-53-84	S	SWF 2	46 h k	60d					
1646	25-48-75	S	SWM 2	46 f	60d					
1648	25-48-70	S	NEF 4	46 d k m	60 h					
1652	15-40-75	S	SWM 2	46 d						
1657	43-20-50	S	WNF 2	46 d	60 j 64b					
1660	27-50-55	S	SWF 1	46 h p	60 m					
1664	26-40-55	S	NEF 2	46 k	60 j					
1667	18-43-75	S	SWM 2	46 d k	60dg	66j				
1671	25-40-70	S	ch	46 p						
1673	28-45-85	S	SWM 2	46 h	47h	60 j				
1677	20-38-75	S	NEM 2	46 p	60d					
1680	25-45-55	S	SWM 2	46 df h m	60 j					
1687	22-37-65	S		46 m	60 m					
1690	36-50-60	O	NEF 1	46 d k	60d					
1692	32-18-65	S	ESF 2	46 f r	60 m					
1693	25-34-66	O	NE 2	46 df	47h					

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XXXVI.

77 No.	GRAVE N.E.D.F	BODY H.F.S.A	P O T T E R Y	STONE	SLATE	COFFIN L-B-D	BASKET	MAT	COPPER	BEADS
1694	32-54-60	S NEF 2	46 f pr 47h 60h							MAL.
1700	30-52-65	S SW 2	46 k r 60g 66 l			38-24				+
1701	23-35-50	O SWch 3								
1704	28-42-95	S F 3d	46 h							
1707	26-45-60	S F	46b			c 93d				+ IVORY PIN GRN. GLAZE
1709	23-40-45	S NEF 1	46 h 60d							
1713	25-45-80	S SEM 3	36g 46 h m r 60d-g							
1717	30-58	S WNM 4	46 d h m 47 p 60d	88m		51-23-13				
1718	32-53-75	S NEF 1	3g 46 d h k 60 j							+ CARN. & SHELL
1719	25-47-85	S SWF	46 h k 60 h							+ CARN. & BLUE
1721	24-40-90	S SWF 2	46 d			26m c 71f				+
1723	38-25-75	O WNM 2	46 d k							+
1726	30-42-80	S WNM 2	46 d h 54h 60 g 66 j							
1727	20-50-80	S SWF 2	46 h m 66h g			21m				
1728	52-20-74	O WNF 5	47dp			19c				+ CARN. GLAZE
1729	25-50-90	S SWM 2	46 fh 60g							
1731	20-30-50	S SWF 1	46 br 60 h j			c 71x				
1732	42-19-35	S WSM 3	46 h			8g				
1733	23-32-80	S SWF 1	46 h m 60d							+ CARN. BARREL SPEC. IRON. GAL.
1736	22-48-45	O SWM 1	46 h 60 g							
1739	30-60-110	S WNM 3	3g 27h 46 h 60 m			14 obasalt				+ GALENA IVORY PIN CALCITE CARN. GREEN GLAZE
1742	24-38-85	S NEF 1	46 k 60 g							
1744	37-25-75	S ESF 2	46 mt 60 r			c 71h 21m				ARM + IVORY PIN CARN. GLAZE SPEC. IRON
1746	24-22-60		46 h m			c 75k				
1751	24-40-60	S WSM 3	18b 25m 47h			90e				
1752	20-45-65	S WSM 3	3d 46 f r							IVORY PIN
1757	18-50-60	S SWF 5	46 h	94d		22o c 98l				+ IVORY PIN CARN. SHELL
1759	18-45-85	S NEF 2	46 m							+ CARN. SHELL CARNET
1761	25-55-65	S SWF 4	37b 46 d k m 60 d			c 72 b c 89				
1763	23-45-55	S NEM 2	46 d k 60 d							
1766	19-40-70	S SWch	46 m 47f 60 b							
1769	25-47-75	S NEM 2	46 h m 60 h							
1771	25-42-72	S SWF 2	3g 46 f km 60 d							
1778	28-65-80	S NE 2	47d 60 j			c 97h				+ CARNELIAN
1779	24-55-67	S NEF 2	46 p t 60 g h m	81g		c 71b 97p				REED
1780	32-53-55	S NEM 4	46 f t 60 h j m							+ IVORY PINS SPEC. IRON, GALENA
1781	25-38-65	O SEM 2	46 b k 60 d g			71h c 98m				
1785	35-60-95	S SW 2	46 b r 60 n p							39-20-15+
1789	26-48-85	S S	46 r 60 h							+ CARNELIAN BK. STEATITE TUBE
1794	24-36-50	S NEF 2	46 h 47f 60 m			89				
1796	17-60-70	S SWF 1	46 h 47h 60 d			75b				REED
1802	30-50-80	S S	46 d km 47b 60 m	73h						P
1804	28-65-85	S S	46 hk 47d 60 j			14 n 71d 50l				
1807	25-42-70	S SWF 1	46 h			c 97c				+ GLAZE
1810	28-50-85	S NEM 5	3k 46 h k m 47b h 60 l 63w			26l 71h				
1813	23-40-85	S S	46 m							
1815	28-45-65	S S	46 d f h 47f 60 j m							+ CARNELIAN
1816	20-40-70	S SEM 2	46 h							
1818	25-40-60	S NEF 2	46 h							
1819	20-40-80	S WSM 3	46 h							+ CARNELIAN, HAEMATITE, SHELLS
1820	25-43-75	S SEM 2	46 h p 47f 60 m							
1827	18-45-70	S NEM 1	47fh 60 d j							
1828	22-58-70	S NEF 2	46 d km 47d			14 b				+ CARN.
1830	25-40-65	S NEF 2	3g 47d 60 d j							SPEC. IRON
1838	23-43-75	S SWF 2	46 h 60 d g			10f 90c				
1840	15-37-70	S F 2	46 d							
1845	30-50-90	S WSM 2	46 ps 47 h 60 d			18g 19p 98k				
1852	32-60-80	S SWF 1	46 d h m 60 d j			c 97h 97p c 95r				
1860	32-45-80	S SWF 2	46 d f m 60 m							
1867	22-45-60	O NEch 2	3g 46 m 60 g	96p						+ CARN. & GREEN GLAZE SMALL
1869	18-28-60	S NEF 1	46 k							
1875	20-43-105	O NEF 2	46 b d 60 d			c 97h				+ BLUE GLAZE GAL
1878	25-47-105	S SWF 2	46 h 47 b 60 d			14 r 19c 98f				+ CARNELIAN P GLAZED CUP SARD CYLINDER
1879	21-37-80	S SWF 2	46 fh 60 d j			14 o green glaze				+ CARNELIAN P
1880	25-52-70	S SWF 2	46 h 47h 60 d			75f				+ CARN. GARNET
1890	21-46-65	S NEF 3	8g 46 d 47h 60 d	66h		c 98u				+ CARN. GLAZE ALA. CONC.
1892	25-52-90	S WSM 1	46 f m 60 h j			25 m c 75f				+ CARN. GLAZE ALA. CONC.
1893	27-45-105	S NEF 2	14g 16u 46 f h k r 60 d			14 m c 97h				GRN. GLZ. POT
1901	23-47-50	O WNF 2	46 m 60 d g	87s						
1902	22-39-70	S NEF 1	46 fh 60 d							
1903	25-50-45	S NEF 1	47f							
1917	35-70-50	S M	4 17l 46 d k m 63			65-29-31				BIG KNIFE
1972	66-35-22	S S	46 b d 66 m							
2031	25-50-45	S SW 2	46 f 66 j			50h				P
2035	22-45-30	S NW 2	46 fh							
2036	25-45-45	S SWF 1	46 f 66 l			93h				+ 12 SHELL ARMLETS BIG CARN. GARN
2057	21-35-32	S SWF 3	46 f 47e 60 d			68m BASKET				+ CARN. & GLAZE P

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78 No.	GRAVE N.E.D.F.	BODY H.F.S.A?	P O T T E R Y							STONE	SLATE	COFFIN L.B.D	BASKET	MAT	COPPER	BEADS	
610	22.35.45	S NE F1	3d	46 h	47 p	49d	60d			21s						+ SERPENTINE PENDANT GAL. & MAL.	
611	28.36.37	S				49g	60 j				31.21.14 ^{REED}						
616	20.38.25	O NWF1				49l											
621	27.45.47	S NE 2		46b	47b		60 j										
627	26.40.25	S				49l	60d										
632	22.42.55	S NEM2				47km	60dm										
633	25.40.73	S F		46d			60 n		92j-s								
635	20.40.53	S SW 2				49d	50d60d										
640	33.48.35	S SWM				48gl49l	60 n				40.25.20						
642	20.38.25	S					50d60e										
661	42.18.40	O WNM2				47p	60 n										
665	24.40.20	S NE 2	16h			48s	60 j										
667	40.60.65	S NW 2		46d			60d-g	73h									
669	22.36.30	S SW 2				48t											
672	23.42.36	S SWM3		46 f			50e57m		94a								
673	40.65.60	S SW 2		46 m					86o		49.30.17					+ GREEN GLAZE DISC & BARREL	
676	35.55.45	S NEM2		46 m	47m	49d	60d-g				REED						
687	32.45.55	S SWM1	3b			49	150e60 n v66j										
688	20.27.45	S SWch 2				47f48l											
694	30.45.65	S SWF?2		46dh			60g-j		86f								
692		S		25s46d m			60d-g				68d					+ ARMLET SHELL ARMLETS	
695	46.20.55	S WNF2		36ce			50d										
712	20.45.65	O SWF2		46 pt			60 j										
713	30.53.70	S W		46 p			60d-g										
720	25.55.50	S SWF1		46f			68g	73h									
728	40.48	S F	3b	36f46d m			54s56f60d g		87e 99d		92f						
738	32.50.55	S NW 2	3b	27r 46 f			49l	60d n	86f								
740	26.48.75	S F	1y3b	8f346d h r47hm			54t60 j73fh		87d		71h						
742	35.45.65	O NE 2		46 p	47 m												
744	23.50.40	S NEM1				48s49g	60d										
745	32.57.48	S SWM2		46d m			60 g		c26d		94s					+ BARREL CARN.	
755	25.45.63	S SWF		46 h			60 gm66j										
756	24.40.48	S NEM1	3g	46 f m			66h										
757	32.48.70	S M	3g	46 f			63j73h										
762	22.40.28	O ES F2				49l	60 n										
764	30.22.30	S ES F?3				49l	60d									+ CARNELIAN	
765	25.35.30	O SWM?2	3l				63e										
768	30.65.85	S SWM2		46f?				73h									
769	33.38.52	S SWF 2			47b48s49g		60 m										
771	22.50.20	S NE F		46			60 m										
773	23.45.70	S ES F?2		46 k					95s								
774	26.50.70	O NEM2		46 f				73h									
784	25.45.72	S SWM1		36m46 h			60 j	70e									
785	23.45.75	S SWM2		46 h	47p	49g	60d										
788	32.40.75	O SW 2		46 r			60 j										
789	15.40.60	O SWch 3		46 h	47d		60g										
790	27.45.55	S SWF 2	4			48l49l	60 j		81g		75k						
827	29.45.27	S				49dl											
829	50.75.40	S W 3		36c			50d60g-j				29.17						
835	20.40.16	O NW 1			47f		60d				75f					MALACHITE	
843	40.60.40	S SWF		46 f			48s49d	60d-g								+ CARNELIAN	
845		S ES M4					50de	74e									
846	50.75.29	S N M	3dgm8f116				49gl54s60 r 70n73f		81f								
849	35.78.48	S NE		46 h			60 s	73h									
850	50.30.50	S		12t 36g			49gl	60dr									
852	60.85.65	S SWM2		34"5k36k46 h			60g-j	73h	86h		40.21.17					FLINT FLAKE	
858	60.47.50	S F		3b 14g			48ls49dl		81g								
859		S		lu 2k			49d	60 n70n73c75b									
861	35.40.40	S ES F?1		36g46 k				66j70c74e	86df								
862	25.20.30	O ES F		2k36s			49dl	74e									
863	35.50.65	S W 5		27r				63d.g70n73ck									
866	37.65.60	S ES M2		46 h	47m	49l	60d	73f									
868	50.62.58	S SWM2	3b8g		47h48g49d		60d-g	70c									

78 No.	GRAVE N.E.D.F.	BODY H.F.S.A.T.	P O T T E R Y	STONE	SLATE	COFFIN L. B. D.	MAT	COPPER	BEADS
877	35-53-70	S SWM 2	46 m	49g	60 d	40-21-15+			
878	38-24-33	S	19m 46 bk		60 m	32-16-REED			
880	30-45-50	S SWF 2	36st 46 bf r	53m	60 j	75f			+ CARN. GARNET GRN. GLAZE
881	30-52-68	S	18w 46 hp		60 j	97b			
882	30-18-60	S	46 hk		60 d	32-21 REED			
883	32-50-65	S SWM 2	46 r						
892	25-35-55	S NEF 2	3b 46 p		60 d	c 75f			+ GARNEL SGNGLZ. GALENA MAL.
895	45-30-70	S ESF 2	47m		60 d	REED			+ SMALL BLUE
896	27-50-73	S SWF 3	46 p		60 g-j				
926	25-55-65	S NEM 2	46 d p						
939	25-55-75	S SWM 4	36g 46 df"						
950	22-50-65	S SWM 1	46 f	48 l	60 p-s				
952	25-45-75	S SWF 3	46 hmr	47m	60 g-j				
954	40-60-45	S NEF 3	46 p	47bh	60 j	14s26k	71j		+ GARNET & CARN. GALENA
962	35-55-80	S SWM	3b 46 d"		66j 70c				
966	28-45-70	S NEM 2	46 h	49 d	60 d				
968	23-45-67	S NEF 2	46 hr		60 d-g	98l		ARM-	+ CARNELIAN
969	27-42-70	S F	46 hp	49 d	60 j	c 90g			
976	22-40-70	S NEF 3		49 d"	60 h	c 75f			
977	33-45-65	S SWF 2	19k 27h	47p 48l 49g"	60 d-g	c 93d			+ BLUE GLAZE PEA & TUBE. GALENA
979	25-52-80	S NEM 2	46 m		56b 60 m	73h"			
984	30-55-60	S NWF 1	46 h	49d	73g	70e		PAN-	+ CARN. GLAZE
985	30-48-80	S SWM 2	46 df"	47b	60 g-j				
986	25-50-75	S SWM	46 p	47bd	60 d				
995	28-50-80	S NEM 4	46 f"		66j				
997	23-50-70	S F?	46 f	47 h	60 g-j				+ GAN. GLAZE BALL
999	30-50-55	S NEM 3	46 h'		60h 66m				
1100	42-70-65	S F		49l 50de	60 n	74b	.91n		NAR
1101	18-35-35	S	46 d			92f			
1102	25-40-55	S SE ch 5			60d	70cd	87j		
1106	24-53-70	S SWM 3	46 f		60 h				
1114	50-40-70	O	3b	47 h					
1115	22-37-73	S SW ch 2		48l 49d	60 d-g				
1116	22-35-75	S SWF 5	46 f		60 h				
1124	55-27-70	S ESF 2			60 d j				MALACHITE P.
1126	25-50-60	S NWF 2	46 r	47bp	60 m				BLUE GLAZE CUP
1128	27-57-75	S NWM 2	13f	47f 48g 49d	60 g m				
1135	23-42-50	S N F 3		47f	60 b	73h"			
1145	25-40-70	S SWM 2		47 p	60 d				
1148	35-56-75	S	46 m		60 v				
1161	23-45-73	S SW 2	46 h"m"	49d	60 g 66l				
1172	32-48-75	S SWF 2	27s 46 h		50d 60 p				
1175	30-48-55	S NEF		48s 49d g	60 d				
1177	25-38-62	S SWF 2		48hm 49d	60 g				IVORY SPOON
1184	37-19-81	S ENM 2			60 g				
1197	27-34-64	S F		49g	60 m				
1198	25-53-25	S N				86g			
1204	22-33-80	S SW ch 3d		47h	54t 66j				
1206	40-20-60	S ES M 1	46 m	48l 49d					
1208	25-48-65	S SEM 2	46 h	47h	60 m 63w				
1227	35-24-72	S F		49d	60 t				
1235	35-27-50	O EN ch 1		49d"l	60 p				
1238	32-55-75	S F	46 m		63e 66m	72e			
1241	27-47-90	S		47h	66l				
1244	30-47-67	S SWF 2	17m 36 46 h'	49d	60 d	5bn			
1245	47-27-68	S WNM 2		48s	59g 60 n-p	70n-o			
1247	23-37-70	S WNM 1		47gh	60 d				
1248	43-23-75	S N F	46 hm	48s 49d	60 m				
1257	17-28-40	S SWF		48s	60 d				
1263	25-35-62	S NEF 2			60 j				+ CARNELIAN
1264	27-50-74	S SWM 4		46 f	60 h				
1265	27-55	S NEM 3	8 36l 46 f"		66h"				
1266	30-60	S NEM 4	46 kmp		60 j				FLINT KNIFE

