

Georgia State University

ScholarWorks @ Georgia State University

Anthropology Theses

Department of Anthropology

Fall 12-7-2010

Small Finds From Chogha Gavaneh Site in the Islamabad Plain, Central Zagros Mountains, Iran

Firoozeh Forouzan

Follow this and additional works at: https://scholarworks.gsu.edu/anthro_theses



Part of the [Anthropology Commons](#)

Recommended Citation

Forouzan, Firoozeh, "Small Finds From Chogha Gavaneh Site in the Islamabad Plain, Central Zagros Mountains, Iran." Thesis, Georgia State University, 2010.

doi: <https://doi.org/10.57709/1675223>

This Thesis is brought to you for free and open access by the Department of Anthropology at ScholarWorks @ Georgia State University. It has been accepted for inclusion in Anthropology Theses by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.

SMALL FINDS FROM CHOGHA GAVANEH SITE IN THE ISLAMABAD PLAIN,
CENTRAL ZAGROS MOUNTAINS, IRAN

by

FIROOZEH FOROUZAN

Under the Direction of Jeffrey B. Glover, PhD

ABSTRACT

This study examines small finds from the site of Chogha Gavaneh, Iran, including zoomorphic clay figurines, geometric-shaped objects, and sling bullets in order to determine if they served an economic function during the Early Chalcolithic period (ca. 5000-4000 B.C.E.). A total of 104 animal figurines, sling bullets, and geometric-shaped objects have been found at Chogha Gavaneh. This research challenges previous archaeological interpretations of animal figurines that have interpreted them as being magical or

lucky objects for hunting and religious rituals, or for use as game pieces, educational objects, or toys. Through the use of XRF (x-ray fluorescence spectrometry) analysis and the *chaine opératoire* approach, I suggest, contrary to the conventional wisdom, that some of these clay objects might represent another kind of social practice and may have had an economic function.

INDEX WORDS: Chogha Gavaneh, Zoomorphic figurines, Chalcolithic, Economic function, Geometric-shaped objects, Sling bullets

SMALL FINDS FROM CHOGHA GAVANEH SITE IN THE ISLAMABAD PLAIN,
CENTRAL ZAGROS MOUNTAINS, IRAN

by

FIROOZEH FOROUZAN

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

in the College of Arts and Sciences

Georgia State University

2010

Copyright by
Firoozeh Forouzan
2010

SMALL FINDS FROM CHOGHA GAVANEH SITE IN THE ISLAMABAD PLAIN,
CENTRAL ZAGROS MOUNTAINS, IRAN

by

FIROOZEH FOROUZAN

Committee Chair: Jeffrey Glover

Committee: Bethany Turner

Faidra Papavasiliou

College of Arts and Sciences

Electronic Version Approved:

Office of Graduate Studies

Georgia State University

December 2010

To everyone I love, especially to my parents.

ACKNOWLEDGEMENTS

I most gratefully acknowledge the professors, staff and students of the Department of Anthropology at Georgia State University, who produced an encouraging and enthusiastic environment while I was there. I am sincerely thankful to my thesis committee members, Dr. Jeffrey Glover, Dr. Despina Margomenou, Dr. Bethany Turner, and Dr. Faidra Papavasiliou, who encouraged, guided and supported my research from start to finish.

Many thanks are due to Dr. Kamyar Abdi, who allowed me to conduct my research on the archaeological collection of Chogha Gavaneh. I offer my thanks to Dr. Zachary Hruby, whose expertise in experimental archaeology influenced the methodology I employed in my research. I would like to thank Dr. Daniel Deocampo in the Geosciences Department at GSU, who assisted me with technological support during the project. I offer many thanks to Dr. Frank Williams for his invaluable support of my education and research since I started the anthropology program at Georgia State University. I would like to thank all of the professors who contributed throughout the graduate program in the Department of Anthropology, especially Dr. Kathryn Kozaitis and Dr. Emanuela Guano.

Lastly, I offer my best regards and blessings to all those who supported me in any respect during the completion of the study, especially to Tina Rezvani, Heather Kravagna, Siavash Samei, Kanan Mehta, Jacqueline Parker, and Carla Sanches. Finally, I wish to acknowledge Adrienne Gonzalez and Martha Mukasa-Howard for their unwavering support and assistance.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	v
LIST OF FIGURES.....	x
LIST OF TABLES	xii
CHAPTER.....	
1. INTRODUCTION.....	1
Zoomorphic Figurines.....	3
Geometric-Shaped Objects	4
Sling Bullets.....	5
Summary of Thesis	7
2. GEOGRAPHY RANGE AND HISTORY OF RESEARCH IN THE AREA...9	
The Zagros Mountains	9
Archaeological Research in the Central Zagros Mountains	13
Summary of the Excavation Result on Islamabad Plain.....	17
Conclusions.....	18
3. HISTORY OF EXCAVATION AT CHOGHA GAVANEH	20
Research Goals	20
Archaeological Context	21
Excavation at “ Operation W263”	22
Methodology of Excavation at Chogha Gavaneh	22

Conclusions	24
4. OVERVIEW OF FIGURINE STUDIES, GEOMETRIC-SHAPED OBJECTS AND SLING BULLETS IN THE NEAR EAST	27
Theoretical Approaches to the Study of Near Eastern Figurines.....	28
A Structuralist Approach to the Study of Zoomorphic Figurines.....	30
A Practice-Based Approach to the Study of Zoomorphic Figurines	33
Summary and Discussion.....	37
Conclusions.....	40
5. RESEARCH METHODS.....	41
Introduction	41
Classification of Clay Artifacts from Ghogha Gavaneh Assemblage ..	41
Quantitative and Qualitative Analysis	45
Analysis Using the <i>Chaîne Opératoire</i> Concept	46
My Own Animal Figurines: <i>Chaîne Opératoire</i>	47
Discussion of My <i>Chaîne Opératoire</i> Experience.....	48
A Comparison of the Faunal Remains with the Zoomorphic Figurines	49
X-ray Fluorescence (XRF) Analysis.....	54
6. DISCUSSION OF FIGURINES, GEOMETRIC-SHAPED OBJECTS, AND SLING BULLETS.....	56
Introduction.....	56
The Zoomorphic Figurines	56

1. Stratigraphic Context and Distribution of Zoomorphic Figurines	57
2. Discussion of the Modeling Techniques	62
3. Zoomorphic Figurines Typology	66
4. Patterns of Wear and Damage	70
5. Color Range of Zoomorphic Figurines	72
6. Summary and Discussion	73
The Geometric-Shaped Objects	74
1. Stratigraphic Context and Distribution of Geometric-Shaped Objects	74
2. Discussion of the Modeling Techniques	76
3. Comparative Near Eastern Geometric-Shaped Objects	77
4. Color Range of Geometric-Shaped Objects	79
5. Summary and Discussion	79
The Sling Bullets	80
1. Stratigraphic Context and Distribution of Sling Bullets	80
2. Discussion of the Modeling Techniques	82
3. Color Range of Sling Bullets	83
4. Summary and Discussion	83
The Result of X-ray Fluorescence (XRF) Analysis	84
1. Analytical Techniques	84
2. Principal Components Analysis	85
3. Summary and Discussion	98
Conclusions	99

The Future of This Project	103
REFERERENCES CITED	105
APPENDIX A: SMALL FINDS MEASUREMENTS	111
APPENDIX B: QUANTITATIVE AND QUALITATIVE ANALYSIS OF SMALL FINDS	121

LIST OF FIGURES

Figure. 1.1. Map of Chogha Gavaneh site showing the location of “Operation W263”....	8
Figure. 2.1. Map showing the geography location of main sites and regions of the Near East	12
Figure. 2.2. Map of the Islamabad Plain showing the site of Chogha Gavaneh	16
Figure. 3.1. Master stratigraphy of the “Operation W263”	26
Figure. 6.1. The Stratigraphic Distribution of Chogha Gavaneh Zoomorphic Figurines by Layers	62
Figure. 6.2. Distribution of Color in Zoomorphic Figurines Based on the Munsell Color Chart	73
Figure. 6.3. The Stratigraphic Distribution of Chogha Gavaneh Geometric-shaped Objects by Layers	75
Figure. 6.4. Distribution of Color in Geometric-Shaped Objects Based on the Munsell Color Chart	79
Figure. 6.5. The Stratigraphic Distribution of Chogha Gavaneh Sling Bullets by Layers	81
Figure. 6.6. Distribution of Color in Sling Bullets Based on the Munsell Color Chart ...	83

Figure. 6.7. Scatter Plot of the first two Principal Components Showing the Grouping of Artifacts	89
Figure. 6.8. Scatter Plot of the first two Principle Components Showing the Geometric-Shaped Objects and Zoomorphic Figurines	90
Figure. 6.9. Scatter Plot of the first two Principle Components Showing the Geometric Shaped Objects	91
Figure. 6.10. Scatter Plot of the first two Principle Components Showing the Number of Artifacts	92
Figure. 6.11. Scatter Plot of the first two Principle Components Showing the Number of Outlier Artifacts	93
Figure. 6.12. Scatter Plot of the fifth and sixth Principle Components Showing the Grouping of Artifacts	95
Figure. 6.13. Scatter Plot of the fifth and sixth Principle Components Showing the Number of Artifacts	96
Figure. 6.14. Scatter Plot of the fifth and sixth Principle Components Showing the Numbers of Outliner	97
Figure. A.1. Location of the Measurements taken in Each Area of the Figurine	113

LIST OF TABLES

Table 5.1. Total Number of Zoomorphic Figurines divided into five groups based on their state of preservation	43
Table 5.2. Total Number of Anthropomorphic Figurine	43
Table 5.3. Total Number of Geometric-Shaped Objects divided into five groups based on their Shape	44
Table 5.4. Total Number of Sling Bullets	44
Table 5.5. Total Number of Miscellaneous	44
Table 5.6. Total Number of Other Objects.....	45
Table 5.7. The <i>Chaîne Opératoire</i> of Zoomorphic Figurine Production	47
Table 6.1. Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer VII	58
Table 6.2. Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer VIII	59
Table 6.3. Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer IX.....	60
Table 6.4. Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer XIX	61

Table 6.5. Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer XXI.....	61
Table 6.6. and 6.7. Distribution of Zoomorphic Figurines by Modeling Techniques at four Near Eastern Sites.....	63&64
Table 6.8. Distribution of Zoomorphic Figurines by Domesticated/Wild Animals at four Near Eastern Sites.....	66
Table 6.9. Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer XV.....	75
Table 6.10. Distribution of Geometric-Shaped Objects by Shape at four Near Eastern Sites.	78
Table 6.11. Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer V.....	81
Table 6.12. Distribution of Sling Bullets by Modeling Techniques in two Near Eastern Sites	82
Table 6.13. Shows the Principle Component Matrix of Chogha Gavaneh Small Finds ..	88
Table 6.14. Shows the Number of Outliers in the First and Second Factors	94
Table 6.15. Shows the Number of Outliers in the Fifth and Sixth Factors	97
Table 6.16. Determining Possible Economic Function for Zoomorphic Figurines	101
Table A.1 Locations of Measurements for Each Animal Figurine	112

Table A.2 Measurements of the Front of Animal Figurines Without Horns (Figure A.1#1).....	114
Table A.3. Measurements of Height of Animal Figurine with Horns (Figure A.1#2)...	114
Table A.4. Measurements of the Length of Animal Figurine (Figure A.1#3)	115
Table A.5. Measurements of Leg Width of Intact Animal Figurine (Figure A.1#4)	115
Table A.6. Measurements of the Torso, Height of Animal Figurine (Figure A.1#5)	116
Table A.7. Measurements of the Rear, Height of Animal Figurine (Figure A.1#6)	116
Table A.8. Measurements of the Front, Width of Animal Figurine (Figure A.1#7)	117
Table A.9. Measurements of Torso, Rear, Width of Animal Figurine (Figure A.1#8)...	117
Table A.10. Measurements of the Horns, Height of Animal Figurine (Figure A.1#9)...	118
Table A.11. Measurements of the Horns, Width of Animal Figurine (Figure A.1#10).	118
Table A.12. Measurements of the Horns, Length Animal Figurine (Figure A.1#11)....	119
Table A.13. Measurements of the Animal Figurines, Weight (Figure A.1#11).....	119
Table A.14. Weight of the Intact Geometric-Shaped Objects (Figure A.1#11).....	120

CHAPTER 1

INTRODUCTION

This research investigates small finds from the site of Chogha Gavaneh, a site in Western Iran (Figure.1.1). A total of 104 animal figurines,¹ sling bullets, and geometric-shaped objects have been found at Chogha Gavaneh². My research seeks to investigate the possible social and economic function(s) of these small finds in the Early Chalcolithic period communities in the Near East (ca. 5000-4000 B.C.E.); in particular, the possible connection between pastoralism and the use of these small finds.

During the Late Neolithic/Early Chalcolithic period (ca. 5000-4000 B.C.E.), the agricultural system at the Islamabad Plain in the West Central Zagros Mountains, was working at its most productive (Abdi 2002:334). The production of Halaf-related J-Ware vessels indicated the influence northern Mesopotamian people had on ceramic technology in West Central Zagros. According to Abdi (2002:348), the number of villages on the Islamabad Plain increased dramatically from the Neolithic to the Chalcolithic period. The increase in the number of settlements explains the population growth may have resulted from the migration of people from the north and west. The social and economic interactions between these people, is of particular interest to me.

The agricultural economy increased the production of food, and scholars (e.g. Cole et. al 1997; Schmandt-Besserat 1978) have argued that the use of tokens emerged to

¹ There is ongoing debate on the original date of the artifacts (personal communication with Abdi, December 20 2009).

² The collection is courtesy of Kamyar Abdi, associate professor and chair of the department of archaeological science at Shahid Beshti University, Iran, from the first season of excavations at Ghogha Gavaneh (1998).

record (*or document*) as record-keeping devices. It is possible that the clay geometrically and animal shaped tokens represented objects such as different goods, animals, or produce. Researchers content that each token represents a specific animal in the herd and move with the herders. It is possible the movement of these animal tokens by herdsman indicate the economic nature of these artifacts.

The use of figurines does not, however, begin in the Late Neolithic/Early Chalcolithic. They are well-known artifacts that represent both anthropomorphic and zoomorphic characters as early as the Paleolithic period (ca. 40,000-10,000 B.P.). The literature on figurines in the Near East discusses such issues as why and when humans first began to produce and create artifacts, how they were formed, how much skill was required, and what kinds of tools were used to create them. We are, however, a long way from fully understanding the use, meaning, and function of figurines in prehistoric contexts, although there are various uses and meanings of anthropomorphic and zoomorphic figurines that have been proposed (Bailey 2005; Talalay 1993).

Archaeological literature (Garfinkel 1994; Keswani 1994; Marciniak 2005; Talalay 1993) has provided rich evidence on the ritualistic and symbolic role of animals in prehistoric communities, especially among pastoral groups. These scholars have interpreted these objects as magical or lucky objects for hunting, game pieces, educational objects, or toys (Cauvin 2000b; Rollefson 2000; Voigt 2000; Ucko 1968). consider the theory of social exchange (e.g., Hart 2005) and how it is applied to mobile resources within Early Chalcolithic villages.

Zoomorphic Figurines

The zoomorphic figurines of the assemblage feature the general outline of the animal, with most highlighting some specific aspect of an animal's anatomy, namely the head, horns, neck, front and back legs, and/or the tail. However, these parts are not present on all of the figurines. The anthropomorphic figurines in this collection present a level of uncertainty for two reasons. First of all, there are only two such figurines, both are incomplete and poorly preserved. One only portrays the legs with a skirt, and the other appears to represent a human torso. Second, the sample size is too small to draw statistically significant conclusions.

The methods I employed to address my research questions about the figurines from Chogha Gavaneh are as follows: First, I created a typology based on the animals that they seem to represent. I also conducted both quantitative and qualitative analyses, such as describing the general typology and the current state of preservation, recording measurements, colors, and weights. Second, I studied the context of the identified small finds. Third, I attempted to determine the manufacturing process by using the *chaîne opératoire* approach to reproduce some of the figurines. Fourth, I compared the faunal assemblage of the site to the animal figurines in order to determine if the common species in the zooarchaeological assemblage matched those represented by the figurines. Fifth, I used XRF (x-ray fluorescence spectrometry) analysis to examine the trace element compositions of the artifacts in an attempt to determine whether the zoomorphic figurines, tokens, and sling bullets may have come from various regions in the area. This allows me to see if these small finds were constructed using different clay sources. While not definitive proof, the presence of outliers in this small collection indicate that different

clay sources might be present in the sample and that a few of these objects may have moved between communities and as would be expected of objects used for economic purposes.

Geometric-Shaped Objects

The geometric objects we find in this assemblage are common in prehistoric Near Eastern archaeological sites from Turkey, Palestine, Iraq, Syria, and Iran (Peterson 1988:408). Such objects come in a variety of geometric forms: concave-shaped, conical, discoidal (with and without incised lines markings), ovoid, spherical, and animal-shaped (Schmandt-Besserat 1992:93). Traditionally geometric-shaped objects have been interpreted as gaming pieces, and as counting and recordkeeping objects, or tokens (Garfinkel 1995:23).

The interpretation of figurines and clay geometric-shaped objects/tokens are discussed in detail by Schmandt-Besserat (1996). These groups of objects have been recovered in Near Eastern sites including the Fertile Crescent as early as the pre-pottery Neolithic (Wengrow 2003:142). These geometric-shaped objects are grouped together because they have all been created out of clay and have similar size and production methods. In addition, she discusses the function of these geometric items in counting and record keeping for different types of goods. According to Ivars Peterson (1988:409) once hunter-gatherer societies began to settle permanently in one area, it is possible that they used simple geometric shapes to keep track of their goods.

Schmandt-Besserat (1996) explains that geometric items were generally discovered within one of two contexts: domestic and public. In the case of domestic settings, geome-

tric-shaped objects were scattered among ordinary houses close to artifacts such as like jars, as well as in hearths, on house floors, trash deposits, and storage areas (Schmandt-Besserat 1996:30). In the case of public settings, geometric-shaped objects were sometimes discovered in vessels and burials at monumental buildings where there were no signs of domestic activities (Schmandt-Besserat 1996:30).

In this study, I investigate if any of the geometric-shaped objects from the Chogha Gavaneh assemblage could be identified as tokens. To answer this question, I attempt to examine the range of sizes and shapes among the geometric-shaped objects. Then, based on the contextual data, I ask why geometric-shaped objects were deposited along with animal figurines. Finally, I employ the XRF (x-ray fluorescence spectrometry) analysis in order to recognize if these objects were made from different clay sources, indicating possible trade between regions and the possibility of people using the geometric-shaped objects for economic function.

Sling Bullets

The sling bullets are generally classified into egg-shaped and spherical bullets and they are larger than the geometric objects. The assemblage includes twenty sling bullets. While not part of this analysis, the other small finds include: animal bone fragments, a broken limestone dish, spindle whorls, and two items made from shell. The assemblage also contains seven miscellaneous clay fragments whose original shape cannot be determined.

Sling bullets are common across archaeological sites from Turkey, Syria, Iraq, and Iran from the Neolithic period. As a more recent example of sling bullets, an excava-

tion at Hamoukar in northeastern Syria, the Late Chalcolithic period (2500-2200 B.C.E.), uncovered clay objects mixed with debris and sling bullets from the fire-based destruction of Hamoukar. There were more than 1,200 egg-shaped sling bullets. They averaged 3.6 cm x 2.4 cm in size, weighing in around 25 grams (0.89 oz) each. It appears all were carefully crafted by hand (there were finger impressions on many).

Many of the same sling bullets were found among the debris and in piles within the fortification, suggesting ammunition storage for the defenders. Additionally, over 200 deformed sling bullets were uncovered. What is fascinating is the implication that, because there were no long-range scanning of an enemy approaching and no large transport vehicles to carry weapons, many bullets needed to be produced quickly when an enemy was near. Clay of this nature may take up to 24 hours to dry and even a large cache of bullets could be used up quickly. If battles lasted long enough, then bullets could be used when wet—almost as fast as they were made. Additionally, larger balls with diameters ranging between 6-10 cm were, in fact, found showing damage to one side, an indication that these were ancient “missiles.”

In another interpretation, it is possible that sling bullets were used by shepherds in order to scare domesticated livestock into staying with the herd or for protecting the livestock from predators (Dohrenwend 2002:32). They may also have been used for hunting small animals. Vivian Morales believes it is possible that the sling bullets were used for hunting birds, especially at the Neolithic (ca. 6000-5000 B.C.E.) site of Sarab in western Iran. Evidence for this theory comes from zooarchaeological analysis of birds' faunal remains found at Sarab (Morales 1990:23).

In this study, I investigate whether the sling bullets in the Chogha Gavaneh assemblage are indicative of conflict, or if they were used for herding or hunting small animals such as birds. To answer this question, I analyze the contextual deposition of the sling bullets for any evidence of animal remains, such as bird bones in the faunal assemblage, or evidence of herding or conflict in the site. This allows me to conceptualize the use of sling bullets by people in the Early Chalcolithic period.

Summary of Thesis

I have organized this research into six chapters. Chapter 1 provides a general introduction to research design. Chapter 2 is an overview of the history of archaeological research in the Islamabad Plain as well as the geography of the region. Chapter 3 details Abdi's (2002) excavation at Chogha Gavaneh: his research goals, archaeological contexts, excavations at "Operation W263," and the methodologies of his excavation. Chapter 4 is an overview of theoretical approaches to the study of figurines, geometric-shaped objects, and sling bullets, as well as my theoretical perspective. Chapter 5 explains my research methods including: the categorization of small finds, quantitative and qualitative analysis, the *Chaîne Opératoire* approach, a comparison of the faunal remains with the zoomorphic figurines, and X-ray Fluorescence (XRF). In Chapter 6, I discuss and conclude my results.

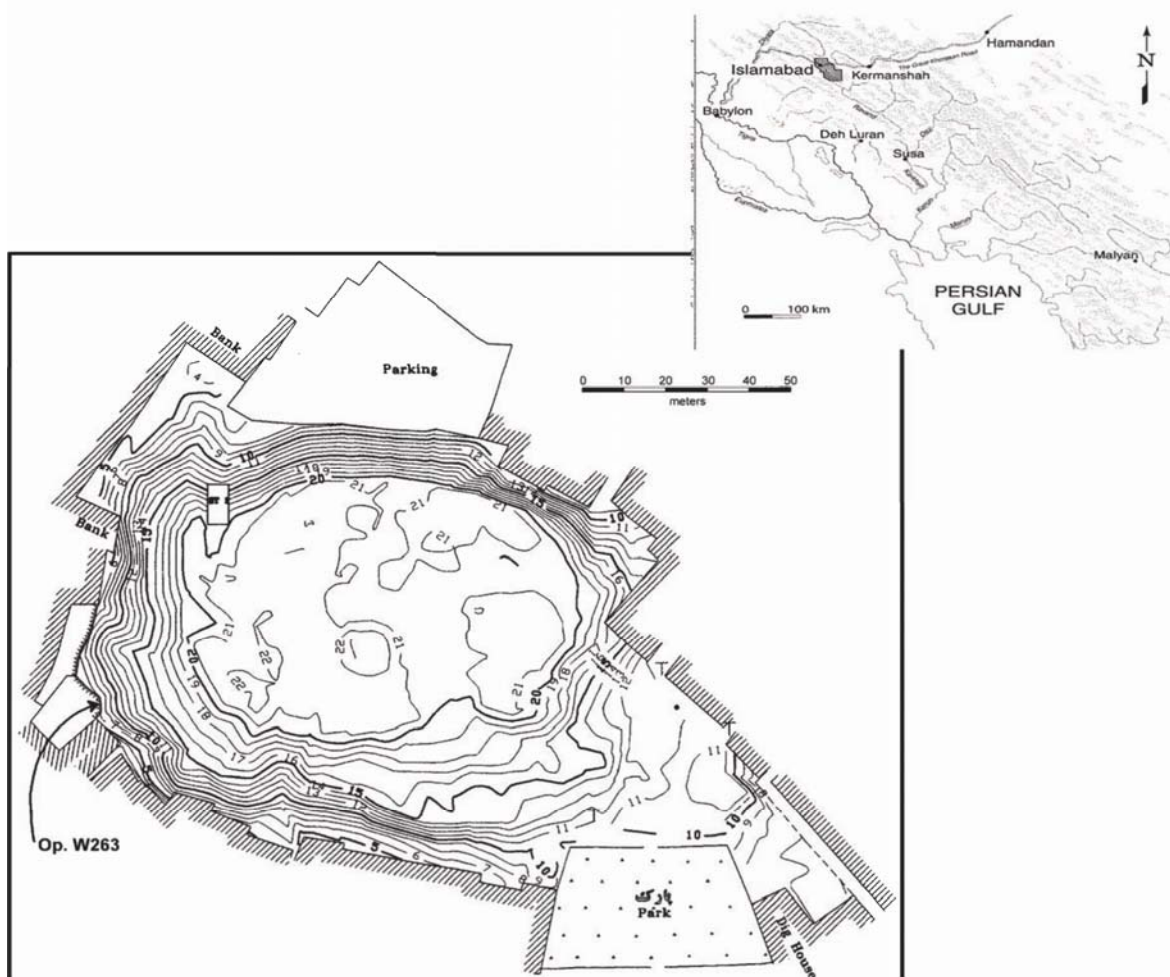


Figure. 1.1 Map of Chogha Gavaneh site showing the location of “Operation W263” (after Abdi 2002:184).

CHAPTER 2

GEOGRAPHY RANGE AND HISTORY OF RESEARCH IN THE AREA

The Zagros Mountains

The Zagros, the magnificent chain of mountains separating the high Iranian Plateau from the low plains of Mesopotamia and Susiana, has long been a major area for cultural, social, and political change in the Near East. Early developments in the alluvial plains to the west and southwest saw the burgeoning of an agriculturally-based urban system. In the east, pastoral-tribal communities were prevalent until three decades ago (Abdi 2002:75) (Figure. 2.1). As will be discussed below, this area has been a focus of archaeological research for the past century.

The Zagros mountain range is the second largest of its kind in the Middle East, with an area of about 553,000 sq km (231,500 sq mi). It extends from Turkey, northeastern Syria, and northeastern Iraq through Iran. The Zagros Mountain Range is primarily located in Iran, running northwest to southeast. In terms of structure and topography, the Zagros mountain range is divided into two sub-regions. First, the northwestern sub-region extends from the southeastern shores of the Black Sea to the north-central Iranian Plateau where it joins the Alborz range. The second sub-region also starts at the Black sea and continues as far as southern Iran (Abdi 2002:78). For archaeological purposes, the Zagros Mountains can be divided into three zones: the northwestern Zagros, the southern Zagros, and the central western Zagros (Abdi 2002:80).

The northwestern Zagros Mountains have been described as an extensive rectangular region consisting of a series of massive geologic structures chiefly of the Upper

Cretaceous, Miocene, and Plio-Pleistocene ages (Abdi 2002:81). In prehistoric times, the northwestern Zagros had close contact with areas to the north, east, and south. This contact became quite evident by the late 4th and early 3rd millennium B.C.E., when this region was influenced by the Kura-Araxes culture from the Transcaucasia, whose influence then expanded into northwestern Iran and eastern Anatolia (Parzinger 2000 and Sagona 1984 as cited in Abdi 2002:81).

Evidence from indigenous socio-political developments in the Upper Paleolithic indicates that the Southern Zagros was another major cultural area (Rosenberg 1988; Sumner 1977 as cited in Abdi 2002:81). For example, the southern Zagros became the center of the Elamite civilization by the late 4th millennium B.C.E. and was then occupied by the Persian Achaemenids who used the region as a capital in the mid first millennium B.C.E (Rosenberg 1988; Sumner 1977 as cited in Abdi 2002:81). Today, the Southern Zagros is divided into the province of Fars and a number of tribal provinces to the northwest. The large groups of Zagros tribes including the Bakhtiyari, the Qashqaii, and other lesser well-known nomadic tribes live in the central and southern Zagros mountain region (Abdi 2002:81).

It is difficult to distinguish the central Zagros from the northwestern and southern regions due to the lack of clear natural boundaries to separate the regions from one another. The presence of the High Road has, however, been used to define this cultural area. The High Road, also known as the Great Khorasan Road, was the major highway from Mesopotamia across the Iranian Plateau and into Central Asia (Abdi 2002:83). Since the early 19th century, many travelers and early archaeologists passing through the Central Zagros along the High Road recorded their observations about the geography and historical re-

mains of the area. Some monuments such as the trilingual inscription of Darius I, King of Persia, were prominent and visible to everyone travelling along the Great Khorasan Road (Abdi 2002:83). One of the most noticeable features of the Central Zagros is the *Kuh-i-Sefid* (the White Mountain in Persian). The *Kuh-i-Sefid* has been considered a boundary that divides the Central Zagros into western and eastern regions (Abdi 2002:83).

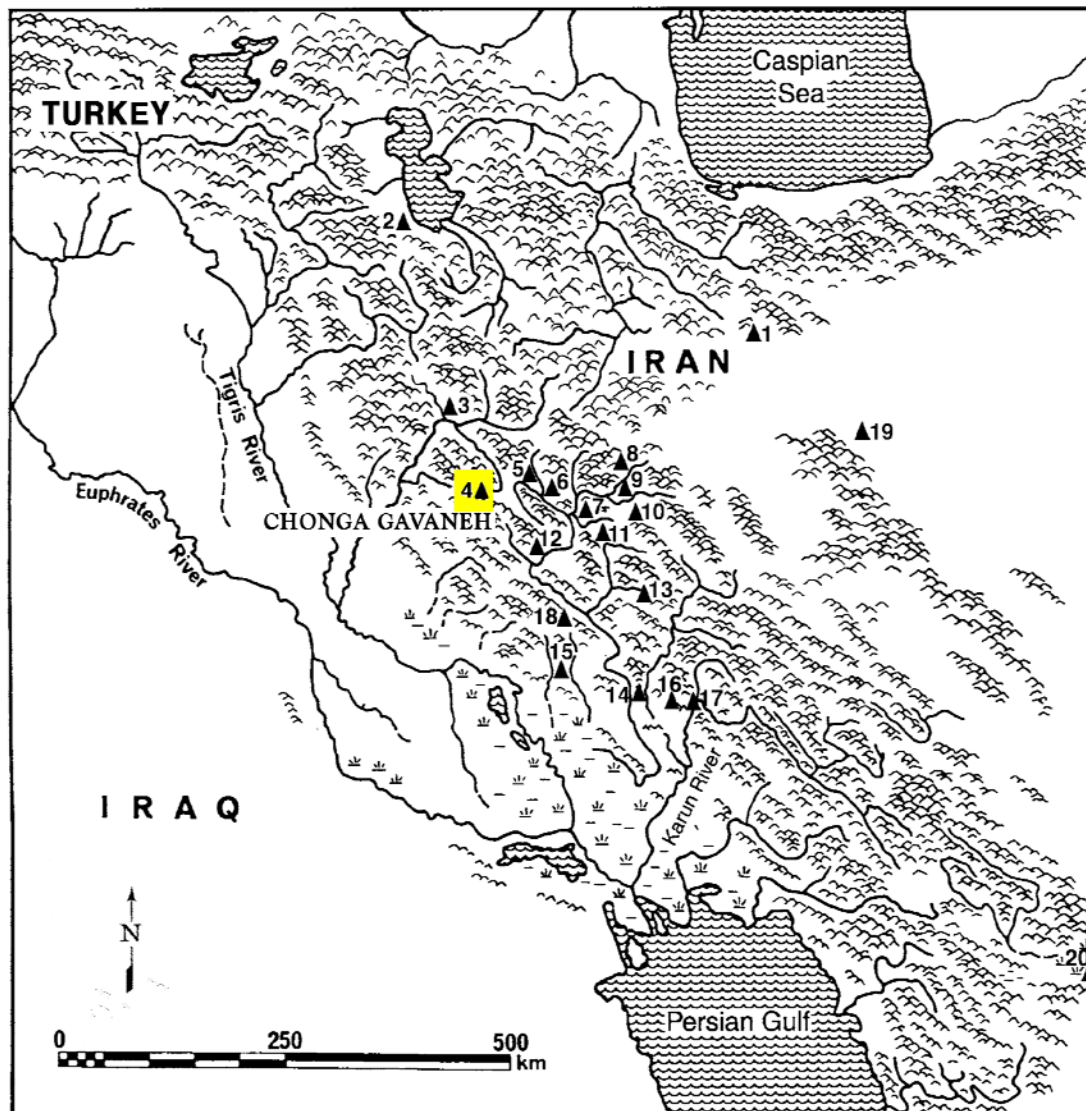


Figure. 2.1. Map showing the geographic location of main sites and regions in the Near East: 1. Zagheh and Qabrestan, 2. Haji Firuz, 3. Jarmo, 4. Chogha Gavaneh, 5. Chogha Maran, 6. Siahbid, 7. Sarab-Asiab, 8. Seh Gabi, 9. Godin, 10. Ganj Darreh, 11. Abdul Hossein, 12. Guran, 13. Baba Jan, 14. Susa, 15. Deh Luran Plain, 16. Chogha Banut, 17. Chogha Mish, 18. Hakalan and Parchineh, 19. Sialk, 20. Kur River Basin (after Abdi 2002:103).

Archaeological Research in the Central Zagros Mountains

The Islamabad Plain was first studied in 1936 by Aurel Stein in a general survey, and later by Erich Schmidt (1940) who used techniques, such as aerial photography, to survey sites in Western Iran and, in particular, the archaeological site of Chogha Gavaneh (Abdi 2002:107). The Oriental Institute at the University of Chicago conducted the Iranian Prehistoric Project from 1950 to 1960 under the supervision of Robert J. Braidwood. Braidwood (1961) and his team investigated the early stages of human life, including the origins of food production and settled life in the Zagros flanks of the Fertile Crescent. Major excavations and archaeological surveys have also been carried out in the Central Zagros Mountains by a number of institutions including a Danish expedition in 1963 under the auspices of the Aarhus Museum (Thrane et al. 1964, 1965 as cited in Abdi 2002:105); a Belgian team under supervision of Louis Venden Berghe (1984); and one led by the British Institute of Persian Studies under the direction of Clare Goff (1966) (Abdi 2002:104). Additionally, the site of Godin Tappeh was excavated in 1965, and a general survey of the Kangavar Plain was performed by Cuyler Young, Jr. (1974) and Louis D. Levine (1974), with sponsorship from the Royal Ontario Museum of Toronto in Canada (Abdi 2002:104). Archaeological excavations continued in the Central Zagros at the Neolithic settlement of Ganj Darreh for an additional five seasons between 1965 and 1974, sponsored by the University of Montreal under the supervision of Philip Smith (Smith 1976 as cited in Abdi 2002:105).

Foreigners have not been the only ones to work on the Islamabad Plain. The Archaeological Service of Iran conducted a preliminary survey of the Islamabad Plain in 1967 and opened a step trench at Chogha Gavaneh. In the summer of 1970, archaeologi-

cal work at Chogha Gavaneh started under the direction of Mahmoud Kordavani (Abdi 2002:107). In 1980, archaeologists from the Iranian Center for Archaeological Research (ICAR) returned to Chogha Gavaneh for a short season (see below). Iranian archaeologists have visited the Islamabad Plain occasionally since then.

Archaeological excavations and surveys of the Central Zagros were discontinued unexpectedly due to the Iranian Revolution of 1979 and the Iran-Iraq War that lasted from 1980 to 1988. Since then, archaeological research has shifted to other parts of the Near East, especially modern-day Iraq, Syria, and Anatolia. Archaeological research in Iran has suffered significantly because of this isolation. Despite these early efforts, much of the Central Zagros range remains unexplored following these wars.

After an interruption of archaeological research in the Central Zagros for almost two decades, Kamyar Abdi as part of his Ph.D. dissertation at the University of Michigan visited several archaeological sites, including Chogha Gavaneh, and provided a general evaluation of the Islamabad Plain (Figure 2.2). In the summer of 1997 he discussed the possibility of initiating an archaeological project in the Central Zagros with the Iranian Cultural Heritage Organization (ICHO). Following these discussions, he was allowed by ICAR to begin his archaeological investigation along the Great Khorasan Road on the Islamabad Plain.

In the first season (1998), Abdi began his survey of the Islamabad Plain and documented “the regional pottery sequence by means of a stratigraphic cut and a re-study of the 1970 excavation of Chogha Gavaneh” (Abdi 2002:109). He excavated a 3 m x 0.9 m x 5.20 m trench at the lower part of the western edge of the site and encountered objects dating from the Late Chalcolithic to the Late Neolithic (2002:110). As part of this study,

during the summer of 1998, Abdi also re-excavated room B15 at Chogha Gavaneh, which had earlier been excavated by an Iranian team in 1970. Abdi re-excavated B15 for two reasons. First, it was a small and manageable room where the Iranian team had discovered a set of cuneiform tablets and kilns. Second, the process helped the team to further expose the structure and its interior. This proved beneficial in learning about the arrangement and probable order of the tablets and the kilns (Abdi 2002:110). (see Chapter 3).

The six-week survey of the Islamabad Plain started from the rural modern, community Khosroabad in the northwest portion of the plain. From Khosroabad he surveyed the area southeast to the town of Islamabad. From there his archaeological team continued to the Ravand River, and to the small town of Homeil. He also surveyed the area from Islamabad toward Mahidasht deep in the Souran Valley. Abdi and his team conducted pedestrian and vehicle reconnaissance surveys and thorough examinations recorded 73 sites dating from the late Acheulian/early Mousterian period to recent cemeteries. To help them in the dating process of these sites, the team collected diagnostic sherds. Approximately 20% of the Islamabad Plain (ca. 1500 km²) was surveyed during the first season (Abdi 2002:109). Cartographers with Abdi's archaeological team systematically mapped 35 of these sites in the region. Unfortunately, in some areas it was quite difficult to identify an archaeological site because many were under agricultural development.

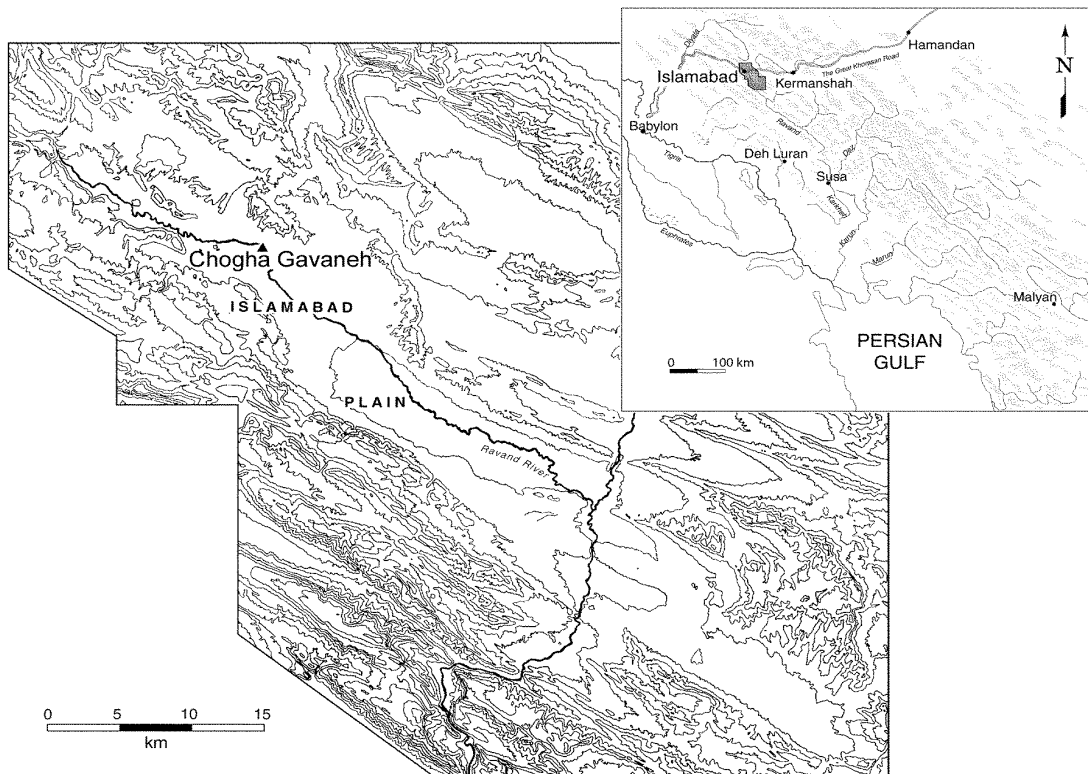


Figure. 2.2. Map of the Islamabad Plain showing the site of Chogha Gavaneh (Abdi 2002:183).

During the second season in the fall of 1999, Abdi's research focused on continuing field surveys and investigating the archaeological sites on the Islamabad Plain. In this second season they also discovered and documented 92 sites. In addition, they recorded Chia Jani, an important mound containing remains from the Aceramic and Early Neolithic periods (ca. 9000 B.P.), including typical ceramics with the so-called 'tadpole' design. There was also a number of lithic artifacts characteristic of the Early Neolithic period. Archaeologists continued sampling and analyzing archaeological materials from the Late Neolithic and Chalcolithic periods (Abdi 2002:113).

In the spring of 2000, the third season of research spanned six weeks in order to concentrate on continuing the survey of the Islamabad Plain toward Harasam Plain and

Tang-e Mansouri in the southeast. The overall research objective of the third season was to examine the nomadic component of the Middle Chalcolithic period. The fourth season of research took place in the summer of 2001. The main focus was investigating the excavated materials.

Summary of the Excavation and Survey Results on Islamabad Plain

Abdi's (2000) research from his the first and second survey seasons of the Islamabad Plain indicated that there were a number of small Neolithic period settlements in the area, all in close proximity to known water sources. The main goal of the third survey season was to glean more details from the settlement patterns of the area during the Middle Chalcolithic period (c. 4500-4000 B.C.E.). During this period Chogha Gavaneh was considered a dominant center on the Plain. Various types of pottery and the substantial diversity of lithic material from Chogha Gavaneh suggested that the population of the area actually traded further into India than previously believed. In fact, the pottery unearthed was far more diverse than expected, supporting the idea that more trade occurred between groups far earlier than scholars currently acknowledge (Abdi 2000:299).

The focus for the third survey season was to investigate nomadic trading patterns through the site of Tuwah Khoshkeh. The team recorded a range of sites from Upper Paleolithic cave sites to modern ones dated three decades earlier. With this survey the number of documented sites in the region increased from 92 to 190. Surface materials were collected in order to study the materials in their environmental context. Abdi chose Tuwah Khoshkeh as a site representative of small Middle Chalcolithic occupations for the region and conducted test excavations there. Excavating a 5 m x 5 m unit on the

highest point of the site found two superimposed levels of occupation with at least one ovoid area suggesting a campsite. Using deep sounding equipment, it became possible to infer that the site may have been used on a temporary, likely seasonal, basis for relatively short periods of time (Abdi 2000:299-300).

During the fourth season, the research group investigated the excavated material remains, and conducted a number of test excavations at Wezmeh Cave, a cave site with Middle Chalcolithic material. The objective was to collect evidence that would support the argument for pastoral occupation (Abdi 2002:113). Although unrelated to their research objectives, the researchers also looked at the faunal remains in attempt to gather information on the ecosystem of the area during the Pleistocene period.

Conclusions

Abdi's (2002) research on the Islamabad Plain in the West Central Zagros Mountains suggested that the agricultural system was working at its highest level by the Late Neolithic/Early Chalcolithic period. At this time, the production of Halaf-related J-Ware vessels indicated the influence northern Mesopotamian people had on ceramic technology in West Central Zagros. An increase in the number of settlements indicated at that time explains the population growth at the Islamabad Plain. The increase may have been caused by the migration of people coming in from the north and west. According to Abdi (2002), the number of villages increased dramatically largely from the Neolithic to the Chalcolithic, especially in the Middle Chalcolithic. By the end of the Late Chalcolithic period, the number of permanent settlements suddenly decreased. This decline may have been due to emigration, higher mortality, or the development of a mobile lifestyle related

to nomadic pastoralism. Also by the Late Chalcolithic, evidence shows that the economy of the West Central Zagros shifted from an agricultural to a more pastoral economy (Abdi 2002:348).

