

MERETITES' FAIENCE USHEBTIS: AN ANALYSIS AND DETERMINATION OF  
THEIR PRODUCTION IN A LATE PERIOD OR PTOLEMAIC WORKSHOP

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MERETITES' FAIENCE USHEBTIS: AN ANALYSIS AND DETERMINATION OF  
THEIR PRODUCTION IN A LATE PERIOD OR PTOLEMAIC WORKSHOP

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ABSTRACT

The hundreds of faience shabtis in an individual Late Period burial demanded a significant production effort within a workshop. Petrie's discovery of thousands of molds for small faience objects in Amarna (1891-92) and Memphis (1908-13) led scholars such as Alfred Lucas (1962) and Hans Schneider (1977) to conclude that the majority of faience shabtis were mold-made and then manually detailed as needed. Beyond this, little information remains regarding the exact production methods.

Using stylistic analyses and numerous measurements made during my two-year study of the 305 shabtis from the burial assemblage for a wealthy woman named Meretites (380 to 250 BC.; Nelson-Atkins Museum of Art), I determined more precisely how they were manufactured. Within a single atelier, four separate teams of craftsmen each produced a distinct stylistic group of shabtis from start to finish. Besides employing different molds, each team completed the desired detailing of the baskets, hands, and tools, and the incised hieroglyphs in their own unique manner. Variations in glazing indicate that faience recipes and, possibly, firing differed slightly among the work groups.

The work teams themselves varied in size and structure. The discrete group of craftsmen staffing each team ranged from at least two to more than four workers. While the production tasks appear evenly divided amongst two craftsmen in one team, the remaining groups contained a primary craftsman supported by one or more workers. Thus, the manufacturing process proves unique to each work team.

The faculty listed below, appointed by the Dean of the College of Arts and Sciences have examined a thesis titled “Meretites’ Faience Ushebtis: An Analysis and Determination of their Production in a Late Period or Ptolemaic Workshop,” presented by Michele Renee Kliebert Valentine, candidate for the Master of Arts degree, and certify that in their opinion it is worthy of acceptance.

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## CONTENTS

ABSTRACT .....	ii
LIST OF ILLUSTRATIONS .....	viii
LIST OF TABLES .....	xi
EGYPTIAN CHRONOLOGY .....	xiii
ACKNOWLEDGMENTS .....	xiv
Chapter	
1. INTRODUCTION .....	1
Meretites' Burial Assemblage.....	3
Dating Meretites' Ushebti Collection .....	6
Methodology .....	14
2. VISUAL ANALYSES OF THE WORKER USHEBTIS .....	15
Visual Description of the Four Stylistic Groups .....	17
Tapered Group .....	17
Stout Group .....	18
Nosy Group .....	19
Boxy Group .....	19
Faience by Stylistic Group .....	27
Tapered Group .....	27
Stout Group .....	28
Nosy Group .....	28

Boxy Group .....	35
Possible Explanations for the Differences in Faience .....	37
Conclusion.....	47
To Mold or Not to Mold .....	48
Evidence of Mold-Use .....	49
Ushebti Groupings by Individual Molds.....	54
3. ANALYSES OF THE MANUAL DETAILING OF THE WORKER USHEBTIS .....	66
Sharpening Molded Details.....	66
Hoe Implements .....	66
Pick Implements.....	69
Left and Right Hands .....	72
Applying Unmolded Details .....	75
Seed Baskets.....	76
Ushebti Texts .....	79
4. VISUAL ANALYSES FOR THE OVERSEER USHEBTIS.....	87
5. CONCLUSIONS.....	100
Division of Labor Identified for the Manufacture of the Ushebtis .....	100
Conclusion .....	105

Appendix

A. PROPORTIONS FOR MERETITES' USHEBTIS.....	107
B. FAIENCE EXPERIMENTATION .....	116
C. DATA TABLES FOR MERETITES' COLLECTION.....	126
D. INDIVIDUAL PHOTOGRAPHS FOR MERETITES' COLLECTION.....	183
E. MOLD GROUPINGS FOR MERETITES' COLLECTION.....	217
BIBLIOGRAPHY.....	250
VITA.....	254



## LIST OF ILLUSTRATIONS

Figure(s)	Page
1a-c. <i>Inner and Outer Coffin of Meret-it-es</i> , Egyptian, Late Period to Ptolemaic Period, 30th Dynasty to early Ptolemaic Dynasty, ca. 380–250 B.C.E. Purchase: William Rockhill Nelson Trust (by exchange). .....	7
2 a-c. <i>Mummy mask, pectoral, apron of Meret-it-es</i> , Egyptian, Late Period to Ptolemaic Period, 30th Dynasty to early Ptolemaic Dynasty, ca. 380–250 B.C.E. Cartonnage (linen or papyrus covered in plaster), paint and gold leaf. Purchase: William Rockhill Nelson Trust (by exchange), 2007.12.3-4 A.B. ....	8
3 a-d. Ushebti from the Tapered – Buff Sub-Group (2007.12.67).....	20
4 a-d. Ushebti from the Tapered – Blue Sub-Group (2007.12.250) .....	21
5 a-d. Ushebti from the Stout Group (2007.12.214) .....	22
6 a-d. Ushebti from the Nosy – Large Sub-Group (2007.12.143) .....	23
7 a-d. Ushebti from the Nosy - Small Sub-Group (2007.12.301).....	24
8 a-d. Ushebti from the Boxy – Round Sub-Group (2007.12.35).....	25
9 a-d. Ushebti from the Boxy – Pinched Sub-Group (2007.12.189).....	26
10 a-b. Glazing within the Tapered – Buff Sub-Group.....	29
11 a-c. Glazing within the Tapered – Blue Sub-Group.....	30
12 a-b. Glazing within the Stout Group .....	31
13 a-c. Glaze Details from the Stout Group.....	32
14 a-d. Glazing within the Nosy Group .....	33
15 a-b. Glazing within the Boxy Group.....	34
16 a-b. Details, Glazing within the Boxy Group.....	35

17. A scene from the Tomb of Ibi, chief steward of the divine adoratrice in the time of Psamtek I at Thebes (TT36: c.664 – 610 BC); this may show a workman (right) mixing faience ingredients while another workman (left) finishes a more complete piece. ....	37
18 a-i. Ushebtis tested with X-ray Fluorescence Spectroscopy (XRF).....	42
19 a-c. Ushebti from the Tapered Group indicating molded characteristics (2007.12.78) .	50
20 a-c. Shawabty for King Piankhy (Piye) (21.3112 19-4-139a) .....	51
21 a-b. Ushebti from the Nosy Group indicating molded characteristics (2007.12.232) ...	52
22 a-b. Ushebtis from the Stout Group indicating molded characteristics .....	53
23. Mold Grouping from the Tapered Stylistic Group.....	56
24. Mold Grouping from the Stout Stylistic Group .....	57
25. Mold Grouping from the Nosy Stylistic Group .....	58
26. Detail from the Mold Grouping from the Nosy Stylistic Group.....	59
27. Mold Grouping for the Boxy Stylistic Group .....	60
28. Tapered Ushebtis: Examples from two generations of molds .....	61
29. Nosy Ushebtis: Examples from three generations of molds .....	62
30 a-f. Hoes from the Four Stylistic Groups .....	68
31 a-f. Picks from the Four Stylistic Groups .....	71
32 a-f. Left and Right Hands from the Four Stylistic Groups.....	73
33 a-d. Overseer Ushebti from the Tapered Group (2007.12.10) .....	89
34 a-d. Sample Ushebti from the Stout Group (2007.12.20) .....	90
35 a-d. Sample Ushebti from the Nosy Group (2007.12.14) .....	91
36 a-d. Sample Ushebti from the Boxy Group (2007.12.15).....	92
37 a-d. Ushebti Texts for the Overseers.....	94

38 a-c. Comparison of an Overseer and Worker Ushebti Text from the Tapered Group...	95
39 a-c. Comparison of an Overseer and Worker Ushebti Text from the Stout Group.....	96
40 a-c. Comparison of an Overseer and Worker Ushebti Text from the Nosy Group.....	97
41 a-c. Comparison of an Overseer and Worker Ushebti Text from the Boxy Group .....	98
42. Ideal Proportional Values Identified for Meretites' Collection .....	115
43. Impressing a completed figurine.....	119
44. Newly formed mold .....	119
45 a-f. Mixing and Molding the Faience Paste .....	121
46 a-d. Newly molded figurines and other small objects.....	122
47. Small strip of faience along the left side of Tapered ushebti (2007.12.85) .....	123
48 a-d. Comparison of Sand and Silica.....	124
49. Figurine with poor detailing.....	125
50. Figurine with best detailing applied over a twelve hour period.....	125

## LIST OF TABLES

Table	Page
1. Size Groupings for Meretites' Ushebtis.....	4
2. Three Ushebti Types Based on Hieroglyphic Text Pattern.....	15
3. Four Ushebti Groups Based on Stylistic Characteristics .....	16
4. Basic Information and Measurement Data for the Four Stylistic Groups.....	17
5. Faience Characteristics for the Stylistic Groups and Sub-Groups .....	36
6. Results of X-ray Fluorescence Spectroscopy (XRF) for Selected Ushebtis .....	43
7. Mold Information for Each Stylistic Group .....	55
8. Shrinkage Rates for the mold grouping from the Tapered Group (Figure 32) .....	64
9. Shrinkage Rates for the mold grouping from the Nosy Group (Figure 33) .....	64
10. Comparison of the Proportion of the Hoes for the Four Stylistic Groups .....	69
11. Comparison of the Proportion of the Picks for the Four Stylistic Groups .....	70
12. Comparison of the Proportion of the Hands for the Four Stylistic Groups .....	75
13. Basket Types Identified for the Stylistic Groups .....	77
14. Comparison of the Proportion of the Baskets for the Four Stylistic Groups .....	79
15. Eight Seated Woman Determinative Types Identified within the Stylistic Groups.....	81
16. Text Elements for Meretites' Worker Ushebtis .....	82
17. Text Inscriptions by the Eight "Seated Woman" Determinative Types .....	84
18. Basic Information and Measurement Data for the Overseer Ushebtis by the Four Stylistic Groups .....	88
19. Division of Labor by Stylistic/ Work Groups .....	104

20. Possible Division of the Work Load for the Ushebti Collection by Work Team .....	105
21. Measurement Data Recorded for Meretites Ushebti Collection .....	109
22. Basic Measurement Data and BPI Indices by Stylistic Group.....	111
23. Proportional Relationships for the Worker Ushebti: Heads and Hands .....	112
24. Proportional Relationships for the Worker Ushebti: Hoes, Pick, and Baskets.....	113
25. Ideal Proportional Values Proposed for Meretites' Collection .....	114
26. Experimental Faience Recipe, Final Version.....	119

## EGYPTIAN CHRONOLOGY\*

### Late Period

26<sup>th</sup> Dynasty (Saite) 664 – 525 BC

27<sup>th</sup> Dynasty 525 – 404 BC

28<sup>th</sup> Dynasty 404 – 399 BC

29<sup>th</sup> Dynasty 399 – 380 BC

30<sup>th</sup> Dynasty 380 – 343 BC

Persian Kings 343 – 332 BC

Macedonian Kings 332 – 305 BC

Ptolemaic Period 305 – 30 BC

Roman Period 30 BC – AD 395

\* Chronology from John H. Taylor, *Death and the Afterlife in Ancient Egypt* (Chicago: University of Chicago Press, 2001), 266.

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Finally, I dedicate this paper to my sons, Preston and David, and to my husband, Michael, whose constant love and encouragement will never be forgotten. My hope is that we remain curious, no matter our ages



## CHAPTER 1

### INTRODUCTION

Small statuettes, known as shabtis, shawabtis, and ushebtis, were included in burial assemblages from the Middle Kingdom through the Ptolemaic Period (approximately 2125 – 30 BC). Their purpose contributed to their longstanding popularity.<sup>1</sup> The figurines were produced to protect the deceased from statute labor thought to be required during the afterlife within the corvée system.<sup>2</sup> Everyone, including a pharaoh, was expected to perform manual labor needed for large government projects such as building or repairing canals. The funerary figurines, acting as substitutes for the deceased, provided the magical means for their owner to avoid all undesired work.

The funerary statuettes were crafted of mud, wax, wood, terra cotta, and stone, but faience, an early ceramic first used to produce the figurines during the New Kingdom, eclipsed the other materials in popularity.<sup>3</sup> Its inherent transformation during firing from dull white or gray to glistening shades, primarily of blue and green, exemplified the belief in rebirth during the afterlife. This mystical characteristic established faience as a

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<sup>1</sup> Hans D. Schneider, *Shabtis: An Introduction to the History of Ancient Egyptian Funerary Statuettes with a Catalogue of the Collection of Shabtis in the National Museum of Antiquities at Leiden* (Leiden: Rijksmuseum van Oudheden, 1977). Schneider provides an in-depth history of the funerary figurines in Part I. The origins of the terms shabti, shawabty, and ushebti and their appropriate usage are discussed on pp.136-39.

<sup>2</sup> Ibid., 13-16.

<sup>3</sup> Ibid., 233-38.

preferred material for small burial goods. Within the workshop setting, faience also emerged as an ideal substance for mass producing burial items, especially funerary figurines. Faience was suitable for molding, which proved important for workshops as the number of figurines in an individual assemblage increased from an average of ten during the New Kingdom to several hundred during the Late and Ptolemaic Periods. By the Late Period, collections of funerary figurines, also known as ushebti gangs, frequently totaled 401 statuettes (365 workers, one for each day of the year, and 36 overseers, one for each 10-day workweek).<sup>4</sup>

Information on faience workshops remains scarce.<sup>5</sup> Because the locations for the majority of these ateliers are destroyed, their typical size, the number of craftsmen commonly employed, and an average production capacity remain unclear. Certainly, a single contract for an ushebti gang numbering in the hundreds required a significant production effort. While notable publications by scholars such as W. M. Petrie, Hans Schneider, and Jacques and Liliane Aubert address the stylistic and iconographic development of funerary figurines, their works include only brief and generalized information on production methods.<sup>6</sup> These scholars agree that the majority of faience

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<sup>4</sup> Ibid., 261-67, 320.

<sup>5</sup> Two recent studies of faience workshops are found in Paul T Nicholson and Ian Shaw, *Ancient Egyptian Materials and Technology* (Cambridge: Cambridge University Press, 2000), Chapter 7; Andrew J Shortland, *Vitreous Materials at Amarna: The Production of Glass and Faience in 18th Dynasty Egypt* BAR international series, 827 (Oxford: Archaeopress, 2000).

<sup>6</sup> Fundamental information on shabtis are included in W. M. Flinders Petrie, *Shabtis* (Warminster, Eng: Aris & Phillips, 1974); Schneider, Part I, 235-236; Jacques F.

statuettes were mold-made and then manually detailed as needed. Beyond this, they provide little information regarding the production process used to produce faience shabtis. Furthermore, recent studies have not addressed the division of labor used to produce a collection and how it impacted the mold distribution, the faience, and the overall appearance of the shabti collection.

My study of the 305 faience ushebtis included within the burial assemblage crafted for a wealthy woman named Meretites (380 - 250 B.C.; The Nelson-Atkins Museum of Art) provided an enhanced understanding of how the work was divided and performed within a single atelier. The results presented in this paper lay the foundation for future studies of individual funerary figurine collections and the division of labor employed to produce them.

#### Meretites' Burial Assemblage

The few details known about Meretites are supplied by the beautiful objects crafted for her burial assemblage: an inner anthropoid coffin and an outer coffin, both intricately and colorfully painted (Figures 1 a-c), wooden statuettes of Isis and Nephthys, and a gold cartonnage mask, pectoral, and apron (Figures 2 a-c). Meretites' 305 ushebtis complete the

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and Liliane Aubert, *Statuettes Égyptiennes: Chaouabtis, Ouchehtis* (Paris: Librairie d'Amérique et d'Orient, 1974).

impressive assemblage.<sup>7</sup> (See figures 3-9, Chapter 2 for frontal, rear, and profile views. Individual photographs for the full collection are provided in Appendix D.)

The ushebtis vary in color from buff to bright blue. They range in height from 9.18 cm (3.6 in.) to 19.9 cm (7.8 in.) and divide into two groups according to height (Table 1). The first group is comprised of 291 ushebtis (95%) and measures between 9.18 (3.6 in.) and 12.64 cm (5 in.). The second group includes 14 (5%) figurines between the height of 18.5 (7.3 in.) and 19.9 cm (7.8 in.). Due to their greater height and smaller number, the ushebtis in this group are likely overseers for the 291 smaller workers within the gang.<sup>8</sup> Proportional data for the collection are provided in Appendix A.

Table 1. Size Groupings for Meretites' Ushebtis<sup>9</sup>

Size Ranges	Number of Ushebtis	Percentage of Ushebtis
> 9.18 and < 12.64 cm	291	95%
> 18.5 cm and < 19.9 cm	14	5%
Total	305	100%

<sup>7</sup> Little published scholarship exists for Meretites' burial assemblage. As part of the 2000 exhibition "Search for Immortality: Life and After-life in Ancient Egypt" (Taiwan National Science Museum), the assemblage appears in color plates of the exhibition catalog, *Ancient Egypt*.

<sup>8</sup> The changes in iconography for overseer funerary figures are discussed on p. 9-10.

<sup>9</sup> Heights for the overseer ushebtis were measured with a 30 cm ruler with mm increments. All other measurements were obtained with an Empire (Model 2785) 6" Dial Caliper, which calculates to the nearest .1 mm. All measurements are provided in Appendix C.

The mummiform shape of the ushebti indicates a divine association with Osiris, the god of life and death. Another divine attribute, the false beard, is found on all but two of the ushebti; most are delicately plaited and/or terminate with a curved tip. Each statuette awaits the call to work with its hands folded upon its chest, each clasping an agricultural implement. For most, the right hand grasps a hoe; the left a pick. The majority of the ushebti also hold a rope attached to a seed basket hanging over the left shoulder. Each ushebti wears a tripartite wig with a hair lappet falling along the left and right side of the neck and dropping below each shoulder. The third part of the wig begins above the forehead and continues over and along the back of the head terminating at the top of the back pillar. The pillar continues down the length of the ushebti to the pedestal.

Along the front, each figurine includes an inscribed text spanning from underneath the folded arms down to the feet. For the 14 large ushebti, the text of Spell 6 from *The Book of the Dead* is arranged in a series of nine to ten horizontal registers.<sup>10</sup> On the remaining 291 ushebti, a simple text arranged in either a single column or in a “T” configuration established Meretites’ ownership.

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<sup>10</sup> A basic version of Spell 6 reads, “Oh shabti, allotted to me, if I be summoned or if I be detailed to do any work which has to be done in the realm of the dead; if indeed obstacles are implanted for you therewith as a man at his duties, you shall detail yourself for me on every occasion of making arable the fields, of flooding the banks or of conveying sand from east to west; ‘Here am I,’ you shall say.” in Carol Andrews and Raymond O. Faulkner, *The Ancient Egyptian Book of the Dead* (Austin, TX: University of Texas Press, 2000), 36.



1a. *Inner Coffin of Meret-it-es*, 2007.12.2.A,B.



1b. *Outer Coffin of Meret-it-es*, 2007.12.1.A–C.



1c. *Outer Coffin of Meret-it-es*, 2007.12.1.A–C. (detail)

Figures 1a-c. *Inner and Outer Coffin of Meret-it-es*, Egyptian, Late Period to Ptolemaic Period, 30th Dynasty to early Ptolemaic Dynasty, ca. 380–250 B.C.E. Purchase: William Rockhill Nelson Trust (by exchange).



2a. Mummy mask



2c. Mummy apron



2b. Mummy pectoral

Figure 2 a-c. *Mummy mask, pectoral, apron of Meret-it-es*, Egyptian, Late Period to Ptolemaic Period, 30th Dynasty to early Ptolemaic Dynasty, ca. 380–250 B.C.E. Cartonnage (linen or papyrus covered in plaster), paint and gold leaf. Purchase: William Rockhill Nelson Trust (by exchange), 2007.12.3-4 A.B.



## Dating Meretites' Burial Assemblage

In the absence of prosopographical evidence and a dearth of scientifically excavated funerary assemblages during the Late and Ptolemaic Periods, establishing a precise production date for Meretites' assemblage is difficult.<sup>11</sup> Therefore, using certain stylistic elements of her collection, a safe and broad, rather than narrow, dating between 380 and 250 BC (30<sup>th</sup> Dynasty near the end of the Late Period through the early Ptolemaic Period) is proposed.

Meretites' ushebtis offer the most substantive dating information. They are representative of documented Late Period ushebtis which Taylor described as "figures, usually of green (less often blue) faience, are distinguished by the tall slender body, long plaited beard, long tripartite wig without fillet, a pronounced smile and by the inclusion of elements derived from stone sculpture – a pedestal beneath the feet and a rectangular pillar supporting the feet."<sup>12</sup> Meretites' ushebtis also carry a basket and hold a hoe in the right hand and a pick in the left, accoutrements common after the reign of Psametik II (595 – 589 BC).<sup>13</sup>

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<sup>11</sup> The tomb of Petosiris, dated between 350 and 300 BC, is one of the few well-documented excavations for this period. It was first published in Lefebvre, *Le Tombeau de Petosiris* (Le Caire: Impr. de l'Institut Francais d'Archéologie Orientale, 1923).

<sup>12</sup> John H. Taylor, *Death and the Afterlife in Ancient Egypt* (Chicago: University of Chicago Press, 2001), 131.

<sup>13</sup> *Ibid.*

Other characteristics of Meretites' ushebti are also common to Late or Ptolemaic Period collections. The precise number of figurines crafted for Meretites is unknown, but her collection is sizeable, including 305 ushebti. By the Third Intermediate Period and into the Late Period, funerary texts and other archaeological evidence document large ushebti collections often numbering 401 figurines.<sup>14</sup>

The two distinct sizes of Meretites' ushebti were clearly a deliberate production choice raising questions about their significance. During the New Kingdom, iconography, not size, separated the overseers, known as *reis-shabtis*, from the workers. *Reis-shabtis* were depicted in kilts with projecting aprons and held at least one whip.<sup>15</sup> This iconographic classification appeared to end by the 26<sup>th</sup> Dynasty, but Taylor and Schneider suggest that the distinction between overseer and worker ushebti may have persisted. They argue that instead of iconography, the ushebti sizes and the length of the inscriptions possibly indicated the difference in rank.<sup>16</sup> Within Meretites' collection, the 14 larger ushebti include lengthy inscriptions based on Chapter 6 of the *Book of the Dead*. The remaining 291 smaller ushebti include short and simple inscriptions establishing her ownership.

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<sup>14</sup> Schneider, Part I, 320.

<sup>15</sup> Taylor, 127.

<sup>16</sup> Schneider, Part I, 321-22. The last known shabti collection including *reis-shabtis* depicted in the dress of daily life are the funerary figurines for the Divine Adoratresses of Amun found at Medinet Habu; Taylor 131

The position of the inscribed text provides evidence which narrows the proposed dating between the 30<sup>th</sup> Dynasty and Ptolemaic Period. The 14 large ushebti include nine to 10 framed lines of horizontal text, a common arrangement dating back to the Middle Kingdom. On the smaller 291 ushebti, 160 include text laid out in a single column, another frequently used pattern. 131 ushebti, however, include text in a framed “T” configuration, a horizontal row atop a single vertical column.<sup>17</sup> The earliest examples of “T” texts dated to the 26<sup>th</sup> Dynasty are unframed; the use of framed texts in the same configuration begins in the 30<sup>th</sup> Dynasty.

Ptolemaic Period funerary figurines display few iconographical changes. While some statuettes feature a two-tone color pattern, the majority display the stylistic attributes prevalent in the Late Period. The quality, however, is often inferior in later examples. Ptolemaic figurines were crafted with “increasing carelessness and lack of comprehension” resulting in poor detailing and numerous mistakes within the texts.<sup>18</sup> Ptolemaic examples within the Leiden collection display odd proportions and overall poor craftsmanship.<sup>19</sup> In the regrettable absence of more concrete information, I propose that if Meretites’ ushebti were produced during the Ptolemaic Period, the relatively high quality of the figurines indicate a dating earlier in the Period rather than later.

The stout appearance of Meretites’ anthropoid coffin (Figure 1a) is

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<sup>17</sup> Schneider, Part I, 176.

<sup>18</sup> Taylor, 132.

<sup>19</sup> Schneider, Part III, p. 77-79.

representative of stylistic changes which occurred during the Late Period and continued into the Ptolemaic Period. According to Taylor, “Greater emphasis was given to the head, wig, and chest, which became substantially enlarged.”<sup>20</sup> The anthropoid coffins during this time also included a pedestal and a back pillar. Meretites’ anthropoid coffin includes each of these characteristics.<sup>21</sup>

The painted images on Meretites’ outer coffin are consistent with, but not limited to a Late or Ptolemaic Period dating. A painted frieze, alternating the *khekher* motif and Anubis holding a flail and *was* scepter seated above a tomb, spans the right and left panels of Meretites’ coffin (Figure 1b). This imagery, appearing on coffins during the reign of Nectanebo I (380 – 362 BC) and Nectanebo II (360 – 343 BC), copied similar decoration used during the New Kingdom and documented on several sarcophagi of that period, including those for Siptah, Sethnakhte, and Ramses IV.<sup>22</sup> The later examples displaying this decorative pattern include coffins for Djedher (CG 29302), Painmou (CG 29305), and Djedher, the dwarf, (CG 29307), all dated to the reign of Nectanebo II.<sup>23</sup>

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<sup>20</sup> Taylor, 241.

<sup>21</sup> Petosiris’ anthropoid coffin displays similar stylistic characteristics with that of Meretites’. Color photographs published in Mohamed Saleh, and Hourig Sourouzian. *The Egyptian Museum, Cairo: Official Catalogue* (Cairo: Organisation of Egyptian Antiquities, the Arabian Republic of Egypt, 1987), cat. no. 260.

<sup>22</sup> Salima Ikram and Aidan Dodson, *The Mummy in Ancient Egypt: Equipping the Dead for Eternity* (New York: Thames & Hudson, 1998), 268-271.

<sup>23</sup> Colleen Manassa, *The Late Egyptian Underworld: Sarcophagi and Related Texts from the Nectanebid Period* (Wiesbaden: Harrassowitz, 2007), Part 2. For coffin images see: CG 29302, 3; CG 29305, 44; CG 29307, 36.

At the head of Meretites' sarcophagus, five rays, formed by a series of small triangles, radiate from a solar disk (Figure 1c). Coffins CG 29307 and CG 29302 illustrate the Creation of a Solar Disk scene in which a single, but similar ray emanates from the sun.<sup>24</sup> In the Book of the Dead produced for Ta-Amen, the Chantress of Amen (30<sup>th</sup> Dynasty or Early Ptolemaic Period), Spell 15 depicts five rays very similar to those found on Meretites' coffin, possibly suggesting that this was a representation used at least by the end of the Late Period.<sup>25</sup>

The lack of securely dated funerary material during the Late Period complicates the understanding of the stylistic development for mummy cartonnage ornamentation. It is thought that mummies were adorned with a beaded net and some version of a facial mask, a trend documented between the 23<sup>rd</sup> and 26<sup>th</sup> Dynasties. In the Ptolemaic Period, a painted or gilded cartonnage ensemble comprised of several pieces emerged. The multiple components were often sewn onto the mummy wrapping and included “a mask, a pectoral, frequently in the shape of a *wesekh* collar, an apron over the legs, boots covering the feet and ankles, and sometimes additional pieces covering the rib-cage and stomach.”<sup>26</sup> The multi-segmented cartonnage for Meretites with a gilded mask, pectoral, and apron (Figures 2 a-c) possibly indicates a Ptolemaic Period dating.

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<sup>24</sup> Ibid., CG 29307, 36; CG 29302, 34.

<sup>25</sup> Sue D'Auria, Peter Lacovara, and Catharine H. Roehrig, *Mummies & Magic: The Funerary Arts of Ancient Egypt* (Boston: Museum of Fine Arts, 1988), 187-90.

<sup>26</sup> Ikram, 187.

When viewed in its entirety, Meretites' funerary assemblage exhibits stylistic characteristics established for the Late and Ptolemaic Periods. The ushebti collection's appearance and large numbers are indicative of Late Period or Ptolemaic examples. Likewise, the stout proportions of Meretites' anthropoid coffin and the painted images on the sarcophagus provide a similar dating. The framed "T"-shaped ushebti inscriptions likely narrows the earliest production date to the 30<sup>th</sup> Dynasty. Finally, Meretites' cartonnage appears to be a product of the Ptolemaic Period, but the lack of securely dated information for the Late Period leaves this dating uncertain. Based on these analyses, Meretites' assemblage was likely produced between 380 BC and 250 BC.




### Methodology

To gain a broad understanding of the collection, a careful visual examination was initially performed and numerous measurements were collected for each ushebti. Further visual study of the appearance of the faience and the identification of the molds used during production led to basic conclusions regarding the full collection (Chapter 2). The individual attributes of the worker ushebtis, including the agricultural tools, the hands, the baskets, and the hieroglyphs were then analyzed (Chapter 3). A similar analysis was performed for the overseer ushebtis (Chapter 4). The results of this study lead to important conclusions regarding the manufacture of Meretites' ushebtis and provide specific information on the division of labor implemented during the production process (Chapter 5).

## CHAPTER 2 : VISUAL ANALYSES OF THE WORKER USHEBTIS

The 291 worker ushebtis divide into three distinct types based on the arrangement of the text: a wide single column without a top border, a single column with a top border, and a framed “T” configuration (Table 2).

Table 2. Three Ushebti Types Based on Hieroglyphic Text Pattern

Single column, without top border	Single column, with top border	“T” arrangement
N = 85	N = 77	N = 129
		
2007.12.265	2007.12.223	2007.12.119

Further study of the three text types assisted in the identification of four distinct stylistic groups. The stylistic groups are descriptively labeled to help with identification: Tapered, Stout, Nosy, and Boxy (Table 3). General information and measurement data for each of the groups are provided in Table 4.

Table 3. Four Ushebti Groups Based on Stylistic Characteristics





Tapered N = 86	Stout N = 77	Nosy N = 78	Boxy N = 50
			
2007.12.67	2007.12.214	2007.12.143	2007.12.189



Table 4. Basic Information and Measurement Data for the Four Stylistic Groups

Group Name	Text Pattern	Number of Ushebtis	Height Range (cm)	Average Height (cm)	Average Width (cm)	Average Depth (cm)
Tapered	Single column, without a top border	86	9.92 – 12.45	11.39	3.04	2.08
Stout	Single column, with a top border	77	10.31 – 12.21	11.23	3.30	2.42
Nosy	“T” shape	78	9.77 – 11.76	10.60	2.91	2.04
Boxy	“T” shape	50	9.76 – 11.83	11.32	3.15	2.19

### Visual Description of the Four Stylistic Groups

#### *Tapered Group*

The 86 ushebtis comprising the Tapered Group are typically long and thin as the length of the body narrows from barely defined torsos to small feet atop the pedestals. The glazing within this group is varied, ranging from a flat buff to a shiny, dark blue finish.

The inscribed text forms a wide single column bordered by vertical lines at the left and right.

The ushebtis form two sub-groups: Tapered-Blue (Figures 4a-d) and Tapered-Buff (Figures 3 a-d). The eight ushebtis of the Tapered-Blue sub-group are generally shorter in height, averaging 10.5 cm with a range between 9.76 cm and 11.21 cm. The glazing for this sub-group is often thick; the coloring is usually a dark, bright blue. The ushebtis include painted details along the facial area, the torso, and within the text.

The 78 ushebtis of the Tapered-Buff sub-group range in height from 10.61 cm to 12.45 cm and average 11.5 cm, 1 cm taller than the ushebtis in the Tapered-Blue sub-group. The majority of the ushebtis contained within the Tapered-Buff sub-group display a buff glaze with small, but varying amounts of blue glazing. Details are not painted within this sub-group.

### *Stout Group*

The Stout Group (Figures 5 a-d) comprises 77 ushebtis with broad torsos and anatomical definition along the length of the sides and back. The curve of the buttocks and calves are well defined in profile. The glazing within this group is relatively consistent with the majority of the ushebtis, covered by a buff glaze intermingled with a varying amount of a soft blue finish. The text forms a single column framed along the left, right, and top.

### *Nosy Group*

The Nosy Group consists of 78 ushebtis distinctive for their curved forms and fleshy hands and facial features. A general heaviness in the face is emphasized by large noses and plump ears, cheeks, eyes, and full mouths. The large hands often lack definition of the individual fingers. The majority of the ushebtis retain a shiny, dark blue glaze; two are covered by an apple green glazing. The hieroglyphs are arranged in a framed “T” configuration.

The Nosy Group forms two sub-groups: Nosy – Large (Figures 6 a-d) and Nosy – Small (Figures 7 a-d). The Nosy – Large sub-group includes 43 ushebtis ranging in height from 10.31 cm to 11.76 cm and averaging 10.93 cm. The glazing for the ushebtis within this sub-group is generally blue, but two of the figurines are apple green.

The 35 ushebtis in the Nosy – Small sub-group average 10.19 cm in height, nearly 1 cm shorter than those in the Nosy – Large group. They range from 9.18 cm to 10.87 cm in height, but despite their shorter size, these ushebtis appear elongated. Their facial features retain a fleshy quality in spite of their longish faces. Almost all the ushebtis within this sub-group retain a light blue glaze.

### *Boxy Group*

The remaining 50 worker ushebtis distinguished by their square-like torsos comprise the Boxy Group. Their long, thin legs display little anatomical definition. The glazing is consistent with the majority of the ushebtis retaining a dark blue glaze. A



3a. Frontal View



3b. Rear View



3c. Left Profile  
View



3d. Right Profile  
View

Figures 3 a-d. Ushebti from the Tapered – Buff Sub-Group (2007.12.67)



4a. Frontal View



4b. Rear View



4c. Left Profile View



4d. Right Profile View

Figures 4 a-d. Ushebti from the Tapered – Blue Sub-Group (2007.12.250)



5a. Frontal View



5b. Rear View



5c. Left Profile View



5d. Right Profile View

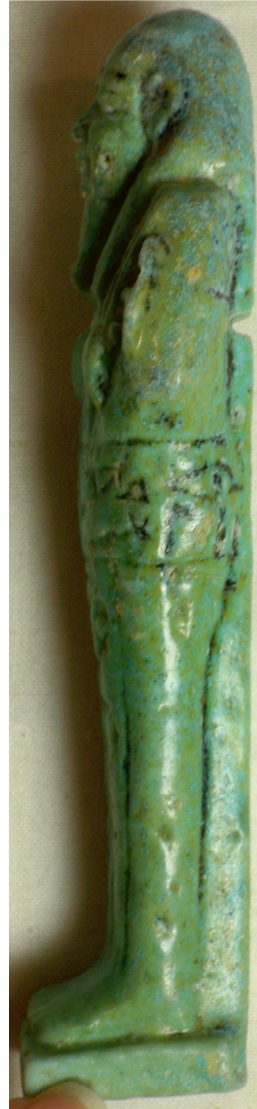
Figures 5 a-d. Ushebti from the Stout Group (2007.12.214)



6a. Frontal View



6b. Rear View



6c. Left Profile View



6d. Right Profile View

Figures 6 a-d. Ushebti from the Nosy – Large Sub-Group (2007.12.143)



7a. Frontal View



7b. Rear View



7c. Left Profile View



7d. Right Profile View

Figures 7 a-d. Ushebti from the Nosal - Small Sub-Group (2007.12.301)





8a. Frontal View



8b. Rear View



8c. Left Profile View



8d. Right Profile View

Figures 8 a-d. Ushebti from the Boxy – Round Sub-Group (2007.12.35)



9a. Frontal View



9b. Rear View



9c. Left Profile View



9d. Right Profile View

Figures 9 a-d. Ushebti from the Boxy – Pinched Sub-Group (2007.12.189)

unique feature of this group is the heavy-handed incising of the facial area and their hieroglyphs, the latter arranged in a “T” configuration.

The Boxy Group divides into two sub-groups: Boxy – Round, including 35 ushebtis (Figures 8 a-d), and Boxy- Pinched, comprising 16 ushebtis (Figures 9 a-d). The blue glazing is similar, and the average height for both sub-groups is very close in size. The Boxy-Round averages 11.30 cm and the Boxy – Pinched averages 11.39 cm. Two major differences separate the sub-groups. The smiling, rounded faces of the Boxy-Round ushebtis contrast with the thin, hollow faces of the ushebtis within the Boxy – Pinched sub-group, and the highly detailed basket ropes, arms, and hands are unique to the Boxy – Pinched sub-group.

#### Faience by Stylistic Group

Considerable differences in the faience exist between each of the four stylistic groups. Basic variances in the color and thickness of the glazing are apparent. Other distinctive differences occurring before and after firing were also observed and likely resulted from the molding process and/or the nature of the faience material.

#### *Tapered Group*

The glazing for the ushebtis within the Tapered Group varies significantly. The majority of the ushebtis within the Tapered – Buff sub-group (Figures 10 a-b) retain an opaque buff glaze. Some of the figurines include a varying amount of blue glazing ranging from a negligible presence to a coating covering nearly 50% of the figurine. In higher

concentrations the blue glazing does not form an even coating, and, at times, appears mottled. All eight ushebtis within the Tapered – Blue sub-group (Figures 11 a-b) retain a thick, dark blue glaze with painted details, a feature not found on the remaining ushebtis within Meretites' collection.

Within the Tapered stylistic group, two unique characteristics are evident. Several ushebtis include a damaged area (Figure 11a) along the front of the torso. Because the glazing is intact, the damage occurred before firing. Along the back pillar several figurines also display evidence of spalling, a condition in which the outer layers of the faience start to fragment and separate from the object (Figure 11c).

#### *Stout Group*

The ushebtis of the Stout Group (Figures 12 a-b) retain an opaque, buff glaze with small, varying amounts of blue glazing visible on many of the figurines. Unlike the darker blue of the Tapered Group, this blue is a soft pastel shade with, at times, a shimmering quality. The poor glazing reveals individual tool marks (Figures 13 a-c) on the faces, back pillars, and bases. Numerous air bubbles and small cavities are also visible along the front and back of the ushebtis.

#### *Nosy Group*

The glazing for the Nosy Group ushebtis (14a-d) ranges from light blue to bright, dark blue. Several ushebtis display a combination of blue and green glazing, and



10a. 2007.12.78



10b. 2007.12.277

Figures 10 a-b. Glazing within the Tapered – Buff Sub-Group



11a. 2007.12.41



11b. 2007.12.250



11c. 2007.12.147

Figures 11 a-c. Glazing within the Tapered – Blue Sub-Group



12a. 2007.12.88



12b. 2007.12.214

Figures 12 a-b. Glazing within the Stout Group

Bottom of base



13a. 2007.12.83

Facial details



13b. 2007.12.43

Back Column



13c. 2007.12.83

Figures 13 a-c. Glaze Details from the Stout Group





14a. 2007.12.289



14b. 2007.12.113



14c. 2007.12.186



14d. 2007.12.140

Figures 14 a-d. Glazing within the Nosy Group

Boxy –Round Sub-Group



15a. 2007.12.105

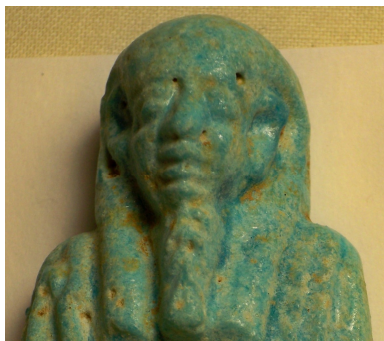
Boxy – Pinched Sub-Group



15b. 2007.12.94

Figures 15 a-b. Glazing within the Boxy Group

Boxy – Pinched - Elaborate beard



16a. 2007.12.111

Boxy – Pinched – Torso



16b. 2007.12.132

Figures 16 a-b. Details, Glazing within the Boxy Group

two are primarily apple green in color. Many of the ushebtis within this group display a flattened or melted appearance.