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78 No.	GRAVE N.E.D.F.	BODY H.F.S.A.T.	P	O	T	T	E	R	Y	STONE	SLATE	COFFIN L.B.D	MAT	COPPER	BEADS
1269	25-55-60	S SWF 2									89				P
1270	16-51-75	S NEF 2	3k 36g	46 h'	47b	49d	60 d-p								
1271	17-30-75	S WNF 2	3b		47d	49d	60 m								
1272	18-44-47	S SWF 2		46 h'	48s	49L	60 d-g								
1277	26-40-110	S SWch 2								88e91e	14n GLAZE	56h REED			GRN. GLAZE CUP GREEN GLAZE SHELL ARMLETS
1286	13-33-35	S SWF			48d							21h			+ SMALL GREEN SPEC. IRON
1293	24-36-68	S E ch 2	8f				66hj70n73bc			91b		29-18-14			
1294	30-43-72	S SWM 4		46 d h	49d	60 g									
1300	24-60-85	S SWF 2		46 k	49 L	60 g					26d 71h	97b			+ GARNET CARN. MALACHITE P
1302	40-20-75	S M 2			48d	60d									
1303	26-43-75	S NEM 1			49 L"	60 n									
1304	28-48-110	S SWF 2		46 d	47 h	60 jm						34-20-9			2 IVORY STICKS GREEN GLAZE BALL & BARREL
1306	22-43-80	S NEF 2			47 mp	49 L					c 71h c 71r 70f	46-23			+ CARN. BARREL BONE PLATE IVORY PIN GAL.
1309	35-50-75	S NEM		46 k		66j				92 p					
1311	26-65-90	S SEF 2		46 m	47d			74dg				478f			+ CARN. BARREL BONE PLATE IVORY PIN GAL.
1314	22-53-85	S NEF 2			47 p	49dl	60 g-j	73h74d							
1325	20-58-75	S SEM 1		46 h"	48d	60 g.m									
1326	30-23-67	S WNF 2	3df		47 k	49d	60 g								
1329	50-23-45	S ESF 2	13t	46 h	48s	60 g									+ CARN. GLAZE
1332	50-23-105	S ESM 2			47dps	60 j									
1334	28-55-100	S NEF 2			49 d	66j									
1335	30-50-80	S NEM 2			49dl	60 dhj		75c							
1343	43-20-50	S ESF 2		46 hl	49 L	60 n		75b							
1352	25-38-60	S N			49d"	60d									
1354	23-15-70	S W S ch 3			50d					87c					
1356	40-22-60	S W	3r		49L 59g										
1357	23-40-60	S SWM 1				64b-h									
1360	18-35-105	S SWch 2				60 j									
1362	22-35-75	S SWch 3						70o73h 89w 89d		91g					
1365	43-25-55	S F		14t	46 p	49g 50d 60h									
1368	23-40-72	S NEF 2		46 r											
1375	30-53-75	S NEM 4			48s 49 g	60 d-m	66gh								
1376	27-60-65	S			48L 49 L	60 n		75c							
1394	22-38-45	S NEF 2	3gl		49d"										+ CARN. BARREL & SM. GRN. GLZ. TUBE
1407	60-25-75	S ENF 2			49 L"	60 n		74d-e							
1415	17-45-85	S NEM								86f87d					
1416	23-43-85	S NW 4			49d"										
1426	28-40-65	S SWM				60 dj									
1427	40-27-83	S WSF	27h36gj 3d 8g36		48t 49 gl	60 d									
1428	28-45-50	S SEM 2		46d	49d L					81f		70e			
1429	47-27-70	S ENF 2			48t 49 d L	60 d	66								
1432	35-22-70	S ESF 2			48s 49	60 p				c 18h		18d			GALENA
1433	40-28-45	S ENF		46 d	49 d L	60 d									
1434	30-50-80	S SWM 2		46 h	49d	66j									+ CARN. & GRN. GLZ.
1435	50-20-80	S M			47b 48s 49 L	60 n									
1457	20-40-75	S NEF 2		46 f m	49d	60 m									
1461	22-45-80	S SWF 2			49 gl	60						89			
1463	27-57-75	S NEM 2				66j									
1466	48-25-60	S WNM 1	1u 8g 36 46 h' m	47k	48t 49 L	60 p		75k		91e					
1470	28-50-95	S NEF	3g 3d 91b 36f	46 h"	49d			73h 73k		87c 88g 95d					
1473	35-35-60	S WSF 2		16h	50b	63L									
1479	27-52-80	S F		31	46 hk	47hp 48t 49 L	60 d	73h			14m 48 71g 72e	21d			+ BLUE & GREEN. IVORY BOX.
1486	32-54-45	S SWM				48st 49dgl 50f 55d. 60						49-23-21			
1487	20-45-75	S SWF	1u	46 h	47bdf	49d	60g					75p			
1490	30-40-75	S NEF 2			49dgl										
1498	26-55-75	S SEM 1			49dgl	60 p		75c							
1500	25-50-45	S SWM 1			49 L'	60 r		75b		94o					
1507	50-27-80	S ESF 2		46 h"		66l						c 93d			
1511	27-60-57	S NEM 2		46 mp		60 jr		75c			18 b				
1514	30-58-80	S SWF 2		46 hm"	49d	60 g									
1530	28-44-45	S		46 h	49d"	60 d					18 h 1/2	c 93h			
1531	25-50-75	S NEF		46 m"	49d"					88e					

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XL.

78 No.	G. RAVE N.E.D.F.	BODY H.F.SA	P O T T E R Y	STONE	SLATE	COFFIN L.B.D	MAT	COPPER	BEADS
1532	27-36-70	S SW ch 2	3L 46 h	49L 66h	89				+ GRN. GLAZE
1544	25-48-90	S SW M	3F 19K 46d h	49f 60 gj	c 97e				+ BK+W.T. TUBE BS
1549	31-53-30	S SW 3		49L 50d 60 r	56n	37-23			+ CARNELIAN NR
1551	28-58-80	S SW M 2	47p	60d 73k					
1554	41-18-70	S WNM	46 r	60 h					
1559	25-40-35	S		50e 60 s					
1568	24-55-75	S SW 2	3g 46d m	49d 60 m 66j					+ ALAB. CONE
1570	33-55-05	S SW F 2	3dl 12j 27s 46fh mp	60g 66j	81f 92g	21o 26g			+ LONG GRN. GLZ. MALACHITE
1575	20-43-55	S SE F 1		49d 60d	88g				
1576	25-48-55	S SW M 5	46f k	49d 60 n					
1577	32-54-55	S SW M 2	46f m 47d	49d 60d 66h	81f				
1578	73-50-80	S WS M 1	8g 46 m 47 h	48s 49 g 57n 60 j			c 98l 43-23-12		
1579	38-60-60	S SW 2		49dl 73 k	81g		c 98d 56-31-36		DRAWING OF MAN
1581	26-45-40	S NE F	2k 46 h 47f	49d 60 g					
1583	22-40-80	S NEM 2		47 h 49d 60d-g					
1585	27-42-70	S NE F 2		46 df 49d 60d					
1586	29-50-65	S NE F 2	3k 46 h 47h	49dl	18t	71e	38-26-20+		GALENA P.
1588	45-30-70	S F		49L 50ef 60 p	81g		c 55s 35-22-12+		
1595	35-65-80	S M	8 18h 46 h	49l 60d					
1597	25-43-75	S SW F 2		49d					
1606	20-42-55	S SW 2		46 r 49d 60d					
1607	18-32-120	S SW ch	16u 26, 29g 46 u						IVORY ARMLET
1608	28-48-100	S NE F 2		48s 49 g 60d					
1609	37-22-65	S WNF 2	3l	48l 49d 60 r					
1610	33-18-60	S WNM 1		48t 49d l 60 n					
1611	28-56-50	S NE F 1		46 h m 47p 49 g		78f	37-22		IVORY PIN. P.
1616	50-22-70	S ES F 2		46 h 49d 60d					
1620	25-50-65	S F		46 h 48t 49 l					
1621	23-45-75	S SW F 1		46 mp 49d 60d		97p			P.
1624	25-40-60	S		48s 49 l 60 p					
1625	20-48-55	S SW 5		49b					
1628	25-45-50	S SW M 2		46 m 49d 66b					
1630	35-60-60	S NEM 1	3l 46 h	48s 49dl 50f 60 n-p	81f		47-21-11+		
1631	20-40-60	S SW F 1		49d 60d					
1637	20-40-100	S SW F 2	3b 46 k			c 89 94s			+ IVORY PIN CARN. IVORY PIN
1643	50-20-80	S WN 5		46 m 66j					
1644	25-44-40	S NE F 2		46 h 49 g	86d				+ IVORY PINS CARN. & CARN.
1645	42-16-62	S WNF 2	3b 46d	49 g 60h-m		26m 71g	75k c		+ CARN. & GLAZE GALENA P.
1649	15-40-65	S F		49d			c 70g		
1650	25-52-65	S NWF 3		47f 49d 60 m					
1653	21-40-75	S SW M 2		48s 49 l 60 h					
1654	25-45-60	S SW M 3		46d 49d 60 j			48d 95k		+ CARNELIAN
1659	24-50-120	S SW F		47 h 49d 60dh					
1661	40-20-45	S WNF		46 h 49d 60 j					
1662	27-50-70	S F		49d					
1670	60-27-55	S ESM 1		48s 49 l 60 b 66m		71x	49-28-17+		
1672	35-22-50	S WNF 2		46 m 50f		c 97e			
1674	40-70-70	S M	3b 46 m	48s 50d 66j		c 14h 35			+ CARN. & GARN
1675	44-17-55	S ES F 2		49 g l 60 m	81f		c 59h 29-15-11		
1676	50-25-60	S WNM 2		46f m r 49d					
1678	25-40-45	S SW F 1	14e 36g	48s 49 g l 60 m		c 71j 94h			+ CARNELIAN BLACK GLAZE + BIG HAEMATITE
1679	30-48-60	S SW 1		46d 49d 60g					
1681	34-63-50	S SW	3k 46d	48ls 49 l 60d 70m		58k	50-29-28		
1683	25-45-60	S SW F	43s	49l 60 j					
1691	40-45-45	S M		49l 50d					
1695	52-38-85	S WNF 3	3	49 g l 60k		18l 71j	c 97e 98l		IVORY PIN
1696	58-32-80	S WNM 4		48s 49gl					
1698	35-50-55	S SE F 2		46h 49d					MALACHITE
1699	44-27-80	S WN ch 2		49dl 73k	90s				HATI BULLHEAD CARN.
1702	25-55-82	S SW F	14y	49 l 60 r 70m 74g			c 57h 86m 40-2-22+		
1703	30-55-55	S NWF 4		49d 59h-p					
1705	28-57-60	S F	3b 46 h k	49d	94p		98g 48-26-24		+ CARNELIAN
1710	25-40-75	S SW M 2		46f m 49d 60g m					

78 No.	GRAVE N.E.D.F	BODY H.F.S.A.T	P O T T E R Y						STONE	SLATE	COFFIN L.B.D	MAT	COPPER	BEADS
1714	20-38-75	S	3d	46 m	49d	60g	87d							
1715	28-60-80	S	SWM 2	25f 46d k	47h 48d		73h							
1722	33-43-50	S	SWF 3	46 h	49d	60 r	87d							
1725	56-28-85	S	WN 2		49d	66				50-24-14+				
1740	45-27-40	O	ESM 2		49d	60j								
1743	24-37-45	S	NWF 4			60 p								
1753	27-55-70	S	SWM 4	46 h k m	49d	60d	75c							
1755	28-45-80	S	F	3g 46d k	49d	60d							IVORY PIN P.	
1756	25-42-70	S		3l 47h r	49d	60dj	66j 70g							
1758	20-40-68	S	NEF 1		48s	60 n							+ CARN. IVORY PIN	
1764	26-50-70	S		46 f	49d									
1765	27-40-50	S	SWch 5	3g	49d	60dj	73c							
1767	65-27-100	S	F		49l 59p	60j								
1773	30-58-55	S	SWF 2	3d 46 h	49d	60d h	73f							
1774	18-45-65	S	SWM 2		46d m	49d				58m			+ CARN. GLAZE MALACHITE	
1776	28-45-110	S	SWF 2	14n 19k	46d 47p	48s 49d	60r						+ CARN. IVORY PIN GLAZE	
1777	20-43-80	S	SWM 2		46 f	49d							+ SHELL ARMLETS MALACHITE P.	
1782	18-33-70	S	NECh 2	20d 46 k	47p	49g	60d			72 e			+ CALCITE CYLIND. CARN. PENDANT	
1783	20-43-65	S	SEM 2		46 h	49d	60dj	73h						
1787	22-37-57	S	NEF 2		46 p	47b 49d	60d						+ CARNELIAN	
1788	20-40-90	S	SWF 3	8g	46 h	47b	49d							
1790	18-43-75	S	SWF 2			49 g	60 h							
1791	28-47-85	S			46 h	49d								
1792	28-50-73	S			46 h	47 p	49d	60d 63b						
1797	25-50-80	S	SWM	36c	46 h	47h 48d								
1799	35-16-95	S	ENM 2			49d								
1800	23-37-110	S	SWM 3			48s 49 l	60d							
1801	28-50-95	S	NEM 2			48t 49d l								
1805	30-52-110	S	SWF 2	11b 2k 3r 11k	46d m	48s 49d l	73k							
1809	27-47-70	S	NWM 2		46 k	49d								
1811	15-26-60	S	SWch											
1825	26-40-40	S	SWF 2			49 l 59p								
1826	23-45-80	S	M			47p 49d	60d n							
1832	25-38-60	S	NEF 2			47b 48s	60d							
1833	26-52-107	S	SEM 1		46 h	47h 49g	60d							
1834	24-55-95	S	SWM 5			48s 49 l								
1841	40-20-100	S	WNF 2		46 k	47h 48s 49 l	60 n-p							
1854	20-42-70	S		14m 27p		47f								
1855	23-45-85	S	SWF 2		46 km	49 g	60dj							
1856	25-42-100	S	SWM 1			49 l	60 n							
1859	20-42-65	S	SW 2			47d 49 l								
1870	35-68-105	S	NEM 3		46hl	47h 48g	60 h-r m							
1871	28-55-75	S	SWF 2	12r 36k	46h	47fk	60 r							
1873	20-36-70	S	SWch 5			49 l	60d							
1874	25-35-70	S	SWM 1			47f 49d								
1876	30-20-95	S	ESch 3			48s 49d	60dj							
1877	27-45-85	S	SWF 2		46 k	48s 49d	60 m 66l							
1881	23-47-80	S	SWF 2		46 h	48s 49d l	60b							
1883	22-43-100	S	NEM 2		46 h	49d	60 g							
1884	40-22-95	S	ESM 2			48s 49d	60 n							
1885	22-40-60	O	SWF 1			49d	60dj							
1886	18-40-60	O	NEF 2			47h 49g	60 m							
1889	32-43-62	S	NEF 1		36 46d p	47f p	49d	66j						
1891	27-45-70	S	SWM 3		46 k	47m 48s	60 r							
1906	20-40-50	S	N F			49 g	60 m							
1909	18-40-70	S	SEM 1		46 m	49d	60dj							
1925	37-65-55	S			46 h m r	47hp	49d	60 g						
1933	40-85-65	S		3k	46 h k p	47 p	49d	66j						
1952	25-60-40	S				48ls	60d							
1953	24-38-35	O	NEF 2			48l 49 l	60 n							
2034	22-48-40	S	SE 2		46f	47f	60d							
2058	20-40-40	S	SW 2			47m	60 h							
2059	16-35-40	S	S		46 h	47 p								

79 No.	GRAVE N.E.D.F.	BODY H.F.S.A.	P O T T E R Y					STONE	SLATE	COFFIN L. B. D	MAT	COPPER	BEADS
697	22-45-20	S W F 3		47m	49g	60j							
717	30-42-42	S N E F		46h		59f			32-22			2 LALAB CONES	
727	25-30					60j			20h				
729	25-80-50	S E F 6				60j			TRAY			FULL LENGTH	
754	23-35-30	O S W F 3		36g		60j							
885	28-45-72	S N U P 5				60j			98m			+ CARNET AND CARNELIAN MALACHITE	
989	43-65-68	S W F 2	17n			60j	63r 65fr	41					
996	22-40-75	S W F 2		47k		60j			89				
1146	60-35-70	S W N F 2				54b 59km	66j 87d			58-29 BED			
1336	16-27-45	S W ch				60r	63d 76b		75f	38-25			
1374	58-30-55	S W S M 2			49d 150f	60de							
1390	28-52-80	S W N F 2	36s		50f 51f								
1438	18-42-75	S W F 2			50f"							+ CARN. SCORPION GRN. GLZ. POT	
1455	43-23-65	S W N M 2		48s	50f							+ CARN. SCORPION GRN. GLZ. POT	
1494	30-55-100	S W M			49l 50f"							+ CARN. SCORPION GRN. GLZ. POT	
1506	40-23-80	S W N F 1			49d 51k	60 m						+ CARN. SCORPION GRN. GLZ. POT	
1669	30-80-50	S W M 4			50f			18l	97f				
1853	35-60-100	S E 2			50f	60j							
1868	25-60-55	S			50f"	60 m-b	75c		98g	+			

80

644	45-61	S S W 4	17n	33r 37b		64d 65f	86d 89m	19d	62g 63l	+		LOG ROOF IVORY BIRD ARMLET
645		S N E			57g							
646		S N E 2				60gj						
647		S S W 2	17h			63b		91c				
648		O S W ch 2				60dg						
649		S N E 2										
679	80-40-45	S W N F 1	12n			59h	65bf	19s	24L 70m			HORN & FLINT ARMLETS
726	35-45-45	S W N F 3		31m		59f			29-25			
735	58-34-40	O W S 2		17j		65kp			26m 94			
760	37-72-35	S S W M 3	7b	12n 17h		65kl pto		85f	serp 81c	67-32 BED		+ GRN. GLZ WAFER SHELLS
763	30-48-35	S W F 3				59g						+ CARN. HAEMATITE SHELLS
797		S W F 2	3d			59g	65p	92b				
855	40-25	S W M 2		17h	49g	5bn	65k 74b					
856	30-25	S W S M 2										
874	35-50-65	S S W F 5				63p 65k 67l		91g				+ BLUE FLAT DISC IVORY PIN
876	35-65-55	O S W F 2	17n					85d				
931	55-30-45	S W N M 4			50t	60gj		86f 94o		REED		
932	35-65-40	S W F 4		27s		59g	65km					
949	25-45-55	S W M 2	3d			53f		88e				+ SLATE 48m c
1098	22-40-50	S ch			36u			88e				+ BROWN GLAZE SMALL GRN "
1373	25-30-70	S N W ch 2		27r	50fj	59df		91f	71e			
1441	24-39-67	S W ch 2		17h		59p						
1451	55-27-60	S W S M 2	4		50j		63b	99p				
1528	30-18-65	S W S F 2							61c. l			+ SPEC. IRON. BUTTON BLUE, CARN. AMETM SCORPION ARMLETS
1655	32-55-80	S	1f 12r	24m 27r		59g						FISH SLATE 47K
1686	28-48-85	S W F 2	14m			63d		91p 94L				
1689	34-50-50	S	1d	24 36g			70g 73k	86g 87df 92fc				
1716	20-43-70	S W F 2						91c				
1750	75-40-40	S				59fghk	76m					
1795	27-55-90	S N E F 4		20d		63bg			62t			+ CARN. GLAZE
1954	44-84-55	S		31m		63bg 64d						
1957	55-28-35	S E	13f	24				6		33-17		
2011	37-90-100	S				59g	65p	75c j		59-33-9+		
2026	70-80-140	S				63g		75b e j u		47-24-9+		
2030	37-62-48	S W F 5				60d 63d 65hk			54L			LIMESTONE PAVING
2039	40-52-54	S N E 4			50t	59h	65k	76m	27m 54n			
2040	38-45-54	S N E 3			50s	50s 59p	65k	76m	24v	40-23-20		
2050		S								+		
2051	35-43-30	S N E 2			50s	59k	65kl	76d	23f 54L w 62w			
2054	40-46-30	S D U C K				59h	65f		6m 7k 18k 21r 22r	35-19-15		
2056		S								39-22-19		
									24g x 2			