CHAPTER 3

HISTORY OF EXCAVATION AT CHOGHA GAVANEH

As mentioned above, the Islamabad Plain was first studied in 1936 by Aurel Stein in a general survey, and later by Erich Schmidt (1940) who used techniques, such as aerial photography, to survey sites in Western Iran and, in particular, the archaeological site of Chogha Gavaneh (Abdi 2002:107). The Archaeological Service of Iran conducted a preliminary survey of the Islamabad Plain in 1967 and opened a step trench at Chogha Gavaneh. Archaeological work at Chogha Gavaneh continued in the summer of 1970 under the direction of Mahmoud Kordavani (Abdi 2002:107). The group carried out a survey of the plain, recorded some major sites and standing monuments, and opened a trench at Chogha Gavaneh. In 1980, archaeologists from ICAR returned to Chogha Gavaneh for a short season. Despite these previous archaeological projects, little was published, and the area remained largely underexplored prior to Abdi's fieldwork.

Research Goals

Chogha Gavaneh has been occupied from the Early Neolithic period (Aceramic) (ca. 9000 B.P.) to the present. In fact, Chogha Gavaneh is known as the largest site on the Islamabad Plain with Holocene occupation. Abdi hoped to achieve the following with his excavations in the 1990s: (1) study the stratigraphy of the site, particularly the Neolithic and Chalcolithic periods; (2) establish a ceramic sequence for the Chalcolithic period in order to date other sites in the region with more accuracy; (3) recover archaeological data associated with subsistence activities, especially faunal remains; (4) recon-

struct the social relationships of the people living in a large center based on archaeological remains of everyday practice; and (5) study the patterns of regional and interregional trade through the archaeological record (Abdi 2002:185).

Archaeological Context

This site is located in what is now downtown Islamabad, and is surrounded by modern houses and shops. The height and the considerable size of the site are the first visible features of the contemporary town of Islamabad. Evidence suggests that the oldest occupational deposits are to be found on the “high mound,” while deposits from later periods could be found at the “lower town” covered by Islamabad. Construction activities have damaged the site in the past few decades, especially the high mound. These were probably Iron Age deposits that had been removed as the top of the mound was flattened. Sadly, the flattened top was turned into an entertainment park with a tea-house, an idea encouraged by the ill-advised town municipality following the first series of excavations at Chogha Gavaneh in 1970. Consequently, only a small stratigraphic trench was excavated at a corner to the west of the mound. Next to this section was an open area named “Operation W263,” because the mound’s circular shape was envisioned as a compass, and this area corresponds to the 263rd degree on this imaginary compass (Abdi 2002:182).

Excavations at “Operation W263”

A three-meter wide section of “Operation W263” was selected for excavation. The surface of this section was covered with a layer of mud plaster from years of down-wash. The team of archaeologists scraped off a thin layer of the surface dirt and then removed the plaster exposing the original deposits. Subsequently, a one meter wide area was excavated (Figure. 3.1).

In order to gain a view of the stratigraphy, archaeologists removed the plaster and exposed the deposits. This process helped them to identify each stratum in length, width, and depth and to excavate each stratum completely as a single unit. After screening each stratus, the materials were collected, recorded, and then studied in units corresponding to the proper layers (Abdi 2002:186). In his Ph.D. dissertation Abdi (2002) presents his analysis of the pottery, lithic materials, and the archaeobotanical and faunal remains.

Methodology of Excavation at Chogha Gavaneh

The basic excavation at Chogha Gavaneh is the “stratum,” designated by Arabic numerals. A stratum is defined,

a usually thin layer of deposit representing the same activity carried out at least once (but usually more than once) in a relatively short span of time leaving behind the same depositional remains. A series of strata form a layer (indicated by Roman numerals), in other words a series of deposits representing activities of the same kind carried out in a certain period of time. So, for example, a burned deposit forms a stratum and several overlaying burned deposits, as far as we could discern, form a layer. However, once burned deposits gave way to occupational debris, we have a new layer with its new strata [Abdi 2002:185].

In 1998 during the first season, the archaeological team excavated 5.40 meters of horizontal deposits (Layers I to XV). In the 1999 season, an additional 1.90 meters (Layers

XVI to XXI) were excavated. The width of excavation between Layers I to XVII was between 50 to 90 centimeters but, below Layer XVII, archaeologists widened the excavations to 1.5 meters in width after they removed the overlaying debris.

At Chogha Gavaneh, pottery analysis has been one of the best resources for dating the archaeological site. As a result, the ceramic chronology indicates that the site was used for activities during at least six cultural phases: Late Neolithic (ca. 5300-5000 B.C.E.), Early Chalcolithic (ca. 5000-4000 B.C.E.), Early Middle Chalcolithic (4000-3700 B.C.E.), Middle Chalcolithic (ca. 3700-3300 B.C.E.), Late Middle Chalcolithic (ca. 3300-3000 B.C.E.), and Late Chalcolithic (ca. 3000-2700 B.C.E.).

The following is a summary of the description of layers by stratum as associated with the small finds. Based on the field notes, the majority of animal figurines and geometric objects were recovered from Layer VIII and some others were retrieved from Layer IX (Figure 3.1). Features such as hearths and walls, as well as ashy deposits and pottery found within these layers indicate domestic activities. Additionally, Abdi (2002:217) suggests some chronological groupings of layers based on the distribution of ceramics: Layers II to V are Middle Chalcolithic period, and Layers VI- VII can be attributed to the Early Middle Chalcolithic period. The upper layers from I to V, without J-Ware and Black-on-Buff ceramic types, require further studies. The J-Ware pottery exemplifies well-crafted, fine material art, similar in fabric, form and technique to Mesopotamian equivalent, Halaf. The decorative designs on J-Ware display a simpler pattern (Abdi 2002:139). The Black-on-Buff ware of the early phase of the Middle Chalcolithic is black colored, well-fired matte potteries that occur in large quantities in two black and red painted variants (Abdi 2002:139). Consequently, based on the distribution of wares,

vessel forms, and decoration, it seems that Layers VIII and IX should be dated to the Early Chalcolithic period (ca. 5000-4000 B.C.E.).

Many baked and unbaked clay objects were discovered in Layer VIII, which consists of Strata 36 to 44. This layer is characterized by soft organic deposits mixed with archaeological remains. In addition, many baked and unbaked artifacts associated with ashy deposits were found in Strata 39 and 42 in Layer VIII. The rest of the items were found in Layer IX, which includes Strata 45 to 47. In this layer, a number of sling bullets, as well as packed mud and fragmentary mud bricks were found. Stratum 47 further yielded a wall about 20 cm in height, with vegetal and ground pottery inclusions sitting on a burned floor. This possible wall extended from the east to the northern wall of the excavation.

The excavation report provides unwieldy coordinates regarding the exact spatial location of the artifacts (such as excavation square and locus number). Although an excavation map with artifact distributions was not available, measurements provided did indicate the depth at which the artifacts were found in relation to the highest point of Operation W263, and the distance from the north and east wall of the trench. According to the excavation notes, it seems that the majority of the figurines were recovered from trash deposits (personal communication with Abdi, December 20 2009). Therefore, these assemblages all belong to a secondary context and did not warrant further detailing.

Conclusions

Abdi's research determined that Chogha Gavaneh was a major agricultural center in the Islamabad Plain with evidence of strong craft-making activities. The materials col-

lected from Operation W263 support this interpretation. The site's strategic location allowed it to hold a monopoly on the goods coming into the Islamabad Plain, especially pottery and lithic materials. However, because a small sample of archaeological materials were collected, further research, including excavations are needed in order to better understand the site and its role in the regional socio-economic hierarchy.

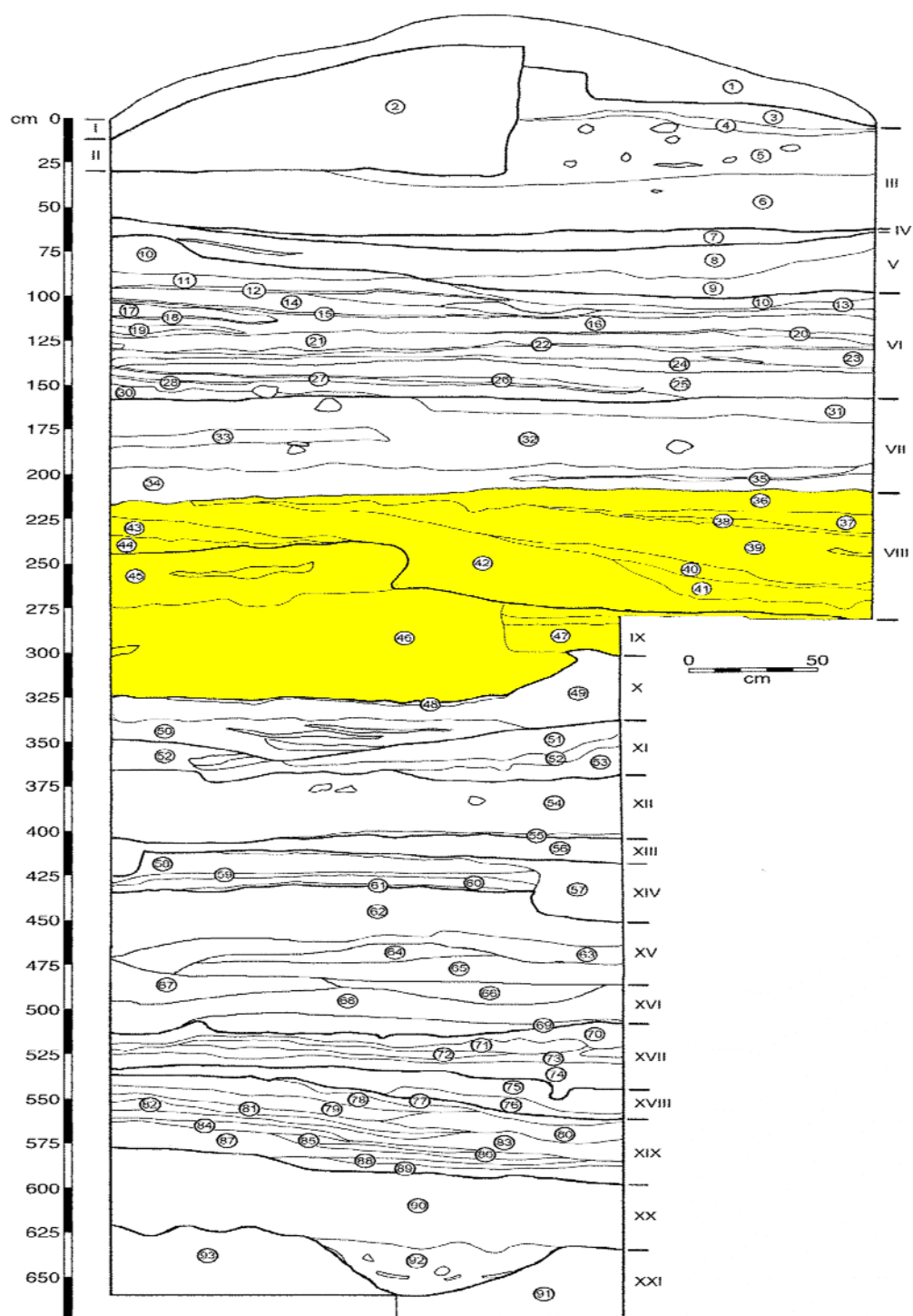


Figure. 3.1. Master stratigraphy of the “Operation W263” with Layer VIII and IX highlighted (after Abdi 2002:187).

CHAPTER 4

OVERVIEW OF FIGURINE STUDIES AND GEOMETRIC-SHAPED OBJECTS IN THE NEAR EAST

Figurines are well-known artifacts that represent both anthropomorphic and zoomorphic characters. These figurines are widely distributed across time and space and date as early as the Paleolithic period (ca. 40,000-10,000 B.P.). This study draws from scholarly research conducted on Neolithic (ca. 10,300-6000 B.P.) and Early Chalcolithic (ca. 5000-4000 B.C.E.) societies in the Near East. Overall, literature seems to focus on questions regarding the origin of the practice of making such objects, their significance, as well as the formation processes, skills, and tools necessary. Although some of these issues can be adequately addressed through experimental archaeology, we are still a long way from understanding the use, meaning, and function of figurines in prehistoric contexts. However, there are various uses and meanings of anthropomorphic and zoomorphic figurines that have been proposed (Bailey 2005; Talalay 1993), which will be discussed below.

The majority of literature on figurines has been geared toward anthropomorphic figurines, with less information being available on animal ones. First I will give an overview of the major theories concerning the religious and ritual significance of these figurines, and then I will analyze them in terms of value systems and human behavior. In my analysis, I explore the concept of social exchange (e.g., Hart 2005) and how it can be used as a modifier of human behavior and value systems to understand mobile resources within Chalcolithic villages. I propose that these figurines may have been used as aids in

economic function or social interactions or as a way of enforcing property rights in absence of a central authority. In the following section therefore I outline the pertinent literature and then I outline my expectations and research questions. These questions focus primarily on zoomorphic figurines and geometric-shaped objects, given that only two possible anthropomorphic figurines are present in my collection.

Theoretical Approaches to the Study of Near Eastern Figurines

Interpretations of anthropomorphic figurines seem to be varied and not necessarily consistent or theoretically rigorous, at least until the 1960s. In 1996, however, the *Cambridge Archaeological Journal* devoted an issue to the interpretation of such artifacts with an editorial entitled “Can We Interpret Figurines?” (Bailey 1996; Haaland 1996; Hamilton 1996; Marcus 1996; Ucko 1996). This, in a way, set the stage for a more theoretical discussion regarding these objects. It is possible to distinguish two approaches to the study of Neolithic figurines, especially anthropomorphic ones.

Much of the archaeological discussion on clay figurines views them as religious, symbolic or ritualistic. However, Neolithic figurines could have served a variety of other purposes. One group argues that figurines were created for religious practices, such as the worship of deities. For example, female figurines with large stomachs, bosoms, and buttocks commonly evoke the “Mother Goddess” concept explained by researchers (e.g., Cauvin 2000; Gimbutas 1982, 1989, 1991; Hamilton 2006; see Meskell 2009, for critique of this concept). Other researchers (e.g., Broman 1958; Hourmouziadis 1973; Talalay 1983; Ucko 1962) consider the meaning of prehistoric figurines in a broader sense: “[t]hey suggest, either implicitly or explicitly, that figurines were ultimately associated

with the adaptive strategies of a given community and that their functions varied” (Talalay 1993:37). Several researchers tend to interpret figurines in a functional manner, such as their being “good luck” objects (e.g., Bahrani 1996; Chapman 1991; Voigt 2000). John Chapman (1991:157) interprets female figurines as representing the role of women in agricultural activities. The different schools of thought indicate that these anthropomorphic figurines represent a unique form of human representation consisting of a range of meanings that vary both within and between communities. It has been argued recently that it is only through the careful analysis of the archaeological contexts of these pieces that we can begin to unravel these layers of different meanings (Chesson and Kuijt 2005:173).

In her research, Talalay (1993:37) outlines three main aspects of figurines: *use*, *meaning*, and *function*³. In her view, the terms *use* and *function* refer to the basic purpose of these objects. In contrast, *meaning* refers to the possible symbolic understanding of figurines. A figurine may represent the symbolic or mythological beliefs of a certain group, or it might serve as a votive offering (Talalay 1993). Talalay, however, cautions that these definitions are all problematic and that it is important to differentiate between them so that archaeological analyses do not attempt to conflate too many aspects of figu-

³ There have been some efforts to differentiate between use and function. For instance, based on Binford’s discussion of tools (1962:219; 1965:206), and Skibo (1992) suggested that “function” means the primary/direct use of a vessel as opposed to its social, economic or other uses. However, distinguishing between “utilitarian” and “other” functions of vessels is rather mechanical and separates properties which are closely interrelated. Decisions made by potters or consumers of pottery are rarely either one or the other, even in the case of such “obviously utilitarian” vessels as storage jars. At the same time such a forced distinction arbitrarily ascribes significance to the utilitarian aspects of pottery as opposed to its other roles.

rines (personal communication with Talalay, July 12, 2010). In the discussions of use and meaning regarding both anthropomorphic and zoomorphic figurines, Talalay offers four ways to study figurines. She suggests studying: “(1) the figurines themselves; (2) the figurines in their archaeological contexts; (3) the socioeconomic environments of figurines; and (4) ethnographic analogies” (Talalay 1993:38).

Although, archaeological reports (Bailey 1996; Cauvin 2000; Douglas 1982; Ucko 1968) have given more attention to the interpretations of anthropomorphic figurines than zoomorphic ones, archaeological literatures (Garfinkel 1994; Keswani 1994; Marciniak 2005; Talalay 1993) have provided rich evidence regarding the ritualistic and symbolic role of animals in prehistoric communities, among pastoral groups in particular. In some of these studies, animal figurines are interpreted as having various uses and functions ranging from the sacred to the quotidian. In the view of scholars these objects are often interpreted as magical or lucky objects for hunting, as game pieces, as well as educational objects, or toys (Cauvin 2000b; Rollefson 2000; Voigt 2000; Ucko 1968). In this section, I critically discuss the different theoretical approaches to the study of zoomorphic figurines from the Near East.

A Structuralist Approach to the Study of Zoomorphic Figurines

Scholars such as Cauvin (2000), Rollefson (1983), and Schmandt-Besserat (1997), view Neolithic figurines as a structured code, which draws from a structuralist theoretical perspective. In the structuralist model, figurines are understood as symbols that “instill in people a sense of where they belong in the universe” (Clifford Geertz 1973, as cited in Fogelin 2007:57). Structuralism focuses on the symbolic aspects and

structure of religious beliefs and not on the material aspects of life. There is a limitation in viewing the objects through a structuralist lens since structuralism avoids considering the manufacturing process of figurines and does not explain the “meaningful actions of individuals through objects” (Fogelin 2006:64). Fogelin (2006) also describes how some theorists (e.g., Bloch 1977, 1986; Connerton 1989) analyze religion from a structuralist perspective as remaining relatively stable over time, therefore religious rituals also remain stable. Despite these limitations, this approach can still provide insight to our understanding of the ritual and religious uses of figurines in the past.

A significant case in this literature involves the clay figurines of 'Ain Ghazal in Jordan, which were studied by two different scholars (Rollefson 1983; Schmandt-Besserat 1997). Research by Gary Rollefson (1983) on early art and symbolism and later studies by Denise Schmandt-Besserat (1997) provide the most detailed recent information on zoomorphic figurines and cultural development in the Neolithic Levant. Rollefson (1983:29-37) claims that the animal figurines could be interpreted in the context of magic for hunting, since no domestic species are represented in the assemblages. In 'Ain Ghazal, for instance, two clay bulls were found pierced with bladelets, suggestive perhaps of a hunter wishing for a successful “kill” (Rollefson 2000:167).

In an analysis of the same assemblage from 'Ain Ghazal, Schmandt-Besserat (1997:56) associates the function of Neolithic figurines with magic or luck, because two of the figurines were stabbed three times and intentionally deposited in a corner of a room. She also compares the details and contexts of animal figurines with evidence provided by Mesopotamian “cuneiform texts,” dated from the first three millennia B.C.E., which describe the magical uses of such clay figurines. She then outlines ten observa-

tions to support her argument: (1997): (1) the selection of bull-shaped objects and long-horned animals might have been tied to ritual practices; (2) it is important to focus also on unprepared clay used to create figurine objects; (3) there is no inherent value to the clay objects themselves, rather the importance lies in the manufacturing process; (4) there might be some kind of meaning, perhaps force and strength, communicated by systematically exaggerating the foreparts of animals; (5) some figurines were stabbed or “killed” with sharp objects; (6) most of the figurines are able to stand, and possibly stood on altars; (7) the ways in which these objects were grouped is also meaningful; in her case study for instance, the figurines were either found alone or in groups of two or twenty four; (8) there is the possibility that some figurines might have been manufactured by experienced individuals, maybe a “priest” or “shaman”; (9) there seems to be an association with other “art” objects, such as carved bone; and (10) the figurines are intentionally deposited by being placed under the floor of houses or in hearths (Schmandt-Besserat 1997:56-57).

A study by Jacques Cauvin (2000), an archaeologist specializing in the Neolithic Near East, focuses on the cognitive and symbolic meanings of figurines. He contends that the development of food production meant that humans found ways to conceptualize the environment and the world in which they lived, and this was expressed through the symbolic and physical use of figurines. He contends that the general appearance of clay and stone figurines reflects a ritual and religious focus on collective ancestors and religion as part of the ritual life of a community. Cauvin (2002:232) notes that the Neolithic “evolution of symbols” was a result of changes in communal social relationships as well as the way in which human societies conceptualized their physical environment. In this

example, one again sees a focus on the underlying social structures referenced by the figurines.

A Practice-Based Approach to the Study of Zoomorphic Figurines

The practice-based approach focuses on ritual practices, material cultures, and material remains. Practice theorists study how people shape the materials and how these materials then enter and affect ritual. Practice theorists focus on the ways in which people draw upon symbolism to achieve specific goals (Fogelin 2007:57-58). Ritual practice is viewed as primary in the relationship between ritual and religion, with ritual being a creative process that creates or transforms religious beliefs (e.g., Bell 1992, 1997; Humphrey 1994; Laidlaw 1994).

Cultural and historical contexts are critical in practice theory. Since the meaning of material culture depends on the context of use, it is important to consider the spatial analysis of figurine deposition across the site (e.g., Hodder 1986; Meskell 2009; Nakamura 2009; Voigt 2000). Given that most of the figurines studied in the literature were found in garbage or fill deposits, it is difficult to provide clues to their possible uses and meanings based on their contextual deposition. The figurines themselves serve as the primary evidence of their engagement with the world. Mary Voigt (2000), who studied the function of the Hajji Firuz Tepe and Gritille clay figurines, used archaeological contexts to understand how early Near Eastern figurines were used. In this study, she considered the human behaviors that might explain the location and condition of figurines at the site (Voigt 2000). This approach of “contextual analysis” was used by Ian Hodder (1987, 1990) to interpret the archaeological data of Çatalhöyük in terms of its “internal

relations” rather than “outside knowledge” (as cited in Voigt 2000:254). According to Hodder (2003), contextual archaeology involves “the study of contextual data, using contextual methods of analysis, in order to arrive at two types of contextual meaning:” [first], “the environmental, technological and behavioral context of action,” (Hodder and Hutson 2003:204) and second, studying an object within its particular time and geographic location as well as in relation to other objects.

Voigt (2000) argues that Neolithic clay figurines were often intentionally deposited in roasting and ash pits as part of household ritual practices. She used ethnographic analogies to gain a better understanding of the use and the disposal patterns of figurines from Hajji Firuz Tepe in northwestern Iran and Gritille figurines from Turkey. Voigt (2000) interpreted the function of these figurines through her application of Ucko’s typology. Ucko (1968), who studied figurines discovered in Neolithic Egyptian sites and tombs, grouped his material into four purposeful categories based on ethnographic reports. The groups include:

(1) cult figures, or symbolic representations of supernatural beings used mainly as symbols or objects of worship—formal, usually community rituals; (2) vehicles of magic, or figurines used in rituals intended to produce, prevent, or reverse a specific situation or state (increased fertility, health of children, protection of property or crops, harm to one’s enemies); (3) teaching figures, including those used in initiation rites to teach adolescent children the proper kinds of behavior; and (4) toys, or figures used in entertainment or children’s play; the adult equivalent would be ornaments for decoration or aesthetic effect [as cited in Voigt 2000:258].

According to Voigt, the key function of the Gritille figurines was twofold. The objects served as a symbol of spirit or power, in particular cattle figurines with long curving horns, and they were associated with beliefs about gender (Voigt 2000:267). Based on Voigt’s criteria, (2000:261-263) the lack of wear marks on most of the small clay an-

imal figurines implies that the figurines were discarded after their original construction. In addition, most animal figurines were found around household features such as hearths, middens, or cooking surfaces.

In Amber Creighton's study (2004) of Çatalhöyük animal figurines, the objects are examined in order to study their possible uses through the analysis of wear patterns, contextual information, disposal elements, and artifact associations. Creighton questions whether the figurines were modeled for symbolic reasons or if they were produced for another purpose. Further, she demonstrates that most figurines were discarded immediately after manufacture, whereas others were kept and reused several times. Based on Ucko's classification system, she proposes several possible reasons for creating these clay figurines. In the Çatalhöyük assemblage she observes that most of the clay animals do not have any evidence of wear, suggesting that perhaps they were thrown away shortly after they were manufactured. Creighton (2004) uses Voigt's predicted patterns of wear and damage associated with function in her analysis as well. For example, a figurine used in magic would exhibit "either no wear, or abrasion/polish of a type resulting from contact with a person wearing figures as an amulet," or would "frequently exhibit burning or fresh breaks in a consistent location" (Voigt 2000:263). Most of the animal figurines in Creighton's study were found in middens or trash deposits. She explains that a belief in sympathetic magic or in controlling something (such as wild game) through its creation as a figurine could have been the reason for the symbolic emphasis on creation. It was possible that a hunter would create a figure that closely resembled the actual animal it represented in order to have a more successful hunting trip.

On the other hand, it could be that some figurines were possibly made as toys at Çatalhöyük and associated sites. According to Creighton (2004), this is evident because some areas on the surface of the figurines have polish on them. This latter argument is problematic. It can be assumed that these objects were used after the manufacturing process. However, this does not necessarily mean that they were used as toys. The figurines could have been polished for other reasons as a result of other uses, including a desire for them to last longer so they could be reused, for ritual or aesthetic reasons. Perhaps they were even prepared and exchanged as gifts, in which case the creator may have wanted them to have increased aesthetic appeal. Furthermore, some figurines are small and the very process of manufacturing them can produce a polished surface without that being the intent or the result of use. However, polishing from the manufacturing process looks different from intentional polishing for aesthetic or other reasons. For one, intentionality can be inferred when the entire surface of the object is polished (rather than only parts of it). It should also be noted that polishing is the result of firing a clay object whose surface was smoothed with a hard tool (a pebble) at the “leather stage” of the drying process (Rice 2006:138-140). This means that polishing is not related to use but to manufacture; polishing is not a form of use-wear.

Creighton asserts (2004) that most of the clay figurines represent human wishes or desires for a particular animal. She points out that the absence of wear marks on the majority of the figurines shows that they were discarded after the creation process was finished. I find Creighton’s argument problematic for reasons which are discussed below.

Many researchers have interpreted animal figurines, as fertility figurines or “good luck” charms. For example, Claire Epstein (1985:54) stresses how Chalcolithic zoomor-

phic vessels might have symbolized fertility within the family unit and the wider tribal group, as well as success in hunting. Epstein, an expert in the Chalcolithic Near East, suggests that animals (namely, sheep and goats) are associated with the two main aspects of the economy: animal husbandry/herding and agriculture (Epstein 1985:53). In other words, the animal figures were supposedly used in rites to increase prosperity in everyday domestic contexts. Although both wild and domesticated species are represented by the figurines, ultimately the emphasis on the representation of domesticated animals is on sheep and goats. Epstein believes that the Chalcolithic animal figurines not only provide additional evidence relating to the economy of groups that settled in the country, but they also emphasize the relationship between ritual practices and daily life (Epstein 1985:59).

Summary and Discussion

In the interpretation of figurines these structuralist and practice-based researchers place varying weight on archaeological contexts, the surface condition of the actual objects (wear, polished surface, figurines that appear to have been “stabbed”), as well as comparisons with faunal remains and the study of figurine construction techniques (Creighton 2004; Morales 1990; Rollefson 1983; Schmandt-Besserat 1997; Voigt 2000). One archaeological report (Schmandt-Besserat 1997:50) claims that the evidence suggests that 23 figurines were created at around the same time and then discarded shortly after, either by burying them under the floor of a house or burning them with the general household trash. However, other than a lump of remaining unused clay found with the figurines, there was no evidence to prove that the figurines were discarded immediately after their creation.

One of the major archaeological concerns in the study of figurines is that these objects are not found in primary contexts (original context of use), but were often discarded and found in middens and house fill (Chesson and Kuijt 2005:173). In the view of Meredith Chesson and Ian Kuijt (2005) it is possible that additional weight is given to figurines with “special” context in burials and dedicatory cache, for example, rather than those with “less-than special” context in middens or house fill. One of the only characteristics of these figurines that archaeologists can directly reconstruct is the locus of manufacture and eventual discard. Therefore, archaeologists trying to determine the figurines’ significance are limited by focusing solely on production and disposal patterns of figurines (Chesson and Kuijt 2005:172).

While the functions of most Neolithic figurines remain obscure, a range of uses and possible meanings for prehistoric figurines has been provided. Some of these interpretations, however, are not clear and what is published does not provide much supporting evidence. For example, Creighton (2004) suggests that the areas of polish on figurines would be evidence for use as toys. As stated above, there are other reasons why the objects may have been polished. It is also possible that the burnishing was a result of the process of making these figurines; finalizing the form might have required rubbing one’s fingers against the clay. The interpretation of these items as toys for children was also discussed by Jacques Cauvin (1994). He indicates that these figurines, mostly human, first appeared in the Near East in the Pre-Pottery Neolithic period (ca 8500-7000 B.C.E.) when the shaping of portable artifacts in clay was less widespread.

In this study, I address the possible connection between herding and the use of zoomorphic figurines, as well as the social and economic function of animal figures in

late Neolithic and Chalcolithic communities. Pig, cattle, sheep, and goat were considered important animals in the local socio-economy during prehistory, as they are today in many parts of the world (Russell and During 2006:73). For example, Neolithic Çatalhöyük (7400-6200 ca. B.C.E.) is famous for its elaborate animal symbolism, especially that associated with domesticated cattle (Russell and During 2006:73). Cattle and wild animals were evident in figurines and paintings (Marciniak 2005:43). At Çatalhöyük they were not only ceremonially consumed at feasts, but these animals were possibly used as a type of gift or exchange (Keswani 1994 in Marciniak 2005:43; Russell and During 2006:74). In a study by David Wengrow (2003:146) on the interpretation of animal art in the prehistoric Near East, it is argued that the production of clay animals could be associated, among other things, with economic, social, and technological change in the Neolithic Near East. According to him, the relationship between the human and animal figures found in Neolithic villages (sometimes along with geometric-shaped objects, which are thought to have been a form of economic function) may suggest “performative acts which established symbolic equivalence between resources regularly mobilized in social exchange” (Wengrow 2003:154). Building on Wengrow’s (2003) work, I propose an interpretation of the zoomorphic figurines that focuses on their symbolic equivalence within networks of social exchanges.

Considering my research goals, I contend that the practice-based theoretical approach is more appropriate to the examination of the possible meaning and function of figurines in everyday activities of people. The practice-based approach is preferred to the structural approach as the former allows one to focus the investigation of zoomorphic figurines within their archaeological and functional context.

Conclusions

It is important to keep in mind that there were major social changes during the Neolithic and Chalcolithic periods. During the Neolithic, the economy was based mostly on agriculture strategies. The Neolithic also corresponds to “the establishment of the classic Near Eastern dichotomy of ‘the desert and the sown,’ or village dwellers and pastoral nomads” (Simmons 2007:167). According to Stephen Brouke (2001:116), the Chalcolithic had an increase in agriculture and saw “intensified production...based on the increasing number of sites in upland locations and semi-arid to arid regions, possibly the result of more flexible pastoral, agricultural and horticultural practices” (as cited in Rowan and Golden 2009:33). In the Early Chalcolithic, the economy was focused more on village-based agriculture in the Islamabad Plain (Abdi 2002: 333). In the context of daily life for the people of Chogha Gavaneh, zoomorphic figurines, geometric-shaped objects, and sling bullets may represent evidence of domestic activity and a mixed agricultural and pastoral way of life.

CHAPTER 5

RESEARCH METHODS

Introduction

I used five methodological procedures for studying the small finds. First, I classified all 104 objects from Chogha Gavaneh into six categories: zoomorphic figurines, anthropomorphic figurines, geometric-shaped objects, sling bullets, miscellaneous clay fragments, and other objects. Anthropomorphic figurines, miscellaneous clay fragments, and other objects are not part of this analysis. Second, quantitative and qualitative analyses were applied, such as general typology description, present condition, measurements, color and weight. Third, I applied the *chaîne opératoire* approach to determine the process of figurine production. Fourth, the faunal assemblage of Chogha Gavaneh was compared to animal figurines in order to determine any commonalities. Finally, x-ray fluorescence (XRF) analysis was applied to small finds to provide detailed information on elemental concentrations within these artifacts.

Classification of Clay Artifacts from the Chogha Gavaneh Assemblage

I classified all 104 objects of the assemblage into six categories:

- a) *Zoomorphic Figurines*- The assemblage includes thirty-five zoomorphic figurines. The figurines to represent cattle, sheep, goats, gazelles, dogs, and donkeys or horses. Many of these figurines are amorphous or broken and their zoological classification cannot be determined. The zoomorphic items can be divided into five groups based on their state of preservation: complete figurines, headless figurines, hindquarter fragments, heads, and horns (Table 5.1).

- b) *Anthropomorphic Figurines*- The assemblage includes two anthropomorphic figurines. Figurines that represent human form. These items can not identified as female or male, also they are frequently broken and eroded, making them difficult or impossible to identify (Table 5.2).
- c) *Geometric-Shaped Objects*- A ranges of geometrically-shaped artifacts are classified into six groups according to their shape: concave-shaped, cone-shaped, disk-shaped (with and without incised lines), ovoid, and spherical. The assemblage includes thirty-six geometric-shaped objects (Table 5.3).
- d) *Sling Bullets*- The assemblage includes twenty sling bullets. Sling bullets are generally classified into egg-shaped and spherical and are larger size than the geometric-shaped objects. (Table 5.4).
- e) *Miscellaneous Clay Fragments* - Under this heading, I have classified unidentified fragments made of clay. Many of these items are broken and their exact shape is unknown. The assemblage includes seven miscellaneous clay fragments (Table 5.5).
- f) *Other Objects*- In this group, I classified various items which cannot be assigned to one of the pervious categories including: animal horns created out of rock or fossilized animal bone fragments, a broken limestone dish, and spindle whorls, two items made from shell. The assemblage includes five other objects (Table 5.6). These items were not included as part of my analysis.

The categories of the small finds are shown in the five tables in below. Entities in the tables include the number of artifacts, the percentage of artifacts (based on the total number of 104 in the assemblage), and the SF (small findings) number from the excavation,

according to Abdi. In addition, artifact numbers SF33, SF50-8, and SF60 are missing from the collection. They were not part of the collection that arrived in the archaeological lab at the Georgia State University.

Table 5.1 Total Number of Zoomorphic Figurines Divided into five Groups Based on their State of Preservation

Artifacts	Number of Artifacts	Percentage	Small Finds #
Animal Figurine, and other Fragments	7	6.73%	SF5, SF8, SF22, SF27, SF41, SF52, SF54
Animal Figurine, Head and Horn	3	2.88%	SF14, SF19, SF30
Animal Figurine, Headless	7	6.73%	SF4, SF15, SF16, SF23, SF24, SF26, SF44
Animal Figurine, Torso and Head	2	1.92%	SF12, SF13
Complete Animal Figurine	7	6.73%	SF11, SF17, SF18, SF20, SF21, SF62, SF64
Horn Fragments	10	9.61%	SF28, SF29, SF31, SF34, SF35, SF45, SF46, SF66, SF67, SF70
Total	36	34.61% out of 104	

Table 5.2 Total Number of Anthropomorphic Figurine

Artifacts	Number of Artifacts	Percentage	Small Finds #
Anthropomorphic Figurine	2	1.92 % out of 104	SF32, SF49

Table 5.3 Total Number of Geometric-Shaped Objects divided into five groups based on their Shape

Artifacts	Number of Artifacts	Percentage	Small Finds #
Concave-shaped Fragments	1	0.96%	SF53
Cone-shaped Fragments	4	3.84%	SF2, SF36, SF42-2, SF50-4
Disks-shaped Fragments	17	16.34%	SF47-2, SF50-1, SF50-2, SF50-3, SF50-5, SF50-6, SF50-7, SF50-9, SF50-10, SF50-11, SF50-20, SF50-21, SF50-22, SF50-23, SF50-24, SF50-25, SF63
Ovoid-shaped Fragments	1	0.96%	SF47-1
Spheres-shaped Fragments	13	12.5%	SF50-8, SF50-12, SF50-13, SF50-14, SF50-15, SF50-16, SF50-17, SF50-18, SF50-19, SF50-26, SF50-27, SF57-1, SF57-2,
Total	36	35.00% out of 104	

Table 5.4 Shows the Total Number of Sling Bullets

Artifacts	Number of Artifacts	Percentage	Small Finds #
Sling bullets	18	17.30% out of 104	SF1, SF3, SF9, SF10, SF40-1, SF40-2, SF40-3, SF40-4, SF40-5, SF42-1, SF43-1, SF43-2, SF55-1, SF55-2, SF56, SF57-3, SF58, SF61

Table 5.5 Shows the Total Number of Miscellaneous

Artifacts	Number of Artifacts	Percentage	Small Finds #
Miscellaneous	7	6.32 % out of 104	SF6, SF7, SF25, SF38, SF39, SF48, SF51

Table 5.6 Shows the Total Number of Other Objects

Artifacts	Number of Artifacts	Percentage	Small Finds #
Other Objects	5	4.81% out of 104	SF37, SF59, SF65, SF68, SF69

Quantitative and Qualitative Analysis

The quantitative and qualitative analyses are based on the following information: general description, present condition, measurements, color, and weight (Appendix A and B).

- a) *General Typology Description*- the items are described in this category based on their general shape.
- b) *Present condition*- the object's present surface condition including wear, evidence of firing, and all breaks.
- c) *Measurements*- detailed measurements of various heights, widths, and thickness for the figurines and geometric-shaped artifacts.
- d) *Weight*- In this category, the object's weight in grams.
- e) *Color*- the descriptions of each object is provided using the Munsell Soil Color Chart. Since the color of fired clay depends on many factors, it is possible to provide information on original firing color and post firing color of items. According to Abdi, it is assumed that closed-chamber kilns did exist in Early Chalcolithic period because of the high quality of pottery of this period. However, he was not able to find one at Chogha Gavaneh. He suspects that the figurines were exposed to open fire in a hearth (personal communication with Abdi, July 27 2010).

Analysis Using the Chaîne Opératoire Concept

As part of my analysis I applied the *chaîne opératoire* approach to understand the process of figurine production from the selection of clay at the source to the manufacturing process, and finally to the way the figurines were discarded. The *chaîne opératoire* was employed early on by Marcel Mauss (1935) and by Andre Leroi-Gourhan (1964). It is argued that by “reconstructing the operational sequence we reveal the choices made by ... humans” (Bar-Yosef 1992:511). According to Dobres (2000:7) the *chaîne opératoire* is “the sequential processing and use of the material world.”

Using *chaîne opératoire* I interpret different stages of the figurine creation process, from the timing of their production to selection and manufacturing of the clay to use and deposition. Table 5.7 describes an example of the *chaîne opératoire* as applied to figurine production based on Colin Renfrew’s (2004: 396) technical scheme. The information presented is based on experiments in which archaeologists manufactured incised ceramic pots and effigies.

Table 5.7 Showing the *Chaîne Opératoire* of Zoomorphic Figurine Production

Procurement	Location of Clay: was it taken from nearby sources or via long distance exchange?
Assessment	Inclusions selected, added, and removed to/from the clay. These include different kinds of shell or ash temper
Preparation	Primary Formation of Zoomorphic Figurines: Breaking off a desired size of clay ball to begin initial formation of the figurine body. For example, use fingers to roll and pinch the clay in order to form head/ body/ tail (main parts of animals are formed). Teaching skills/apprentices
Production	Secondary Formation of Zoomorphic Figurines: For example use of sharp objects (i.e. wooden sticks or fingernails) to add details to the face that are required, such as poking the eyes into the face, carving out the mouth, and any other details. Also, in some cases, stab the animal figure with sharp objects. Finish (burnished) Drying Firing Teaching skills/ apprentices
Use	Educational Purposes Toys Magic (lucky objects) Game pieces
Discard	Intentionally or unintentionally discarded in the household hearth, trash deposits, and storage areas. Used in economic functions or ritual contexts, purposefully destroyed, etc.

My Own Clay Animal Figurines: Chaîne Opératoire

The techniques used when making the clay figurine of a mountain goat consisted of rolling a marble-sized piece of clay into a cylindrical shape. Drops of water were systematically added as the worked clay began to dry up during the process. The project took approximately 40 minutes to complete.

- a) *Body*: I pinched the cylindrical piece at the top to create a spinal ridge, and then stroked downwards to round out the belly. I continued this process until the view from all sides closely resembled the torso of the goat.

- b) *Appendages*: I had used too much clay for the body but, I realized that I could stroke and pinch the excess at the bottom in order to form fused extremities.
- c) *Head*: I used a smaller piece of clay, rolled it into a ball, and pinched and stroked it until it resembled the desired head shape.
- d) *Horns*: I rolled two separate pieces of clay to the length I wanted and then attached them to the top of the head. Each piece was then pinched and stroked in order to create the curvature of the horns. They were quite fragile, so I used drops of water so that I might more carefully manipulate the horns.
- e) *Tail*: The tail was made by pinching clay from the rear part of the torso into a point, and then tucked it gently down to look like the curved tail of a goat.

Discussion of My Chaîne Opératoire Experience

In order to begin the primary formation of the figurines, I used one or more separate lumps of clay to model each animal figurine. Beginning the second formation, I created the general shape of animal with the clay and I added additional small clay pieces in order to shape horns and tails. Then, while still enacting the second formation process, I modeled the figurine with my fingers in order to make it soft and smooth. I used pinching and squeezing techniques in order to obtain the desired shape: a cylindrical body, a head, ears, horns, four shaped legs, and tail. I only concentrated on forming the ‘general effect’ of the figurine’s shape. Although, in some cases, I had focused on more minute details, such as shaping the mouth, eyes and beard. As these latter features tend to be more fragile, had these figurines truly been intended and used as toys, perhaps the figurine creators would have had anticipated such fragility. Most likely they would have in-

tentionally left out such easily breakable minutia; details were purposely sparse and protrusions not included on the Chogha Gavaneh figurines. Therefore, it seems that the creator had enacted similar techniques in order to model their own pieces of clay.

As part of my experience, I chose not to subject my figurines to firing, as I was unsure by what manner those I was attempting to imitate had been fired. Had I known how they had fired their figurines, I would have subjected my own to the same process. Then, I may have been able to evince whether the figurines which I attempted to mimic had been simply tossed into the fire for purposes of disposal or as a part of their creation process. Having truly wished to have performed the figurine production process—from Primary Formation to Deposition—in order to better fathom their purposes and significances, I must, alas, await the opportunity to do so. I anticipate further findings in archaeology concerning pre-industrial technologies which could suggest how the figurines might have been fired. These would include whether the figurines had been fired in open fire, single-, double-, or multi-chambered kilns, information concerning the rapidity or reduction of temperature intensities, as well as the very fuel that had fed the fires. I feel this information could be attained with sufficient finances and the appropriate technology.

A Comparison of the Faunal Remains with the Zoomorphic Figurines

I also undertook a comparison between the zoomorphic figurines and the faunal remains from Chogha Gavaneh. I am interested in distinguishing the possible similarities and differences between the two. In order to best identify these qualities, I focused on three main questions:

- a. Are commonly raised, eaten, or consumed animals present or absent in both assemblages?
- b. Are predatory animals present or absent in both assemblages?
- c. Is there differential representation of domestic and wild animals in the assemblages?

The implications of each one of these questions will be discussed and interpreted below.