### *Boxy Group*

All of the ushebtis within the two sub-groups (Figures 15 a-b), the Boxy – Round and Boxy – Pinched, retain a thick layer of blue glaze. A brown discoloration is visible within the areas of deep incising of the facial details and hieroglyphs. The use of a fine faience paste is also evident within this stylistic group. In the Boxy – Round sub-group this is seen in the small and delicate features of the ushebtis. For the Boxy – Pinched sub-group (Figures 16 a-b), the finer faience paste allowed for elaborate detailing unique to this sub-group. For example, the fingers, hand, and forearms are pronounced, even the basket rope fibers are visibly apparent.

Table 5. Faience Characteristics for the Stylistic Groups and Sub-Groups

	<i>Glaze Color</i>	<i>Glaze Thickness</i>	<i>Painted Details</i>	<i>Spalling</i>	<i>Tool Marks</i>	<i>Damage along the Torso</i>	Brown Discoloration
Tapered – Buff	Buff with varying amounts of blue	Thin	No	Yes	No	Yes	Some
Tapered – Blue	Dark, jewel-like blue	Thick	Yes	No	No	Yes	Minimal
Stout	Buff, with varying amounts of soft, sparkly blue	Thin	No	No	Yes	No	Often
Nosy – Large	Dark, jewel-like blue; two are apple green	Thick	No	No	No	No	Minimal
Nosy – Small	Light to dark blue	Thick	No	No	No	No	Minimal
Boxy – Round	Medium to dark; jewel-like blue	Thick	No	No	No	No	Often
Boxy - Pinched	Medium to dark, jewel-like blue	Thick	No	No	No	No	Often

### *Possible Explanations for the Differences in Faience*

The faience of each stylistic group is different in the color and thickness of the glazing and in the consistency of the paste. Additionally, many of the unique characteristics previously mentioned prove that substantial differences exist between the faience of the four stylistic groups (Table 5). The differences are difficult to explain with absolute certainty. No written information remains from ancient times detailing faience production. A scene (Figure 17) from the Tomb of Ibi possibly offers the only remaining visual evidence for this mysterious craft.<sup>27</sup>



Figure 17. A scene from the Tomb of Ibi, chief steward of the divine adoratrice in the time of Psamtek I at Thebes (TT36: c.664 – 610 BC); this may show a workman (right) mixing faience ingredients while another workman (left) finishes a more complete piece.

Today, the chemical analysis of ancient faience objects provides detailed information on its composition and glazing. Thus far, however, modern attempts to reproduce the ancient material have been largely unsuccessful. Although Egyptian

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<sup>27</sup> Nicholson, 178.

craftsmen were not chemists, Paul Nicholson surmises that they were “skilled artisans who knew how to transform one group of materials into another.”<sup>28</sup> They benefited from the experience and knowledge gained by earlier generations of craftsmen. With the ancient faience traditions lost, modern art historians and scientists struggle to fully understand and replicate the elusive material. (See Appendix B details of faience experimentation performed by the author.)

Faience is composed of simple materials. The primary ingredient is silica (SiO<sub>2</sub>) obtained from either sand or quartz pebbles ground into a clean, fine silica powder.<sup>29</sup> Sand was readily available, but it contained impurities local to the area in which it was collected. Quartz sands commonly included limestone, shell fragments, feldspars, iron-titanium oxides, aluminum, and magnesia. These impurities were impossible to identify in the raw form, but they likely impacted the glazing of the finished object. Petrie proposed that silica was not obtained from sand, but from quartz pebbles. During an excavation at Tell el Amarna (1891-92), he discovered a large number of quartz pebbles lining the floor of a furnace. He theorized that the cyclical heating and cooling of the stones promoted cracking which helped grind the quartz into a pure silica powder free of hidden impurities.<sup>30</sup>

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<sup>28</sup> Paul T. Nicholson, “Materials and Technology,” In *Gifts of the Nile: Ancient Egyptian Faience*, ed. Florence D. Friedman, Georgina Borrromeo, and Mimi Leveque (New York: Thames and Hudson, 1998), 50.

<sup>29</sup> Nicholson (2000), 186.

<sup>30</sup> Ibid.

Binding agents, such as lime or calcium oxide (CAO) naturally found in limestone and chalk, were added to the faience mixture to strengthen the body of the finished object and to facilitate drying. Next, an alkali such as soda was added. The most common source was natron, a naturally occurring mixture of sodium carbonate (NAC), sodium bicarbonate ( $\text{NAC}_2$ ), sodium chloride (NACL), and sodium sulphate ( $\text{NA}_2\text{SO}_4$ ).<sup>31</sup>

Pigments were then added to achieve the desired color of the final glazing. Although blue and green are the most common colors of glaze found on surviving faience objects, craftsmen replicated a variety of colors including white, yellow, purple and violet, black and gray, and brown and red.<sup>32</sup>

Water was the final and critical ingredient added to the mixture.<sup>33</sup> Too much resulted in faience unable to retain sharp detailing after removal from the mold. In addition, unknown chemicals and minerals present in the water possibly contaminated the overall chemical balance of the faience.

Nine ushebtis (Figures 18 a-i) were analyzed using X-ray Fluorescence Spectroscopy (XRF) to determine the elemental composition of the surface of the faience.<sup>34</sup> The ushebtis, representing three of the four stylistic groups, were chosen to

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<sup>31</sup> Ibid, 186-87.

<sup>32</sup> Friedman, 51.

<sup>33</sup> P.S. Griffin, "Reconstructing the Materials and Technology of Egyptian Faience and Frit," in *Material Issues in Art and Archaeology VI*, ed. P.B. Vandiver, M. Goodaway, and J. L. Mass (Warrendale, PA: MRS), 330.

<sup>34</sup> Paul Benson, Conservator at the Nelson-Atkins Museum of Art performed the X-Ray Fluorescence Spectroscopy tests using a KeyMaster TRACeR III-V.

ensure a wide range of glazes from buff to dark blue. Multiple areas were tested for three of the ushebti. Although the sampling is small, the XRF data (Table 6) show that the elemental composition of the faience was relatively consistent between the Tapered, Stout, and Nosy Groups. The surface for each ushebti tested includes silica, potassium, calcium, lead, iron, copper, sulphur, and rhodium. The results also indicate the presence of titanium, manganese, zinc, and barium in some of the samples, but, except for barium, their presence is not unique to a particular stylistic group.

The XRF analyses clearly identify the faience's composition, but not the proportions of the materials used. Modern reproductions of faience prove that even slightly altering the ingredients results in significant glazing differences.<sup>35</sup> It is logical to assume that Meretites' atelier used materials collected or obtained from the same source. Significant differences in the faience may result from slight variations in the recipes or the measuring methods. For example, the inclusion of too little salt likely impacted the quality of the final glazing. Also, the addition of particular iron oxides as colorants possibly prevented successful glazing.<sup>36</sup> These minor differences offer a possible explanation for the differences in the faience glazing between the stylistic groups.

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<sup>35</sup> Griffin, 332-36.

<sup>36</sup> Frances Whitehead, telephone interview by author, Kansas City, MO, February 22, 2010. In 2000, Frances Whitehead, artist and professor of sculpture at the School of the Art Institute of Chicago, exhibited "Arguably Alive (the virus taxonomy)" at the Northern Illinois University Gallery in Chicago. The display included 50 faience canopic jars, each 22 inches tall and topped with virus models.







18a  
(2007.12.21)



18b  
(2007.12.77)



18c  
(2007.12.78)



18d  
(2007.12.249)



18e  
(2007.12.241)



18f  
(2007.12.259)



18g  
(2007.12.20)



18h  
(2007.12.258)



18i  
(2007.12.91)

Figures 18 a-i. Ushebti tested with X-ray Fluorescence Spectroscopy (XRF)

Table 6. Results of X-ray Fluorescence Spectroscopy (XRF) for Selected Ushebti

Ushebti Group	Si	S	K	Ca	Ti	Mn	Fe	Cu	Zn	Rh	Ba	Pb
Tapered												
21 (Back)	Yes	Yes	Yes	Yes			Yes	Yes		Yes		Yes
21 (Bottom of the foot)	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes		Yes
77 (Back)	Yes	Yes	Yes	Yes			Yes	Yes		Yes		Yes
78 (Back)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes		Yes
249 (Front torso)	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes
259 (Front)	Yes	Yes	Yes	Yes			Yes	Yes	Yes	Yes		Yes
Stout												
20 (Back of Left Shoulder)	Yes	Yes	Yes	Yes			Yes	Yes		Yes		Yes
20 (Back of Head)	Yes	Yes	Yes	Yes			Yes	Yes		Yes		Yes
258 (Foot)	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes
258 (Back Glaze)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Nosy												
91 (Back)	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes		Yes
241 (Back)	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes

An alluring quality of faience was its transformation during firing due to efflorescence, a self-glazing technique used for Meretites' ushebtis. The faience objects entered the kiln dull and colorless and, if successfully fired, emerged in lustrous and brilliant jewel-tones.<sup>37</sup> Successful efflorescence was hard to achieve relying on the appropriate ratio of ingredients, proper drying time, and an effective firing.

The efflorescence process immediately begins as the faience dries. During this time, a noticeable layer of "scum" covers the object as the salts and alkaline within the paste move to the surface.<sup>38</sup> It is this layer that fuses with the quartz, colorant(s), and lime during firing and forms a thick glassy coating of glaze.<sup>39</sup> Edgar Peltenburg, an expert in early vitreous materials, concluded that fast drying promotes a thicker layer of salts on the surface of the object resulting in a thicker glaze.<sup>40</sup>

This conclusion is supported by Frances Whitehead who spent several years experimenting with faience to consistently achieve a thick and even layer of glazing for the finished object. To do this, she experimented with a variety of drying methods. After discovering that drying faience objects with slow, controlled methods resulted in poor

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<sup>37</sup> Friedman, 15.

<sup>38</sup> Ibid., 52.

<sup>39</sup> Alexander Kaczmarczyk and Robert E. M. Hedges, *Ancient Egyptian Faience: An Analytical Survey of Egyptian Faience from Predynastic to Roman Times* (Warmister: Aris & Phillips, 1983), A-31-33.

<sup>40</sup> Friedman, 53.

glazing, Whitehead experimented with techniques simulating the hot and dry Egyptian climate. The faster drying methods consistently yielded higher quality glazes.<sup>41</sup>

Therefore, the differences in the appearance of the glazing between the stylistic groups possibly resulted from variances in drying. Perhaps the ushebtis were stored in different locations of the workshop where slight differences in temperature, humidity, and air flow impacted the drying rates affecting the efflorescence process.

Firing presented its own challenges. While the firing process ultimately determined the quality of the glazing, it depended on the faience paste and proper drying for successful results. Thus, it is sometimes difficult to determine precisely why poor glazing resulted, and firing raises several possibilities. One explanation for poor or uneven glazing is the placement of the faience objects within the kiln. If stacked too closely, the flow of air and heat throughout the kiln did not sufficiently surround or reach some of the items. Consequently, the glazing likely varied significantly on the surface of a single object, as well as between the objects in the kiln.

Reaching and maintaining an accurate and constant firing temperature was also fundamental to achieving a high quality, thick, glassy glaze. If the fire failed to rise to the optimal temperature, the resulting glaze was dull and uneven.<sup>42</sup> With the firing temperature too high, the objects warped and/or the final glaze was, at times, discolored to

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<sup>41</sup> Whitehead.

<sup>42</sup> Joseph Noble, "The Technique of Egyptian Faience," *American Journal of Archaeology* 73, no. 4 (October 1969): 438. 950 degrees Celsius is proposed; Griffin, 327 experimented with Cone 09 (915- 923 degrees Celsius) and Cone 08 (945-955 degrees Celsius); Nicholson (2000), 191 suggests between 800 and 1000 degrees Celsius.

dark brown and black.<sup>43</sup> In modern times, reaching and maintaining a maximum temperature is easy, but in ancient Egypt, managing the temperature of a kiln was complicated by the variety of materials used. The fires fueled by wood, charcoal, garbage, straw, or dung required constant monitoring.<sup>44</sup>

Another factor possibly affecting the appearance of the final glazing for Meretites' ushebtis is exposure to moisture. According to Schneider, glaze discoloration is common to Late and Ptolemaic Period shabtis due to moisture and humidity present in tombs. After prolonged exposure, blue glazes commonly fade to white, and a chemical reaction below the glaze also alters the finish from a shiny blue to a matte brown.<sup>45</sup>

Meretites' ushebtis were most likely not exposed to differing levels of humidity or moisture. During the Late and Ptolemaic Periods, the deceased were commonly buried in family tombs, mostly modest structures containing small burial chambers.<sup>46</sup> Because of widespread looting, little secure information remains regarding the normal placement of ushebtis within a tomb. Published excavation reports reveal that ushebti collections appear to have been placed in very close proximity to the sarcophagus.<sup>47</sup> In some tombs, ushebtis

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<sup>43</sup> Kaczmarczyk, A-129.

<sup>44</sup> Nicholson (2000), 192.

<sup>45</sup> Schneider, Part I, 236-37.

<sup>46</sup> Taylor, 154.

<sup>47</sup> Although the specific placement of funerary figurines within burials is often unknown for most burials due to looting or lack of documentation, useful studies and their results are in Stacie Lynn Olson, *New Kingdom Funerary Figurines in Context: An*

were discovered standing along the walls surrounding the deceased, but sizeable collections were often stored in several large wooden boxes.<sup>48</sup> Based on this information, it is a logical assumption that Meretites' ushebtis were situated near her sarcophagus. More importantly, the ushebtis were likely stored near each other exposing them to similar levels of humidity and moisture.

### *Conclusion*

The appearance of the faience within Meretites' collection is unique to each stylistic group. Unfortunately, it is impossible to confidently propose why the differences exist. No information remains about ancient faience production, and the possible explanations are numerous. Based on the XRF data and visual analyses, the differences likely lie in the proportion of the ingredients, drying methods, and/or firing process. If exposure to moisture altered the appearance of the glaze, it did so because differences already existed within the faience.

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*Analysis of the Cemeteries of Aniba, Gurob, and Soleb*. Thesis (Ph. D.) (University of Pennsylvania, 1996), Chapter 5; H. M. Stewart, *Egyptian Shabtis*. Shire Egyptology, 23. (Princes Risborough, UK: Shire Publications, 1995), 10; Schneider, Part I, 338-342. The numbers and placement of various collections are catalogued.

<sup>48</sup> Schneider, Part I, 334-42.

## To Mold or Not to Mold

Petrie discovered at Amarna (1891-92) and Memphis (1908-13) thousands of molds used to produce small faience objects.<sup>49</sup> These discoveries increased the basic understanding of Egyptian faience production.<sup>50</sup> While faience could be modeled by hand, it was highly suitable for molding. Molding allowed for workshops to easily mass produce small faience objects, increasing efficiency and overall production.

Although molds for funerary figurines are difficult to find and rarely displayed, an open one-sided mold from the Petrie Museum of Egyptian Archaeology, University College London, provides important information.<sup>51</sup> Appearing as if it was formed by pressing a completed figurine into a mound of terra cotta, the edges of the mold are rough, and the bottom section forming the underside of the feet is left open, perhaps to aid in removing the statuette from the mold. In the impression, the striations of the hair, the plaiting of the false beard, and the outline of the tools are clearly visible. Approximately

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<sup>49</sup> Detailed drawings of hundreds of faience molds are in W. M. Flinders Petrie, *Tell El Amarna*. Warminster, (Eng: Aris & Phillips), 1974; W. M. Flinders Petrie, *Memphis I*, (London: School of Archaeology in Egypt [etc.], 1909).

<sup>50</sup> Numerous scholars have enhanced our understanding of faience molds and their use including: Patricia Griffin, A. Lucas, Paul T. Nicholson, Joseph Noble, Andrew Shortland, M.S. Tite, and Pamela Vandiver.

<sup>51</sup> Stewart, 43.



twenty unpublished molds made of heavy red pottery located at the Brooklyn Museum are of a similar quality and contain highly detailed images of the figurines.<sup>52</sup>

### *Evidence of Mold-Use*

One-sided open molds were used to manufacture Meretites' collection. This determination was first established by a Tapered Group ushebti (Figures 19 a-c) with a flat upper back and a shallow depression, perfectly sized to fit the tip of a finger, located at the back of the head. A visible rim borders this small depression possibly indicating where the faience met the edge of the mold which was not filled completely. As a result, the three-dimensional characteristic commonly found within Meretites' collection is absent for this particular ushebti.

This unique example from Meretites' collection shares similar features with the figurines crafted for King Piankhy (Piye) (Figures 20 a-c).<sup>53</sup> Clearly mold-made, a fingerprint remains on the back of each statuette's head, revealing how the craftsman lifted and turned the newly-formed shawabty. The backs are flat proving that the craftsman used

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<sup>52</sup> Carl H. de Silver donated 20 molds, thought to originate from Giza, to the Brooklyn Museum. They are currently not accessioned within the museum's collection. Their "old" accession numbers are 10953-16, 10953-6, 10953-7, 10953-8, 10953-9, 10953-14, 10953-1, 10953-17, 10953-18, 10953-21, 10953-26, 10953-26, 10953-11, 10953-24, 10953-27, 10953-4, 10953-24, 10953-27, 10953-25, 10953-73.

<sup>53</sup> A portion of the shabti collection for King Piankhy (Nubian, Napatan Period, reign, 743–712 B.C.) is at the Museum of Fine Arts, Boston. They were found in el-Kurru, pyramid 17 (tomb of Piankhy) in 1918 and excavated during the Harvard University—Boston Museum of Fine Arts Expedition, 1921.

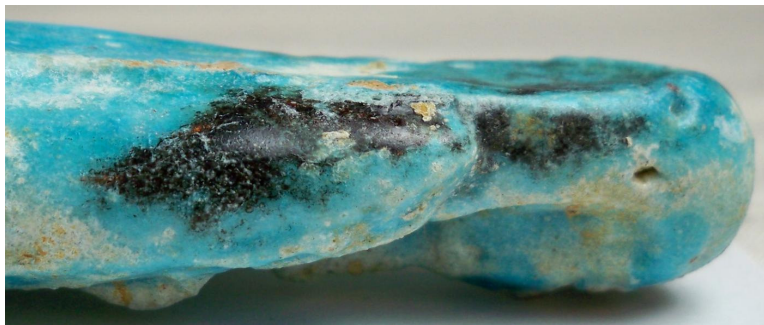
a tool to level and scrape away the excess faience. Unlike Meretites' ushebti, no attempt was made to achieve three-dimensionality; manual detailing was minimal.



19a. Back of the head



19b. Rear view, upper portion



19c. Right Profile View, upper portion

Figures 19 a-c. Ushebti from the Tapered Group indicating molded characteristics (2007.12.78)



20a. Frontal View



20b. Right Profile View



20c. Rear View

Figures 20 a-c. Shawabty for King Piankhy (Piye) (21.3112 19-4-139a)  
(Courtesy of the Museum of Fine Arts, Boston)

An ushebti from the Nosy Group (Figures 21 a-b) provides further evidence for mold use. Its head is crudely formed, and proportionally, it is substantially smaller than the remainder of the figure. The faience was apparently too moist when used or not packed well into the mold cavity. Consequently, the facial details were not retained or impressed into the faience after the ushebti was removed from the mold.



21a. Frontal View



21b. Facial Area, close up

Figures 21 a-b. Ushebti from the Nosy Group indicating molded characteristics (2007.12.232)

Numerous air pockets and craters visible along the surface of the figurines also suggest that molds were used. These features are found on ushebti of each stylistic group, but are most prevalent within the Stout Group (Figures 22 a-b). The smaller cavities likely formed as air bubbles were trapped between the faience paste and the surface of the mold. The larger craters (Figure 22b) probably occurred because the faience was not packed sufficiently into the mold.



22a. Ushebti with surface air bubbles  
(2007.12.208)



22b. Ushebti with surface crater  
(2007.12.69)

Figures 22 a-b. Ushebti from the Stout Group indicating molded characteristics

### *Ushebti Groupings by Individual Molds*

The atelier used a total of 32 molds to produce Meretites' collection. Identifying the individual molds and grouping them by ushebti proved a difficult task. The manual work of the craftsman often masked the characteristics of the individual mold used. Instead of measurement and proportional analyses, the visual examination of the facial features, specifically the position of the ears, the set of the nose, and/or the shape of the mouth, provided the best means of comparison. This observation raises the possibility that only minimal detailing was performed on the facial features of the ushebtis.

Overall, the groupings by individual molds averaged nine ushebtis and ranged from three to 16 figurines per mold (Table 7).<sup>54</sup> Additionally, the use of the molds appears unique to each stylistic group. An example of a mold grouping from each stylistic group is provided here for comparison and discussion. (See Appendix D for all of the mold groupings.)

Many of the ushebtis included within a mold grouping are not exact matches. In each of the mold groupings, however, particular characteristics connect the ushebtis. For example, in one mold grouping from the Tapered Group (Figure 23), the shape of the eyes and the position of the eyebrows inadvertently lend the ushebtis a worried expression. In addition, these ushebtis share similarly shaped noses and mouths. A mold grouping for the Stout Group (Figure 24) is established by a similar tilt of the head to the left. These six ushebtis also exhibit wide straight lips, and the left eye is positioned slightly lower than the

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<sup>54</sup> If Meretites originally had 401 ushebtis, the missing 96 figurines may explain some of the small mold groupings.

right eye. A mold grouping for the Nosy Group (Figures 25 and 26) is rather large and varied reflecting the greater handwork in the facial area. Each ushebti, however, shares large ears, similarly positioned, and prominent noses. In the Boxy Group (Figure 27), the round faces and set of the eyes established this particular mold grouping.

Table 7. Mold Information for Each Stylistic Group

Stylistic Group	Number of Molds	Average number of ushebtis per mold
Tapered	9	9
Stout	10	8
Nosy	8	9
Boxy – Round	3	11
Boxy – Pinched	2	8

Further analysis of the mold groupings identified a visible pattern of usage. Several mold groupings within the Nosy and Tapered Groups appear very similar, but the sizes of the figurines are distinctly different. A mold grouping from the Tapered Group (Figure 28) indicates two different sizes of ushebtis. The ushebti on the right appears to be a proportionally smaller version of the two figurines on the left. The position and shape of the eyes are very similar; the left eyes display much greater detail than the right eyes. The shape and size of the mouths are also alike. In an example from the Nosy Group (Figure 29), the three ushebtis are of varying sizes, but each shares a similarly shaped nose with a



Figure 23. Mold Grouping from the Tapered Stylistic Group





Figure 24. Mold Grouping from the Stout Stylistic Group



Figure 25. Mold Grouping from the Nosy Stylistic Group



Figure 26. Detail from the Mold Grouping from the Nosy Stylistic Group



Figure 27. Mold Grouping for the Boxy Stylistic Group



(2007.12.170), (2007.12.44),(2007.12.224), left to right

Figure 28. Tapered Ushebtis: Examples from two generations of molds



(2007.12.121), (2007.12.146),(2007.12.135), left to right

Figure 29. Nosy Ushebti: Examples from three generations of molds

rounded termination for the tip. In addition, the shape and set of the ears are similar as are the eyes and the mouths.

This finding possibly suggests that completed ushebtis were used to make new, multi-generational molds. To do this, a completed funerary figurine was impressed into a lump of terra cotta or clay and carefully removed to allow the new mold to dry. During subsequent firing, the mold shrank considerably as all remaining moisture evaporated. Accepted shrinkage rates for modern clays range between 10 – 12%<sup>55</sup>; ancient clay shrinkage is difficult to estimate, but likely reached 15%.<sup>56</sup> The smaller second-generation mold produced smaller ushebtis than the original figurine, but the statuettes shared identifiable characteristics with its “mother” figurine. Andrew Boyce determined a similar process while researching the manufacture of faience rings from Amarna.<sup>57</sup> This replication method offered a simple and efficient means to produce multiple molds needed within a workshop.

Tables 8 and 9 provide the shrinkage rates calculated for Figures 28 and 29, respectively. While the results for the Tapered Group (Figure 28) likely affirm the use of multi-generational molds, the shrinkage rates for the Nosy Group (Figure 29) are

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<sup>55</sup>Yvonne Hutchinson Cuff, *Ceramic Technology for Potters and Sculptors* (Philadelphia: University of Pennsylvania Press, 1996), 163. For modern clay bodies the acceptable range is between 10 and 12%. Clay manufactures provide specific shrinkage information for specific products.

<sup>56</sup>Carla M. Sinopoli, *Approaches to Archaeological Ceramics* (New York: Plenum Press, 1991), 29. Sinopoli estimates that shrinkage rates may have reached 15% for some clay bodies, but varied depending on the ingredients.

<sup>57</sup>Nicholson, 189.

significantly higher. These results possibly indicate that a substantial amount of handwork was performed or an intermediate mold is missing.

Table 8. Shrinkage Rates for the mold grouping from the Tapered Group (Figure 28)

Accession Number	Height (cm)	Shrinkage Rate	Width (cm)	Shrinkage Rate	Depth (cm)	Shrinkage Rate
170	11.63		3.08		2.07	
44	11.30		3.12		2.04	
224	10.74	8%	2.75	11%	1.96	5%

Table 9. Shrinkage Rates for the mold grouping from the Nosy Group (Figure 29)

Accession Number	Height (cm)	Shrinkage Rate	Width (cm)	Shrinkage Rate	Depth (cm)	Shrinkage Rate
121	11.76		3.3		2.33	
146	11.64		3.18		2.1	
135	9.99	15%	2.67	19%	1.93	17%

### Conclusion

Visual examination of the 291 worker ushebtis identified four distinct groups of figurines based on stylistic elements: Tapered, Stout, Nosy, and Boxy Groups. A primary difference between them is the configuration of the texts: a wide single column without a top border, a narrow single column with a top border, and a “T” shape. While it is impossible to explain the differences in the color and thickness of the glazing, the consistency of the paste, and the other unique characteristics, the faience appears unique to each stylistic group. Furthermore, the employment of the molds seems particular to each



stylistic group. Not only were different molds used to form the ushebtis, but multi-generational molds were used to produce ushebtis classified within at least two of the stylistic groups.

## CHAPTER 3

### ANALYSES OF THE MANUAL DETAILING OF THE WORKER USHEBTIS

After removing an ushebti from a mold, finishing details were often needed. The features impressed into the faience were commonly hazy, and the use of one-sided molds left the back unfinished.<sup>58</sup> A craftsman manually finished the feet, sharpened the details of the face, tools, arms, and hands, formed the pillar and basket along the back of the ushebti, and inscribed text. This chapter identifies the differences in the manual finishing for the 291 worker ushebtis.

#### Sharpening Molded Details

The work performed to sharpen the molded images of the hoes, picks, and hands produced distinct forms within each of the four stylistic groups. The analyses in this section focus on the differences within and between the four stylistic groups.

#### *Hoe Implements*<sup>59</sup>

The most common Egyptian farm tool, the wooden hoe, consisted of a long handle and a flattened blade connected by a mortis-and-tenon joint.<sup>60</sup> A rope crossbar, connecting

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<sup>58</sup> Schneider, Part I, 235-36.

<sup>59</sup> For a comprehensive representation of tool configurations for funerary figurines, see Schneider, Part III. For the configuration used for Meretites' shabtis, refer to Figure 13, Number 8.

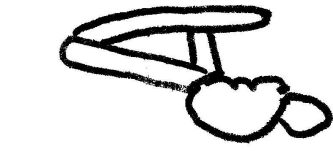
the handle and blade, was attached approximately halfway down the length of the handle. Used for sowing fields and digging canals and trenches, the hoe was an appropriate tool for ushebtis. For the large majority of Meretites' ushebtis, the hoe is held in the right hand and rests on the left shoulder.

The hoes in the four stylistic groups display distinct differences. The most recognizable example exists within the Boxy – Pinched sub-group (Figures 30 a-f). These hoes are consistently more linear and proportionally larger (Table 10) than those in the rest of the collection. The hoes in the remaining stylistic groups are similar in size and shape, but differ in the depth of the modeling. The hoes within the Stout Group display greater three-dimensionality than those in any of the other stylistic groups.

Another difference between each stylistic group is the representation of the hoe below the grasped hand. Often, as seen in the example from the Tapered Group, the handle is poorly detailed. In the Boxy – Pinched example, the handle emerging from below the hand resembles a straight stick. In the Boxy – Round sub-group, the handles are delicately curved. For many ushebtis within the Stout Group, the handle is defined by simple, straight incised lines. In the Nosy Group, the edge of the handle is often less defined; some examples feature a curved handle.

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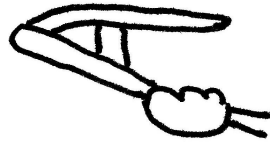
<sup>60</sup> William Christopher Hayes, *The Scepter of Egypt: A Background for the Study of the Egyptian Antiquities in the Metropolitan Museum of Art* (New York: Metropolitan Museum of Art, 1953), 215-16.



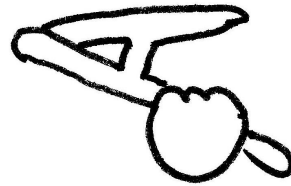
34f. Boxy-  
Round  
(2007.12.162)



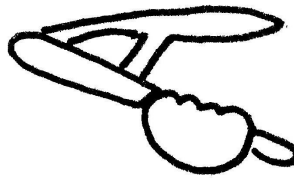
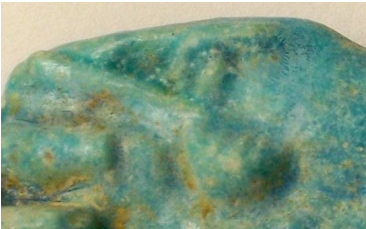
34e. Boxy -  
Pinched  
(2007.12.132)



34d. Stout  
(2007.12.202)



34c. Nosy -  
Large  
(2007.12.133)



34b. Nosy -  
Small  
(2007.12.134)



34a. Tapered  
Group  
(2007.12.226)

Figures 30 a-f. Hoes from the Four Stylistic Groups

Table 10. Comparison of the Proportion of the Hoes for the Four Stylistic Groups

Stylistic Group	Range of % of Hoe Handle/Total Height	Average % of Hoe Handle/Total Height	Range of % of Hoe Blade/Total Height	Average % of Hoe Blade/Total Height	Proportion of the Hoe Blade to the Hoe Handle
Tapered – Buff	20.80-29.25%	25%	12.09-19.07%	15%	61%
Tapered – Blue	23.38-28.92%	25%	13.17-17.64%	16%	62%
Stout	22.14-30.21%	26%	6.10-23.48%	16%	63%
Nosy – Large	22.04-29.61%	26%	8.29-17.52%	14%	53%
Nosy – Short	19.88-29.44%	25%	11.09-19.45%	15%	62%
Boxy – Round	22.76-25.94%	24%	13.21-20.09%	16%	67%
Boxy – Pinched	26.85-32.33%	30%	18.21-25.42%	21%	71%

### *Pick Implements*

The pick first appeared on funerary figurines during the 26<sup>th</sup> Dynasty.<sup>61</sup> This versatile tool, used for digging and breaking small stones, was formed with a stick and a broad metal blade often connected by rope or leather.<sup>62</sup> Within Meretites' collection, the picks are held in the left hand and lay against the right shoulder.

Minor differences appear in the picks (Figures 31 a-f) between the stylistic groups. Within the Boxy – Pinched sub-group, the picks are very linear and include substantially longer metal blades than those in the other stylistic groups (Table 11). Additionally, in the

<sup>61</sup> Stewart, 38.

<sup>62</sup> Schneider, Part I, 170.

Boxy - Pinched sub-group, the metal blades form sharp, acute angles as they extend from the handle. The metal blades within the other work groups often gracefully curve away from the pick handle.

Table 11. Comparison of the Proportion of the Picks for the Four Stylistic Groups

Stylistic Group	Range of % of Pick Handle/Total Height	Average % of Pick Handle/Total Height	Range of % of Pick Blade/Total Height	Average % of Pick Blade/Total Height	Proportion of the Pick Blade to the Pick Handle
Tapered – Buff	19.61-27.69%	24%	5.56-13.20%	9%	38%
Tapered – Blue	17.76-25.41%	23%	8.49-10.25%	10%	42%
Stout	21.40-28.91%	25%	7.11-15.30%	9%	37%
Nosy – Large	21.92-29.87%	26%	6.70-20.85%	10%	37%
Nosy – Short	20.92-28.53%	25%	6.08-19.66%	9%	36%
Boxy – Round	21.07-26.40%	24%	6.48-11.92%	10%	40%
Boxy – Pinched	25.43-30.96%	29%	9.72-15.06%	12%	43%

Substantial differences exist in the lengths of the metal blades that individually range from approximately one-third of the length of the pick handle to almost two-thirds of the length of the pick handle. The average length of the blades (Table 12) ranges from an average of 36% to 43% of the length of the pick handles. The Nosy – Short and Boxy – Pinched sub-groups include proportionally the longest pick blades that average 42% and



35f. Boxy-  
Round  
(2007.12.162)



35e. Boxy -  
Pinched  
(2007.12.132)



35d. Stout  
(2007.12.202)



35c. Nosy -Large  
(2007.12.133)



35b. Nosy -  
Small  
(2007.12.134)



35a. Tapered  
(2007.12.226)

Figures 31 a-f. Picks from the Four Stylistic Groups

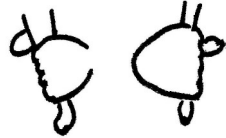
43%, respectively. The configuration of the pick probably explains the substantial variations. For the hoe, the shorter length must extend beyond the crossbar located near the middle of the implement. In contrast, the short side of the pick does not have a natural guideline to help determine the blade's length. The variances stem from the human element of the handwork applied.

The pick handles below the left hand often appear different from the corresponding hoe on the same ushebtis. For example, within the Stout Group some ushebtis display a hoe handle (Figure 30d) defined by straight, simple lines while the pick terminates with a rounded handle (Figure 31d). Although the handle for the Tapered Group hoe (Figure 30a) is often difficult to clearly discern, the end of the pick handle (Figure 31a) terminates in an uncharacteristically detailed curved nub. The Boxy – Pinched sub-group is unique since it displays little variance; each pick handle, as seen with the hoe, is consistently linear in character.

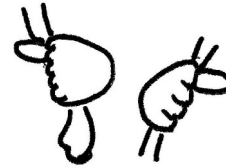
### *Left and Right Hands*

The arms of the ushebtis cross at the wrist (Figures 32 a-f) leaving the hands exposed. The most distinctive hands appear in the Boxy–Pinched sub-group. For these ushebtis, their large, boldly detailed hands are positioned side by side in a vertical, upright manner difficult to replicate anatomically. In contrast, the hands in the Boxy – Round sub-group are smaller and rest more naturally in an angular fashion. The hands often have only three fingers, and curved thumbs frequently emerge from behind the handles of both tools.

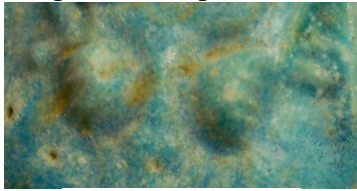




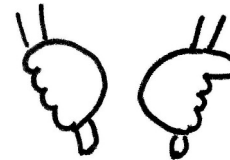
36a. Tapered Group (2007.12.147)



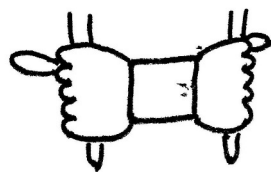
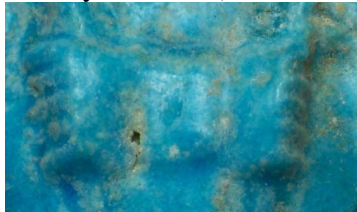
36b. Stout Group (2007.12.307)



36c. Nosy - Small (2007.12.134)



36d. Nosy - Large (2007.12.73)



36e. Boxy - Pinched (2007.12.132)



36f. Boxy - Round (2007.12.92)

Figures 32 a-f. Left and Right Hands from the Four Stylistic Groups

The hands in the remaining three stylistic groups are as diverse. The Tapered Group often includes simple mounds for the hands that display little definition of the fingers and thumbs. The hands in the Nosy Group are typically round and meaty. The thumbs are frequently visible, but the fingers lack definition. Finally, the Stout Group includes the most naturalistic examples enhanced by careful detailing of the fingers and thumbs. Like the Boxy – Round sub-group, the number of fingers detailed within the Tapered, Stout, and Nosy Groups are inaccurate and range from three to six.

Significant variances exist for the height and width of the hands in each stylistic group (Table 12) and for the sizes of the right and left hands of the same ushebti. Overall, the hands for the ushebtis within the Boxy – Pinched sub-group are the tallest and average 9% of the total figurine height. The height of the hands for the remaining groups and sub-groups average 7-8%. Proportionally, the hands of the Nosy group feature the greatest width averaging between 21% and 22% of the ushebti's total width. The remaining groups average between 15% and 21%. These data possibly indicate that the craftsmen performed a large amount of manual detailing on the hands. This is curious because it appears that the molds effectively impressed the much smaller facial features. Wouldn't the shallower and larger impressions of the hands mold just as well, if not better? The precise reason for this discrepancy in the manual detailing is impossible to answer with any certainty.

Table 12. Comparison of the Proportion of the Hands for the Four Stylistic Groups

Stylistic Group	Range of % of Left Hand Height/Total Height	Ave % of Left Hand Height/Total Height	Range of % of Right Hand Height/Total Height	Ave % of Right Hand Height/Total Height	Range of % of Left Hand Width/Total Width	Ave % of Left Hand Width/Total Width	Range of % of Right Hand Width/Total Width	Ave % of Right Hand Width/Total Width
Tapered – Buff	5.42-8.56%	7%	5.44-8.49%	7%	14.22-28.42%	21%	14.57-25.99%	20%
Tapered – Blue	5.92-8.65%	7%	6.97-8.67%	8%	17.60-23.78%	21%	18.27-23.22%	20%
Stout	5.83-9.25%	7%	5.57-8.72%	7%	14.84-24.93%	19%	12.15-20.99%	17%
Nosy – Large	5.60-10.36%	8%	6.18-9.70%	8%	16.96-26.54%	22%	17.34-24.55%	21%
Nosy – Short	4.84-8.93%	7%	4.33-9.02%	7%	15.70-25.11%	21%	13.59-23.62%	21%
Boxy – Round	5.47-7.95%	7%	5.27-7.88%	7%	13.64-22.07%	17%	11.32-22.07%	15%
Boxy – Pinched	7.34-11.12%	9%	7.58-10.46%	9%	11.65-28.62%	20%	13.27-23.05%	18%

### Applying Unmolded Details

The seed baskets and texts were applied free-hand by a craftsman after the ushebtis were molded. While the hoes, picks, and hands proved that it is difficult to identify what exactly resulted from the mold or the manual work of a craftsman, the baskets and inscribed texts offer no such conflict. After analyzing the baskets and texts, distinct types were identified and, like the hoes, picks, and hands, the types remain unique within each of the four stylistic groups.

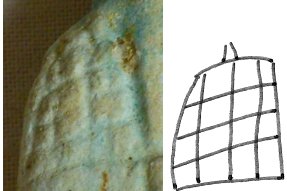
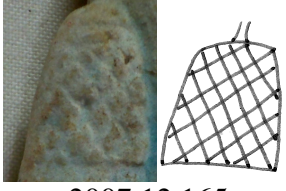

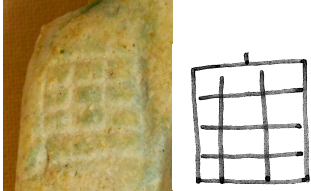
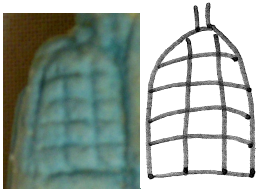
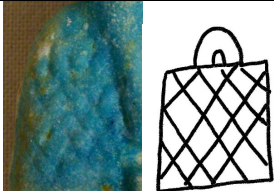
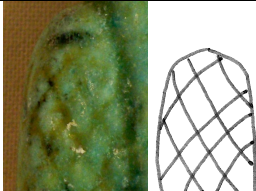

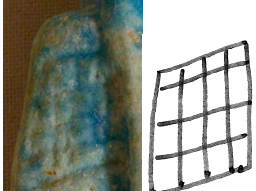
### *Seed Baskets*

Of the 291 worker ushebti, 256 (88%) include seed baskets resting along the back of the left shoulder. Although these baskets are important for the agricultural role ushebti fulfilled in the afterlife, they do not appear to be a necessary attribute. The 35 ushebti without a seed basket appear in all four stylistic groups with the majority, 27 ushebti, in the Nosy Group.