81 No.	GRAVE N.E.D	BODY H.F.S	P O T T E R Y		FOREIGN P. POTTERY	S T O N E	COFFIN L. B. D	MAT	COPPER	BEADS
724	15-30-50	S-W.ch			88u					
798	45-33-40	W-N.F	12d	57b 59kg	94n		BED 30WIDE			
920	30-60-60	S-W.M	12r 17n	50s 65t						
933	35-55-42	S-W.F		65m 67j						
956	72-35-85	W-N.M		59h 63s 65n-t						
1417	40-65-75	S-W.M	3g	36 50p 57b-d			51-34	+		CLOTH ON BONES
1430	30-45-75	S-W.F	17g	50b 59g						+
1887	28-50-20	S-W.								+
1888	53-40-30					5m	22y 22t 62h 80h 81h	+		CARNELIAN
1904	45-30-35	W-N.M	17n	63d	10, 11					+
1907	23-47-60	N.E.F	12d 24	63p'''	12, 13					CARNELIAN SHELL & RINGS.
1908	50-65-55	M		63L p''			25L			+
1919		N.E.F		63p						ROUGH CARNELIAN LONG GLAZE.
1923	20-35-80	N.E.	12h 20h	63p	17					
1930	57-45-65	W		63g''' p'''		10p				2 FLINT FLAKES
1942		N.E	12d 20b	63p	18					
1950		M				9j 21w 22x''y 62p 78n 80h 81t				
1951						24L 677k				
1973	43-76-90	N.E.	7b 27s	59k 76qlm		{ 14u 21rs 23p 29l 54lw 24n 31m 62s'' }	44-23			
1974						22y 34 62r''				
1982	78-148-110	S.E.		59p 65r 66h 75p 76gm		{ 8v 21c 22ny 51o 62prt 12b 23ft 54jny 74p }	85-30			FLINT KNIFE LIME STONE TABLE WARMER
2008	40-65-70	N.E.	19g	59d 63qt 68c		8g 22or 24p 54n 62qr	BED FRAME			OUTSIDE OFFERINGS
2016	40-62-45		17m	64bd 65t						FLINT FLAKES
2038	196-127-220		8f 11b 27p	56o 59g 75v 94l						FLINT FLAKES
2053	40-25-50	N.E.		50s 65n 76m			34-20-18			
2055	95-120-195		11b	50st, 56o, 59p''	85fg 92gk	ALABASTER STOOL				FLINT FLAKES

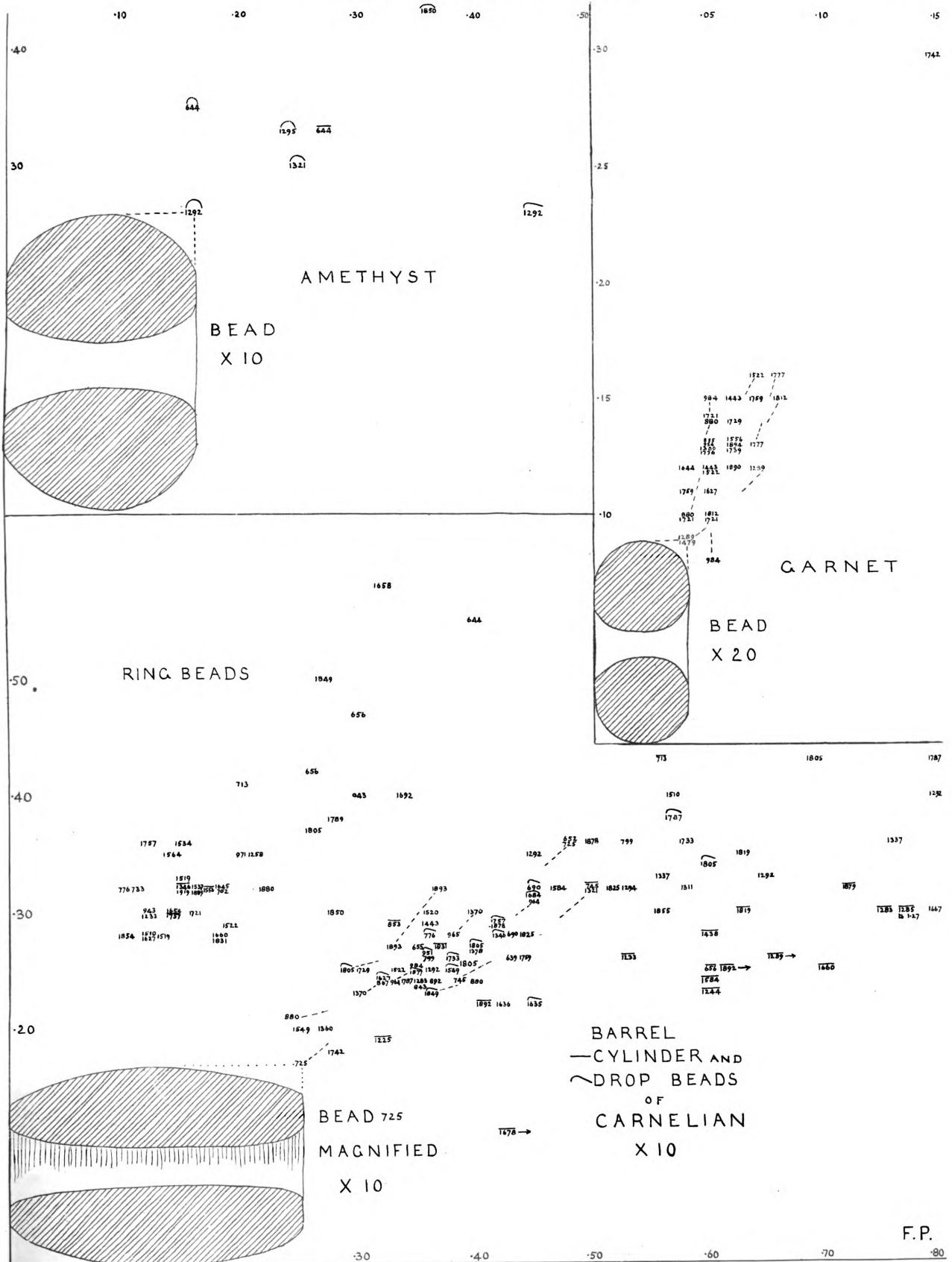
MINORITY GROUP OF MALES INCLUDED IN LIMITS NAMED HERE.

	FEMUR		TIBIA		HUMERUS		RADIUS		CLAVICLE		S K U L L			ATTITUDE
	767-809	SUM	289-310	SUM	526-547	SUM	226-244	SUM	133-149	LENGTH	BREADTH	HEIGHT		
937	422	797	365	289	530	241	134						5	
950	426	778	352	308	535	227	145	181	134	133			1	
966	435	809	374	306	539	233	138	188		128			1	
974	423	771	348	303	537	234	141						4	
?986	435			303	547	244	(156)	194	143	142			4	
1185	434	798	364	308	544	236	147	178	147				2	
1287	436	808	372	298	536	232							2	
?1289	452	(822)	370	306	538	232		194					2	
1337	440	787	347	295	527	232	133	186	131				2	
1339	428	780	352	304	543	239			136				4	
?1367	448	(837)	369	304	542	238		182	133	134			2	
?1383	446	800	354	297	531	234	(153)	199	126	134			3	
1413	426	768	342	297	535	238	148	193					2	
1434	440	805	365	308	546	238	147	206	151	125			2	
1445	437	789	352	300	536	236	149						2	
1466	437	800	363	304	547	243							2	
1535	449	806	357	290	538	248		187	135				2	
1567	432	786	354	310	539	229	144-150	181					2	
1598	437	788	351	300	529	229	143						2	
1610	445	785	340	297	537	241							1	
1667	448	798	350	306	537	231							2	
1669	447	800	353	305	538	233	142						4	
1706	420	767	347	301	533	232	136						2	
?1713	424	770	346	306	536	230	(169)						3	
1752				305	536	231		182	128				5	
1781	436	782	346	307	542	235	140	182	126	132			2	
?1816	436	779	343	292	(518)	226	139						2	
1854				300	526	226	142							
?1904	427	789	362	304	539	235	(159)						2	

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TARKHAN. REGISTER OF BEADS.

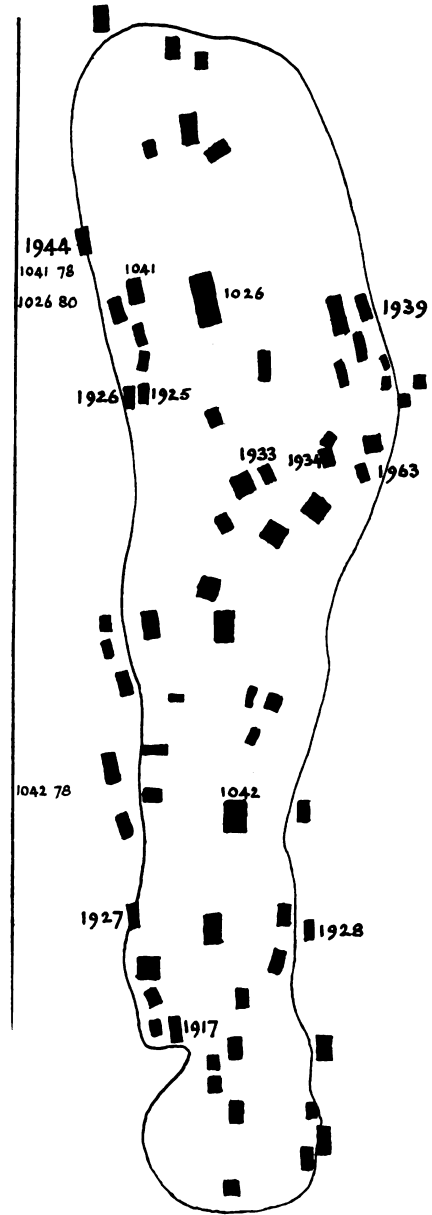
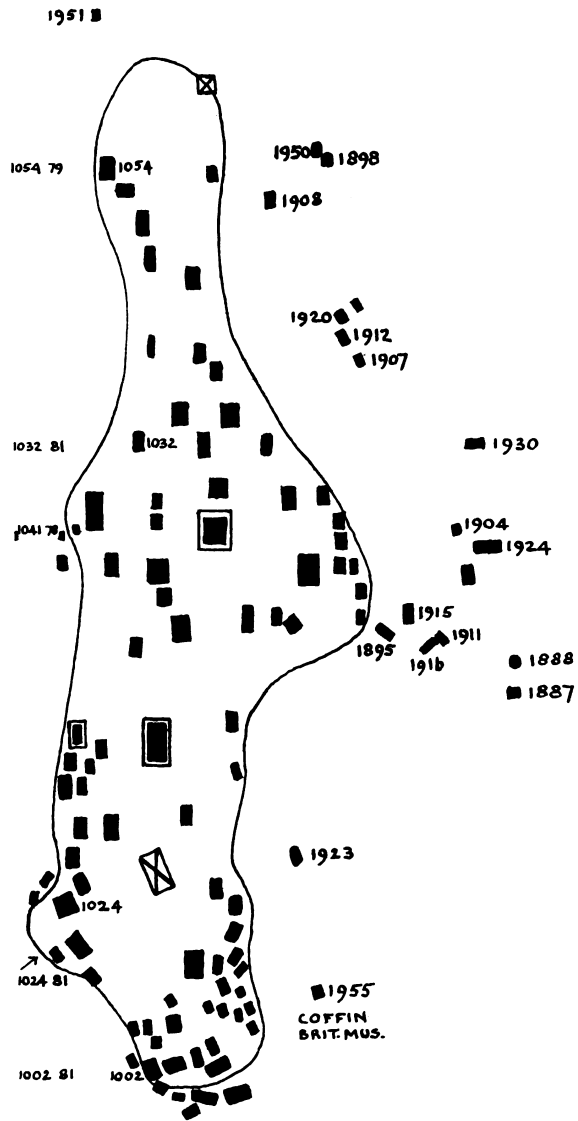
XLV.





F.P.

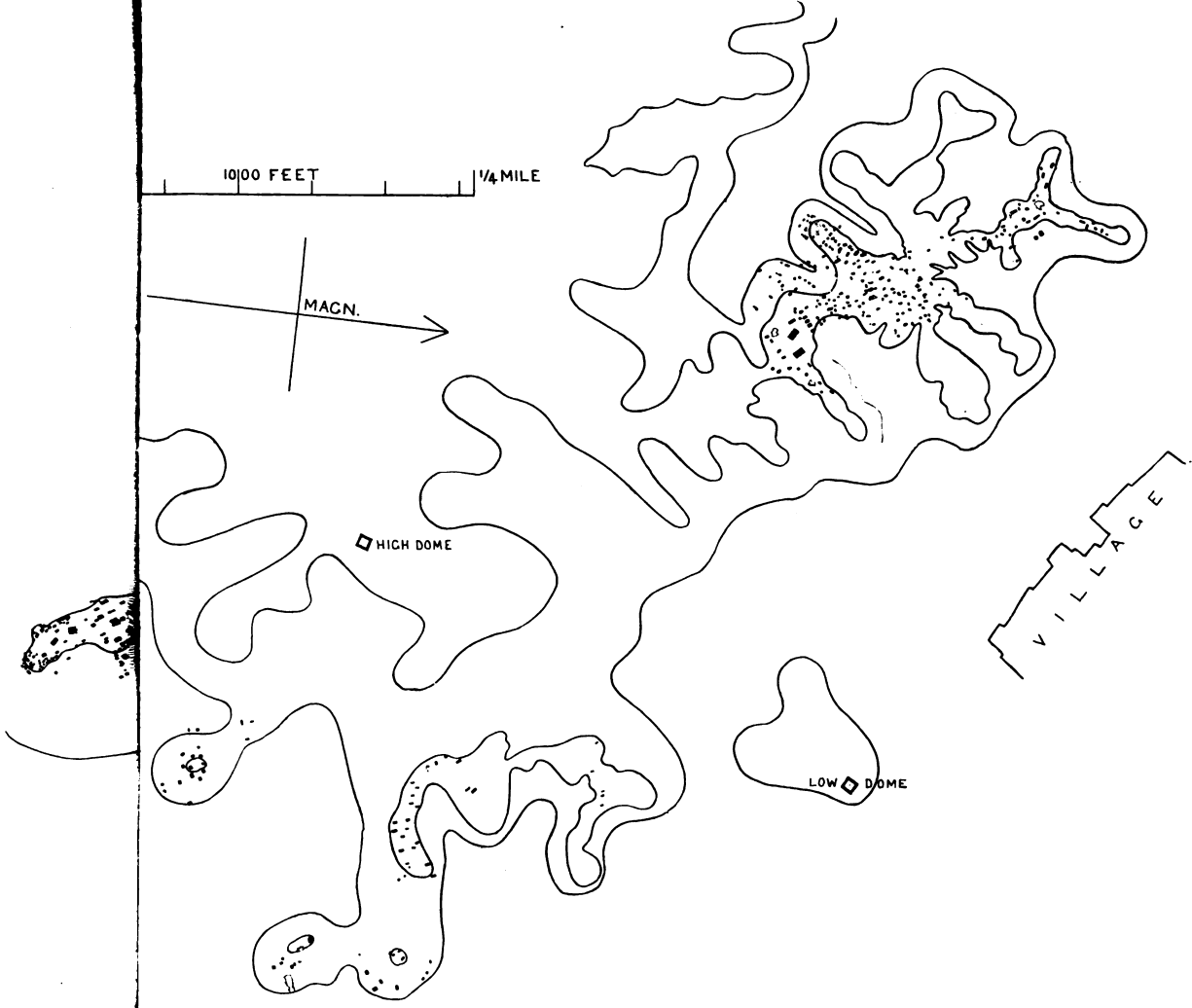
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W.M.F.P.

TARKHAN. GENERAL PLAN OF CEMETERY.

XLVIII.



W.M.F.P.