The details of the recovery method and analysis of the remains need not be discussed here (Redding 2002: 235-236). However, certain relevant aspects of the methodology and their shortcomings must be discussed. In general, the results of the comparison presented here must be approached with caution. One reason for this is the small size of both assemblages. The figurine assemblage includes 35 zoomorphic figurines. The Chogha Gavaneh faunal sample is also small and comes from a single excavation unit, W263. The mammals in the faunal assemblage have an NISP (number of identified specimens) of 3541 specimens, only 273 of which are identified to the level of genus. Among these, cattle (*Bos taurus*) are represented by an NISP of 55, sheep/goat (*Ovis-Capra*) by an NISP of 194, and pig (*Sus scrofa*) by an NISP of 24. Since both the faunal and the figurine collections are small in size, figurine count and faunal NISP data from all stratigraphic layers are aggregated so as to avoid a small sample size bias. This form of aggregation allows for a relatively sounder statistical analysis, a crucial component of such a comparison, but it does run the risk of introducing another type of bias by essentially treating the site as having a single occupational component. These are issues that could hopefully be dealt with through future fieldwork at the site.

Further possible biases are introduced by the recovery method of the faunal remains. Specimens were “collected by hand during picking and troweling, although some deposits were sieved” (Redding 2002: 235). This begs the question as to the quantification of the word “some.” Was sieving based on a systematic sampling method or was it conducted at random? Recovery by hand also introduces the bias of differential representation of large elements over small ones within a species in the archaeofaunal assemblage (Redding 2002:235).

As a result of these possible biases, the comparison between the figurine and the faunal assemblages can only be expressed in general terms, and detailed interpretations should be avoided. On a final note, ratios and statistical values of the faunal material used here are extracted from Redding (Redding 2002: 237-246).

In analyzing the faunal remains from Chogha Gavaneh, Redding concluded his investigation based on six factors. First, domestic sheep and goats were herded and managed to ensure herd security. Second, domestic cattle were kept and the ratio of sheep and goats to cattle was about 3.5:1. Third, domestic pigs were kept, probably as an insurance resource. Fourth, based on unidentifiable fragments, the use of cattle may have been lower than indicated by the identifiable material in Layers VII-XII. Fifth, pigs declined in importance in Layers I-V. Fifth, the pigs appear to have been more important at Chogha Gavaneh compared to other sites in the area (Abdi and Redding 2002:246).

Both the figurines and the faunal assemblages heavily represent domesticated animals, though with different ratios. The domestication status of pigs represented in the faunal assemblage is unknown. The ratio of the definite-domesticated species in the faunal assemblage is as follows:

Sheep/Goat: Cattle

NISP: 3.5:1

Wt: 0.8:1

If pigs are to be considered domesticated, the following values also become relevant:

Sheep/Goat: Pig

NISP: 8.1:1

Wt: 7.5:1

Pig: Cattle

NISP: 0.4:1

Wt: 0.1:1

Redding gives an explanation as to the discrepancy present in the sheep/goat-cattle ratio values as calculated based on NISP and weight. According to Redding, a study of the counts of unidentifiable mammal bone suggests that cattle were consumed much less frequently in the phase represented by Layers VIII-XII. In addition, Redding believes sheep were being carried onto the site by exchange with pastoralists. Recovery biases may also in part explain this discrepancy.

In the figurine assemblage, in order to calculate the ratios it is necessary to first calculate the identification distribution of the figurines:

Sheep: n=3

Goat: n=5

Sheep/Goat: n=11

Cattle: n=3

Dog: n=2

Wild Donkey/Horse: n=1

Gazelle: n=2

Unknown: n= 9

Given this distribution, one important ratio can be extracted:

Sheep/Goat: Cattle

Count: 19:1

The ratios for the figurine assemblage suffer from a small sample size bias. Despite all the shortcomings, one thing is clear: sheep and goat dominate both assemblages. This is emblematic of their importance in the local and, perhaps, the regional economy of the time. According to Redding, the sheep/goat and cattle ratio is relatively low (6.0:1) and he contends that this may be due to the close proximity of Chogha Gavaneh to a river, which means that cattle may play a more crucial role in the agricultural lifestyle and were used to help with cultivation (Redding 2002:240). Nonetheless, sheep and goat have a stronger presence in the faunal samples as they do among the figurines. The sheep/goat to cattle ratios from both assemblages clearly show the importance of sheep and goat to the local and regional economies. Nonetheless, the ratios extracted from the figurine assemblage accentuate the importance of sheep and goat far more than the ratios from the faunal assemblage. This discrepancy is probably due to the small sample sizes.

As for pigs, whether domesticated or wild, they are completely absent in the figurine assemblage. This of course may be due to misrepresentation of a number of figurines as “unknown.” Unlike domesticated species, as is evident from the aforementioned distribution, predatory animals are completely absent in both assemblages. This may be due to the classification of some figurines as “unknown,” as well as the methodo-

logical biases of recovering the faunal remains. While predatory animals are absent, wild species do have a presence in the assemblages. Redding identified a specimen which may represent a member of the family Cervidae (deer, moose, reindeer, etc.). The figurine assemblage also includes at least two identified gazelles.

Despite the presence of wild animals in both assemblages, the most confident, final conclusion is that they both represent the importance of sheep and goat to the local people of Chogha Gavanah.

X-ray Fluorescence (XRF) Analysis

The x-ray fluorescence spectrometric (XRF) method was performed by Professor Daniel Deocampo from Georgia State University's Geosciences Department. The procedure is a non-destructive chemical analysis used in order to identify the clays used to make these and investigate the internal consistency of the objects. The technique is widely used in archaeological studies for elemental and chemical analysis, especially with ceramics, metals, glasses, and historical artifacts (e.g., Bonizzoni et al. 2010; Craig et al. 2007; Shackley 2010; Uhlir et al. 2006; Zhu et al. 2004).

In 1968, Robert Jack (Departments of Geology and Geophysics) and Robert F. Heizer (Department of Anthropology) from the University of California, Berkeley, used the XRF analysis on archaeological obsidian artifacts for source provenance in the New World (Shackley 2010: 240). Since that time, XRF facilities at Berkeley have been used by many scholars and students from different universities in order to study ceramic, obsidian, and other rock provenance. Early studies mainly focused on developing source standard databases for various regions of the world. Indeed, XRF, particularly energy-

dispersive XRF, has remained the leader in non-destructive studies of archeological artifacts.

The XRF that is used in the Department of Geosciences is an energy dispersive spectrometer (EDS). An energy-dispersive (EDS) detector allows the separation of the characteristics and the analysis of the energy spectrum in order to verify the abundance of specific elements (Goodge 2007). By applying the EDS detector, we generated the chemical composition of materials and produce element composition maps. The result of these analyses assist in providing the fundamental compositional information of archaeological artifacts. Moreover, by applying EDS-XRF to the artifacts, it is possible to determine if there are major differences between the artifact elements (see Chapter 6).

These combined methodological approaches allow me to study the possible function of Chogha Gavaneh small finds. These methods could lead me in finding out how people used these artifacts in the past. By employing these methods, I can further understand whether people could have used these animal figurines and geometric-shaped objects for economic functions. In the following chapters I discuss the results of these methods.

CHAPTER 6

DISCUSSION OF FIGURINES, GEOMETRIC-SHAPED OBJECTS, AND SLING

BULLETS

Introduction

At the prehistoric site of Chogha Gavaneh, 104 baked clay objects were found. Of these pieces, 92 were categorized as zoomorphic figurines, geometric-shaped objects or sling bullets. As discussed, the items in these three categories were the foci of my research. The other found objects at the site were categorized as ordinary domestic refuse consisting of one animal bone fragment, a broken limestone dish, spindle whorls, and two items made from shell as well as the fragments of items whose original shape cannot be determined. This chapter describes and analyzes these objects based on their context and typological analysis. XRF results were used in order to determine whether the zoomorphic figurines and geometric-shaped objects might have served an economic function(s) during the Early Chalcolithic period.

The Zoomorphic Figurines

The zoomorphic figurines of the assemblage feature the animal's general shape. Most highlight some specific aspects of the animal's anatomy, namely the head, horns, neck, forequarters, hindquarters, mane, and/or tail. However, some facial features (except for the nose) and sex organs were not depicted by the manufactures.

A total of 36 zoomorphic figurines were recovered in Layers VII, VIII, IX, XIX, and XXI of Chogha Gavaneh (Figure. 6.1). The majority (28) of them were found in Layers VIII. These objects were discovered in different states of preservation (Appendix B). My analysis of the 36 figurines led me to develop the following categorization:

- a) Animal figurine, other fragments (n = 7 – 19.44%)
- b) Animal figurine, head and horn (n = 3 – 8.33%)
- c) Animal figurine, headless (n = 7 – 19.44%)
- d) Animal figurine, torso and head (n= 2 – 5.55%)
- e) Complete animal figurines (n = 7 – 19.44%)
- f) Horn fragments (n = 10 – 27.77%)

1. Stratigraphic Context and Distribution of Zoomorphic Figurines

The zoomorphic figurines were found in trash deposits (personal communication with Abdi, December 20 2009). The following is a summary of the description of layers by stratum as associated with the small finds. As reported by Abdi (2002), a majority of animal figurines and geometric-shaped objects were recovered from Layer VIII (n=28), and some others were obtained from Layers VII (n=1), IX (n=3), XIX (n=1), XXI (n=1), and (n= 2) from unknown layers (Figure. 6.1) (Tables 6.1, 6.2, 6.3, 6.4, and 6.5 for more information).

Table 6.1 Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer VII (Abdi 2002: 192-193).

Strata in Layer VII	Total depth from the datum 200 cm E[ast], 200 cm C[enter], 202 cm W[est] at the top; 253 cm E[ast], 252 cm C[enter], 262 cm W[est]. Layer VII consists of a packed and hard silty deposit. Most archaeological material were discovered on the western side of the excavations. Some pieces of ceramic waster were found at the depth of 220 cm on the east side of the Layer; a fragmentary pot was found at the depth of 224 cm at the western side of the Layer. Layer VII consists of Strata 31 to 35[This layer dates back to the mid Middle Chalcolithic period].
31	Light gray packed and hard silty deposit with some archaeological material.
32	Dark gray packed silty deposit with archaeological material and chunks of rock.
33	Dark gray silty deposit mixed with ash extending to the west wall of the excavations.
34	Grayish buff hard-packed silt with sand, pebbles, and small pieces of charcoal. Hardness suggests in situ heating or firing. Stratum 34 is separated from Stratum 35 by a thin layer of dark gray ash.
35A	Dark gray soft ashy deposit mixed with sand and pieces of charcoal. This stratum fades into Stratum 34 and extends to the east wall of the excavations.
35B	This Stratum consists of two adjacent hearths. The soil around the hearths perhaps had been reddened. Hearth 1, oval-shaped, at the eastern side of the excavations, contained a ashy deposit about 10 cm. Hearth 2 at the center of the excavations also oval-shaped—contained about 8 cm ashy deposit mixed with charcoal. Both hearths med to have used dung or vegetal material as fuel.

Table 6.2 Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer VIII (Abdi 2002: 192-193).

Strata in Layer VIII	Total depth from datum 253 cm E[ast], 252 cm C[enter], 262 W[est] at the top; 328 cm E[ast], 315 cm C[enter], 289 cm W[est] at the bottom. Most of this Layer consisted of soft organic deposits mixed with archaeological material. Many baked and unbaked clay objects come from this Layer. Layer VIII consists of Strata 36 to 44.
36	Light gray packed silty deposit mixed with some ash and chunks of clay, baked or unbaked, and other archaeological material.
37	Darker gray, soft, ashy deposit.
38	Brownish, buff-packed, silty deposit extending to the eastern wall of the excavations.
39	Gray, ashy deposit with thin layers and chunks of clay. Many baked and unbaked artifacts were found in this stratum.
40	Dark gray soft ashy deposit mixed with bits and pieces of clay, some perhaps inadvertently baked.
41	Brownish buff-packed silty deposit mixed with fine sand and ash; [the] hardness of the deposit increases towards the eastern side of the excavations.
42	Medium to dark gray, ashy deposit mixed with archaeological material. Many clay objects were found in this Stratum.
43	Medium gray, ashy deposit with intermittent layers of clay.
44	Dark gray, ashy deposit with some archaeological material. This Stratum is separated from Stratum 43 by thin layer of light brown sediment.

Table 6.3 Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer IX (Abdi 2002: 193-194).

Strata in Layer IX	At the bottom of Layer VIII, a large crack develop[ed] in the eastern side of the excavations, and the area threatened to become unstable. Therefore, [Abdi] were forced to reduce the width of the excavations by one meter. Total depth from the datum 328 cm E[ast], 315 cm C[enter], 289 cm W[est] at the top; 347 cm E[ast], 372 cm C[enter], 369 cm W[est] at the bottom. Layer IX consists of Strata 45 to 47.
45	Grayish buff packed clay. In this Stratum we encountered a thin ashy lens, packed and hard, mixed with soft sand and pebbles, and pieces of charcoal. Inside the lens, we found several sling [bullets]. Next to the lens, along the western wall of the excavations we found pieces of packed mud and a fragmentary mud brick, one side of which was plastered with a thin whitish layer.
46	Buff-packed and hard clay deposit extending to the western wall
47	Hard, packed, grayish, silt clay. Perhaps part of a pisé wall with vegetal and ground pottery inclusions, sitting on a burned floor; height about 20 cm. This possible wall extends from the east to the northern wall of the excavations. There seems to be a connection between this wall and an unexcavated wall—traces of which can be seen immediately to the east of the excavations.

Table 6.4 Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer XIX (Abdi 2002: 198-199).

Strata in Layer XIX	Layer XIX ... Shows consecutive strata of ash and silt mixed some archaeological material, perhaps representing repeated episodes of burning. Layer XIX consists of Strata 77 to 89 (the total depth, East, Center, West are not available for both top and bottom).
77	Burnt, light, lime-like deposit.
78	Silty deposit.
79	Ashy deposit.
80	Silty deposit.
81	Light, ashy deposit.
82	Light, silty deposit, rather dense and hard.
83	Ashy deposit.
84	Silty deposit.
85	Ashy deposit.
86	Silty deposit
87	Ashy deposit mixed with some silt.
88	Silty deposit with very little archaeological material.
89	Light ashy deposit mixed with some silt, with some archaeological material.

Table 6.5 Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer XXI (Abdi 2002: 199).

Strata in Layer XXI	Layer XXI consists of Strata 92 to 93 [the total depth, East, Center, West are not available for both top and bottom]. A deep deposit with light-colored, dense, hard, silty deposit with some archaeological material, including pot-sherds—especially coarse ware—some fine ware, and pieces of charcoal.
92	This seems to be a hearth with a dense ashy deposit mixed with pot-sherds, chunks of charcoal, and other burnt material
93	This Stratum primarily consists of a layer, resembling some sort of pavement made with pot-sherds and small pieces rock in a more or less horizontal level. On this 'pavement' [Abdi] found a perforated terra-cotta bead, a clay figurine, and numerical objects.

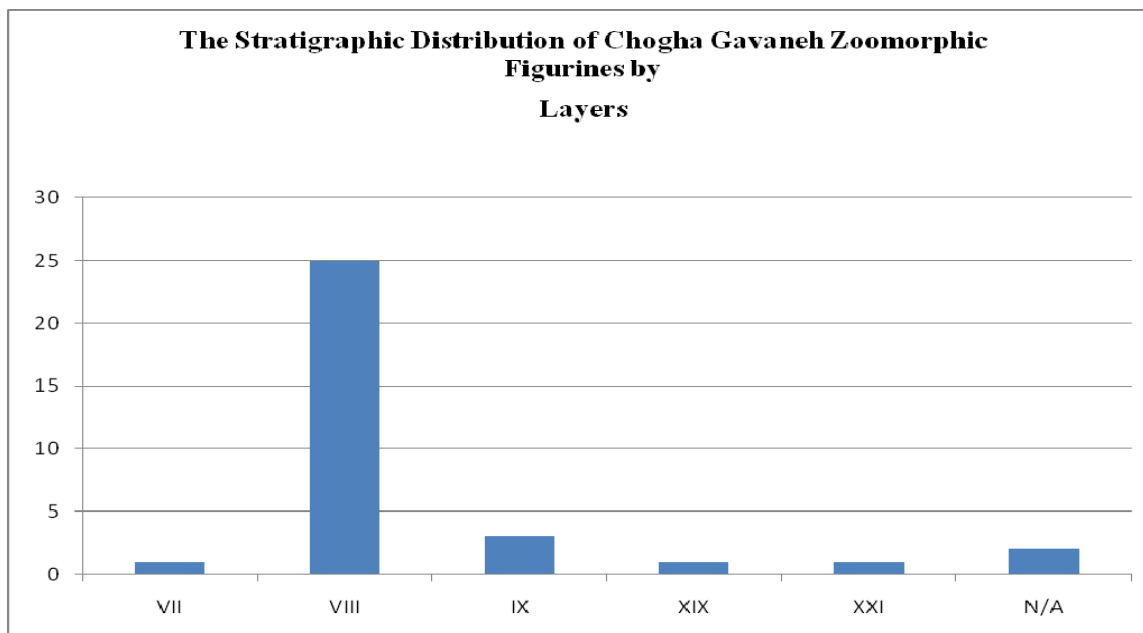


Fig 6.1 The Stratigraphic Distribution of Chogha Gavaneh Zoomorphic Figurines by Layers

2. Discussion of the Modeling Techniques

The modeling techniques used in the production of the zoomorphic figurines are similar to those of Neolithic figurines at other sites such as Sarab, Cayönü, Jarmo, 'Ain Ghazal, Munhata, and Çatalhöyük (Creighton 2004; Garfinkel 1994; Morales 1990; Rollefson 1983; Schmandt-Besserat 1997; Ucko 1968). Because no literature exists documenting zoomorphic figurines from the Near East during the Chalcolithic period, I have compared the animal figurines in my collection with those from other collections as part of my study. This included assemblages from 'Ain Ghazal, Munhata, and Sarab (which is geographically close to Chogha Gavaneh) (Tables 6.6 and 6.7). These sites have also yielded zoomorphic and geometric-shaped objects with similar patterns of deposition.

Table 6.6 Distribution of Zoomorphic Figurines by Modeling Techniques at Four Near Eastern Sites

Sites	Chogha Gavaneh (ca. 5000-4000 B.C.E.)	Sarab (ca. 6300-6000 B.C.E.)	'Ain Ghazal (ca.7500-6000 B.C.E.)	Munhata (com- prising 3 stages: PPNB, Sha'ar Hagolan, and Rabah (ca. 7200-6000 B.C.E.)
Size	1.77 cm—4.47 cm	3.2 cm—4.4 cm	3 cm—15 cm	ca. 2 cm—4 cm
Behavior	All standing, except SF15	Dogs and pigs in flat-based form or resting behavior; the rest are stand- ing (Molares 1990:39-43).	All standing (Schmandt- Besserat 2007:49).	All standing, except for one which appears to be lying down
Horns and tails	Sheep and gazelles have downward tails. Goats have both downward and up- ward tails. Dogs have tails turned out. Most figurines have horns and tails. There are figurines with bovine horns (only one, SF30) and with goat and sheep horns.	Figurines with tails turned up- ward, out and downward. Dogs have curly tails. Horned sheep and goats.	Goats have hanging tails and bovines ap- pear to have sty- lized short ones. Horned animals (bovine, goat and sheep, ga- zelle).	Goats and sheep have downward tails. Horned bovines.

Table 6.7 Distribution of Zoomorphic Figurines by Modeling Techniques at Four Near Eastern Sites

Sites	Chogha Gavaneh (ca. 5000-4000 B.C.E.)	Sarab (ca. 6300- 6000B.C.E.)	'Ain Ghazal (ca.7500-6000 B.C.E.)	Munhata (comprising 3 stages: PPNB, Sha'ar Hago- lan, and Rabah (ca. 7200-6000 B.C.E.)
Facial/ body features	The head and torso features are clearly structured. In the majority of figurines, details such as eyes, nostrils and mouths are excluded. SF30 has two tiny hollows creating well-defined eyes on each side. Two additional figurines have mouths (SF64 and SF11). SF26 depicts a possible pregnant animal. One, SF19, has a mane. SF64 appears to have sagging skin on the chin and neck area. Most of the figurines have triangular-shaped heads. Except for two: SF62, a wild sheep, has an elongated head, and SF30, a bovine, has a circular head.	Many show slit eyes and incised mouths. In very few examples, the ears are pierced by points. Some flat-based figurines have eyes and mouths. Pigs have elongated heads. Piercing or cutting marks are evident on the figurines.	The majority of the figurines have faces that feature a prominent nose, and a neckline fused to the body. Details such as eyes, nostrils, mouths, skin or coat of the animals are not depicted. Two figurines have flint bladelets that were inserted while the clay was still wet, indicating ritualized killing. (Schmandt-Besserat 2007:49).	One from the Sha'ar Hagan stage has a humpback possibly cattle. Sometimes the figurines have a mane in the same stage. Bovine heads are triangular. A variety of the animal figurines feature a pinched ridge along the back. Pigs have elongated heads.
Sex or- gans	None depicted	A number of figurines have genitals depicted.	None depicted	2 figurines from Sha'ar Hagolan stage depict sex organs.

The comparison of zoomorphic figurines from Chogha Gavaneh and the three Neolithic site finds that, while the collections are similar, the objects from 'Ain Ghazal, Munhata, and Sarab are more abstract and lack specific detail. Overall, the comparison indicates that the majority of figurines were created to represent domesticated species rather than wild animals. This contrasts with the identification of wild animal figurines from 'Ain Ghazal, which, as discussed, are argued to represent magic charms used for hunting (Rollefson 1983:37). At all the sites, animal figurines were deposited alongside geometric-shaped objects. Therefore, it is possible that these objects were linked as symbols of economic function within and between communities (see below).

Table 6.8 Distribution of Zoomorphic Figurines by Domesticated/Wild Animals at four Near Eastern Sites

	Chogha Gavaneh (ca. 5000-4000 B.C.E.)	Sarab (ca. 6300-6000 B.C.E.)	'Ain Ghazal (ca. 7500-6000 B.C.E.)		Munhata (comprising 3 stages: PPNB, Sha'ar Hagolan, and Rabah (ca. 7200-6000 B.C.E.)
			Rollefson, 1983	Schamdt-Besserat, 1997	
Domesticated animals	19 sheep/goats 2 dogs	33 dogs	None appear to be present.	N/A	4 cattle from PNNB layer
Wild animals	3 cattle 2 gazelles 1 maned animal	42 pigs	Approximately half.	75 of 151 animals are cattle.	1 pig Several maned animals from PNNB layer. Sha'ar Hagolan, and Rabah
Unclassifiable Animals	9 figurines	258 figurines	Approx half	N/A	N/A
Context	Deposit Refuse	Deposit Refuse	Deposit Refuse	Deposit Refuse	Deposit Refuse
Total	36	328	69 (plus 2 non-clay)	151	68

3. Zoomorphic Figurines Typology

In the Near East, several animals have been recognized historically as having been early domesticates. These animals have been closely linked with the social and economic development of the prehistoric people. It is assumed that dogs (*Canis lupus familiaris*) began to be domesticated for the purposes of hunting (Davis 1987:126).

Next, were the four farmyard species: sheep (*Ovis orientalis*), goats (*Capra aegagrus*),

cattle (*Bos primigenius*) and pigs (*Sus scrofa*)—which were economically important in the everyday lives of the people in the past. They were most likely domesticated primarily for food and the use of their pelts. Animals such as donkeys (*Equus asinus*), horses (*Equus ferus*), and camels (*Camelus ferus*) were domesticated much later, and were used for carrying people and goods (Davis 1987:126). The following typology is based on animals that exist in the Near East today; many of the animals in the region are the same as the prehistoric animals. Tail position and horn style are significant in helping identify the different animals in the collection.

a) Dogs in the Collection

Zooarchaeological evidence from the Near East shows domestication of the dog (*Canis lupus*) began ca. 10, 000 B.C.E., presumably by people that hunt (Davis 1987:126). An animal figurine (SF21) with an unusually long foreleg on the left, as well as a short, thick upward-pointing tail, may possibly be identified as a dog based on comparison with dog figurines from Sarab (Davis 1987:126). Other mammals, such as sheep and goats, have downward-pointing tails, unless they are depicted in action poses (which only one figurine, SF15, might be thusly posed).

b) Sheep in the Collection

Zooarchaeological studies show that sheep (*Ovis aries*) were domesticated in the Near East as early as 8,000 B.C.E. (Mallory and Adams 1997:829). In the Near East today, the only domesticated sheep that exists is the fat-tailed sheep which has a tail that can weigh up to thirty pounds. The domesticated sheep evolved because of controlled interbreeding between wild sheep (Humphreys and Kahrom 1995:43–44). The wild sheep of Iran can be identified as Urial (*Ovis orientalis*). The sheep are found in the

northeast of Iran and are characterized by a strong and agile body that measures, on average, one meter in height, and weighs 85 kilograms. The Urial in Iran today are divided into five main sub-species. These include Transcaspian, or Kopet Dagh Urial (*Ovis orientalis arkal*), Afghan Urial (*Ovis orientalis cycloceros*), Armenian Mouflon (*Ovis orientalis gmelini*), Esfahan Mouflon (*Ovis orientalis isphahanica*) and the Larestan Mouflon (*Ovis orientalis laristanica*) (Firouz 2005:85-90).

In the Chogha Gavaneh figurine collection, zoomorphic figurines (Appendix B) can be identified as sheep as they are marked by round and long horns. However, SF64 is characterized by a short neck and a turned-down tail. Additionally, SF62 is the only specimen to resemble Larestan Mouflon's horn style as is evident from its thick horn curving toward the front.

c) *Goats in the Collection*

Goats were domesticated sometime around 10,000 years ago in the highlands of western Iran in the Zagros Mountains. The earliest evidence of goat domestication comes from the faunal remains recovered at Ganj Dareh (Hesse 1978; Zeder et al. 2006) in western Iran. Goats of this region are found in the Alborz highlands of northern Iran and in the Zagros highlands of western Iran (e.g., Korshunov 1994; Gundogdu and Ogurlu 2009; Weinberg 2001). Male wild goats (*Capra hircus*) have long scimitar- or saber-shaped horns, and females have shorter horns. Goats carry their tails upright, while those of sheep are pendulous (hanging down loosely). The domestic goat can have no horns at all or have a variety, including twisted straight and twisted "handle-bar" styles.

In the collection, two figurines SF17 and SF26 (Appendix B) can be identified positively as goats based on different features. The horn on SF17 is curved directly to-

ward the back and the tail is pointing upwards. SF26 displays a protruding stomach on the sides, with short tail and legs indicating pregnancy. The figurines SF11, SF12, SF13, SF18, SF20, SF29, SF31, SF45, SF46, and SF66 are hard to distinguish as goat or sheep given their poor preservation conditions.

d) Cattle/Water Buffalo in the Collection

The Water Buffalo (Bovidae; *Bubalus bubalus*) is a known domestic animal in Iran. It is characterized by little body hair, a fat body, and large flattened horns that turn upward near the tips and spread out horizontally (Humphreys and Kahrom 1995:66). SF30 and SF29 are similarly characterized with long and upward curving horns.

Cattle (*Bos primigenous*) were domesticated in the Near East around 6200-5800 B.C.E. (Ben-Tor and Greenberg 1992:29). They have pointed horns that curve inward and their bodies have a narrow spinal ridge. In the collection, SF44 can be characterized as cattle because of the pinched ridge design on the back of animal (Balfour 1968:100). Also, there is a pointed, curved horn fragment (SF29) in the collection, possibly indicative of cattle.

e) Donkey/Wild Horse in the Collection

According to archaeological finds, donkeys (*Equus asinus*) are believed to have been domesticated around 5,000 years ago in Africa (ancient Egypt) and Asia (Rossel et al. 2008:3715). This animal is characterized by an upright, long, and thin mane. In addition, donkeys possess shorter legs and longer ears in comparison to a horse. Today, the Persian wild donkey, or onager (*Equus hemionus onager*), exists from the Mediterranean to Mongolia, and could be considered the wild horse of Western Asia (Eskandar

2005:80). In the collection, SF19 displays a long mane running between the ears and along the neck, indicative of a wild donkey or horse.

f) Gazelle in the Collection

Goitred gazelle (*Gazella subgutturosa*) is the principle gazelle of Iran and inhabits Khuzestan, up to Zanzan, east to Khorasan, and on to Seistan, as well as the central deserts of Iran. The males have a pair of slender, pointed horns that bend slightly outward at the tips. The females usually lack horns; however, horned females can be found in western Iran (Firouz 2005:86). In the collection, an animal figurine (SF23) with an uncommonly long neck and a broken head is possibly a gazelle. In addition, a small horn from animal figurine (SF34) can be identified as gazelle's horn due to its shape and curve.

A final note is necessary as to the degree of subjectivity of the identifications. Animal figurines such as sheep, goats, and gazelle could be identified according to the position of their tails (upward or downward), as well as their horn shape. While some of the figurines may represent certain animals these identifications may not be precise.

4. Patterns of Wear and Damage

I studied the wear and damage patterns on the figurines in order to try and identify their possible function. The categorizations I used were based on the functional categories established by Ucko (1968) and discussed by Voigt (2000:263). They are as follows:

- a) Cult Figures-* Surface is intact, damages are minor, and polish from continued handling is evident on the surface, particularly on the head and feet. The figurine may exhibit burning, fresh breaks, or stab marks as a way to symbolically end its life. The figurines were possibly deposited in ritual building or public ceremo-

- nies, or in unreachable places such as caves, or bodies of water. Additionally, these objects are not likely associated with everyday refuse.
- b) *Vehicle of Magic*- Surface is polished and barely worn, and may exhibit burn marks and/or systematic breaks as part of the deposition process. These figurines are deposited in places such as in the walls, below the floors of houses, in burnt features, pits in open areas, or even bodies of water. They can be associated with typical domestic refuse.
 - c) *Initiation Figure*- Surface may be intact with or without burn marks, and may show wear on the base due to handling. Often times, they are disposed in places such as caves and bodies of water rather than domestic structures. They are rarely associated with everyday domestic refuse.
 - d) *Toy*- Surface is generally chipped, appendages are often broken, or missing; areas of structural weakness exhibit the most damage. The figurines are deposited in ordinary domestic contexts and can be associated with refuse randomly, including bones, sherds, and other kinds of broken artifacts.

According to these categories, it appears that the majority of the figurines at Chogha Gavanah were likely used as toys based on the wear and patterns. This is because much of the damage involves missing appendages and occurs at points of structural weakness. However, some examples (SF17 and SF21) show wear and damage patterns inconsistent with the parameters outlined in any of Voigt's categories. The tails of both figurines are intact; it is unlikely that they were used as toys due to the fragility of the tails. These two figurines also exhibit burn marks. SF17 shows partial blackening in the middle section, but SF21 is blackened all over. However, according to Voigt (2000), toys would not ex-

hibit qualities of being burnt. They both show evidence of being well-used, so it is unlikely, based on Voigt's functional categories, that they were used as vehicles of magic. In addition, they are not likely to have been initiation or cult figures, due to the context of their disposition.

5. Color Range of Zoomorphic Figurines

According to the Munsell Color Chart (2000), the colors of the fired figurines include three main groups: 17% dark gray (GLEY4/N), 9% light brownish gray (10YR6/2), 9% light gray (10YR7/2). The majority of the coloration in the zoomorphic figurines falls within the gray spectrum (Figure.6.2). The greater majority of figurines fall in the dark gray or blackened group. The gray color is probably achieved by firing at a high temperature. In addition, clays with iron-rich elements tend to produce gray color due to the changes in their mineral structure (Millar 2007:125).

According to Abdi, it is assumed that the figurines were exposed to "open-air" firing in a household hearth (personal communication with Abdi, July 27 2010). However, in the stratigraphic distribution of the figurines, there was no evidence for either special firing techniques or a specific place for firing. Some of the figurines are unburned. Others have partially blackened patterns on their surfaces, partial burning on one side, heavy burning on the entirety of the body, or burn patterns on the appendages. The more detailed and delicate figurines would have taken longer to manufacture and were mostly unburned; this indicates that burning in order to preserve their function was not a consideration. The blackening and burn patterns need further study in order to understand their significance.

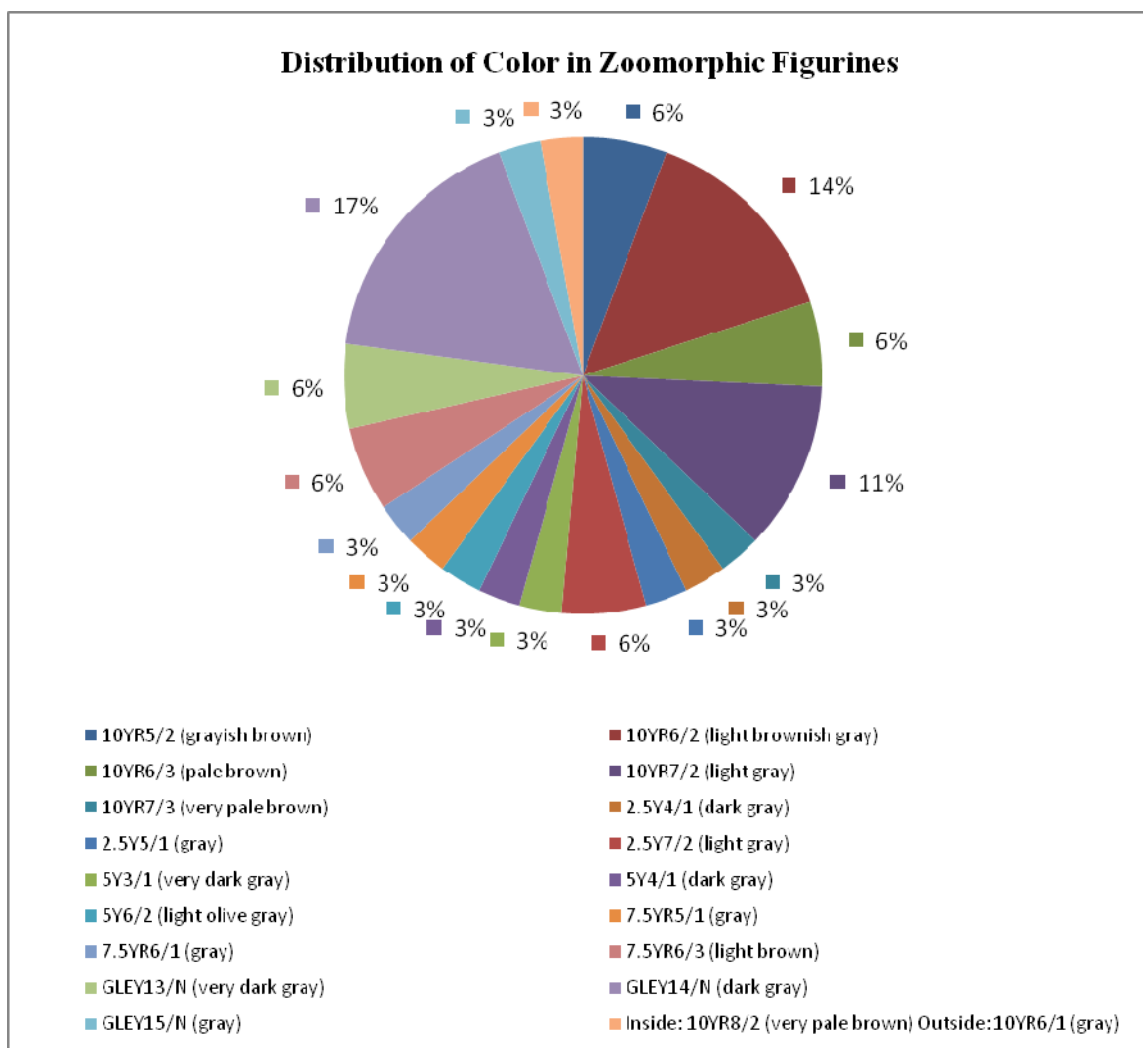


Figure. 6.2 Distribution of External Color in Zoomorphic Figurines Based on the Munsell color chart

6. Summary and Discussion

The study of the zoomorphic figurines suggests that the traditional ideas of cultic and religious figurine practice in archaeological literature are not relevant to the Chogha Gavaneh collection. This conclusion is due to my comparative analysis of the Chogha Gavaneh figurines to those from other sites, and is based on the context of their disposal, patterns of wear and damage, shape, size, and coloration. As I have shown, all of the animal figurines were recovered from middens rather than public buildings (which were not

documented in the excavations). In comparison to the patterns of wear and damage on animal figurines from Sarab and 'Ain Ghazal, evidence shows that there are no examples of piercing or cutting marks which would indicate “ritually killed” animals at Chogha Gavaneh. It appears that these figurines *lack* such ritual meaning, and were not used for magical purposes. Based on the results of these findings, I argue that the zoomorphic figurines and the geometric-shaped objects (see discussion below) played a potential role in economic functions in everyday life.

The Geometric-Shaped Objects

A total of 35 geometric objects were recovered from Chogha Gavaneh (Figure 6.3). These objects represent a variety of shapes, including fragmented disks with varying attributes. Some are concave; others are disks with and without incised markings. Cones, ovoids, and spheres are also present. They were found in different states of preservation (Appendix B). The identification of these 35 objects led to the following categorization (Table 5.3):

- a) Concave-shaped fragment (n=1 –2.85%)
- b) Cone-shaped fragments (n=3 –11.42%)
- c) Disks-shaped fragments (n=17–48.57%)
- d) Ovoid-shaped fragment (n=1 –2.85%)
- e) Sphere-shaped fragments (n=12 –34.28%)

1. Stratigraphic Context and Distribution of Geometric-Shaped Objects

At Chogha Gavaneh, the geometric-shaped objects found were distributed throughout the stratigraphic Layers VIII (n=29), IX (n=4), XV (n=1), and (n=1) from un-

known layers (Figure 6.3). These objects, like the zoomorphic figurines, were found in a secondary or tertiary disposal context. The majority (88%) of geometric-shaped objects recovered from the excavation derive from contexts involving dark, gray ashy deposit layers with some archaeological material like chunks of clay and baked or unbaked artifacts, including zoomorphic figurines (see Table 6.1 6.2, and 6.9 for more information on Layers VIII, IX, and XV).

Table 6.9 Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer XV (Abdi 2002:197).

Strata in Layer XV	Total depth from the datum 495 cm E[ast], 475 cm C[enter], 478 cm W[est] at the top; 528 cm E[ast], 522 cm C[enter], 509 cm W[est] at the bottom. Layer XV consists of Strata 62 to 65.
62	Packed silty, deposit mixed with fine sand and archaeological material.
63	A grayish, buff-thin layer of packed, silty deposit along the east wall.
64	Light gray, packed, silty deposit with small pebbles and pieces of charcoal.
65	Light gray, packed, silty deposit.

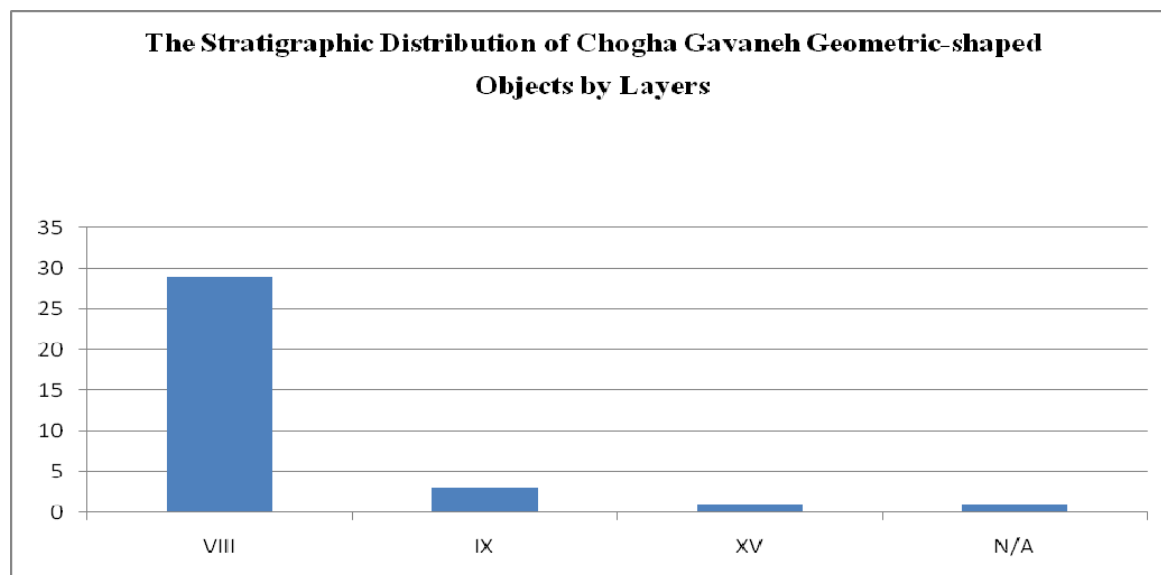


Fig 6.3 The Stratigraphic Distribution of Chogha Gavaneh Geometric-shaped Objects by Layers

2. Discussion of the Modeling Techniques

Some of these objects are very carefully modeled and have smooth surfaces, while others have a rougher, more textured surface. Based on the *chaîne opératoire* that I conducted as part of my approach, I believe these simple objects were manufactured with ease and did not require specialized skills. After the modeling was finished, the geometric-shaped objects were baked in order to harden the clay. This indicates a correlation between size and shape, which may serve to support my conclusions concerning their function.

- a) *Concave-shaped* – There is only one such object in the collection. The length of this object is 2.33 cm. The weight for this object is 4.06 g.
- b) *Cone-shaped* – This group includes four objects. The diameters of these objects are between 0.89 and 2.48 cm. The weights for these objects vary between 0.75 to 14.53 g.
- c) *Disk-shaped* – The diameters for these flat disks are between 1.01 cm and 2.51 cm. These objects were further divided into two categories: disk-shaped *without* incised lines and disk-shaped *with* incised lines.
 - *Disk-shaped without incised lines* – This group includes eight objects. The diameters for these objects are between 1.01 cm and 2.21 cm. The weights for these objects are between 0.73 g to 3.22 g.
 - *Disk-shaped with incised lines* – This group includes nine objects. The diameters for these objects are between 1.20 cm and 2.51 cm. The weight range is between 0.51 g to 3.00 g. Because some of the incised lines are uniform, data from Schmandt-Besserat (1992:127-157) indicates that they

might have been formed intentionally. However, it is always possible that some of the lines were created unintentionally.

- d) *Ovoid-shaped* – There is only one object in the collection belonging to this group. The length of this object is 1.09 cm. The weight for it is 4.6 g.
- e) *Sphere-shaped* – This group includes twelve objects. The diameters for these spheres are between 0.93 cm and 1.45 cm. The weights for these objects are 0.69 g to 1.85 g. The diameters and weights of the objects within this group are similar to those in the disk-shaped group.

3. *Comparative Near Eastern Geometric-shaped objects*

The geometric-shaped objects from Chogha Gavaneh were also compared to those from the Neolithic sites in terms of the depositional context, size, and shape. Table 6.10 shows the comparative proportions of various geometric-shaped objects at Sarab, 'Ain Ghazal, and Munhata. As mentioned, the Chogha Gavaneh objects are dated to the Chalcolithic period and occurred later than those from the other sites. Comparing the Chogha Gavaneh objects to those from the Neolithic sites, one sees that cone/cylinder-shaped, disk-shaped, and sphere-shaped objects were found in the highest quantities at all three sites.

Table 6.10 Distribution of Geometric-Shaped Objects by Shape at four Near Eastern Sites.

Sites	Chogha Gavaneh (ca. 5000-6000 B.C.E.)	Sarab (ca. 7500-6000 B.C.E.)	'Ain Ghazal (ca. 7500-6000 B.C.E.)	Munhata (comprising 3 stages: PPNB, Sha'ar Hagolan, and Rabah) (ca. 7200-6000 B.C.E.)
Cone/cylinder-shaped	n=4	n=76	n=23	n=37
	1.19–2.48 cm 0.80–14.53 g	Ca 1.3 cm	0.09–5.8 cm	N/A
Disk-shaped	n=17	n=123	n=14	n=3
	1.01–2.21 cm	N/A	1.8–4 cm	1.5–2.5 cm
Ovoid-shaped	n=1	N/A	n=4	N/A
	1.09 cm		1.3–2.0 cm	
Sphere-shaped	n=12	n=79	n=95	n=9
		0.85–1.5 cm	1.0–3.4 cm	1.5 cm
Tetrahedron-shaped	N/A	n=40	N/A	N/A
		4.5–9.0 cm		
Others	N/A	n=70	1	n=4
Total	34	388	137	53

4. Color Range of Geometric-shaped Objects

According to the Munsell Color Chart (2000), the colors of the fired geometric-shaped objects include three main groups. The main color groups that distinguished the objects are 34% dark gray (GLE Y4/N), 14% gray (2.5Y5/1), and 10% very dark gray (GLE Y3/N). Similar to the zoomorphic figurines, the majority of the objects fall within the gray color spectrum, including dark gray or blackened items (Figure. 6.4).