The missing baskets are likely oversights made by the craftsmen, but the work process possibly contributed to the omission. After molding, the craftsman probably first shaped and sculpted the rear of the ushebti. The pillar was formed; the basket was likely the final addition. The ushebti then rested on its back for the application of the text and any needed detailing along the front. The figurine must have remained in this position during drying because the missing baskets were not discovered and applied. If the errors were discovered before firing, the faience was likely too dry for incising.

Although the baskets appear to be simple additions incised quickly, they vary in style. Nine basket types were identified (Table 13) which, except for one of the classifications, appear unique to each of the stylistic groups. Within the Tapered Group, many baskets appear to be cursory additions. Some are woven in a vertical and horizontal pattern (Type 1); others display diagonal weaving (Types 2 and 3). Because of the poor quality of the baskets within this stylistic group, it is difficult to determine if the craftsman attempted to connect the rope hanging over the shoulder to the basket. Several baskets are highly defined and very similar to the Nosy Group examples classified in Type 6.

Table 13. Basket Types Identified for the Stylistic Groups

Stylistic Group			
Tapered	Type 1 (n = 54)	Type 2 (n = 18)	Type 3 (n = 7)
No baskets = 4 Unknown Type = 3	 <p>2007.12.44</p>	 <p>2007.12.165</p>	 <p>2007.12.266</p>
Stout	Type 4 (n = 34)	Type 5 (n = 40)	
No baskets = 3	 <p>2007.12.51</p>	 <p>2007.12.312</p>	
Nosy	Type 6 (n = 19)	Type 7 (n = 24)	
No baskets = 27 Unknown type = 8	 <p>2007.12.131</p>	 <p>2007.12.148</p>	
Boxy	Type 8 (n = 33)	Type 9 (n = 15)	
No basket = 1 Unknown Type = 1	 <p>2007.12.119</p>	 <p>2007.12.190</p>	

The Stout Group includes two basket types. First, half of the ushebtis include a simple square-shaped basket (Type 4) suspended along the left shoulder without a rope. The second basket variation (Type 5) is more detailed. The baskets are generally woven in a vertical and horizontal pattern, but four baskets include a diagonal pattern. The tops of the baskets in this type reach the crest of the shoulder, and an attempt to connect the baskets with its corresponding rope is visible.

The thick glazing obscures many of the basket details within the Nosy Group, but it contains at least two types of baskets with a diagonal weave. The first basket (Type 6) is consistently rectilinear in shape and includes a prominent loop unconnected to the rope. The shape of the second basket (Type 7) follows the curve of the shoulder with the top of the basket located near the crest of the shoulder. No loops or connections to the rope are evident.

The Boxy Group contains two basket types, each remaining specific to a particular sub-group. The baskets within the Boxy – Round sub-group (Type 8) are the most detailed within Meretites' collection. With large, fat loops, the baskets are rectilinear with clear divisions for the top, middle, and bottom sections. The baskets within the Boxy – Pinched sub-group (Type 9), however, are suspended along the back of the shoulder, and their simple forms do not display any loops or connections to the corresponding ropes.

The height and width of each basket (Table 14) illustrate that the average proportional height of the basket for each identified type consistently measured between 9 and 11% of the total height of the ushebti. The average proportional width of the baskets

for all types displayed a larger variance ranging from 25% to 30% of the total ushebti width. Based on the average height and width, as well as the measurement ranges, basket Types 6, 8, and 9 measure the smallest while Type 2 appears the largest proportionally for all nine types. Despite the obvious variances in the basket sizes, the differences are smaller than expected with the high level of manual detailing required to form them.

Table 14. Comparison of the Proportion of the Baskets for the Four Stylistic Groups


Stylistic Group	Basket Type	Average % of Basket Height/Total Height	Range of % of Basket Height/Total Height	Average % of Basket Width/Total Width	Range of % of Basket Width/Total Width
Tapered	1	10%	8 – 13%	28%	23 – 33%
	2	11%	8 – 14%	30%	25 – 36%
	3	10%	9 – 12%	28%	25 – 32%
Stout	4	11%	8 – 13%	28%	23 – 34%
	5	9%	7 – 10%	27%	22 – 30%
Nosy	6	11%	8 – 13%	27%	19 – 32%
	7	11%	8 – 15%	27%	22 – 31%
Boxy – Round	8	10%	8 – 13%	25%	18 – 31%
Boxy – Pinched	9	9%	7 – 12%	26%	19 – 31%

### *Ushebti Texts*

Each of the worker ushebtis includes text beginning underneath the arms and ending near on the top of the feet. The texts are short and simple, but they are data rich

because the majority of the hieroglyphs remain highly legible. Thus, the ushebti texts proved ideal for a two-phase analysis to identify similarities and differences within the collection. First, the seated woman determinative was studied for each ushebti to establish identifiable types.<sup>63</sup> Second, the full inscriptions grouped by the seated woman determinative types were analyzed to detect if substantial differences occurred within and between the types.

### Seated Woman Determinative






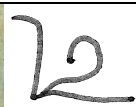










Within Egyptian texts, the man seated and the seated woman determinatives followed a written name to affirm the individual's gender. The seated woman  determinative is included on each of Meretites' ushebti, and it proved to be the most distinctive hieroglyph within the inscriptions. Eight types of this determinative were identified, and each type remains within one specific stylistic group (Table 15). The types vary significantly in execution. Types 1, 4, 7, and 8 are the simplest forms comprised of three straight or slightly curving strokes. A greater level of sophistication and detail is evident in Types 2, 3, and 6. Type 5 displays the most unique form with its simple shape and rounded terminations.

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<sup>63</sup> Early in my study, Joyce Haynes suggested that the seated woman determinative provided the best stylistic comparison within the ushebti texts. In some cases, the “mer” sign (Gardiner U6) was used as a secondary comparison. Hieroglyph illustrations and transliterations are in Alan H. Gardiner, *Egyptian Grammar; Being an Introduction to the Study of Hieroglyphs*. (London: Published on behalf of the Griffith Institute, Ashmolean Museum, Oxford, by Oxford University Press, 1957).



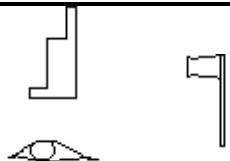

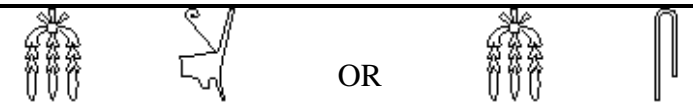


Table 15. Eight Seated Woman Determinative Types Identified within the Stylistic Groups







Type	Example	Tapered	Stout	Boxy	Nosy	Totals
1	  2007.12.204	86				86
2	  2007.12.29		27			27
3	  2007.12.71		50			50
4	  2007.12.126				7	7
5	  2007.12.25				12	12
6	  2007.12.143				59	59
7	  2007.12.128			43		43
8	  2007.12.194			7		7
Totals		86	77	50	78	291

## Ushebti Text Comparison

The short inscription found on each ushebti (Table 16) begins with Meretites' title, associating her with Osiris, and her name. Next, the "born of" phrase names her mother, also called Meretites. Each inscription concludes with the phrase "true of voice" often represented by two simple vertical or horizontal marks.

Table 16. Text Elements for Meretites' Worker Ushebtis

Text Element	Hieroglyph Signs	Transliteration
Osiris		<i>wsir</i>
Meretites		<i>Mr(y)t-it.s</i>
Born of		<i>Ms-n</i> <sup>64</sup>
Meretites		<i>Mr(y)t-it.s</i>
True of Voice		<i>m3'-hrw</i>

<sup>64</sup> For 42 of the Tapered ushebtis, the phrase "born of" is signified by   (*ms-s*), an acceptable variant. For the remaining ushebtis, "born of" is written as   (*ms-n*). On the outer coffin, another variant signified by   (*ms-n*) is used.

An analysis of the inscriptions grouped by the eight seated woman determinative types proved that significant and consistent textual differences exist between them. One of the noticeable differences is how the available space was used for the inscriptions. For example, while the texts for Types A, B, and C (Table 17) are in a single column, distinct differences in the inscription layout are apparent. The three hieroglyphs used to designate the Osiris title are arranged and presented in a different order. The remaining text for Types B and C are ordered similarly to each other, but further variances are seen when compared to Type A. Minor differences in the organization of the text exist between Types D, E, F, G, and H, arranged in the “T”-configuration.





Besides variances in the placement and arrangement of the text, particular portions of the inscription are represented in different ways. For example, in Type A the “born of” phrase was designated as *(ms-n)*   (Variant 1) and *(ms-s)*   (Variant 2). These two variations are the only observed differences in the texts for Type A. In addition, the “true of voice” terminations are incised differently. Types A, C, E, G, and H denote this phrase with two simple horizontal strokes directly above or on the feet. Type B includes two short vertical strokes while two tall vertical lines were used for the ushebtis in Type D. Finally, the most decorative version of the “true of voice” phrase is included in Type F.

Table 17. Text Inscriptions by the Eight “Seated Woman” Determinative Types



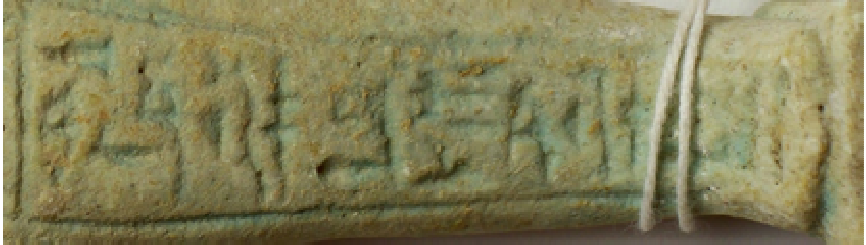



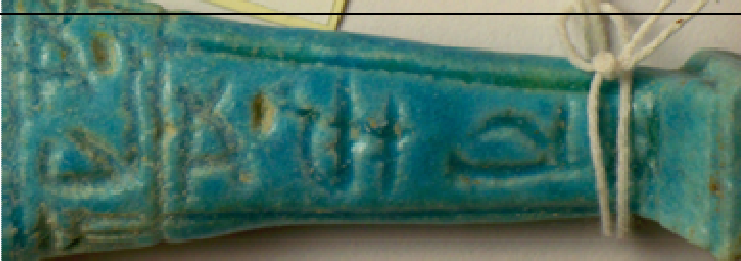

Type A (Variant 1)		2007.12.296 N =43
Type A (Variant 2)		2007.12.54 N =43
Type B		2007.12.199 N =27
Type C		2007.12.87 N =50

Table 17 continued

Type D		2007.12.126	N = 7
Type E		2007.12.108	N = 12
Type F		2007.12.143	N = 59
Type G		2007.12.180	N = 43
Type H		2007.12.111	N = 7

Types B, E, G, and H contain numerous simple errors, such as hieroglyphs incorrectly repeated or excluded. Despite these errors, Type B appears confidently executed. In contrast, the texts within Type E are often awkwardly placed and poorly executed. Likewise, the Type G texts are often illegible, and the texts in Type H are of the poorest quality and the most difficult to decipher in Meretites' collection.

### *Conclusion*

My analysis of the handwork performed on the hoes, picks, and hands display a consistent style within each of the four stylistic groups. It is difficult, however, to analyze these features visually without knowing precisely which characteristics were mold-made and which were hand-made by a craftsman. The baskets and texts were applied free-hand allowing for easier analysis. I identified nine distinct types of baskets with all but one unique to a stylistic group. I then compared the texts by using the seated woman determinative and by analyzing the pattern and layout of the inscriptions. In this phase, I identified eight text types, each distinct to a stylistic group.

## CHAPTER 4

### VISUAL ANALYSES FOR THE OVERSEER USHEBTIS

Based on appearance, Meretites' overseers clearly divide into the four stylistic groups identified for the workers: five in the Tapered Group, and three each in the Stout, Nosy, and Boxy Groups. The Tapered overseers, like the related worker figurines, lack anatomical definition and sharp detailing. The overseers of the Stout Group include the chunky torsos seen on the workers of the same stylistic group. The large, fleshy facial features evident for the Nosy Group's worker ushebtis are also apparent on the overseers. Finally, the overseer and worker figurines of the Boxy Group are highly detailed and deeply incised. Table 18 provides basic information and measurement data for each of the stylistic groups for the overseer ushebtis.

Differences in the faience between the four stylistic groups are visually apparent. Furthermore, these differences are similar to those in the related stylistic groups of the worker ushebtis. In the Tapered Group (Figures 33 a-d), the overseers include blue and buff glazing. They display similar pre-firing damage along the torso, and a black colorant, used for the painted details of the worker ushebtis, is present in isolated areas. For the overseers in the Stout Group (Figures 34 a-d), tool marks are visible underneath the thin and lightly colored buff and blue glazing, a characteristic seen on the worker ushebtis. The overseers of the Nosy Group (Figures 35 a-d), like the worker figurines, display a thick dark blue and green glazing. Finally, the overseer ushebtis of the Boxy Group (Figures 36

a-d) are covered with thick, dark blue glazing, similar to that of the comparable worker statuettes.

Table 18. Basic Information and Measurement Data for the Overseer Ushebtis by the Four Stylistic Groups

Group Name	Text Pattern	Number of ushebtis	Height Range (cm)	Average Height (cm)	Average Width (cm)	Average Depth (cm)
Tapered	Multiple horizontal registers	5	19.1 – 19.9	19.52	5.72	3.95
Stout		3	18.5 – 19	18.77	5.48	4.10
Nosy		3	19.5 – 19.9	19.67	5.60	3.60
Boxy		3	18.7 – 18.9	18.77	5.33	3.97

Unlike the worker ushebtis, the overseers share significant similarities, raising the possibility that they were formed with the same mold or molds formed from the same figurine. Each of the 14 overseers features an upturned head, and the false beards are often off-centered, favoring the left side of the face. The size differences in the overseers between the stylistic groups (Table 18) likely resulted from the amount of manual detailing. Substantial stylistic and size differences are apparent for the overseers in the Boxy Group suggesting that the craftsman removed faience while sculpting and detailing the figurines. In contrast, the Tapered overseers display the least amount of finishing work and are the largest overall. The differences in the faience and the varied level of hand work for the overseers similarly compare with the characteristics observed in the worker figurines.





33a. Frontal View



33b. Rear View



33c. Left Profile  
View



33d. Right Profile  
View

Figures 33 a-d. Overseer Ushebti from the Tapered Group (2007.12.10)



34a. Frontal View



34b. Rear View



34c. Left Profile  
View



34d. Right Profile  
View

Figures 34 a-d. Sample Ushebti from the Stout Group (2007.12.20)



35a. Frontal View



35b. Rear View



35c. Left Profile  
View



35d. Right Profile  
View

Figures 35 a-d. Sample Ushebti from the Nosy Group (2007.12.14)



36a. Frontal View



36b. Rear View





36c. Left Profile  
View



36d. Right Profile  
View

Figures 36 a-d. Sample Ushebti from the Boxy Group (2007.12.15)

Similar stylistic tendencies were identified in the hand work performed on the tools, the hands, and the baskets for the overseer and worker ushebtis of the same stylistic group. It is the similarities in the inscriptions, however, that provided the clearest evidence linking the overseer and worker ushebtis. A version of Spell 6 from *The Book of the Dead*, arranged in nine to ten horizontal registers, appears on the overseer ushebtis (Figures 37 a-d). The hieroglyphs of the worker and overseer ushebtis are similarly sized, but the lengthy overseer texts are often difficult to read due to the glazing and/or poor inscribing. Thus, an analysis comparing the text between the overseer stylistic groups proved impractical, but a comparison between the overseer and worker ushebtis was conducted using the seated woman determinative (  ) and the *mer*-sign (  ).

The results (Figures 38-41) provide clear evidence that the hieroglyphs for the overseer and worker ushebtis match within the stylistic groups. In the Tapered Group, the *mer*-signs for the overseer and worker ushebtis share a similar tilted orientation; the simple forms of the seated woman determinatives are the same. The forms of the seated woman determinative are alike in the Stout Group, and the *mer*-signs display a similar overlap at the top of the hoe. Within the Nosy Group, the *mer*-signs for the overseers and workers include a blade longer than the hoe handle; the seated woman determinatives are also similar. Finally, both hieroglyphs in the Boxy Group are similar in form, deeply incised, poorly written, and difficult to read.



37a. Tapered (2007.12.13)



37b. Stout (2007.12.18)

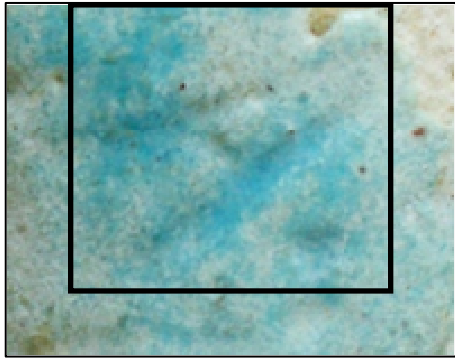


37c. Nosy (2007.12.9)




37d. Boxy (2007.12.15)

Figures 37 a-d. Ushebti Texts for the Overseers



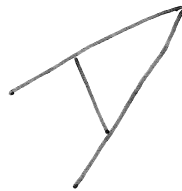
38a. hieroglyph



38b.  "Seated woman" determinative



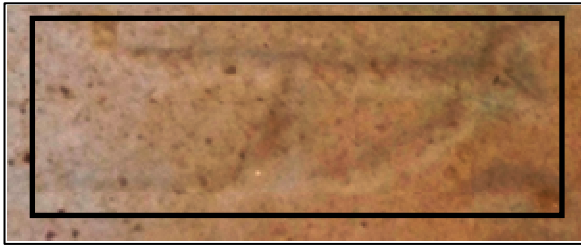
Both share same inscription types




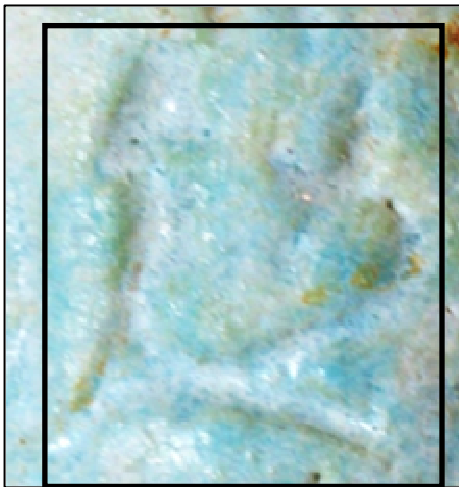
38a-b. Overseer Ushebti (2007.12.13)


38c. Worker Ushebti (2007.12.296)

Figures 38 a-c. Comparison of an Overseer and Worker Ushebti Text from the Tapered Group



39a.  hieroglyph



39b.  "Seated woman" determinative

Both share same inscription types

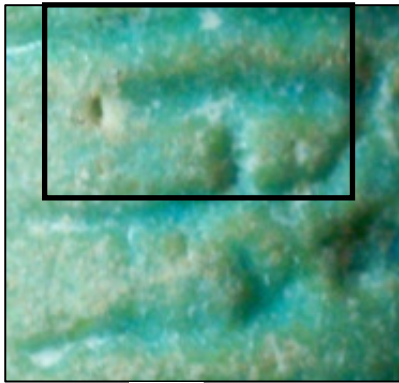



39a-b. Overseer Ushebti (2007.12.18)

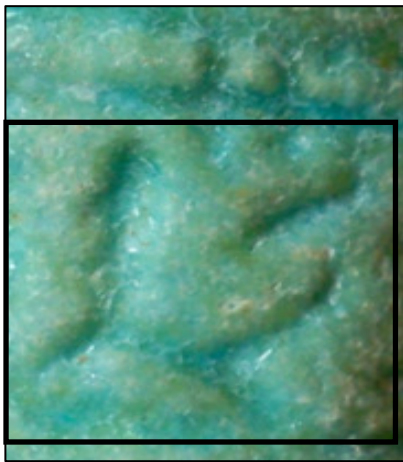
39c. Worker Ushebti (2007.12.199)


Figures 39 a-c. Comparison of an Overseer and Worker Ushebti Text from the Stout Group





40a.  hieroglyph



40b.  "Seated woman" determinative



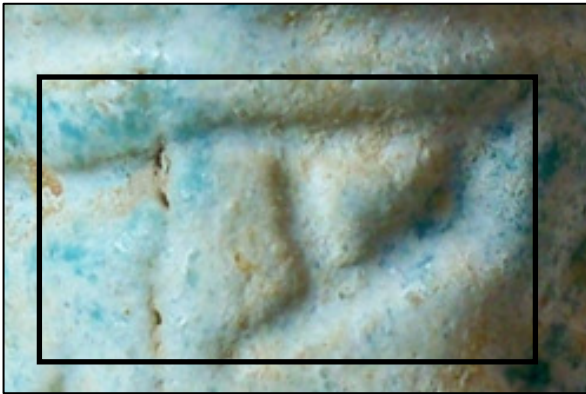
Both share same inscription types




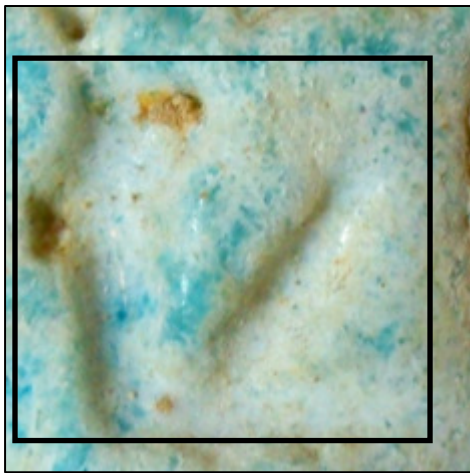
40a-b. Overseer Ushebti (2007.12.9)


40c. Worker Ushebti (2007.12.143)

Figures 40 a-c. Comparison of an Overseer and Worker Ushebti Text from the Nosy Group



41a.  hieroglyph



41b.  "Seated woman" determinative



Both share same inscription types



41a-b. Overseer Ushebti (2007.12.15)

41c. Worker Ushebti (2007.12.180)

Figures 41 a-c. Comparison of an Overseer and Worker Ushebti Text from the Boxy Group

## Conclusion

Like the worker ushebtis, the overseers divide into the Tapered, Stout, Nosy, and Boxy stylistic groups. The appearance of the worker and overseer ushebtis of the same stylistic groups are similar, but, more importantly, the unique characteristics evident in the faience and the inscriptions are also alike. Thus, the four stylistic groups are a relevant classification for both the overseer and worker ushebtis.

## CHAPTER 5

### CONCLUSIONS

The study of Meretites' faience ushebtis yielded a fuller understanding of how they were produced in an atelier. The findings presented in this chapter propose the division of labor used to manufacture the entire collection.

#### Division of Labor Identified for the Manufacture of the Ushebtis

Significant differences exist for the ushebtis between each stylistic group. The ushebtis in the Tapered Group display little anatomical definition and lack fine detailing. Completing the ushebtis as quickly as possible was likely the main goal. The husky forms of the Stout Group are the most three-dimensional with the front and back successfully integrated with careful modeling. The manual work often displays a delicate, light touch. In contrast, the forms of the Nosy Group ushebtis are inconsistent and lack coherence. The facial and body details appear as if they were treated individually instead of in relation to each other resulting in a lack of unification. Although the ushebtis in the Boxy – Round and Boxy – Pinched sub-groups display significant differences, both types share a decorative approach to the handwork not seen in the other stylistic groups.

The differences between and within the stylistic groups are persistent, and they are too great to be the result of the same one or two craftsmen performing inconsistently from day to day. Simple differences in the molds and materials are not plausible explanations either. The stylistic and detailing data lead to the conclusion that the four stylistic groups

are, in fact, the work of four separate teams of craftsmen. Each team, led by a primary craftsman, employed a very different artistic approach to ushebti production. Thus, within a single atelier, each team of craftsmen produced a distinct stylistic grouping of ushebtis from start to finish.

Each team employed different molds of varying sizes contributing to the stylistic variances evident between the work groups. The apparent multi-generational use of molds within the Tapered and Nosy groups provides further evidence that each work team likely made and used their own molds. Thus, it is possible that each work team employed different criteria for making, maintaining, and using their molds.

Differences in the appearance of the faience also separate the four work groups. Slight changes in faience recipes, drying methods, and/or firing likely created the variances in the coloring and thickness of the glazes on the ushebtis of each work team. Furthermore, differences in faience production impacted the unique characteristics found within each work team. For example, the Tapered Group exhibits evidence of damage along the torso and areas of spalling along the back pillar. Tool marks, possibly from a chisel or a sharp point, are visible on the majority of the ushebtis within the Stout Group. Finally, while the ushebtis within the Nosy Group often include an overall melted appearance and fleshy facial features with little detailing, the figurines within the Boxy Group display elaborately detailed ropes, baskets, and facial features.

The work of four separate teams is apparent after the analysis of the manual detailing for each of Meretites' ushebtis. Although the hooves, picks, and hands are difficult to classify, unique characteristics exist between each stylistic group. For example, the

hoes and picks of the Boxy – Pinched sub-group are long and linear in nature; the hands awkwardly appear side by side. The hands of the Tapered Group are often simple mounds with little definition of the fingers. Likewise, the hoes and picks of the same group display little detailing and three-dimensionality. The Stout Group includes naturalistic hands, and the hoes and picks are the most three-dimensional in the collection. Finally, the small and delicately detailed hands of the Boxy – Round sub-group sharply contrast the large round expanses often seen in the hands of the Nosy Group. Both groups include carefully detailed hoes and picks.

Eight unique paleographic types were identified, each distinct to a stylistic group. The texts for the Tapered and Boxy groups are formed with bold and schematic versions of the hieroglyphs. The inscriptions for the Stout group are small and carefully executed. The Nosy Group features curving and highly decorative texts crafted with care. Additionally, nine basket types were established with all but one tied to a single stylistic group. One of the major differences between the basket types is the integration of the basket with the ushebti. Some of the baskets, Types 4, 7, and 9 (Table 13, p. 76), are abstract versions suspended in mid-air along the back of the left shoulder. Others (Types 3, 6, and 8) contain a large loop, but no connection to the rope hanging over the shoulder. The remaining examples (Types 1, 2, and 5) are connected to the rope held by the ushebti. Stylistic differences also exist in the shape of the baskets and fiber weaving. Because the types are so different in artistic approach and style, it is logical to propose that the text and baskets types actually identify the work of individual craftsmen.

The depth and style of the incised details leads to the conclusion that an individual craftsman commonly performed all of the handwork on the same ushebti. For example, within the Stout Group, the hand work is shallow in depth, displaying a light, careful touch. In contrast, the ushebtis of the Boxy Group include deeply incised text and details. The detailing of the Tapered ushebtis often appear quick and cursory while the Nosy ushebtis were carefully executed, but display several variances. Therefore, the manual detailing provides significant information on the individual craftsmen and the size and structure of each work team.

Another finding of this study is that each work team organized the work differently (Table 19). Within the Tapered Group, a single craftsman (Text Type A, Table 17, pp. 83-84) appears responsible for most of the finishing of all 87 ushebtis. His quick, cursory style is visible on each ushebti (Table 13, p. 76). Two craftsmen (Text Types B and C) worked within the Stout Group. The data show that they nearly evenly divided the work; each craftsman appears to have detailed roughly half of the ushebtis within this group. The Nosy Group appears the most diverse with one craftsman (Text Type F) taking the lead with at least two support staff assisting (Text Types D and E) and attempting to achieve a similar style. Finally, the Boxy Group shows a similar trend. One craftsman (Text Type G) performed most of the handwork for approximately two-thirds of the collection with another craftsman (Text Type H) working on the remaining ushebtis in this group. His attempt to mimic the text inscriptions of the lead craftsman is unsuccessful. They are the most difficult to read and include the most mistakes proving that the best craftsman did not always perform the work.

Table 19. Division of Labor by Stylistic/ Work Groups

	Tapered	Stout	Nosy	Boxy
Faience	Details Unknown			
Molds	Details Unknown			
Basket Types	3	2	2	2
Inscriptions Types	1 with 2 variations	2	3	2
Conclusion	1 craftsman	2 craftsmen, work shared equally	1 primary craftsman with 2 supporting craftsmen	1 primary craftsman with 1 supporting craftsman

With a greater understanding of the division of labor employed within the workshop contracted to produce Meretites' ushebti collection, a theory regarding the work load of each team may be proposed. Late Period and Ptolemaic ushebti collections often numbered 401 figurines.<sup>65</sup> If this is true for Meretites' collection, it is very likely that each work team was assigned one-fourth of the ushebtis, totaling approximately 91 workers and nine overseers. Table 20 provides the existing number of ushebtis by each work team with the number of ushebtis possibly lost or separated from the collection. Dividing the work in this manner certainly sped up the production process. Each work team likely formed and

<sup>65</sup> Schneider, Part I, 267.



detailed their portion of the collection in three to five days leaving sufficient time for drying and firing before burial.<sup>66</sup>

Table 20. Possible Division of the Work Load for the Ushebti Collection by Work Team

Work Team	Current Number of Workers	Workers missing?	Current Number of Overseers	Overseers missing?
Tapered	86	5	5	4
Stout	77	14	3	6
Nosy	78	13	3	6
Boxy	50	41	3	6

### Conclusion

Careful visual analyses and measurement data established that within a single workshop, four teams of craftsmen produced Meretites' diverse ushebtis from start to finish. Each work team made their own molds, mixed their own faience, and molded, manually detailed, and inscribed their own set of ushebtis. Furthermore, the work teams differed in size and in the organization of the labor. These conclusions lead to further questions regarding workshop labor. Why did the atelier divide the work in the manner it did? What is the significance of the different inscription patterns? Did they result from a

<sup>66</sup> D'Auria, 15. It is thought that 70 days was commonly needed for burial preparations from the New Kingdom onward. This waiting period provided ample time for the mummification process and the production of the burial goods.

stylistic choice made within each work team or were the differences necessary for organizational or economic purposes within the workshop? Did the work teams include apprentices working in the style of their master craftsman?

Many other unanswered questions remain regarding molds. A major focus of this study was to understand how molds were employed within the workshop during the production process. The classification of the ushebtis by the mold used to form them is based purely on visual examination. It was hoped that a formula based on the measurement data could be used to definitively substantiate the molds groupings established during this study. Thus far, however, the analyses of the BPI, the various proportional data, or a combination of both data sets have not yielded enough information to prove or disprove the completed mold groupings. Clearly, more research is needed to help fully understand molds and their use within a workshop.

The workshop responsible for producing Meretites' collection is striking for its sense of practicality, as well as for its acceptance of diversity. Based on an ideal set of proportions, each work group produced a distinct stylistic group of ushebtis. Thus, Meretites' collection is truly an artistic assemblage of its own, and it offers important new information for Egyptology.

APPENDIX A

PROPORTIONS FOR MERETITES' USHEBTIS

Each work team produced a unique stylistic group of ushebtis, and an ideal set of proportions guided the craftsmen. This conclusion is based on more than 20 measurements collected for each ushebti in the collection. (Table 21) Many of the measurements were converted to a proportional value (%) in relationship to either the total height or total width of the individual ushebti, whichever measurement was more appropriate.

In addition, a Body Proportion Index (BPI) was calculated for each ushebti.<sup>67</sup> The BPI is a measurement standard adapted from a model used for measuring anthropoid coffins.<sup>68</sup> The index is calculated by dividing the maximum height of the figurine by its maximum width, and multiplying the quotient by 100 [(Max Height/Max Width)\*100]. Because the BPI is calculated with basic height and width measurements, it may prove to be a useful tool for large comparative studies. Furthermore, its application for studying funerary figurine collections of all sizes, areas of origination, and periods may contribute significantly to the field of Egyptology.

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<sup>67</sup> Jurgen E. Van Oostenrijk, “Two Hitherto Unpublished Shabtis of Hekaemsaf in the Worlds Art Museum, Rotterdam (The Netherlands),” *Göttinger Miszellen* 221 (2009): 89-104. Mr. Van Oostenrijk graciously provided a copy of his article which proposes and explains the BPI.

<sup>68</sup> R. Van Walsem, “Anthropoid Coffin Proportion Indices, and a Method for Obtaining Data from Photographs,” *Orientalia Lovaniensia Periodica* 18 (1987): 13–34.

Table 21. Measurement Data Recorded for Meretites Ushebti Collection

Measurement	Recorded for Worker Ushebti	Recorded for Overseer Ushebti
Height (max)	Yes	Yes
Width (max)	Yes	Yes
Depth (max)	Yes	Yes
Head height and width	Yes	Yes
Torso height	Yes	Yes
Shoulder width	Yes	Yes
Basket height and width	Yes	Yes
Hoe handle and blade	Yes	Yes
Pick handle and blade	Yes	Yes
Left hand height and width	Yes	Yes
Right hand height and width	Yes	Yes
Distance between the hands	Yes	Yes
Right and left thumb lengths	No	Yes
Length of the legs (inscription)	Yes	Yes
Feet width	Yes	Yes
Knee width	Yes	Yes
Base height	Yes	Yes

The analysis of the basic measurement data (Table 22) for the worker ushebtis established that the average height, width, and depth for each work group varied considerably. The average heights for the stylistic groups are separated by 1.3 cm, with a .7 cm range for the width, and .4 cm for the average depth. The significantly smaller sizes of the Nosy – Small and Tapered – Blue ushebtis account for the varied ranges. When these two sub-groups, a total of 43 ushebtis, are excluded, the average heights differ by only .6 cm and a mere .3 cm separates the average widths and depths. The BPI ranges are quite varied and range from 274, the stoutest, to 432, the narrowest, with the averages ranging from 340-391.

The basic measurement data for the overseer ushebtis display less variance than seen with the worker ushebtis. Only .9 cm separates the average height range for the work groups. The difference in the average width measures only .4 cm and the average depth varies .5 cm. The BPI range is much narrower with the average values fluctuating between 343 and 352. These values show great consistency in size and proportion.

Beyond the basic measurements, the proportional values for the ushebti attributes are consistent between the work groups, as well as between the worker and overseer ushebtis. Relatively narrow differences are evident in the proportional size of the heads, hoe handles, pick handles, and the baskets (Tables 23 and 24). The greatest proportional differences are evident in the hands, the hoe blades, and the pick blades. The shape of these attributes likely allowed greater flexibility during the manual detailing, thus, producing the larger variances.

Table 22. Basic Measurement Data and BPI Indices by Stylistic Group

Stylistic Group	Average Height (cm)	Average Width (cm)	Average Depth(cm)	BPI Range (Max Height/Max Width)*100	BPI (Max Height/Max Width)*100
<b>Worker Ushebtis</b>					
Tapered – Buff	11.5	3.0	2.1	274-416	376
Tapered – Blue	10.5	2.9	2.0	328-391	360
Stout	11.2	3.3	2.4	307-371	340
Nosy – Large	10.9	3.2	2.1	326-383	348
Nosy – Small	10.2	2.6	2.0	348-432	391
Boxy – Round	11.3	3.1	2.2	353-385	367
Boxy – Pinched	11.4	3.3	2.3	339-373	348
<b>Overseer Ushebtis</b>					
Tapered	19.5	5.6	4.0	337 – 377	349
Stout	18.8	5.5	4.1	336 – 353	343
Nosy	19.7	5.7	3.6	336 – 350	344
Boxy	18.8	5.3	4.0	350 – 355	352

Table 23. Proportional Relationships for the Worker Ushebtis: Heads and Hands

Stylistic Group	Proportional Relationship %					
	Head Height	Head Width	Left Hand Height	Left Hand Width	Right Hand Height	Right Hand Width
	(Head Height/Ushebti Height)	(Head Width/Ushebti Width)	(L Hand Height/Ushebti Height)	(L Hand Width/Ushebti Width)	(R Hand Height/Ushebti Height)	(R Hand Width/Ushebti Width)
<b>Worker Ushebtis</b>						
Tapered – Buff	17.1	60.3	6.6	21.2	6.7	20.4
Tapered – Blue	17.5	59.3	6.9	21.1	7.5	20.1
Stout	19.1	60.3	6.7	18.7	6.8	17.4
Nosy – Large	18.2	59.6	7.3	21.9	7.5	20.8
Nosy – Small	16.7	58.7	6.6	21.3	6.6	20.6
Boxy – Round	17.4	60.6	6.2	17.6	6.2	15.7
Boxy – Pinched	16.6	56.6	8.7	19.7	8.5	17.7
<b>Overseer Ushebtis</b>						
Tapered	17.4	60.9	6.4	22.3	6.3	21.6
Stout	16.4	55.9	6.9	21.6	6.4	19.9
Nosy	18.5	60.1	6.8	19.9	6.3	19.7
Boxy	18.8	61.2	5.4	17.1	5.5	16.6



Table 24. Proportional Relationships for the Worker Ushebtis: Hoes, Pick, and Baskets

Stylistic Group	Proportional Relationship %					
	Hoe Handle	Hoe Blade	Pick Handle	Pick Blade	Basket Height	Basket Width
	(Handle Length/Ushebti Height)	(Blade Length/Ushebti Height)	(Handle Length/Ushebti Height)	(Blade Length/Ushebti Height)	(Basket Height/Ushebti Height)	(Basket Width/Ushebti Width)
<b>Worker Ushebtis</b>						
Tapered – Buff	23.5	14.3	22.4	8.5	10.4	28.9
Tapered – Blue	24.0	14.8	21.6	9.1	10.3	26.5
Stout	24.5	15.5	23.9	8.7	9.7	27.3
Nosy – Large	24.1	12.7	24.6	9.1	10.8	26.1
Nosy – Small	23.2	14.4	23.1	8.4	10.6	28.0
Boxy – Round	22.8	15.3	22.7	9.1	10.4	25.3
Boxy – Pinched	27.9	19.8	27.2	11.6	8.8	25.6
<b>Overseer Ushebtis</b>						
Tapered	23.2	15.5	21.6	7.0	8.9	23.3
Stout	22.6	13.5	22.9	7.9	10.9	25.6
Nosy	23.0	13.4	23.2	6.8	7.0	22.1
Boxy	22.4	15.1	22.6	7.0	11.3	23.8

The data collected during the course of the study support the proposal of an ideal set of proportions which influenced the production of Meretites' collection. Average values for the measureable ushebti attributes (Table 25) were determined for the worker and overseer ushebtis by stylistic groups. For these calculations, the stylistic groups with the highest and lowest data outliers are ignored leaving the ushebtis more closely related in size and proportion. Thus, values for an ideal set of proportions are apparent for the collection produced for Meretites (Figure 46).