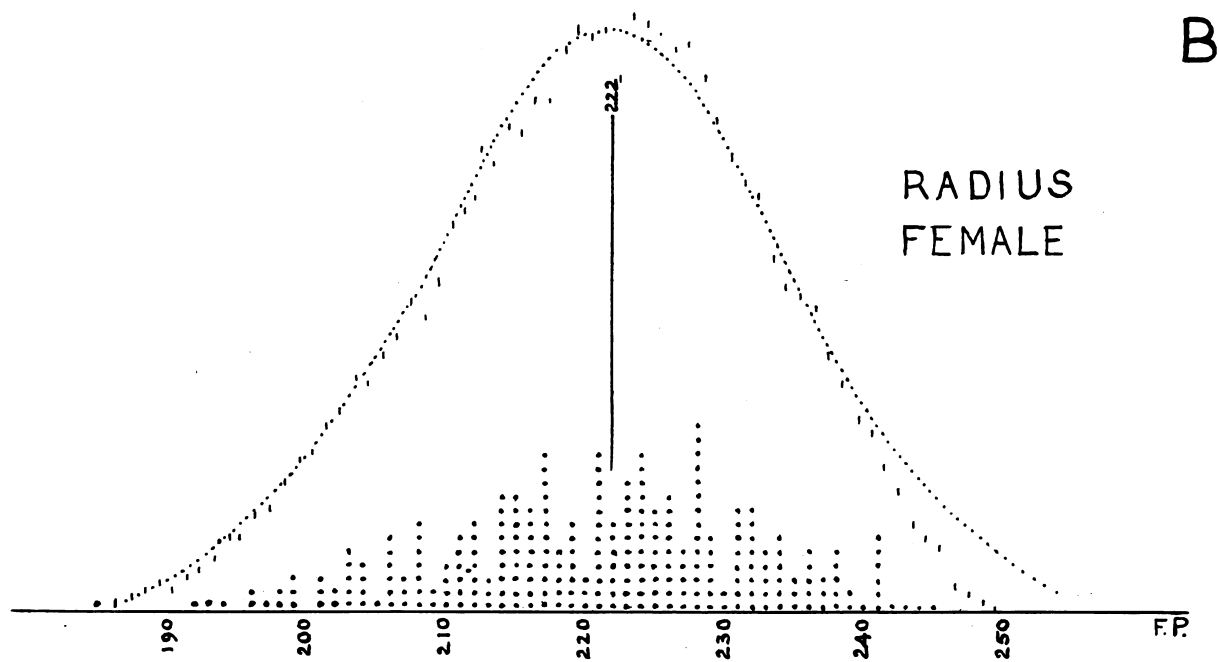
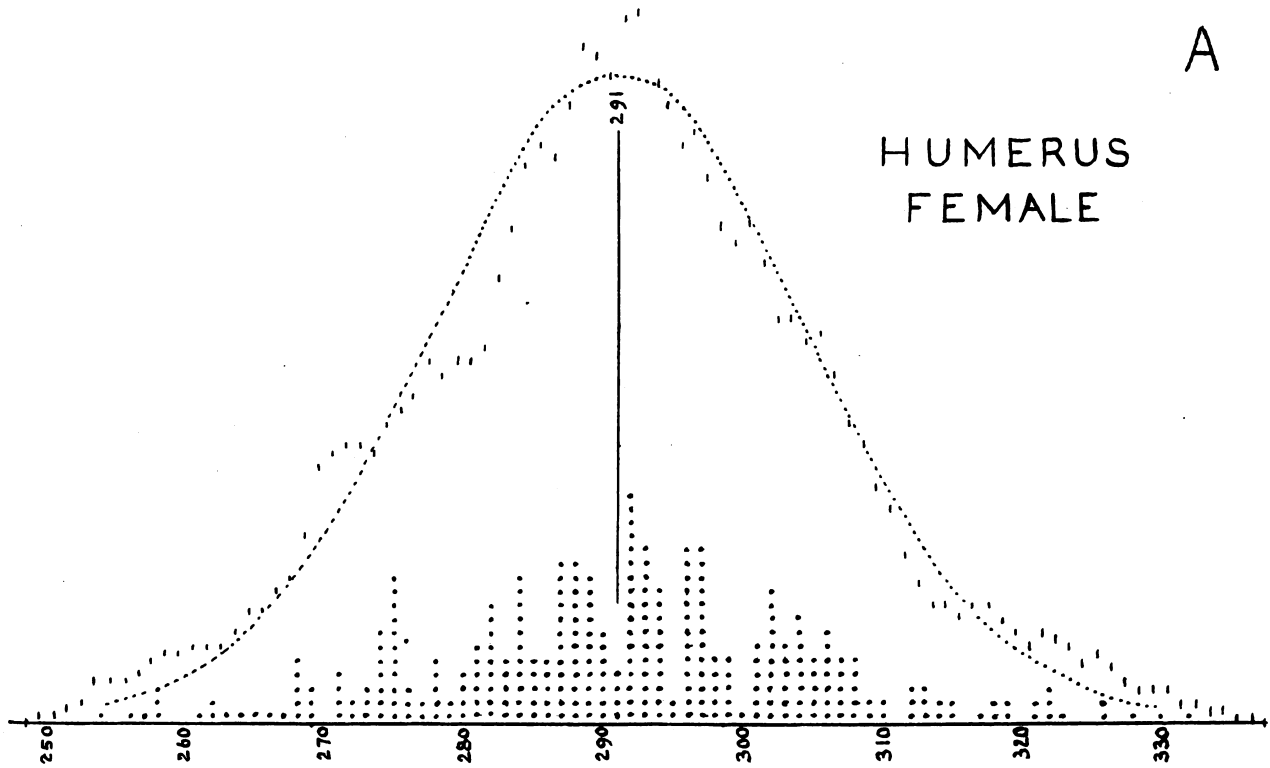
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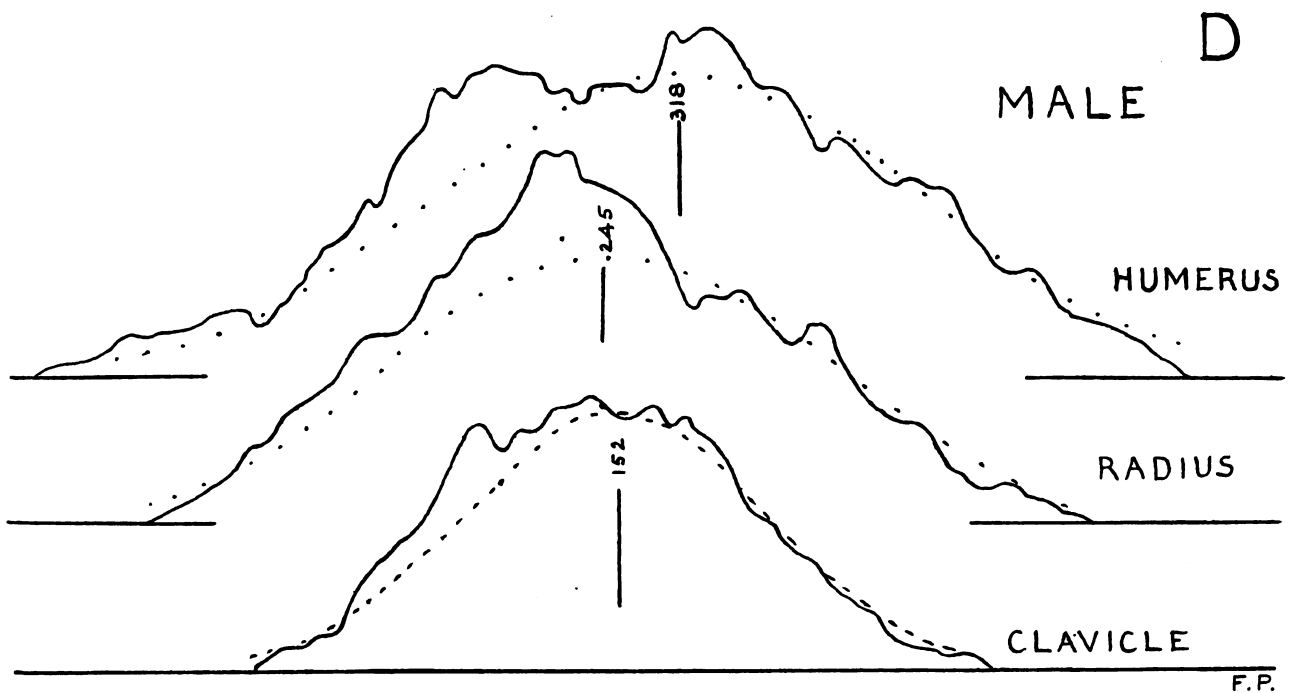
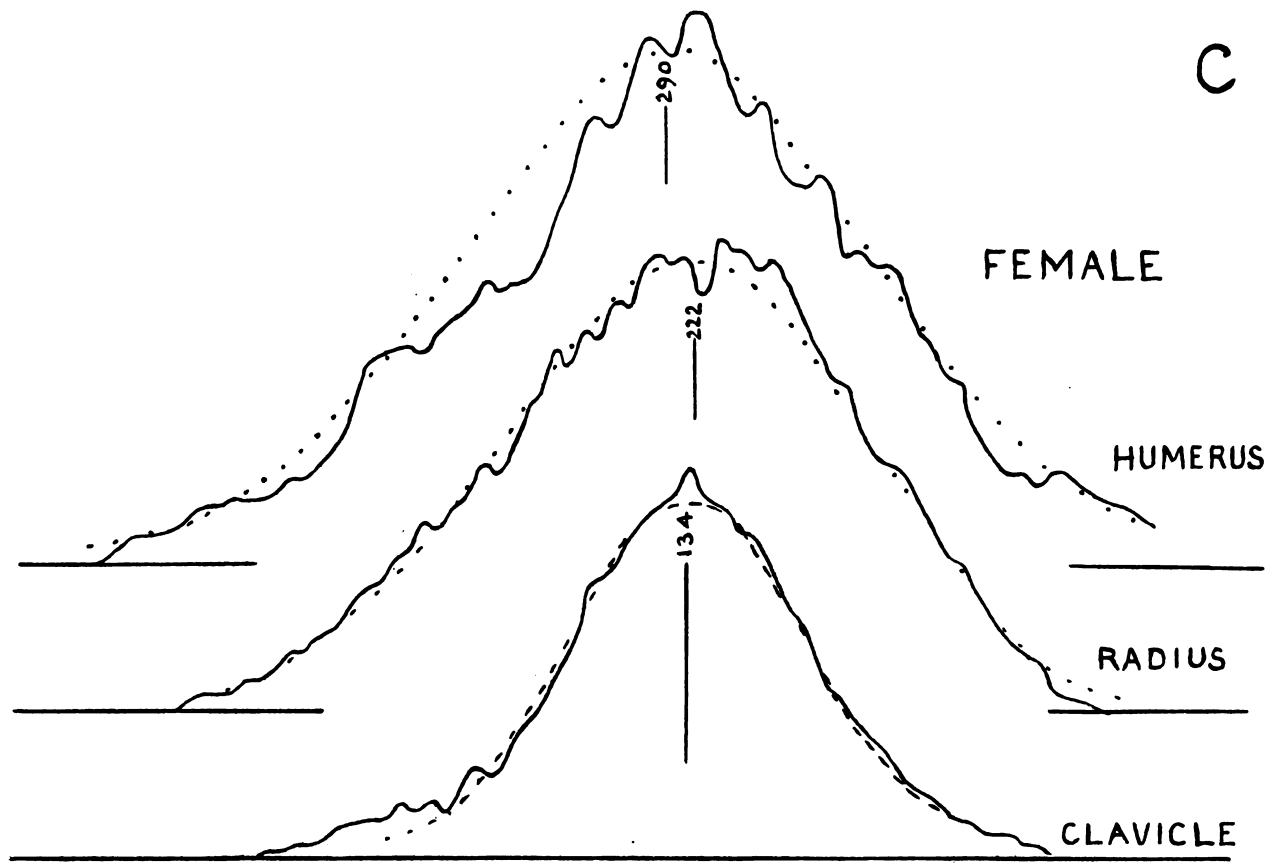
FEMUR MALE FEMUR FEMALE