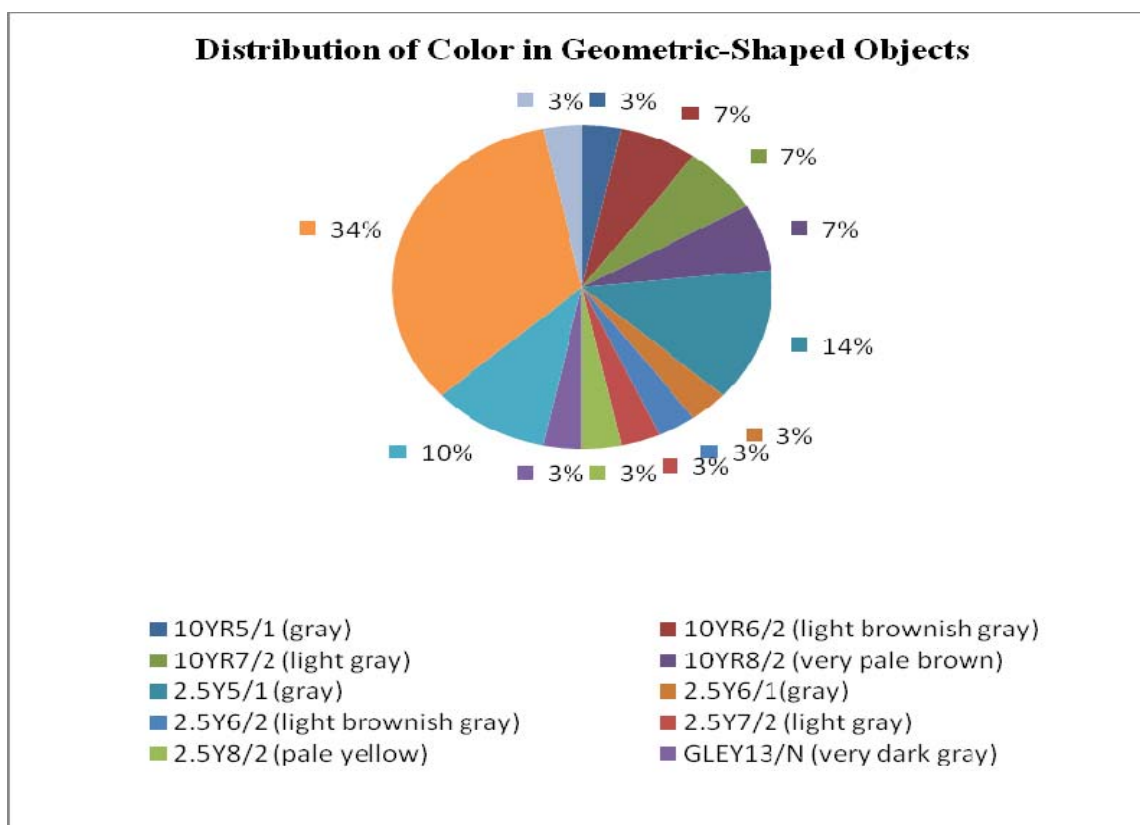


Figure. 6.4 Distribution of External Color in Geometric-Shaped Objects Based on the Munsell Color Chart

5. Summary and Discussion

As discussed in the corresponding literature, these geometric-shaped objects have been given different names: “gaming pieces” (Garfinkel 1995; Tobler 1950), “tokens” (Schmandt-Besserat 1992), and “geometric items” (Rollefson et al. 1984) among others. According to Morales (1990), these objects might be identified as “counters” or marbles. For example, the spherical objects from Sarab are assessed as counters or marbles and “have little to do with the wish-magic implications of the figurine materials” (Morales 1990:22). Some of those balls have various incised markings which may indicate that they were used for counting or record-keeping purposes. In the Chogha Gavaneh collec-

tion of disk-shaped objects, nine have incised lines and might have been used for similar purposes. In yet another interpretation, Schmandt-Besserat (1992:127) asserted that these objects were used for counting and recording and also might be associated with the beginnings of writing. Gaming pieces could be another way these geometric-shaped objects were used (Morales 1990; Rollefson et al. 1984). Based on the correlation between size and shape, as well as technological analysis, it is my opinion that these geometric objects most likely were used for economic purposes including the exchange of goods (Appendix A see Table A2.14).

Table A2.14 demonstrates the weight range of the geometric shapes in the Chogha Gavaneh assemblage. A close look at the table shows that of all of the represented geometric shapes, the spheres have perhaps the most consistent weight. I argue that a correlation exists between the weight and shape of these objects and the value that they represent in economic exchanges. Therefore, the possible exchange value of the spheres is associated with their weight and shape.

Sling Bullets

This group is the third largest in the collection after animal figurines and geometric-shaped objects. They are classified based on their shapes, sizes and weights.

1. Stratigraphic Distribution of Sling Bullets

At Chogha Gavaneh, eighteen sling bullets were found distributed throughout the stratigraphic Layers V (5%), VIII (53%), and IX (37%); the other 5% is unknown (Figure 6.5) (Tables 6.1, 6.2, and 6.11 for more information on Layers VIII, IX, and V).

Table 6.11 Stratigraphic Context and Distribution of Chogha Gavaneh Artifacts in Layer V (Abdi 2002: 197).

Strata in Layer V	Total depth from the datum 106 cm East, 118 cm Center at the top; 140 cm East, 139 cm Center, 110 cm West at the bottom. Layer V consisted of a hard and packed deposit, mostly silt mixed with chunks of lighter colored silty clay, perhaps construction fragments. In Layer V [Abdi] found an ovoid-shape hearth...; inside the hearth [Abdi] found a small baked clay bullet (SF1). Layer V consisted of Strata 8 and 9.
8	Light gray silty deposit with archaeological material
9	Similar to Stratum 8, but with layers of fine sand, mixed with small fragments of rock.

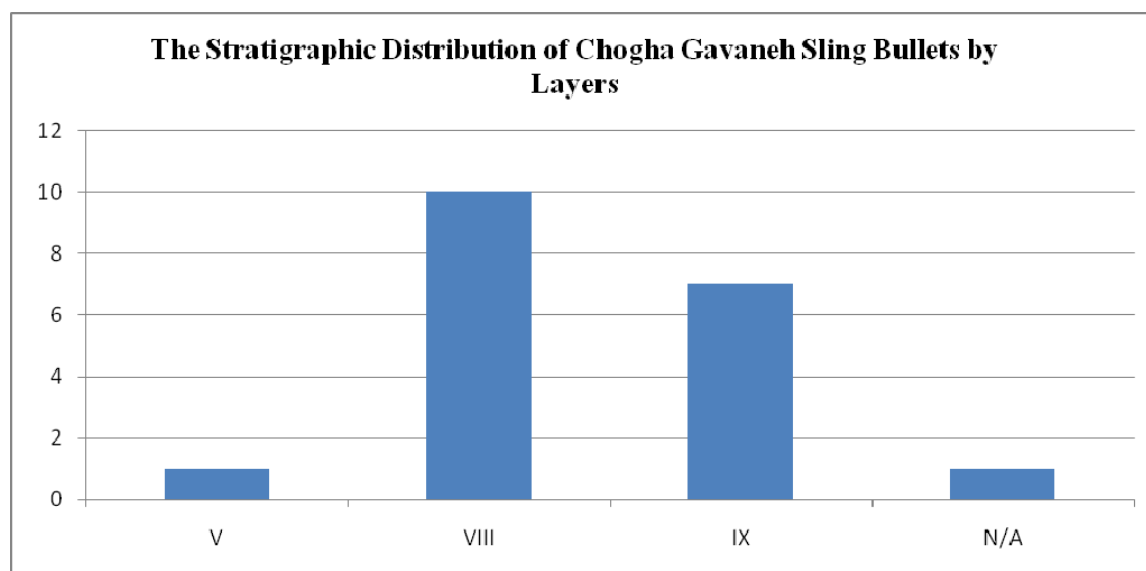


Fig 6.5 The Stratigraphic Distribution of Chogha Gavaneh Sling Bullets by Layers

2. *Discussion of Modeling Techniques*

These artifacts come in different sizes and weights. The diameters for the sling bullets are between 2.20 cm and 4.98 cm. The weights for these artifacts are 10.13 g to 35.93 g. They were found in different states of preservation (Appendix B).

The majority of shapes consisted of a finely rounded, elongated egg shape, and slightly pointed toward the ends. A few examples were more rounded and sphere-shaped. The surfaces varied from smooth to rough and uneven. One example (SF58) has several crater-like indentations, while another's (SF61) surface has scattered black spots with three tiny pin-sized holes on one side. These could have been made either intentionally or unintentionally.

Table 6.12, is a side-by-side comparison of the Chogha Gavaneh sling bullet collection to that of a much later period from Hamoukar in northeastern Syria (2500-2200 B.C.E.). The Hamoukar research was ideal for comparison due to the large number of sling bullets in the collection, and supporting literature on sling bullets from the late Chalcolithic period. The following comparison is in terms of absolute number, shape and size.

Table 6.12 Distribution of Sling Bullets by Modeling Techniques in two Near Eastern sites.

Sling Bullets	Chogha Gavaneh (ca.5000-4000 B.C.E.)	Hamoukar (ca. 2500-2200 B.C.E.)
Diameter Sizes	2.20-4.98 cm	6-15 cm
Weights	10.13-35.93 g.	255-520 g.
Shape	Ranging from ball-shaped to egg-shaped	Ranging from conical-shaped to egg-shaped
Total	18	130

3. Color Range of Sling Bullets

The majority of the sling bullets were unburned and light brown (2.5Y6/5) in color (Figure. 6.6) In contrast, the animal figurines were more burned and had grayer coloration. The motives behind the burning in both animal figurines and sling bullets are inconsistent enough as to remain inconclusive.

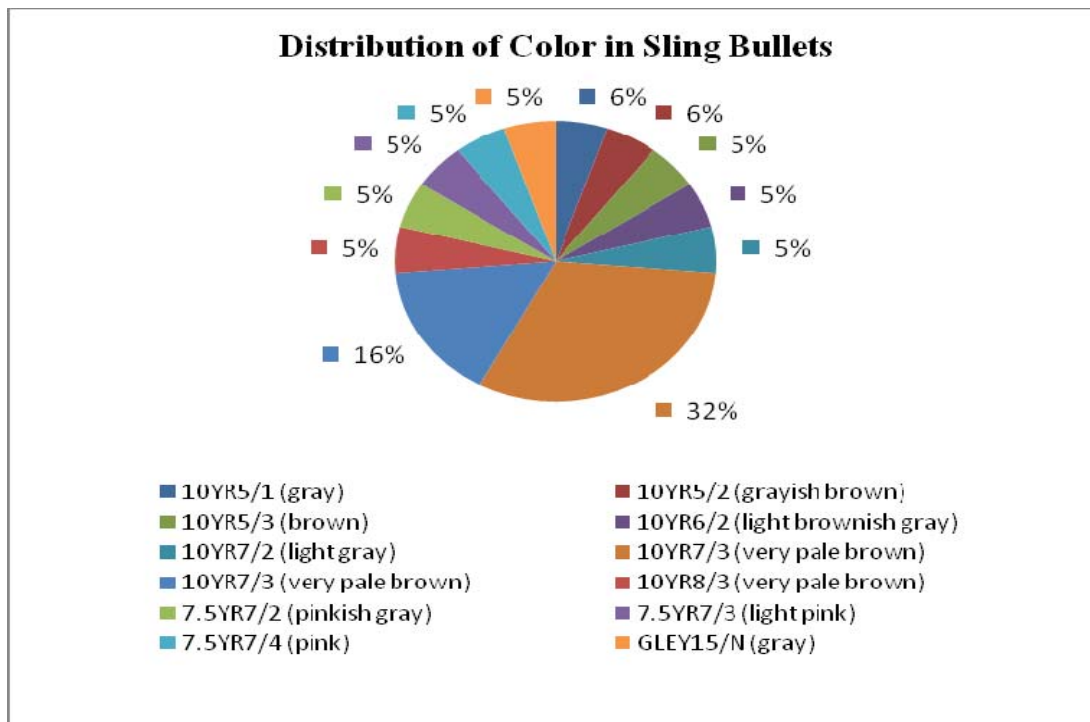


Figure 6.6 Distribution of Color in Sling Bullets Based on the Munsell Color Chart

4. Summary and Discussion

The data on the number, sizes, and weights of the sling bullets at Chogha Gavan and Hamoukar suggest that based on the difference in sizes and weights, they likely had different functions. According to Reichel (2006), sling bullets with larger diameters—such as those found in Hamoukar, may have been used for weapons. Based on the archaeological context and size, it is therefore possible to rule out the sling bullets from

the Chogha Gavaneh site as having a defensive function. Due to their smaller size, weight, and total quantity it is most likely that the Chogha Gavaneh sling bullets were used for hunting small animals like birds, and/or herding. Due to the presence of bird bones in the faunal assemblage, this activity was certainly a possibility (Redding 2000:235). In addition, an interpretation of clay sling bullets as shepherds' implements must also be considered. Today in the Near East, shepherds use sling bullets in order to manage grazing movements of their domesticated livestock or to protect livestock from predators (Perles 2001:229). However, further comparisons with sling bullets from similar Chalcolithic periods, and indeed, access to information on ethnographic observation or experimental replication enacted in the local region, would be necessary in order to draw more definitive conclusions about their ultimate functions.

The Result of X-ray Fluorescence (XRF) Analysis

With the assistance of Dr. Frank Williams and Dr. Daniel Deocampo, I used XRF analysis to study the chemical composition of the artifacts. As discussed in Chapter 5, XRF analysis is a non-destructive chemical procedure used in archaeological studies to identify contextual elements in ceramics, metals, glasses, and historical artifacts.

1. Analytical Technique

After cleaning of the artifacts, the elemental composition of the surface was analyzed by non-destructive X-ray fluorescence spectrometer. The irradiated area on the sample was about 1 cm in diameter; the distance between the sample and the X-ray tube was 1 cm and the distance between the sample and the detector was less than a 1 cm. Both the interior and exterior surfaces of the samples were both subjected to X-ray analy-

sis for 30 seconds to insure that the results are consistent. The 12 most significant elements collected in terms of principle component analysis were: titanium (Ti), chromium (Cr), manganese (Mn), iron (Fe), cobalt (Co), nickel (Ni), copper (Cu), zinc (Zn), arsenic (As), selenium (Se), rubidium (Re), and strontium (Sr) (Table 6.13).

2. Principal Components Analysis

Principal component analysis (PCA) was used as an instrument to graphically study the grouping and patterning of the chemical composition of samples. The quantitative analyses were performed by Professor Frank Williams from Georgia State University's Anthropology Department, using the software SPSS for Windows, version 17.0. SPSS is a software program that is used to identify how the twelve types of elemental concentrations characterizes the sources of the samples. Six factors were obtained with eigen values over 0.999. The component loadings were included in the interpretation of the elemental composition characterizing the whole baked clay samples in the collection. However, I only focus on 4 factors including factors 1, 2, 5, and 6, since these factors showed the greatest polarization of individuals and groups. For this study, the clay samples were distributed into five groups;

- Artifact types: Groups 1 (sling bullets), 2 (geometric-shaped objects), 3 (animal figurines), 4 (miscellaneous), and 5 (anthropomorphic figurines)
- The artifact numbers (SF)

We found this procedure most useful in identifying and comparing the chemical compositions of the clay artifacts.

a) First and Second Factor

According to the first PCA factor, the artifacts are distributed along the x-axis. The elements rubidium (Re), zinc (Zn), iron (Fe), and titanium (Ti) are mainly correlated with the distribution of artifacts on the positive side of the first factor. In addition, selenium (Sr) and manganese (Mn) contribute to the projection of artifacts on the negative side of the factor axis. With reference to the first factor, the artifact numbers SF50.4 and SF56 are the outliers. (Figure 6.11). These outliers are shown on the scatter plots of the artifact samples on the factor axes from the PCA.

The second factor axis of the principal component analysis was distributed along the y-axis. The numbers that are the outliers in the second factor are SF50.14 and SF57.1 because of extreme values of selenium (Sr) (Figures. 6.10 and 6.11). The values of selenium (Sr) and manganese (Mn) are in the negative segment of the factor explaining the polarization of the outlier artifacts SF13 and SF46 (Figures. 6.10 and 6.11). This factor is highly correlated with selenium (Sr) and manganese (Mn), and this relationship contributes heavily to the high positive projection of Group 3 (zoomorphic figurines) artifacts, as well as Group 2 (geometric-shaped objects) artifacts (Figures 6.7, 6.8, and 6.9). One individual from Group 5 (anthropomorphic figurines) separated from exceptional values for rubidium (Re), zinc (Zn), iron (Fe), and titanium (Ti). Also, there is not much grouping with regard to the first factor, except for extremes from Group 2. But for the second factor, Group 1 (sling bullets) is largely separated from Groups 2 and Group 5. It seems Group 1 has extreme values for manganese (Mn), but is not well differentiated from detectable levels of nickel (Ni). The Groups 2 and Group 5 are on the negative side of factor two due to the extreme values for zinc (Zn) and selenium (Se). For Groups 3 (zoo-

morphic figurines) and Group 4 (miscellaneous), it is impossible to differentiate artifacts, as the individuals in these groups do not cluster into any discernable pattern.

b) Fifth and Sixth Factor

Noting the fifth factor, artifact SF50.15 is extreme in its position with reference to the y-axis because of the large component loadings for chromium (Cr) and, to a lesser extent, titanium (Ti) (Figures 6.13 and 6.14). As for the sixth factor, the artifact numbers SF50.23 and SF15 are outliers along the x-axis. The sixth factor is associated with an extreme value for selenium (Se) in the component loadings. Both artifact numbers SF50.23 and SF15, have extreme values for both factors shown (5 and 6) and can be explained by the distinct component loading for the elements iron (Fe), cobalt (Co), and arsenic (As). In both the fifth and sixth factors, individuals are particularly separated by their extreme negative values for the element selenium (Se) on the x-axis. On the y-axis the outliers are extreme and positive. As for Factor 5, SF67 is also extreme due to the high correlations with Factor 6 and chromium (Cr), and, to a lesser extent, titanium (Ti) as shown in the component loadings.

Table 6.13 Shows the Principle Component Matrix of Chogha Gavaneh Small Finds.

	Components					
	1	2	3	4	5	6
Ti (Titanium)	.670	-.022	-.155	-.196	.371	-.009
Cr (Chromium)	.434	.117	.091	-.237	.663	.295
Mn (Manganese)	-.187	.799	-.068	-.166	-.066	.046
Fe (Iron)	.835	.151	.235	-.120	-.246	-.094
Co (Cobalt)	.404	.305	-.372	.254	-.293	-.292
Cu (Copper)	.335	-.032	-.234	.780	.203	.048
Zn (Zinc)	.722	-.211	.086	.300	-.066	.186
As (Arsenic)	.295	.141	.824	.106	-.224	.050
Se (Selenium)	.050	-.110	-.265	-.099	-.416	.834
Rb (Rubidium)	.860	.094	-.043	-.120	-.072	-.019
Sr (Strontium)	-.450	.371	.319	.447	.222	.267

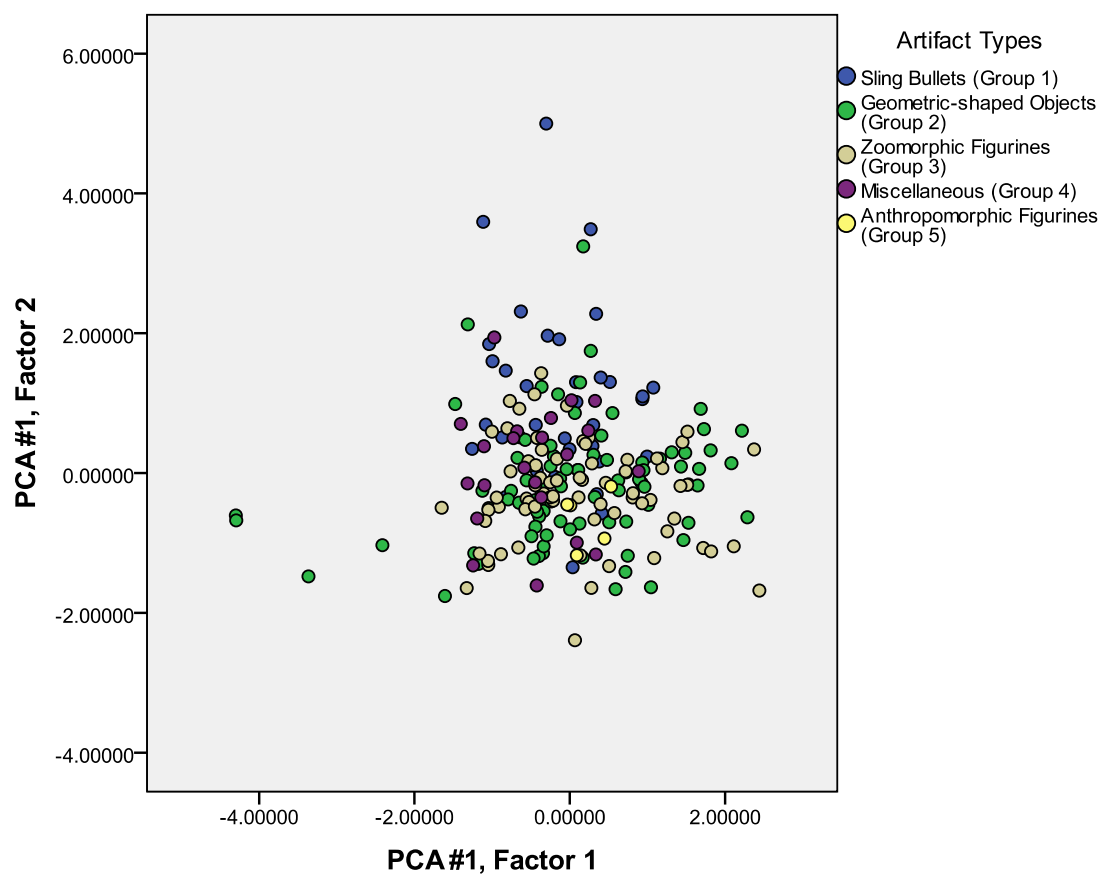


Figure. 6.7 Scatter Plot of the first two Principal Components Showing the Grouping of Artifacts

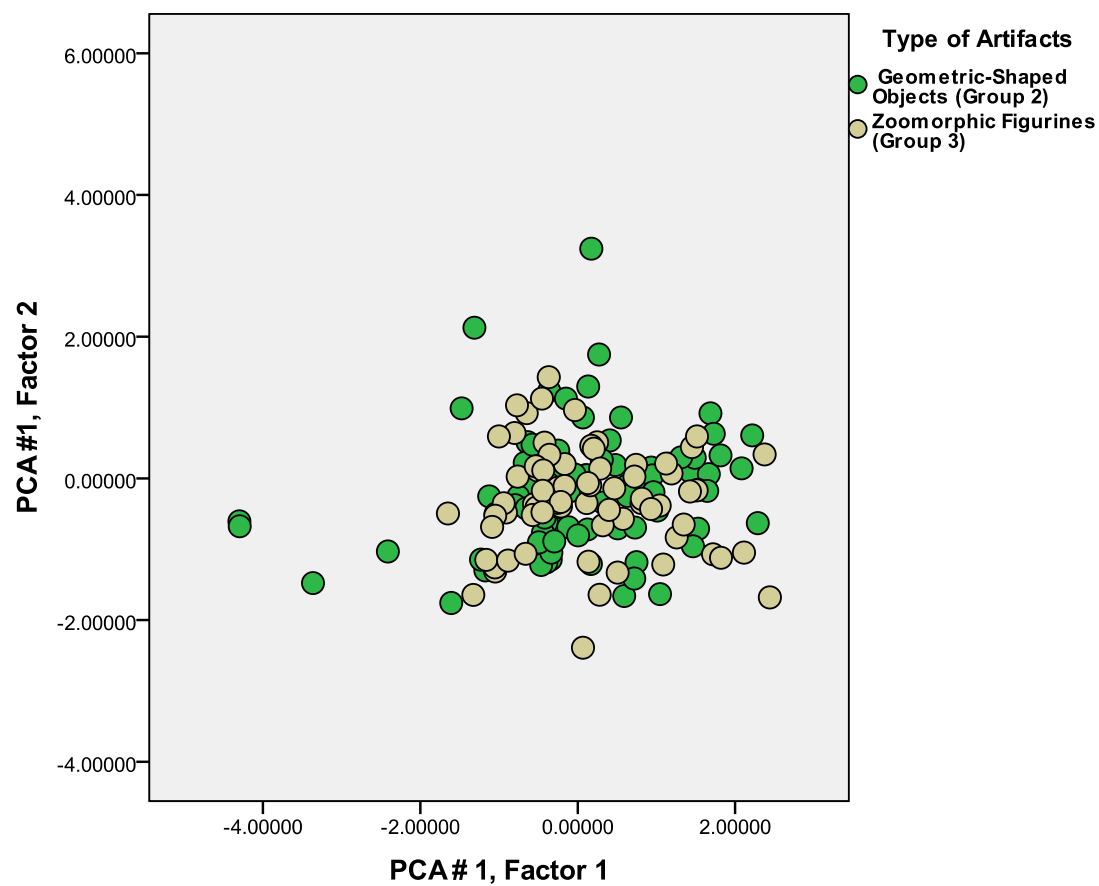


Figure. 6.8 Scatter Plot of the first two Principal Components Showing the Geometric-Shaped Objects and Zoomorphic Figurines

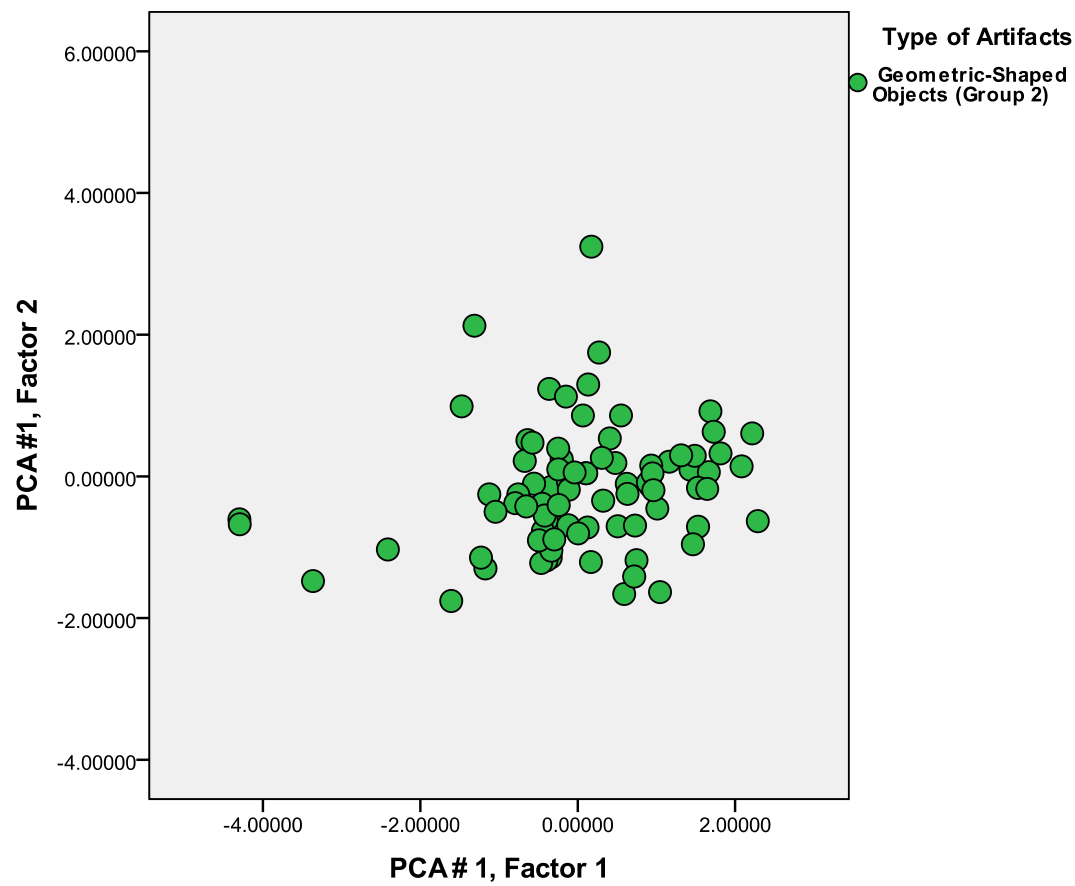


Figure. 6.9 Scatter Plot of the first two Principal Components Showing the Geometric-Shaped Objects

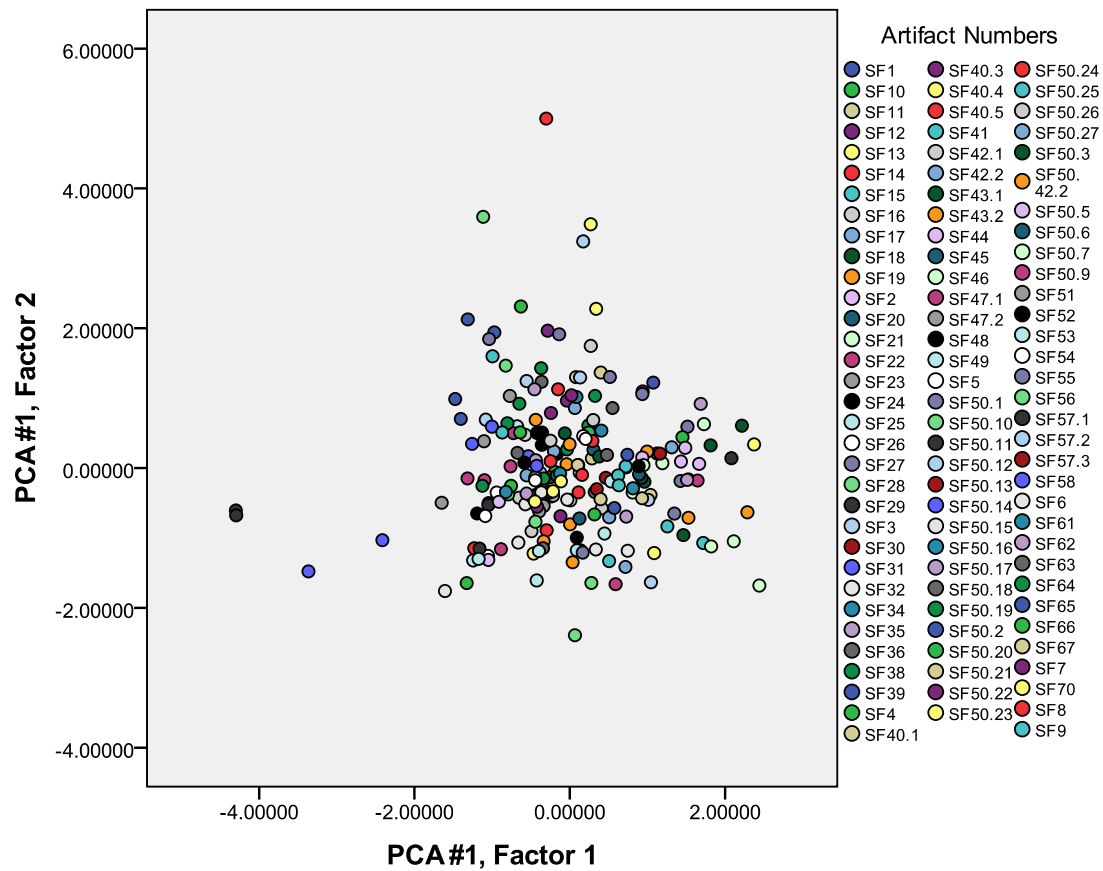


Figure. 6.10 Scatter Plot of the first two Principal Components Showing the Number of Artifacts

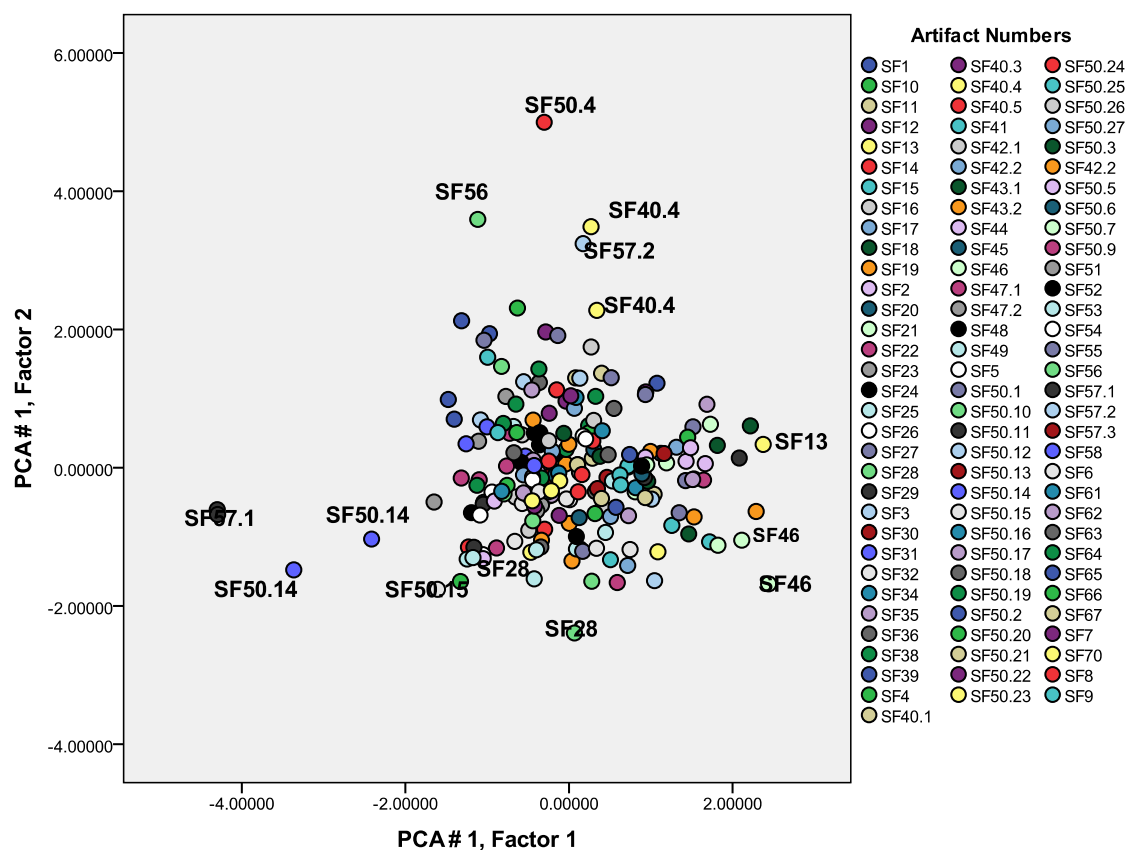


Figure. 6.11 Scatter Plot of the first two Principal Components Showing the Number of Outlier Artifacts

Table 6.14 Shows the numbers of outliers in the first and second factors

SF #	Factors 1 and 2
13	Animal Figurine, Head and Torso (group 3)
28	Animal Figurine, Horn Fragment (group 3)
40.1	Sling Bullet (group 1)
46	Animal Figurine, Horn Fragment (group 3)
50.14	Sphere-shaped Fragment (group 2)
56	Disk-shaped Fragment (group 2)
57.1	Sphere-shaped Fragment (group 2)
57.2	Sphere-shaped Fragment (group 2)

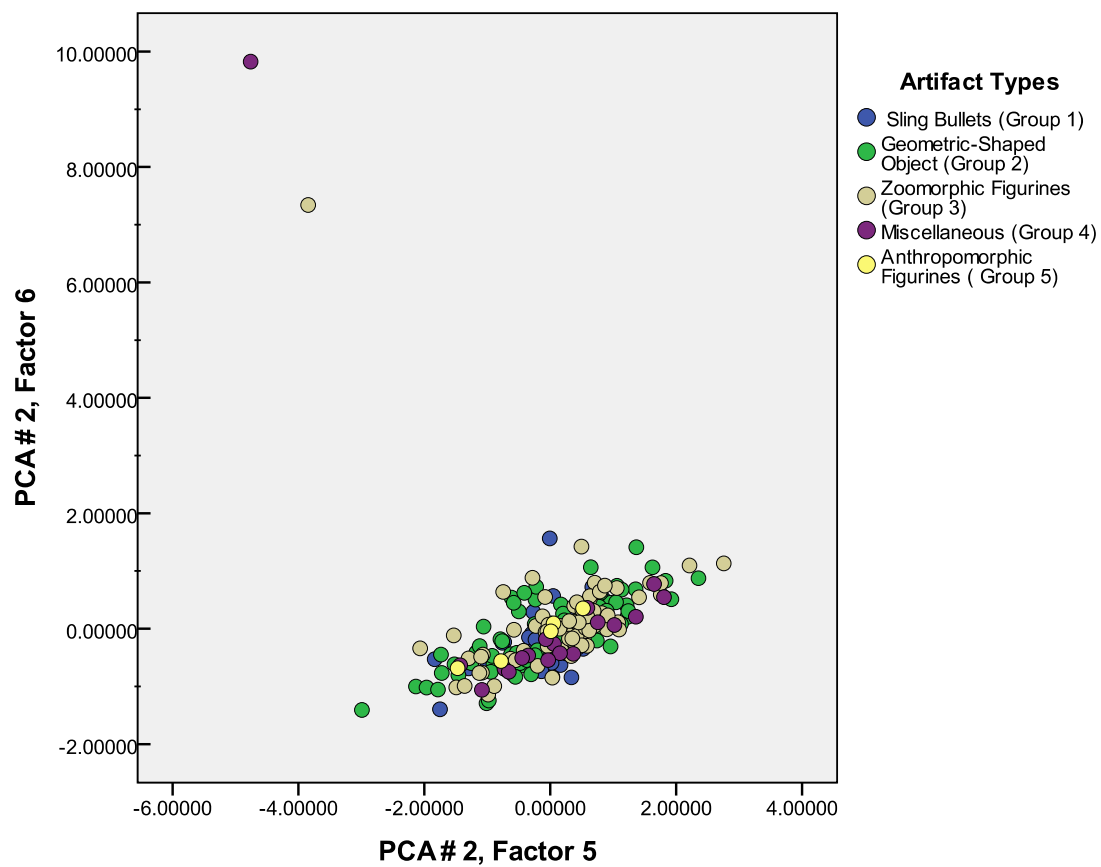


Figure. 6.12 Scatter Plot of the fifth and sixth Principal Components Showing the Grouping of Artifacts

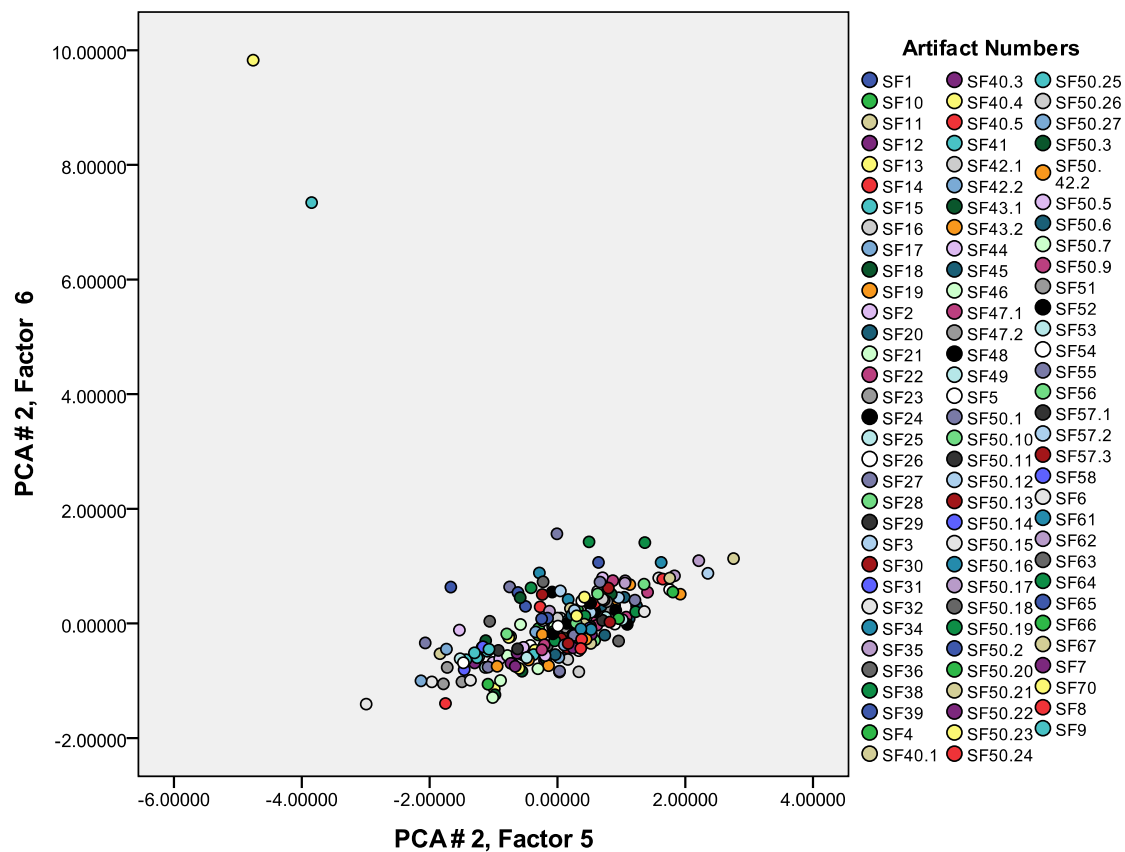


Figure. 6.13 Scatter Plot of the fifth and sixth Principal Components Showing the Numbers of Artifacts

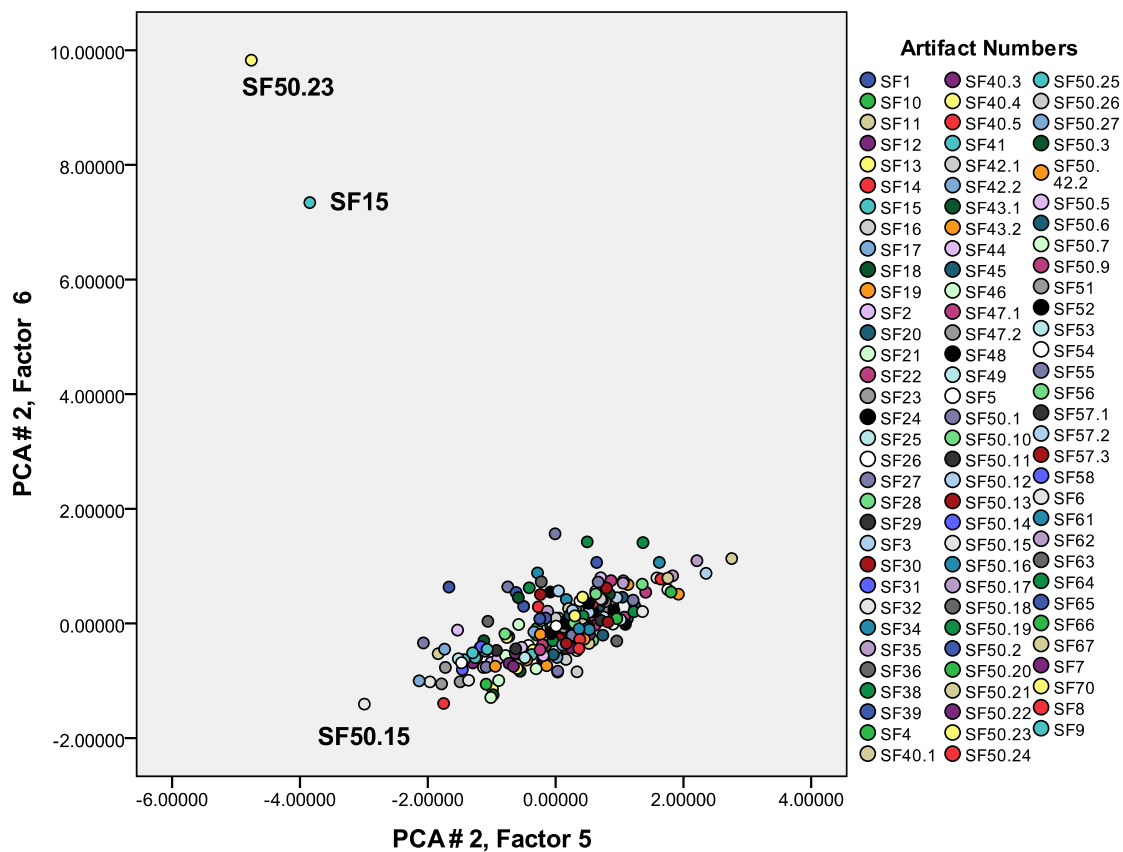


Figure. 6.14 Scatter Plot of the fifth and sixth Principal Components Showing the Numbers of Outliner Artifacts

Table 6.15 Shows the numbers of outliers in the fifth and sixth factors

SF #	Factors 5 and 6
15	Animal Figurine Headless (group 3)
50.15	Sphere-shaped Fragment (group 2)
50.23	Disk-shaped Fragment (group 2)

3. *Summary and Discussion*

Both Groups 1 (sling bullets) and Group 2 (geometric-shaped objects) are separated by Factor 2. Group 1 is more positive and Group 2 is on the negative segment, explained by the high loadings for Manganese (Mn) and Nickel (Ni). To a lesser extent on Factor 2, artifacts from Group 2 are projected on the extreme negative side because of individuals from this group have extreme values for Zinc (Zn). Using the second factor of PCA Group 1 and Group 3 (zoomorphic figurines) are separated along the y-axis. The first factor of the PCA explains 26.79 % of the variations in the sample. In addition, the second factor of the PCA explains 11.18 % of the variations in the sample. The fifth factor of the PCA accounts for 8.77 % of the variations in the sample. The sixth factor of the PCA explains 8.34% of the variations in the sample. Therefore, the first and the second factors are useful in explaining the groups' artifact type. The fifth and sixth factors are useful for showing the differentiation between the individual artifacts.