Table 25. Ideal Proportional Values Proposed for Meretites' Collection

Ushebti Attribute	Worker Ushebtis	Overseer Ushebtis	Full Collection
BPI	360	347	350-360
Max Width proportion	28.2%	28.9%	28-29%
Head Height proportion	17.4%	17.7%	17-18%
Head Width proportion	60%	61%	60%
Shoulder Width	93%	94%	93-94%
Knee With	58%	58%	58%
Feet Width	49%	49%	49%
Torso Height	24%	26%	25%
Hoe handle proportion	23.7%	22.8%	22-23%
Hoe blade proportion	14.9%	14.4%	14-15%
Pick handle proportion	23.3%	22.6%	22-23%
Pick blade proportion	8.8%	7.2%	7-9%
Basket height proportion	10.3%	9.9%	10%
Basket width proportion	26.7%	23%	23-27%
Hand height proportion	7%	6.5%	6-7%
Hand width proportion	20%	20.5%	20-21%

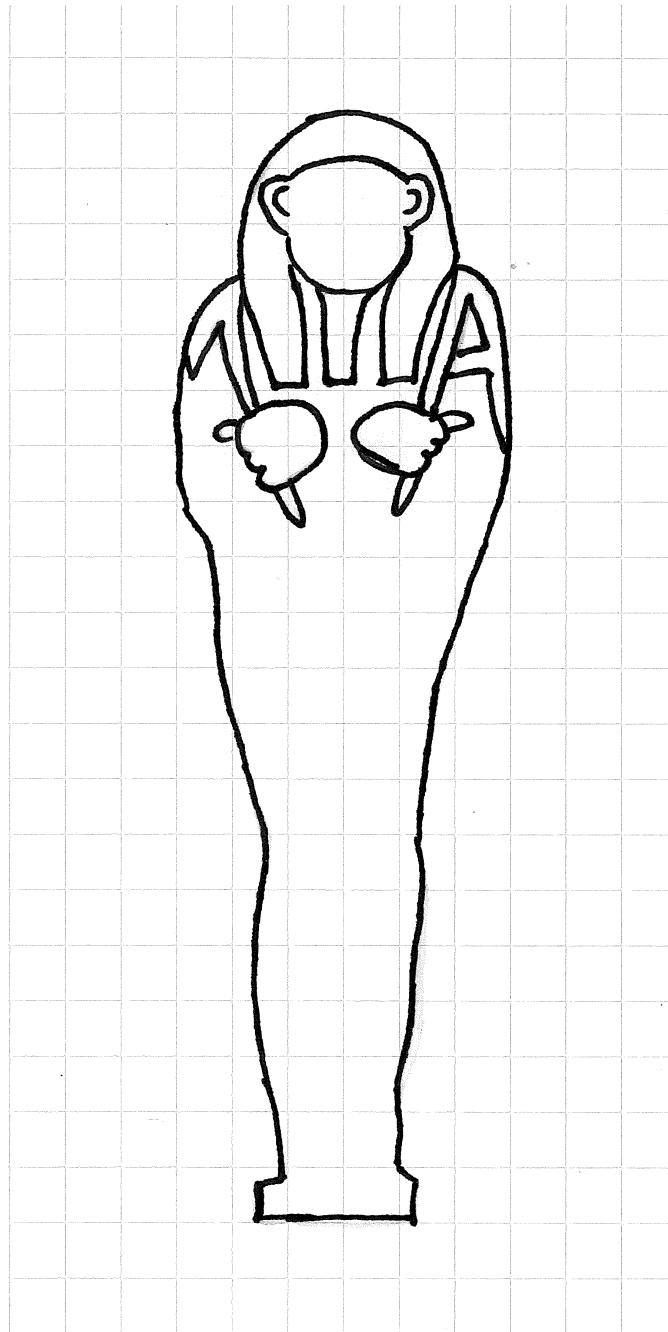


Figure 42. Ideal Proportional Values Identified for Meretites' Collection

APPENDIX B  
FAIENCE EXPERIMENTATION

In addition to understanding how the labor was organized within the workshop that produced Meretites' collection, the study of the ushebtis yielded a possible step-by-step process for crafting them. Personal experiments were conducted to make molds, faience, figurines, and other small objects. These trials were run without any prior experience with producing molds or faience, and this lack of hands-on knowledge paradoxically proved to be an advantage. The experiments, whether successful or failing, yielded useful information and problem-solving opportunities in preparation for subsequent attempts. While it is impossible to understand the exact work process to manufacture Meretites' collection, the visual and experimental data support several basic conclusions presented in this section.<sup>69</sup>

The production process began with a mold or a set of molds. Unfortunately, many questions remain unanswered about the lifespan of a mold. It is not known if new molds were made for each ushebti collection or if they were simply used until they broke or no longer produced clear impressions. Nicholson suggests that molds used to form efflorescence faience paste were eventually rendered useless by the coating of "scum," the layer of salt and alkaline materials, naturally left during molding.<sup>70</sup> If these deposits accumulated quickly, many molds, like the large number suggested for the collection, were likely needed to produce hundreds of ushebtis.

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<sup>69</sup> Two articles proved particularly helpful for conducting faience experimentation. Griffin, 323-355; Noble, 438; Frances Whitehead graciously provided further technical information during her telephone interview.

<sup>70</sup> Paul T. Nicholson, "Faience Technology," *UC Los Angeles: UCLA Encyclopedia of Egyptology* (2009): 3, <http://www.escholarship.org/uc/item/9cs9x41z> (accessed January 2, 2010).

If new molds were needed, they proved simple to make with the assistance of a completed figurine. The completed ushebti was impressed face down into a lump of clay (Figure 43). The resulting impression in the clay (Figure 44) was highly detailed with the individual fingers, rope fibers, and the braiding of the false beard visible. The unpublished molds studied at the Brooklyn Museum appeared similar, but were clearly formed with well crafted ushebtis leaving very finely detailed impressions. The mold was then touched up if needed, dried and fired.

The faience was then prepared to form the figurines. For these experiments, the faience recipe was adapted from one proposed by Patricia Griffin, a conservator at the Cleveland Museum of Art.<sup>71</sup> The ingredients (Table 26) are best mixed with the hands, blending completely after adding a small amount of water (1 tbsp) at a time. The mixture is initially very dry and crumbly, but it liquefies quickly into a thick, slightly malleable paste (Figures 45 and 46).

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<sup>71</sup> Griffin, 323-355.



Figure 43. Impressing a completed figurine  
To form a new mold

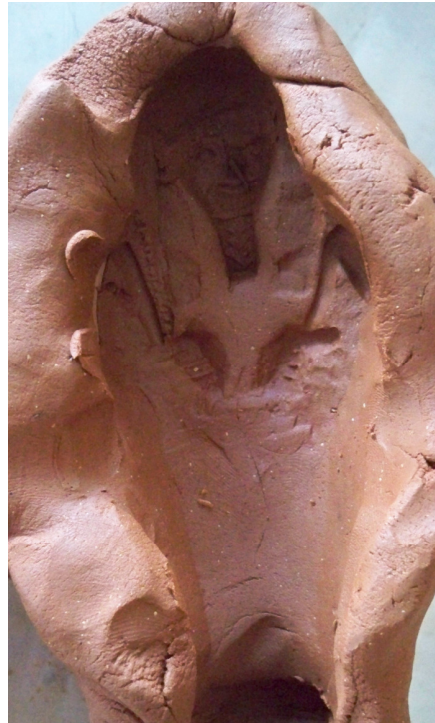


Figure 44. Newly formed mold

Table 26. Experimental Faience Recipe, Final Version

Ingredients	Proportion in Recipe
Silica (200 mesh)	270 parts (54%)
Sand (30 – 75 mesh tested)	145 parts (29%)
Feldspar (200 mesh)	10 parts (.02%)
Lime (200 mesh)	10 parts (.02%)
Clay (Tennessee Ball Clay , 200 mesh)	30 parts (.06%)
Alkali (Baking Soda)	30 parts (.06%)
Copper Carbonate	5 parts (.01%)
Water	7.5 Tbsp

When ready, the faience paste is heavy, compact, and, initially, slightly malleable. It dries quickly if extensively worked by hand. The faience easily packs into the mold, and when filled completely, the newly formed figurine exits without difficulty. During early experiments, large mounds of faience were pressed into the mold, but the resulting figurines (Figures 46 a-b) displayed few details. When viewing the molds afterward, they appeared damp in certain areas due to wicking, the process of moisture transfer from the faience to the mold. The deepest cavities forming the hands, faces, and feet, however, were dry; in these areas the faience did not make contact with the surface of the mold. Higher quality impressions were then achieved with press molding, a process which slowly layers the faience until the mold is full. This method ensures that faience reaches every portion of the mold.

After the figurine is removed from the mold, it is ready for manual detailing. It is difficult to know how soon a craftsman began his handwork. Evidence found on one particular ushebti crafted for Meretites (Figure 47) possibly indicates that the faience was relatively dry during the finishing work. A strip of faience, perhaps removed while forming the back pillar or sharpening the hoe or pick, adhered to the left side of the ushebti. Its shape and form indicates that the faience was supple enough to work, but firm enough to maintain its form.





45a. Dry ingredients for faience



45b. Mixing the ingredients



45c. Faience paste ready for molding



45d. Close-up of paste



45e. Process of molding



45f. Molding completed

Figures 45 a-f. Mixing and Molding the Faience Paste



46a. New formed figurine



46b. Another example of a newly formed figurine



46c. Newly formed small object with a flower design



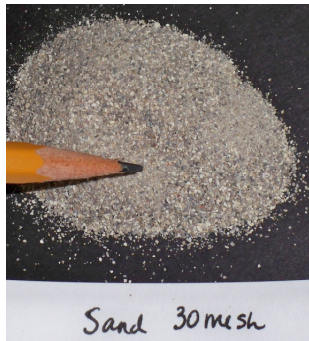
46d. Newly formed small object with an abstract pattern

Figures 46 a-d. Newly molded figurines and other small objects

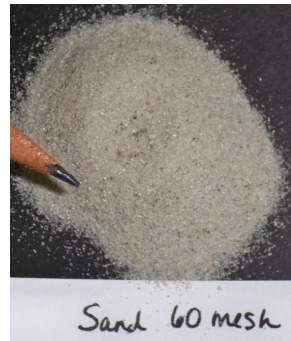


Figure 47. Small strip of faience along the left side of Tapered ushebti (2007.12.85)

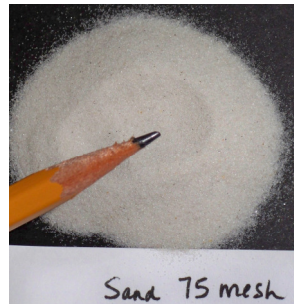
The finishing detailing presented the greatest challenge during experimentation. It was difficult to apply and sharpen the details due to the faience's large granules of sand (Figures 48 a-d). The high level of detailing found within Meretites' collection indicates that the faience pastes were formed with finely ground materials, much finer than the sand obtained for the experiments. Second, the faience was too wet to detail immediately after molding. Each time a mark was incised into the faience, it spread and melted back into the surface of the figurine. This may explain the melted appearance of some ushebtis in the Nosy Group. Later experiments proved that the faience paste was workable for ten to twelve hours after molding. The temperature and humidity conditions for the experiments were very different from the hot, dry climate of Egypt, but the craftsmen likely had several hours to apply the finishing details.



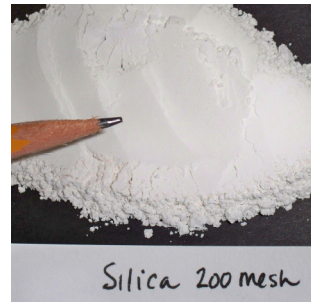
48a. Sand, 30 mesh



48b. Sand, 60 mesh



48c. Sand, 75 mesh



48d. Silica, 200 mesh

Figures 48 a-d. Comparison of Sand and Silica



Figure 49. Figurine with poor detailing



Figure 50. Figurine with best detailing applied over a twelve hour period

After forming the back pillar and incising the basket, the shaping of the body and feet likely followed. Then, the craftsmen likely sharpened the facial features, the tools, and the arms and hands. The texts were probably the final addition since their position is related to the crossed arms and the tool handles continuing beneath the hands. After the completion of the detailing, the ushebtis were allowed to dry and, then, fired.

APPENDIX C

DATA TABLES FOR MERETITES' COLLECTION

Appendix C, Table 1. General Measurement and Observation Data

General Measurement and Observation Data													
Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
7	19.1	5.59	3.55	0.83	18.27	Yes	Rope braided	Horizontal Registers	O-Tapered	342	1	OT1	OT-M1
8	19.7	5.72	4.12	1.02	18.68	Yes		Horizontal Registers	O-Tapered	344	1	OT1	OT-M1
9	19.9	5.75	3.64	0.95	18.95	Yes	Very neat glyphs, braided rope, sleeves and cuffs	Horizontal Registers	O-Nosy	346	6	ON1	ON-M1
10	19.4	5.75	3.94	0.97	18.43	Yes	Repaired front	Horizontal Registers	O-Tapered	337	1	OT1	OT-M1
11	19.5	5.87	3.94	1.1	18.4	Yes	Flattened	Horizontal Registers	O-Tapered	377	1	OT1	OT-M1
12	18.7	5.34	4.04	1.06	17.64	Yes	Great basket, braided rope	Horizontal Registers	O-Boxy	350	7	OB1	OB-M1
13	19.9	5.79	4.19	1.14	18.76	Yes	Braided rope, tummy damage	Horizontal Registers	O-Tapered	344	1	OT1	OT-M1
14	19.6	5.6	3.72	0.78	18.82	Yes	Braided rope	Horizontal Registers	O-Nosy	350	6	ON1	ON-M1
15	18.7	5.27	3.84	0.94	17.76	Yes	Great basket, braided rope	Horizontal Registers	O-Boxy	355	7	OB1	OB-M1
16	18.9	5.38	4.04	1.06	17.84	Yes	Great basket, braided rope	Horizontal Registers	O-Boxy	351	7	OB1	OB-M1
17	18.8	5.6	4.2	1.02	17.78	Yes	Rope braided, rope doesn't connect to the basket	Horizontal Registers	O-Stout	336	2	OS1	OS-M1
18	19	5.38	4.21	1.09	17.91	Yes		Horizontal Registers	O-Stout	353	2	OS1	OS-M1
19	19.5	5.8	3.45	1.02	18.48	Yes	Braided rope	Horizontal Registers	O-Nosy	336	6	ON1	ON-M1
20	18.5	5.45	3.9	0.94	17.56	Yes	Toolmarks on the back	Horizontal Registers	O-Stout	339	2	OS1	OS-M1
21	11.32	3.03	1.84	0.48	10.84	Yes	Matte glaze; ancient repair performed along the area of back left calf	Wide single column unframed at the top	Tapered – Buff	374	1	T1	T-M1
22	11.94	3.51	2.6	0.74	11.2	Yes	Encrustation on front and back; rust discoloration along back and sides; void found at back left area	Single framed column	Stout	340	3	S1	S-M1
23	11.52	3.17	2.22	0.62	10.87	Yes	Back of the head very flat	T-shape	Boxy – Round	363	7	B1	BR-M2
24	9.72	2.79	2.17	0.65	9.07	No	Rust colored encrustation along the back; Odd seated lady hieroglyph	T-shape	Nosy – Small	348	6	No Basket	N-M5
25	11.47	3.04	2.04	0.51	10.88	No	A bit more stout and more substantial than typical for this type	Wide single column unframed at the top	Tapered – Buff	377	1	No Basket	T-M9
26	11.35	2.9	2.07	0.59	10.76	Yes		Wide single column unframed at the top	Tapered - Buff	391	1	T1	T-M2
27	10.2	2.49	1.85	0.58	9.62	Yes	Rust colored encrustation along front and back	T-shape	Nosy – Small	410	4	N2	N-M2

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
28	10.57	3.17	2.35	0.71	9.86	Yes	Tool scrape marks along the back pillar	Single framed column	Stout	357	3	S1	S-M8
29	11.02	3.35	2.32	0.62	10.4	Yes	Tool marks visible on the back pillar; large air bubbles locted in the facial area	Single framed column	Stout	329	2	S1	S-M5
30	11.06	3.07	2.11	0.57	10.49	Yes	More stout than typical for this type; Mistake with formation of the pick	Wide single column unframed at the top	Tapered – Buff	360	1	T1	T-M1
31	11.75	3.24	2.13	0.7	11.05	Yes	Back of head very flat	T-shape	Boxy – Round	363	7	B1	BR-M3
32	11.59	2.91	1.96	0.5	11.03	Yes		Wide single column unframed at the top	Tapered – Buff	398	1	T1	T-M9
33	10.84	3.01	1.94	0.56	10.28	Yes	Heavy glaze found except on the length of the right side of the back; Evidence of black paint or manganese?	Wide single column unframed at the top	Tapered – Blue	360	1	T1	T-M7
34	10.89	3.15	2.38	0.75	10.14	Yes	Tool marks visible on the back pillar; Several surface air bubbles	Single framed column	Stout	346	3	S1	S-M4
35	11.45	3.12	2.14	0.63	10.82	Yes	Back of head very flat	T-shape	Boxy – Round	367	7	B1	BR-M2
36	10.26	3.07	2.16	0.56	9.7	Yes	Surface air bubbles	Wide single column unframed at the top	Tapered – Blue	334	1	T1	T-M1
37	11.43	2.9	2.3	0.67	10.75	Yes	Fingerprint - left leg at knee	Wide single column unframed at the top	Tapered – Buff	394	1	T2	T-M9
38	10.96	3.34	2.3	0.68	10.28	Yes	Tool marks visible on the back pillar; Errant tool mark on the top of the head	Single framed column	Stout	328	3	S2	S-M8
39	11.7	3.25	2.09	0.57	11.13	Yes	More stout than typical for this type	Wide single column unframed at the top	Tapered – Buff	360	1	T1	T-M5
40	10.94	3.27	2.35	0.69	10.25	Yes		Single framed column	Stout	335	3	S1	S-M9
41	11.85	3.04	2.18	0.55	11.3	Yes	Damage to the legs; Is this a problem with the faience leaving the mold?	Wide single column unframed at the top	Tapered – Buff	390	1	T2	T-M9
42	11.02	3.27	2.34	0.61	10.41	No		Single framed column	Stout	337	2	No Basket	S-M5
43	12.02	3.44	2.57	0.75	11.27	Yes	Nostrils of the nose defined; Tool marks visible on the back pillar	Single framed column	Stout	349	2	S1	S-M2
44	11.3	3.12	2.04	0.57	10.73	No	Multiple air surface air bubbles; Large air bubble along the top right shoulder	Wide single column unframed at the top	Tapered - Buff	362	1	No Basket	T-M1
45	11.93	3.3	2.41	0.62	11.31	Yes		Single framed column	Stout	362	3	S1	S-M1
46	12.21	3.65	2.46	0.69	11.52	Yes	Tool marks visible on the back pillar; Numerous surface air bubbles	Single framed column	Stout	335	3	S2	S-M3
47	11	3.43	2.24	0.63	10.37	Yes	Toolmarks visible on the back pillar	Single framed column	Stout	321	2	S1	S-M5
48	11.47	2.96	1.84	0.53	10.94	No	Multiple surface air bubbles evident	Wide single column unframed at the top	Tapered – Buff	388	1	No Basket	T-M3



General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mod Type
49	10.97	3.08	1.91	0.57	10.4	Yes	More stout and thicker than most examples of this type	Wide single column unframed at the top	Tapered – Buff	356	1	T1	T-M1
50	11.68	2.81	2.05	0.46	11.22	Yes		Wide single column unframed at the top	Tapered – Buff	416	1	T1	T-M3
51	11.76	3.36	2.58	0.67	11.09	Yes	Squarish basket, pillar higher than head and ears	Single framed column	Stout	350	3	S2	S-M2
52	10.39	3.01	2.26	0.55	9.84	Yes	Front shows signs of weathering; Black along the back - paint of manganese	Wide single column unframed at the top	Tapered – Blue	345	1	T1	T-M6
53	11.58	3.43	2.77	0.7	10.91	Yes	Large air bubble located at the right side of false beard	Single framed column	Stout	338	3	S2	S-M2
54	11.84	3.18	2.33	0.67	11.17	Yes	Face collapsed on itself; Does this indicate too much water in the faience mixture when molded?	Wide single column unframed at the top	Tapered – Buff	372	1	T3	T-M9
55	11.64	3.03	2.2	0.74	11	Yes		Wide single column unframed at the top	Tapered – Buff	384	1	T2	T-M8
56	11.56	2.93	2.2	0.64	10.92	Yes	Big, flat nose; odd small base and little feet; Area missing surface glaze along the length of left side and back	Wide single column unframed at the top	Tapered – Buff	395	1	T1	T-M2
57	11.97	3.48	2.41	0.7	11.27	Yes	Numerous surface air bubbles located along the front and back	Single framed column	Stout	344	3	S2	S-M3
58	11.74	3.33	2.43	0.74	11	Yes	Tool marks visible on the back pillar - diagonal scraping	Single framed column	Stout	353	2	S1	S-M1
59	12.13	3.19	2.07	0.61	11.52	Yes		Wide single column unframed at the top	Tapered – Buff	380	1	T2	T-M8
60	11.67	3.45	2.5	0.56	11.11	Yes	Tool marks visible on the back pillar - diagonal scraping; slight encrustation found on the head and torso of the front	Single framed column	Stout	338	3	S1	S-M3
61	11.78	3.45	2.56	0.77	11.01	Yes	Tool marks visible on the back pillar - running vertically; slight encrustation around the facial area	Single framed column	Stout	341	3	S2	S-M3
62	11.78	3.32	2.43	0.71	11.07	Yes		Single framed column	Stout	355	3	S1	S-M2
63	11.33	3.36	2.64	0.77	10.63	Yes	Tool marks visible on the back pillar - marks on a slight diagonal	Single framed column	Stout	337	2	S2	S-M3
64	10.7	3.22	2.16	0.7	10	Yes	Very small, oddly shaped base; thick glaze on the front; air bubbles visible on the front	Single framed column	Stout	332	3	S2	S-M9
65	11.35	3.39	2.48	0.68	10.68	Yes	Toolmarks evident along the back pillar	Single framed column	Stout	335	3	S2	S-M2
66	10.7	3.35	2.06	0.67	10.03	Yes	Full length of the beard to the curved tip - evidence of scraping/smoothing with a tool	Single framed column	Stout	319	3	S2	S-M7
67	11.38	2.99	2.09	0.53	10.85	Yes	Area missing surface glaze along the left calf	Wide single column unframed at the top	Tapered – Buff	381	1	T1	T-M2

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
68	11.41	3.22	2.33	0.67	10.73	Yes	Greenish glaze – firing too hot?	T-shape	Nosy – Large	354	6	N2	N-M6
69	10.63	3.27	2.29	0.68	9.95	Yes	Large air bubbles found under the left arm and hoe	Single framed column	Stout	325	3	SU	S-M10
70	11.25	3.28	2.53	0.74	10.51	Yes	Tool marks evident along the back pillar; multiple surface air bubbles	Single framed column	Stout	343	2	S2	S-M10
71	10.91	3.26	2.47	0.63	10.28	Yes	Tool marks evident along the back pillar; multiple surface air bubbles	Single framed column	Stout	335	3	S1	S-M5
72	10.87	3.31	2.33	0.7	10.17	Yes	Multiple surface air bubbles evident	Single framed column	Stout	328	2	S2	S-M7
73	11.52	3.3	1.84	0.6	10.88	Yes	Little pedestal and feet; different texture; flattened appearance - does this indicate the body was too wet when turned over to work on the back	T-shape	Nosy – Large	349	6	N2	N-M1
74	10.75	3.44	2.32	0.64	10.11	Yes	Tool marks evident along the back pillar; multiple surface air bubbles evident	Single framed column	Stout	313	2	S1	S-M5
75	11.26	3.17	2.21	0.7	10.56	Yes		T-shape	Boxy – Round	355	8	B1	BR-M2
76	12.01	3.22	2.15	0.62	11.39	Yes	Partial fingerprint - front under M	Wide single column unframed at the top	Tapered – Buff	373	1	T2	T-M4
77	10.89	2.95	2	0.6	10.29	Yes	Area missing surface glaze along the left calf	Wide single column unframed at the top	Tapered – Buff	369	1	T1	T-M7
78	11.71	3.03	2.08	0.51	11.2	CBD	Mottled look; black area around the back of the head and shoulder; back of head-indication of a mold	Wide single column unframed at the top	Tapered - Buff	386	1	TU	T-M3
79	11.73	3.02	2.06	0.53	11.2	Yes	Odd basket – criss-cross	Wide single column unframed at the top	Tapered – Buff	388	1	T2	T-M3
80	11.34	3.07	2.18	0.51	10.83	Yes	Back pillar - tool slip; flatness to the back of the head	Wide single column unframed at the top	Tapered – Buff	369	1	T2	T-M8
81	11.59	3.42	2.08	0.62	10.97	Yes	Detailed rope/face not incised; encrustation evident	T-shape	Boxy – Pinched	339	7	B2	BP-M2
82	11.16	3.38	2.41	0.7	10.46	Yes		Single framed column	Stout	330	3	S2	S-M7
83	10.68	3.21	2.25	0.63	10.05	Yes	Toolmarks back - wood?	Single framed column	Stout	333	2	S1	S-M8
84	11.4	3.25	2.31	0.79	10.61	Yes	Glyphs are very linear/vertical in nature; very flat back pillar; extra deep inscriptions	T-shape	Boxy – Pinched	351	8	BU	BP-M2
85	11.94	3.17	2.36	0.59	11.35	Yes	Along the left side - piece of faience scraped off to create the tools?:good view of faience found at the back right if the knees	Wide single column unframed at the top	Tapered – Buff	377	1	T1	T-M4
86	11.58	3.39	2.56	0.68	10.9	Yes	basket with rope/bell-shaped	Single framed column	Stout	342	3	S1	S-M3
87	10.95	3.24	2.37	0.68	10.27	Yes	Many surface air bubbles	Single framed column	Stout	338	3	S2	S-M10

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mod Type
88	11.57	3.42	2.58	0.65	10.92	Yes	Very square basket	Single framed column	Stout	338	3	S2	S-M3
89	11.39	3.04	2.27	0.79	10.6	Yes	Flat back - head and pillar	T-shape	Boxy – Round	375	7	B1	BR-M2
90	10.51	3.04	2.25	0.62	9.89	Yes	Legs repaired mid-length at the knees	T-shape	Nosy – Large	346	6	N1	N-M7
91	10.31	3.02	2.01	0.62	9.69	Yes	Flattened appearance; glize missing from the back and side along the right	T-shape	Nosy – Large	341	6	N1	N-M4
92	11.56	3.26	1.94	0.74	10.82	Yes	Very flat back – head and pillar	T-shape	Boxy – Round	355	7	B1	BR-M2
93	11.25	3.18	2.02	0.61	10.64	Yes	Largehands, cuffs; extra deep inscriptions	T-shape	Boxy – Pinched	354	7	B2	BP-M2
94	11.03	3.09	2.31	0.69	10.34	Yes	Pointy Nose	T-shape	Boxy – Pinched	357	7	B2	BP-M1
95	11.29	3.31	2.28	0.71	10.58	Yes	Bottom line for the basket evident, but the remainder of the basket is indistinct	T-shape	Nosy – Large	341	6	NU	N-M7
96	11.68	3.31	2.07	0.59	11.09	Yes	Tiny base and feet; flattened appearance	T-shape	Nosy – Large	353	6	N2	N-M1
97	11.12	3.21	2.09	0.75	10.37	Yes	Glaze missing from the right side and back from the torso downward	T-shape	Nosy - Large	346	6	N2	N-M6
98	11.27	3.03	2.34	0.78	10.49	No	Very flat back – head and pillar	T-shape	Boxy – Round	372	7	No Basket	BR-M2
99	11.62	3.21	2.25	0.83	10.79	Yes	Very flat back – head and pillar	T-shape	Boxy – Round	362	7	B1	BR-M2
100	10.86	3.21	1.95	0.67	10.19	Yes		T-shape	Nosy – Large	338	5	NU	N-M8
101	11.55	3.14	1.95	0.67	10.88	No	Tiny base and feet	T-shape	Nosy – Large	368	6	No Basket	N-M1
102	11.44	3.14	2.21	0.72	10.72	Yes	Very flat back – head and pillar	T-shape	Boxy – Round	364	7	B1	BR-M2
103	11.02	2.91	2.2	0.6	10.42	Yes	Very flat back – head and pillar	T-shape	Boxy – Round	379	7	B1	BR-M2
104	10.7	2.93	2.04	0.6	10.1	Yes	Very flat back – head and pillar	T-shape	Boxy – Round	365	7	B1	BR-M1
105	10.81	2.86	2.05	0.57	10.24	Yes	Very flat back – head and pillar	T-shape	Boxy – Round	378	7	B1	BR-M1
106	10.31	2.49	1.89	0.55	9.76	No	Right cheek – not packed in well; similar problem seen in area at right between wig and bead; some surface air bubbles evident	T-shape	Nosy – Small	414	6	No Basket	N-M4
107	11.6	3.19	2.28	0.62	10.98	Yes	Tall basket/flat back	T-shape	Boxy – Round	364	7	B1	BR-M3
108	11.2	3.27	1.89	0.58	10.62	Yes	Back of head is uneven with an odd curve; Large air bubble found at the left ear; gritty feel	T-shape	Nosy – Large	343	5	N1	N-M1

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
109	11.47	3.18	2.22	0.62	10.85	No	Ropes and loop for basket, but no basket	T-shape	Boxy – Round	361	7	No Basket	BR-M2
110	11.63	3.15	1.91	0.63	11	Yes	Little feet; back with dual lines along the back of the wig - errant tool mark; flattened appearance; few large air bubbles	T-shape	Nosy – Large	369	6	N2	N-M1
111	11.37	3.27	2.39	0.75	10.62	Yes	Very long, plaited beard; tools very odd - overly long and not very well defined	T-shape	Boxy – Pinched	348	8	B2	BP-M2
112	11.6	3.18	2.23	0.64	10.96	Yes	Flatness to the back; Back of the head; indications of a mold?	T-shape	Boxy – Round	365	7	B1	BR-M3
113	11.83	3.3	2.31	0.73	11.1	Yes	Flatness to the back	T-shape	Boxy – Round	358	7	B1	BR-M3
115	10.6	3.05	2.23	0.69	9.91	Yes	Couple of distinct air bubbles	T-shape	Nosy – Large	348	6	N2	N-M7
116	11.36	3.35	2.45	0.76	10.6	Yes	Long and poorly defined tools; Crown of head oddly shaped	T-shape	Boxy – Pinched	339	8	B2	BP-M2
117	11.45	3.35	2.29	0.78	10.67	Yes	Very flat back; Heavy handed with hand work; Pick is wrong; Hoe long and slender	T-shape	Boxy – Pinched	342	7	B2	BP-M2
118	10.71	2.84	1.79	0.77	9.94	Yes	Mer sign not complete	T-shape	Boxy – Round	377	7	B1	BR-M1
119	11.66	3.21	2.05	0.78	10.88	Yes		T-shape	Boxy – Round	363	7	B1	BR-M3
120	11.54	3.07	2.2	0.69	10.85	Yes		T-shape	Boxy – Round	376	7	B1	BR-M3
121	11.76	3.3	2.33	0.67	11.09	Yes		T-shape	Nosy – Large	356	6	N1	N-M6
122	11.53	3.31	2.22	0.52	11.01	Yes	Pick crafted more realistically for this group, but hoe is still very awkward	T-shape	Boxy – Pinched	348	7	B2	BP-M2
123	10.53	3.1	2.01	0.59	9.94	Yes	Slightened flattened appearance; few small air bubbles	T-shape	Nosy – Large	340	6	N2	N-M8
124	10.82	2.73	2.16	0.63	10.19	Yes	Two distinct air bubbles near tools	T-shape	Nosy – Small	396	6	NU	N-M3
125	11.47	3.22	2.12	0.58	10.89	Yes	Pick is abnormally long	T-shape	Boxy – Round	356	7	B1	BR-M2
126	10.26	2.64	1.94	0.67	9.59	No	Multiple air bubbles along the front near the pick, left side of the wig, and the T inscription	T-shape	Nosy – Small	389	4	No Basket	N-M5
127	11.35	3.31	1.87	0.7	10.65	Yes	Very small, rounded pedestal; flattened look; larger air bubbles along the front and back	T-shape	Nosy – Large	343	5	N1	N-M1
128	10.84	2.83	1.99	0.66	10.18	Yes	Back of head at the right - indication of a mold?	T-shape	Boxy – Round	383	7	B1	BR-M1
129	10.87	3	2.28	0.58	10.29	Yes		T-shape	Nosy – Large	362	6	N2	N-M7
130	10.51	2.97	2.12	0.66	9.85	Yes	Multiple surface air bubbles evident on the front and back; gritty feel to the glaze	T-shape	Nosy – Large	354	6	N1	N-M3

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mod Type
131	11.09	3.24	2.17	0.58	10.51	Yes	Surface air bubbles evident on the head; gritty texture of the glaze	T-shape	Nosy – Large	342	6	N2	N-M7
132	11.71	3.35	1.98	0.69	11.02	Yes	Tools are abnormally long; the crown of the head is bulbous - too wide at the top; tiny feet	T-shape	Boxy – Pinched	350	7	B2	BP-M2
133	10.64	3.1	2.1	0.7	9.94	Yes	Surface air bubbles evident; Unglazed area at the left along the back and back of the arm	T-shape	Nosy – Large	343	6	N3	N-M8
134	10.15	2.6	2.05	0.63	9.52	Yes	Many surface air bubbles along the front and back	T-shape	Nosy – Small	390	4	N1	N-M4
135	9.99	2.67	1.93	0.63	9.36	No		T-shape	Nosy – Small	374	6	No Basket	N-M5
136	11.23	3.27	2.05	0.68	10.55	Yes	Tools better defined for this group; Damage to the right side of the head and the upper shoulder; small feet; surface air bubbles	T-shape	Boxy – Pinched	343	7	B2	BP-M2
137	11.91	3.09	2.25	0.56	11.35	Yes	Substantial amount of faience missing along the length of the back pillar	T-Shape	Tapered – Buff	385	1	T1	T-M3
138	11.68	3.04	2.16	0.65	11.03	Yes	Cuffs; no glaze on the area of the right calf; air bubbles located near the left cheek	Wide single column unframed at the top	Tapered – Buff	384	1	T2	T-M8
139	11.24	2.92	1.98	0.5	10.62	Yes	Fingerprint ?; buff color; small area near the back pillar appears "flaked off" in a planar fashion	Wide single column unframed at the top	Tapered – Buff	385	1	T1	T-M7
140	10.59	3.18	1.76	0.62	9.97	No	Flattened look; small and rounded pedestal; several surface air bubbles	T-shape	Nosy – Large	333	6	No Basket	N-M8
141	11.57	3.35	2.41	0.88	10.69	Yes	Tools are too long, but elegantly formed; plaited beard strongly projects upward; small feet, pillar formed with a lot of depth	T-shape	Boxy – Pinched	345	7	B2	BP-M2
142	10.84	3.23	1.97	0.63	10.21	Yes	Flattened appearance; Several surface air bubbles; small pedestal	T-shape	Nosy – Large	336	4	NU	N-M7
143	11.64	3.15	2.53	0.59	11.05	Yes	Green; Black or manganese outlining of incised areas; surface air bubbles evident	T-shape	Nosy – Large	370	6	N1	N-M6
144	11.51	3.08	2.35	0.59	10.92	Yes	Long ungainly tools; little flat feet; width is very narrow for this group; pillar formed with great depth	T-shape	Boxy – Pinched	374	8	B2	BP-M2
145	11.6	3.26	2.18	0.72	10.88	Yes	Back of the head is shaped irregularly; surface air bubbles; possible crossover?	Wide single column unframed at the top	Tapered – Buff	356	1	T2	T-M8
146	11.64	3.18	2.1	0.61	11.03	Yes	Gritty feel to the glaze; a few surface air bubbles	T-shape	Nosy – Large	366	6	N2	N-M6
147	11.52	2.95	2.05	0.52	11	Yes	Damage to the back column; Large area missing in a planar fashion	Wide single column unframed at the top	Tapered – Buff	391	1	T1	T-M6

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
148	10.99	3.35	1.87	0.56	10.43	Yes	Flattened appearance; smudge located at the right side of the wig; blue-green color	T-shape	Nosy - Large	328	6	N1	N-M1
149	11.51	2.97	2.01	0.55	10.96	Yes	Right calf no glazing	Wide single column unframed at the top	Tapered – Buff	388	1	T1	T-M1
150	11.57	3.15	2.27	0.74	10.83	Yes	Tool marks are evident along the back pillar and wig	T-shape	Boxy – Round	367	7	B1	BR-M2
151	11.2	2.77	1.98	0.54	10.53	Yes	Buff	Wide single column unframed at the top	Tapered – Buff	404	1	T1	T-M3
152	11.51	3.38	2.65	0.67	10.84	Yes	Tool marks evident along the back pillar - running vertically	Single framed column	Stout	341	3	S2	S-M1
153	11.43	2.91	1.93	0.55	10.88	Yes	Back pillar shows damage - planar fashion; unglazed area the full length of the left side; very odd! Further evidence for a mold	Wide single column unframed at the top	Tapered – Buff	393	1	T1	T-M8
154	11.41	2.96	2.19	0.62	10.79	Yes	Piece missing from the back of the wig and column near shoulder	Wide single column unframed at the top	Tapered – Buff	385	1	T2	T-M4
155	11.89	3.14	2.1	0.65	11.24	Yes	Repair for a break	Wide single column unframed at the top	Tapered – Buff	379	1	T2	T-M2
156	11.29	3.05	2.16	0.75	10.54	Yes	Crossover - body style like that of the Abstract group. glyphs attributed to #5; Chunk missing from the back of the wig; Crisp air bubbles	T-shape	Nosy – Large	370	1	T2	N-MU
157	10.61	2.97	1.93	0.56	10.05	Yes	Shorter and squatter than most of this type; Black highlights in the inscribed areas (manganese); Incomplete area at the right side of the head; Large air bubbles along the front; thick glazing	Wide single column unframed at the top	Tapered – Buff	357	1	T1	T-M1
158	11.03	3.06	2.28	0.74	10.29	Yes		T-shape	Boxy – Round	360	7	B1	BR-M2
159	11.77	3.05	1.97	0.62	11.15	Yes	Glaze missing from an area of the legs at the front below the knees; surface air bubbles	Wide single column unframed at the top	Tapered – Buff	386	1	T2	T-MU
160	11.39	3.23	2.08	0.74	10.72	Yes	Surface air bubbles; cracks along the back pillar	T-shape	Boxy – Round	353	7	B1	BR-M2
161	11.86	3.38	2.3	0.67	11.19	No	Unglazed area behind the shoulders and arm	Wide single column unframed at the top	Tapered – Buff	351	1	No Basket	T-M8
162	11.35	3.18	2.16	0.56	10.79	Yes	Back is very flat; does the back of the head show evidence of a mold?	T-shape	Boxy - Round	357	7	B1	BR-M2
163	10.61	3.22	2.28	0.82	9.79	Yes	Began a T inscription but it is frontal in nature; Tool marks evident along the back pillar - running vertically	Blend of T-shape and Single framed column	Stout	330	3	S2	S-M7
164	11.18	2.92	2	0.59	10.59	Yes	Surface air bubbles	Wide single column unframed at the top	Tapered – Buff	383	1	T1	T-M6
165	11.61	3.23	2	0.55	11.06	Yes	Surface air bubbles	Wide single column unframed at the top	Tapered – Buff	359	1	T2	T-M4