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398	1653	354	
400	1171	356	
402		358	1814
404	712	360	
406	921	362	
408	1106	364	1327
410	1313	366	635
412	1208 1273	368	573
414	955	370	
416	609	372	1865 1825
418	1274 1488	374	895 976 1571
420	1577 1770 1920 1918	376	1702 1641 1588
422	1545	378	1395 1414 1508 1869
424	1580 1896	380	785 954 1955
426	1243 1509	382	1429 1454 1521
428	1676 1860	384	1454 1461
430	848 1585 1706	386	777 1172 1178 1408 1432 1622 1650 1799 1847
432	1392 1541 1826	388	789 1790
434	837 1318 1826	390	884 1731
436	647 974 1288 1335 1361 1469 1717 1723 1726 1827	392	1808
438	674 1138 1578 1713	394	1443 1504
440	1536	396	715 1145 1890 1914
442	961 950 1413	398	713 720 873 994 1590 1861 1788 2008
444	1640 1804	400	930 936
446	1339 1805	402	1131 1196 1262 1637 1826
448	926	404	667 743 954 1095 1133 1188 1322 1487 1918
450	883 1203 1566	406	1366 1380 1431 1731 1824
452	894 956 971 1350 1426 1587 1670 1801 1889 1943 1891	408	694 1189 1298 1507 1525 1840 1844
454	669 745 865 1140 1154 1244 1564	410	799 1157
456	861 963 1185 1399 1810	412	656 729 1347 1642 1768 1886
458	868 988 1838 1939	414	704 1428 1533 1657 1895 1808
460	1188 1287 1390 1303 1374 1452 1501 1562 1761 1814	416	966 1345 1582
462	760 820 932 982 1091 1117 1218 1302 1445 1465 1565 1598 1865	418	646 1129 1283 1386 1358 1722 1835
464	949 981 1146 1345 1919	420	755 1085 1234 1261 1378 1410 1569 1664 1794 1803
466	663 877 1242 1337 1434 1484 1500	422	686 776 1124 1250 1329 1404 1469 1641 1886 1784 1797 1837
468	786 879 891 893 1131 1158 1194 1399 1305 1498 1592 1614 1626 1673 1743 1864 1972 1913	424	877 871 896 970 998 1177 1694 1896
470	837 798 858 1224 1448 1684 1712 1786	426	701 952 986 1249 1719 1889
472	854 1917	428	723 1492 1581 1581 1709 1822
474	824 879 709 854 886 961 1036 1142 1174 1247 1383 1715 1732 1754	430	889 947 993 1475 1891 1875 1779 1902
476	753 787 895 1087 1121 1364 1375 1412 1491 1667 1729	432	800 1113 1126 1167 1253 1268 1312 1316 1338 1391 1510 1611 1620 1789 1744
478	711 1090 1426 1586	434	706 951 1010 1263 1271 1319 1324 1613 1617 1720 1823
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482	744 896 1289 1674 1710 1783 1892	438	1107 1480 1684 1651 1680
484	636 983 1341 1379 1882 1506	440	645 897 740 1188 1278 1292 1386 1557 1727
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488	748 1264 1496	444	876 948 1334 1565
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494	894 898 1387	450	834 1182 1210 1227 1372 1645 1705 1707 1851
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500	774 1199 1211 1283 1266 1281 1497 1854 1780 1874 1912	456	820 1480 1584 1626 1881
502	613 625 687 706 978 1419 1634 1895 1751 1870	458	843 1394 1401 1412 1548 1742 1875 1907
504	785 1708	460	1134 1314 1768
506	1280 1317 1618	462	1203 1256 1365 1469 1830 1878
508	1118 1476 1683	464	619 880 1270 1304 1519 1563 1668 1832 1959
510	1377	466	1390 1390
512	857 921 1308 1344 1367 1381 1893	468	923 1269 1272 1672 1616 1908
514	1180	470	874 929 1207 1759
516	1357	472	845 849 1110 1718 1894
518	768 991 1181 1556 1603 1797	474	1176 1295 1306 1411
520	772 1342 1415	476	797 1195 1377
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524	1406 1602	480	1807
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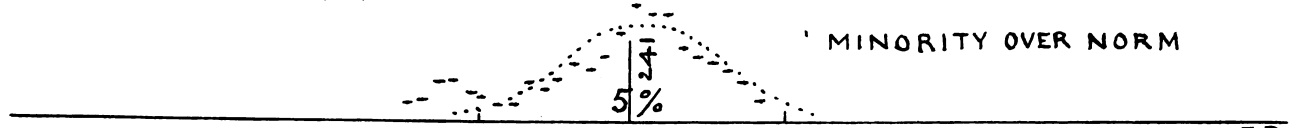
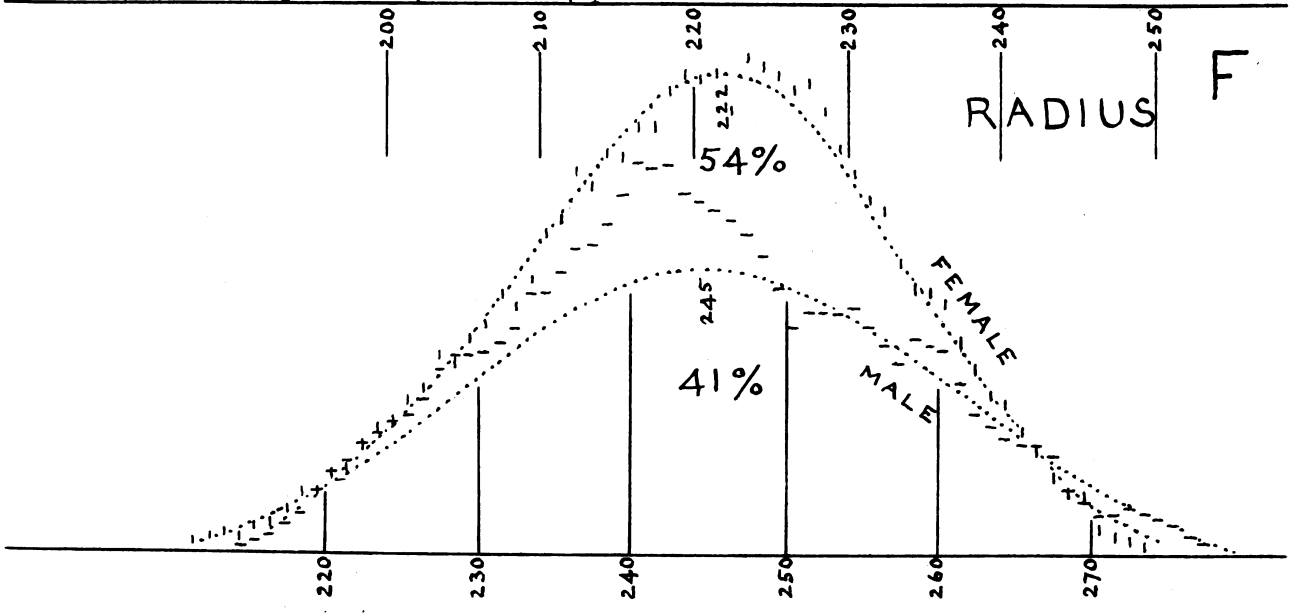
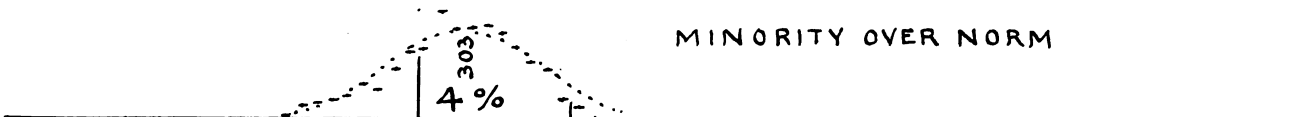
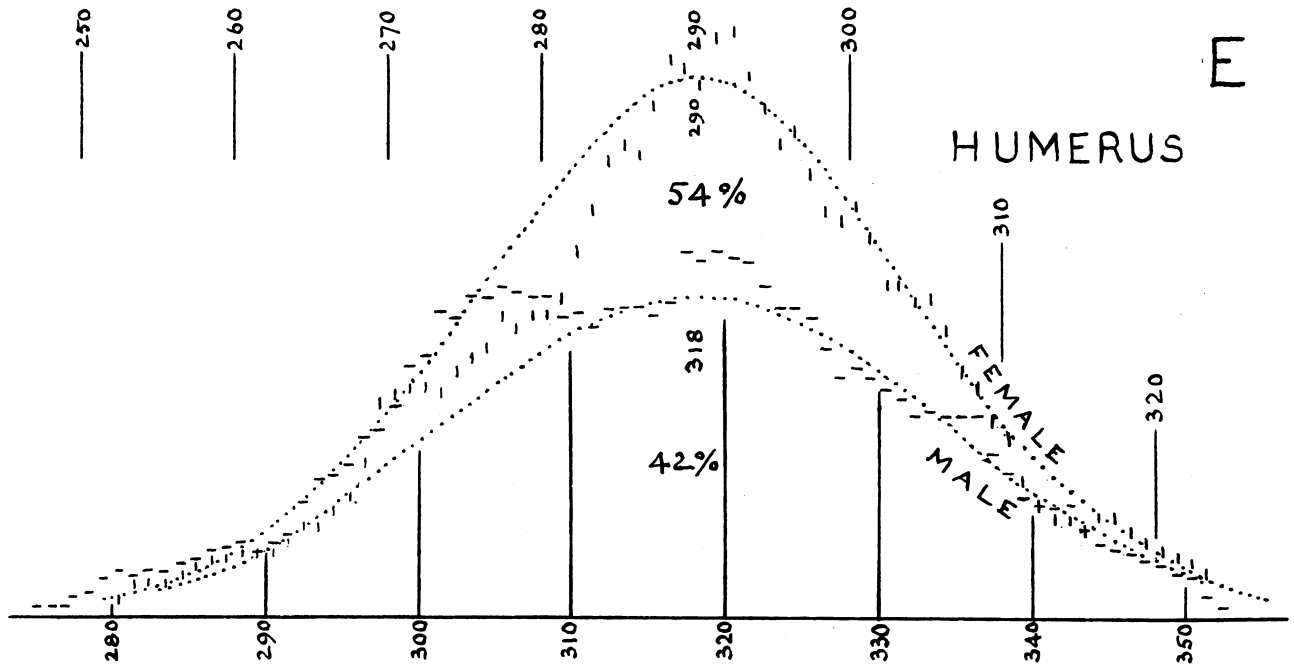
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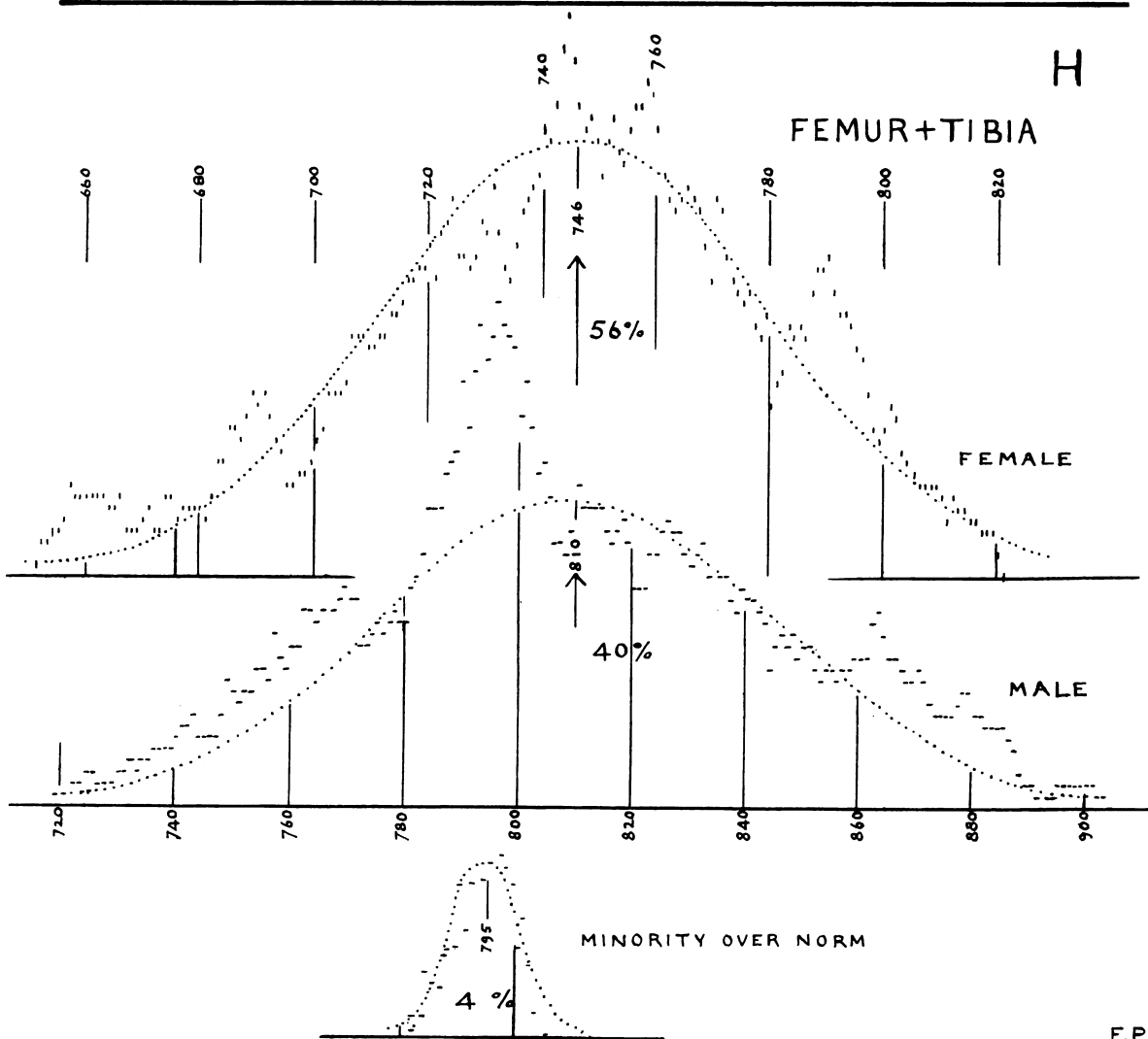
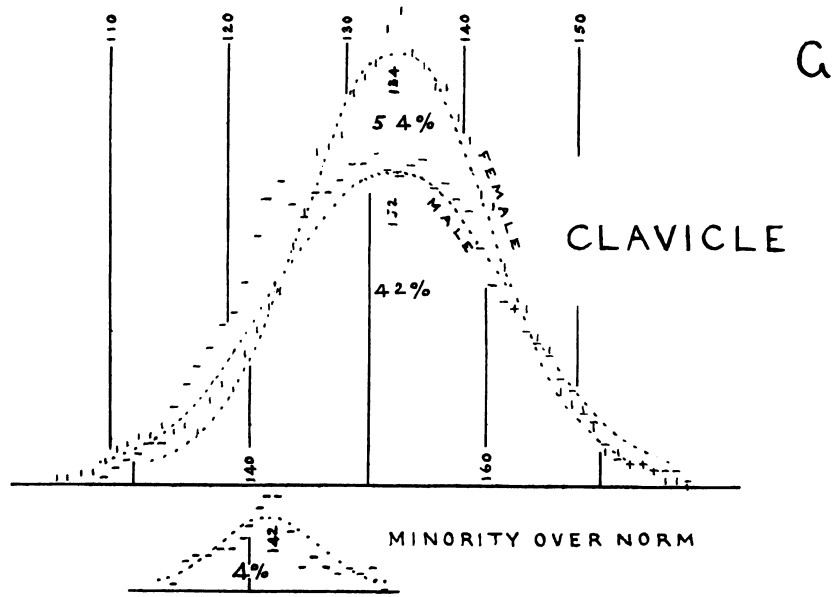
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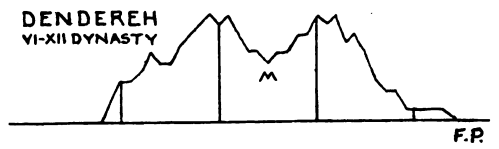
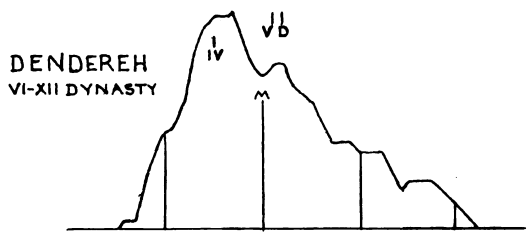
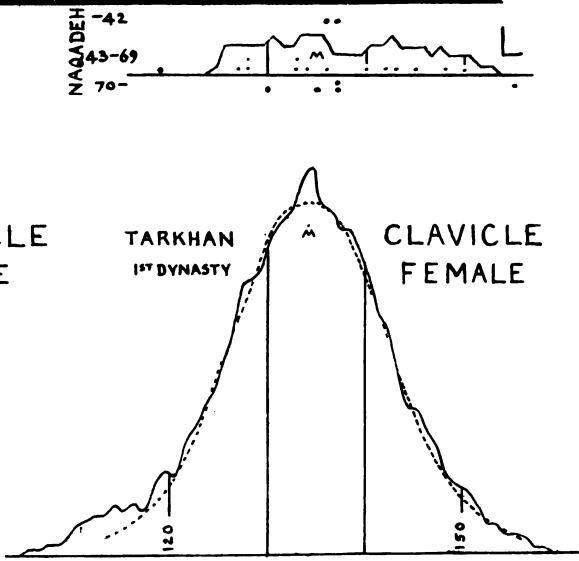
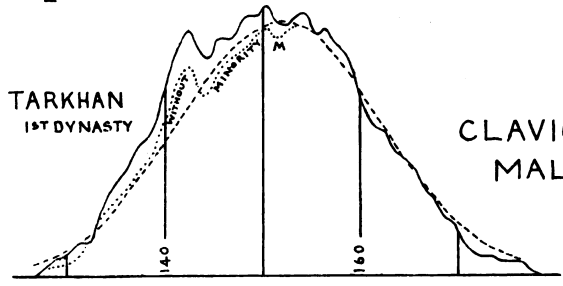
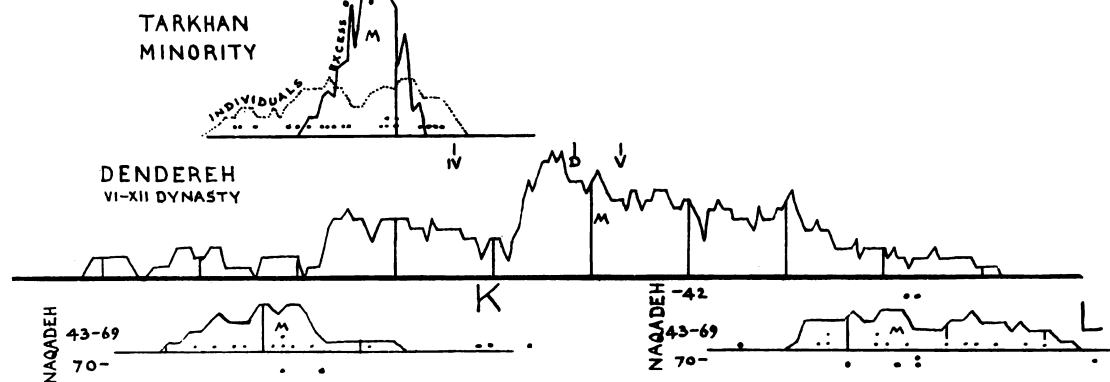
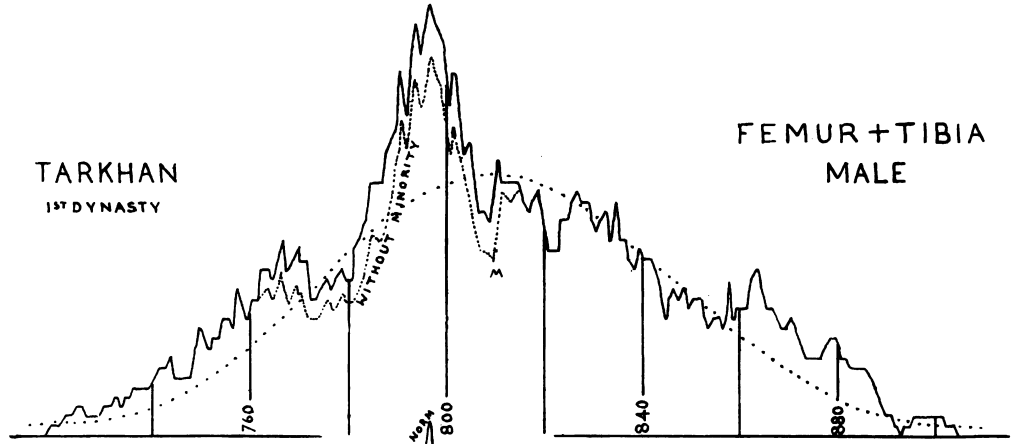
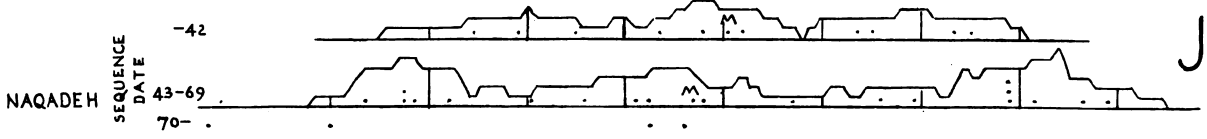
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CURVES OF EARLY SKELETON MEASURES COMPARED.

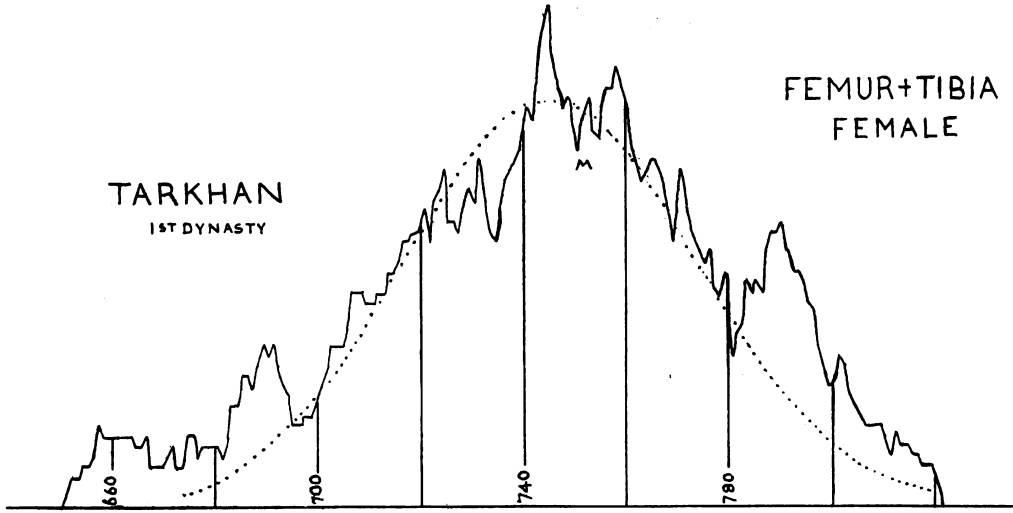
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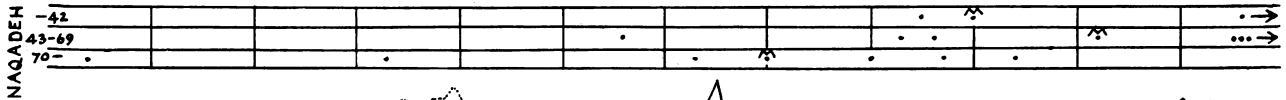
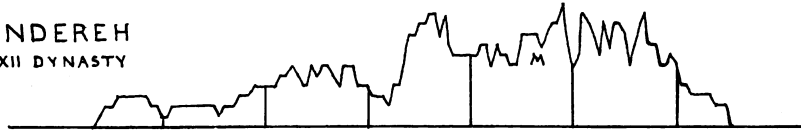
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CURVES OF EARLY SKELETON MEASURES COMPARED.

LVII.