As a result, it appears that Group 1 may have been derived from various clay sources . Therefore, some of these objects may have been imported to the region, or the clay sources may have arrived from a local area other than Chogha Gavaneh. On the other hand, Group 2 and Group 3 appear to cluster more firmly than Group 1. Group 2 and 3 for the most part appear to overlap with each other. In fact, there is a strong correlation between these two groups based on common composition. In addition, according to Fig 6.1, a small number of Group 3 and an even greater number of Group 2 are scattered along the y-axis; both groups have a few outlying samples. This possibly indicates the differences in the materials of artifacts or different processes that were used in the pro-

duction of these artifacts. However, most of these objects appear to be produced by the local regions or through similar processes.

The X-ray fluorescence (XRF) study provides useful information about the analytical composition of Chogha Gavaneh artifacts. However, it would be helpful, in future studies, to analyze the chemical composition of the ceramic artifacts of Chogha Gavaneh in order to have a comparative result with the small finds. By comparing these artifacts it would allow us to have a better understanding of the identification of clay sources in the collection and allow us to better understand internal variation within clay and temper sources. As such, this study can be broadly applied to the study of interaction and exchange in Chogha Gavaneh as well as in other regions.

Conclusions

Comparative analyses of similar geometric-shaped objects, sling bullets, and zoomorphic figurines excavated at other sites, as well as the (XRF) analysis of the Chogha Gavaneh collection, offer few definitive answers to the ways that past peoples used these objects (Table 6.16). However, these items have been found together in many Near Eastern sites. Both types of objects were found in trash deposits in domestic areas and no objects were found in ceremonial or ritual buildings. In terms of color distribution between the two groups, we can divide them into three main categories in the gray range: heavily burned, partially burned, and unburned.

Differences in size, weight, and shape may indicate different economic values, when used as symbols of economic functions. However, it is important to note that, unlike the geometric objects there are no clear categories in regards to size and weight

among the zoomorphic figurines (Appendix A, Table A2.14). I argue that the shape and weight of these geometric shapes are in fact indicative of their exchange value, whereby a heavier object is considered to have a higher value than one with a lower relative weight. Indeed such an interpretation is difficult to prove archaeologically. However, giving the context in which these were found, their characteristics, the employment of a practice-based theoretical approach, it is an interpretation that I feel is possible and warrants further research.

In my comparative analysis of the Neolithic sites and Chogha Gavaneh, I found a correlation between deposition and modeling techniques in both the zoomorphic figurines and the geometric-shaped objects at the three Neolithic sites. The zoomorphic objects were universally stylized, the geometric-shaped objects had standard set of shapes and all were found in trash deposits. However, this appears to be where the similarities end. Unlike Chogha Gavaneh, the other sites produced mostly anthropomorphic objects. It would be more helpful to compare Chogha Gavaneh's small finds with collections from similar Chalcolithic periods in order to draw broader conclusions about objects during this time period. However, because no literature exists documenting zoomorphic figurines from the Near East during the Chalcolithic Period, I am unable to conduct such a comparative study. In addition to the dating problem, each of these sites may differ in terms of the excavation recovery techniques, sample size, and basic geography. For instance, my sample size resulted from only one test excavation at Chogha Gavaneh. Like other test excavations, my sample resulted from a vertical dig as opposed to a horizontal one, which may have yielded not only a larger sample size, but would have allowed the sample to be viewed within its the broader context.

Table 6.16 Determining Possible Economic Function for Zoomorphic Figurines

Methods	Purpose	Results
Quantitative Analysis	Analysis based on general typography, conditions, measurements, colors and weights.	General Typology: Stylized. Domesticated animals depicted rather than wild. Preservation status: Majority are broken from appendages and at points of structural weakness. Measurements: There are not clear categories in regards to size and weight Color: Majority are gray/blackened.
<i>Chaîne Opératoire</i> approach	Reproduction of figurines to determine the process of figurine production.	No specialized skills required to reproduce the figurines. Time and effort were minimal. Future research need to be carrying out in regards to the firing process of figurines.
Comparison of the Faunal Remains with the Zoomorphic Figurines	To determine if there are any common components or overlapping factors between the figurines and the faunal assemblage.	Final conclusion is that both faunal remains and figurines represent the importance of sheep and goat to local and regional economic and exchange systems.
XRF Analysis	Analysis of elemental concentrations within artifacts.	Appears that the majority of figurines were produced in local regions and through similar processes. Further study required in regards to the comparison the small finds data base with the chemical composition of pottery from Chogha Gavaneh and local regions. Some of the artifacts are outliers from the main group.
Context	Determine primary, secondary or tertiary context of figurines and their association with other archaeological finds.	Deposited with ordinary domestic refuse, either in secondary or tertiary context.
Patterns of Wear and Damage (Voigt 2002: 263)	To determine possible functions as discussed by Voigt (2000:263).	Based on wear patterns and the context of deposition, figurines lack ritualistic meaning such as cult figurines, vehicles of magic and initiation figures. May be toys; however, burn patterns may contradict toy classification.

My findings suggest that there is strong evidence to support the interpretation for the zoomorphic figurines and geometric-shaped objects as items of economic function at Chogha Gavaneh. This is based on the following reasons: First, during the Chalcolithic period Chogha Gavaneh was considered a dominant center of the Plain. Various types of pottery and the substantial diversity of lithic material from Chogha Gavaneh suggest that the population of the area actually traded further into India and southern Mesopotamia than previously believed. In fact, the pottery unearthed was far more diverse than expected, suggesting too that perhaps more trade occurred between the populations far earlier than scholars currently acknowledge (Abdi 2000:299). Therefore, the evidence suggests social and economic interactions between people in the region. Second, archaeological context of some clay figurines in Neolithic Near East documents that geometric-shaped objects have been associated with clay figurines (Wengrow 2003:146). Zoomorphic figurines from Chogha Gavaneh are also associated in the same context as geometrically. Third, it is important to point out that tokens are of both geometric and zoomorphic shapes, and there is no reason to assume that earlier objects, though similar, contain completely unrelated meanings like being magical, ritualistic, or educational. In fact, tokens/symbols of any kind are multivalent and can contain multiple meanings, implicit and explicit. Therefore, economic meanings may go hand in hand with other symbolic meanings (not mutually exclusive). As Keith Hart (2005) states, even money is a vehicle of memory (2005:170). Hart summarizes the idea in this way, “money enables individuals to stabilise their personal identity by holding something durable that embodies the desires and wealth of all members of society” (Hart 2005: 170). These objects appear to be vehicles for information that connect the economic to other facets of human life.

Fourth, based on the XRF analysis, a small number of geometric-shaped objects (Group 2) and zoomorphic figurines (Group 3) appear to be outliers provided from non-local clay sources and entered the community through some type of exchange (Figures. 6.8 and 6.11). This suggests that the objects may have been transported between local regions, such as would be expected of objects of economic function. However, it is possible if these outlier artifacts could be caused by variability in a single clay source, or could have come to the area by people from other regions (such as people visiting relatives at Chogha Gavaneh). Thus, further study is required in regards to the comparison of the small finds database with the chemical composition of pottery from Chogha Gavaneh and the local region. It is my hope that as I continue to focus my studies on prehistoric archaeology from the Near East, I will have access to a much broader sample size and be able to make a more definitive conclusion on the function of these objects, and uncover a broader contextual interpretation for them.

The Future of This Project

In the future, this study can be used for comparisons with studies of figurines from other regions. While the function of prehistoric figurines in most research remains obscure, it is important to expand our study on prehistoric figurines and geometric items based on new observations, theories, and methods (Talalay 1993:xiii). I would like to further study the practical uses for these figurines in addition to the symbolic uses, keeping in mind that symbolism could also be practical.

I am currently a member of the Coroplastic Studies Interest Group (CSIG). The CSIG is sponsored by the Archaeological Institute of America (AIA), and their purpose is to study and discuss archaeological figurines at their annual meetings. Membership in

this group will give me an opportunity to pursue my interest in studying figurines from other regions, and meet other scholars to discuss new perspectives and methods relevant to the study of figurines.

REFERENCES CITED

- Abdi, Kamyar
 2000 Shorter Notices : Islamabad Project 2000. *In* Journal of Persian Studies. Pp. 299-300, Vol. 39. Michigan: Museum of Anthropology, University of Michigan.
 2002 Strategies of Herding: Pastoralism in the Middle Chalcolithic Period of the West Central Zagros Mountains., Ph.D. dissertation, Department of Anthropology, University of Michigan.
 2003 The Early Development of Pastoralism in the Central Zagros Mountains. *Journal of World Prehistory* 17(4):395-448.
- Bailey, Douglass Whitfield
 2005 Prehistoric Figurines: Representation and Corporeality in the Neolithic. New York: Routledge.
 1968 Commercial, industrial and scientific, products of the mineral, vegetable, and animal kingdoms, useful arts and manufactures. *In* The encyclopedia of India and Eastern and Southern Asia. E. Bal four, ed, Vol. 3. Verlagsanstalt: Graz : Akad. Druck.
- Braidwood, Robert J.
 1961 The Iranian Prehistoric Project, 1959-1969. *Iranica Antiqua* 1:3-7.
- Broman, Vivian L.
 1958 Jarmo Figurines, Master's thesis, Radcliffe College. Cambridge.
- Bar-Yosef, Ofer
 1992 The Excavations in Kebara Cave, Mt. Carmel. *Current Anthropology* 33(5):543-550.
- Bonizzoni, L., A. Galli, and M. Milazzo
 2010 XRF Analysis Without Sampling of Etruscan Depurata Pot tery for Provenance Classification: 2010 John Wiley & Sons, Ltd. Electronic document: <http://www.interscience.com> accessed October, 12, 2010
- Brouke, Stephen J.
 2001 The Chalcolithic Period. *In* The Archaeology of Jordan B.A. MacDonald, R. and Bienkowski,P., ed. Pp. 107-163. Sheffield: Sheffield Academic Press.
- Chapman, John
 1991 The Creation of Social Arenas in the Neolithic and Copper Age of SE Europe: The Case of Varna. *In* Sacred and Profane: Proceedings of a Conference on Archaeology, Ritual, and Religion. P. Garwood, Jennings,D.,Skeates,R.G., and Toms,J., ed. Pp. 152-171. Oxford: Oxford University Committee for Archaeology Monograph 32, Institute of Archaeology.
- Cauvin, Jacques
 2000 The Birth of the Gods and the Origins of Agriculture. T. Watkins, transl. Cambridge: Cambridge University Press.
- Chesson, Meredith and Ian Kuijt

- 2005 Lumps of Clay and Pieces of Stone: Ambiguity, Bodies and Identity as Portrayed in Neolithic Figurines. *In* Archaeologies of the Middle East: critical perspectives. Pollock, S. and Bernbeck, R., ed. Pp. 152-183. Oxford: Blackwell Publishing Ltd.
- Cole, Michael, Yrjö Engeström and Olga A. Vasquez, ed.
 1997 Mind, Culture, and Activity: Seminal Papers from the Laboratory of Comparative Human Cognition
 Cambridge, Cambridge University Press
- Craig, Nathan. Robert J. Speakman, Rachel S. Popelka-Filcoff, Michael D. Glascock, J. David Robertson, M. Steven Shackley, and Mark S. Aldenderfer
 2007 Comparison of XRF and PXRF for Analysis of Archaeological Obsidian from Southern Peru. *Journal of Archaeological Science* (34):2012-2024.
- Creighton, Amber
 2004 Çatalhöyük Animal Figurines: Emphasis on Use or Creation? Synopsis of University of Cambridge Master's Thesis in Archaeology. Cambridge: University of Cambridge. Electronic document:
http://www.catalhoyuk.com/archive_reports/2004/ar04_39.html accessed January 23, 2010
- Cresswell, Peter R.
 1976 Avant Propos. *Techniques et Culture* 1:5-6.
- Dobres, Marcia-Anne
 1994 Social Agency and the Dynamics of Prehistoric Technology. *Journal of Archaeological Method and Theory* 1(3):211-258.
- Dohrenwend, Robert E.
 2002 The Sling: Forgotten Firepower of Antiquity. *Journal of Asian Martial Arts* 11(2):28-49.
- Epstein, Claire
 1985 Laden Animal Figurines from the Chalcolithic Period in Palestine. *Bulletin of the American Schools of Oriental Research* 258:53-62.
- Firouz, Eskandar
 2005 The Complete Fauna of Iran. New York: I.B. Tauris & Co Ltd.
- Fogelin, Lars
 2006 The Archaeology of Religious Ritual *In* The Annual Review of Anthropology Pp. 55-71. Electronic document:
<http://www.annualreviews.org/> accessed August 31, 2010.
 2007 The Archaeology of Religious Ritual *In* The Annual Review of Anthropology Pp. 55-71. Electronic document: <http://www.annualreviews.org/> accessed August 31, 2010.
- Garfinkel, Yosef
 1995 Human and Animal Figurines of Munhata: Association Paleorient.
- Gimbutas, Marija
 1982 The Goddesses and Gods of Old Europe: Myths and Cult Images. Berkeley and Los Angeles: University of California Press.
- Goff, Clare L.

- 1966 New Evidence of Cultural Development in Luristan in the Late Second and Early First Millennia, Institute of Archaeology, University of London.
- Goodge, John W.
 2007 Energy-dispersive x-ray analysis system (EDS), Integrating Research and Education, Science Education and Resource Center (SERC) website. Electronic document:
http://serc.carleton.edu/research_education/geochemsheets/eds.html
 accessed August 3, 2010
- Korshunov, V.M
 1994 Ecology of the bearded goat *Capra aegagrus* Erxleben 1777 in Turkmenistan. *Biogeogr. Ecol. Turkmenistan* 72:231-246.
- Ogurlu, Ebubekir Gundogdu and Idris
 2009 The Distribution of Wild Goat *Capra aegagrus* Erxleben 1877 and Population Characteristics in Isparta, Turkey. *Journal of Animal and Veterinary Advances* 8(11):2318-2324.
- Hesse, Brian
 1987 Evidence for Husbandry from the Early Neolithic Site of Ganj Dareh in Western Iran, Columbia University, University Microfilms.
- Hoder, Ian
 1987 Contextual Archaeology: An Interpretation of Çatalhöyük and a Discussion of the Origins of Agriculture. *Bulletin of the Institute of Archaeology* 24:43-56
 1990 *The Domestication of Europe: Structure and Contingency in Neolithic Societies*. Blackwell, Oxford.
- Hodder, Ian and Scott Hutson
 2003 *Reading the Past: Current Approaches to Interpretation in Archaeology* Cambridge: Cambridge University Press.
- Hourmouziadis, George Ch.
 1973 *I Anthropomorphi Idoloplastiki tis Neolithikis Thessalias*. VOLOS.
- Iceland, Harry
 1997 Token Finds at Pre-Pottery Neolithic 'Ain Ghazal, Jordan: A Formal and Technological Analysis. In 'Ain Ghazal Excavation Reports D. Schmandt-Besserat, ed: Published under the direction of Gary O. Rollefson and Zeidan Kafafi. Electronic document:
<http://www.laits.utexas.edu/ghazal/Chap1/chapter1.html> accessed November 9, 2010.
- Lemonnier, Pierre
 1992 *Elements for an Anthropology of Technology* Ann Arbor, Michigan Museum of Anthropology, University of Michigan.
 1993 *Technological Choices: Transformation in Material Culture Since the Neolithic*. London and New York: Routledge.
- Leroi-Gourhan, Andre
 1964 *Le Geste et la Parole, Tome I: Techniques et language*. Paris: Albin Michel.

- Levine, Louis D.
1974 Archaeological Investigations in the Mahidasht, Western Iran. *Paleorient* 2:487-490.
- Mabry, Johnathan
2003 The Birth of the Ancestors: The Meanings of Human Figurines in Near Eastern Neolithic Villages. *In* The Near East in the Southwest: Essays in Honor of William G Dever. Nakhai. B.A., ed. Pp.85-116. Vol.58. Boston: American School of Oriental Research
- Marciniak, Arkadiusz
2005 Placing Animals in the Neolithic: social Zooarchaeology of Prehistoric. Oregon: Cavedish Publishing c/o International Specialized Book Services.
- Mauss, Marcel
1935 Les Techniques Du Corps. *Journal de Psychologie* 32:271-293.
- Mellaart, James
1970 Excavation at Hacilar. 2 vols. Edinburgh: Published for British Institute of Archaeology at Ankara No.9. Edinburgh University Press.
- Meskel, Lynn and Carolyn Nakamura
2009 Articulate Bodies: Forms and Figures at Çatalhöyük. *Journal of Archaeological Method and Theory* 16(3):205-230.
- Morales, Vivian Broman
1990 Figurines and Other Clay Objects from Sarab and Cayonu. Chicago: The Oriental Institute of the University of Chicago.
- Hamiltona, Naomi
1996 Can We Interpret Figurines? *Cambridge Archaeological Journal* 6:281-307.
- Humphreys, P.N. and E. Kahrom,
1995 The Lion and the Gazelle: The Mammals and Birds of Iran. Nr. Abergavenny, Gwent, U.K.: Comma International Biological System.
- Perlès, Catherine
2001 The early Neolithic in Greece: the first farming communities in Europe Cambridge University Press.
- Peterson, Ivars
1988 Tokens of Plenty. *Science News* 134(26/27):408-410.
- Reichel, Clemens D.
2005 Hamoukar. Pp. 65-77: University of Chicago. Electronic document: http://oi.uchicago.edu/pdf/05-06_Hamoukar.pdf accessed September 9, 2010.
- Renfrew, Colin and, Paul Bahn
2004 Archaeology. London: Thames & Hudson Inc.
- Redding, Richard
2002 Faunal Remains. *In* Strategies of Herding: Pastoralism in the Middle Chalcolithic Period of the West Central Zagros Mountains. K. Abdi, ed. Pp. 235-249. Michigan: Department of Anthropology, University of Michigan.
- Rollefson, Gray. O.

- 1983 Ritual and Ceremony at Neolithic Ain Ghazal (Jordan). *Paleorient* 9(2):29-38.
- 1986 Neolithic 'Ain Ghazal (Jordan): Ritual and Ceremony II. *Paleorient* Rowan, Yorke M. and Jonathan Golden
- 2008 Charming Lives: Human and Animal Figurines in the Late Epipaleolithic and Early Neolithic Periods in the Greater Levant and Eastern Anatolia. *In* The Neolithic Demographic Transition and its Consequences. Bocquet-Appel, J-P., and Bar-Yosef, O., ed: Springer Science and Business Media B.V.
- Rowan, Yorke M. and Jonathan Golden
- 2009 The Chalcolithic Period of the Southern Levant: A Synthetic Review. *Journal of World Prehistory* 22:1-92. 12(1):45-52.
- Rosenberg, Michael
- 1988 Paleolithic Settlement Patterns in the Marv Dasht, Fars Province, Iran, Department of Anthropology, University of Pennsylvania.
- Rossel, Stine, Fiona Marshall, Joris Peters, Tom Pilgram, Matthew D. Adams, and David O'Connor
- 2008 Domestication of the Donkey: Timing, Processes, and Indicators. *The National Academy of Sciences of the USA* 105(10):3715-3720.
- Rice, Prudence M.
- 2005 Pottery Analysis: A Sourcebook. Chicago: University of Chicago Press.
- Schmandt-Besserat, Denise
- 1992 How Writing Came About. Austin, TX: University of Texas.
- 1997 Animal Symbols at 'Ain Ghazal. *Expedition*. 39(1):50-57.
- 1998 The Earliest Precursor of Writing. *Scientific American* 238(6): 37-47.
- Shackley, M. Steven
- 2010 X-Ray Fluorescence Spectrometry (Xrf) in Geoarchaeology. New York: Springer New York Dordrecht Heidelberg London.
- Simmons, Alan H.
- 2006 The Neolithic Revolution in the Near East: Transforming the Human Landscape. Tucson: The University of Arizona Press.
- Smith, Philip E.L.
- 1976 Reflections on Four Seasons of Excavations at Tappeh Ganj Dareh. *In* Proceedings of the 4th Annual Symposium on Archaeological Research in Iran. F. Bagherzadeh, ed. Pp. 11-22. Tehran: Iranian Center for Archaeological Research.
- Sumner, William M.
- 1972 Cultural Development in the Kur River Basin, Iran: An Archaeological Analysis of Settlement Patterns., Department of Anthropology, University of Pennsylvania.
- Stein, Aurel
- 1940 Old Routes of Western Iran. London: MacMillan & Co.
- Talalay, Lauren E.

- 1993 Deities, Dolls, and Devices: Neolithic Figurines from Franchthi Cave, Greece. Excavations at Franchthi Cave, Greece, Fascicle 9. Bloomington and Indianapolis: Indiana University Press.
- Thrane, Henrik., J. Meldgaard, and P.Mortensen
 1964 Excavation at Tepe Guran, Luristan. The Danish Archaeological Expedition to Iran, 1963. *Acta Archaeologica* 34:97-133.
- Ucko, Peter J.
 1962 The Interpretation of Prehistoric Anthropomorphic Figurines. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland* 92(1):38-54.
- Uhlir, M Melcher, B Czurda-Ruth, M Schreiner, F Krinzinger
 2006 Scientific Investigations on Ancient Glasses from Hanghaus I in Ephesos/Turkey using SEM/EDX and μ -XRF. Proceedings of 36th International Symposium on Archaeometry (ISA), Quebec City, Canada. Electronic document:
<http://www.fch.akbild.ac.at/PDFs/EphesosArchaeometry.pdf> accessed September, 15, 2010
- Vanden Berghe, Louis
 1984 Propections et Fouilles au Pusht-i- Kuh, Luristan. *Archiv für Orientforschung* 31:200-209.
- Voigt, Mary M.
 2000 Çatalhöyük in Context: Ritual at Early Neolithic Sites in Central and Eastern Turkey *In* Life in Neolithic Farming Communities - Social Organization, Identity, and Differentiation I. Kuijt, ed. Pp. 235-293. New York:Springer.
- Weinberg, p.
 2001 On the Status and Biology of the Wild Goat in Daghestan (Russia). *Ibex, J.Mt.Ecol* 6:31-40.
- Wengrow, David
 2003 Interpreting Animal Art in the Prehistoric Near East. *In* Culture through Objects. T.a.R. Potts, M and Stein, D, ed. Pp. 139-160. Oxford: Griffith Institute.
- Zeder, Melinda A., Daniel G. Bradley, Eve Emshwiller, Bruce D. Smith ed.
 2006 Documenting Domestication: New Genetic and Archaeological Paradigms. Berkeley and Los Angeles: University of California Press.
- Zhu, Jiping., Jie Shana, Ping Qiua, Ying Qina, Changsui Wanga, Deliang Heb, Bo Sunb, Peihua Tongb, and Shuangcheng Wub
 2004 The Multivariate Statistical Analysis and XRD Analysis of Pottery at Xigongqiao Site. *Journal of Archaeological Science* 31(12):1685-1691.

APPENDIX A: SMALL FINDS MEASUREMENTS

Note: Measurements given are the maximum height, width and thickness for each animal figurine in different areas such as horns, torso, rear, and front.

Table A.1 Locations of Measurements for Each Animal Figurine

SF	Animal Height with, No Horns Front (cm)	Animal Height with, Horns (cm)	Animal Length (cm)	Animal Leg Width, for Intact Figurines	Animal Torso, Height (cm)	Animal Height, Rear (cm)	Animal with, Front (cm)	Animal Torso with, Rear (cm)	Animal Horns, Height (cm)	Animal Horns, Width (cm)	Animal horns, length (cm)	Animal Weight (g.)
SF4		3.26			1.29	1.79		1.36				10.7
SF11	3.69	4.15	4.47	1.71	1.67	2.03	1.69	1.89		0.76		17.9
SF12	3.36	3.8	3.73	1.8	1.84	2.24	1.52	1.74		0.6		17.8
SF13	2.35	2.35	2.33		1.06	1.23	0.85	0.66				7.7
SF14									3.01	1.41	4.43	18.3
SF15			3.21	1.2	1.04		1.71	1.12				4.2
SF16	2.58		3.73	1.58	2.03	2.2	1.64	1.8				20.6
SF17	2.39	2.79	2.55	1.08	1.06	1.68		1.28	0.84	0.79	1.13	4.9
SF18	3.56		3.95		1.68	2.01		1.6				14.9
SF19	3.01	2.53		1.44	1.72		1.15		0.42	0.49		5.7
SF20	2.02	2.63	2.7	1.2	1.36	1.29	1.24	1.12				7.7
SF21	1.52	1.54	1.77	1.01	0.91	0.98	0.76	1.04		0.39		2.2
SF22						1.69		1.18				4.1
SF23	2.86		2.83	0.98	1.19	1.83	0.92	1.2				2.86
SF24			3.95		1.68			1.49				13.1
SF26			3.36		1.41	1.52	1.83	1.37				6.7
SF27									0.61	0.48	0.61	1.2
SF28									2.69	1.51	2.9	3.7
SF29										0.91	2.72	1.4
SF30									2.04	0.93	2.42	3
SF31										1.19		1.9
SF34										0.75	1.94	1.2
SF35									2.51	0.82		1.2
SF41				1.74	1.88	2.53		1.68				15.1
SF44	2.63		4.23	1.05	2.08	2.5	0.97	1.13				14.1
SF45									2.45	1.3		2.1
SF46									1.75	0.78		0.5
SF51												5.5
SF54				1.63								4.6
SF62	2.9		3.5	1.2	1.54	1.69	1.43	1.54				12.1
SF64	2.47		3.6	1.61	1.4	1.94	1.45	1.2				10.1
SF66									1.92	1.12		1.8
SF67										0.53		0.32
SF70										0.94		1.2

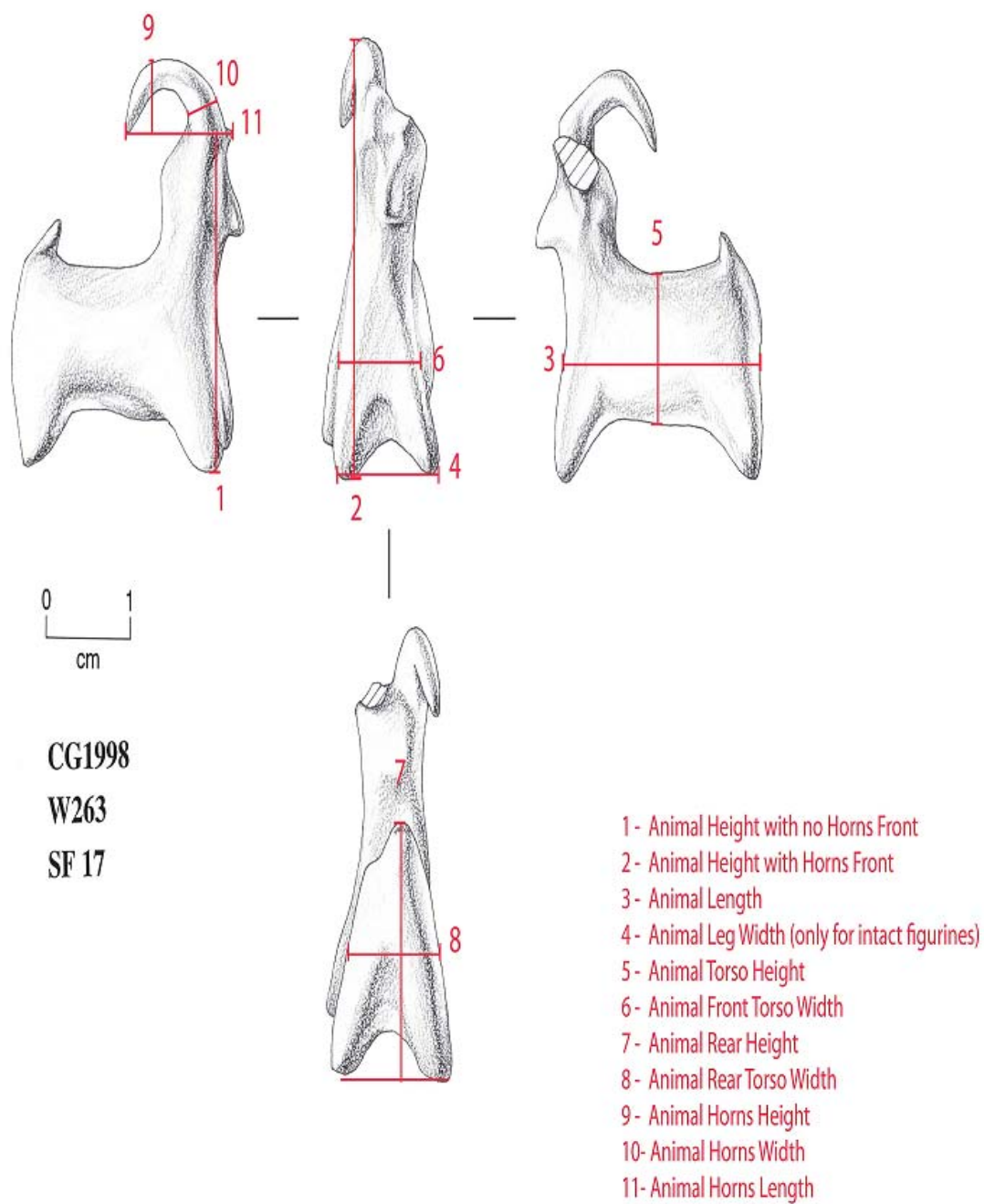


Figure A.1 Locations of the Measurements taken in Each Area of the Figurine

Table A.2 Measurements of the Front of Animal Figurines Without Horns (Figure A.1 #1)

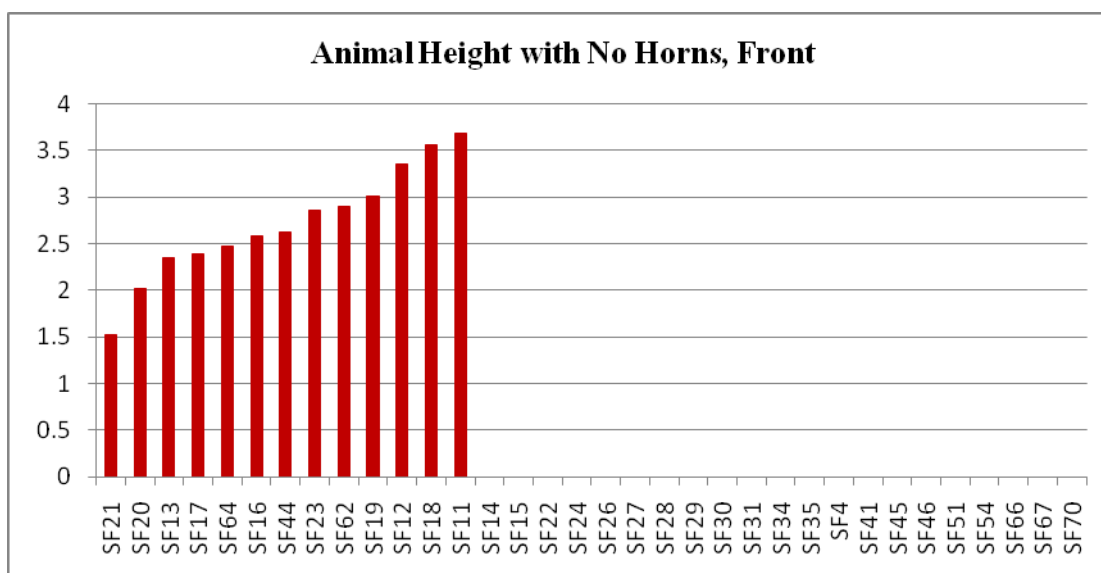


Table A.3 Measurements of the Height of Animal Figurine with Horns (Figure A.1#2)

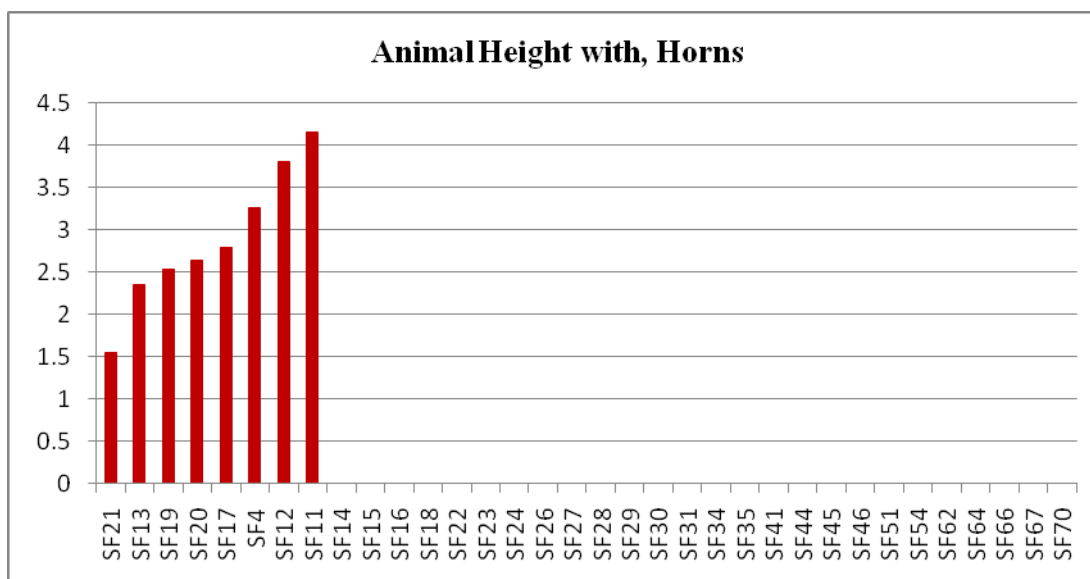


Table A.4 Measurements of the Length of Animal Figurine (Figure A.1#3)

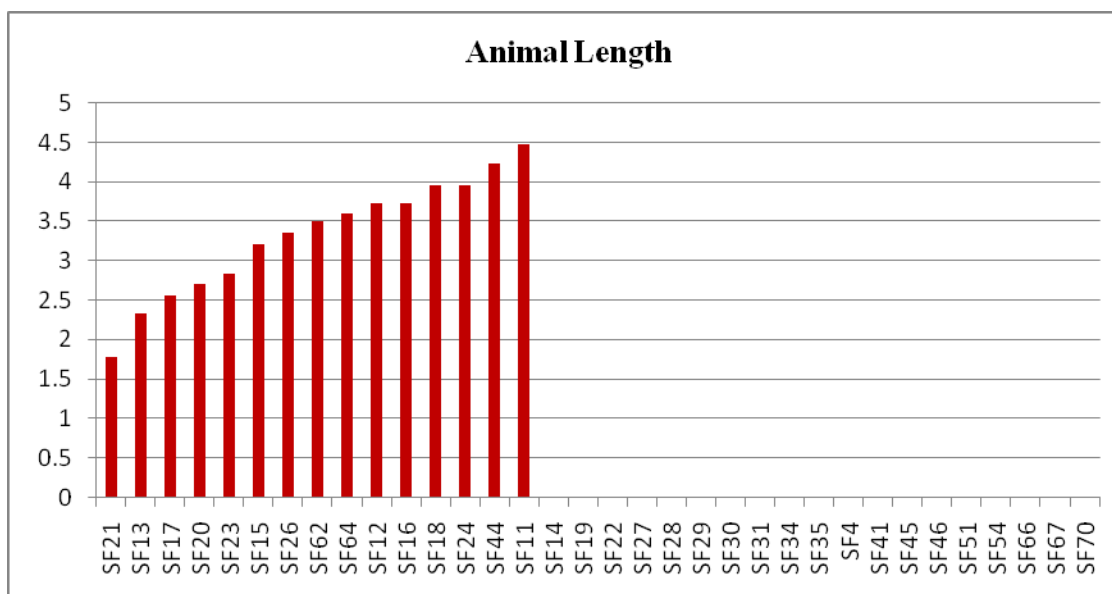


Table A.5 Measurements of the Leg Width of Intact Animal Figurine (Figure A.1#4)

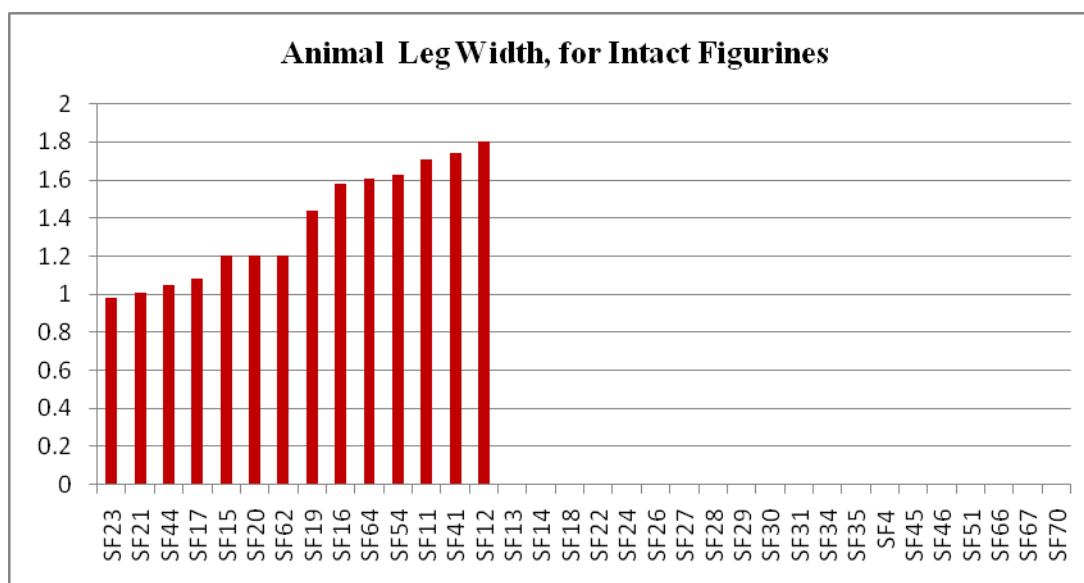


Table A.6 Measurements of the Torso, Height of Animal Figurine (Figure A.1#5)

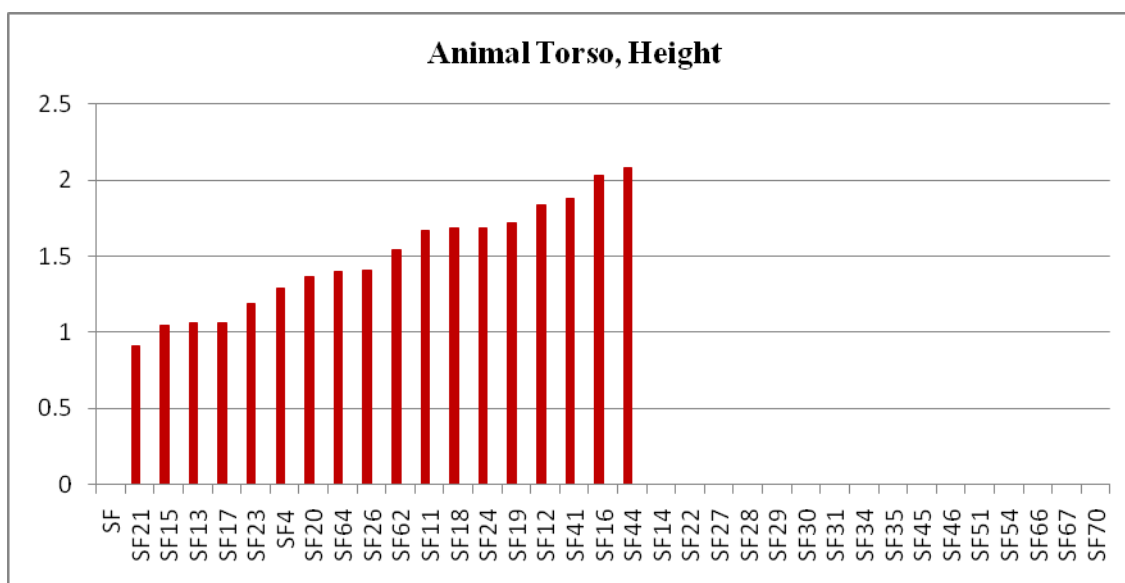


Table A.7 Measurements of the Rear, Height of Animal Figurine (Figure A.1#6)

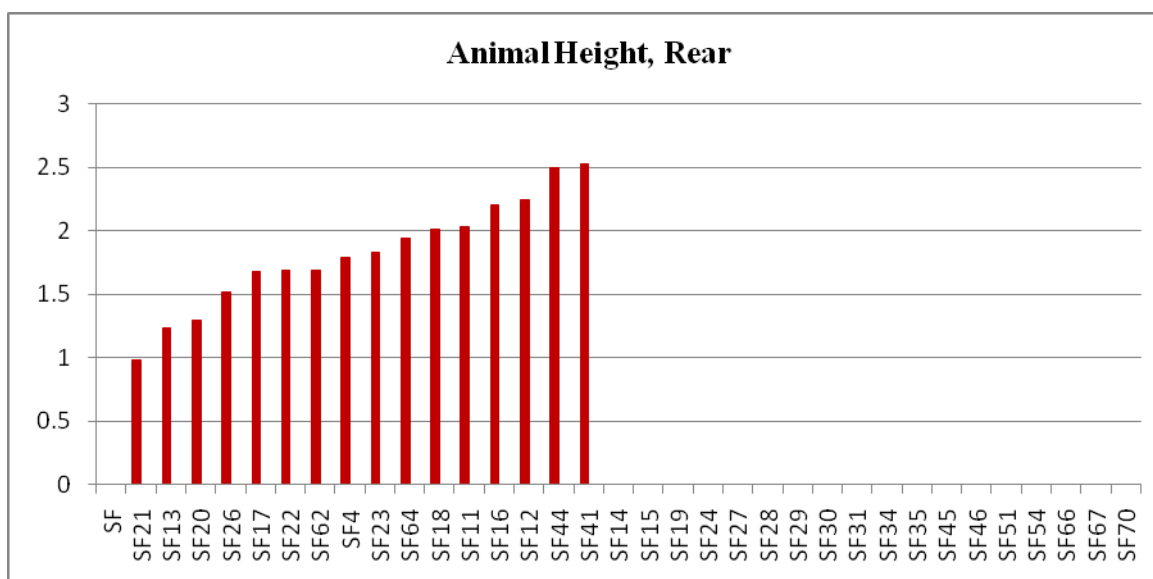


Table A.8 Measurements of Front, Width of Animal Figurine (Figure A.1#7)