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
166	10.91	3.05	1.95	0.63	10.28	Yes	Small pedestal; flattened appearance	T-shape	Nosy – Large	358	6	N2	N-M8
167	10.63	3.1	2.17	0.62	10.01	Yes	Blue-green color; a few surface air bubbles	T-shape	Nosy – Large	343	6	N1	N-M7
168	11.46	3.31	2.57	0.71	10.84	No	Chipped beard; Tool marks along the back pillar - running diagonally	Single framed column	Stout	346	2	No Basket	S-M2
169	9.18	2.48	1.87	0.62	8.56	No	Very small example; a second pick located at the left; surface air bubbles located near the chin and other areas at the front and back of the head	T-shape	Nosy – Small	370	6	No Basket	N-M2
170	11.63	3.08	2.07	0.64	10.99	Yes	White encrustation ; darkened areas within incised areas including along the back pillar, ears, and wig	Wide single column unframed at the top	Tapered – Buff	378	1	T1	T-M5
171	10.3	2.63	2.09	0.67	9.63	Yes	Multiple surface air bubbles located along the front and back	T-shape	Nosy – Small	392	6	NU	N-M3
172	11.17	3.28	2.28	0.67	10.5	Yes	White encrustation along the front and back	T-shape	Nosy – Large	341	6	N1	N-M6
173	9.77	2.6	1.94	0.57	9.2	No	Multiple surface air bubbles along the front; face not packed well in the mold along the forehead and ears	T-shape	Nosy – Small	376	6	No Basket	N-M2
174	10.55	2.67	2	0.47	10.08	No	Surface air bubbles along the front	T-shape	Nosy – Small	395	6	No Basket	N-M4
175	10.29	2.87	1.8	0.58	9.71	Yes	Flattened appearance; small, rounded pedestal; surface air bubbles along the front	T-shape	Nosy – Small	359	6	N2	N-M5
176	10.9	3.03	2.54	0.72	10.18	Yes	Large air bubble at the top of the feet	Single framed column	Stout	360	2	S1	S-M4
177	9.76	2.98	1.94	0.63	9.13	Yes		Wide single column unframed at the top	Tapered – Blue	328	1	T1	T-M7
178	10.47	2.77	2.05	0.69	9.78	Yes	Rust-colored encrustation around the facial area	T-shape	Nosy – Small	378	5	N1	N-M3
179	11.45	3.21	2.28	0.76	10.81	Yes	Top seated lady - crack or fiber; Pick is interesting for this group; Surface air bubbles; The back pillar and wig are very flat	T-shape	Boxy – Round	357	7	B1	BR-M2
180	10.62	2.9	2.19	0.64	9.98	Yes	Air bubbles evident within the facial area	T-shape	Boxy – Round	366	7	B1	BR-M1
181	10.87	2.72	2.09	0.65	10.22	No	Surface air bubbles along the front and back	T-shape	Nosy – Small	400	6	No Basket	N-M3
182	10.37	2.76	1.93	0.73	9.64	Yes	Numerous air bubbles located along the front and back	T-shape	Boxy – Round	376	7	B1	BR-M1
183	10.73	3.21	2.08	0.61	10.12	Yes	Flattened appearance; small and rounded pedestal	T-shape	Nosy – Large	334	5	N2	N-M8
184	10.01	2.71	1.87	0.62	9.39	No	Crossover work? No, but looks like it with the glyphs	T-shape	Nosy – Small	369	6	No Basket	N-M5

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mod Type
185	11.14	2.99	1.92	0.59	10.55	Yes		T-shape	Boxy – Round	373	7	B1	BR-M2
186	10.94	2.89	2.03	0.59	10.35	Yes	Bluish-green; Surface air bubbles along the front and back	T-shape	Nosy – Large	379	6	N2	N-MU
187	10.32	2.95	2.1	0.56	9.76	No	Flattened appearance; back of the head bumpy and an irregular shape	T-shape	Nosy – Large	350	6	No Basket	N-M7
188	10.75	3.14	1.77	0.62	10.13	Yes	Flattened appearance; small and rounded pedestal; surface air bubbles on front and back with a few being larger	T-shape	Nosy – Large	342	6	N2	N-M7
189	11.74	3.4	2.18	0.68	11.06	Yes	Tools distinct, but poorly executed; Tiny feet; Deep pillar with tool marks visible; few distinct surface air bubbles	T-shape	Boxy – Pinched	345	7	B2	BP-M2
190	11.46	3.27	2.43	0.69	10.77	Yes	Tools poorly executed; deep pillar; very flat pillar and wig; small feet for the proportions	T-shape	Boxy – Pinched	350	8	B2	BP-M2
191	10.86	2.82	2.27	0.8	10.06	Yes	Couple of distinct air bubbles	T-shape	Boxy – Round	385	7	B1	BR-M1
192	10.93	3.34	2.04	0.54	10.39	No	Flattened appearance; small and rounded pedestal; only a couple of surface air bubbles	T-shape	Nosy – Large	327	5	No Basket	N-M8
193	10.32	3.17	2.03	0.64	9.68	No	Double line at the top of the T inscription; unglazed area at the back left behind the arms	T-shape	Nosy – Large	326	6	No Basket	N-M7
194	10.96	3.23	2.56	0.7	10.26	Yes	Very squat version for this group; tools poorly executed; very flat, small feet; deep pillar with tool marks evident	T-shape	Boxy – Pinched	339	7	B2	BP-M1
195	10.67	2.57	1.97	0.58	10.09	No	Pick and hoe tools reversed; Large air bubbles on the front and back	T-shape	Nosy – Small	415	4	No Basket	N-M4
196	10.57	3.22	1.78	0.58	9.99	Yes		T-shape	Nosy – Large	328	6	NU	N-M7
197	10.71	3.18	2.15	0.71	10	Yes	Area of the arms at the back - concave	T-shape	Nosy – Large	337	6	N1	N-M7
198	10.19	2.59	1.96	0.64	9.55	Yes	Surface air bubbles	T-shape	Nosy – Small	393	6	N1	N-M3
199	11.45	3.37	2.47	0.64	10.81	Yes	Nostrils of the nose defined; many surface air bubbles	Single framed column	Stout	340	2	S1	S-M1
200	12.03	3.33	2.44	0.64	11.39	Yes		Single framed column	Stout	361	2	S1	S-M1
201	11.92	3.29	2.47	0.73	11.19	Yes	Interesting pick; Tool marks along the back pillar	Single framed column	Stout	362	2	S1	S-M2
202	10.89	3.21	2.33	0.69	10.2	Yes	Tool marks evident along the bottom of the pedestal and the back of the pillar	Single framed column	Stout	339	3	S2	S-M2
203	11.88	3.13	1.96	0.62	11.26	Yes	Very small pedestal and feet	Wide single column unframed at the top	Tapered – Buff	380	1	T2	T-M4



General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
204	11.32	3.08	2.07	0.59	10.73	Yes	Surface air bubbles; left cheek not complete	Wide single column unframed at the top	Tapered – Buff	368	1	T1	T-M2
205	10.75	3.11	2.52	0.67	10.08	Yes	Multiple air bubbles; At the back - not enough faience to fill the mold? But, there are tool marks along the back pillar so does this indicate an accident after the molding, but before the firing?	Single framed column	Stout	346	3	S1	S-M5
206	11.28	3.08	2.31	0.71	10.57	Yes	Many surface air bubbles; Tool marks evident along the back pillar	Single framed column	Stout	366	3	S2	S-M10
207	11.05	3.31	2.27	0.63	10.42	Yes	Very small pedestal; Tool marks evident along the back pillar	Single framed column	Stout	334	3	S2	S-M9
208	10.86	3.14	2.3	0.69	10.17	Yes	Tool marks evident along the back pillar; Many surface air bubbles	Single framed column	Stout	346	3	S1	S-M5
209	10.43	3.21	2.24	0.55	9.88	Yes	Tool marks evident along the back pillar; Many surface air bubbles	Single framed column	Stout	325	3	S2	S-M4
210	11.86	3.48	2.41	0.67	11.19	Yes	Tool marks evident along the back pillar; Many surface air bubbles	Single framed column	Stout	341	3	S2	S-M3
211	11.03	3.2	2.28	0.71	10.32	Yes	Tool marks evident along the back pillar; Many surface air bubbles	Single framed column	Stout	345	3	S2	S-M8
212	10.94	2.95	2.36	0.65	10.29	Yes	Tool marks evident along the back pillar; Many surface air bubbles	Single framed column	Stout	371	2	S1	S-M5
213	10.7	3.21	2.37	0.63	10.07	Yes	Tool marks evident along the back pillar; Many surface air bubbles	Single framed column	Stout	333	3	S2	S-M7
214	11.71	3.39	2.67	0.74	10.97	Yes	Tool marks evident along the back pillar - running vertically	Single framed column	Stout	345	2	S1	S-M1
215	11.88	3.49	2.5	0.77	11.11	Yes	Many small surface air bubbles	Single framed column	Stout	340	3	S2	S-M3
216	12.05	2.97	2.08	0.48	11.57	Yes	Left ear flat with little distinction	Wide single column unframed at the top	Tapered – Buff	406	1	T1	T-M5
217	11.63	3.37	2.63	0.67	10.96	No	Brown and white encrustation; back of the head in the round	Single framed column	Stout	345	3	No Basket	S-M2
218	11.79	3.61	2.43	CBD	11.79	Yes	Signs of weathering; some of the inscriptions are worn away; little bit of blue glazing along the bck of th arm and wig; brown discoloration along the upper third of the back; surface air bubbles	Single framed column	Stout	327	3	S1	S-M3
219	11.13	3.35	2.29	0.7	10.43	Yes	Shrinkage cracks along the back; bit of blue glazing	Single framed column	Stout	332	3	S1	S-M5
220	10.84	2.87	1.94	0.59	10.25	Yes	Darkened areas where incised; Area of the pillar missing; Oddly shaped wig; Air bubbles along the left shoulder; weathered?	Wide single column unframed at the top	Tapered – Buff	378	1	T1	T-M7

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
221	11.76	3.27	2.6	0.68	11.08	Yes	Dark brown discoloration along the length of the front; blue glazing covers @65% of the figurine; damaged beard tip, left hand, and nose; some surface air bubbles	Single framed column	Stout	360	2	S1	S-M1
222	11.81	3.11	1.97	0.57	11.24	Yes	Slight damage on the upper back pillar; Damage repaired along the mid-section	Wide single column unframed at the top	Tapered – Buff	380	1	T1	T-M5
223	10.85	3.24	2.5	0.65	10.2	Yes	Vertical tool marks visible on the back pillar; Odd oval demarcation line along the right side of the back- was there a problem packing the material (wrinkle like dough)	Single framed column	Stout	335	3	S2	S-M10
224	10.74	2.75	1.96	0.59	10.15	Yes	Surface air bubbles along the front; Damage repaired near the mid-section	Wide single column unframed at the top	Tapered – Buff	391	1	T1	T-M7
225	11.16	2.87	2.09	0.75	10.41	Yes	Mottled white and blue - blotchy; White encrustation	Wide single column unframed at the top	Tapered – Buff	389	1	T1	T-M6
226	11.74	3.22	2.05	0.53	11.21	Yes	Lovely face; Surface air bubbles	Wide single column unframed at the top	Tapered – Buff	365	1	T3	T-M4
227	11.85	3.37	2.44	0.63	11.22	Yes	Weathered face; glyphs also show weathering; Pressure points of tools during hand work? Very interesting!	Single framed column	Stout	352	3	S1	S-M2
228	12.02	3.53	2.41	0.7	11.32	Yes	Damage to the left arm between the shoulder and elbow, tip of the beard, right and left hands, nose, crown of the head	Single framed column	Stout	341	2	S1	S-M2
229	10.84	3.18	2.44	0.69	10.15	Yes	Brown encrustation along the front and part of the back	Single framed column	Stout	341	3	S2	S-M8
230	11.89	3.41	2.34	0.62	11.27	Yes	Some weathering; damage to facial area, right and left hands, tip of the beard; bottom of the wig lappets	Single framed column	Stout	349	3	S2	S-M3
231	10.12	2.59	1.89	0.61	9.51	Yes	Surface air bubbles	T-shape	Nosy – Small	391	6	N1	N-M5
232	10.28	2.57	1.97	0.67	9.61	No	Head not molded well - too wet during the process; surface air bubbles	T-shape	Nosy – Small	400	6	No Basket	N-MU
233	9.53	2.38	1.85	0.6	8.93	No	Surface air bubbles located along the front and back	T-shape	Nosy – Small	400	6	No Basket	N-M2
234	11.62	3.22	2.31	0.86	11	Yes	Distinct surface air bubbles	T-shape	Boxy – Round	361	7	B1	BR-M3
235	10.37	2.54	2.13	0.62	9.75	No	Surface air bubbles	T-shape	Nosy – Small	408	5	No Basket	N-M3
236	10.58	2.6	1.93	0.58	10	Yes	No beard; lots of surface air bubbles	T-shape	Nosy – Small	407	5	NU	N-M2
237	9.81	2.27	1.74	0.69	9.12	No	Surface air bubbles	T-shape	Nosy – Small	432	4	No Basket	N-M2

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
238	10.68	3.15	1.92	0.55	10.13	No	Flattened appearance; small feet and pedestal; surface air bubbles	T-shape	Nosy – Large	339	4	No Basket	N-M8
239	9.9	2.31	1.86	0.68	9.22	No	A few distinct air bubbles	T-shape	Nosy – Small	429	6	No Basket	N-M2
240	10.39	3.05	2.11	0.7	9.69	Yes	Distinct air bubbles near the hair, lappets, hands, and tools	T-shape	Nosy – Large	341	6	N3	N-M7
241	10.32	2.68	2.24	0.68	9.64	Yes	Greenish-blue color; Brown encrustation along the head and torso	T-shape	Nosy – Small	385	6	N2	N-M5
242	10.44	2.61	2	0.58	9.86	Yes	Surface air bubbles along the top 1/2; blurry face	T-shape	Nosy – Small	400	6	NU	N-M3
243	9.96	2.6	1.6	0.56	9.4	Yes	Brown discoloration; flattened appearance; small feet	T-shape	Nosy – Small	383	6	N2	N-M2
244	10.56	3.03	2.16	0.64	9.92	Yes	Great example	T-shape	Nosy – Large	349	6	N2	N-M7
245	9.72	2.49	1.84	0.58	9.14	Yes	Distinct air bubbles along the front	T-shape	Nosy – Small	390	6	N3	N-M2
246	10.41	2.7	2.09	0.66	9.75	Yes	Matte blue glaze; some gloss; a couple of air bubbles	T-shape	Nosy – Small	386	6	N1	N-M5
247	11.52	3.08	2.29	0.57	10.95	Yes	Brown encrustation along the front and back; There is a lack of definition of the wig and back pillar; At the right side near the elbow an extra bit of faience is evident; dark blue glaze	Wide single column unframed at the top	Tapered – Buff	374	1	T1	T-M2
248	11.82	2.91	2.13	0.57	11.25	Yes	Problems with packing faience into the mold evident on the left cheek, right elbow, and the back right portion of the wig; Extra faience evident on the back of the wig; Glaze is a bit mottled	Wide single column unframed at the top	Tapered – Buff	406	1	T1	T-M3
249	11.15	3.03	2.04	0.55	10.6	Yes	Sparkly, light blue glaze; brown encrustation, air bubbles evident around the face	Wide single column unframed at the top	Tapered – Buff	368	1	T1	T-M6
250	9.92	2.67	1.91	0.46	9.46	Yes	Very small figurine; Black paint/manganese along incised lines/work; Damage to the back - looks like a small piece of glazing peeled off and it was reapplied, but not in the exact same position	Wide single column unframed at the top	Tapered – Blue	372	1	TU	T-MU
251	11.69	3.08	2.18	0.58	11.11	Yes	Rust colored discoloration along the front and back; large air bubble under the left hand	Wide single column unframed at the top	Tapered – Buff	380	1	T3	T-M4
252	12.3	3.08	2.13	0.54	11.76	Yes	Crosses work groups; example of only T-inscription in this group; rust discoloration along the front and back; air bubble evident along the right side near the knee	Wide single column unframed at the top	Tapered – Buff	399	1	T1	T-M5

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mod Type
253	10.54	3.03	1.89	0.67	9.87	Yes	Couple of distinct air bubbles; nose is flattened	T-shape	Nosy – Large	348	5	N1	N-M8
254	10.94	2.74	2.08	0.49	10.45	Yes	Glaze missing behind the right arm; rust discoloration along the front and back; extra glaze evident along the back right corner of the pedestal	Wide single column unframed at the top	Tapered – Buff	399	1	T1	T-M7
255	11.46	3.05	2.05	0.57	10.85	Yes	Buff colored with a bit of blue glaze; many air bubbles; small area without glaze behind the right calf; rust discoloration along the front and back; signs of weathering?	Wide single column unframed at the top	Tapered – Buff	376	1	T1	T-M3
256	11.05	3.06	1.88	0.61	10.44	Yes	Small head; some blue discoloration; surface air bubbles	T-shape	Nosy – Large	361	6	N1	N-M1
257	11.65	3.08	2.15	0.47	11.18	Yes	Buff with a little blue glaze; air bubbles along the front and back; brown discoloration along the front and back	Wide single column unframed at the top	Tapered – Buff	378	1	T1	T-M5
258	10.76	3.11	2.23	0.58	10.18	Yes	Surface air bubbles; Mistake with the glyphs (2 Osiris); white encrustation along the facial area	Single framed column	Stout	346	2	S1	S-M5
259	10.77	2.89	1.83	0.62	10.15	Yes	Glaze worn away along the pick, both hands, nose, beard, lappets of hair; glaze missing from the right lower area of the back calf	Wide single column unframed at the top	Tapered – Blue	373	1	T2	T-M1
260	12.04	2.99	2.03	0.56	11.48	Yes	Glaze has a mottled look; rust discoloration along the front; air bubbles evident along the front; mold packing issue between the hands; faience missing from the lower back pillar (planar fashion)	Wide single column unframed at the top	Tapered – Buff	403	1	T1	T-M5
261	11.16	3.25	2.24	0.66	10.5	Yes	Surface air bubbles along back and front; shrinkage cracks along the back wig and pillar	Single framed column	Stout	343	2	S1	S-M10
262	11.59	3.14	2.35	0.71	11.02	Yes	Tool marks evident on the base; surface air bubbles; right and left elbows at very different heights	T-shape	Boxy – Round	369	7	B1	BR-M3
263	11.85	3.13	2.13	0.57	11.28	Yes	Sparkly, light blue glaze; air bubbles evident along the front; hieroglyphs near the bottom favor the right side (appears lopsided); some brown discoloration along the front and back	Wide single column unframed at the top	Tapered – Buff	379	1	TU	T-M2
264	10.44	3.07	2.12	0.66	9.78	Yes	Some brown discoloration around the face, toroso, and the back	T-shape	Nosy – Large	340	6	NU	N-M7
265	10.91	3.08	1.98	0.61	10.3	Yes	Significant air bubbles along the front and back; some brown discoloration along the	Wide single column unframed at the top	Tapered – Buff	354	1	T1	T-M1

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mod Type
							front and back						
266	11.63	2.92	2.03	0.6	11.03	Yes	Sizeable impression/depression evident along the right side of the head; glaze missing from the back area between the ankle and calf; extra deposit of glaze; brown discoloration along the front and back	Wide single column unframed at the top	Tapered – Buff	398	1	T3	T-M8
267	10.56	2.96	2.45	0.68	9.88	Yes	Only true T inscription in this group but it does not wrap around the body; surface air bubbles all over	T-shape	Stout	357	3	S2	S-M8
268	10.86	3.04	2	0.49	10.37	Yes	Brown discoloration along the front and back; thick layer of glaze near the back and bottom of the pedestal	Wide single column unframed at the top	Tapered – Buff	357	1	T3	T-M8
269	11.32	3.08	2.05	0.54	10.78	Yes	Brown discoloration along the front and back; large air bubbles found near the beard and the right side of the cheek; air bubbles also evident along the back	Wide single column unframed at the top	Tapered – Buff	368	1	T1	T-M1
270	10.94	3.11	1.96	0.42	10.52	Yes	Air bubbles along the front and back; rust discoloration along the front and back; sizeable area not molded along the right side of face and upper shoulder; the pick is very odd with an area incised, but not removed from the area within the tool	Wide single column unframed at the top	Tapered - Buff	352	1	T1	T-M7
271	11.43	3.07	2.03	0.56	10.87	Yes	Light, sparkly blue glaze; air bubbles along the front; area of glaze missing along the right side behind the shoulder and arm; along the left chin and false beard - poor handwork	Wide single column unframed at the top	Tapered – Buff	372	1	T1	T-M9
272	11.08	3.25	2.07	0.59	10.49	Yes	Tiny feet; Tools poorly executed; deep pillar; Some surface air bubbles	T-shape	Boxy – Pinched	341	8	B2	BP-M1
273	11.34	3.17	1.96	0.52	10.82	Yes	Air bubbles along the front and back; back of the wig awkward; glaze has a mottled look; brown encrustation along the front and back; top of head is misshapen	Wide single column unframed at the top	Tapered – Buff	358	1	T1	T-M5
274	10.56	2.78	1.89	0.49	10.07	Yes		T-shape	Nosy – Small	380	6	NU	N-M3
275	10.91	3.04	2.03	0.55	10.36	Yes	Brown discoloration along the front and back; air bubbles found on both the front and right sides	Wide single column unframed at the top	Tapered – Buff	359	1	T1	T-M1
276	11.18	2.98	2.12	0.6	10.58	Yes	Lots of brown discoloration; signs of weathering?; bump of	Wide single column unframed at the top	Tapered – Buff	375	1	T2	T-M9

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mold Type
							faience on the top of the head; glaze missing from an area along the front and lower legs; damage to the nose and hands; rust discoloration along the back; many air bubbles						
277	11.37	3.02	1.98	0.63	10.74	Yes	Lots of brown discoloration along the front and back; damage to the left hand and the tip of the nose; two dark markings are found on the front near the right torso; some air bubbles; bump evident on the back of the head	Wide single column unframed at the top	Tapered – Buff	376	1	T1	T-M1
278	11.72	3.14	2.13	0.66	11.06	Yes	Rust discoloration along the front and back; back is very flat; air bubbles along the front and back; odd mark near the right side of the face moving along from the corner of the eye to the beard; area of faience missing from the stomach area - this area is glazed so it occurred before firing (lost when shabti removed from the mold?); extra piece of faience along the right lower leg	Wide single column unframed at the top	Tapered - Buff	373	1	T3	T-M4
279	11.75	3.1	2.09	0.63	11.12	Yes	Lots of surface air bubbles; Vey flat pillar and wig	T-shape	Boxy – Round	379	7	B1	BR-M3
280	11.28	3.03	2.19	0.71	10.57	Yes	Depression at the back of the head	T-shape	Boxy – Round	372	7	B1	BR-M2
281	10.65	2.98	2.37	0.7	9.95	Yes	Weathering to the face; surface air bubbles found in the wig, pick, and both hands	Single framed column	Stout	357	2	S1	S-M5
282	10.61	3.31	2.36	0.64	9.97	Yes	Matte blue glaze; nice face	Single framed column	Stout	321	2	S1	S-M5
283	9.62	2.42	1.82	0.71	8.91	No	Damage to the top of The T inscription; a few surface air bubbles evident	T-shape	Nosy – Small	398	5	No Basket	N-M5
284	11.32	2.96	1.94	0.57	10.75	Yes	Lots of white encrustation; air bubbles evident along the front and back	Wide single column unframed at the top	Tapered – Buff	382	1	T1	T-M6
285	12.45	3.22	2.19	0.64	11.81	Yes	Glazes are a mixture of blue and buff; air bubbles along the front; rust discoloration along the front and back, glaze missing from an area along the back pillar behind the knees; extra drop of glaze behind the wig; depression on bottom of the pedestal - tool mark from removal from mold?	Wide single column unframed at the top	Tapered – Buff	387	1	T1	T-M5

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mod Type
286	11.03	2.88	2.18	0.68	10.35	No	Surface air bubbles along the front and back; beard	T-shape	Nosy – Large	383	6	No Basket	N-MU
287	10.57	3.17	2.41	0.69	9.88	Yes	White encrustation along the face and torso, top of the head, and behind the left arm	Single framed column	Stout	333	3	S1	S-M4
288	11.99	3.42	2.56	0.67	11.32	Yes	White and brown encrustation along the facial area and chest; Some surface air bubbles	Single framed column	Stout	351	2	S1	S-M2
289	10.27	2.56	1.99	0.64	9.63	Yes	Brown discoloration along the front and back; distinct air bubbles evident throughout the figurine	T-shape	Nosy – Small	401	6	N1	N-M5
290	11.16	3.35	2.44	0.75	10.41	Yes	Damage to the nose, tip of the beard, right lappet of the wig, right and left hands, both tools; matte glaze	Single framed column	Stout	333	3	S2	S-M10
291	11.42	3.01	2.04	0.58	10.84	Yes	White encrustation along the front and back; damage to the hands; area of faience missing along the front mid-section-glazed so this occurred during firing; brown encrustation along the front and back	Wide single column unframed at the top	Tapered – Buff	379	1	T1	T-M9
292	10.99	3.03	2.03	0.48	10.51	Yes	Repair for a break found at the lower legs; some brown discoloration; some air bubbles	Wide single column unframed at the top	Tapered – Buff	363	1	T1	T-M1
293	10.5	2.71	2.08	0.65	9.85	Yes	Surface air bubbles along the front and back	T-shape	Nosy – Small	387	6	N1	N-M4
294	10.74	3.27	1.88	0.59	10.15	No	Flattened appearance; awkward; small pedestal and feet	T-shape	Nosy – Large	328	5	No Basket	N-M7
295	10.65	3.23	2.29	0.67	9.98	Yes	Surface air bubbles; the ned of the pick is not well formed; hoe has a crater within its length; weathering to the face - nose and tip of the beard, forehead, and mouth; large air bubbles found near the left lower calf; beard - depression running 2/3 the length	Single framed column	Stout	330	3	S2	S-M7
296	10.88	3.02	2.01	0.45	10.43	Yes	A few distinct air bubbles - one found along the forehead; white encrustation along the head and facial area; glaze missing from the lower left calf	Wide single column unframed at the top	Tapered – Buff	360	1	T1	T-M7
297	11.91	3.42	2.62	0.78	11.13	Yes	Weathering of the face; Damage to the nose, tip of the beard, left head behind the ear; brown discoloration to the head	Single framed column	Stout	348	2	S1	S-M2
298	11.21	2.86	2.03	0.56	10.65	Yes	Damage below hands - almost as if a large layer of faience/glaze peeled off; Left shoulder - piece of	Wide single column unframed at the top	Tapered - Blue	392	1	T1	T-M7

General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mod Type
							faience stuck to tool - evidence of the nature of faience						
299	10.79	3.18	2.42	0.72	10.07	Yes	Surface air bubbles; large surface air bubble next to the hoe, white and brown encrustation around the facial area and chest	Single framed column	Stout	339	2	S1	S-M4
300	11.24	3.1	2.2	0.64	10.6	Yes	Glaze missing from the lower right leg near the foot; several visible air bubbles; brown discoloration along the front and back; lovely defined face	Wide single column unframed at the top	Tapered – Buff	363	1	T2	T-M6
301	10.5	2.67	1.98	0.61	9.89	No	Some damage – glaze missing from the left tool under the hand, right lappet, and surface air bubbles	T-shape	Nosy – Small	393	6	No Basket	N-M4
302	10.31	3.15	2.23	0.67	9.64	Yes	Lots of air bubbles, small and large; Large example near the left lappet and beard, right side of the calf, left eye; white and brown discoloration	Single framed column	Stout	327	3	S2	S-M7
303	10.93	3.27	2.21	0.64	10.29	Yes	White encrustation along the frotn facial area and chest; shrinkage cracks along the back; few prominent air bubbles	Single framed column	Stout	334	3	S1	S-M5
304	10.45	3.4	2.37	0.65	9.8	Yes	Brown discoloration scattered throughout the surface of the shabti; Damage to the head, nose, left lappet, both hands; shrinkage cracks along the back; pick and hoe poorly made	Single framed column	Stout	307	3	S2	S-M7
305	11.07	2.93	2.02	0.59	10.48	Yes	Damage to the left head; nose, beard, hoe, and shoulder; glaze missing from the back of the pillar and right side of the legs; bottom 1/5 broken and repaired	Wide single column unframed at the top	Tapered – Blue	378	1	T1	T-M7
306	10.87	3.04	2.05	0.57	10.3	Yes	White encrustation; a small amount of dark discoloration around the facial area; glaze missing from the lower right leg next to the pillar	Wide single column unframed at the top	Tapered – Buff	358	1	T1	T-M1
307	10.84	3.39	2.31	0.69	10.15	Yes	Numerous surface air bubbles; shrinkage cracks; some weathering; Damage to the nose, mouth, hands, hoe; Brown discoloration along the head and torso	Single framed column	Stout	320	3	S2	S-M7
308	11.19	3.08	2.03	0.59	10.6	No	White encrustation around the head and torso; air bubbles along the front and back; one large air bubble above the hands	Wide single column unframed at the top	Tapered – Buff	274	1	No Basket	T-M6
309	11.69	2.98	2.05	0.49	11.2	Yes	White encrustation; brown discoloration along the front and back; chip found on	Wide single column unframed at the top	Tapered – Buff	392	1	T3	T-M9



General Measurement and Observation Data

Number	Height (cm)	Width (cm)	Depth (cm)	Base (cm)	Figure Height (cm)	Basket	Notes	Text Arrangement	Stylistic Group	BPI	Inscriber	Basket Type	Mod Type
							the top of the head; air bubble on the top of the head; couple of air bubbles along the front; back very flat						
310	9.96	2.77	2.1	0.65	9.31	CBD	Odd T inscription; Surface air bubbles; Damage before firing?	T-shape	Nosy – Small	360	5	NU	N-M3
311	10.89	3.22	2.47	0.67	10.22	Yes	Damage to the nose, beard, both hands, hoe; Shrinkage cracks along the back; Brown discoloration around the head and torso	Single framed column	Stout	338	3	S1	S-M5
312	12.08	3.31	2.54	0.83	11.25	Yes	Blue matte glaze; white encrustation along the front of the shabti; some surface air bubbles; lovely basket	Single framed column	Stout	365	2	S1	S-M1

Appendix C, Table 2. Basic Body Measurements and Proportion Calculations

Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
7	3.2	16.75	3.35	59.93	5.16	92.31	3.29	58.86	2.79	49.91	5	26.18	10.9	57.07
8	3.5	17.77	3.41	59.62	5.34	93.36	3.43	59.97	2.74	47.90	5.04	25.58	11.16	56.65
9	3.55	17.84	3.46	60.17	5.23	90.96	3.17	55.13	2.62	45.57	5.27	26.48	11.08	55.68
10	3.52	18.14	3.52	61.22	5.46	94.96	3.42	59.48	2.82	49.04	5.2	26.80	10.68	55.05
11	3.56	18.26	3.44	66.54	5.36	91.31	3.49	67.50	2.84	54.93	5.15	26.41	10.79	55.33
12	3.52	18.82	3.28	61.42	4.96	92.88	3.01	56.37	2.5	46.82	4.44	23.74	10.74	57.43
13	3.16	15.88	3.3	56.99	5.37	92.75	3.49	60.28	2.96	51.12	5.46	27.44	11.28	56.68
14	3.73	19.03	3.45	61.61	5.06	90.36	3.12	55.71	2.73	48.75	4.55	23.21	11.32	57.76
15	3.42	18.29	3.22	61.10	5.03	95.45	3.02	57.31	2.7	51.23	4.65	24.87	10.63	56.84
16	3.62	19.15	3.29	61.15	5.12	95.17	3.06	56.88	2.68	49.81	4.49	23.76	10.79	57.09
17	3.05	16.22	2.98	53.21	5.11	91.25	3.17	56.61	2.73	48.75	4.71	25.05	11.04	58.72
18	3.08	16.21	3.11	57.81	5.07	94.24	3.14	58.36	2.7	50.19	4.96	26.11	10.96	57.68
19	3.62	18.56	3.39	58.45	5.38	92.76	3.18	54.83	2.58	44.48	5.2	26.67	10.68	54.77
20	3.11	16.81	3.09	56.70	4.97	91.19	3.23	59.27	2.61	47.89	4.75	25.68	10.64	57.51
21	1.77	15.64	1.88	62.05	2.94	97.03	2	66.01	1.8	59.41	2.88	25.44	6.67	58.92
22	2.11	17.67	2.03	57.83	3.48	99.15	2.02	57.55	1.88	53.56	2.58	21.61	7.25	60.72
23	1.95	16.93	1.84	58.04	3.07	96.85	1.82	57.41	1.5	47.32	2.81	24.39	6.76	58.68
24	1.39	14.30	1.78	63.80	2.4	86.02	1.63	58.42	1.3	46.59	2.6	26.75	5.73	58.95
25	1.79	15.61	1.9	62.50	2.99	98.36	1.97	64.80	1.58	51.97	2.77	24.15	6.91	60.24
26	1.8	15.86	1.65	56.90	2.87	98.97	1.93	66.55	1.63	56.21	2.55	22.47	7	61.67
27	1.79	17.55	1.41	56.63	2.4	96.39	1.68	67.47	1.21	48.59	2.7	26.47	5.71	55.98
28	2.08	19.68	1.96	66.22	3.08	97.16	1.82	61.49	1.54	52.03	2.67	25.26	5.82	55.06
29	2.05	18.60	2.01	60.00	3.28	97.91	1.8	53.73	1.81	54.03	2.49	22.60	6.48	58.80
30	2	18.08	1.91	62.21	3	97.72	2.05	66.78	1.6	52.12	2.77	25.05	6.29	56.87
31	1.95	16.60	1.95	60.19	3.15	97.22	1.88	58.02	1.58	48.77	2.44	20.77	7.36	62.64
32	1.97	17.00	1.78	61.17	2.89	99.31	1.89	64.95	1.78	61.17	2.8	24.16	6.82	58.84
33	1.81	16.70	1.75	58.14	2.87	95.35	1.87	62.13	1.54	51.16	2.59	23.89	6.44	59.41
34	1.93	17.72	1.92	60.95	3.02	95.87	1.91	60.63	1.66	52.70	2.44	22.41	6.52	59.87

Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
35	1.93	16.86	1.85	59.29	2.95	94.55	1.9	60.90	1.57	50.32	2.8	24.45	6.72	58.69
36	1.86	18.13	1.77	57.65	3.05	99.35	2.3	74.92	1.69	55.05	2.39	23.29	6.01	58.58
37	1.88	16.45	1.81	62.41	2.8	96.55	1.88	64.83	1.43	49.31	2.58	22.57	6.97	60.98
38	2.1	19.16	1.96	58.68	3.23	96.71	1.88	56.29	1.75	52.40	2.75	25.09	6.11	55.75
39	1.89	16.15	1.94	59.69	3.19	98.15	2.12	65.23	1.68	51.69	2.9	24.79	6.91	59.06
40	2.02	18.46	1.96	59.94	3.13	95.72	2	61.16	1.59	48.62	2.61	23.86	6.31	57.68
41	1.92	16.20	1.92	63.16	3	98.68	2.05	67.43	1.68	55.26	2.78	23.46	7.15	60.34
42	2.29	20.78	2	61.16	3.16	96.64	1.96	59.94	1.84	56.27	2.65	24.05	6.08	55.17
43	2.28	18.97	2.17	63.08	3.41	99.13	2.04	59.30	1.65	47.97	2.69	22.38	7.05	58.65
44	1.81	16.02	1.86	59.62	2.98	95.51	1.95	62.50	1.58	50.64	2.75	24.34	6.74	59.65
45	2.17	18.19	2.07	62.73	3.22	97.58	2.03	61.52	1.7	51.52	2.64	22.13	7.12	59.68
46	2.41	19.74	2.29	62.74	3.52	96.44	2.12	58.08	1.72	47.12	3.07	25.14	6.73	55.12
47	2.05	18.64	2.03	59.18	3.3	96.21	1.75	51.02	1.58	46.06	2.59	23.55	6.36	57.82
48	1.88	16.39	1.83	61.82	2.83	95.61	1.9	64.19	1.78	60.14	2.69	23.45	6.9	60.16
49	1.83	16.68	1.83	59.42	2.9	94.16	1.98	64.29	1.62	52.60	2.63	23.97	6.51	59.34
50	1.98	16.95	1.79	63.70	2.73	97.15	1.91	67.97	1.73	61.57	2.67	22.86	7.03	60.19
51	2.13	18.11	1.98	58.93	3.28	97.62	1.91	56.85	1.55	46.13	2.77	23.55	6.86	58.33
52	1.94	18.67	1.85	61.46	2.85	94.68	1.98	65.78	1.7	56.48	2.31	22.23	6.14	59.10
53	2.06	17.79	2.01	58.60	3.4	99.13	2.04	59.48	1.76	51.31	2.79	24.09	6.73	58.12
54	1.93	16.30	1.86	58.49	3.05	95.91	2.04	64.15	1.64	51.57	2.78	23.48	7.13	60.22
55	1.96	16.84	1.75	57.76	2.9	95.71	1.88	62.05	1.59	52.48	2.99	25.69	6.69	57.47
56	2.08	17.99	1.96	66.89	2.88	98.29	2.05	69.97	1.65	56.31	2.65	22.92	6.83	59.08
57	2.43	20.30	2.2	63.22	3.38	97.13	1.93	55.46	1.62	46.55	3.01	25.15	6.53	54.55
58	2.3	19.59	2.03	60.96	3.27	98.20	1.92	57.66	1.49	44.74	2.64	22.49	6.8	57.92
59	2.11	17.39	1.84	57.68	3.1	97.18	1.99	62.38	1.6	50.16	3.12	25.72	6.9	56.88
60	2.33	19.97	2.18	63.19	3.36	97.39	2.13	61.74	1.71	49.57	2.8	23.99	6.54	56.04
61	2.31	19.61	2.03	58.84	3.35	97.10	1.97	57.10	1.69	48.99	2.98	25.30	6.49	55.09
62	2.22	18.85	2.06	62.05	3.23	97.29	1.97	59.34	1.78	53.61	2.8	23.77	6.76	57.39
63	2.23	19.68	2.06	61.31	3.24	96.43	1.97	58.63	1.76	52.38	3.05	26.92	6.05	53.40
64	2.1	19.63	1.98	61.49	3.11	96.58	1.92	59.63	1.65	51.24	2.66	24.86	5.94	55.51
65	2.25	19.82	2.1	61.95	3.35	98.82	2.08	61.36	1.56	46.02	2.93	25.81	6.17	54.36

Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
66	2.27	21.21	1.97	58.81	3.28	97.91	1.82	54.33	1.59	47.46	2.86	26.73	5.57	52.06
67	1.91	16.78	1.84	61.54	2.96	99.00	1.92	64.21	1.51	50.50	2.81	24.69	6.66	58.52
68	1.99	17.44	1.81	56.21	3.09	95.96	1.83	56.83	1.49	46.27	2.96	25.94	6.46	56.62
69	2.05	19.29	1.97	60.24	3.18	97.25	1.93	59.02	1.52	46.48	2.43	22.86	6.15	57.86
70	2.03	18.04	1.98	60.37	3.16	96.34	1.9	57.93	1.59	48.48	2.67	23.73	6.55	58.22
71	2.01	18.42	1.81	55.52	3.12	95.71	1.91	58.59	1.56	47.85	2.62	24.01	6.28	57.56
72	2.2	20.24	2.04	61.63	3.26	98.49	2.08	62.84	1.7	51.36	2.54	23.37	6.13	56.39
73	1.93	16.75	1.98	60.00	3.16	95.76	1.9	57.58	1.39	42.12	2.98	25.87	6.61	57.38
74	2.11	19.63	1.89	54.94	3.27	95.06	1.9	55.23	1.59	46.22	2.75	25.58	5.89	54.79
75	2	17.76	1.86	58.68	3.06	96.53	1.87	58.99	1.46	46.06	2.63	23.36	6.63	58.88
76	1.94	16.15	1.94	60.25	3.11	96.58	1.97	61.18	1.84	57.14	3.1	25.81	6.97	58.03
77	1.82	16.71	1.71	57.97	2.83	95.93	1.9	64.41	1.72	58.31	2.64	24.24	6.43	59.04
78	2.07	17.68	1.82	60.07	2.97	98.02	1.92	63.37	1.79	59.08	2.78	23.74	6.86	58.58
79	1.92	16.37	1.81	59.93	3.01	99.67	1.84	60.93	1.45	48.01	2.67	22.76	7.14	60.87
80	2.13	18.78	1.85	60.26	2.99	97.39	1.91	62.21	1.51	49.19	2.76	24.34	6.45	56.88
81	1.8	15.53	1.9	55.56	3.13	91.52	1.8	52.63	1.47	42.98	3.11	26.83	6.68	57.64
82	2.08	18.64	2.04	60.36	3.17	93.79	1.95	57.69	1.68	49.70	3.04	27.24	6.04	54.12
83	1.95	18.26	1.88	58.57	3.03	94.39	1.96	61.06	1.52	47.35	2.28	21.35	6.45	60.39
84	2.2	19.30	1.99	61.23	3.09	95.08	1.94	59.69	1.52	46.77	3.05	26.75	6.15	53.95
85	2.09	17.50	2.02	63.72	3.11	98.11	2.14	67.51	1.94	61.20	3	25.13	6.85	57.37
86	2.24	19.34	2.14	63.13	3.3	97.35	2.01	59.29	1.73	51.03	2.57	22.19	6.77	58.46
87	2.08	19.00	1.95	60.19	3.12	96.30	2.13	65.74	1.61	49.69	2.7	24.66	6.17	56.35
88	2.19	18.93	2.06	60.23	3.29	96.20	1.99	58.19	1.71	50.00	2.75	23.77	6.63	57.30
89	1.93	16.94	1.88	61.84	2.9	95.39	1.95	64.14	1.55	50.99	2.59	22.74	6.87	60.32
90	2.07	19.70	1.9	62.50	2.97	97.70	1.66	54.61	1.38	45.39	2.92	27.78	5.52	52.52
91	1.83	17.75	1.88	62.25	2.96	98.01	1.69	55.96	1.32	43.71	2.84	27.55	5.64	54.70
92	1.98	17.13	1.99	61.04	3.1	95.09	1.94	59.51	1.67	51.23	2.91	25.17	6.67	57.70
93	1.85	16.44	1.66	52.20	2.87	90.25	1.74	54.72	1.6	50.31	3.37	29.96	6.03	53.60
94	1.76	15.96	1.81	58.58	2.98	96.44	1.88	60.84	1.49	48.22	3.09	28.01	6.18	56.03
95	2.04	18.07	2	60.42	3.14	94.86	1.92	58.01	1.52	45.92	2.71	24.00	6.54	57.93
96	2.09	17.89	2.04	61.63	3.23	97.58	1.79	54.08	1.39	41.99	3.16	27.05	6.43	55.05

Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
97	1.97	17.72	1.81	56.39	3.02	94.08	1.82	56.70	1.52	47.35	2.62	23.56	6.53	58.72
98	1.87	16.59	1.87	61.72	2.91	96.04	1.83	60.40	1.62	53.47	2.52	22.36	6.88	61.05
99	2.07	17.81	1.83	57.01	3	93.46	1.92	59.81	1.6	49.84	2.74	23.58	6.81	58.61
100	1.61	14.83	1.9	59.19	2.8	87.23	1.44	44.86	1.91	59.50	2.93	26.98	6.32	58.20
101	1.96	16.97	1.9	60.51	2.97	94.59	1.81	57.64	1.57	50.00	2.98	25.80	6.61	57.23
102	1.97	17.22	1.9	60.51	3.04	96.82	1.9	60.51	1.65	52.55	2.67	23.34	6.8	59.44
103	1.89	17.15	1.78	61.17	2.8	96.22	1.84	63.23	1.41	48.45	2.49	22.60	6.64	60.25
104	1.68	15.70	1.8	61.43	2.77	94.54	1.78	60.75	1.55	52.90	2.53	23.64	6.49	60.65
105	1.95	18.04	1.8	62.94	2.76	96.50	1.69	59.09	1.51	52.80	2.48	22.94	6.38	59.02
106	1.68	16.29	1.47	59.04	2.42	97.19	1.46	58.63	1.2	48.19	2.64	25.61	5.99	58.10
107	2.14	18.45	1.93	60.50	3.08	96.55	1.86	58.31	1.49	46.71	2.61	22.50	6.85	59.05
108	2.08	18.57	1.95	59.63	3.12	95.41	1.95	59.63	1.56	47.71	2.86	25.54	6.26	55.89
109	1.97	17.18	2.01	63.21	3.05	95.91	1.92	60.38	1.66	52.20	2.68	23.37	6.82	59.46
110	2	17.20	1.96	62.22	2.93	93.02	1.64	52.06	1.49	47.30	2.95	25.37	6.68	57.44
111	1.82	16.01	1.95	59.63	3.16	96.64	1.93	59.02	1.57	48.01	3.13	27.53	6.42	56.46
112	1.98	17.07	2.08	65.41	3.06	96.23	1.93	60.69	1.53	48.11	2.8	24.14	6.82	58.79
113	2.04	17.24	1.91	57.88	3.12	94.55	1.94	58.79	1.8	54.55	2.85	24.09	6.94	58.66
115	2.09	19.72	1.83	60.00	2.86	93.77	1.68	55.08	1.52	49.84	2.64	24.91	5.87	55.38
116	2.08	18.31	1.85	55.22	3.15	94.03	1.81	54.03	1.58	47.16	3.01	26.50	6.27	55.19
117	1.97	17.21	1.83	54.63	3.16	94.33	2	59.70	1.5	44.78	3.17	27.69	6.31	55.11
118	1.79	16.71	1.76	61.97	2.7	95.07	1.7	59.86	1.44	50.70	2.51	23.44	6.41	59.85
119	2.15	18.44	2.03	63.24	2.97	92.52	1.92	59.81	1.61	50.16	2.75	23.58	6.76	57.98
120	2.12	18.37	1.86	60.59	2.88	93.81	1.86	60.59	1.61	52.44	2.67	23.14	6.75	58.49
121	2.06	17.52	1.81	54.85	3.01	91.21	1.99	60.30	1.67	50.61	2.86	24.32	6.84	58.16
122	1.97	17.09	2.05	61.93	3.06	92.45	1.75	52.87	1.52	45.92	3.39	29.40	6.17	53.51
123	1.88	17.85	1.83	59.03	2.81	90.65	1.71	55.16	1.3	41.94	2.67	25.36	5.98	56.79
124	1.68	15.53	1.63	59.71	2.65	97.07	1.52	55.68	1.49	54.58	2.74	25.32	6.4	59.15
125	2.12	18.48	1.88	58.39	3.06	95.03	1.88	58.39	1.46	45.34	2.73	23.80	6.62	57.72
126	1.75	17.06	1.54	58.33	2.56	96.97	1.49	56.44	1.29	48.86	2.49	24.27	6.02	58.67
127	2.11	18.59	2.05	61.93	3.22	97.28	1.77	53.47	1.49	45.02	2.93	25.81	6.31	55.59
128	1.86	17.16	1.75	61.84	2.72	96.11	1.69	59.72	1.48	52.30	2.49	22.97	6.49	59.87

Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
129	2	18.40	1.94	64.67	2.88	96.00	1.69	56.33	1.47	49.00	2.53	23.28	6.34	58.33
130	1.81	17.22	1.64	55.22	2.75	92.59	1.57	52.86	1.34	45.12	2.67	25.40	6.03	57.37
131	2.11	19.03	2	61.73	2.99	92.28	1.85	57.10	1.52	46.91	2.77	24.98	6.21	56.00
132	1.96	16.74	1.96	58.51	3.14	93.73	1.88	56.12	1.45	43.28	3.29	28.10	6.46	55.17
133	1.94	18.23	1.99	64.19	2.97	95.81	1.76	56.77	1.59	51.29	2.64	24.81	6.06	56.95
134	1.74	17.14	1.56	60.00	2.38	91.54	1.41	54.23	1.3	50.00	2.58	25.42	5.83	57.44
135	1.78	17.82	1.61	60.30	2.62	98.13	1.54	57.68	1.29	48.31	2.25	22.52	5.96	59.66
136	1.68	14.96	1.79	54.74	3.02	92.35	1.72	52.60	1.44	44.04	3.07	27.34	6.48	57.70
137	1.9	15.95	1.84	59.55	2.94	95.15	1.93	62.46	1.79	57.93	2.79	23.43	7.22	60.62
138	2.01	17.21	1.84	60.53	2.87	94.41	1.86	61.18	1.64	53.95	2.77	23.72	6.9	59.08
139	1.92	17.08	1.74	59.59	2.91	99.66	1.84	63.01	1.59	54.45	2.48	22.06	6.84	60.85
140	1.91	18.04	1.97	61.95	2.95	92.77	1.77	55.66	1.4	44.03	2.83	26.72	5.85	55.24
141	1.82	15.73	1.78	53.13	3.19	95.22	1.87	55.82	1.6	47.76	3.22	27.83	6.53	56.44
142	2.15	19.83	1.93	59.75	3.12	96.59	1.77	54.80	1.55	47.99	3.39	31.27	5.3	48.89
143	2.07	17.78	1.91	60.63	2.94	93.33	1.9	60.32	1.45	46.03	2.66	22.85	6.91	59.36
144	1.81	15.73	1.79	58.12	2.76	89.61	1.65	53.57	1.47	47.73	3.16	27.45	6.54	56.82
145	2.07	17.84	1.95	59.82	3.15	96.63	2.05	62.88	1.71	52.45	2.7	23.28	6.83	58.88
146	1.98	17.01	1.78	55.97	2.88	90.57	1.63	51.26	1.59	50.00	2.94	25.26	6.72	57.73
147	1.98	17.19	1.84	62.37	2.86	96.95	1.9	64.41	1.48	50.17	2.7	23.44	6.84	59.38
148	2.19	19.93	2.03	60.60	3.1	92.54	1.93	57.61	1.62	48.36	3.06	27.84	5.74	52.23
149	1.84	15.99	1.66	55.89	2.84	95.62	1.94	65.32	1.5	50.51	2.44	21.20	7.23	62.81
150	2.05	17.72	1.94	61.59	2.95	93.65	1.83	58.10	1.49	47.30	2.71	23.42	6.81	58.86
151	1.86	16.61	1.71	61.73	2.66	96.03	1.86	67.15	1.52	54.87	2.48	22.14	6.86	61.25
152	2.24	19.46	2.05	60.65	3.3	97.63	2.01	59.47	1.64	48.52	2.75	23.89	6.52	56.65
153	2	17.50	1.76	60.48	2.74	94.16	1.84	63.23	1.57	53.95	2.87	25.11	6.56	57.39
154	2	17.53	1.93	65.20	2.93	98.99	2	67.57	1.65	55.74	2.58	22.61	6.83	59.86
155	1.96	16.48	1.94	61.78	3.06	97.45	2	63.69	1.54	49.04	3.04	25.57	6.89	57.95
156	1.82	16.12	1.8	59.02	2.88	94.43	1.68	55.08	1.31	42.95	2.59	22.94	6.88	60.94
157	1.79	16.87	1.77	59.60	2.88	96.97	2.02	68.01	1.53	51.52	2.54	23.94	6.28	59.19
158	1.93	17.50	1.86	60.78	2.96	96.73	1.85	60.46	1.57	51.31	2.6	23.57	6.5	58.93
159	2.18	18.52	1.87	61.31	2.89	94.75	2	65.57	1.73	56.72	2.81	23.87	6.78	57.60

Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
160	2.01	17.65	1.9	58.82	3	92.88	2	61.92	1.49	46.13	2.5	21.95	6.88	60.40
161	1.82	15.35	1.9	56.21	3.2	94.67	2.23	65.98	1.68	49.70	2.94	24.79	7.1	59.87
162	1.97	17.36	1.9	59.75	3.05	95.91	1.87	58.81	1.46	45.91	2.68	23.61	6.7	59.03
163	2.12	19.98	1.99	61.80	3.11	96.58	1.83	56.83	1.51	46.89	2.59	24.41	5.9	55.61
164	1.97	17.62	1.75	59.93	2.76	94.52	1.91	65.41	1.67	57.19	2.58	23.08	6.63	59.30
165	2.2	18.95	2.08	64.40	3.07	95.05	2.07	64.09	1.68	52.01	3	25.84	6.41	55.21
166	1.93	17.69	1.82	59.67	2.83	92.79	1.53	50.16	1.41	46.23	2.6	23.83	6.38	58.48
167	1.86	17.50	1.64	52.90	2.83	91.29	1.82	58.71	1.56	50.32	2.95	27.75	5.82	54.75
168	2.12	18.50	1.95	58.91	3.18	96.07	2.01	60.73	1.69	51.06	2.92	25.48	6.42	56.02
169	1.69	18.41	1.44	58.06	2.3	92.74	1.54	62.10	1.19	47.98	2.36	25.71	5.13	55.88
170	2.09	17.97	1.92	62.34	2.9	94.16	1.87	60.71	1.6	51.95	2.51	21.58	7.03	60.45
171	1.71	16.60	1.51	57.41	2.43	92.40	1.58	60.08	1.27	48.29	2.53	24.56	6.06	58.83
172	2.09	18.71	1.94	59.15	3	91.46	1.77	53.96	1.41	42.99	2.82	25.25	6.26	56.04
173	1.7	17.40	1.35	51.92	2.38	91.54	1.55	59.62	1.23	47.31	2.23	22.82	5.84	59.77
174	1.69	16.02	1.52	56.93	2.49	93.26	1.6	59.93	1.28	47.94	2.69	25.50	6.17	58.48
175	1.69	16.42	1.64	57.14	2.61	90.94	1.69	58.89	1.37	47.74	2.52	24.49	6.08	59.09
176	2.06	18.90	1.97	65.02	2.92	96.37	1.83	60.40	1.66	54.79	2.39	21.93	6.45	59.17
177	1.81	18.55	1.78	59.73	2.85	95.64	2.14	71.81	1.42	47.65	2.4	24.59	5.55	56.86
178	1.7	16.24	1.6	57.76	2.55	92.06	1.69	61.01	1.54	55.60	2.72	25.98	6.05	57.78
179	1.99	17.38	1.93	60.12	2.99	93.15	1.89	58.88	1.6	49.84	2.6	22.71	6.86	59.91
180	1.92	18.08	1.86	64.14	2.74	94.48	1.79	61.72	1.41	48.62	2.32	21.85	6.38	60.08
181	1.79	16.47	1.58	58.09	2.58	94.85	1.69	62.13	1.35	49.63	2.8	25.76	6.28	57.77
182	1.78	17.16	1.66	60.14	2.59	93.84	1.71	61.96	1.45	52.54	2.45	23.63	6.14	59.21
183	1.98	18.45	2	62.31	3.01	93.77	1.86	57.94	1.52	47.35	2.84	26.47	5.91	55.08
184	1.69	16.88	1.54	56.83	2.54	93.73	1.7	62.73	1.51	55.72	2.63	26.27	5.69	56.84
185	1.89	16.97	1.78	59.53	2.82	94.31	1.87	62.54	1.62	54.18	2.55	22.89	6.7	60.14
186	1.93	17.64	1.68	58.13	2.72	94.12	1.65	57.09	1.42	49.13	2.81	25.69	6.2	56.67
187	1.88	18.22	1.71	57.97	2.66	90.17	1.83	62.03	1.38	46.78	2.98	28.88	5.46	52.91
188	2.01	18.70	1.95	62.10	2.92	92.99	1.73	55.10	1.41	44.90	2.97	27.63	5.77	53.67
189	1.8	15.33	1.81	53.24	3.18	93.53	1.84	54.12	1.49	43.82	2.97	25.30	6.97	59.37
190	1.88	16.40	1.8	55.05	3.04	92.97	1.91	58.41	1.51	46.18	2.84	24.78	6.74	58.81

Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
191	1.8	16.57	1.67	59.22	2.75	97.52	1.68	59.57	1.45	51.42	2.63	24.22	6.43	59.21
192	2.11	19.30	1.98	59.28	3.1	92.81	1.82	54.49	1.52	45.51	2.91	26.62	5.91	54.07
193	2.1	20.35	1.77	55.84	3.04	95.90	1.79	56.47	1.32	41.64	2.8	27.13	5.42	52.52
194	1.79	16.33	1.86	57.59	3.09	95.67	2	61.92	1.51	46.75	3.03	27.65	6.14	56.02
195	1.72	16.12	1.55	60.31	2.51	97.67	1.5	58.37	1.27	49.42	2.58	24.18	6.37	59.70
196	2.1	19.87	2	62.11	3.03	94.10	1.78	55.28	1.45	45.03	2.83	26.77	5.64	53.36
197	2.03	18.95	1.83	57.55	2.98	93.71	1.84	57.86	1.51	47.48	2.83	26.42	5.85	54.62
198	1.68	16.49	1.53	59.07	2.58	99.61	1.58	61.00	1.4	54.05	2.64	25.91	5.87	57.61
199	2.29	20.00	1.98	58.75	3.2	94.96	1.97	58.46	1.65	48.96	2.54	22.18	6.62	57.82
200	2.29	19.04	2.01	60.36	3.21	96.40	1.99	59.76	1.49	44.74	3.08	25.60	6.66	55.36
201	2.19	18.37	1.88	57.14	3.19	96.96	1.89	57.45	1.65	50.15	2.88	24.16	6.85	57.47
202	2.21	20.29	1.98	61.68	3.16	98.44	1.89	58.88	1.7	52.96	2.77	25.44	5.91	54.27
203	1.95	16.41	1.94	61.98	3.02	96.49	1.98	63.26	1.47	46.96	2.88	24.24	7.05	59.34
204	2.02	17.84	1.91	62.01	3	97.40	2.08	67.53	1.71	55.52	2.58	22.79	6.72	59.36
205	2.16	20.09	2.02	64.95	3.03	97.43	1.73	55.63	1.57	50.48	2.56	23.81	6.03	56.09
206	2.1	18.62	1.97	63.96	3	97.40	1.91	62.01	1.61	52.27	2.69	23.85	6.49	57.54
207	2.2	19.91	2.06	62.24	3.22	97.28	1.92	58.01	1.53	46.22	2.7	24.43	6.15	55.66
208	2.1	19.34	1.98	63.06	3.07	97.77	1.94	61.78	1.58	50.32	2.51	23.11	6.25	57.55
209	1.9	18.22	1.96	61.06	3.06	95.33	2.05	63.86	1.56	48.60	2.85	27.33	5.68	54.46
210	2.24	18.89	2.13	61.21	3.33	95.69	1.97	56.61	1.56	44.83	2.93	24.70	6.69	56.41
211	2.05	18.59	1.97	61.56	3.04	95.00	1.93	60.31	1.6	50.00	2.77	25.11	6.21	56.30
212	1.97	18.01	1.79	60.68	2.88	97.63	1.78	60.34	1.45	49.15	2.51	22.94	6.46	59.05
213	2.1	19.63	1.89	58.88	3.05	95.02	1.97	61.37	1.72	53.58	2.68	25.05	5.92	55.33
214	2.23	19.04	2.18	64.31	3.32	97.94	2.1	61.95	1.72	50.74	2.73	23.31	6.75	57.64
215	2.28	19.19	2.2	63.04	3.32	95.13	2.01	57.59	1.78	51.00	3.06	25.76	6.54	55.05
216	1.8	14.94	1.78	59.93	2.84	95.62	1.94	65.32	1.56	52.53	2.73	22.66	7.52	62.41
217	2.11	18.14	1.85	54.90	3.25	96.44	2.07	61.42	1.73	51.34	2.74	23.56	6.78	58.30
218	2.42	20.53	2.3	63.71	3.47	96.12	2.1	58.17	1.61	44.60	3.23	27.40	6.14	52.08
219	2.16	19.41	1.99	59.40	3.16	94.33	1.9	56.72	1.71	51.04	2.8	25.16	6.17	55.44
220	1.98	18.27	1.74	60.63	2.72	94.77	1.92	66.90	1.66	57.84	2.32	21.40	6.54	60.33
221	2.12	18.03	2.05	62.69	3.11	95.11	1.95	59.63	1.73	52.91	2.59	22.02	7.05	59.95



Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
222	2.05	17.36	1.78	57.23	2.98	95.82	1.99	63.99	1.71	54.98	2.75	23.29	7.01	59.36
223	2.12	19.54	1.94	59.88	3.09	95.37	2.12	65.43	1.44	44.44	2.58	23.78	6.15	56.68
224	1.69	15.74	1.69	61.45	2.68	97.45	1.8	65.45	1.56	56.73	2.38	22.16	6.67	62.10
225	1.94	17.38	1.74	60.63	2.72	94.77	1.83	63.76	1.41	49.13	2.73	24.46	6.49	58.15
226	2.1	17.89	1.85	57.45	3.03	94.10	1.98	61.49	1.42	44.10	2.73	23.25	6.91	58.86
227	2.25	18.99	2.03	60.24	3.17	94.07	2	59.35	1.63	48.37	2.72	22.95	6.88	58.06
228	2.24	18.64	1.96	55.52	3.36	95.18	2.1	59.49	1.56	44.19	2.8	23.29	6.98	58.07
229	2.01	18.54	1.89	59.43	3.02	94.97	1.84	57.86	1.63	51.26	2.45	22.60	6.38	58.86
230	2.18	18.33	2.13	62.46	3.32	97.36	1.99	58.36	1.74	51.03	2.98	25.06	6.73	56.60
231	1.68	16.60	1.48	57.14	2.45	94.59	1.49	57.53	1.3	50.19	2.56	25.30	5.88	58.10
232	1.49	14.49	1.35	52.53	2.16	84.05	1.55	60.31	1.34	52.14	2.68	26.07	6.11	59.44
233	1.54	16.16	1.38	57.98	2.27	95.38	1.4	58.82	1.16	48.74	2.23	23.40	5.76	60.44
234	2.08	17.90	1.95	60.56	3.18	98.76	1.95	60.56	1.65	51.24	2.75	23.67	6.79	58.43
235	1.91	18.42	1.61	63.39	2.39	94.09	1.49	58.66	1.44	56.69	2.56	24.69	5.9	56.89
236	1.7	16.07	1.41	54.23	2.4	92.31	1.41	54.23	1.27	48.85	2.95	27.88	5.93	56.05
237	1.55	15.80	1.39	61.23	2.16	95.15	1.34	59.03	1.25	55.07	2.18	22.22	6.08	61.98
238	1.87	17.51	1.83	58.10	2.81	89.21	1.69	53.65	1.47	46.67	3.05	28.56	5.76	53.93
239	1.53	15.45	1.4	60.61	2.24	96.97	1.46	63.20	1.25	54.11	2.25	22.73	6.12	61.82
240	2	19.25	1.85	60.66	2.9	95.08	1.78	58.36	1.49	48.85	2.74	26.37	5.65	54.38
241	1.65	15.99	1.64	61.19	2.59	96.64	1.68	62.69	1.3	48.51	2.5	24.22	6.17	59.79
242	1.97	18.87	1.57	60.15	2.32	88.89	1.61	61.69	1.29	49.43	2.5	23.95	5.97	57.18
243	1.75	17.57	1.52	58.46	2.24	86.15	1.46	56.15	1.23	47.31	2.31	23.19	5.9	59.24
244	1.83	17.33	1.75	57.76	2.81	92.74	1.75	57.76	1.41	46.53	2.51	23.77	6.22	58.90
245	1.77	18.21	1.41	56.63	2.09	83.94	1.55	62.25	1.46	58.63	2.45	25.21	5.5	56.58
246	1.81	17.39	1.66	61.48	2.56	94.81	1.51	55.93	1.28	47.41	2.39	22.96	6.21	59.65
247	2.02	17.53	1.78	57.79	2.88	93.51	1.94	62.99	1.68	54.55	2.95	25.61	6.55	56.86
248	1.99	16.84	1.72	59.11	2.84	97.59	1.85	63.57	1.4	48.11	2.67	22.59	7.16	60.58
249	2.22	19.91	1.85	61.06	2.96	97.69	1.9	62.71	1.67	55.12	2.58	23.14	6.35	56.95
250	1.77	17.84	1.59	59.55	2.52	94.38	1.84	68.91	1.41	52.81	2.35	23.69	5.8	58.47
251	2.24	19.16	1.97	63.96	3.02	98.05	1.99	64.61	1.75	56.82	2.64	22.58	6.81	58.25
252	2.07	16.83	1.9	61.69	3.06	99.35	1.89	61.36	1.63	52.92	3.18	25.85	7.05	57.32

Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
253	1.98	18.79	1.83	60.40	2.84	93.73	1.83	60.40	1.52	50.17	2.8	26.57	5.76	54.65
254	1.81	16.54	1.62	59.12	2.7	98.54	1.65	60.22	1.63	59.49	2.48	22.67	6.65	60.79
255	2.04	17.80	1.88	61.64	3	98.36	1.84	60.33	1.83	60.00	2.62	22.86	6.8	59.34
256	1.95	17.65	1.93	63.07	2.93	95.75	1.77	57.84	1.43	46.73	2.94	26.61	6.16	55.75
257	1.96	16.82	1.95	63.31	3.02	98.05	2.01	65.26	1.8	58.44	2.68	23.00	7.01	60.17
258	2.09	19.42	1.87	60.13	2.93	94.21	1.82	58.52	1.61	51.77	2.49	23.14	6.18	57.43
259	1.95	18.11	1.74	60.21	2.73	94.46	1.88	65.05	1.42	49.13	2.55	23.68	6.27	58.22
260	2.01	16.69	1.83	61.20	2.84	94.98	1.93	64.55	1.77	59.20	2.73	22.67	7.3	60.63
261	2.03	18.19	1.93	59.38	3.07	94.46	1.93	59.38	1.6	49.23	2.4	21.51	6.73	60.30
262	1.95	16.82	1.85	58.92	2.91	92.68	1.84	58.60	1.52	48.41	2.69	23.21	6.95	59.97
263	1.93	16.29	1.86	59.42	3.06	97.76	1.92	61.34	1.7	54.31	2.8	23.63	7.12	60.08
264	2.01	19.25	1.8	58.63	2.88	93.81	1.78	57.98	1.39	45.28	2.63	25.19	5.8	55.56
265	1.77	16.22	1.72	55.84	2.87	93.18	1.9	61.69	1.82	59.09	2.47	22.64	6.67	61.14
266	1.95	16.77	1.81	61.99	2.83	96.92	1.81	61.99	1.62	55.48	2.6	22.36	7.08	60.88
267	1.98	18.75	1.84	62.16	2.89	97.64	1.75	59.12	1.56	52.70	2.51	23.77	6.07	57.48
268	2.05	18.88	1.81	59.54	2.92	96.05	1.83	60.20	1.56	51.32	2.58	23.76	6.23	57.37
269	1.98	17.49	1.76	57.14	2.96	96.10	2.01	65.26	1.84	59.74	2.74	24.20	6.6	58.30
270	1.8	16.45	1.76	56.59	2.94	94.53	2.01	64.63	1.58	50.80	2.57	23.49	6.57	60.05
271	1.96	17.15	1.86	60.59	3.01	98.05	2.06	67.10	1.59	51.79	2.58	22.57	6.89	60.28
272	2.01	18.14	1.82	56.00	2.95	90.77	1.69	52.00	1.52	46.77	2.96	26.71	6.11	55.14
273	2.02	17.81	1.92	60.57	3.06	96.53	2.07	65.30	1.83	57.73	2.67	23.54	6.65	58.64
274	1.9	17.99	1.66	59.71	2.67	96.04	1.65	59.35	1.36	48.92	2.81	26.61	5.85	55.40
275	2.04	18.70	1.76	57.89	2.89	95.07	1.95	64.14	1.65	54.28	2.64	24.20	6.23	57.10
276	1.81	16.19	1.86	62.42	2.95	98.99	1.82	61.07	1.56	52.35	2.43	21.74	6.94	62.08
277	1.92	16.89	1.84	60.93	2.95	97.68	1.86	61.59	1.67	55.30	2.35	20.67	7.1	62.45
278	2.18	18.60	1.87	59.55	3.05	97.13	2.02	64.33	1.77	56.37	2.5	21.33	7.04	60.07
279	2	17.02	1.81	58.39	3.01	97.10	1.85	59.68	1.52	49.03	2.65	22.55	7.1	60.43
280	2.15	19.06	1.85	61.06	2.9	95.71	1.8	59.41	1.76	58.09	2.4	21.28	6.73	59.66
281	2.13	20.00	1.83	61.41	2.89	96.98	1.92	64.43	1.69	56.71	2.66	24.98	5.86	55.02
282	2.13	20.08	1.83	55.29	3.14	94.86	1.95	58.91	1.62	48.94	2.71	25.54	5.77	54.38
283	1.7	17.67	1.51	62.40	2.08	85.95	1.4	57.85	1.18	48.76	2.42	25.16	5.5	57.17

Basic Body Measurements and Proportion Calculations

Accession Number	Head Height (cm)	Head Height Proportion %	Head Width (cm)	Head Width Proportion %	Shoulder Width (cm)	Shoulder Proportion %	Knee Width (cm)	Knee Proportion %	Feet Width (cm)	Feet Proportion %	Torso Height (cm)	Torso Proportion %	Lower Length (cm)	Lower Length Proportion
284	2.02	17.84	1.84	62.16	2.87	96.96	1.85	62.50	1.58	53.38	2.52	22.26	6.78	59.89
285	2.12	17.03	2	62.11	3.11	96.58	1.96	60.87	1.88	58.39	2.77	22.25	7.56	60.72
286	1.88	17.04	1.68	58.33	2.77	96.18	1.65	57.29	1.37	47.57	3.11	28.20	6.04	54.76
287	2.03	19.21	1.92	60.57	2.97	93.69	1.86	58.68	1.52	47.95	2.49	23.56	6.05	57.24
288	2.36	19.68	1.98	57.89	3.3	96.49	1.97	57.60	1.68	49.12	2.77	23.10	6.86	57.21
289	1.71	16.65	1.5	58.59	2.44	95.31	1.54	60.16	1.26	49.22	2.68	26.10	5.88	57.25
290	1.99	17.83	2.02	60.30	3.18	94.93	1.94	57.91	1.65	49.25	2.73	24.46	6.44	57.71
291	1.9	16.64	1.81	60.13	2.9	96.35	1.94	64.45	1.47	48.84	2.42	21.19	7.1	62.17
292	1.98	18.02	1.79	59.08	2.9	95.71	1.93	63.70	1.57	51.82	2.46	22.38	6.55	59.60
293	1.69	16.10	1.61	59.41	2.25	83.03	1.49	54.98	1.3	47.97	2.84	27.05	5.97	56.86
294	1.99	18.53	1.96	59.94	3.15	96.33	1.83	55.96	1.42	43.43	2.89	26.91	5.86	54.56
295	2.04	19.15	1.99	61.61	2.99	92.57	1.94	60.06	1.45	44.89	2.52	23.66	6.09	57.18
296	1.93	17.74	1.75	57.95	2.8	92.72	1.9	62.91	1.67	55.30	2.28	20.96	6.67	61.31
297	2.09	17.55	1.96	57.31	3.22	94.15	2.03	59.36	1.57	45.91	2.76	23.17	7.06	59.28
298	1.79	15.97	1.63	56.99	2.58	90.21	1.88	65.73	1.48	51.75	2.14	19.09	7.28	64.94
299	2.08	19.28	1.95	61.32	3.01	94.65	1.87	58.81	1.59	50.00	2.35	21.78	6.36	58.94
300	1.98	17.62	1.84	59.35	2.95	95.16	2.02	65.16	1.56	50.32	2.7	24.02	6.56	58.36
301	1.81	17.24	1.56	58.43	2.54	95.13	1.49	55.81	1.2	44.94	2.4	22.86	6.29	59.90
302	2.12	20.56	1.92	60.95	3.04	96.51	1.84	58.41	1.57	49.84	2.58	25.02	5.61	54.41
303	1.98	18.12	1.65	50.46	3.02	92.35	1.91	58.41	1.7	51.99	2.6	23.79	6.35	58.10
304	2.19	20.96	1.82	53.53	3.02	88.82	1.83	53.82	1.56	45.88	2.71	25.93	5.55	53.11
305	1.8	16.26	1.77	60.41	2.88	98.29	1.87	63.82	1.48	50.51	2.31	20.87	6.96	62.87
306	1.77	16.28	1.82	59.87	2.88	94.74	1.84	60.53	1.77	58.22	2.48	22.82	6.62	60.90
307	2.13	19.65	1.9	56.05	3.07	90.56	1.87	55.16	1.62	47.79	2.54	23.43	6.17	56.92
308	1.88	16.80	1.93	47.30	2.93	95.13	2.09	51.23	1.66	40.69	2.63	23.50	6.68	59.70
309	1.97	16.85	1.86	62.42	2.9	97.32	1.85	62.08	1.69	56.71	2.6	22.24	7.12	60.91
310	1.62	16.27	1.64	59.21	2.59	93.50	1.74	62.82	1.31	47.29	2.66	26.71	5.68	57.03
311	2.11	19.38	1.92	59.63	3.05	94.72	1.96	60.87	1.75	54.35	2.74	25.16	6.04	55.46
312	2.23	18.46	2.04	61.63	3.15	95.17	1.92	58.01	1.67	50.45	2.68	22.19	7.17	59.35

Appendix C, Table 3. Hand Measurements and Proportion Calculations

Hand Measurements and Proportion Calculations											
Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
7	Left over Right	1.33	6.96	1.14	20.39	1.36	7.12	1.08	19.32	1.14	20.39
8	Left over Right	1.29	6.55	1.1	19.23	1.38	7.01	1.23	21.50	1.06	18.53
9	Left over Right	1.24	6.23	1.18	20.52	1.12	5.63	0.98	17.04	0.8	13.91
10	Left over Right	1.12	5.77	1.15	20.00	1.33	6.86	1.21	21.04	1.19	20.70
11	Left over Right	1.32	6.77	1.21	23.40	1.37	7.03	1.35	26.11	1.07	18.23
12	Right over Left	1.01	5.40	1.23	23.03	1.05	5.61	1.19	22.28	1.11	20.79
13	Left over Right	1.18	5.93	1.65	28.50	0.71	3.57	1.16	20.03	0.9	15.54
14	Right over Left	1.39	7.09	1.26	22.50	1.14	5.82	1.26	22.50	0.57	10.18
15	Right over Left	1.01	5.40	0.83	15.75	0.91	4.87	0.73	13.85	1.11	21.06
16	Right over Left	1.01	5.34	0.67	12.45	1.15	6.08	0.73	13.57	1.2	22.30
17	Right over Left	1.18	6.28	1.19	21.25	1.16	6.17	1.02	18.21	0.83	14.82
18	Right over Left	1.37	7.21	1.18	21.93	1.18	6.21	1.18	21.93	0.79	14.68
19	Left over Right	1.37	7.03	0.97	16.72	1.45	7.44	1.13	19.48	1.03	17.76
20	Right over Left	1.31	7.08	1.17	21.47	1.24	6.70	1.06	19.45	0.76	13.94
21	Left over Right	0.84	7.42	0.84	27.72	0.81	7.16	0.68	22.44	0.41	13.53
22	Left over Right	0.66	5.53	0.59	16.81	0.92	7.71	0.69	19.66	0.52	14.81
23	CBD	0.66	5.73	0.52	16.40	0.71	6.16	0.47	14.83	0.54	17.03
24	Left over Right	0.81	8.33	0.69	24.73	0.7	7.20	0.62	22.22	0.42	15.05
25	CBD	0.74	6.45	0.73	24.01	0.75	6.54	0.57	18.75	0.64	21.05
26	Left over Right	0.73	6.43	0.6	20.69	0.68	5.99	0.48	16.55	0.38	13.10
27	CBD	0.74	7.25	0.55	22.09	0.69	6.76	0.51	20.48	0.19	7.63
28	Right over Left	0.77	7.28	0.5	16.89	0.71	6.72	0.52	17.57	0.53	16.72
29	Left over Right	0.64	5.81	0.65	19.40	0.75	6.81	0.56	16.72	0.31	9.25
30	Left over Right	0.76	6.87	0.72	23.45	0.73	6.60	0.6	19.54	0.54	17.59
31	Right over Left	0.74	6.30	0.56	17.28	0.69	5.87	0.45	13.89	0.61	18.83
32	Left over Right	0.75	6.47	0.7	24.05	0.81	6.99	0.56	19.24	0.36	12.37
33	Left over Right	0.77	7.10	0.62	20.60	0.74	6.83	0.55	18.27	0.51	16.94
34	Left over Right	0.75	6.89	0.61	19.37	0.7	6.43	0.61	19.37	0.52	16.51

Hand Measurements and Proportion Calculations

Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
35	Right over Left	0.61	5.33	0.53	16.99	0.62	5.41	0.37	11.86	0.61	19.55
36	Left over Right	0.79	7.70	0.66	21.50	0.74	7.21	0.62	20.20	0.5	16.29
37	Left over Right	0.71	6.21	0.61	21.03	0.77	6.74	0.71	24.48	0.42	14.48
38	Right over Left	0.82	7.48	0.6	17.96	0.78	7.12	0.56	16.77	0.56	16.77
39	Left over Right	0.66	5.64	0.63	19.38	0.88	7.52	0.62	19.08	0.64	19.69
40	Right over Left	0.73	6.67	0.6	18.35	0.74	6.76	0.63	19.27	0.79	24.16
41	CBD	0.76	6.41	0.67	22.04	0.74	6.24	0.63	20.72	0.4	13.16
42	Left over Right	0.78	7.08	0.59	18.04	0.79	7.17	0.55	16.82	0.53	16.21
43	Left over Right	0.77	6.41	0.75	21.80	0.92	7.65	0.57	16.57	0.51	14.83
44	Left over Right	0.82	7.26	0.66	21.15	0.79	6.99	0.6	19.23	0.39	12.50
45	CBD	0.82	6.87	0.61	18.48	0.89	7.46	0.51	15.45	0.46	13.94
46	Right over Left	0.91	7.45	0.91	24.93	0.88	7.21	0.66	18.08	0.47	12.88
47	Right over Left	0.78	7.09	0.52	15.16	0.82	7.45	0.59	17.20	0.51	14.87
48	CBD	0.75	6.54	0.66	22.30	0.82	7.15	0.63	21.28	0.41	13.85
49	CBD	0.89	8.11	0.61	19.81	0.77	7.02	0.67	21.75	0.54	17.53
50	Left over Right	0.94	8.05	0.63	22.42	0.85	7.28	0.66	23.49	0.37	13.17
51	Right over Left	0.7	5.95	0.65	19.35	0.78	6.63	0.6	17.86	0.59	17.56
52	Left over Right	0.83	7.99	0.65	21.59	0.85	8.18	0.61	20.27	0.54	17.94
53	Right over Left	0.8	6.91	0.54	15.74	0.7	6.04	0.55	16.03	0.68	19.83
54	Left over Right	0.78	6.59	0.63	19.81	0.87	7.35	0.62	19.50	0.47	14.78
55	CBD	0.69	5.93	0.57	18.81	0.62	5.33	0.51	16.83	0.6	19.80
56	Right over Left	0.81	7.01	0.7	23.89	0.85	7.35	0.61	20.82	0.58	19.80
57	CBD	0.91	7.60	0.64	18.39	0.77	6.43	0.52	14.94	0.59	16.95
58	Left over Right	0.68	5.79	0.61	18.32	0.73	6.22	0.59	17.72	0.67	20.12
59	CBD	0.74	6.10	0.58	18.18	0.74	6.10	0.57	17.87	0.54	16.93
60	Left over Right	0.79	6.77	0.72	20.87	0.81	6.94	0.56	16.23	0.62	17.97
61	Right over Left	0.93	7.89	0.6	17.39	0.8	6.79	0.49	14.20	0.64	18.55
62	CBD	0.88	7.47	0.76	22.89	0.71	6.03	0.6	18.07	0.54	16.27
63	Right over Left	0.91	8.03	0.68	20.24	0.8	7.06	0.5	14.88	0.71	21.13
64	Right over Left	0.67	6.26	0.6	18.63	0.85	7.94	0.61	18.94	0.51	15.84
65	Right over Left	0.78	6.87	0.61	17.99	0.76	6.70	0.61	17.99	0.64	18.88