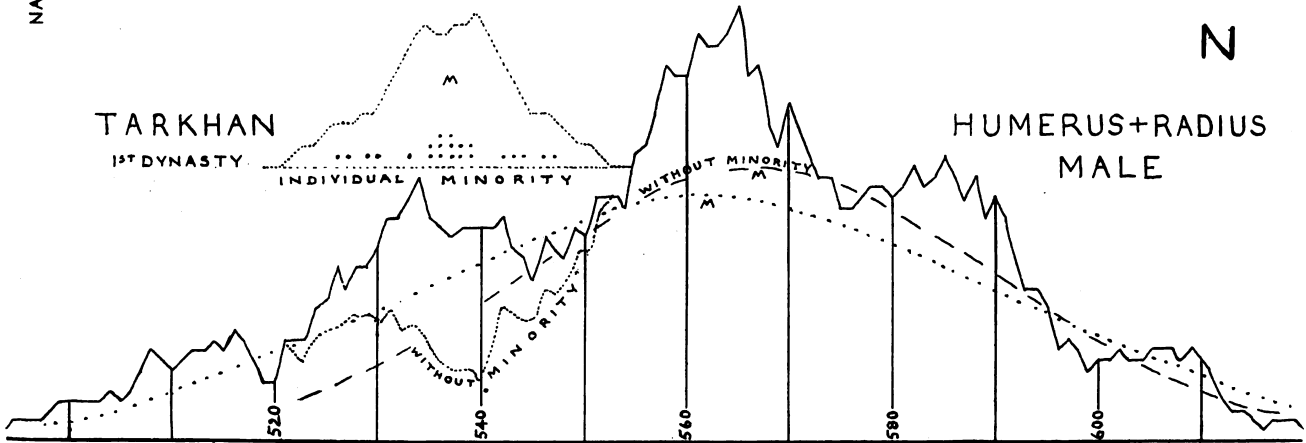
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VI-XII DYNASTY



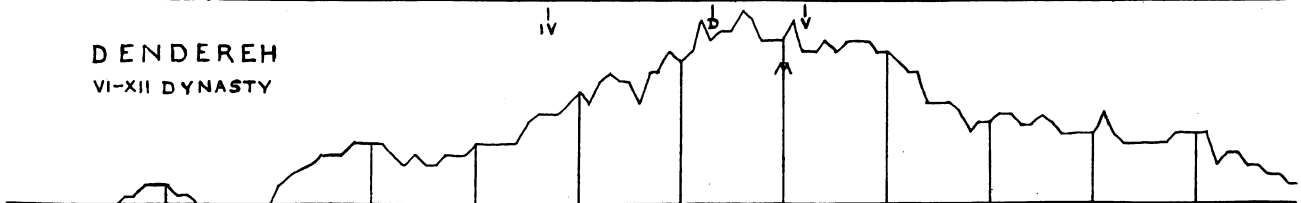
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1ST DYNASTY

HUMERUS+RADIUS
MALE

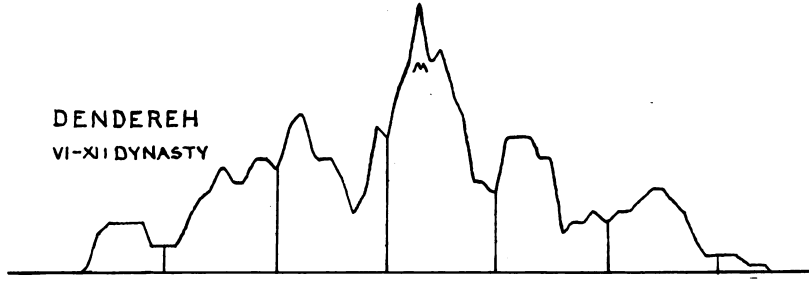
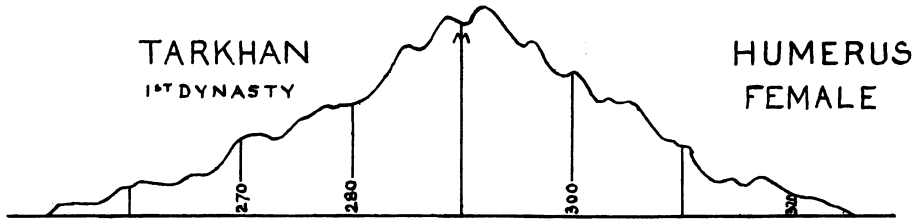
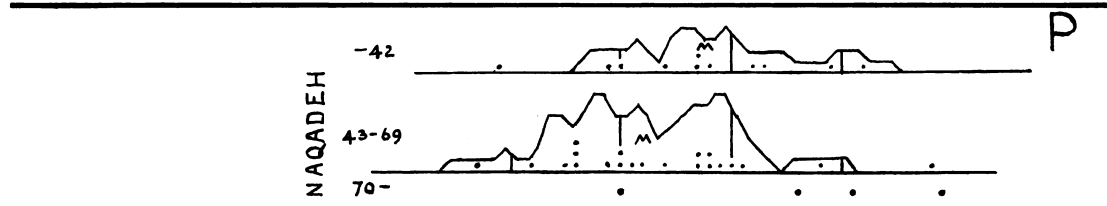
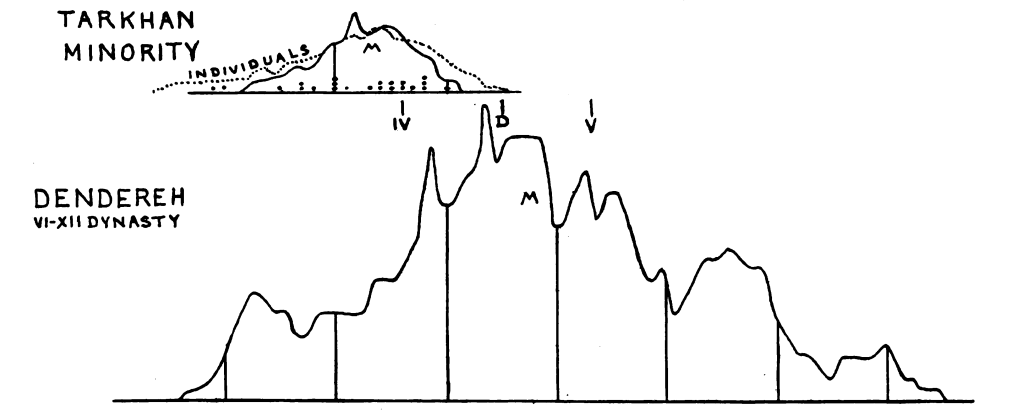
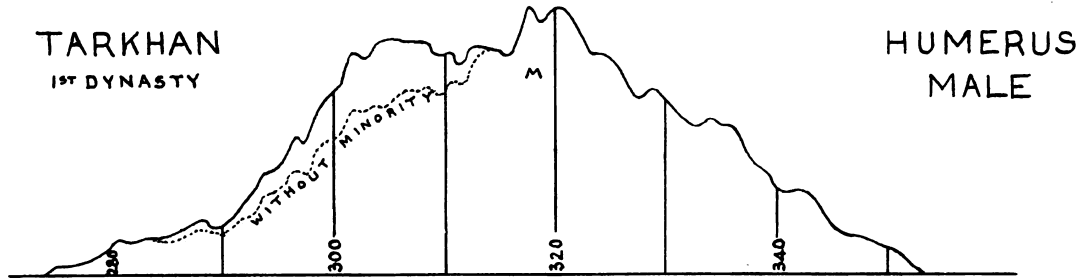
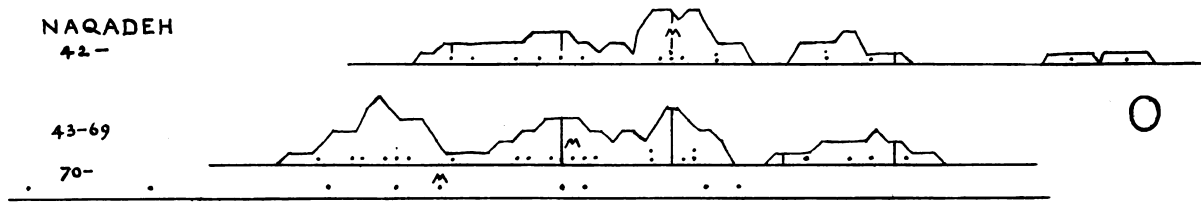


DENDEREH
VI-XII DYNASTY



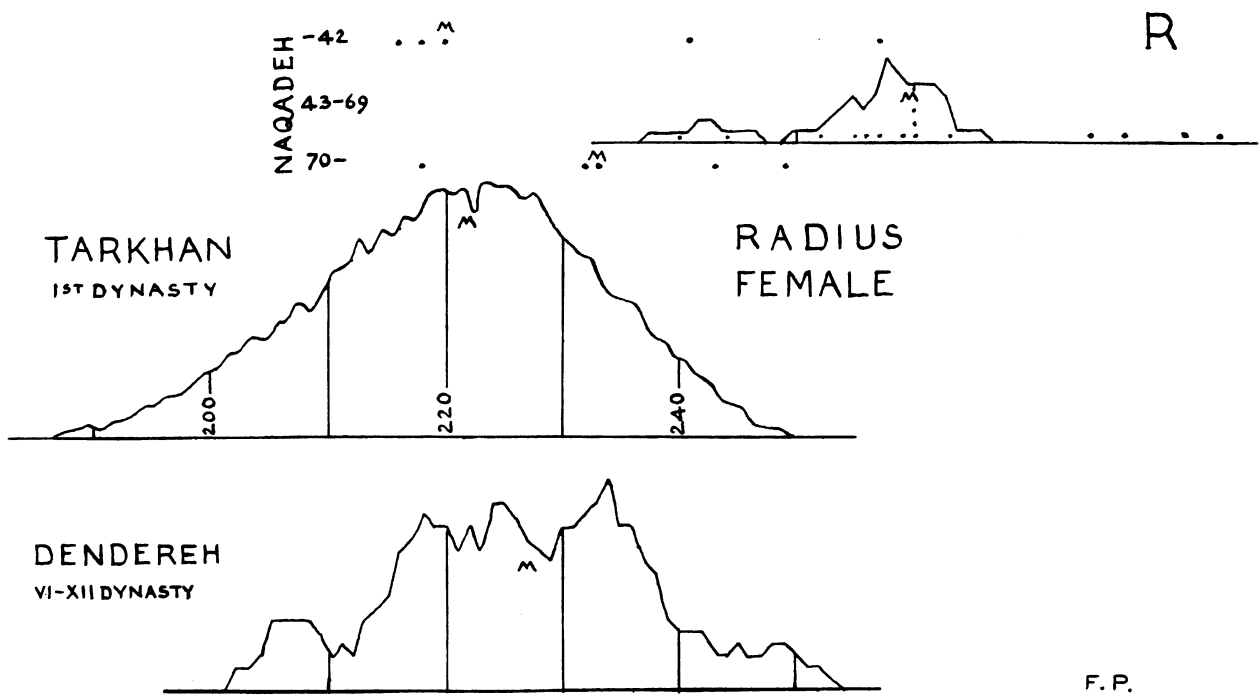
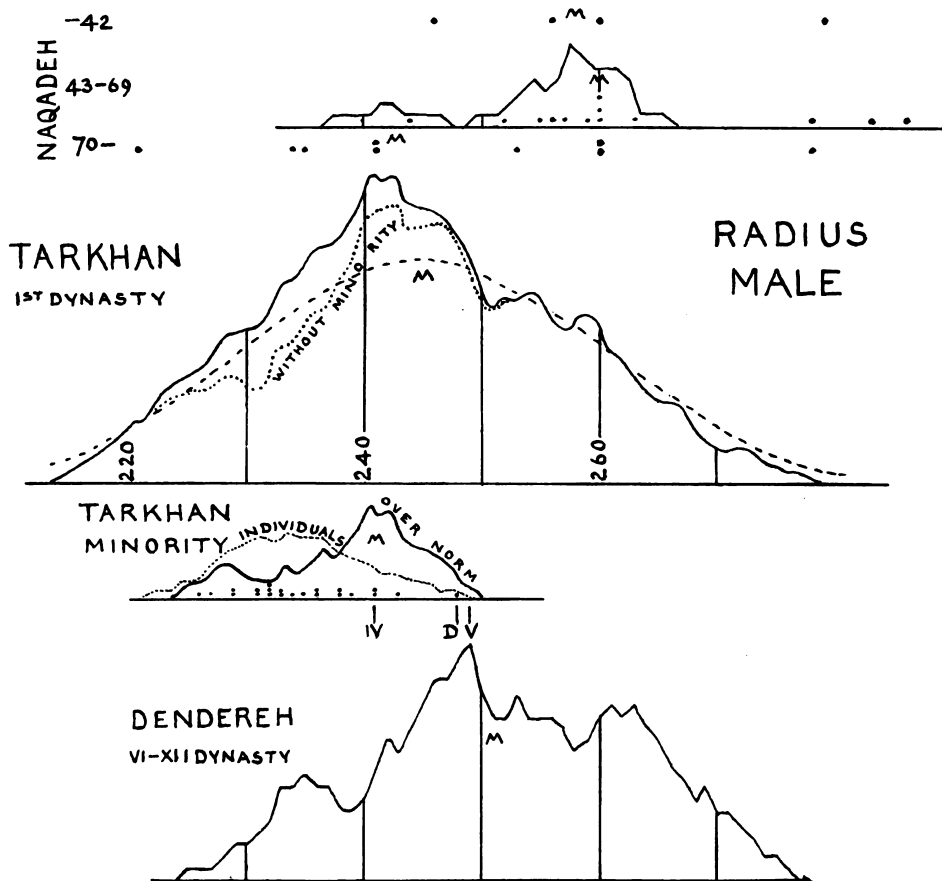
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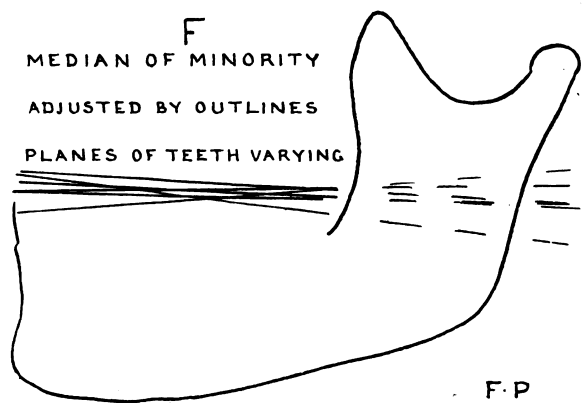
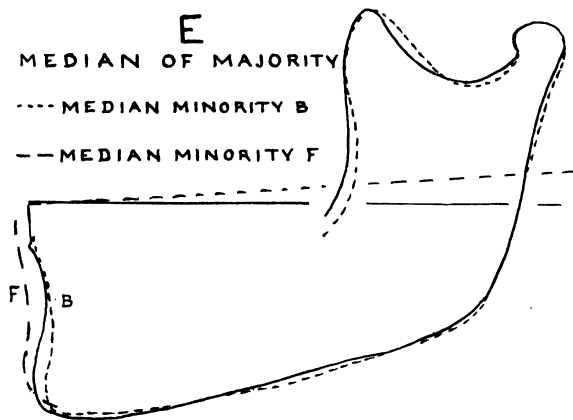
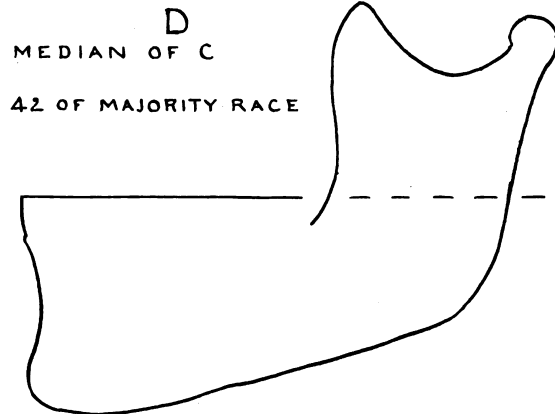
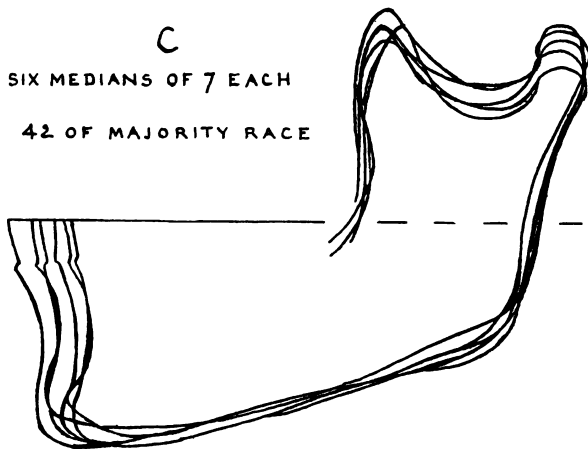
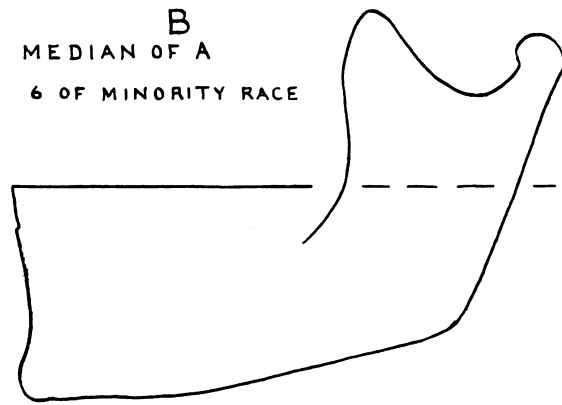
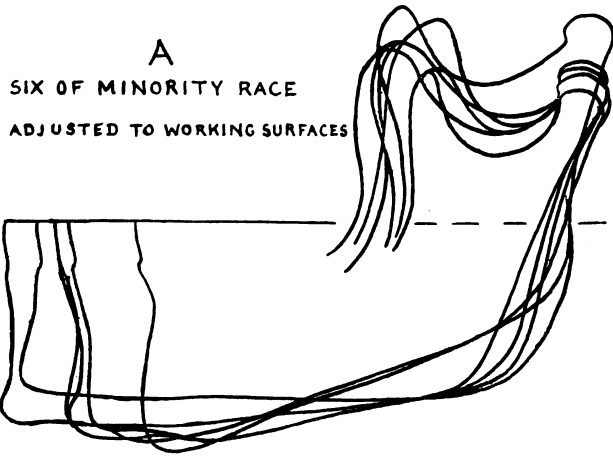
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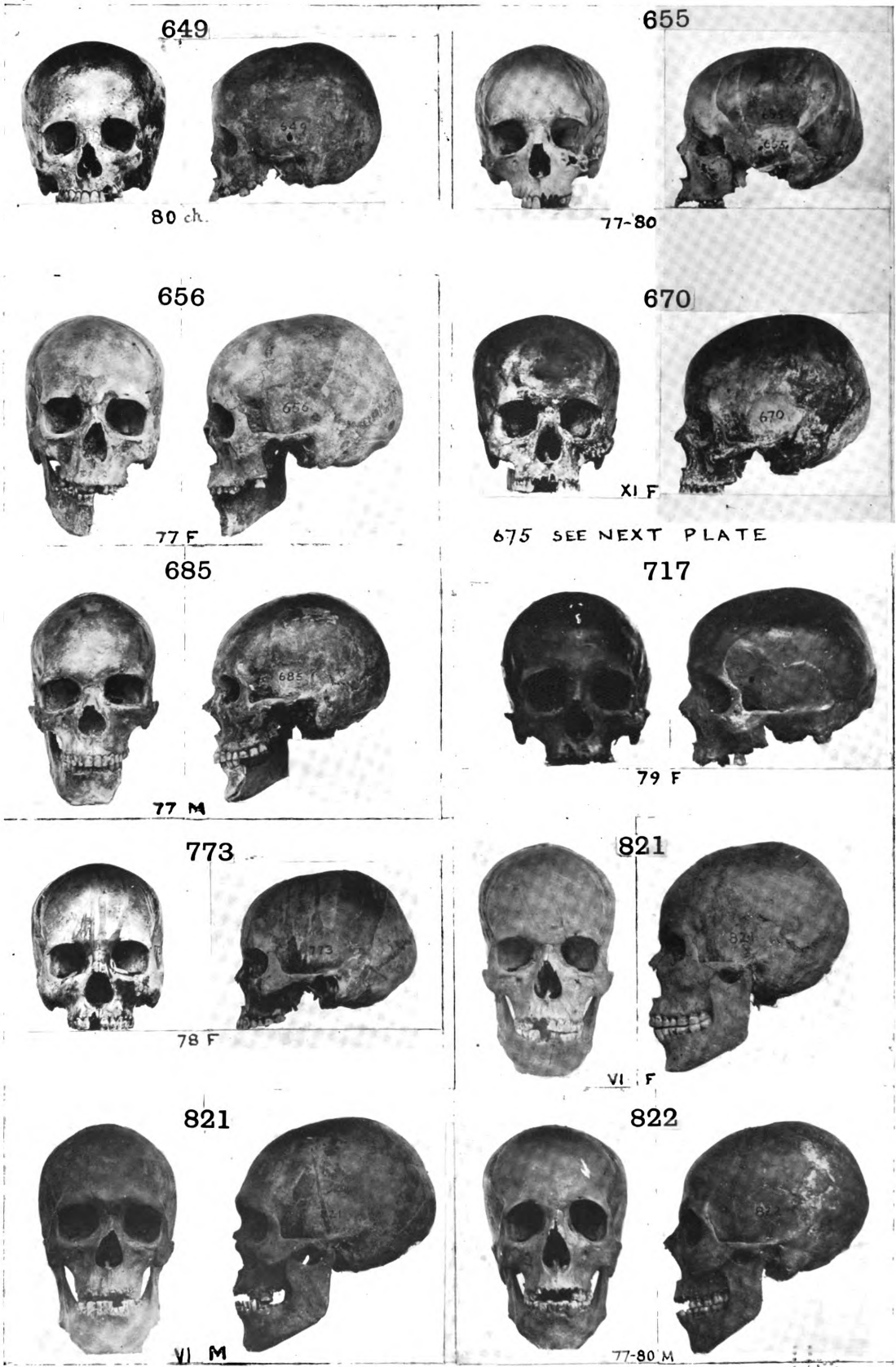
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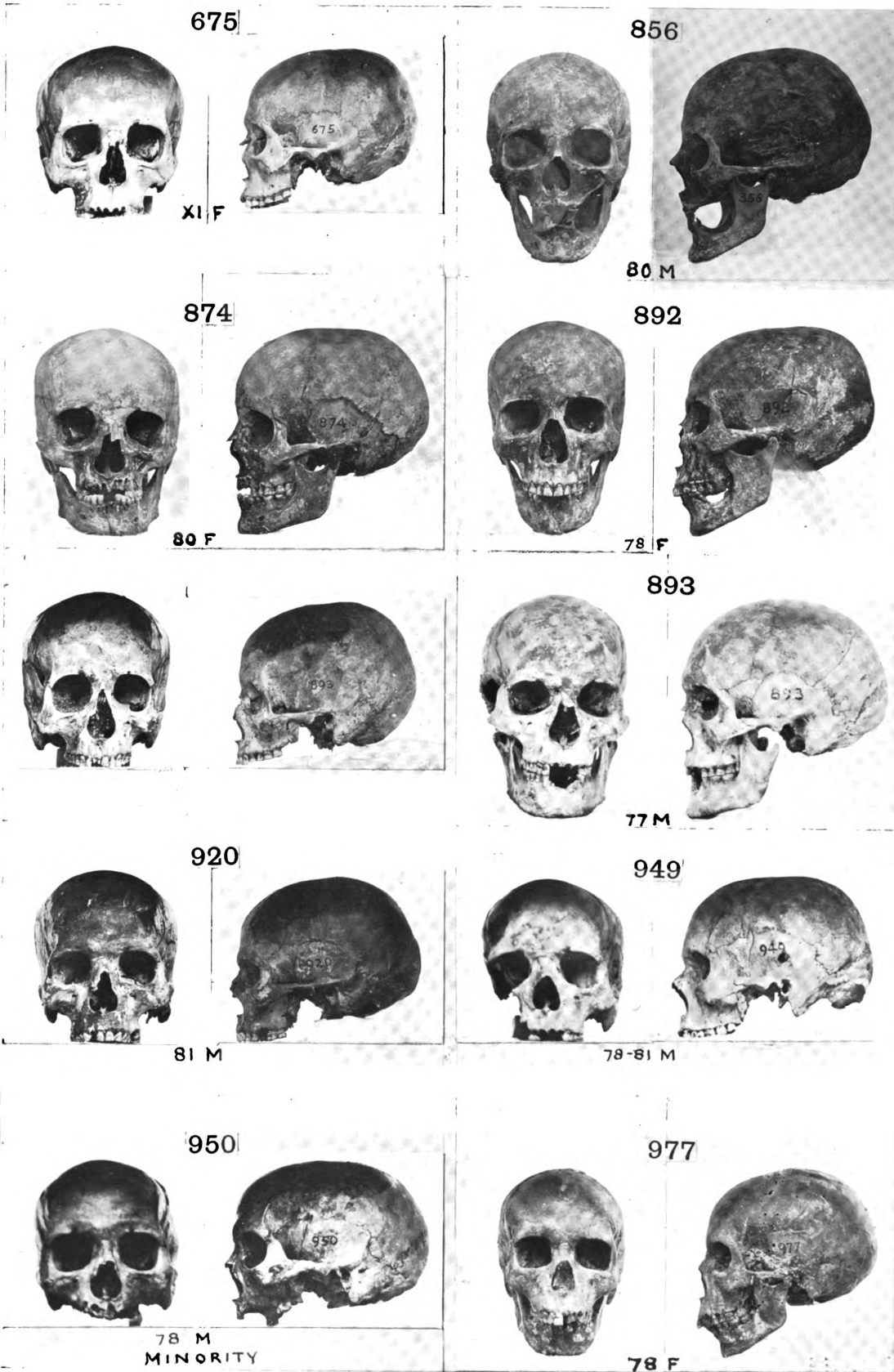
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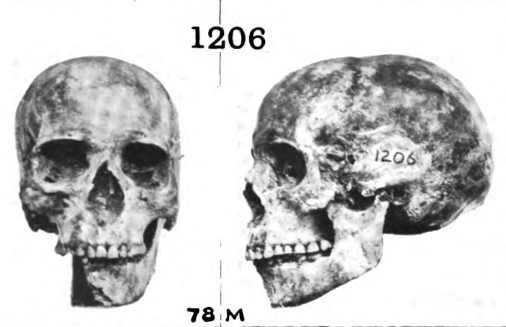
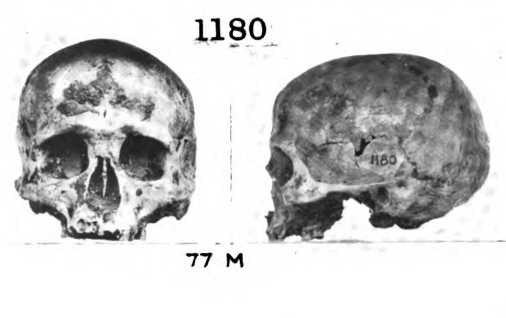
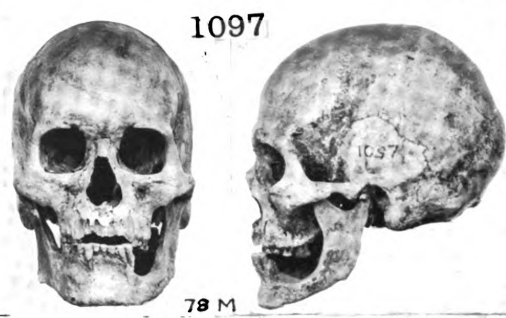