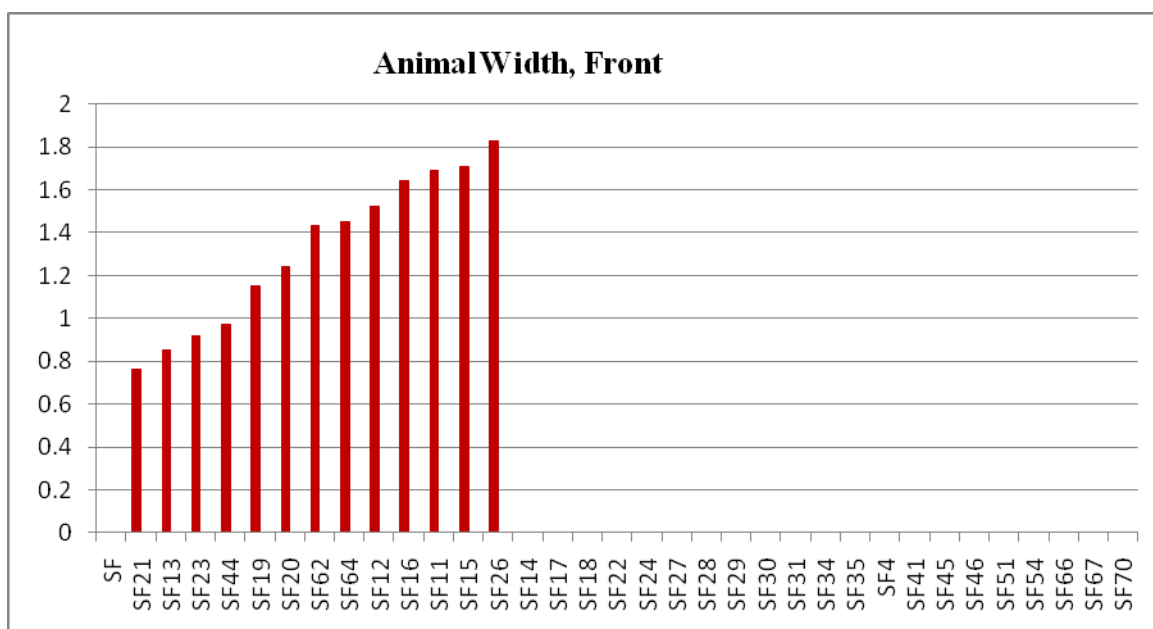


Table A.9 Measurements of Torso, Rear, Width of Animal Figurine (Figure A.1#8)

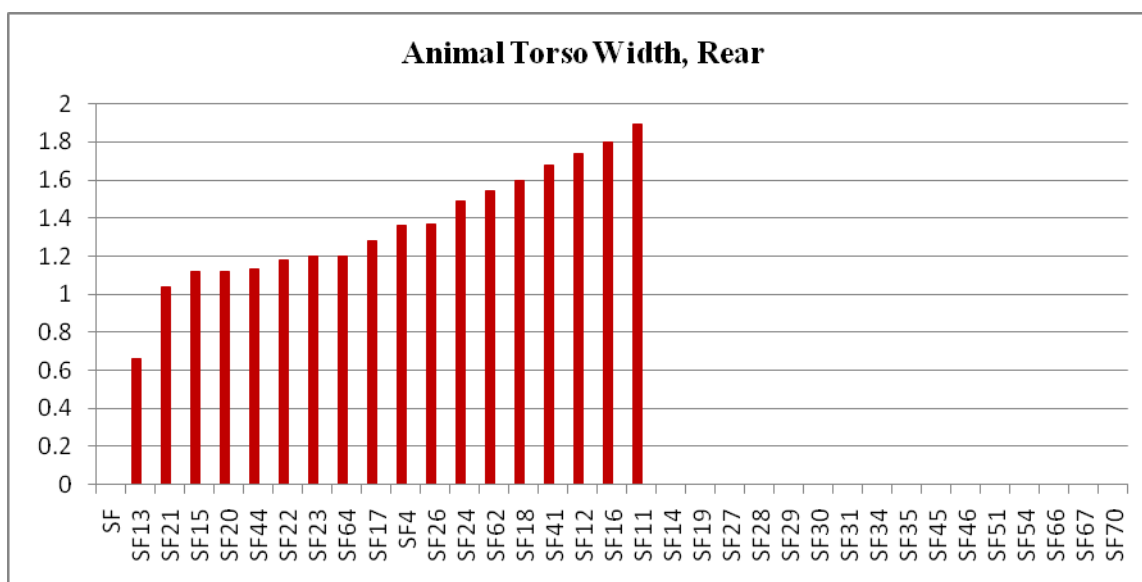


Table A.10 Measurements of the Horns, Height of Animal Figurine (FigureA.1#9)

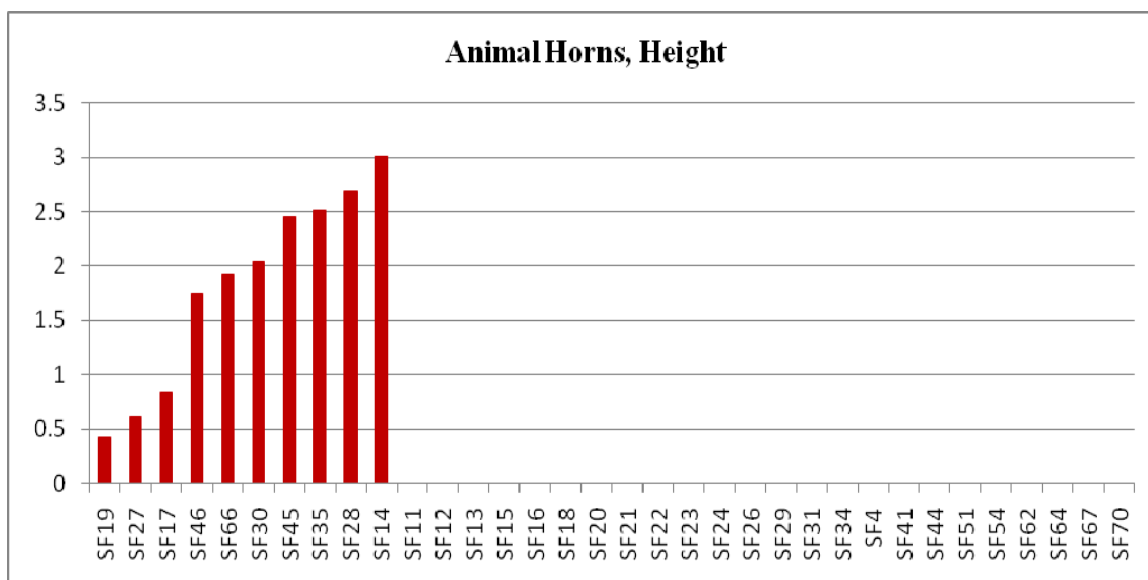


Table A.11 Measurements of the Horns, Width of Animal Figurine (Figure A.1#10)

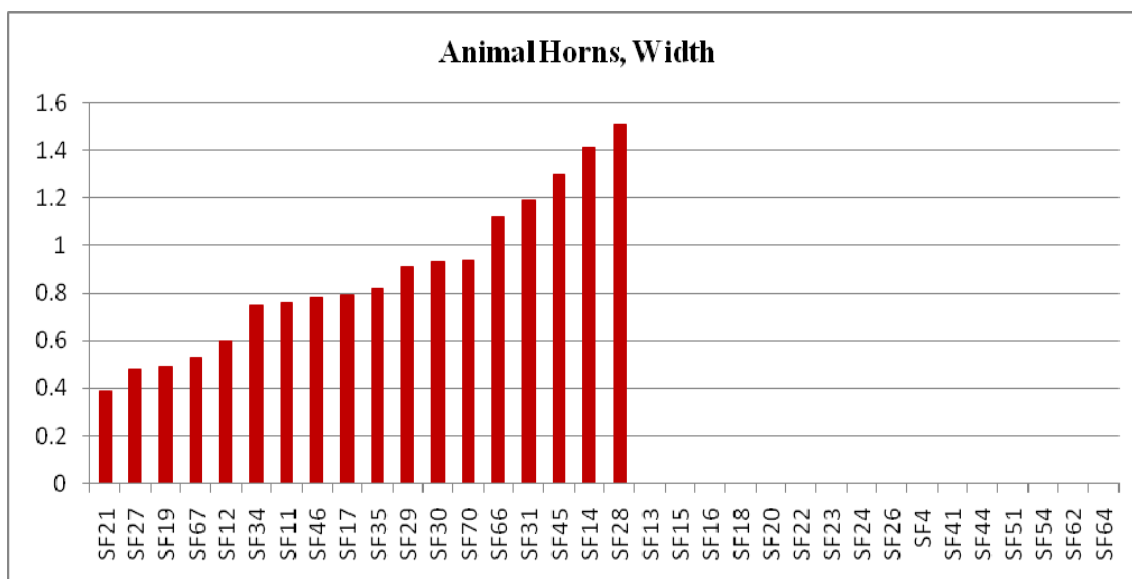


Table A.12 Measurements of the Horns, Lenght Animal Figurine (Figure A.1#11)

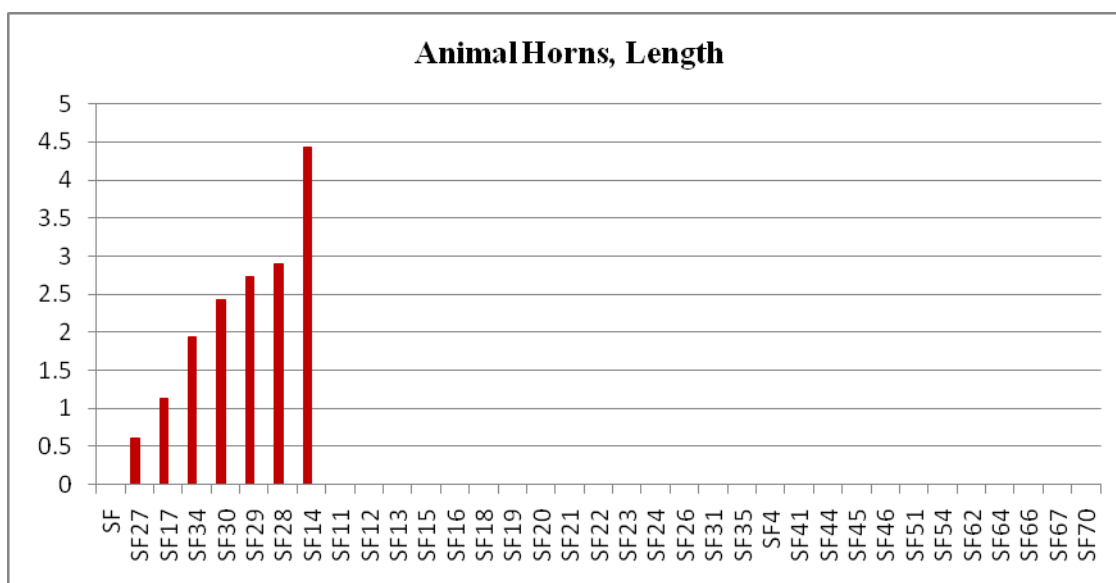


Table A.13 Measurements of the Animal Figurines, Weight (Figure A.1#11)

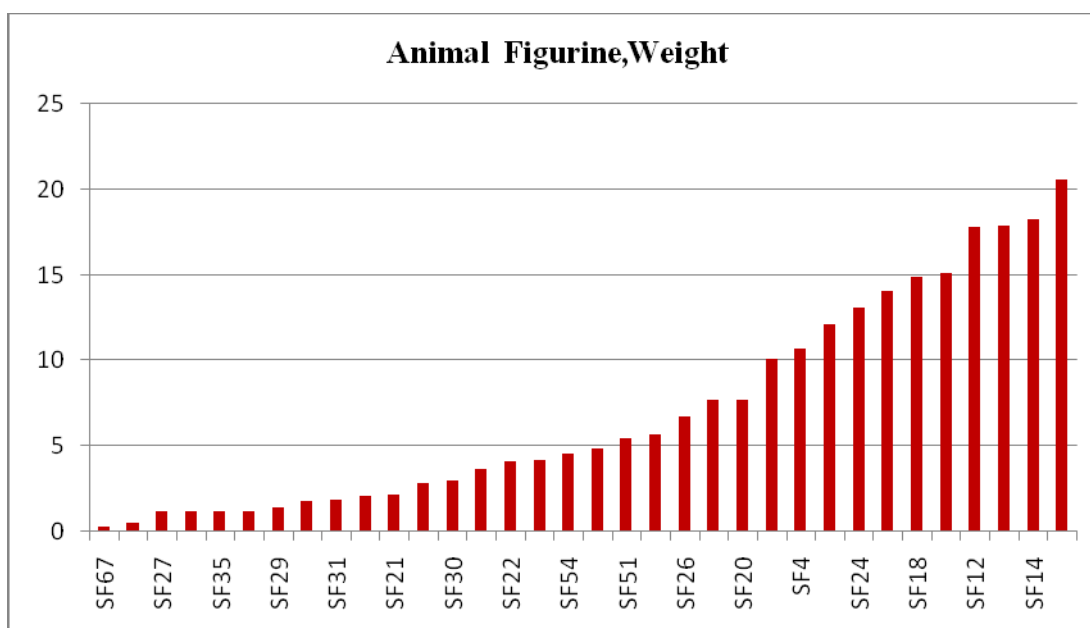
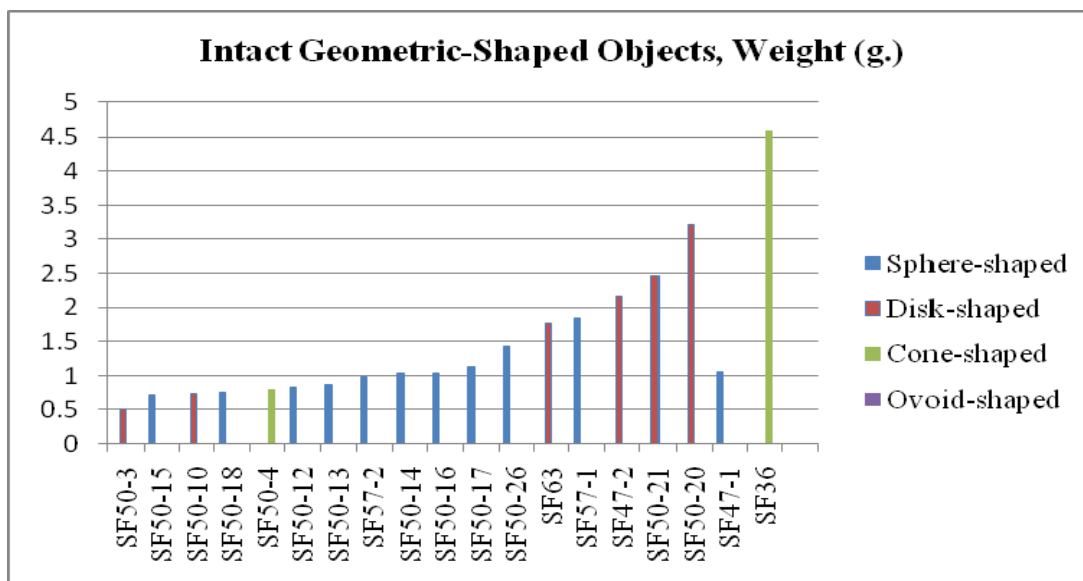


Table A.14 Weight of the Intact Geometric-Shaped Objects (Figure A.1#11)



APPENDIX B: QUANTITATIVE AND QUALITATIVE ANALYSIS OF SMALL FINDS

Note: Measurements given are the maximum height, width and thickness for each animal figurine in different areas such as horns, torso, rear, and front. All the drawings were provided by Dr. Kamyar Abdi.

Chogha Gavaneh Small Finds

Number SF1

Object Sling Bullet

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-V

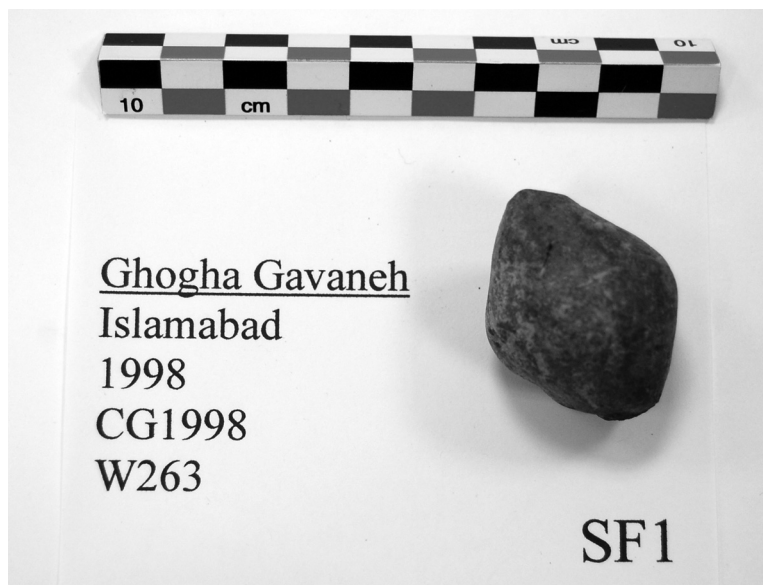
Level D: 205 E: 40 N: 5 cm

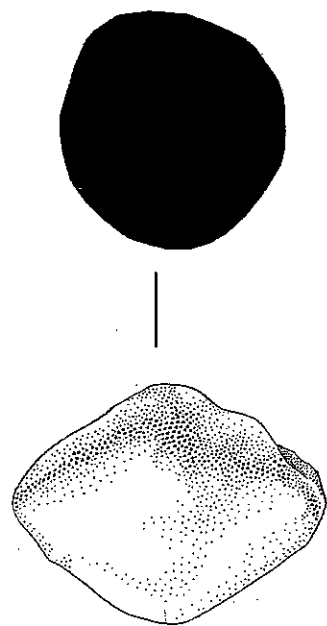
Length 3.74 cm

Weight 27.8 g.

Color Interior: 10YR5/3 (brown)
Exterior: 10YR4/1 (dark gray)

Description An egg-shaped clay sling bullet with one side slightly chipped. The chipping has exposed a substrate of brownish color while the remaining surface of the bullet is a light grayish-brown with pale tan flecks. A yellowish-brown discoloration also mottles much of its surface.





0 1
cm

CG1998

W263

SF 1

Chogha Gavaneh Small Finds

Number SF2

Object Cone-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-N/A

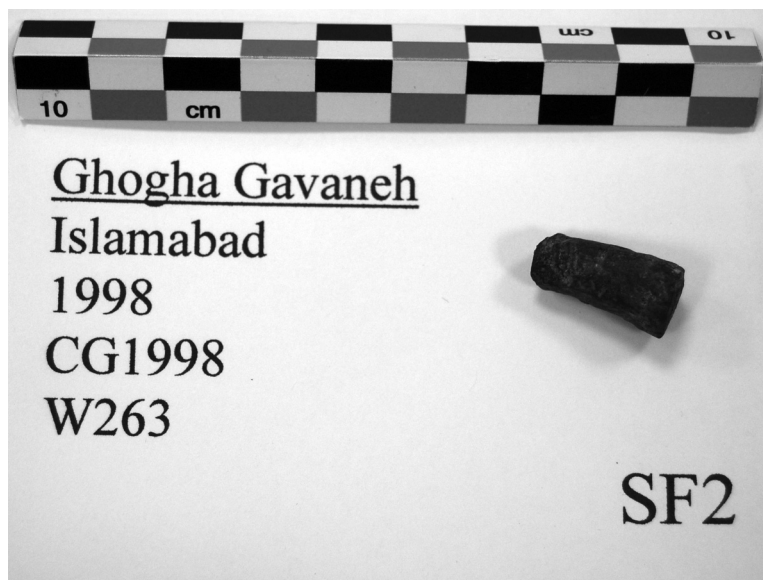
Level D:254 E: 40 N:10 cm

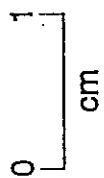
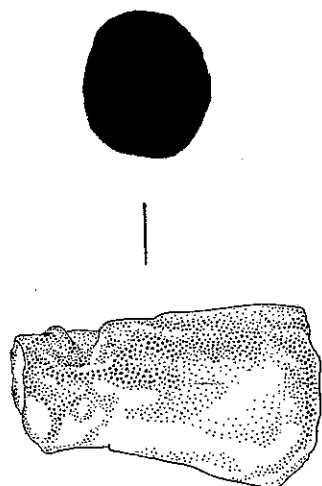
Length 1.99 cm

Weight 2.2 g.

Color 7.5YR4/1 (dark gray)

Description An elongated, conical object with possible indentations from a fingernail on one side and, toward the narrower end, a small crack. Another small crack extends across the width near its middle. Its color is slightly brownish-gray. Tan flecks specked it due to erosion.





CG1998

W263

SF 2

Chogha Gavaneh Small Finds

Number SF3

Object Sling Bullet

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

Level D. 133 cm

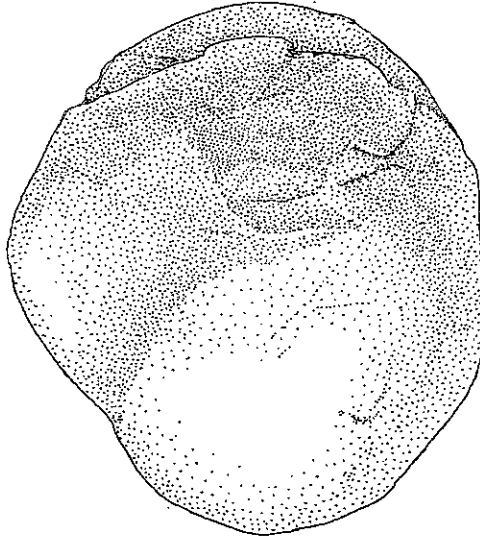
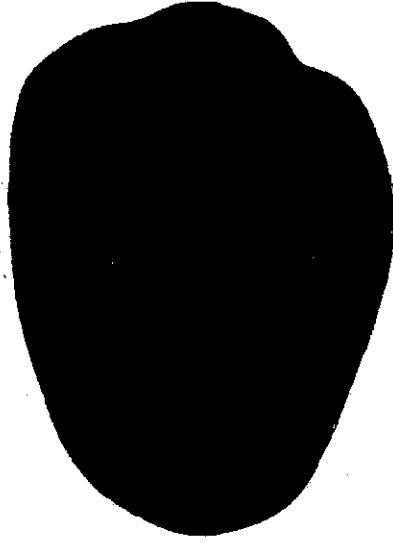
Length 3.16 cm

Weight 20.8 g.

Color 10YR5/1 (gray)

Description A clay sling bullet with a large portion of one end broken off. A large portion of one side has broken off and has been reattached with glue. Most of the surface is of a medium gray color with tan flecks due to wear. One side is darker in color, most likely due to exposure to high temperatures.





CG1998
W263
SF 3

Chogha Gavaneh Small Finds

Number SF4

Object Animal Figurine
Headless

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

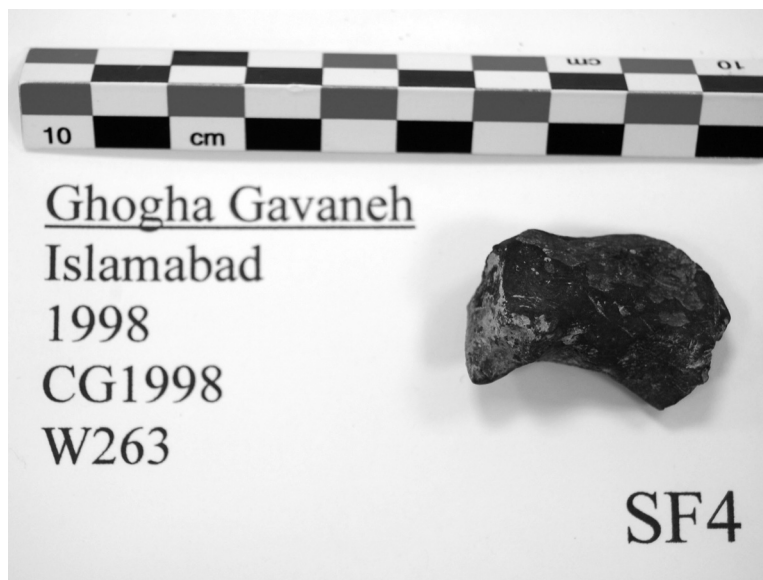
Level D: 247 E: 50 N: 10 cm

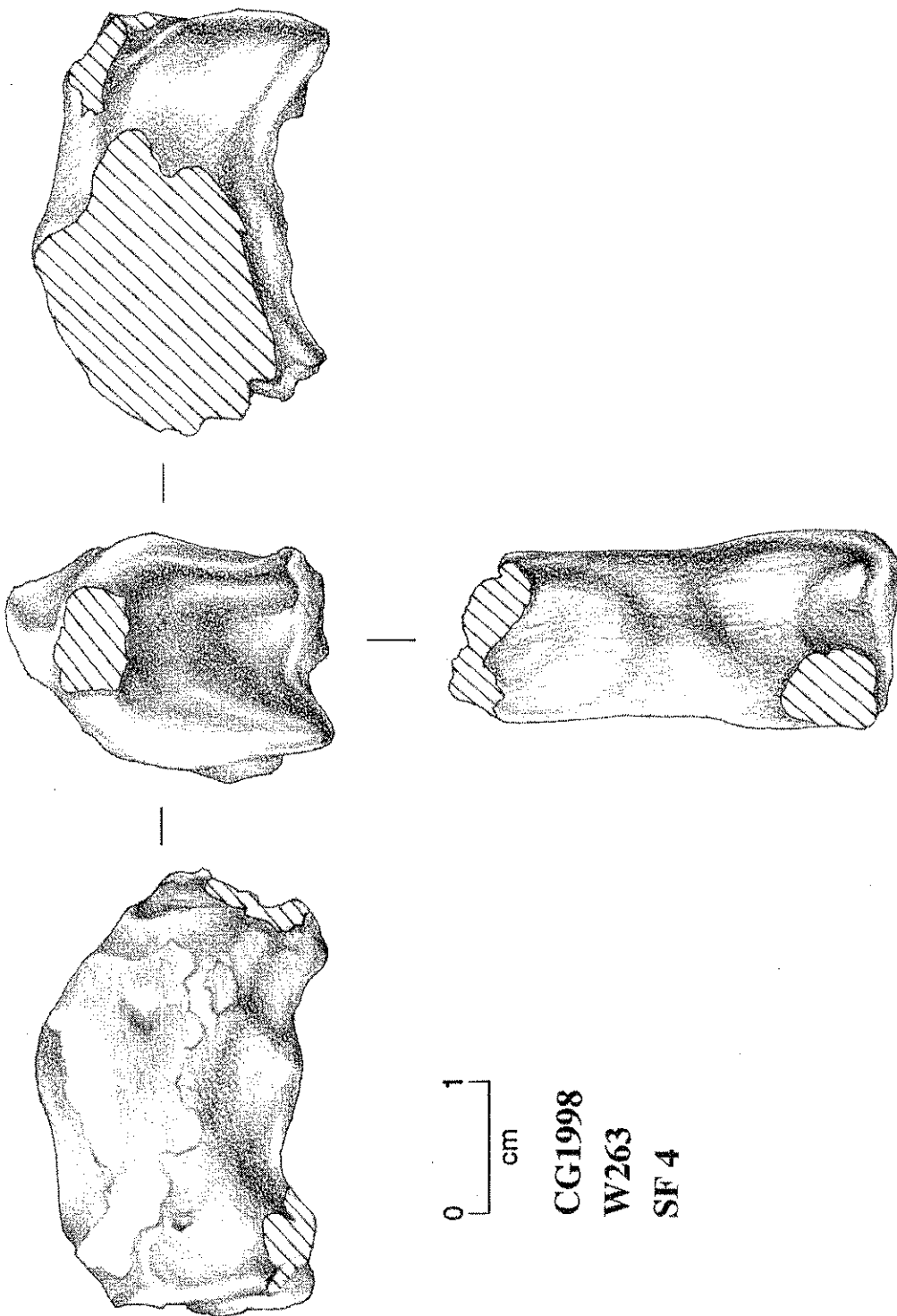
Length 3.26 cm

Weight 10.7 g.

Color GLEY13/N (very dark gray)

Description This figure has had its tail, head, and shoulders chipped off. It is a dark gray clay animal figurine. Certain parts, especially the areas exposed due to chipping, have a yellowish-green discoloration. Fingerprint marks are evident all over the figure. This could represent a cattle figurine due to the spinal ridge on the back of the figurine.





0 1
cm

CG1998

W263

SF 4

Chogha Gavaneh Small Finds

Number SF5

Object Animal Figurine,
Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

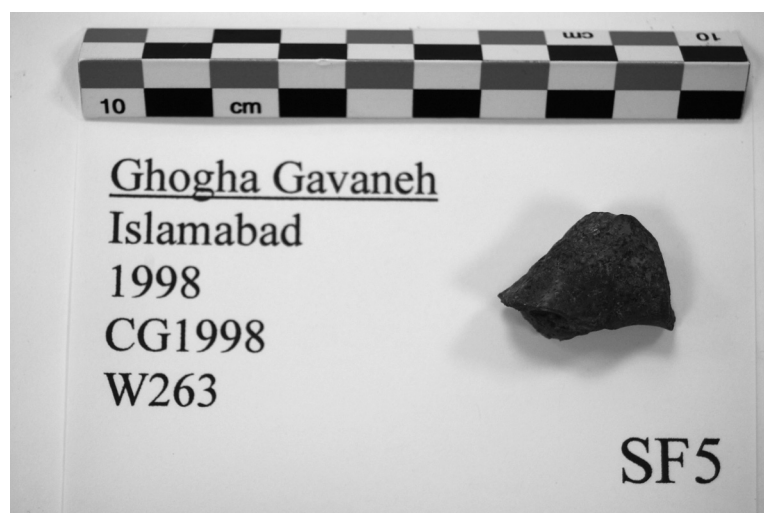
Level D: 261 W: 69 N: 25 cm

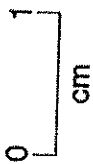
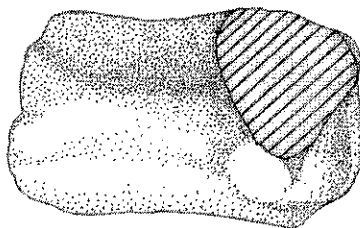
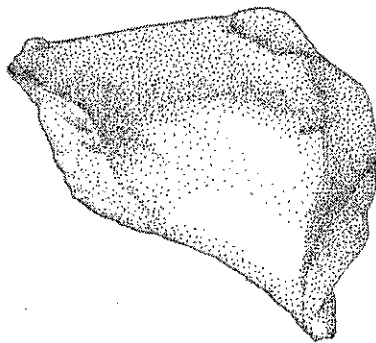
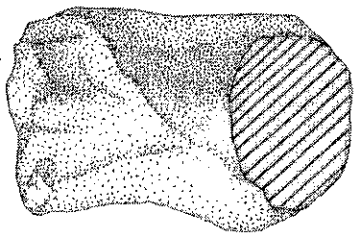
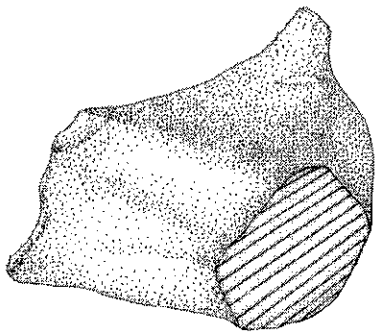
Length 2.32 cm

Weight 5.9 g.

Color 10YR5/2 (grayish brown)

Description The fragment consists of a large portion of the torso/body of an animal. Other identifiable parts (e.g., head, legs) have been broken off. The object generally has a grayish-brown color; there are, however, lighter flecks due to wear. Some of the areas that have been exposed are particularly light in color—a very light yellow.





CG1998

W263

SF 5

Chogha Gavaneh Small Finds

Number SF6

Object Miscellaneous

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

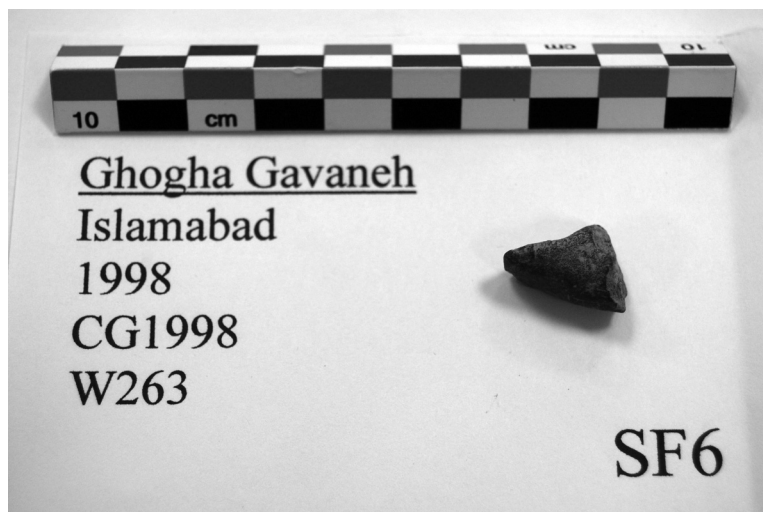
Level D: 270 E: 40 N: 35 cm

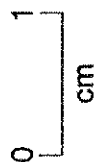
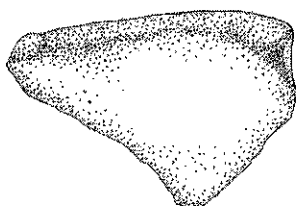
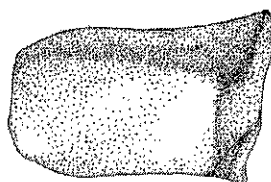
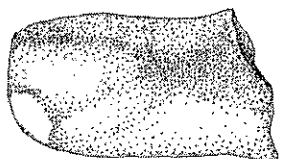
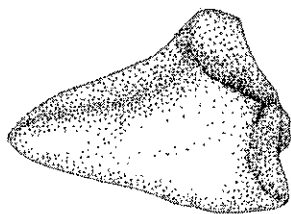
Length 1.86 cm

Weight 1.8 g.

Color 2.5Y5/1 (gray)

Description This small wedge-shaped figurine fragment is broken off at the wider side. There is also a tiny piece chipped off from the tip of the narrower side. There are no obvious features that would pinpoint what part of a figurine this would be. The color is gray, with light tan flecks due to wear; the area exposed due to the breakage is especially light yellow.





CG1998
W263
SF 6

Chogha Gavaneh Small Finds

Number SF7

Object Miscellaneous

Material Clay

State of Preservation Intact, significantly roughed up all over, with no clear breakages

Excavation Unit W263-VIII

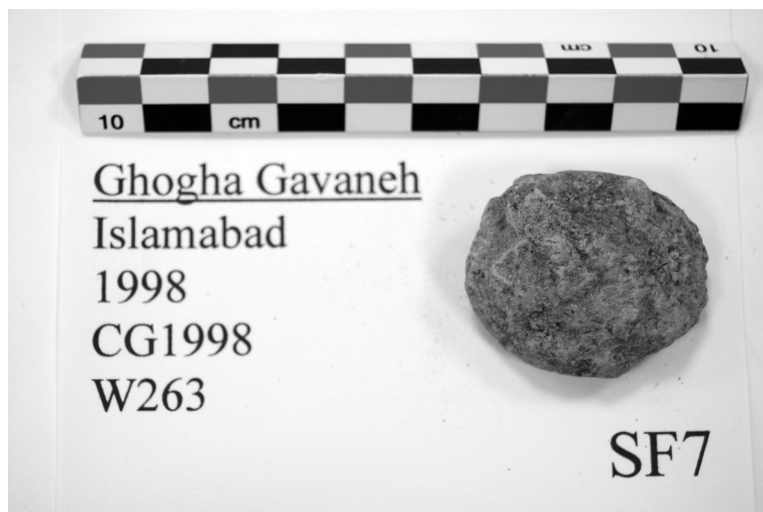
Level D: 250 E: 80 N: 35 cm

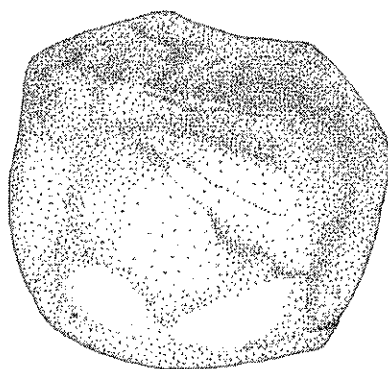
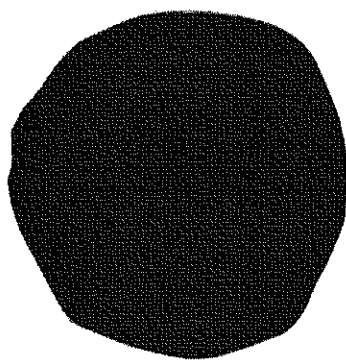
Length 3.64 cm

Weight 13.1 g.

Color 2.5YR6/4 (light reddish brown)

Description Somewhat oval in outline but more disk-shaped, this object has marks, or indentations, all over its surface which could be intentional or due to wear. It is barnacle-like and small chunks of dust cling to the surface in patches. The color is light: a combination of pale brown, gray, and pink covering over half its surface. But, this color fades into a yellowish-brown streak that runs around the equator of the ball. Below that, the surface is dominated by a dark gray color brought on by high temperatures.

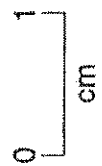




CG1998

W263

SF 7



Chogha Gavaneh Small Finds

Number SF8

Object Animal Figurine,
Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

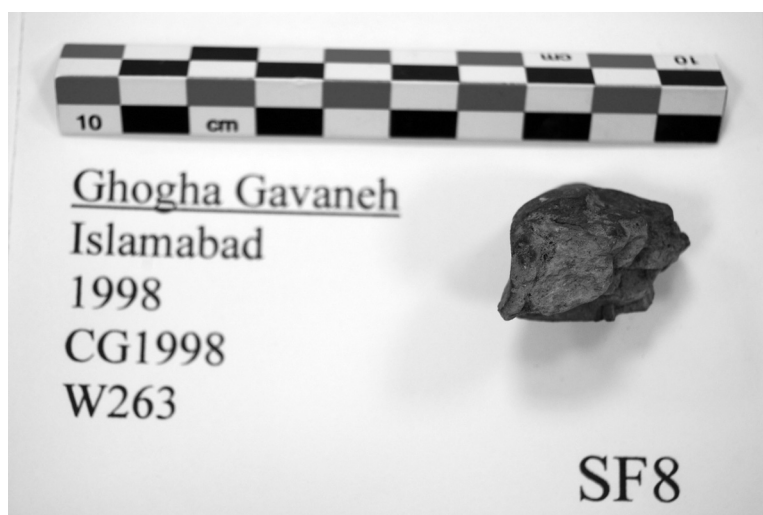
Level D: 290 E:10 N: 18 cm

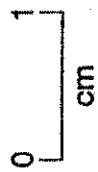
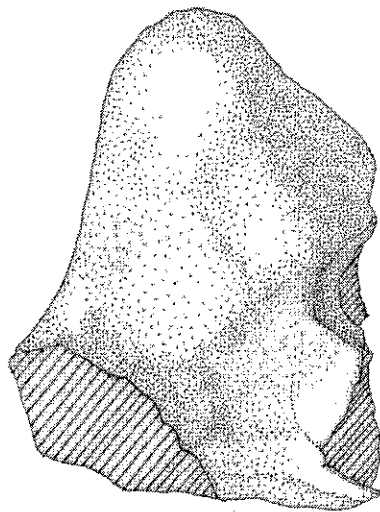
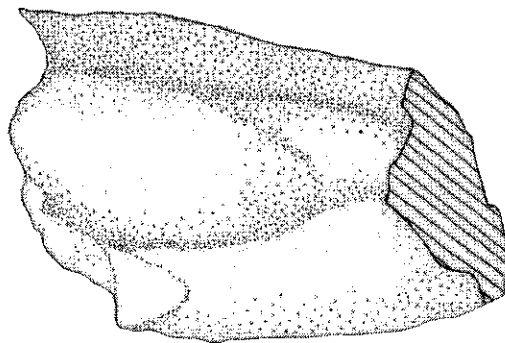
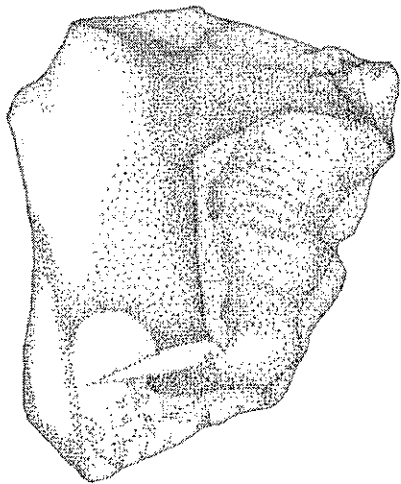
Length 2.94 cm

Weight 13.7 g.

Color 5Y4/1 (dark gray)

Description Most of the body of this object is missing, including its midsection, hindquarters, feet, and head. The fragment is broken into two parts and has no legs. It is a dark gray clay body of an animal figurine and has tan flecks from wear. The areas exposed due to breakage are particularly light, reddish-hued tan. One side of the torso has a fairly large but shallow concave shape.





CG1998

W263

SF 8

Chogha Gavaneh Small Finds

Number SF9

Object Sling Bullet

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-IX

Level D: 340 E: 75 N: 0 cm

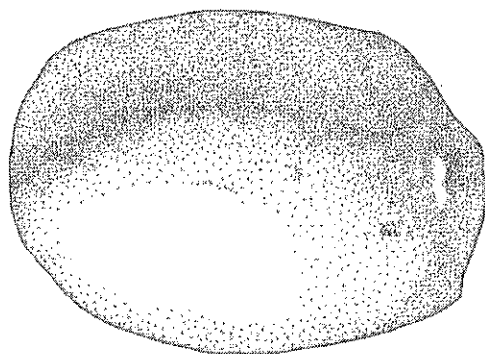
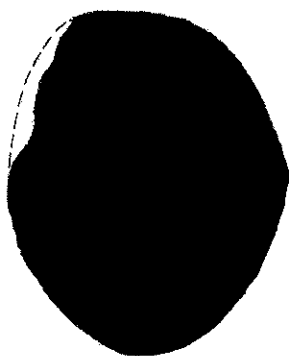
Length 2.93 cm

Weight 15.0 g.

Color 7.5YR7/2 (pinkish gray)

Description An egg-shaped, pinkish gray clay sling bullet with a black inclusion (most likely carbon). A small piece is chipped off of one side and a much larger portion is missing from the opposite end.





0 1
cm

CG1998

W263

SF 9

Chogha Gavaneh Small Finds

Number SF10

Object Sling Bullet

Material Clay

State of Preservation Intact, except one side has been neatly chipped.