Hand Measurements and Proportion Calculations

Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
66	Right over Left	0.7	6.54	0.56	16.72	0.72	6.73	0.6	17.91	0.6	17.91
67	Left over Right	0.84	7.38	0.74	24.75	0.79	6.94	0.66	22.07	0.45	15.05
68	Right over Left	0.75	6.57	0.67	20.81	0.82	7.19	0.59	18.32	0.69	21.43
69	CBD	0.81	7.62	0.76	23.24	0.71	6.68	0.55	16.82	0.56	17.13
70	Right over Left	0.79	7.02	0.51	15.55	0.8	7.11	0.61	18.60	0.66	20.12
71	Left over Right	0.76	6.97	0.63	19.33	0.73	6.69	0.58	17.79	0.48	14.72
72	Right over Left	0.75	6.90	0.67	20.24	0.8	7.36	0.52	15.71	0.61	18.43
73	CBD	0.9	7.81	0.71	21.52	0.91	7.90	0.59	17.88	0.52	15.76
74	Left over Right	0.73	6.79	0.62	18.02	0.74	6.88	0.6	17.44	0.54	15.70
75	Right over Left	0.77	6.84	0.48	15.14	0.65	5.77	0.46	14.51	0.81	25.55
76	CBD	0.85	7.08	0.69	21.43	0.83	6.91	0.59	18.32	0.54	16.77
77	CBD	0.71	6.52	0.63	21.36	0.77	7.07	0.59	20.00	0.51	17.29
78	Left over Right	0.87	7.43	0.64	21.12	0.74	6.32	0.76	25.08	0.57	18.81
79	CBD	0.78	6.65	0.68	22.52	0.81	6.91	0.67	22.19	0.36	11.92
80	Left over Right	0.8	7.05	0.69	22.48	0.92	8.11	0.56	18.24	0.48	15.64
81	CBD	1.01	8.71	0.74	21.64	0.94	8.11	0.54	15.79	0.76	22.22
82	Right over Left	0.79	7.08	0.54	15.98	0.76	6.81	0.52	15.38	0.65	19.23
83	Right over Left	0.67	6.27	0.62	19.31	0.74	6.93	0.58	18.07	0.55	17.13
84	Side by side, separate cuffs	1.18	10.35	0.67	20.62	1.11	9.74	0.5	15.38	0.22	6.77
85	CBD	0.71	5.95	0.72	22.71	0.94	7.87	0.72	22.71	0.49	15.46
86	Right over Left	0.77	6.65	0.65	19.17	0.79	6.82	0.65	19.17	0.58	17.11
87	Right over Left	0.95	8.68	0.71	21.91	0.8	7.31	0.68	20.99	0.44	13.58
88	Right over Left	0.8	6.91	0.58	16.96	0.74	6.40	0.53	15.50	0.52	15.20
89	CBD	0.61	5.36	0.5	16.45	0.65	5.71	0.52	17.11	0.67	22.04
90	CBD	0.78	7.42	0.73	24.01	0.76	7.23	0.65	21.38	0.31	10.20
91	CBD	0.8	7.76	0.71	23.51	0.81	7.86	0.65	21.52	0.79	26.16
92	CBD	0.86	7.44	0.64	19.63	0.57	4.93	0.4	12.27	0.5	15.34
93	Side by side, one cuff	0.98	8.71	0.7	22.01	0.93	8.27	0.56	17.61	0.78	24.53
94	Side by side, separate cuffs	1.03	9.34	0.36	11.65	1.01	9.16	0.41	13.27	0.83	26.86
95	CBD	0.83	7.35	0.75	22.66	0.91	8.06	0.67	20.24	0.34	10.27
96	CBD	0.73	6.25	0.64	19.34	0.73	6.25	0.66	19.94	0.68	20.54

Hand Measurements and Proportion Calculations

Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
97	CBD	0.8	7.19	0.55	17.13	0.83	7.46	0.58	18.07	0.85	26.48
98	Left over Right	0.59	5.24	0.5	16.50	0.65	5.77	0.49	16.17	0.33	10.89
99	CBD	0.77	6.63	0.48	14.95	0.65	5.59	0.49	15.26	0.6	18.69
100	Right over Left	0.92	8.47	0.75	23.36	0.83	7.64	0.67	20.87	0.56	17.45
101	CBD	0.9	7.79	0.63	20.06	0.74	6.41	0.66	21.02	0.58	18.47
102	Right over Left	0.64	5.59	0.49	15.61	0.64	5.59	0.44	14.01	0.6	19.11
103	Right over Left	0.64	5.81	0.52	17.87	0.72	6.53	0.42	14.43	0.39	13.40
104	Side by side	0.6	5.61	0.45	15.36	0.75	7.01	0.43	14.68	0.63	21.50
105	CBD	0.56	5.18	0.39	13.64	0.7	6.48	0.43	15.03	0.5	17.48
106	CBD	0.72	6.98	0.5	20.08	0.66	6.40	0.57	22.89	0.44	17.67
107	CBD	0.74	6.38	0.69	21.63	0.8	6.90	0.53	16.61	0.35	10.97
108	CBD	1.1	9.82	0.78	23.85	1.03	9.20	0.72	22.02	0.62	18.96
109	Right over Left	0.8	6.97	0.61	19.18	0.68	5.93	0.46	14.47	0.66	20.75
110	Left over Right	0.87	7.48	0.67	21.27	0.75	6.45	0.67	21.27	0.62	19.68
111	Side by side, separate cuffs	0.86	7.56	0.57	17.43	0.85	7.48	0.55	16.82	0.79	24.16
112	Right over Left	0.77	6.64	0.49	15.41	0.69	5.95	0.36	11.32	0.53	16.67
113	Right over Left	0.81	6.85	0.51	15.45	0.82	6.93	0.55	16.67	0.55	16.67
115	CBD	0.75	7.08	0.64	20.98	0.74	6.98	0.62	20.33	0.41	13.44
116	Side by side, one cuff	1.01	8.89	0.5	14.93	0.91	8.01	0.64	19.10	0.45	13.43
117	Side by side, one cuff	1.13	9.87	0.6	17.91	1.04	9.08	0.48	14.33	0.42	12.54
118	CBD	0.56	5.23	0.52	18.31	0.54	5.04	0.41	14.44	0.41	14.44
119	Right over Left	0.68	5.83	0.7	21.81	0.72	6.17	0.48	14.95	0.43	13.40
120	Right over Left	0.82	7.11	0.5	16.29	0.76	6.59	0.54	17.59	0.48	15.64
121	Side by side, no cuffs	0.92	7.82	0.81	24.55	0.88	7.48	0.81	24.55	0.54	16.36
122	Side by side, one cuff	0.93	8.07	0.81	24.47	1.03	8.93	0.67	20.24	0.49	14.80
123	CBD	0.87	8.26	0.66	21.29	0.87	8.26	0.64	20.65	0.44	14.19
124	CBD	0.71	6.56	0.59	21.61	0.74	6.84	0.6	21.98	0.19	6.96
125	Left over Right	0.71	6.19	0.53	16.46	0.72	6.28	0.53	16.46	0.62	19.25
126	CBD	0.69	6.73	0.6	22.73	0.63	6.14	0.5	18.94	0.43	16.29
127	CBD	0.79	6.96	0.78	23.56	0.79	6.96	0.72	21.75	0.46	13.90
128	Right over Left	0.76	7.01	0.61	21.55	0.77	7.10	0.53	18.73	0.53	18.73

Hand Measurements and Proportion Calculations

Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
129	CBD	0.77	7.08	0.58	19.33	0.75	6.90	0.65	21.67	0.4	13.33
130	CBD	0.71	6.76	0.71	23.91	0.78	7.42	0.61	20.54	0.33	11.11
131	CBD	0.77	6.94	0.86	26.54	0.88	7.94	0.6	18.52	0.49	15.12
132	Side by side, one cuff	0.99	8.45	0.82	24.48	0.99	8.45	0.65	19.40	0.6	17.91
133	CBD	0.81	7.61	0.7	22.58	0.82	7.71	0.68	21.94	0.38	12.26
134	CBD	0.56	5.52	0.53	20.38	0.65	6.40	0.53	20.38	0.28	10.77
135	CBD	0.73	7.31	0.61	22.85	0.8	8.01	0.57	21.35	0.38	14.23
136	Side by side, one cuff	1.03	9.17	0.64	19.57	0.9	8.01	0.7	21.41	0.77	23.55
137	CBD	0.68	5.71	0.56	18.12	0.81	6.80	0.62	20.06	0.69	22.33
138	Left over Right	0.69	5.91	0.59	19.41	0.67	5.74	0.79	25.99	0.53	17.43
139	Left over Right	0.82	7.30	0.83	28.42	0.81	7.21	0.65	22.26	0.59	20.21
140	CBD	0.89	8.40	0.77	24.21	0.83	7.84	0.59	18.55	0.59	18.55
141	Side by side, no cuffs	0.99	8.56	0.54	16.12	0.81	7.00	0.52	15.52	0.23	6.87
142	CBD	0.84	7.75	0.64	19.81	0.83	7.66	0.56	17.34	0.74	22.91
143	CBD	0.9	7.73	0.75	23.81	0.74	6.36	0.75	23.81	0.45	14.29
144	Side by side, one cuff	0.91	7.91	0.62	20.13	0.95	8.25	0.71	23.05	0.59	19.16
145	Side by side	0.74	6.38	0.64	19.63	0.89	7.67	0.74	22.70	0.61	18.71
146	CBD	0.83	7.13	0.63	19.81	0.95	8.16	0.61	19.18	0.64	20.13
147	Left over Right	0.89	7.73	0.75	25.42	0.77	6.68	0.74	25.08	0.58	19.66
148	Right over Left	0.97	8.83	0.76	22.69	0.9	8.19	0.68	20.30	0.55	16.42
149	Left over Right	0.77	6.69	0.6	20.20	0.77	6.69	0.66	22.22	0.37	12.46
150	CBD	0.71	6.14	0.54	17.14	0.84	7.26	0.57	18.10	0.39	12.38
151	Left over Right	0.67	5.98	0.63	22.74	0.69	6.16	0.64	23.10	0.39	14.08
152	CBD	0.81	7.04	0.58	17.16	0.74	6.43	0.49	14.50	0.53	15.68
153	Left over Right	0.72	6.30	0.62	21.31	0.68	5.95	0.6	20.62	0.68	23.37
154	Left over Right	0.76	6.66	0.7	23.65	0.83	7.27	0.53	17.91	0.57	19.26
155	Left over Right	0.77	6.48	0.73	23.25	0.88	7.40	0.62	19.75	0.55	17.52
156	Right over Left	0.86	7.62	0.72	23.61	0.8	7.09	0.58	19.02	0.79	25.90
157	Left over Right	0.73	6.88	0.63	21.21	0.77	7.26	0.65	21.89	0.45	15.15
158	Right over Left	0.77	6.98	0.55	17.97	0.65	5.89	0.52	16.99	0.59	19.28
159	Left over Right	0.66	5.61	0.61	20.00	0.69	5.86	0.57	18.69	0.62	20.33



Hand Measurements and Proportion Calculations

Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
160	CBD	0.74	6.50	0.53	16.41	0.72	6.32	0.56	17.34	0.44	13.62
161	Side by side	0.73	6.16	0.57	16.86	0.84	7.08	0.63	18.64	0.68	20.12
162	Right over Left	0.71	6.26	0.54	16.98	0.85	7.49	0.46	14.47	0.69	21.70
163	Right over Left	0.79	7.45	0.65	20.19	0.71	6.69	0.53	16.46	0.52	16.15
164	Side by side	0.78	6.98	0.64	21.92	0.7	6.26	0.57	19.52	0.38	13.01
165	Side by side	0.86	7.41	0.7	21.67	0.88	7.58	0.59	18.27	0.72	22.29
166	Left over Right	0.76	6.97	0.78	25.57	0.87	7.97	0.63	20.66	0.38	12.46
167	CBD	0.71	6.68	0.77	24.84	0.71	6.68	0.75	24.19	0.37	11.94
168	Left over Right	0.83	7.24	0.59	17.82	0.75	6.54	0.65	19.64	0.6	18.13
169	CBD	0.66	7.19	0.51	20.56	0.67	7.30	0.48	19.35	0.32	12.90
170	Left over Right	0.67	5.76	0.61	19.81	0.62	5.33	0.58	18.83	0.47	15.26
171	CBD	0.57	5.53	0.56	21.29	0.66	6.41	0.59	22.43	0.21	7.98
172	CBD	0.78	6.98	0.82	25.00	0.88	7.88	0.66	20.12	0.46	14.02
173	CBD	0.64	6.55	0.59	22.69	0.51	5.22	0.55	21.15	0.4	15.38
174	CBD	0.74	7.01	0.56	20.97	0.75	7.11	0.56	20.97	0.21	7.87
175	CBD	0.47	4.57	0.55	19.16	0.42	4.08	0.39	13.59	0.36	12.54
176	Left over Right	0.66	6.06	0.58	19.14	0.67	6.15	0.62	20.46	0.5	16.50
177	Left over Right	0.79	8.09	0.63	21.14	0.79	8.09	0.6	20.13	0.41	13.76
178	CBD	0.74	7.07	0.52	18.77	0.88	8.40	0.58	20.94	0.45	16.25
179	Right over Left	0.63	5.50	0.49	15.26	0.83	7.25	0.46	14.33	0.68	21.18
180	Side by side	0.63	5.93	0.64	22.07	0.71	6.69	0.64	22.07	0.31	10.69
181	CBD	0.72	6.62	0.55	20.22	0.72	6.62	0.61	22.43	0.4	14.71
182	CBD	0.67	6.46	0.54	19.57	0.63	6.08	0.49	17.75	0.44	15.94
183	CBD	0.67	6.24	0.72	22.43	0.76	7.08	0.68	21.18	0.47	14.64
184	CBD	0.57	5.69	0.55	20.30	0.66	6.59	0.64	23.62	0.29	10.70
185	CBD	0.81	7.27	0.56	18.73	0.69	6.19	0.54	18.06	0.33	11.04
186	CBD	0.58	5.30	0.49	16.96	0.64	5.85	0.54	18.69	0.4	13.84
187	CBD	0.72	6.98	0.6	20.34	0.76	7.36	0.71	24.07	0.28	9.49
188	CBD	0.93	8.65	0.77	24.52	0.84	7.81	0.67	21.34	0.45	14.33
189	Side by side, one cuff	0.98	8.35	0.68	20.00	0.98	8.35	0.59	17.35	0.81	23.82
190	Side by side	1.09	9.51	0.54	16.51	1.04	9.08	0.55	16.82	0.59	18.04

Hand Measurements and Proportion Calculations

Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
191	Right over Left	0.63	5.80	0.46	16.31	0.59	5.43	0.41	14.54	0.49	17.38
192	Right over left	0.83	7.59	0.76	22.75	0.83	7.59	0.72	21.56	0.52	15.57
193	CBD	0.78	7.56	0.65	20.50	0.73	7.07	0.66	20.82	0.54	17.03
194	Side by side, separate cuffs	1.01	9.22	0.64	19.81	0.92	8.39	0.52	16.10	0.8	24.77
195	CBD	0.69	6.47	0.57	22.18	0.64	6.00	0.49	19.07	0.31	12.06
196	CBD	0.81	7.66	0.68	21.12	0.89	8.42	0.67	20.81	0.41	12.73
197	CBD	0.72	6.72	0.65	20.44	0.75	7.00	0.7	22.01	0.31	9.75
198	CBD	0.75	7.36	0.49	18.92	0.75	7.36	0.53	20.46	0.34	13.13
199	Right over Left	0.69	6.03	0.56	16.62	0.83	7.25	0.59	17.51	0.45	13.35
200	Right over Left	0.78	6.48	0.64	19.22	0.86	7.15	0.55	16.52	0.51	15.32
201	Left over Right	0.9	7.55	0.76	23.10	0.88	7.38	0.67	20.36	0.35	10.64
202	Right over Left	0.81	7.44	0.52	16.20	0.68	6.24	0.39	12.15	0.65	20.25
203	Left over Right	0.7	5.89	0.65	20.77	0.87	7.32	0.66	21.09	0.54	17.25
204	Left over Right	0.86	7.60	0.64	20.78	0.86	7.60	0.67	21.75	0.48	15.58
205	Right over Left	0.72	6.70	0.58	18.65	0.77	7.16	0.64	20.58	0.43	13.83
206	CBD	0.78	6.91	0.49	15.91	0.7	6.21	0.45	14.61	0.63	20.45
207	Right over Left	0.78	7.06	0.53	16.01	0.77	6.97	0.51	15.41	0.51	15.41
208	Left over Right	0.77	7.09	0.55	17.52	0.78	7.18	0.55	17.52	0.42	13.38
209	Right over Left	0.75	7.19	0.52	16.20	0.66	6.33	0.5	15.58	0.62	19.31
210	Right over Left	0.76	6.41	0.56	16.09	0.79	6.66	0.58	16.67	0.67	19.25
211	CBD	0.67	6.07	0.52	16.25	0.7	6.35	0.52	16.25	0.59	18.44
212	No sleeves	0.63	5.76	0.67	22.71	0.69	6.31	0.56	18.98	0.1	3.39
213	Right over Left	0.62	5.79	0.53	16.51	0.77	7.20	0.59	18.38	0.51	15.89
214	CBD	0.66	5.64	0.7	20.65	0.72	6.15	0.62	18.29	0.34	10.03
215	Right over left	0.83	6.99	0.59	16.91	0.81	6.82	0.6	17.19	0.71	20.34
216	Left over Right	0.81	6.72	0.66	22.22	0.87	7.22	0.64	21.55	0.54	18.18
217	Side by side	0.75	6.45	0.5	14.84	0.85	7.31	0.53	15.73	0.61	18.10
218	Right over left	0.82	6.96	0.63	17.45	0.8	6.79	0.64	17.73	0.67	18.56
219	Left over Right	0.79	7.10	0.66	19.70	0.91	8.18	0.63	18.81	0.52	15.52
220	Side by side	0.67	6.18	0.66	23.00	0.71	6.55	0.59	20.56	0.37	12.89
221	Left over Right	0.77	6.55	0.54	16.51	0.82	6.97	0.64	19.57	0.45	13.76

Hand Measurements and Proportion Calculations

Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
222	Side by side	0.88	7.45	0.69	22.19	0.73	6.18	0.54	17.36	0.56	18.01
223	Right over left	0.63	5.81	0.6	18.52	0.65	5.99	0.62	19.14	0.49	15.12
224	Left over Right	0.56	5.21	0.74	26.91	0.62	5.77	0.59	21.45	0.38	13.82
225	Left over Right	0.79	7.08	0.61	21.25	0.7	6.27	0.55	19.16	0.63	21.95
226	Side by side	0.76	6.47	0.64	19.88	0.8	6.81	0.6	18.63	0.62	19.25
227	Left over Right	0.68	5.74	0.62	18.40	0.73	6.16	0.66	19.58	0.49	14.54
228	Left over Right	0.77	6.41	0.62	17.56	0.78	6.49	0.63	17.85	0.4	11.33
229	CBD	0.69	6.37	0.59	18.55	0.82	7.56	0.54	16.98	0.48	15.09
230	Right over left	0.87	7.32	0.63	18.48	0.86	7.23	0.62	18.18	0.44	12.90
231	CBD	0.79	7.81	0.51	19.69	0.7	6.92	0.58	22.39	0.31	11.97
232	CBD	0.7	6.81	0.54	21.01	0.74	7.20	0.56	21.79	0.35	13.62
233	CBD	0.62	6.51	0.51	21.43	0.55	5.77	0.47	19.75	0.3	12.61
234	Right over Left	0.73	6.28	0.53	16.46	0.71	6.11	0.49	15.22	0.59	18.32
235	CBD	0.66	6.36	0.54	21.26	0.69	6.65	0.47	18.50	0.19	7.48
236	CBD	0.64	6.05	0.64	24.62	0.76	7.18	0.47	18.08	0.27	10.38
237	CBD	0.7	7.14	0.57	25.11	0.61	6.22	0.53	23.35	0.27	11.89
238	CBD	0.69	6.46	0.61	19.37	0.87	8.15	0.65	20.63	0.69	21.90
239	CBD	0.6	6.06	0.51	22.08	0.65	6.57	0.49	21.21	0.28	12.12
240	CBD	0.74	7.12	0.69	22.62	0.82	7.89	0.69	22.62	0.41	13.44
241	CBD	0.65	6.30	0.61	22.76	0.73	7.07	0.56	20.90	0.43	16.04
242	CBD	0.74	7.09	0.58	22.22	0.7	6.70	0.53	20.31	0.29	11.11
243	CBD	0.7	7.03	0.55	21.15	0.65	6.53	0.53	20.38	0.41	15.77
244	CBD	0.63	5.97	0.52	17.16	0.69	6.53	0.58	19.14	0.45	14.85
245	CBD	0.67	6.89	0.57	22.89	0.66	6.79	0.54	21.69	0.28	11.24
246	CBD	0.63	6.05	0.61	22.59	0.71	6.82	0.52	19.26	0.5	18.52
247	Left over Right	0.8	6.94	0.7	22.73	0.86	7.47	0.71	23.05	0.39	12.66
248	CBD	0.73	6.18	0.56	19.24	0.79	6.68	0.62	21.31	0.45	15.46
249	Left over Right	0.84	7.53	0.77	25.41	0.88	7.89	0.74	24.42	0.32	10.56
250	CBD	0.58	5.85	0.47	17.60	0.69	6.96	0.62	23.22	0.3	11.24
251	Left over Right	0.78	6.67	0.52	16.88	0.85	7.27	0.64	20.78	0.54	17.53
252	Left over Right	0.75	6.10	0.71	23.05	0.64	5.20	0.69	22.40	0.59	19.16

Hand Measurements and Proportion Calculations

Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
253	Right over left	0.77	7.31	0.6	19.80	0.84	7.97	0.62	20.46	0.54	17.82
254	Left over Right	0.72	6.58	0.62	22.63	0.79	7.22	0.68	24.82	0.54	19.71
255	Left over Right	0.7	6.11	0.68	22.30	0.71	6.20	0.57	18.69	0.46	15.08
256	CBD	0.79	7.15	0.65	21.24	0.9	8.14	0.7	22.88	0.71	23.20
257	CBD	0.77	6.61	0.65	21.10	0.79	6.78	0.61	19.81	0.59	19.16
258	CBD	0.65	6.04	0.58	18.65	0.74	6.88	0.51	16.40	0.55	17.68
259	Left over Right	0.64	5.94	0.61	21.11	0.88	8.17	0.54	18.69	0.51	17.65
260	CBD	0.67	5.56	0.68	22.74	0.68	5.65	0.68	22.74	0.5	16.72
261	Left over Right	0.65	5.82	0.59	18.15	0.79	7.08	0.58	17.85	0.57	17.54
262	Right over Left	0.61	5.26	0.63	20.06	0.72	6.21	0.46	14.65	0.41	13.06
263	CBD	0.75	6.33	0.64	20.45	0.77	6.50	0.79	25.24	0.56	17.89
264	CBD	0.74	7.09	0.7	22.80	0.78	7.47	0.63	20.52	0.51	16.61
265	Left over Right	0.69	6.32	0.6	19.48	0.7	6.42	0.56	18.18	0.38	12.34
266	Left over Right	0.76	6.53	0.68	23.29	0.64	5.50	0.58	19.86	0.36	12.33
267	CBD	0.7	6.63	0.66	22.30	0.55	5.21	0.54	18.24	0.39	13.18
268	CBD	0.71	6.54	0.51	16.78	0.73	6.72	0.54	17.76	0.55	18.09
269	Left over Right	0.67	5.92	0.59	19.16	0.73	6.45	0.55	17.86	0.53	17.21
270	Left over Right	0.78	7.13	0.53	17.04	0.66	6.03	0.6	19.29	0.49	15.76
271	Left over Right	0.77	6.74	0.58	18.89	0.64	5.60	0.66	21.50	0.42	13.68
272	Side by side, one cuff	0.77	6.95	0.93	28.62	1.02	9.21	0.69	21.23	0.42	12.92
273	Left over Right	0.69	6.08	0.61	19.24	0.71	6.26	0.61	19.24	0.5	15.77
274	Left over right	0.8	7.58	0.6	21.58	0.71	6.72	0.59	21.22	0.28	10.07
275	Left over Right	0.75	6.87	0.64	21.05	0.77	7.06	0.61	20.07	0.42	13.82
276	Left over Right	0.67	5.99	0.58	19.46	0.67	5.99	0.57	19.13	0.58	19.46
277	Left over Right	0.73	6.42	0.64	21.19	0.74	6.51	0.59	19.54	0.43	14.24
278	CBD	0.68	5.80	0.57	18.15	0.73	6.23	0.6	19.11	0.7	22.29
279	CBD	0.7	5.96	0.6	19.35	0.72	6.13	0.48	15.48	0.51	16.45
280	CBD	0.7	6.21	0.59	19.47	0.79	7.00	0.55	18.15	0.3	9.90
281	CBD	0.58	5.45	0.53	17.79	0.68	6.38	0.52	17.45	0.3	10.07
282	CBD	0.73	6.88	0.6	18.13	0.74	6.97	0.61	18.43	0.46	13.90
283	CBD	0.64	6.65	0.38	15.70	0.59	6.13	0.47	19.42	0.36	14.88

Hand Measurements and Proportion Calculations

Accession Number	Hand Position	Height Left Hand (cm)	Left Hand Height Proportion %	Width Left Hand (cm)	Left Hand Width Proportion %	Height Right Hand (cm)	Right Hand Height Proportion %	Width Right Hand (cm)	Right Hand Width Proportion %	Distance Between Hands (cm)	Hands Proportion %
284	Left over Right	0.63	5.57	0.66	22.30	0.82	7.24	0.64	21.62	0.52	17.57
285	Left over Right	0.64	5.14	0.64	19.88	0.78	6.27	0.73	22.67	0.59	18.32
286	CBD	0.74	6.71	0.6	20.83	0.88	7.98	0.6	20.83	0.31	10.76
287	Right over Left	0.74	7.00	0.73	23.03	0.77	7.28	0.54	17.03	0.55	17.35
288	CBD	0.78	6.51	0.62	18.13	0.75	6.26	0.58	16.96	0.58	16.96
289	CBD	0.55	5.36	0.58	22.66	0.52	5.06	0.58	22.66	0.24	9.38
290	Right over Left	0.66	5.91	0.7	20.90	0.67	6.00	0.57	17.01	0.58	17.31
291	CBD	0.63	5.52	0.6	19.93	CBD	CBD	CBD	CBD	CBD	CBD
292	CBD	0.77	7.01	0.54	17.82	0.63	5.73	0.63	20.79	0.45	14.85
293	CBD	0.62	5.90	0.53	19.56	0.69	6.57	0.47	17.34	0.53	19.56
294	CBD	0.82	7.64	0.69	21.10	0.82	7.64	0.69	21.10	0.65	19.88
295	Right over Left	0.69	6.48	0.5	15.48	0.75	7.04	0.52	16.10	0.55	17.03
296	Left over Right	0.73	6.71	0.66	21.85	0.63	5.79	0.44	14.57	0.54	17.88
297	CBD	0.85	7.14	0.64	18.71	0.79	6.63	0.6	17.54	0.31	9.06
298	Left over Right	0.63	5.62	0.68	23.78	0.87	7.76	0.61	21.33	0.56	19.58
299	Left over Right	0.75	6.95	0.72	22.64	0.79	7.32	0.59	18.55	0.49	15.41
300	Left over Right	0.81	7.21	0.59	19.03	0.88	7.83	0.53	17.10	0.68	21.94
301	CBD	0.59	5.62	0.54	20.22	0.72	6.86	0.61	22.85	0.5	18.73
302	Right over Left	0.73	7.08	0.6	19.05	0.76	7.37	0.48	15.24	0.64	20.32
303	Left over Right	0.68	6.22	0.62	18.96	0.72	6.59	0.6	18.35	0.34	10.40
304	CBD	0.73	6.99	0.68	20.00	0.8	7.66	0.65	19.12	0.52	15.29
305	CBD	0.72	6.50	0.63	21.50	0.73	6.59	0.55	18.77	0.48	16.38
306	Left over Right	0.71	6.53	0.6	19.74	0.82	7.54	0.59	19.41	0.46	15.13
307	CBD	0.64	5.90	0.58	17.11	0.72	6.64	0.55	16.22	0.4	11.80
308	CBD	0.79	7.06	0.58	14.22	0.75	6.70	0.69	22.40	0.47	15.26
309	Left over Right	0.83	7.10	0.6	20.13	0.76	6.50	0.55	18.46	0.45	15.10
310	CBD	0.7	7.03	0.54	19.49	0.84	8.43	0.5	18.05	0.45	16.25
311	Left over right	0.69	6.34	0.65	20.19	0.75	6.89	0.55	17.08	0.43	13.35
312	Left over right	0.75	6.21	0.73	22.05	0.8	6.62	0.59	17.82	0.32	9.67

Appendix C, Table 4. Tool Measurements and Proportion Calculations

Tool Measurements and Proportion Calculations								
Accession Number	Pick Handle Length (cm)	Pick Handle Proportion %	Pick Blade Length (cm)	Pick Blade Proportion %	Hoe Handle Length (cm)	Hoe Handle Proportion %	Hoe Blade Length (cm)	Hoe Blade Proportion %
7	4.39	22.98	1.14	5.97	4.72	24.71	3.04	15.92
8	4.23	21.47	1.42	7.21	4.48	22.74	2.79	14.16
9	4.82	24.22	1.33	6.68	4.72	23.72	2.96	14.87
10	4.22	21.75	1.39	7.16	4.5	23.20	3.36	17.32
11	4	20.51	1.3	6.67	4.56	23.38	3	15.38
12	4.21	22.51	1.45	7.75	3.94	21.07	2.86	15.29
13	4.25	21.36	1.59	7.99	4.36	21.91	2.88	14.47
14	4.27	21.79	1.48	7.55	4.29	21.89	2.18	11.12
15	4.33	23.16	1.22	6.52	4.16	22.25	2.64	14.12
16	4.21	22.28	1.29	6.83	4.53	23.97	2.99	15.82
17	4.02	21.38	1.56	8.30	4.03	21.44	2.5	13.30
18	4.55	23.95	1.48	7.79	4.59	24.16	2.45	12.89
19	4.6	23.59	1.19	6.10	4.56	23.38	2.75	14.10
20	4.31	23.30	1.4	7.57	4.13	22.32	2.64	14.27
21	2.23	19.70	1.04	9.19	2.53	22.35	1.54	13.60
22	2.66	22.28	1.07	8.96	2.48	20.77	1.74	14.57
23	2.64	22.92	1.2	10.42	2.64	22.92	1.72	14.93
24	2.34	24.07	0.95	9.77	2.67	27.47	1.48	15.23
25	2.67	23.28	0.94	8.20	2.55	22.23	2.09	18.22
26	2.33	20.53	0.99	8.72	2.78	24.49	1.72	15.15
27	2.14	20.98	0.82	8.04	2.29	22.45	1.24	12.16
28	2.57	24.31	1.04	9.84	2.66	25.17	1.61	15.23
29	2.37	21.51	1.14	10.34	2.6	23.59	1.79	16.24
30	2.68	24.23	0.9	8.14	2.69	24.32	1.61	14.56
31	2.55	21.70	1.01	8.60	2.61	22.21	2.22	18.89
32	2.61	22.52	0.93	8.02	2.96	25.54	1.59	13.72
33	2.48	22.88	1.04	9.59	2.6	23.99	1.78	16.42
34	2.46	22.59	0.84	7.71	2.39	21.95	1.84	16.90
35	2.52	22.01	1.03	9.00	2.5	21.83	1.89	16.51
36	2.32	22.61	0.89	8.67	2.53	24.66	1.67	16.28
37	2.43	21.26	0.83	7.26	2.64	23.10	1.55	13.56
38	2.82	25.73	0.92	8.39	2.68	24.45	1.71	15.60

Tool Measurements and Proportion Calculations

Accession Number	Pick Handle Length (cm)	Pick Handle Proportion %	Pick Blade Length (cm)	Pick Blade Proportion %	Hoe Handle Length (cm)	Hoe Handle Proportion %	Hoe Blade Length (cm)	Hoe Blade Proportion %
39	2.7	23.08	0.82	7.01	2.77	23.68	1.55	13.25
40	2.63	24.04	1.12	10.24	2.64	24.13	1.73	15.81
41	2.71	22.87	0.88	7.43	2.65	22.36	1.76	14.85
42	2.51	22.78	1.03	9.35	2.87	26.04	1.64	14.88
43	2.73	22.71	1.03	8.57	2.68	22.30	1.52	12.65
44	2.18	19.29	1.04	9.20	2.48	21.95	1.51	13.36
45	2.42	20.28	1.07	8.97	2.66	22.30	1.53	12.82
46	2.92	23.91	1.01	8.27	3.04	24.90	2.19	17.94
47	2.3	20.91	0.93	8.45	2.56	23.27	1.61	14.64
48	2.79	24.32	1.02	8.89	2.68	23.37	1.71	14.91
49	2.51	22.88	0.96	8.75	2.39	21.79	1.72	15.68
50	2.34	20.03	1.15	9.85	2.45	20.98	1.4	11.99
51	2.92	24.83	1.04	8.84	2.97	25.26	1.94	16.50
52	2.33	22.43	0.91	8.76	2.41	23.20	1.5	14.44
53	2.73	23.58	1.06	9.15	2.8	24.18	2.36	20.38
54	2.82	23.82	1.02	8.61	2.84	23.99	1.52	12.84
55	2.43	20.88	0.83	7.13	2.75	23.63	1.82	15.64
56	2.67	23.10	0.84	7.27	2.61	22.58	1.58	13.67
57	3.2	26.73	0.84	7.02	3.11	25.98	2.14	17.88
58	2.63	22.40	0.89	7.58	2.92	24.87	1.78	15.16
59	3.19	26.30	1.22	10.06	3.37	27.78	2.02	16.65
60	2.74	23.48	1.04	8.91	2.76	23.65	1.47	12.60
61	2.99	25.38	0.99	8.40	2.97	25.21	2.02	17.15
62	2.72	23.09	1.05	8.91	2.69	22.84	1.45	12.31
63	2.96	26.13	1.04	9.18	3.16	27.89	2.48	21.89
64	2.82	26.36	0.8	7.48	2.76	25.79	2.04	19.07
65	2.72	23.96	1.02	8.99	2.9	25.55	2.08	18.33
66	2.75	25.70	1.04	9.72	3.02	28.22	1.98	18.50
67	2.45	21.53	1.07	9.40	2.57	22.58	1.46	12.83
68	2.69	23.58	0.97	8.50	2.86	25.07	1.57	13.76
69	2.6	24.46	0.85	8.00	2.72	25.59	1.56	14.68
70	2.74	24.36	1.06	9.42	2.76	24.53	1.69	15.02
71	2.54	23.28	0.93	8.52	2.63	24.11	1.59	14.57
72	2.74	25.21	0.99	9.11	2.62	24.10	2.07	19.04
73	2.76	23.96	1.06	9.20	2.68	23.26	1.33	11.55

Tool Measurements and Proportion Calculations

Accession Number	Pick Handle Length (cm)	Pick Handle Proportion %	Pick Blade Length (cm)	Pick Blade Proportion %	Hoe Handle Length (cm)	Hoe Handle Proportion %	Hoe Blade Length (cm)	Hoe Blade Proportion %
74	2.47	22.98	0.97	9.02	2.68	24.93	1.5	13.95
75	2.78	24.69	0.88	7.82	2.65	23.53	1.83	16.25
76	2.88	23.98	0.97	8.08	3.03	25.23	1.64	13.66
77	2.52	23.14	0.81	7.44	2.79	25.62	1.53	14.05
78	2.54	21.69	0.95	8.11	2.91	24.85	1.56	13.32
79	2.5	21.31	1.23	10.49	2.85	24.30	1.81	15.43
80	2.5	22.05	1.02	8.99	2.77	24.43	1.98	17.46
81	2.79	24.07	1.48	12.77	3.02	26.06	2.07	17.86
82	2.85	25.54	1.6	14.34	3.16	28.32	2.04	18.28
83	2.4	22.47	0.89	8.33	2.51	23.50	1.42	13.30
84	3.15	27.63	1.36	11.93	3.16	27.72	2.35	20.61
85	2.98	24.96	0.89	7.45	2.87	24.04	1.67	13.99
86	2.7	23.32	1.42	12.26	2.55	22.02	1.4	12.09
87	2.91	26.58	0.9	8.22	2.83	25.84	1.8	16.44
88	2.94	25.41	0.96	8.30	2.94	25.41	2.13	18.41
89	2.68	23.53	1.2	10.54	2.58	22.65	1.43	12.55
90	2.73	25.98	0.94	8.94	2.56	24.36	1.05	9.99
91	2.63	25.51	0.93	9.02	2.79	27.06	1.28	12.42
92	2.41	20.85	0.94	8.13	2.73	23.62	1.88	16.26
93	3.29	29.24	1.29	11.47	3.44	30.58	2.57	22.84
94	3.05	27.65	1.32	11.97	3.2	29.01	2.1	19.04
95	2.62	23.21	1.28	11.34	2.53	22.41	1.66	14.70
96	2.91	24.91	1.13	9.67	2.54	21.75	1.7	14.55
97	2.37	21.31	0.97	8.72	2.39	21.49	1.39	12.50
98	2.21	19.61	1.09	9.67	2.5	22.18	1.61	14.29
99	2.57	22.12	1	8.61	2.75	23.67	1.72	14.80
100	2.79	25.69	0.95	8.75	2.88	26.52	1.58	14.55
101	2.98	25.80	0.98	8.48	2.75	23.81	1.35	11.69
102	2.83	24.74	0.95	8.30	2.6	22.73	1.89	16.52
103	2.41	21.87	1.12	10.16	2.5	22.69	1.97	17.88
104	2.5	23.36	0.91	8.50	2.62	24.49	1.52	14.21
105	2.54	23.50	1	9.25	2.55	23.59	1.48	13.69
106	2.27	22.02	0.99	9.60	2.17	21.05	1.42	13.77
107	2.6	22.41	1.19	10.26	2.66	22.93	1.45	12.50
108	2.72	24.29	1.43	12.77	CBD	CBD	CBD	CBD



Tool Measurements and Proportion Calculations

Accession Number	Pick Handle Length (cm)	Pick Handle Proportion %	Pick Blade Length (cm)	Pick Blade Proportion %	Hoe Handle Length (cm)	Hoe Handle Proportion %	Hoe Blade Length (cm)	Hoe Blade Proportion %
109	2.64	23.02	0.85	7.41	2.56	22.32	1.59	13.86
110	2.65	22.79	0.99	8.51	2.65	22.79	1.32	11.35
111	3.23	28.41	1.34	11.79	3.14	27.62	2.7	23.75
112	2.84	24.48	1.04	8.97	2.62	22.59	2.01	17.33
113	2.61	22.06	1.23	10.40	2.65	22.40	1.99	16.82
115	2.71	25.57	0.98	9.25	2.61	24.62	1.26	11.89
116	2.95	25.97	1.22	10.74	3.31	29.14	2.3	20.25
117	3.16	27.60	1.6	13.97	3.35	29.26	2.02	17.64
118	2.51	23.44	1.1	10.27	2.53	23.62	1.93	18.02
119	2.82	24.19	1.09	9.35	2.77	23.76	1.81	15.52
120	2.77	24.00	1.12	9.71	2.47	21.40	1.81	15.68
121	2.91	24.74	0.99	8.42	2.94	25.00	1.4	11.90
122	3.15	27.32	1.07	9.28	3.27	28.36	2.19	18.99
123	2.57	24.41	0.89	8.45	2.55	24.22	1.47	13.96
124	2.22	20.52	0.62	5.73	2.18	20.15	1.13	10.44
125	2.86	24.93	1.2	10.46	2.79	24.32	1.72	15.00
126	2.54	24.76	0.89	8.67	2.32	22.61	1.19	11.60
127	2.57	22.64	0.89	7.84	2.77	24.41	1.57	13.83
128	2.3	21.22	0.66	6.09	2.34	21.59	1.57	14.48
129	2.41	22.17	0.91	8.37	2.53	23.28	1.41	12.97
130	2.48	23.60	0.97	9.23	2.57	24.45	1.34	12.75
131	2.83	25.52	0.96	8.66	2.8	25.25	1.45	13.07
132	3.19	27.24	1.66	14.18	3.21	27.41	2.38	20.32
133	2.72	25.56	1.04	9.77	2.67	25.09	1.39	13.06
134	2.45	24.14	0.89	8.77	2.42	23.84	1.4	13.79
135	2.1	21.02	1.84	18.42	2.26	22.62	1.35	13.51
136	3.22	28.67	1.31	11.67	3.15	28.05	2.32	20.66
137	2.75	23.09	0.88	7.39	2.95	24.77	1.73	14.53
138	2.55	21.83	1.02	8.73	2.8	23.97	1.47	12.59
139	2.51	22.33	0.9	8.01	2.46	21.89	1.49	13.26
140	2.76	26.06	0.74	6.99	2.29	21.62	1.31	12.37
141	3.31	28.61	1.22	10.54	3.37	29.13	2.34	20.22
142	3.05	28.14	1.06	9.78	2.76	25.46	1.51	13.93
143	2.8	24.05	1	8.59	2.8	24.05	1.41	12.11
144	3.14	27.28	1.56	13.55	3.15	27.37	2.53	21.98