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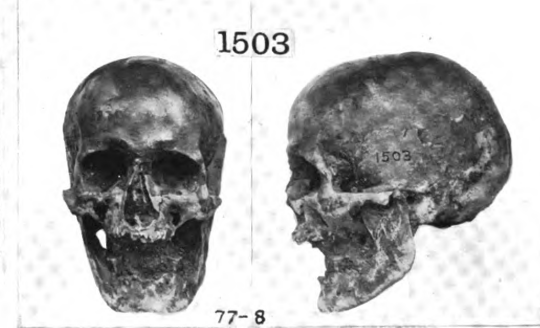


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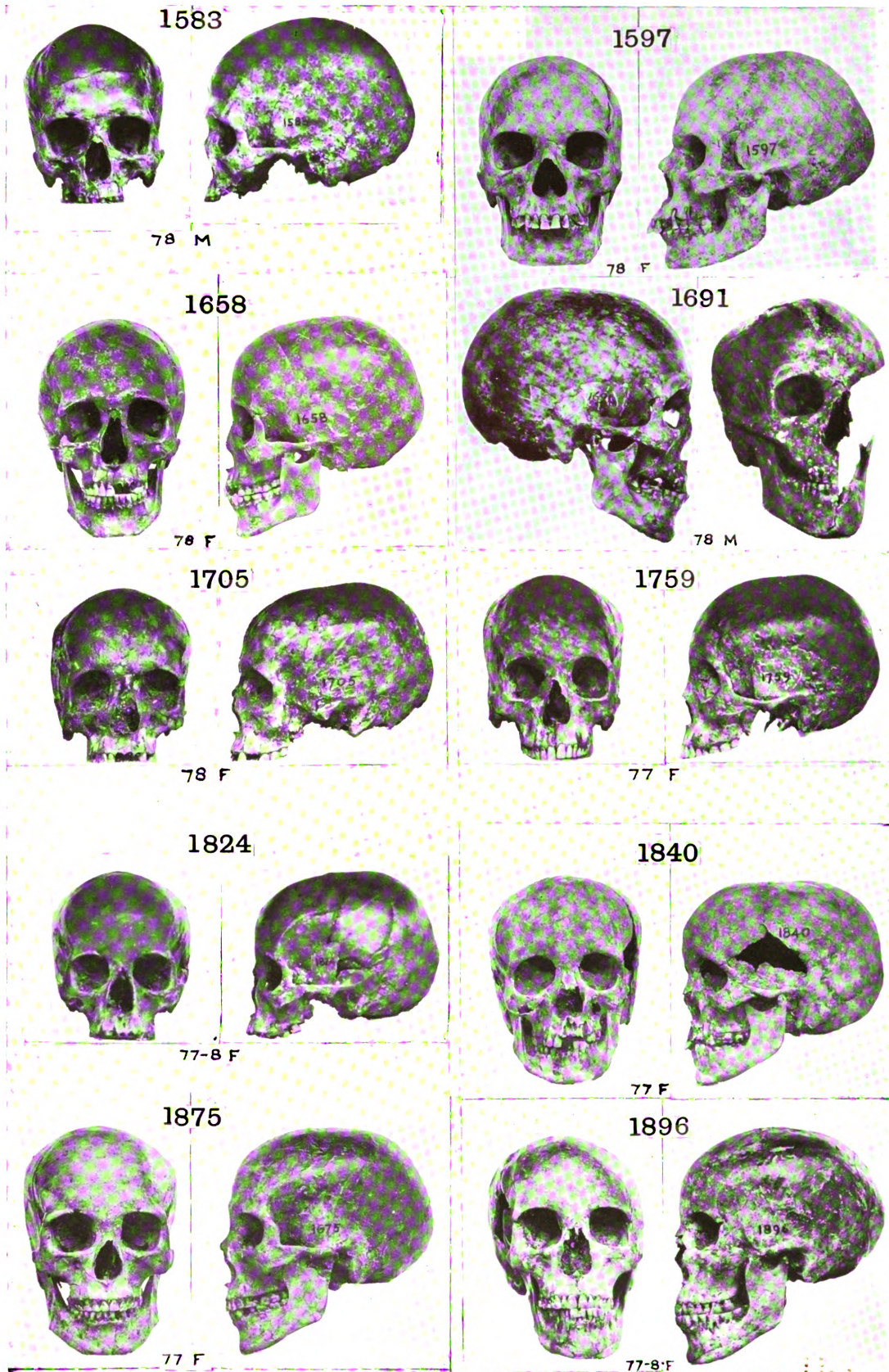


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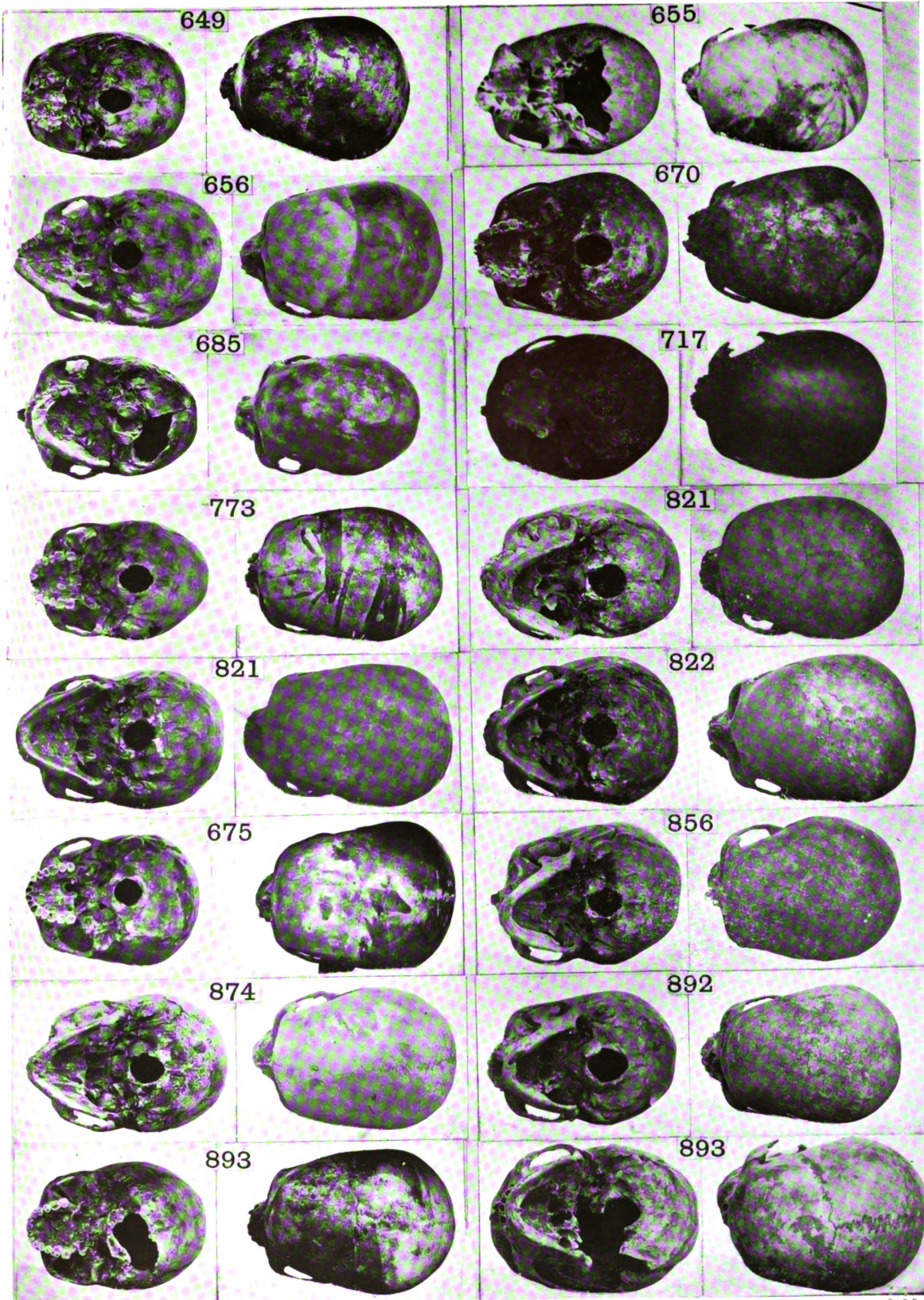