Excavation Unit W263-IX

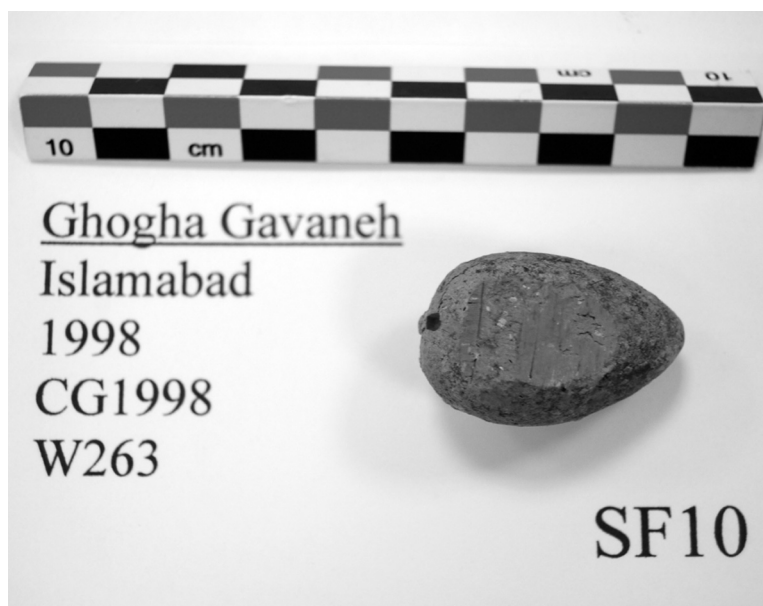
Level D: 338 E: 75 N: 0 cm

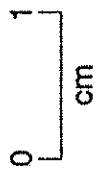
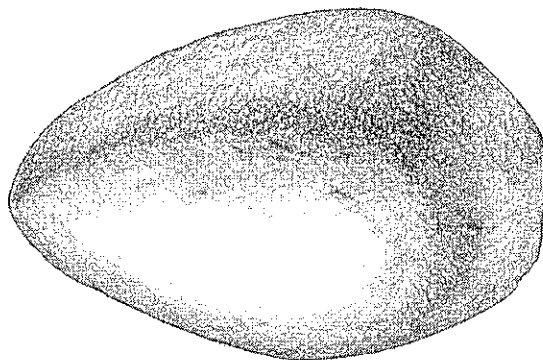
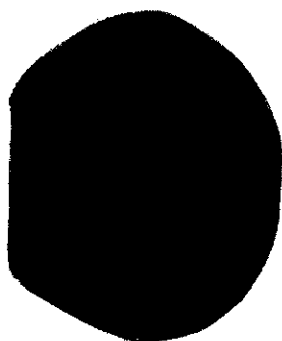
Length 3.52 cm

Weight 16.7 g.

Color 7.5YR7/3 (light pink)

Description This distinctly egg-shaped clay sling bullet's narrow, lengthwise sides convene at a point, and one side has been chipped. The color is a light pink and mottled with black spots all over.





CG1998

W263

SF 10

Chogha Gavaneh Small Finds

Number SF11

Object Complete Animal
Figurine

Material Clay

**State of
Preservation** Almost Intact

**Excavation
Unit** W263-VIII

Level D: 310 E: 90 N: 40 cm

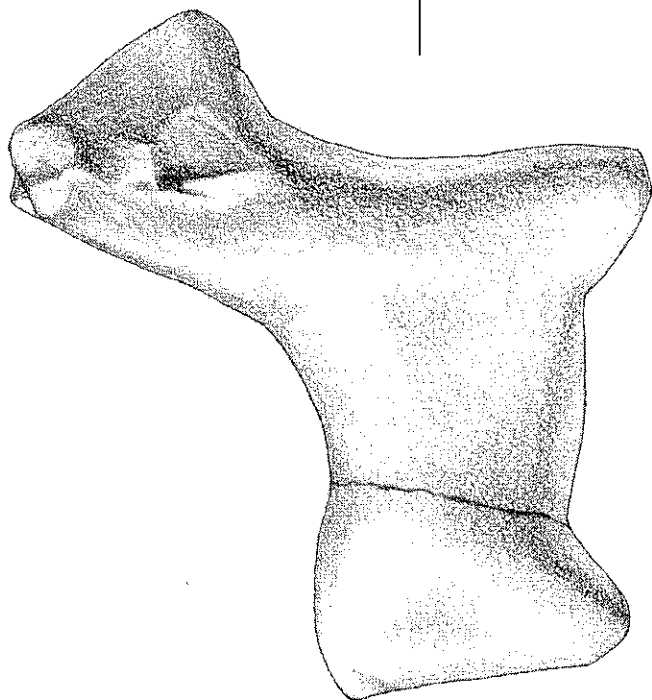
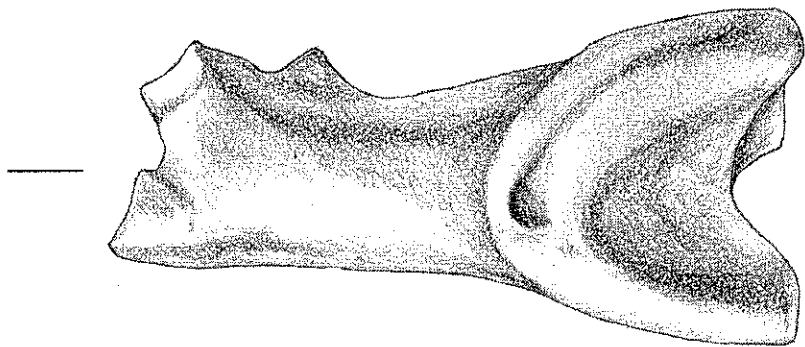
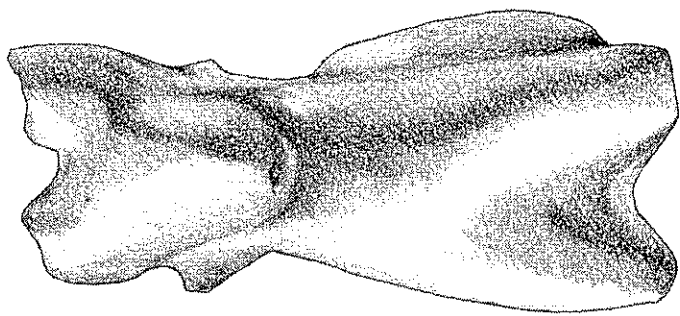
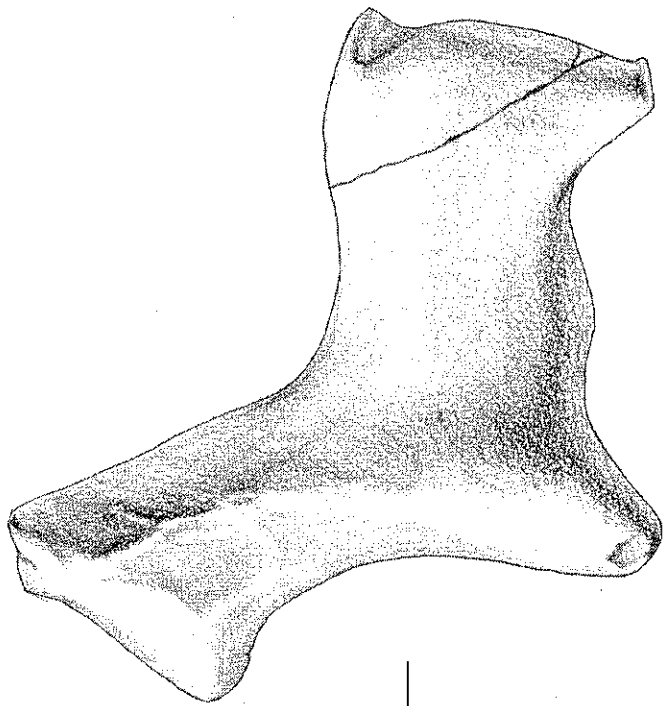
Length 4.62 cm

Weight 17.9 g.

Color 7.5YR6/3 (light brown)

Description The ends of the horns and the left ear are missing. The hindquarters were also broken off, but they were reattached with glue. The color is a light brown and is mottled with darker patches. There is also some yellowish-green discoloration, especially on the underside. The creator depicted a short muzzle (mouth) for this figurine similar to the muzzle for SF62. These are the only figurines in the collection that depict the mouth. The figurine has broken from the torso but the appendages (forequarters /hindquarters) are not broken. It is possibly a goat or sheep due to the long neck and short tail.





0 1
cm

CG1998

W263

SF 11

Chogha Gavaneh Small Finds

Number SF12

Object Animal Figurine, Torso
and Head

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

Level D: 320 E: 105 N: 50 cm

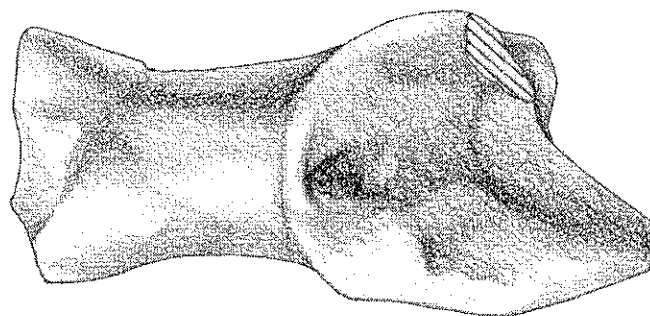
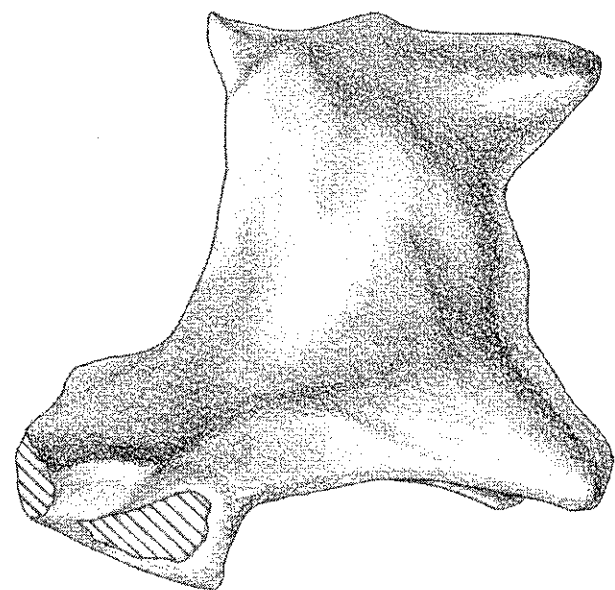
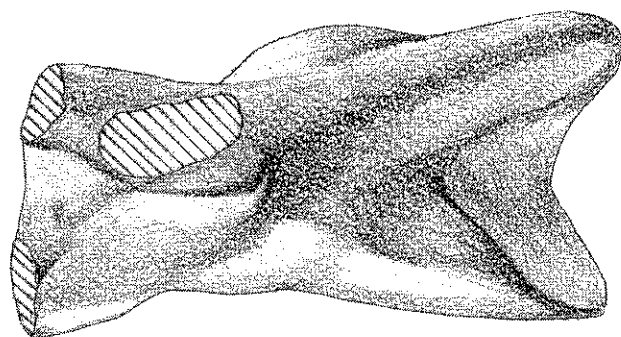
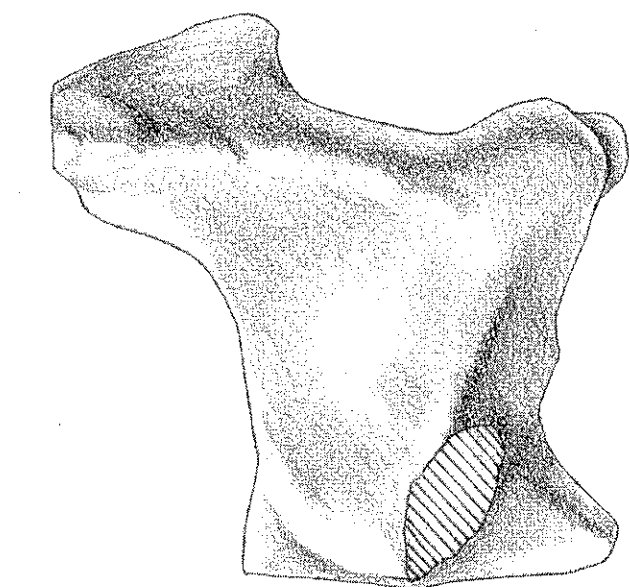
Length 3.73 cm

Weight 17.8 g.

Color 10YR6/3 (pale brown)

Description The rear right leg and most of the head have been broken. There is a chip on the right front leg and small part of the head. The piece is a pale brown clay animal figurine. Portions of the torso are speckled with a darker brown color, and the front two feet have a dark gray tint. This is most likely due to firing. The piece is possibly a sheep or goat due to the long neck and a short tail.





0 1
cm

CG1998

W263

SF 12

Chogha Gavaneh Small Finds

Number SF13

Object Animal Figurine, Torso
and Head

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

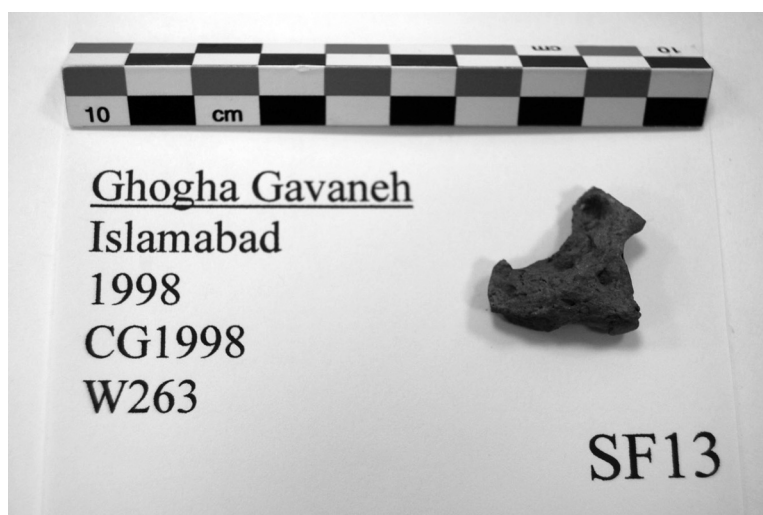
Level D: 308 E: 135 N: 25 cm

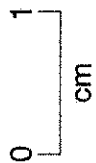
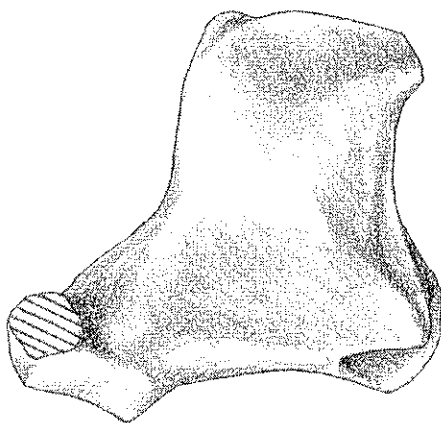
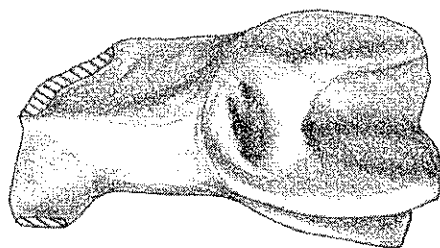
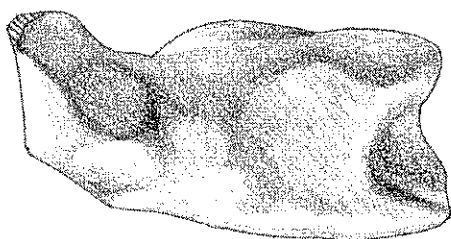
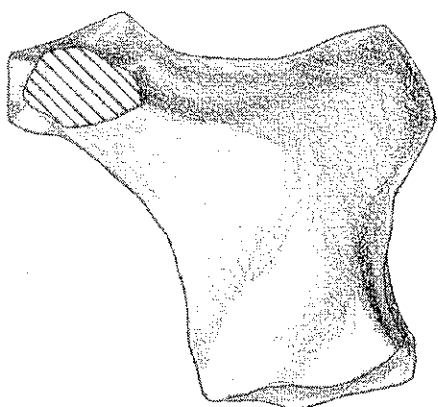
Length 2.33 cm

Weight 7.7 g.

Color 10YR7/3 (very pale brown)

Description This is one of the smallest clay animal figurines in the collection. The right horn is broken off entirely, and the left horn is chipped away a bit at the tip. Also, the right side seems to be broken and the back legs are missing. It is very pale brown in color with occasional gray flecks. The base has a dark gray discoloration due to exposure at high temperatures. Both the back left side and the left forward side are unusually short (or the right forward one is unusually long due to broken rear appendages) causing the figure to stand lopsided. The forequarters and hindquarters are fused together in this figurine as well as in SF62 and SF64. The tail appears to be made by someone pinching the back of the figurine between the thumb and forefinger. Also, there is a fingerprint on the torso between the neck and tail. It is possibly a sheep or goat due to the





CG1998
W263
SF 13

Chogha Gavaneh Small Finds

Number SF14

Object Animal Figurine, Head and Horn

Material Clay

State of Preservation Broken

Excavation Unit W263-VIII

Level D: 295 E: 87 N: 60 cm

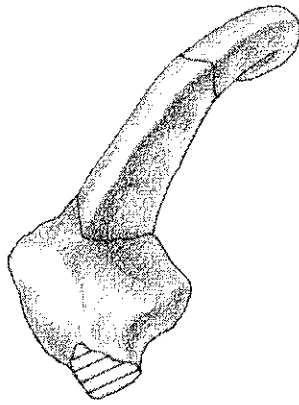
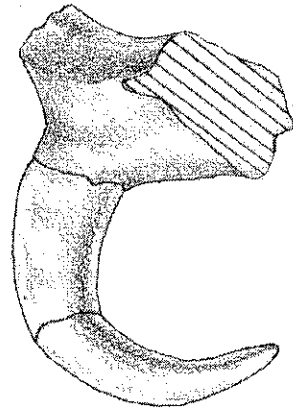
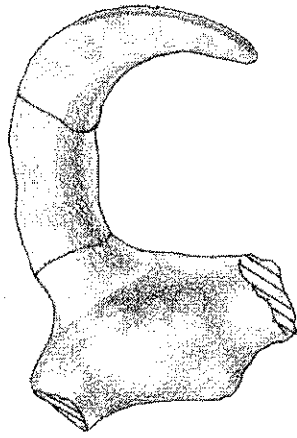
Length Horn: 4.62 cm; Head: 3.33 cm

Weight 18.3 g.

Color 10YR6/3 (pale brown)

Description The head is missing the right horn and the left horn is broken into two pieces. The base has been reattached with glue, but the end was not. The color is a fairly uniform pale brown with occasional spots of a darker color. The forehead has a light yellow-green discoloration and a tiny bit of the nose is broken off. The area of breakage is a lighter pinkish color. It is possibly a sheep due to the round and long horn.





0 1
cm

CG1998

W263

SF 14

Chogha Gavaneh Small Finds

Number SF15

Object Animal Figurine
Headless

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

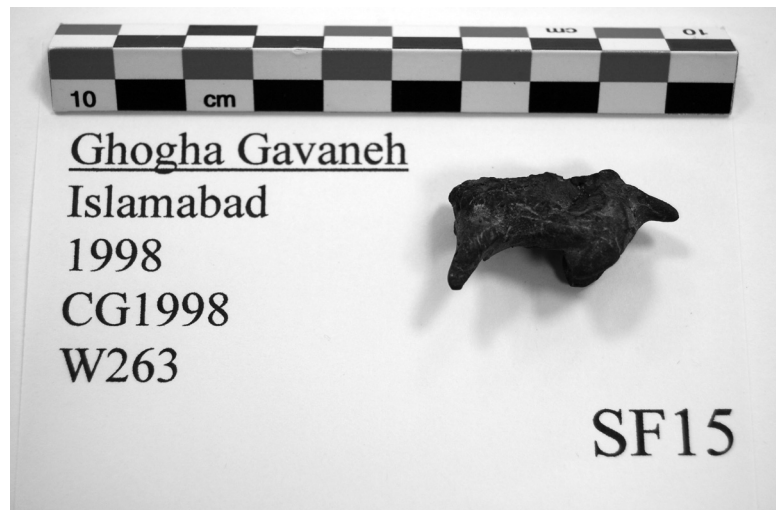
Level D: 301 E: 18 N: 18 cm

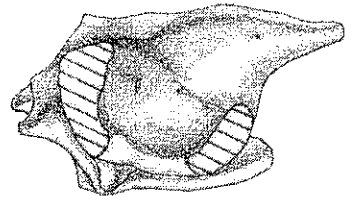
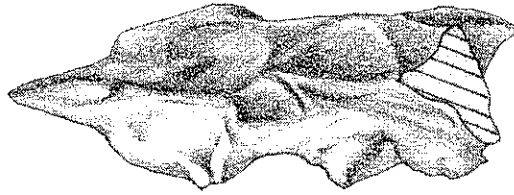
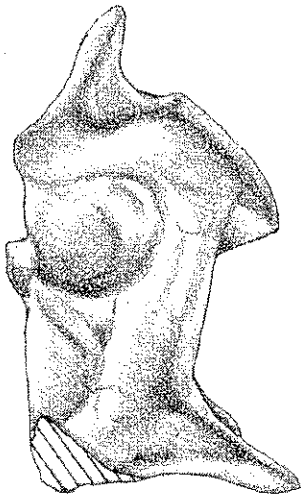
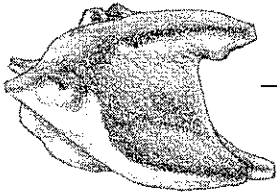
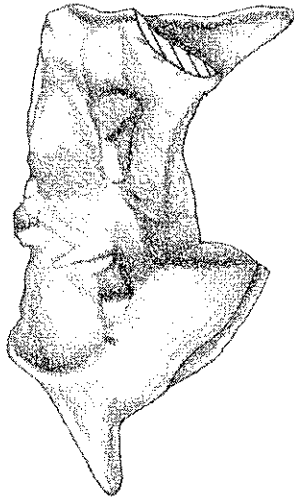
Length 3.21 cm

Weight 4.2 g.

Color GLEY13/N (very dark gray)

Description The head and right foreleg are missing. It is a very dark gray animal figurine with occasional tan flecks from dust and wear. The left foreleg seems unusually long, and there is a large round indentation on the left flank near the rear. Two points protrude from the right side, and another two points appear to stick out of the middle of the back along the spine. This figurine is depicted in the position of action because the legs are not consistent in measurements and shape in compare to the other animal figurines in the collection . Also, the tail indicates the action position of figurines, because it is straight out. However, the body has been heavily damaged. It could be created by an amateur based on the evidence of pinching. It is possibly a dog due to the long thick tail, which turns in a similar manner to the Sarah' animal figurine in Plate 4-d (Morales





0 1
cm

CG1998
W263
SF 15

Chogha Gavaneh Small Finds

Number SF16

Object Animal Figurine
Headless

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

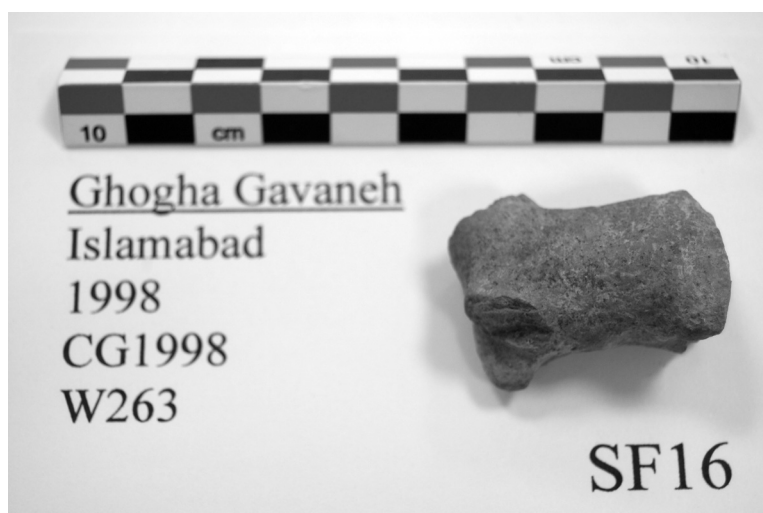
Level D: 220 E: 18 N: 42 cm

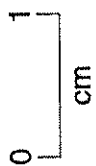
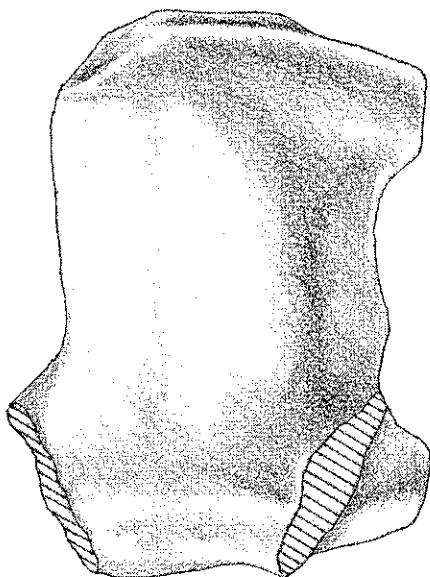
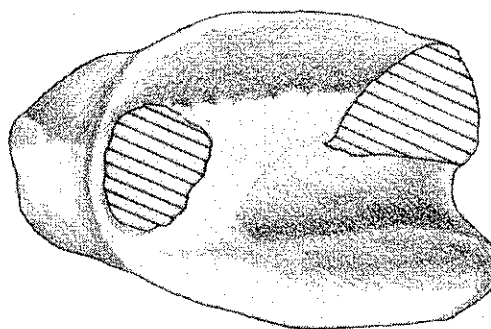
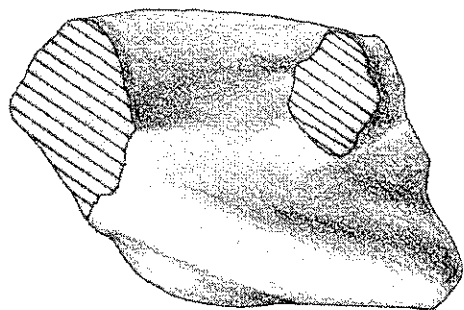
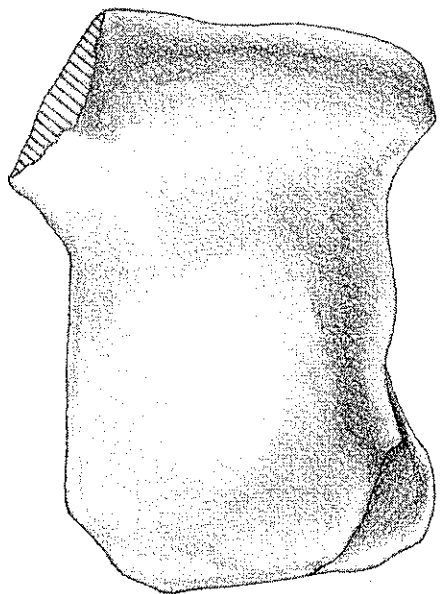
Length 3.73 cm

Weight 20.6 g.

Color 7.5YR6/3 (light brown)

Description The object is a light brown clay animal figurine body with the head, tail, and front left leg. The right back leg has been broken off. The intact legs are quite short. The color is speckled with some light and dark.





CG1998

W263

SF 16

Chogha Gavaneh Small Finds

Number SF17

Object Complete Animal
Figurine

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

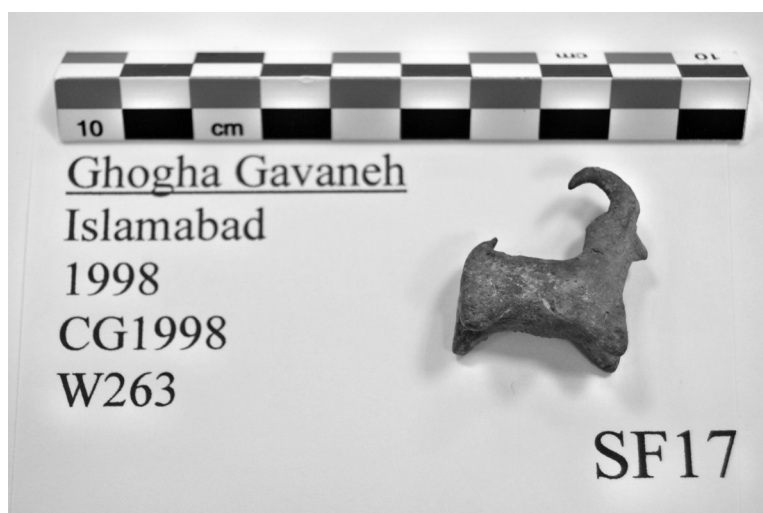
Level D: 230 E: 49 N: 30 cm

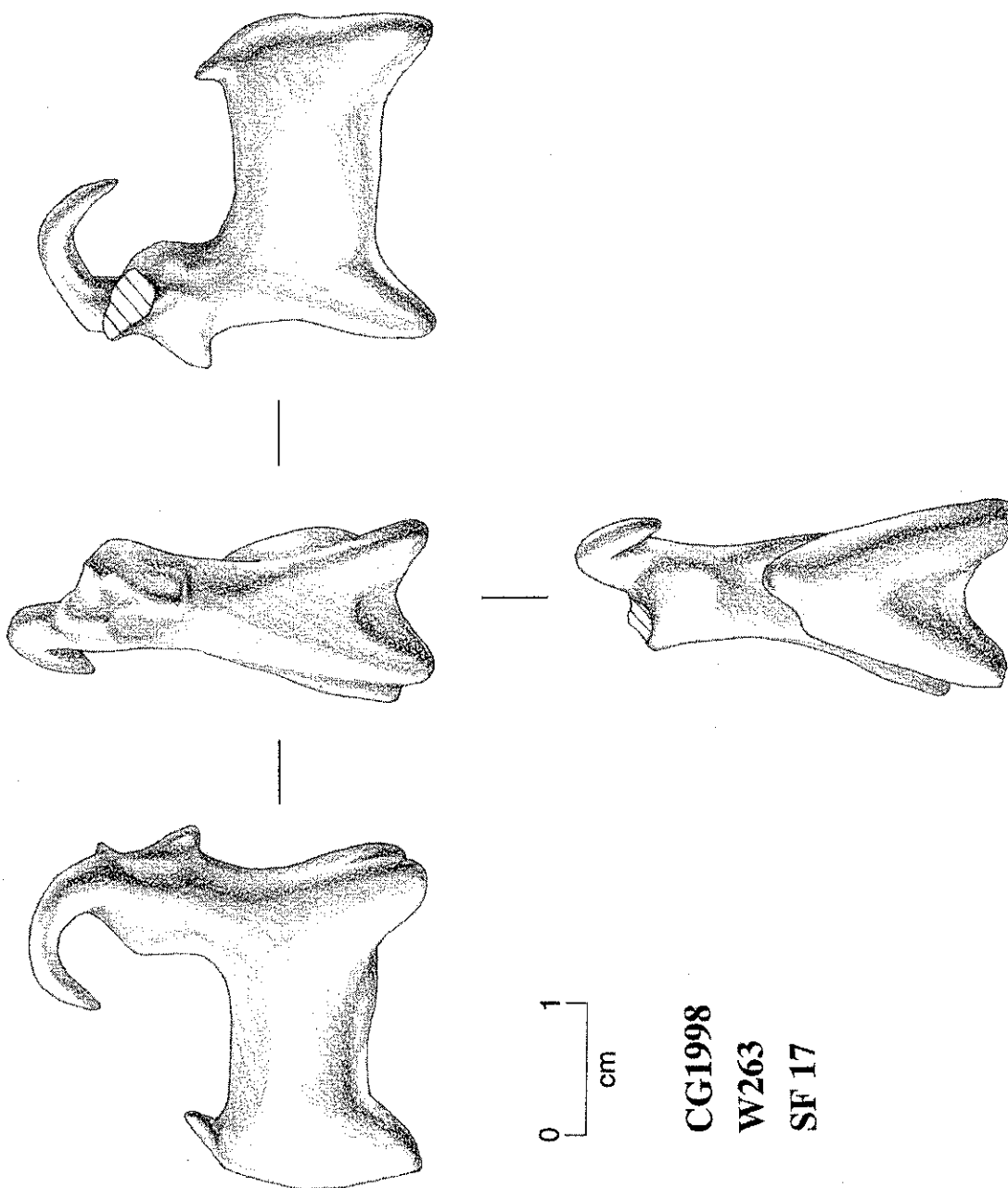
Length 2.36 cm

Weight 4.9 g.

Color 7.5YR5/1 (gray)

Description A small clay horned animal figurine with the left horn missing. The remaining horn is curved directly toward the back of the animal away from the face and the tail is pointing straight up. The color is generally a medium gray, which is somewhat darker around the rear and underside of the figurine, probably due to exposure to high temperatures. The color is speckled with a light tan color in places, and the figure also exhibits some yellowish-green discoloration on its rear and on its front. The stylized face is similar to SF14, even though these figurines may represent different animals. It is possibly a goat due to the horn shape, longer neck, and short tap tail, which is turned up.





CG1998

W263

SF 17

Chogha Gavaneh Small Finds

Number SF18

Object Complete Animal
Figurine

Material Clay

**State of
Preservation** Almost Intact

**Excavation
Unit** W263-VIII

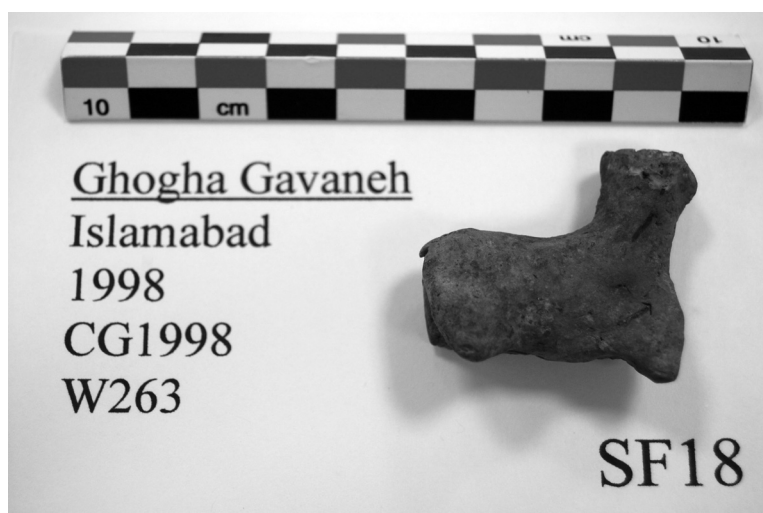
Level D: 259 E: 72 N: 38 cm

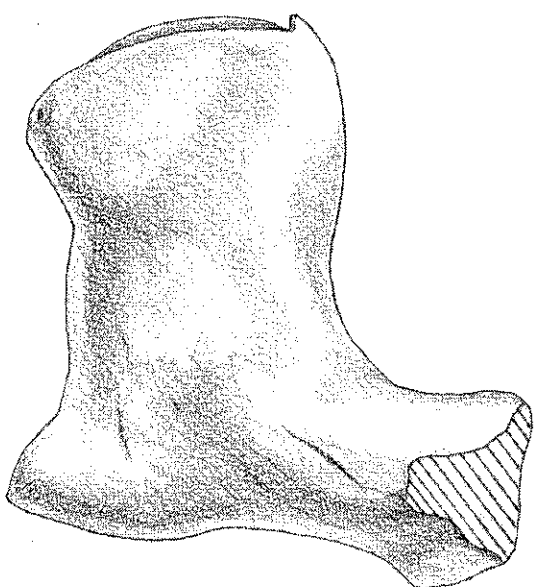
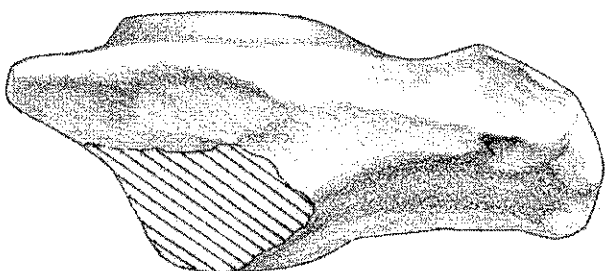
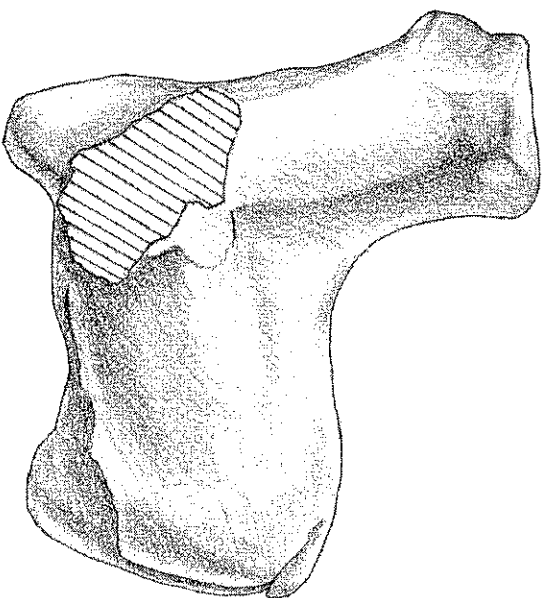
Length 3.55 cm

Weight 14.9 g.

Color 10YR6/2 (light brownish gray)

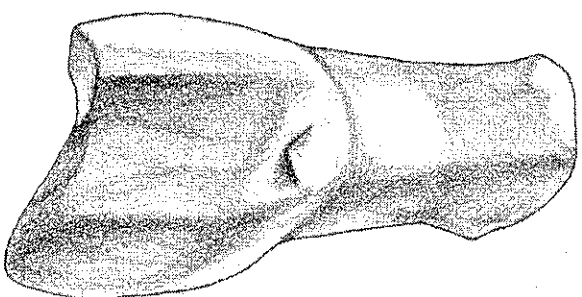
Description The top of the head (everything above eye level) is broken off, along with both legs on the left side. It is a clay animal figurine, light brownish gray in color, with the top of its head and both legs on the left side broken off. The figure has several shallow but pronounced incisions cut into it, and the clay beneath these indentations is slightly darker than the rest of the figure. There are two notches on the right side, one on the neck and another below it, on the right front leg. On the left side, there are three just above the area exposed by the left foreleg. There are also two large parallel incisions on the underside. The clay exposed by the broken left foreleg is also slightly darker. It is possibly a sheep or goat due to the long neck and short, turned down tab tail.





0 1
cm

CG1998
W263
SF 18



Chogha Gavaneh Small Finds

Number SF19

Object Animal Figurine, Head
and Horn

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

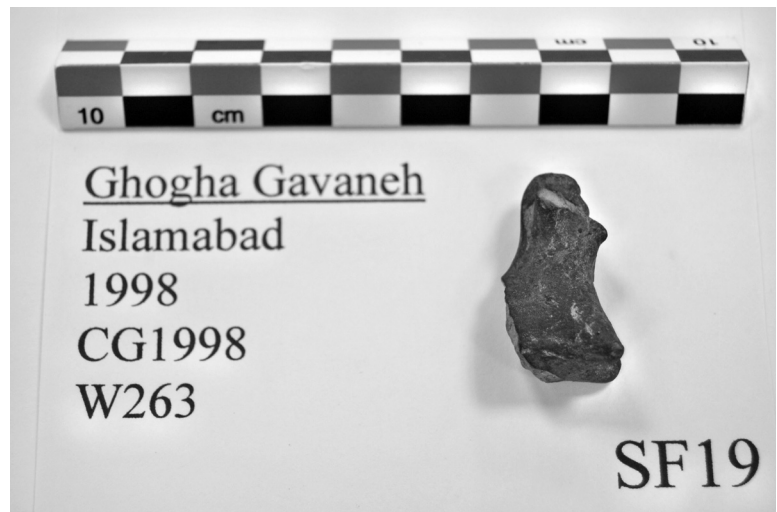
Level D: 310 W: 160 N: 13 cm

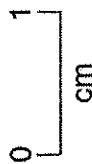
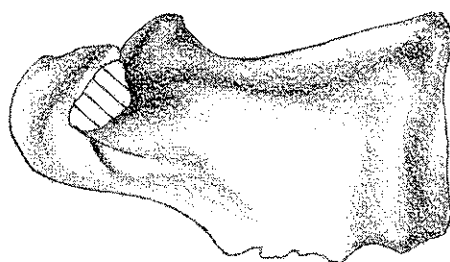
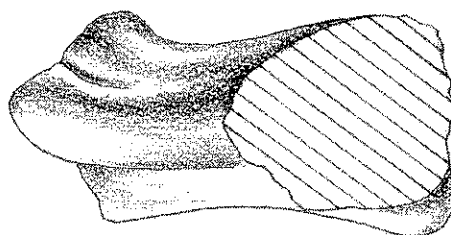
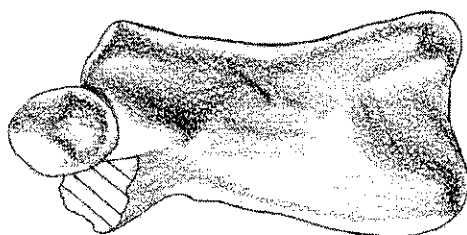
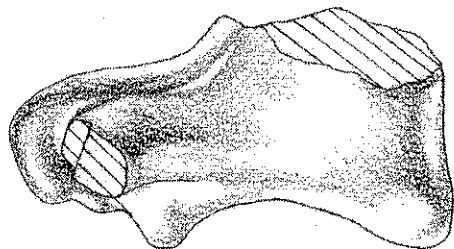
Length 2.99 cm

Weight 5.7 g.

Color GLEY14/N (dark gray)

Description The fragment is broken in half and missing the horns. Also, the left ear slightly chipped off at the tip. It is a small clay animal figurine, dark gray in color. Only the figure's head, neck, and front legs survive—the body of the figure is missing. A long mane rises onto the head between the ears of the figure along the neck that indicates a donkey/hoarse. The ear is missing and there is a sharp cut along the neck.





CG1998
W263
SF 19

Chogha Gavaneh Small Finds

Number SF20

Object Complete Animal
Figurine

Material Clay

**State of
Preservation** Almost Intact

**Excavation
Unit** W263-VIII

Level D: 308 W: 148 N: 11 cm

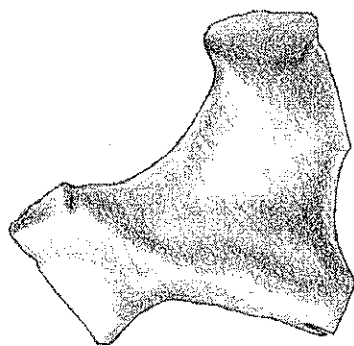
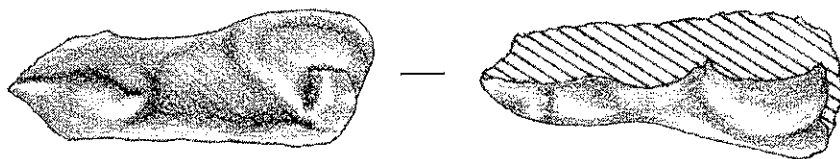
Length 2.51 cm

Weight 7.7 g.