Tool Measurements and Proportion Calculations

Accession Number	Pick Handle Length (cm)	Pick Handle Proportion %	Pick Blade Length (cm)	Pick Blade Proportion %	Hoe Handle Length (cm)	Hoe Handle Proportion %	Hoe Blade Length (cm)	Hoe Blade Proportion %
145	2.54	21.90	0.96	8.28	2.84	24.48	1.39	11.98
146	2.48	21.31	0.99	8.51	2.73	23.45	1.31	11.25
147	2.72	23.61	0.98	8.51	2.83	24.57	1.68	14.58
148	2.99	27.21	1.14	10.37	2.69	24.48	1.55	14.10
149	2.34	20.33	CBD	CBD	2.28	19.81	1.47	12.77
150	2.55	22.04	0.93	8.04	2.75	23.77	1.76	15.21
151	2.48	22.14	1.1	9.82	2.72	24.29	1.47	13.13
152	2.67	23.20	0.94	8.17	2.88	25.02	2.01	17.46
153	2.65	23.18	0.9	7.87	2.39	20.91	1.56	13.65
154	2.51	22.00	0.98	8.59	2.5	21.91	1.9	16.65
155	2.73	22.96	0.8	6.73	2.71	22.79	1.59	13.37
156	2.31	20.46	0.77	6.82	2.86	25.33	1.56	13.82
157	2.38	22.43	1.01	9.52	2.6	24.51	1.71	16.12
158	2.44	22.12	0.9	8.16	2.61	23.66	1.96	17.77
159	3.03	25.74	1.06	9.01	2.77	23.53	2.09	17.76
160	2.49	21.86	1.05	9.22	2.61	22.91	1.71	15.01
161	2.99	25.21	1	8.43	3.09	26.05	1.84	15.51
162	2.58	22.73	1.16	10.22	2.48	21.85	1.59	14.01
163	2.83	26.67	1	9.43	2.57	24.22	1.67	15.74
164	2.43	21.74	0.88	7.87	2.67	23.88	1.54	13.77
165	2.63	22.65	0.85	7.32	3.1	26.70	1.59	13.70
166	2.43	22.27	0.93	8.52	2.31	21.17	1.42	13.02
167	2.75	25.87	0.97	9.13	2.66	25.02	1.49	14.02
168	2.63	22.95	0.87	7.59	2.94	25.65	1.57	13.70
169	CBD	CBD	CBD	CBD	CBD	CBD	CBD	CBD
170	2.47	21.24	0.78	6.71	2.29	19.69	1.84	15.82
171	2.38	23.11	0.82	7.96	2.44	23.69	1.34	13.01
172	2.94	26.32	0.87	7.79	2.62	23.46	1.51	13.52
173	2.33	23.85	0.61	6.24	2.31	23.64	1.18	12.08
174	2.63	24.93	1.04	9.86	2.61	24.74	1.48	14.03
175	2.14	20.80	0.95	9.23	1.93	18.76	1.43	13.90
176	2.49	22.84	CBD	CBD	2.6	23.85	1.34	12.29
177	2.32	23.77	0.9	9.22	2.64	27.05	1.46	14.96
178	2.79	26.65	0.8	7.64	2.57	24.55	1.85	17.67
179	2.82	24.63	0.93	8.12	2.51	21.92	1.78	15.55

Tool Measurements and Proportion Calculations

Accession Number	Pick Handle Length (cm)	Pick Handle Proportion %	Pick Blade Length (cm)	Pick Blade Proportion %	Hoe Handle Length (cm)	Hoe Handle Proportion %	Hoe Blade Length (cm)	Hoe Blade Proportion %
180	2.44	22.98	1.19	11.21	2.45	23.07	1.34	12.62
181	2.72	25.02	0.79	7.27	2.61	24.01	1.98	18.22
182	2.45	23.63	0.82	7.91	2.39	23.05	1.5	14.46
183	2.66	24.79	0.9	8.39	2.54	23.67	1.47	13.70
184	2.31	23.08	0.99	9.89	2.41	24.08	1.54	15.38
185	2.42	21.72	1.03	9.25	2.42	21.72	1.62	14.54
186	2.47	22.58	0.87	7.95	2.67	24.41	1.36	12.43
187	2.72	26.36	CBD	CBD	2.89	28.00	1.71	16.57
188	2.67	24.84	1	9.30	2.71	25.21	1.34	12.47
189	2.91	24.79	1.22	10.39	2.97	25.30	2.17	18.48
190	3.11	27.14	1.22	10.65	3.1	27.05	1.97	17.19
191	2.26	20.81	0.99	9.12	2.41	22.19	1.59	14.64
192	2.49	22.78	0.86	7.87	2.29	20.95	1.48	13.54
193	2.8	27.13	0.88	8.53	2.31	22.38	0.95	9.21
194	3.03	27.65	1.12	10.22	3.1	28.28	2.24	20.44
195	2.4	22.49	0.79	7.40	2.51	23.52	1.62	15.18
196	2.61	24.69	0.82	7.76	2.55	24.12	1.48	14.00
197	2.71	25.30	1.06	9.90	2.62	24.46	1.59	14.85
198	2.51	24.63	0.76	7.46	2.32	22.77	1.68	16.49
199	2.43	21.22	0.88	7.69	2.59	22.62	1.61	14.06
200	2.84	23.61	1.23	10.22	3.02	25.10	1.91	15.88
201	2.67	22.40	1.23	10.32	2.88	24.16	1.7	14.26
202	2.84	26.08	0.96	8.82	2.82	25.90	1.78	16.35
203	2.44	20.54	0.97	8.16	2.99	25.17	1.89	15.91
204	2.6	22.97	1.27	11.22	2.67	23.59	1.8	15.90
205	2.6	24.19	0.76	7.07	2.63	24.47	1.46	13.58
206	2.52	22.34	0.98	8.69	2.66	23.58	1.71	15.16
207	2.71	24.52	0.91	8.24	2.78	25.16	1.78	16.11
208	2.49	22.93	0.84	7.73	2.58	23.76	0.62	5.71
209	2.82	27.04	0.81	7.77	2.7	25.89	1.54	14.77
210	2.88	24.28	0.93	7.84	3.04	25.63	2.04	17.20
211	2.72	24.66	1.04	9.43	2.7	24.48	1.84	16.68
212	2.26	20.66	0.88	8.04	2.53	23.13	1.47	13.44
213	2.65	24.77	1.12	10.47	2.63	24.58	1.69	15.79
214	2.54	21.69	0.8	6.83	2.76	23.57	1.42	12.13

Tool Measurements and Proportion Calculations

Accession Number	Pick Handle Length (cm)	Pick Handle Proportion %	Pick Blade Length (cm)	Pick Blade Proportion %	Hoe Handle Length (cm)	Hoe Handle Proportion %	Hoe Blade Length (cm)	Hoe Blade Proportion %
215	3.15	26.52	1.17	9.85	3.1	26.09	2.16	18.18
216	2.51	20.83	0.91	7.55	2.61	21.66	1.73	14.36
217	2.86	24.59	1.1	9.46	2.75	23.65	2.07	17.80
218	3.02	25.61	0.93	7.89	3.21	27.23	2.22	18.83
219	2.64	23.72	0.88	7.91	2.72	24.44	1.66	14.91
220	2.01	18.54	0.57	5.26	CBD	CBD	CBD	CBD
221	2.65	22.53	0.94	7.99	2.66	22.62	1.53	13.01
222	2.62	22.18	1.18	9.99	2.67	22.61	1.57	13.29
223	2.46	22.67	0.95	8.76	2.61	24.06	1.54	14.19
224	2.56	23.84	1.34	12.48	2.56	23.84	1.46	13.59
225	2.41	21.59	0.84	7.53	2.65	23.75	1.73	15.50
226	2.8	23.85	0.85	7.24	2.91	24.79	1.69	14.40
227	2.82	23.80	1.01	8.52	2.82	23.80	1.56	13.16
228	2.88	23.96	1.04	8.65	2.95	24.54	1.76	14.64
229	2.5	23.06	0.86	7.93	2.46	22.69	1.57	14.48
230	3.15	26.49	1	8.41	2.85	23.97	2.12	17.83
231	2.43	24.01	0.91	8.99	2.47	24.41	1.85	18.28
232	2.24	21.79	CBD	CBD	2.36	22.96	1.73	16.83
233	1.89	19.83	0.65	6.82	2.16	22.67	1.36	14.27
234	2.63	22.63	0.91	7.83	2.63	22.63	1.77	15.23
235	2.04	19.67	0.78	7.52	2.19	21.12	1.38	13.31
236	2.39	22.59	0.85	8.03	2.47	23.35	1.78	16.82
237	2.02	20.59	0.77	7.85	2.06	21.00	1.66	16.92
238	2.44	22.85	0.88	8.24	2.48	23.22	0.84	7.87
239	2.09	21.11	0.76	7.68	2.12	21.41	1.29	13.03
240	2.86	27.53	2.02	19.44	2.67	25.70	1.48	14.24
241	2.59	25.10	CBD	CBD	2.52	24.42	1.58	15.31
242	CBD	CBD	CBD	CBD	2.43	23.28	1.87	17.91
243	2.42	24.30	0.78	7.83	2.17	21.79	1.22	12.25
244	2.48	23.48	0.95	9.00	2.5	23.67	1.33	12.59
245	2.31	23.77	0.72	7.41	2.43	25.00	1.38	14.20
246	2.35	22.57	0.74	7.11	2.27	21.81	1.39	13.35
247	2.77	24.05	1.18	10.24	2.91	25.26	1.45	12.59
248	2.4	20.30	0.93	7.87	2.64	22.34	1.49	12.61
249	2.68	24.04	0.92	8.25	2.61	23.41	1.53	13.72

Tool Measurements and Proportion Calculations

Accession Number	Pick Handle Length (cm)	Pick Handle Proportion %	Pick Blade Length (cm)	Pick Blade Proportion %	Hoe Handle Length (cm)	Hoe Handle Proportion %	Hoe Blade Length (cm)	Hoe Blade Proportion %
250	1.68	16.94	0.96	9.68	2.35	23.69	1.39	14.01
251	2.64	22.58	0.91	7.78	2.78	23.78	1.62	13.86
252	2.6	21.14	0.94	7.64	2.85	23.17	1.68	13.66
253	2.6	24.67	1.09	10.34	2.66	25.24	1.12	10.63
254	2.59	23.67	1.08	9.87	2.62	23.95	1.54	14.08
255	2.72	23.73	0.77	6.72	2.75	24.00	1.86	16.23
256	2.72	24.62	0.7	6.33	2.72	24.62	1.09	9.86
257	2.68	23.00	0.99	8.50	2.6	22.32	1.68	14.42
258	2.48	23.05	0.85	7.90	2.49	23.14	1.73	16.08
259	2.54	23.58	1.04	9.66	2.56	23.77	1.79	16.62
260	2.64	21.93	0.85	7.06	2.86	23.75	1.71	14.20
261	2.51	22.49	0.92	8.24	2.59	23.21	1.63	14.61
262	2.63	22.69	1.13	9.75	2.63	22.69	1.81	15.62
263	2.68	22.62	CBD	CBD	2.78	23.46	1.61	13.59
264	2.63	25.19	1.18	11.30	2.67	25.57	1.44	13.79
265	2.41	22.09	1	9.17	2.4	22.00	1.7	15.58
266	2.44	20.98	1.03	8.86	2.66	22.87	1.93	16.60
267	2.63	24.91	0.89	8.43	2.6	24.62	1.57	14.87
268	2.47	22.74	0.85	7.83	2.5	23.02	1.5	13.81
269	2.77	24.47	1.12	9.89	2.86	25.27	1.76	15.55
270	2.61	23.86	0.97	8.87	2.62	23.95	1.49	13.62
271	2.4	21.00	0.88	7.70	2.67	23.36	1.43	12.51
272	2.86	25.81	1.1	9.93	2.86	25.81	1.91	17.24
273	2.63	23.19	1	8.82	2.43	21.43	1.5	13.23
274	2.53	23.96	0.84	7.95	2.85	26.99	1.49	14.11
275	2.43	22.27	1.07	9.81	2.32	21.26	1.56	14.30
276	2.62	23.43	1.02	9.12	2.65	23.70	1.5	13.42
277	2.29	20.14	0.87	7.65	2.46	21.64	1.44	12.66
278	2.52	21.50	1.1	9.39	2.83	24.15	1.65	14.08
279	2.71	23.06	1.13	9.62	2.58	21.96	1.68	14.30
280	2.4	21.28	1.09	9.66	2.5	22.16	1.67	14.80
281	2.52	23.66	0.93	8.73	2.64	24.79	1.35	12.68
282	2.59	24.41	1.03	9.71	2.83	26.67	1.35	12.72
283	2.19	22.77	0.72	7.48	2.32	24.12	1.1	11.43
284	2.62	23.14	0.83	7.33	2.54	22.44	1.3	11.48

Tool Measurements and Proportion Calculations

Accession Number	Pick Handle Length (cm)	Pick Handle Proportion %	Pick Blade Length (cm)	Pick Blade Proportion %	Hoe Handle Length (cm)	Hoe Handle Proportion %	Hoe Blade Length (cm)	Hoe Blade Proportion %
285	2.65	21.29	1.15	9.24	2.77	22.25	1.72	13.82
286	2.7	24.48	0.79	7.16	2.42	21.94	1.18	10.70
287	2.43	22.99	0.97	9.18	2.54	24.03	1.46	13.81
288	2.6	21.68	0.94	7.84	2.76	23.02	1.74	14.51
289	2.51	24.44	0.9	8.76	2.3	22.40	1.56	15.19
290	2.71	24.28	1	8.96	2.72	24.37	1.61	14.43
291	2.29	20.05	1	8.76	2.72	23.82	1.82	15.94
292	2.46	22.38	0.89	8.10	2.59	23.57	1.58	14.38
293	2.76	26.29	0.92	8.76	2.68	25.52	1.36	12.95
294	2.99	27.84	0.77	7.17	2.82	26.26	1.35	12.57
295	2.72	25.54	0.93	8.73	2.65	24.88	1.94	18.22
296	2.43	22.33	1.28	11.76	2.5	22.98	1.39	12.78
297	2.52	21.16	0.8	6.72	2.77	23.26	1.63	13.69
298	2.22	19.80	CBD	CBD	2.49	22.21	1.47	13.11
299	2.53	23.45	0.95	8.80	2.53	23.45	1.53	14.18
300	2.64	23.49	1.08	9.61	2.84	25.27	1.76	15.66
301	2.17	20.67	0.69	6.57	2.28	21.71	1.26	12.00
302	2.64	25.61	0.93	9.02	2.91	28.23	2.02	19.59
303	2.57	23.51	0.99	9.06	2.61	23.88	1.48	13.54
304	2.71	25.93	0.86	8.23	2.87	27.46	2.17	20.77
305	2.34	21.14	0.89	8.04	2.63	23.76	1.38	12.47
306	2.56	23.55	1.11	10.21	2.69	24.75	1.5	13.80
307	2.77	25.55	0.97	8.95	2.71	25.00	1.93	17.80
308	2.62	23.41	1.07	9.56	2.73	24.40	1.68	15.01
309	2.54	21.73	0.91	7.78	2.8	23.95	1.76	15.06
310	2.62	26.31	0.9	9.04	2.53	25.40	1.5	15.06
311	2.73	25.07	1.03	9.46	2.57	23.60	1.88	17.26
312	2.88	23.84	0.8	6.62	2.9	24.01	1.53	12.67

Appendix C, Table 5. Basket Measurements and Proportion Calculations

Basket Measurements and Proportion Calculations							
Accession Number	Basket Shape	Weave	Loop/Rope	Basket Height (cm)	Basket Height Proportion %	Basket Width (cm)	Basket Width Proportion %
7	Trapezoid	4x4	No	1.69	8.85	1.28	22.90
8	Trapezoid	5x4	No	1.5	7.61	1.18	20.63
9	Square	Woven diagonally	Yes	1.42	7.14	1.44	25.04
10	Trapezoid	Woven diagonally	No	1.86	9.59	1.44	25.04
11	Trapezoid	5x4	No	1.67	8.56	1.3	25.15
12	Rectangle	Two part	Yes	2.06	11.02	1.13	21.16
13	Trapezoid	Woven diagonally	No	1.98	9.95	1.33	22.97
14	Square	5x5	Yes	1.1	5.61	1.04	18.57
15	Rectangle	Two part	Yes	2.11	11.28	1.34	25.43
16	Rectangle	Two part	Yes	2.2	11.64	1.33	24.72
17	Trapezoid	Woven diagonally	Yes	2.06	10.96	1.47	26.25
18	Trapezoid	Woven diagonally	Yes	1.98	10.42	1.41	26.21
19	Rectangle	Woven diagonally	Yes	1.62	8.31	1.31	22.59
20	Trapezoid	Woven diagonally	Yes	2.09	11.30	1.33	24.40
21	Trapezoid	4x4	Yes	1.37	12.10	0.9	29.70
22	Trapezoid	5x4	No	1.51	12.65	0.94	26.78
23	Rectangle	4x3	Yes	1.47	12.76	0.94	29.65
24	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
25	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
26	Rectangle	5x3	No	1.43	12.60	0.86	29.66
27	Unknown	CBD	CBD	1.04	10.20	0.76	30.52
28	Square	4x3	No	1.02	9.65	0.82	27.70
29	Trapezoid	5x3	No	1.16	10.53	0.95	28.36
30	Trapezoid	5x3	No	1.3	11.75	0.88	28.66
31	Rectangle	1x3	Yes	1.53	13.02	0.87	26.85
32	Trapezoid	5x3	No	1.19	10.27	0.87	29.90
33	Trapezoid	Woven diagonally	No	1.31	12.08	0.68	22.59
34	Trapezoid	5x4	Yes	1.37	12.58	0.85	26.98
35	Rectangle	4x3	Yes	1.36	11.88	0.74	23.72
36	Trapezoid	4x4	No	1.3	12.67	0.93	30.29
37	Trapezoid	Woven diagonally	No	1.22	10.67	0.89	30.69
38	Square	3x3 with Rim	No	0.81	7.39	0.94	28.14
39	Bell	4x3	Yes	1.37	11.71	1.05	32.31
40	Trapezoid	4x3	No	1.34	12.25	0.91	27.83
41	Trapezoid	Woven diagonally	Yes	1.48	12.49	1.08	35.53
42	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
43	Trapezoid	3x3	Yes	1.38	11.48	1	29.07

## Basket Measurements and Proportion Calculations

Accession Number	Basket Shape	Weave	Loop/Rope	Basket Height (cm)	Basket Height Proportion %	Basket Width (cm)	Basket Width Proportion %
44	Bell	4x4	Yes	1.3	11.50	0.93	29.81
45	Trapezoid	5x3	Yes	1.24	10.39	0.97	29.39
46	Square	4x3	No	0.93	7.62	0.99	27.12
47	Trapezoid	5x4	No	1.17	10.64	0.88	25.66
48	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
49	Bell	4x4	Yes	1.19	10.85	0.91	29.55
50	Trapezoid	4x4	Yes	1.39	11.90	0.93	33.10
51	Square	4x3	No	0.99	8.42	0.88	26.19
52	Trapezoid	CBD	No	1.22	11.74	0.88	29.24
53	Square	5x4	No	1.01	8.72	0.99	28.86
54	Rectangle	Woven diagonally	Yes	1.44	12.16	0.84	26.42
55	Hive	Woven diagonally	No	1.61	13.83	0.94	31.02
56	Bell	3x3	No	1.26	10.90	0.66	22.53
57	Trapezoid	4x3	No	1.03	8.60	1.05	30.17
58	Curved	5x5	No	1.16	9.88	1.12	33.63
59	Hive	Woven diagonally	No	1.39	11.46	1.07	33.54
60	Trapezoid	4x4	No	1.24	10.63	0.9	26.09
61	Square	3x3 with Rim	No	0.91	7.72	0.88	25.51
62	Trapezoid	4x3	No	1.28	10.87	0.8	24.10
63	Square	4x3	No	0.98	8.65	1	29.76
64	Square	4x3	No	0.89	8.32	0.84	26.09
65	Square	4x3	No	0.96	8.46	0.96	28.32
66	Square	4x3	No	0.94	8.79	0.89	26.57
67	Unknown	4x3	No	1.08	9.49	0.84	28.09
68	Trapezoid	Woven diagonally	Yes	1.3	11.39	0.78	24.22
69	Trapezoid	4x1	No	1.02	9.60	0.97	29.66
70	Trapezoid	4x3	No	1.05	9.33	0.92	28.05
71	Trapezoid	Woven diagonally	Yes	1.35	12.37	0.87	26.69
72	Rectangle	4x3	No	1.06	9.75	0.76	22.96
73	Square	Woven diagonally	Yes	1.49	12.93	0.95	28.79
74	Trapezoid	Woven diagonally	Yes	1.07	9.95	0.99	28.78
75	Rectangle	4x4	Yes	1.44	12.79	0.94	29.65
76	Hive	Woven diagonally	No	1.38	11.49	0.91	28.26
77	Trapezoid	4x4	Yes	1.06	9.73	0.68	23.05
78	Unknown	CBD	No	0.92	7.86	0.74	24.42
79	Curved	Woven diagonally	No	1.13	9.63	0.89	29.47
80	Curved	Woven diagonally	No	1.26	11.11	1.04	33.88
81	Rectangle	4x3	Yes	1.03	8.89	0.78	22.81
82	Square	4x3	No	1.04	9.32	0.9	26.63
83	Trapezoid	4x3	No	1.02	9.55	0.73	22.74
84	Square	3x2	yes	0.97	8.51	0.7	21.54



## Basket Measurements and Proportion Calculations

Accession Number	Basket Shape	Weave	Loop/Rope	Basket Height (cm)	Basket Height Proportion %	Basket Width (cm)	Basket Width Proportion %
85	Trapezoid	5x3	No	1.25	10.47	0.84	26.50
86	Trapezoid	5x4	Yes	1.26	10.88	0.91	26.84
87	Square	4x3	No	0.91	8.31	0.83	25.62
88	Trapezoid	4x3	No	1.03	8.90	1.01	29.53
89	Rectangle	5x3	yes	1.41	12.38	0.8	26.32
90	Hive	Woven diagonally	No	1.36	12.94	0.89	29.28
91	Curved	Woven diagonally	No	1.29	12.51	0.75	24.83
92	Rectangle	5x3	Yes	1.13	9.78	0.6	18.40
93	Trapezoid	4x3	No	0.85	7.56	0.83	26.10
94	Trapezoid	4x3	No	0.86	7.80	0.86	27.83
95	Basic Outline	CBD	No	1.25	11.07	0.77	23.26
96	Rectangle	Woven diagonally	Yes	1.51	12.93	0.95	28.70
97	Rectangle	Woven diagonally	Yes	1.34	12.05	0.85	26.48
98	Rectangle	5x4	Yes	1.19	10.56	0.94	31.02
99	Square	1x4	Yes	0.94	8.09	0.77	23.99
100	Unknown	CBD	No	1.22	11.23	0.86	26.79
101	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
102	Rectangle	5x4	yes	1.13	9.88	0.75	23.89
103	Rectangle	5x4	Yes	1.29	11.71	0.82	28.18
104	Rectangle	6x4	Yes	1.27	11.87	0.87	29.69
105	Rectangle	5x4	Yes	1.05	9.71	0.76	26.57
106	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
107	Rectangle	4x3	Yes	1.14	9.83	0.67	21.00
108	Rectangle	Woven diagonally	No	1.45	12.95	0.86	26.30
109	No Basket	N/A	yes	N/A	N/A	N/A	N/A
110	Trapezoid	Woven diagonally	Yes	1.08	9.29	0.8	25.40
111	Trapezoid	5x3	No	1.29	11.35	0.87	26.61
112	Rectangle	5x3	Yes	1.12	9.66	0.72	22.64
113	Rectangle	5x3	Yes	1.15	9.72	0.75	22.73
115	Trapezoid	Woven diagonally	No	1.27	11.98	0.74	24.26
116	Square	Woven diagonally	No	0.98	8.63	0.88	26.27
117	Square	3x3	No	0.85	7.42	0.85	25.37
118	Rectangle	4x4	yes	1.15	10.74	0.7	24.65
119	Square	4x5	yes	1.07	9.18	0.92	28.66
120	Rectangle	5x4	No	1.35	11.70	0.87	28.34
121	Bell	Woven diagonally	No	1.34	11.39	0.64	19.39
122	Square	4x4	No	1.05	9.11	1.03	31.12
123	Trapezoid	Woven diagonally	No	1.06	10.07	0.78	25.16
124	Bell	3x2	No	0.95	8.78	0.73	26.74
125	Rectangle	5x3	Yes	1.02	8.89	0.72	22.36

## Basket Measurements and Proportion Calculations

Accession Number	Basket Shape	Weave	Loop/Rope	Basket Height (cm)	Basket Height Proportion %	Basket Width (cm)	Basket Width Proportion %
126	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
127	Curved	Woven diagonally	No	1	8.81	0.62	18.73
128	Trapezoid	6x3	yes	1.33	12.27	0.79	27.92
129	Square	Woven diagonally	Yes	0.88	8.10	0.69	23.00
130	Trapezoid	Woven diagonally	No	0.89	8.47	0.82	27.61
131	Square	Woven diagonally w/bottom	Yes	1.28	11.54	0.88	27.16
132	Bell	4x3	No	0.85	7.26	1	29.85
133	Square	CBD	No	1	9.40	0.74	23.87
134	Rectangle	Woven diagonally	No	1.1	10.84	0.71	27.31
135	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
136	Square	3x3	No	0.87	7.75	0.94	28.75
137	Trapezoid	4x3	No	1.21	10.16	0.93	30.10
138	Curved	Woven diagonally	No	1.39	11.90	0.9	29.61
139	Rectangle	5x3	No	1.15	10.23	0.85	29.11
140	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
141	Trapezoid	5x3	No	1.11	9.59	0.89	26.57
142	Curved	Woven diagonally	No	1.04	9.59	0.75	23.22
143	Trapezoid	Woven diagonally	No	1	8.59	1	31.75
144	Rectangle	4x2	No	0.88	7.65	0.6	19.48
145	Rectangle	Woven diagonally	Yes	1.36	11.72	0.91	27.91
146	Trapezoid	Woven diagonally	Yes	1.28	11.00	0.89	27.99
147	Trapezoid	3x3	No	1.09	9.46	0.79	26.78
148	Trapezoid	Woven diagonally	No	1.34	12.19	0.97	28.96
149	Trapezoid	4x3	No	1.27	11.03	0.86	28.96
150	Curved	4x3	Yes	1.04	8.99	0.81	25.71
151	Trapezoid	4x3	No	1.08	9.64	0.89	32.13
152	Square	4x3	No	1	8.69	1.01	29.88
153	Trapezoid	4x3	No	1.14	9.97	0.87	29.90
154	Curved	Woven diagonally	No	1.43	12.53	0.84	28.38
155	Curved	Woven diagonally	No	1.15	9.67	0.81	25.80
156	Curved	Woven diagonally	Yes	1.35	11.96	0.77	25.25
157	Trapezoid	4x3	Yes	1.1	10.37	0.89	29.97
158	Rectangle	4x3	yes	1.05	9.52	0.84	27.45
159	Curved	Woven diagonally	No	1.34	11.38	0.97	31.80
160	Rectangle	5x3	Yes	1.23	10.80	0.74	22.91
161	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
162	Rectangle	5x4	Yes	1.16	10.22	0.77	24.21
163	Square	4x3	No	0.97	9.14	0.94	29.19
164	Rectangle	4x3	No	1.15	10.29	0.8	27.40
165	Trapezoid	Woven diagonally	No	1.45	12.49	1.05	32.51

## Basket Measurements and Proportion Calculations

Accession Number	Basket Shape	Weave	Loop/Rope	Basket Height (cm)	Basket Height Proportion %	Basket Width (cm)	Basket Width Proportion %
166	Rectangle	Woven diagonally	Yes	1.15	10.54	0.84	27.54
167	Curved	Woven diagonally	No	1.11	10.44	0.96	30.97
168	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
169	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
170	Rectangle	3x3	No	1.2	10.32	0.81	26.30
171	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
172	Unknown	Woven diagonally	No	1.21	10.83	0.93	28.35
173	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
174	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
175	Rectangle	CBD	No	1.5	14.58	0.76	26.48
176	Trapezoid	5x4	Yes	1.24	11.38	0.87	28.71
177	Trapezoid	4x3	Yes	1.2	12.30	0.74	24.83
178	Unknown	Woven diagonally	No	1.11	10.60	0.62	22.38
179	Rectangle	4x3	Yes	1	8.73	0.68	21.18
180	Rectangle	5x4	Yes	1.12	10.55	0.68	23.45
181	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
182	Rectangle	4x3	yes	0.94	9.06	0.77	27.90
183	Rectangle	Woven diagonally	No	1.16	10.81	0.71	22.12
184	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
185	Rectangle	4x3	No	1.01	9.07	0.6	20.07
186	Trapezoid	Woven diagonally	No	0.98	8.96	0.73	25.26
187	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
188	Trapezoid	Woven diagonally	yes	1.23	11.44	0.86	27.39
189	Trapezoid	5x3	No	1.38	11.75	0.78	22.94
190	Trapezoid	4x4	No	1.06	9.25	0.9	27.52
191	Trapezoid	5x4	No	1.14	10.50	0.74	26.24
192	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
193	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
194	Trapezoid	CBD	CBD	1.17	10.68	0.79	24.46
195	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
196	Unknown	Woven diagonally	No	1.21	11.45	0.8	24.84
197	Square	Woven diagonally	No	1.1	10.27	0.72	22.64
198	Unknown	Woven diagonally	No	1.03	10.11	0.68	26.25
199	Bell	4x4	No	1.05	9.17	0.86	25.52
200	Trapezoid	5x4	yes	1.21	10.06	0.92	27.63
201	Trapezoid	6x4	Yes	1.33	11.16	0.93	28.27
202	Square	4x3	Yes	1.14	10.47	0.88	27.41
203	Curved	Woven diagonally	No	1.46	12.29	1.02	32.59
204	Trapezoid	4x3	No	1.01	8.92	0.86	27.92
205	Trapezoid	5x3	Yes	1.36	12.65	0.83	26.69
206	Trapezoid	4x3	No	1.01	8.95	0.83	26.95

## Basket Measurements and Proportion Calculations

Accession Number	Basket Shape	Weave	Loop/Rope	Basket Height (cm)	Basket Height Proportion %	Basket Width (cm)	Basket Width Proportion %
207	Square	4x3	No	0.9	8.14	0.93	28.10
208	Trapezoid	4x4	Yes	1.08	9.94	0.73	23.25
209	Trapezoid	5x3	No	1	9.59	0.95	29.60
210	Trapezoid	4x3	No	1.2	10.12	0.91	26.15
211	Square	4x3	No	0.92	8.34	0.8	25.00
212	Trapezoid	5x3	Yes	1.11	10.15	0.91	30.85
213	Trapezoid	4x3	No	0.88	8.22	0.76	23.68
214	Trapezoid	5x4	No	1.24	10.59	1.01	29.79
215	Trapezoid	4x3	No	0.97	8.16	0.95	27.22
216	Trapezoid	5x4	No	1.22	10.12	0.9	30.30
217	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
218	Square	4x3	No	0.98	8.31	0.93	25.76
219	Trapezoid	4x3	No	1.3	11.68	0.92	27.46
220	Bell	4x3	No	1.02	9.41	0.71	24.74
221	Rectangle	5x4	yes	1.22	10.37	0.91	27.83
222	Trapezoid	3x3	No	1.2	10.16	1.03	33.12
223	Square	3x3	No	0.84	7.74	0.86	26.54
224	Rectangle	5x3	No	1.28	11.92	0.82	29.82
225	Curved	3x3	No	1.04	9.32	0.72	25.09
226	Curved	5x3	Yes	1.22	10.39	0.91	28.26
227	Trapezoid	Woven diagonally	yes	1.22	10.30	0.97	28.78
228	Rectangle	4x4	Yes	1.35	11.23	1.04	29.46
229	Square	4x3	No	0.92	8.49	0.77	24.21
230	Rectangle	4x3	No	1.02	8.58	0.94	27.57
231	Bell	Woven diagonally	No	1.19	11.76	0.8	30.89
232	CBD	CBD	CBD	0.94	9.14	0.61	23.74
233	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
234	Rectangle	5x4	yes	1.18	10.15	0.78	24.22
235	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
236	Bell	Woven diagonally	No	1.08	10.21	0.76	29.23
237	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
238	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
239	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
240	Square	6x4	Yes	1.13	10.88	0.99	32.46
241	Rectangle	5x3	No	1.25	12.11	0.8	29.85
242	CBD	CBD	No	CBD	CBD	CBD	CBD
243	Trapezoid	Woven diagonally	No	0.96	9.64	0.75	28.85
244	Trapezoid	Woven diagonally	yes	1.12	10.61	0.83	27.39
245	Rectangle	5x3	No	1.02	10.49	0.74	29.72
246	Curved	Woven diagonally	No	1.05	10.09	0.87	32.22
247	Curved	CBD	No	1.17	10.16	0.82	26.62

## Basket Measurements and Proportion Calculations

Accession Number	Basket Shape	Weave	Loop/Rope	Basket Height (cm)	Basket Height Proportion %	Basket Width (cm)	Basket Width Proportion %
248	Trapezoid	5x3	yes	1.16	9.81	0.9	30.93
249	Trapezoid	5x3	No	1.08	9.69	0.77	25.41
250	Unknown	CBD	CBD	0.73	7.36	0.67	25.09
251	Trapezoid	Woven diagonally	Yes	1.2	10.27	0.92	29.87
252	Trapezoid	4x3	No	1	8.13	0.86	27.92
253	Curved	Woven diagonally	No	1	9.49	0.75	24.75
254	Trapezoid	5x3	Yes	1.07	9.78	0.84	30.66
255	Trapezoid	CBD	No	0.98	8.55	0.9	29.51
256	Rectangle	Woven diagonally	Yes	1.24	11.22	0.79	25.82
257	Curved	3x3	Yes	1.19	10.21	0.95	30.84
258	Trapezoid	6x3	No	1.18	10.97	0.83	26.69
259	Rectangle	Woven diagonally	No	0.89	8.26	0.79	27.34
260	Bell	3x3	Yes	1.11	9.22	0.88	29.43
261	Hive	5x3	No	1.03	9.23	0.92	28.31
262	Rectangle	5x4	yes	1.06	9.15	0.88	28.03
263	Unknown	CBD	CBD	1.28	10.80	0.87	27.80
264	Square	4x4	Yes	0.93	8.91	0.88	28.66
265	Trapezoid	3x3	No	1.1	10.08	0.88	28.57
266	Trapezoid	Woven diagonally	Yes	1.13	9.72	0.93	31.85
267	Trapezoid	4x3	No	0.89	8.43	0.89	30.07
268	Trapezoid	Woven diagonally	Yes	0.98	9.02	0.83	27.30
269	Trapezoid	5x3	Yes	1.13	9.98	0.85	27.60
270	Trapezoid	4x3	No	1.22	11.15	0.92	29.58
271	Trapezoid	4x3	No	1.01	8.84	0.94	30.62
272	Trapezoid	CBD	No	0.85	7.67	0.73	22.46
273	Bell	4x4	Yes	1.05	9.26	1.02	32.18
274	Unknown	CBD	Yes	0.98	9.28	0.72	25.90
275	Trapezoid	5x3	No	1.27	11.64	0.72	23.68
276	Bell	Woven diagonally	No	1.1	9.84	0.88	29.53
277	Trapezoid	4x4	Yes	1.15	10.11	0.76	25.17
278	Trapezoid	Woven diagonally	Yes	1	8.53	0.79	25.16
279	Rectangle	5x4	Yes	1.04	8.85	0.73	23.55
280	Rectangle	7x4	yes	1.21	10.73	0.74	24.42
281	Trapezoid	5x3	No	1.11	10.42	0.75	25.17
282	Trapezoid	4x4	No	1.14	10.74	1.04	31.42
283	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
284	Trapezoid	3x3	Yes	1.06	9.36	0.85	28.72
285	Trapezoid	4x3	Yes	1.09	8.76	0.91	28.26
286	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
287	Trapezoid	4x4	Yes	1.1	10.41	0.92	29.02
288	Trapezoid	5x4	No	1.39	11.59	1	29.24

Basket Measurements and Proportion Calculations

Accession Number	Basket Shape	Weave	Loop/Rope	Basket Height (cm)	Basket Height Proportion %	Basket Width (cm)	Basket Width Proportion %
289	Rectangle	Woven diagonally	No	1.14	11.10	0.75	29.30
290	Square	4x3	No	0.92	8.24	0.82	24.48
291	Trapezoid	CBD	yes	1.03	9.02	0.85	28.24
292	Trapezoid	4x3	yes	0.85	7.73	0.99	32.67
293	Trapezoid	Woven diagonally	No	1.09	10.38	0.79	29.15
294	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
295	Square	4x3	No	0.88	8.26	0.86	26.63
296	Trapezoid	3x3	yes	1.13	10.39	0.72	23.84
297	Trapezoid	Woven diagonally	No	1.33	11.17	0.95	27.78
298	Unknown	CBD	CBD	1.02	9.10	0.78	27.27
299	Bell	4x3	No	1.16	10.75	0.83	26.10
300	Bell	Woven diagonally	CBD	1.11	9.88	0.9	29.03
301	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
302	Square	4x3	Yes	0.91	8.83	0.87	27.62
303	Trapezoid	4x3	No	1.04	9.52	0.91	27.83
304	Square	4x3	No	0.75	7.18	0.91	26.76
305	Trapezoid	5x3 with bottom	No	1.01	9.12	0.75	25.60
306	Bell	3x3	yes	1.01	9.29	0.71	23.36
307	Square	4x3	No	0.84	7.75	0.74	21.83
308	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
309	Rectangle	4x4	Yes	1.09	9.32	0.81	27.18
310	No Basket	N/A	N/A	N/A	N/A	N/A	N/A
311	Trapezoid	4x3 with bottom	No	1.11	10.19	0.79	24.53
312	Hive	5x3	Yes	1.1	9.11	0.8	24.17

APPENDIX D

INDIVIDUAL PHOTOGRAPHS FOR MERETITES' COLLECTION



2007.12.16



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APPENDIX E

MOLD GROUPINGS FOR MERETITES' COLLECTION



Boxy - Group 1



Boxy - Group 2



**Boxy - Group 3**



Boxy - Group 4



Boxy - Group 5



Nosy - Group 1



Nosy - Group 2





Nosy - Group 3



Nosy - Group 4



Nosy - Group 5



Nosy - Group 6



Nosy - Group 7



Nosy - Group 8



Stout - Group 1



Stout - Group 2





Stout - Group 3



Stout - Group 4



Stout - Group 5



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Stout - Group 10





Tapered - Group 1



Tapered - Group 2



Tapered - Group 3



Tapered - Group 4



Tapered - Group 5



Tapered - Group 6



Tapered - Group 7



Tapered - Group 8





Tapered - Group 9

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Michele Renee Valentine was born on July 15<sup>th</sup>, 1970 in New Orleans, Louisiana. She was educated in local public schools and graduated from Van Horn High School in Independence, Missouri. She graduated from the University of Missouri – Kansas City in 1999 with honors. Her degree was a Bachelor of Liberal Arts within an emphasis in History.

Ms. Valentine began the master's program in Art History at the University of Missouri – Kansas City in August 2005. During her studies, she was awarded funding through the Women's Council Graduate Assistance Fund in 2009 for a research trip to Boston, Massachusetts and New York, New York to study shabti collections, the topic of her thesis. In 2010, a second award from the Women's Council funded a trip to the annual conference for the American Research Center in Egypt to present research findings for Meretites' ushebti collection located at the Nelson-Atkins Museum of Art, Kansas City. Upon completion of her degree requirements, Ms. Valentine plans to continue her education by pursuing a Ph.D. in Art History. She also hopes to continue donating time and to pursue research interests at the Nelson-Atkins Museum of art.

Ms. Valentine is a member of the American Research Center in Egypt and the Midwest Art Historical Society.