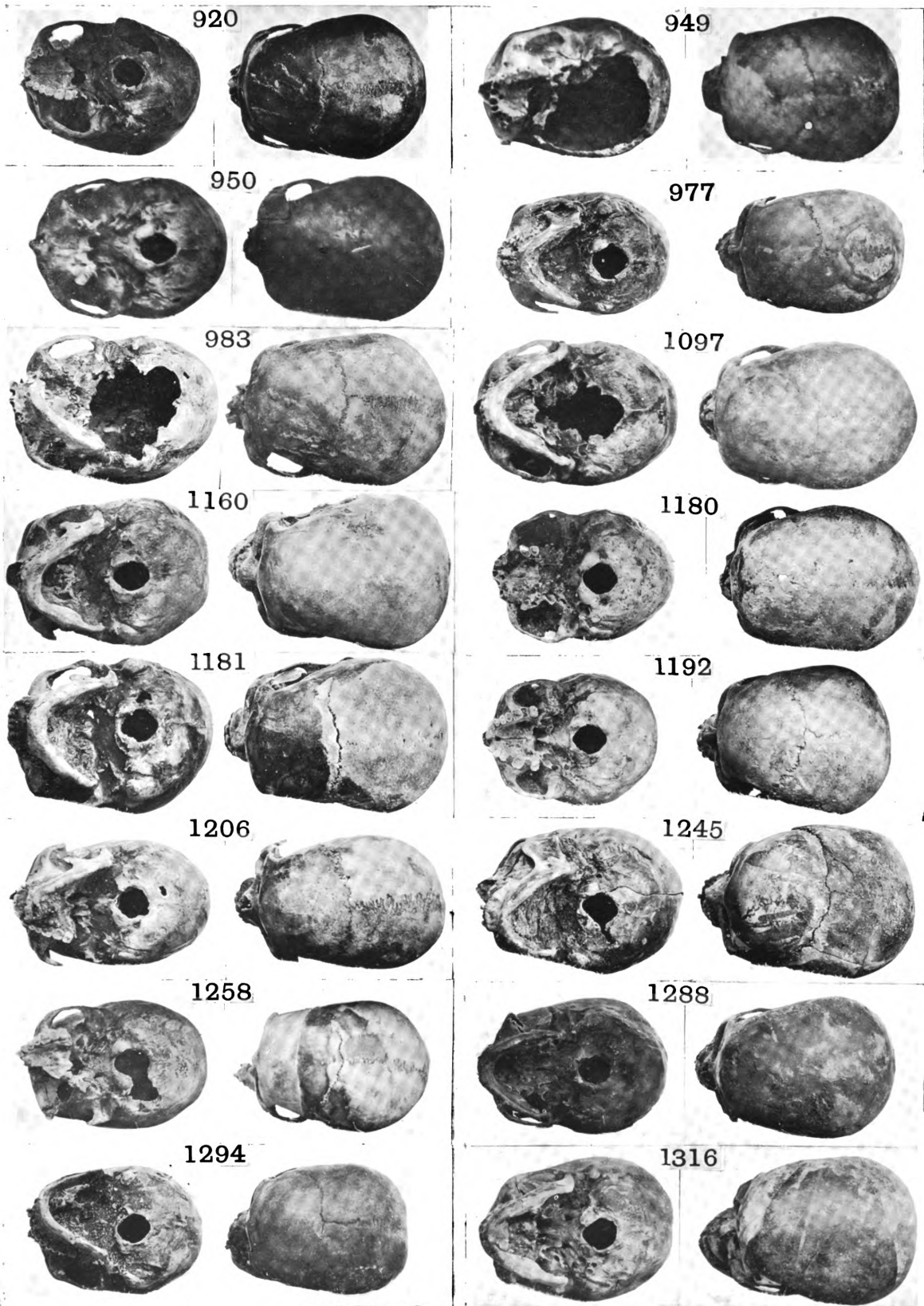


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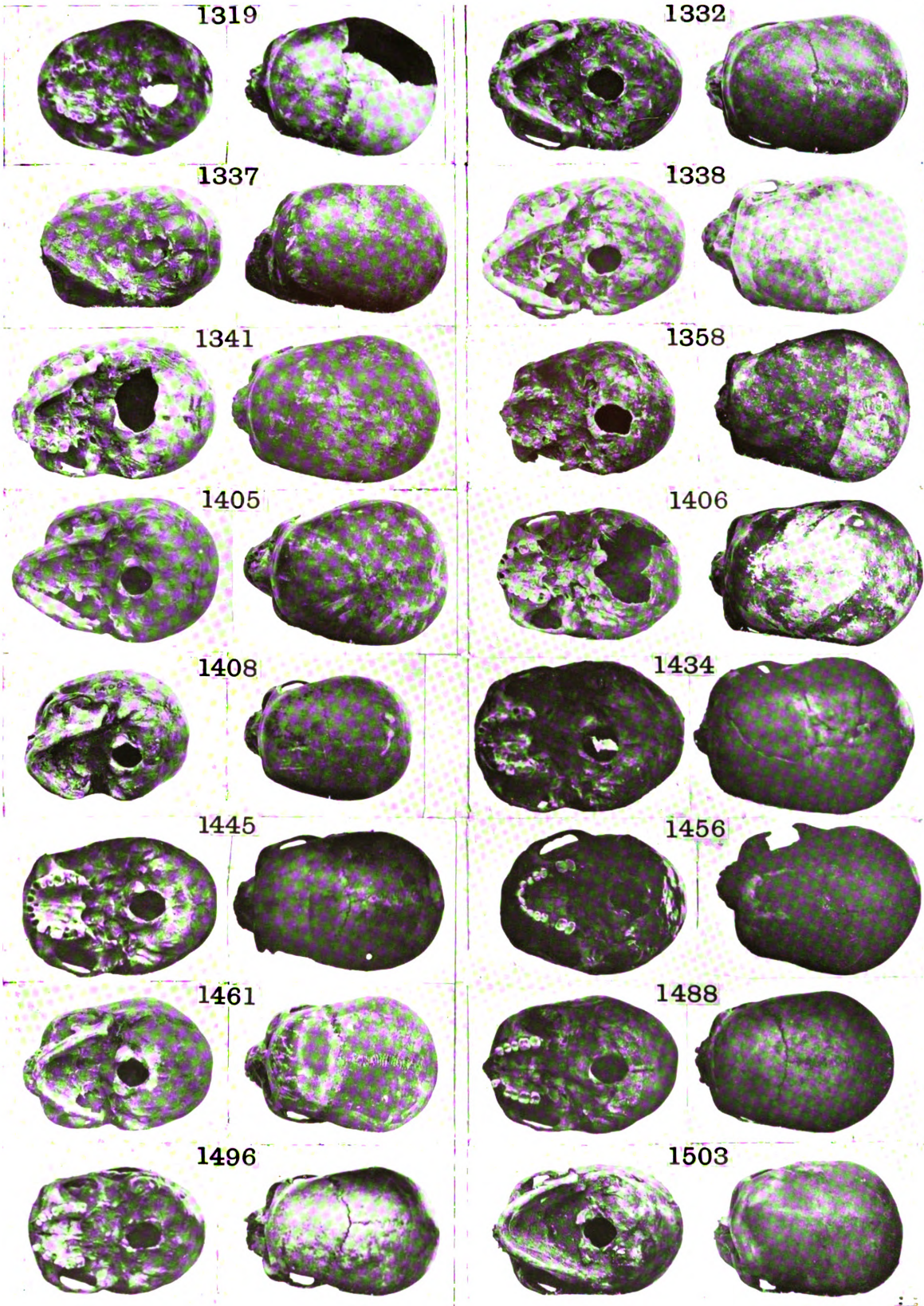


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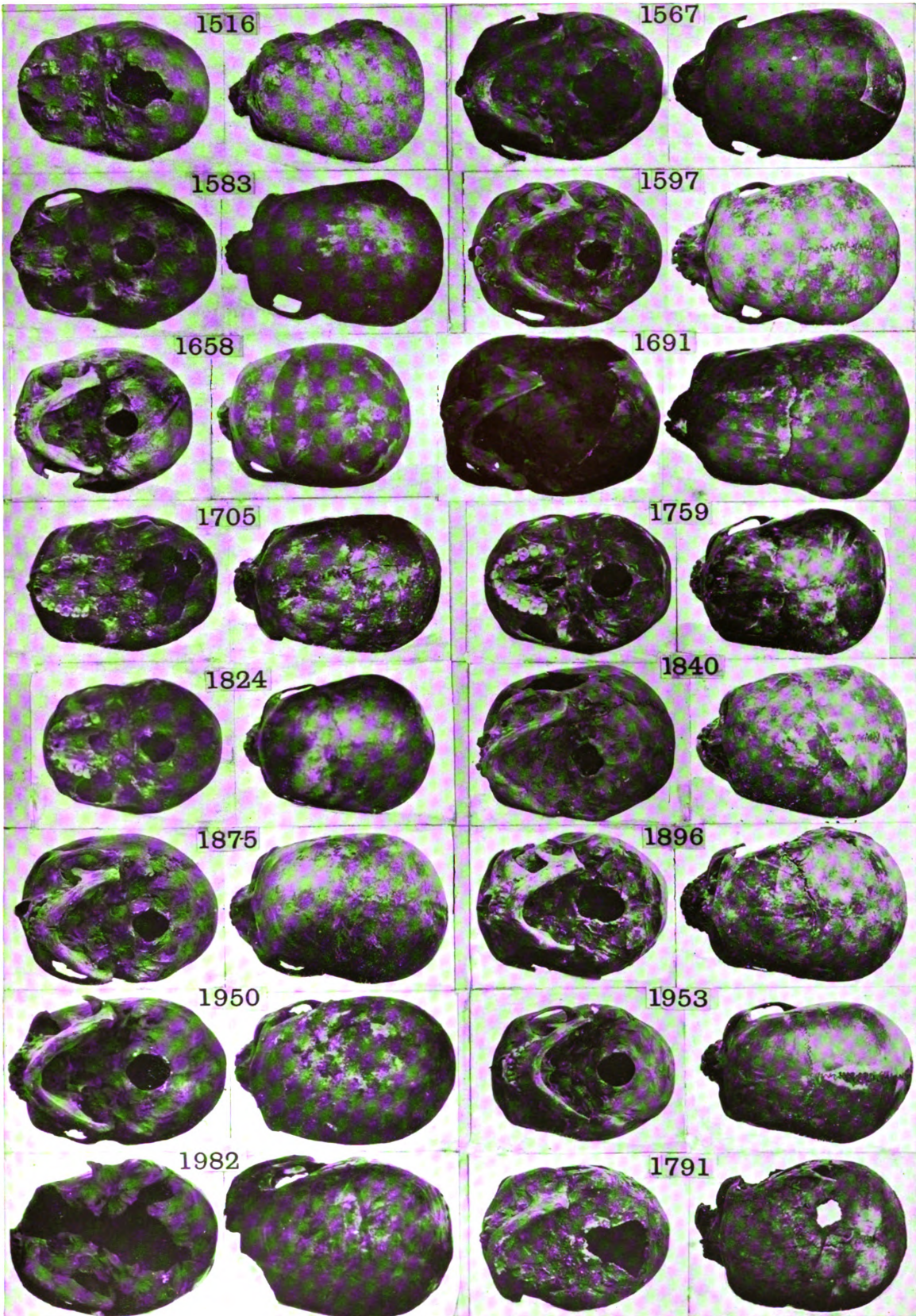




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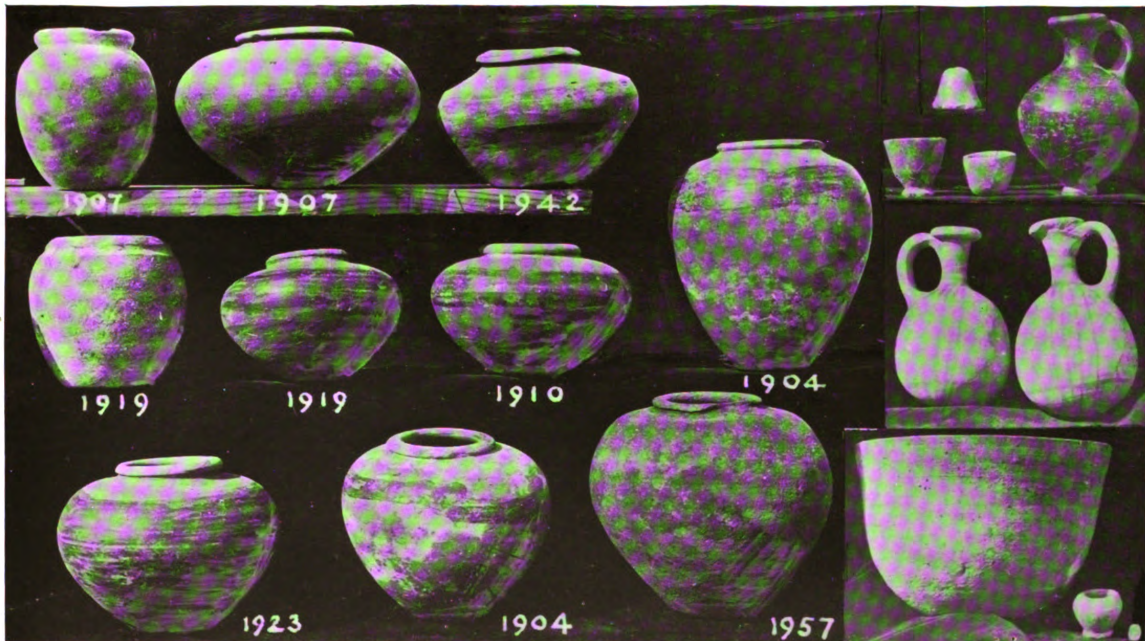




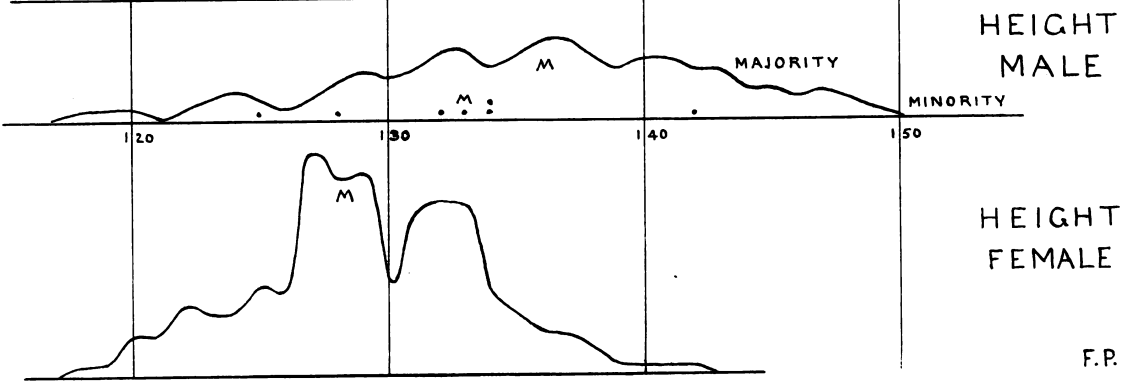
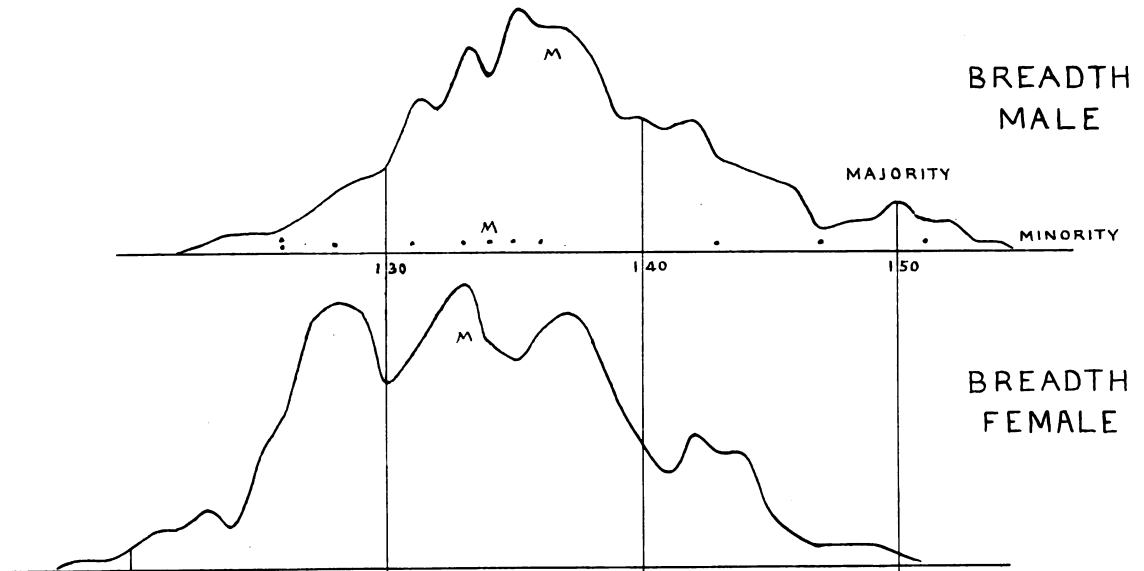
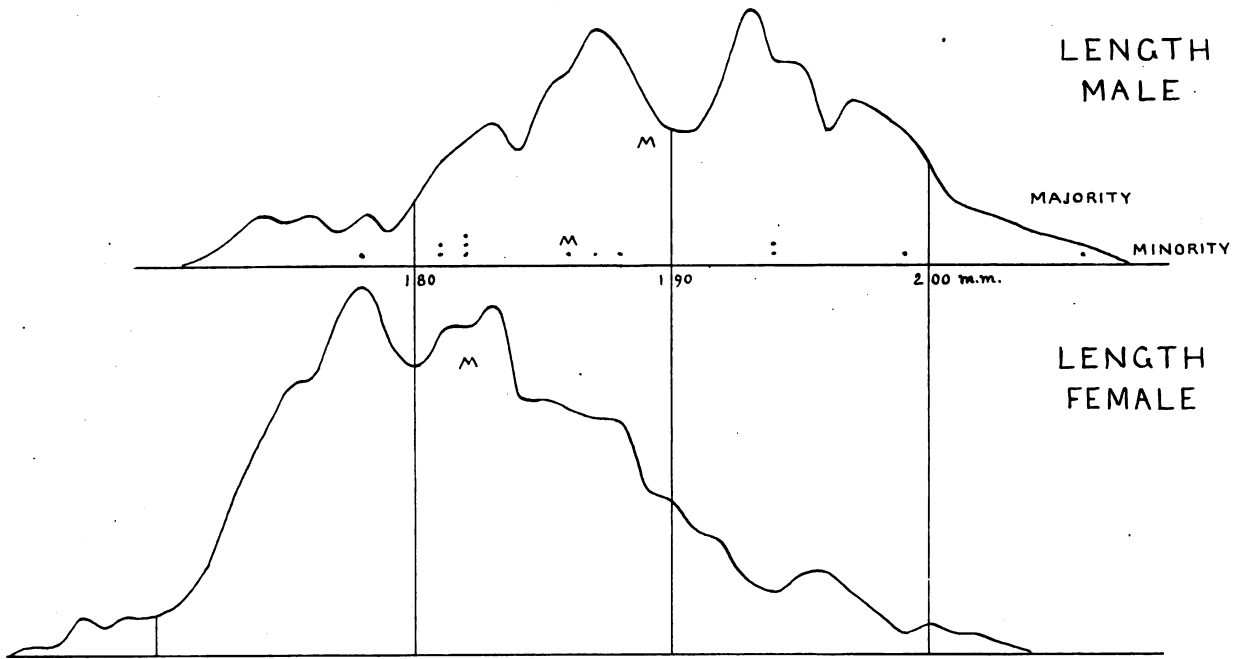
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