Color 10YR6/2 (light brownish gray)

Description A small clay animal figurine fragment light brownish gray in color. The area exposed due to the break is a lighter, redder color with some dark gray spots. Also, the left foreleg is not well defined as an appendage. There is a small piece of clay in what would be the space between the two legs that looks as though it should have been removed, but wasn't. The right foreleg is disproportionately larger and darker in color. The hind legs are present but small. This figurine is similar to the Fig. 2 bovine figurine from Ain Ghazal (Schmandt-Besserat 1997:48). However, features such as the nostril and mouth in the Ain Ghazal figurine are more emphasized compare to the one from Chogha Gavaneh. It is possibly a sheep or goat due to the long neck and the position of short tab tail which is turned down





0 1
cm

CG1998

W263

SF 20

Chogha Gavaneh Small Finds

Number SF21

Object Complete Animal Figurine

Material Clay

State of Preservation Almost Intact

Excavation Unit W263-VIII

Level D: 308 W: 148 N: 11 cm

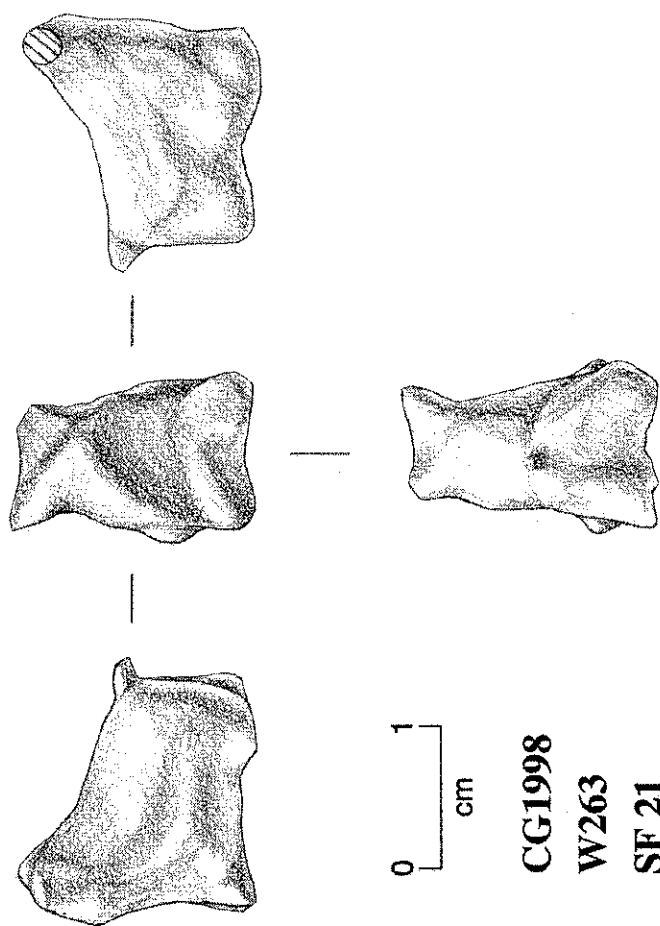
Length 1.72 cm

Weight 2.2 g.

Color 5Y3/1(very dark gray)



Description This figurine is the smallest in the collection and has a very dark color. There is no separation between the legs (fused together). A straight line extends from the neck down the animal's back; there is no curve at all as in other animal figures in the collection. The short tail stands out straight from the body which indicates it is possibly a dog. The figurine is similar to the Sarab animal figurine in Plate 4:m (Morales 1990:42).



0 1
cm

CG1998

W263

SF 21

Chogha Gavaneh Small Finds

Number SF22

Object Animal Figurine,
Fragment

Material Clay

**State of
Preservation** Broken

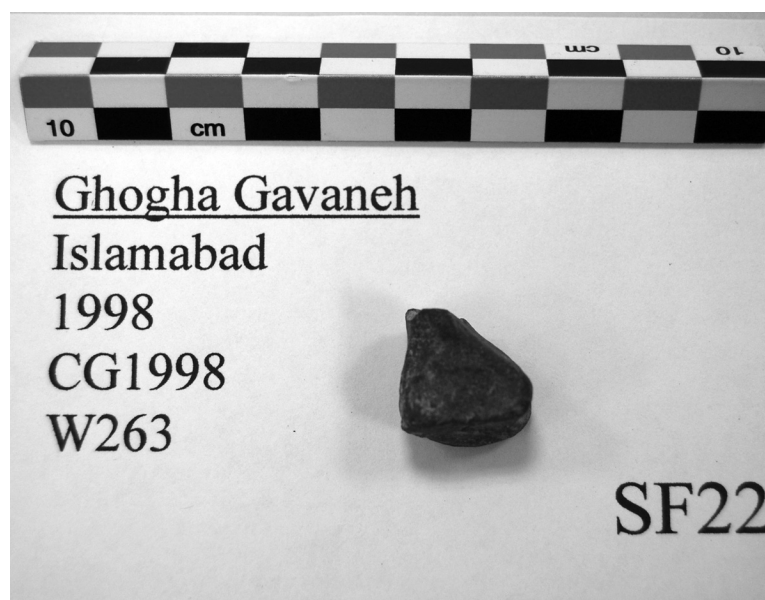
**Excavation
Unit** W263-VIII

Level D: 258 E: 60 N: 19 cm

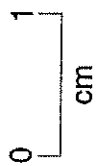
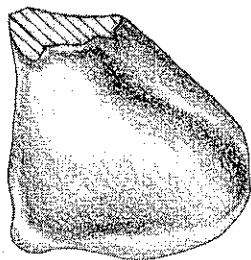
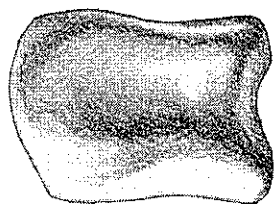
Length 1.68 cm

Weight 4.1 g.

Color 2.5Y5/1 (gray)



Description There is a large break at one end of this wedge-shaped fragment. It has an indentation that might indicate the rear legs. The fragment is gray in color with tan flecks from dust and wear. Additionally, the head and forelegs are missing.



CG1998

W263

SF 22

Chogha Gavaneh Small Finds

Number SF23

Object Animal Figurine
Headless

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

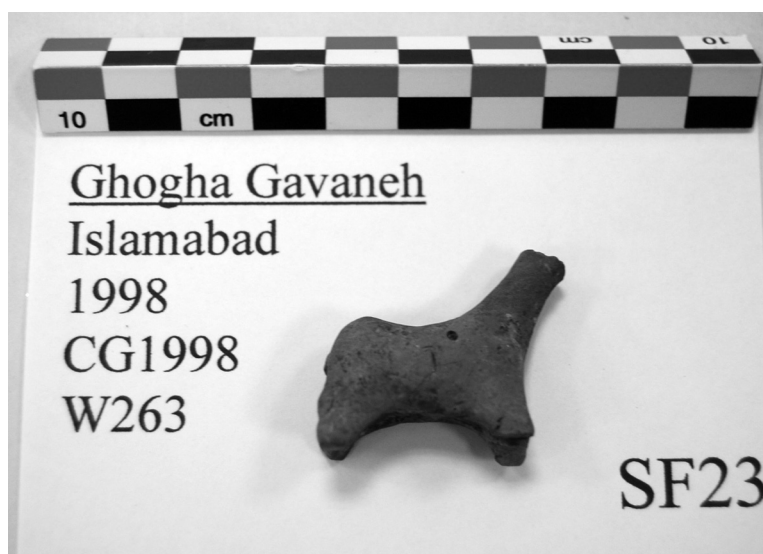
Level D: 305 W: 200 N: 50 cm

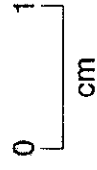
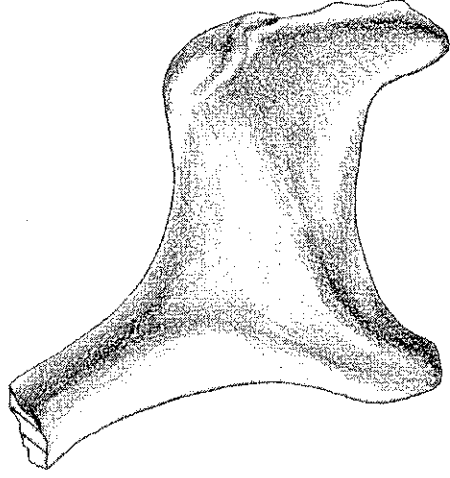
Length 2.82 cm

Weight 7.4 g.

Color 10YR5/2 (grayish brown)

Description The end of the right foreleg and head of the clay figurine is chipped off. It is a clay animal figurine, grayish brown in color, with an uncommonly long neck. The color on the right side is a lighter, ruddier grayish brown than the darker, duller left side, which also displays more dark brown discoloration in certain parts. There is what could be a small fingernail indentation in the middle of the right side, as well as a small hole on the top of the right front shoulder that seems to be filled with either dirt or a dull colored clay. The rear of the figure has a distinctly angular form. The tail points downward and doesn't protrude as most of the other tails in the figurines; it seems to have been formed by pressing a V-shape into the rear. The underside has a spot of dark gray toward the front. The V-shape appears to have been crested by fingernail indications. It

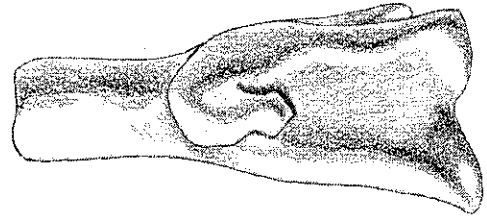
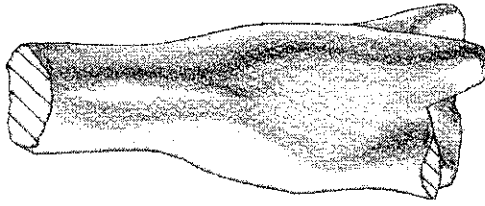




CG1998

W263

SF 23



Chogha Gavaneh Small Finds

Number SF24

Object Animal Figurine
Headless

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

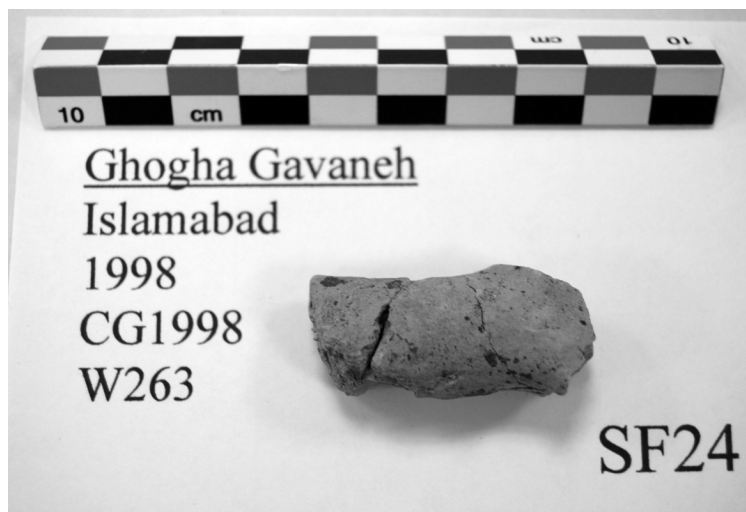
Level D: 314 E: 60 N: 15 cm

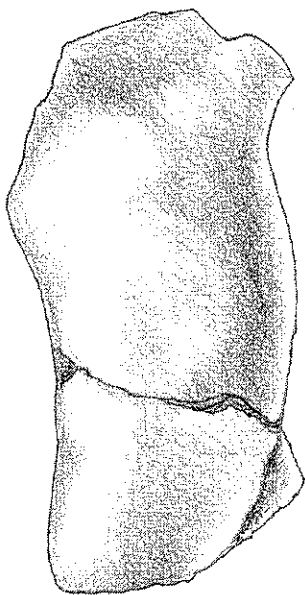
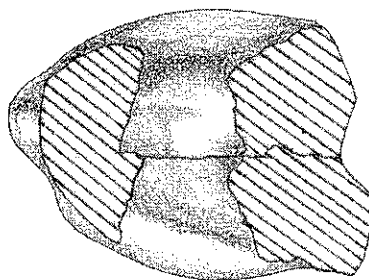
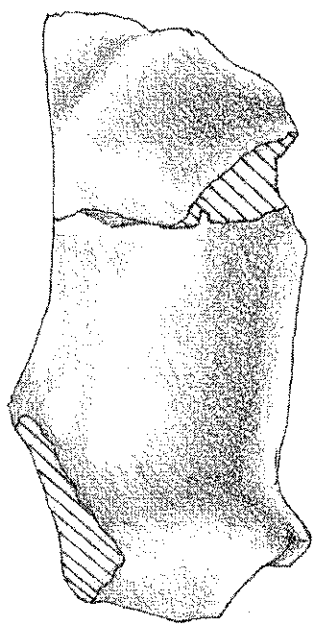
Length 3.95 cm

Weight 13.1 g.

Color 10YR7/2 (light gray)

Description The light gray clay body of an animal figurine. It has irregular dark patches on its surface and there are areas exposed due to breakage that show a more yellow color than the rest of the figure. The legs, tail, neck and head are broken off. The chest and right hindquarter are glued on. A crack running along the right side of the midsection suggests that the right hindquarter may almost be ready to fall off as well.





0 1
cm

CG1998

W263

SF 24

Chogha Gavaneh Small Finds

Number SF25

Object Miscellaneous

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

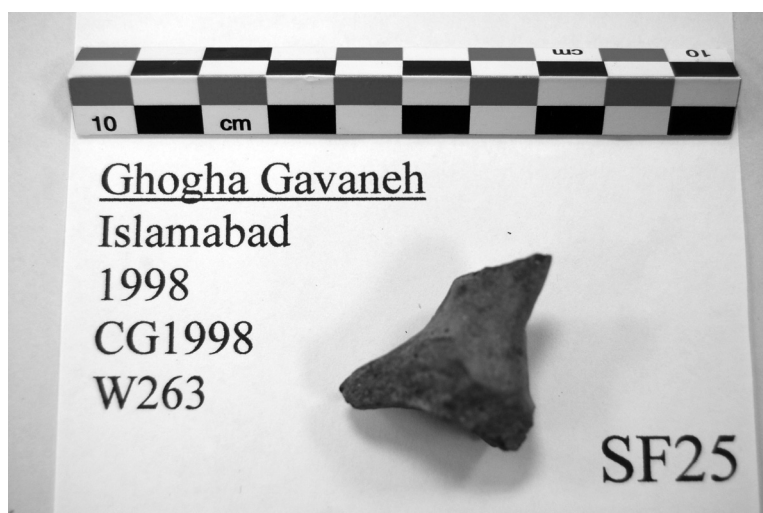
Level D: 275 E: 62 N: 19 cm

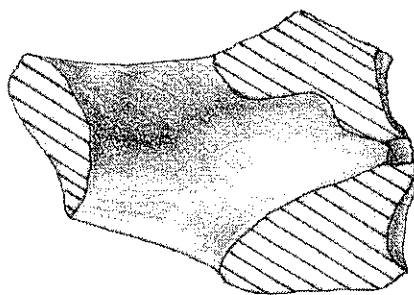
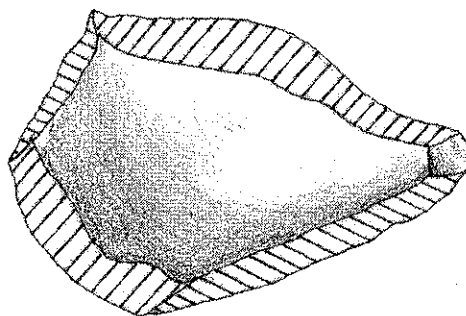
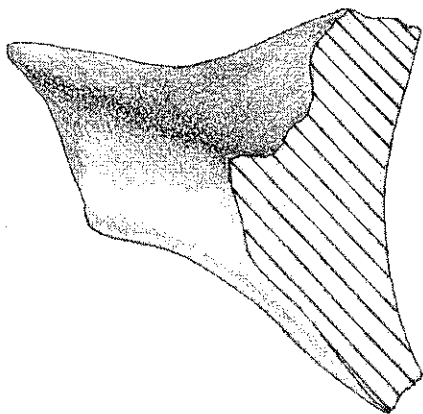
Length 2.79 cm

Weight 8.4 g.

Color 10YR6/2 (light brownish gray)

Description There are indications of breakage all over the fragment. As it exists now, it is intact (there are no signs of it falling apart any further). The fragment is shaped somewhat like a bulkier version of the area on a ceramic vessel where the stem meets the cup. The color is a light brownish gray on one side of its width, while the other side is darker and duller in color, possibly due to firing.





0 1
cm

CG1998

W263

SF 25

Chogha Gavaneh Small Finds

Number SF26

Object Animal Figurine
Headless

Material Clay

**State of
Preservation** Broken

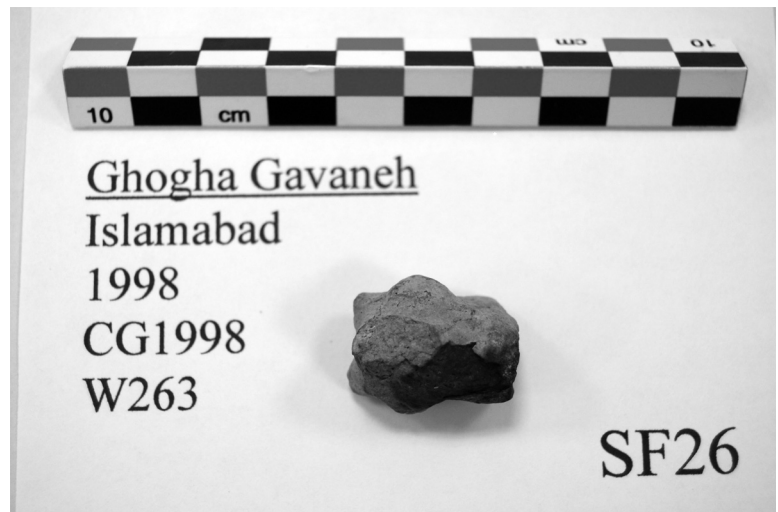
**Excavation
Unit
Level** W263-VIII

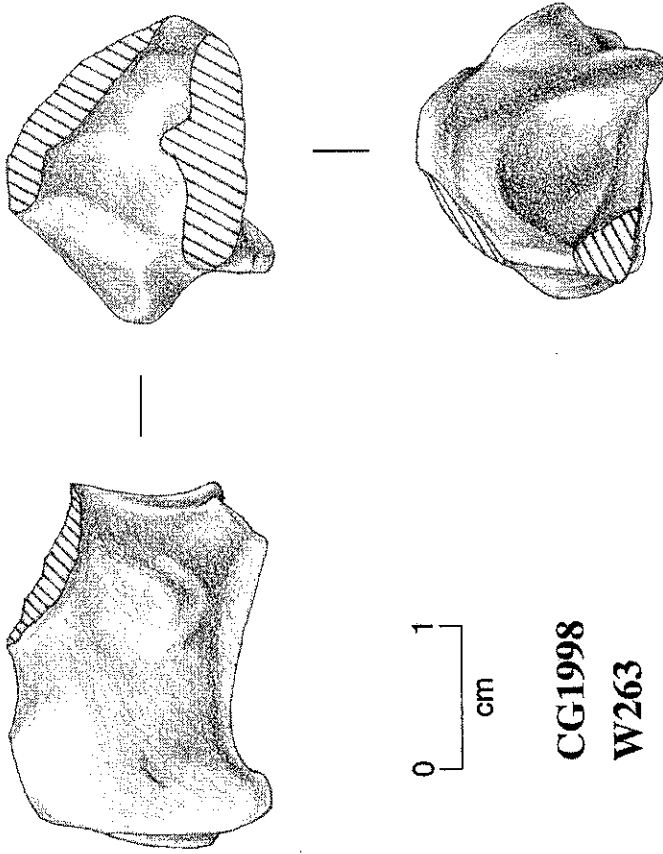
Length 2.03 cm

Weight 6.7 g.

Color 10YR7/2 (light gray)

Description An animal figurine body with two bulky protrusions on each side. It seems these two bulky protrusions indicate a pregnant goat. The front legs, back left leg, neck, and head have been broken off. The color is a light gray except for much of the left side, where the figure has been chipped away leaving the surface very rough, and has a dark gray discoloration probably due to exposure to high temperatures. There is a relatively large fingernail-style indentation on the left part of the underside, toward the front. The dark coloration is indicative of fire and the “worn ragged” part probably spalled off during the fire. It is possibly due to some moisture in the clay.





0 1
cm

CG1998

W263

SF 26

Chogha Gavaneh Small Finds

Number SF27

Object Animal Figurine,
Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

Level D: 255 E: 18 N: 8 cm

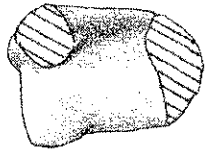
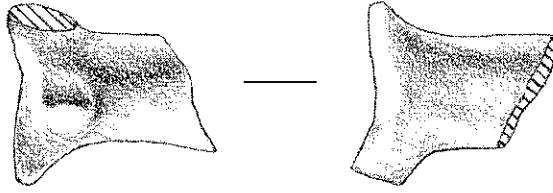
Length 1.34 cm

Weight 1.2 g.

Color 2.5Y7/2 (light gray)

Description This figurine is one of the smallest in the collection. The head of the animal and its hindquarters are missing. The left side of the figure is lighter gray, while the right side is a much darker gray color.





0 1
cm

CG1998
W263
SF 27

Chogha Gavaneh Small Finds

Number SF28

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

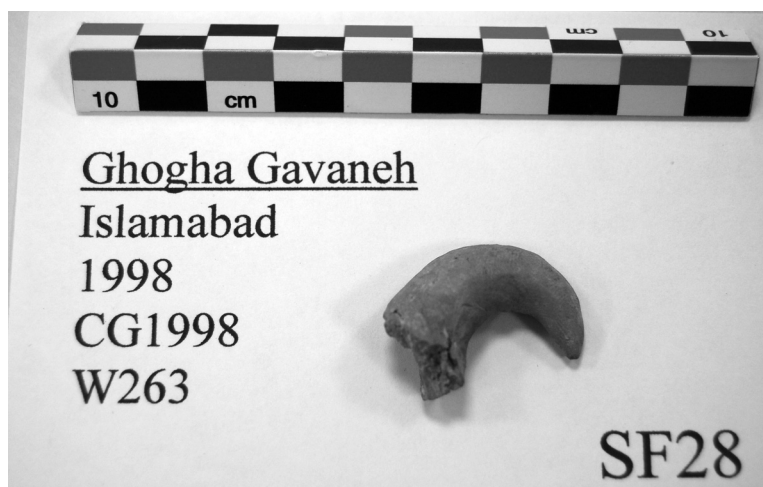
Level D: 248 E: 15 N: 60 cm

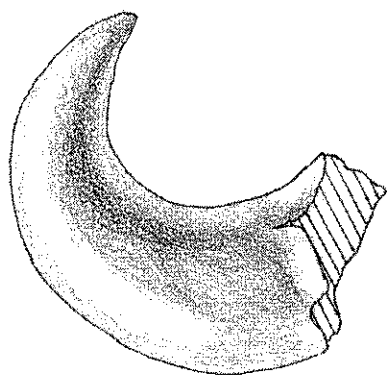
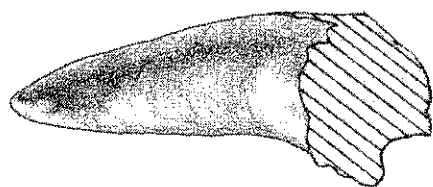
Length 2.7cm

Weight 3.7 g.

Color 2.5Y7/2 (light gray)

Description The object is a horn from an animal figurine that is light brownish gray in color. The fragment is missing the base of the horn where it connected to the head. The stubby, curved shape suggests the horn of sheep (Fig. 7 from Schmandt-Besserat 1997:50).





0 1
cm

CG1998
W263
SF 28

Chogha Gavaneh Small Finds

Number SF29

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

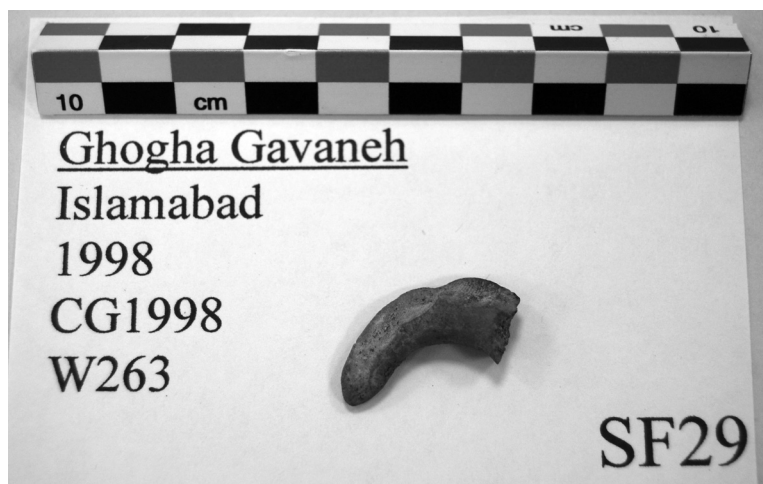
Level D: 259 E: 22 N: 11 cm

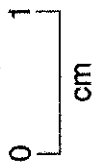
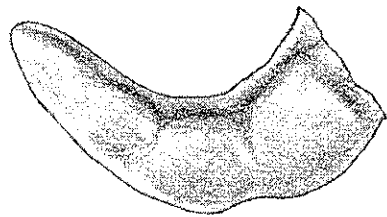
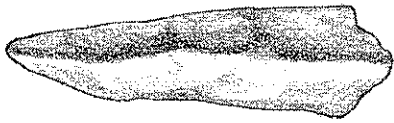
Length 2.63 cm

Weight 1.4 g.

Color 10YR6/2 (light brownish gray)

Description The fragment is missing the base of the horn where it connected to the head. The impressions of the fingers used to pinch the top of the horn into a ridge are highly visible. There is some gray discoloration at the end of the fragment opposite the tip, most likely due to exposure to high temperatures. The horn could be from cattle due to its angle but a slight ridge is reminiscent of goat horns. It is similar to SF46 (Fig. 7 from Schmandt-Besserat 1997:50).





CG1998

W263

SF 29

Chogha Gavaneh Small Finds

Number SF30

Object Animal Figurine, Head and Horn

Material Clay

State of Preservation Broken

Excavation Unit W263-VIII

Level D: 271 E: 49 N: 18 cm

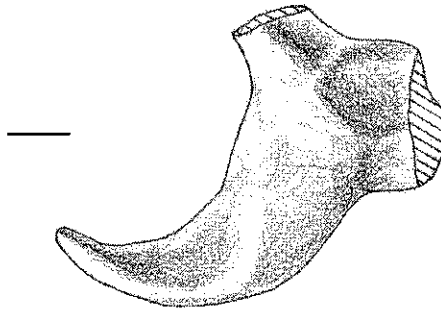
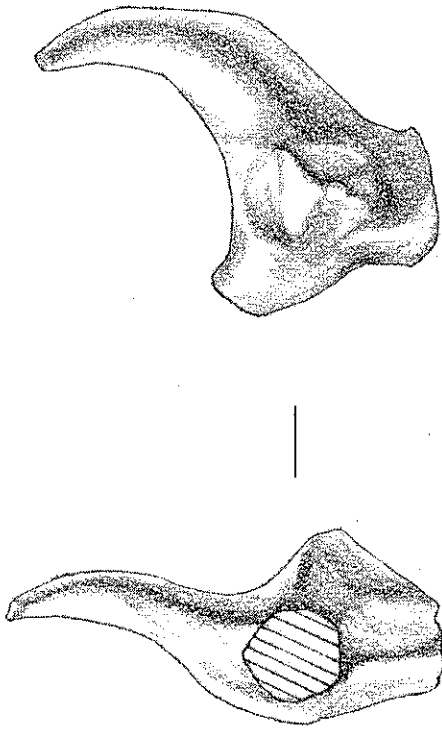
Length 1.02 cm

Weight 3.0 g.

Color 2.5Y4/1 (dark gray)

Description A dark gray clay head of a horned animal figurine. The left horn curves to the side, then up, making it resemble a bull's, rather than that of a goat or sheep. The right horn is missing, and the areas exposed at the breakage, and at the neck are a light tan color. Tan flecks occasionally appear due to dust and wear. It is similar to an adult cow due to its length and shape. The animal head has a protruding nose at the center and two hollows for eyes on each side which is a different feature compared to other zoomorphic figurines in the collection. Approximately, none of the zoomorphic figurines in collection are depicted with hollows for eyes.





0 1
cm

CG1998
W263
SF 30

Chogha Gavaneh Small Finds

Number SF31

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

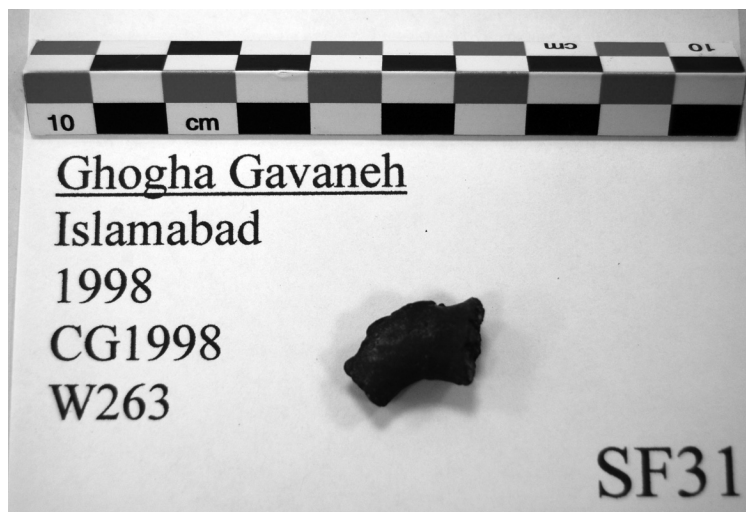
Level D:302 W:148 N:19 cm

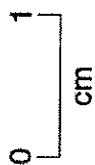
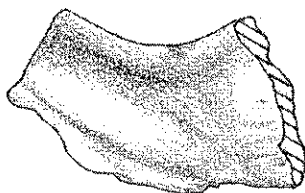
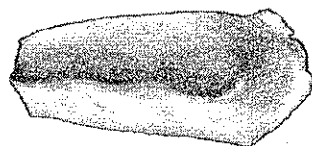
Length 2.04 cm

Weight 1.9 g.

Color GLEY14/N (darkgray)

Description A clay fragment of the base of a horn from an animal figurine, dark gray in color. This part of the horn is only the part that would connect to the head. The rest of the horn is broken off. The exposed area of the horn, the part that would meet the head, is a lighter tan color due to dust getting in nooks and crannies of the breakage. The horn has a ridge along its outside curve which was formed by pinching the top of the clay with fingers. The prints of the fingers that did this are very visible. It is possibly a base similar to that of sheep or goat horns, which is comparable to Plate 3:k (Morales 1990:41).





CG1998

W263

SF 31

Chogha Gavaneh Small Finds

Number SF32

Object Anthropomorphic
Figurine

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

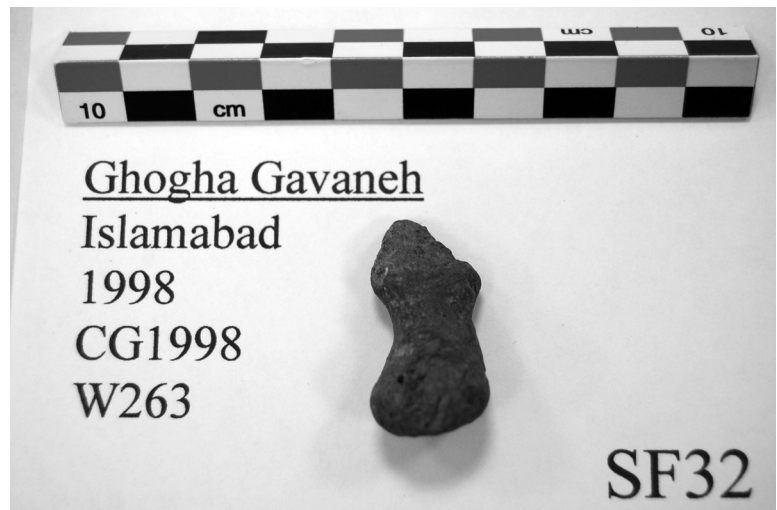
Level D: 307 E: 148 N: 18 cm

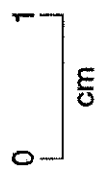
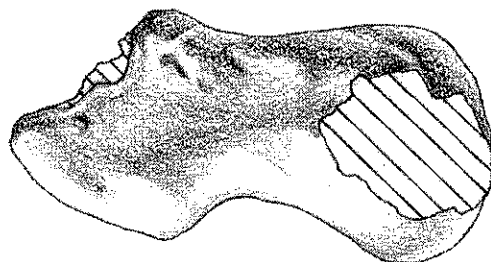
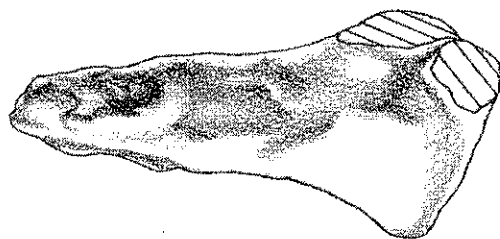
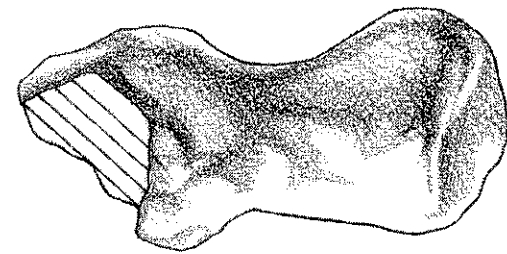
Length 3.27 cm

Weight 4.8 g.

Color 10YR5/1 (gray)

Description There appears to be two breaks on the fragment at opposite ends. It is an oblong clay fragment from a figurine of some kind. The color is dull gray with tan flecks from dust and wear, and there is some occasional light yellowish green discoloration. There seems to be two breaks on the fragment, one at each end. I believe it is anthropomorphic because it looks like the curve of a woman's back. This artifact may be a variation of Jarmo female figurines from Fig.166 # 2 (Braidwood 1983).





CG1998

W263

SF 32

Chogha Gavaneh Small Finds

Number SF34

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

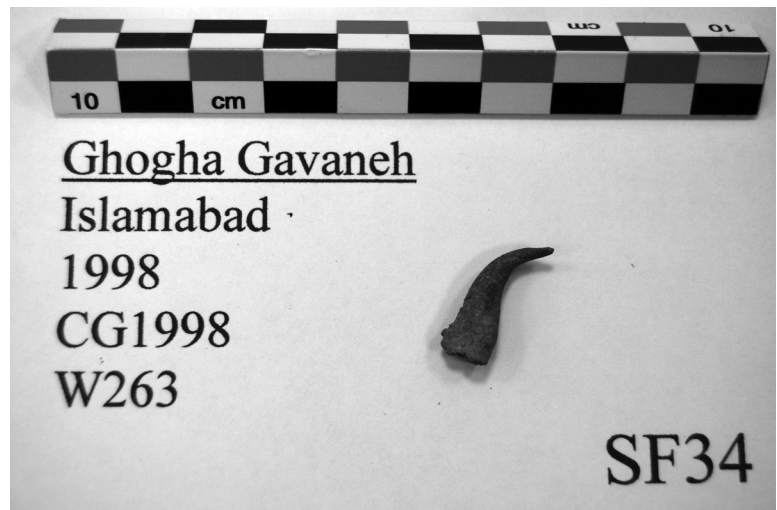
Level D: 255 E: 40 N: 19 cm

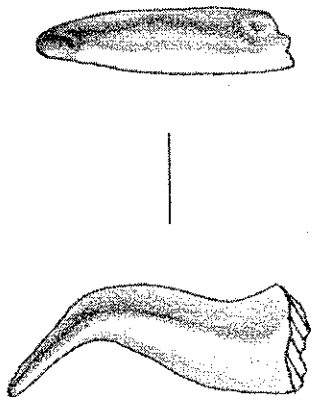
Length 2.05 cm

Weight 1.2 g.

Color GLEY15/N (gray)

Description A small horn from an animal figurine. It resembles a ox's horn more than a goat's in that it is not dramatically curved, but goes fairly straight up until it curves rapidly at the tip. The entire horn seems to be together, from the tip to the base. It is gray, with some tan areas due to dust and wear. The tip comes to a sharp point and is most likely a gazelle horn. According to the Humphreys and Kahrom, the male gazelles have a pair of slender pointed horns, bending slightly outwards at the tips, which is similar to this horn in the collection (1995:60).





0 1
cm

CG1998
W263
SF 34

Chogha Gavaneh Small Finds

Number SF35

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-N/A

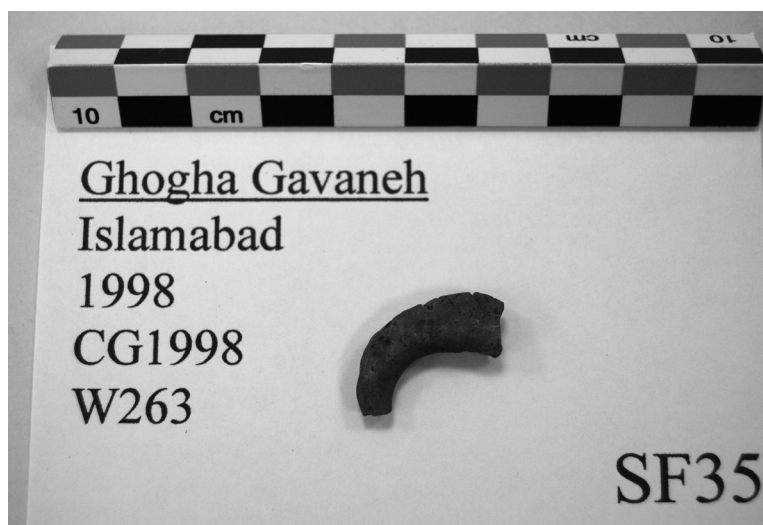
Level D: 311 W:158 N:10 cm

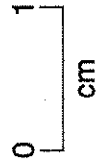
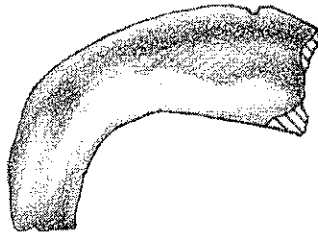
Length 2.01 cm

Weight 1.2 g.

Color 7.5YR6/1 (gray)

Description A horn from an animal figurine with a small ridge along its outer edge. The tip of the horn is missing and there are some very tiny cracks along the outer edge of it. The color is a medium gray with the areas where bits have been broken off being a lighter, more yellow shade. The round horns indicate, possibly a sheep horn like SF 29 (Fig.7 from Schmandt-Besserat 1997:50).





CG1998
W263
SF 35

Chogha Gavaneh Small Finds

Number SF36

Object A Flattened Cone-shaped

Material Clay

State of Preservation Intact

Excavation Unit W263-XV

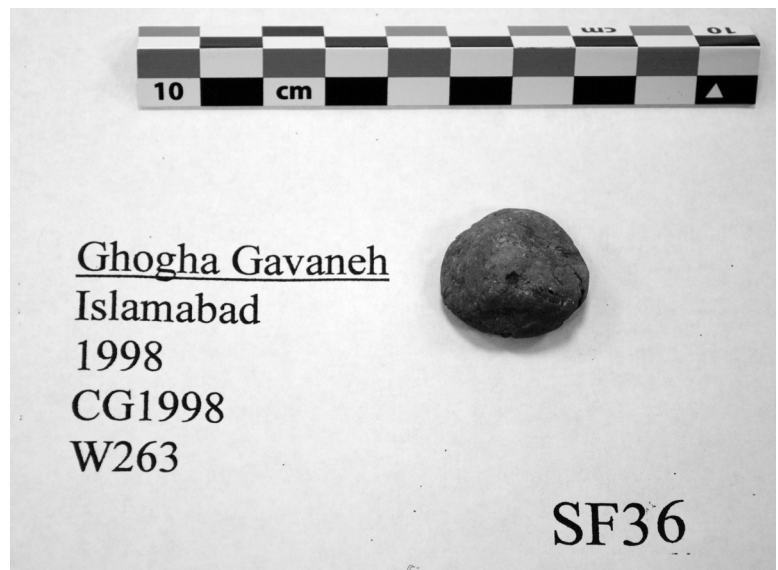
Level D: 485 E: 70 N: 20 cm

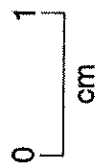
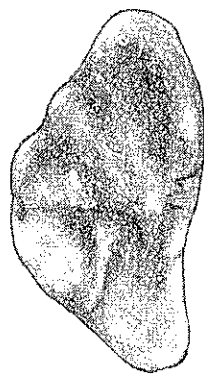
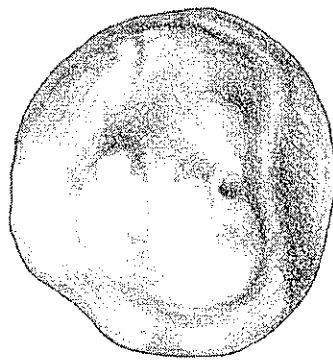
Length 2.34 cm

Weight 4.9 g.

Color 2.5Y6/2 (light brownish gray)

Description A flattened cone-shaped fragment with a rough and uneven surface. The cone-shaped on the surface is shifted to the side with rough edges and a crack. Also, there is one small hole on one side of the object. The other side of the surface is flat and thick with a depression on the near edge. There is a fingerprint on the flat side of the object with few scratches.





CG1998
W263
SF 36

Chogha Gavaneh Small Finds

Number SF37

Object Bone Fragment

Material Bone

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

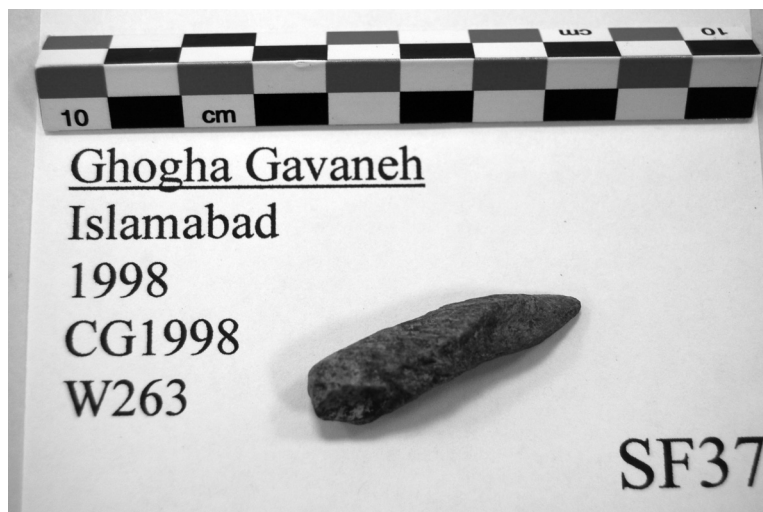
Level D: 305 E: 70 N: 20 cm

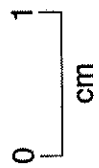
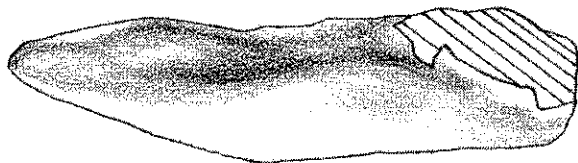
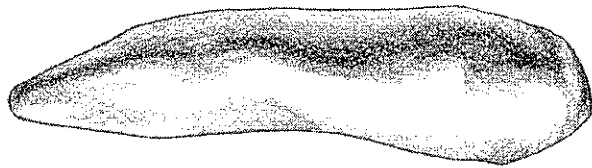
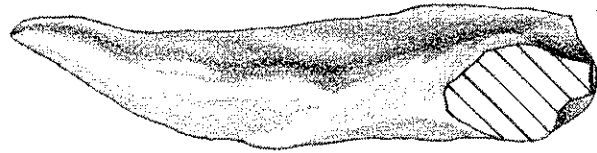
Length 3.98 cm

Weight 2.5 g

Color 5YR6/4 (light reddish brown)

Description The specimen was briefly analyzed by Dr. Elizabeth Reitz at the Zooarchaeology Laboratory, Georgia Museum of Natural History, Athens, Georgia. The analysis involved studying the surface structure of the specimen under the microscope. It was concluded that the specimen is probably not bone, or if it is, it has been greatly mineralized. The specimen most resembles the root of a cow (*Bos taurus*) mandible. However, this description does not account for the smooth, fossa-like, concave structure on the specimen. The specimen may also include anthropogenic modifications. More detailed analysis is necessary to ascertain as to the nature of the specimen, as well as its possible modification by humans.





CG1998

W263

SF 37

Chogha Gavaneh Small Finds

Number SF38

Object Miscellaneous

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

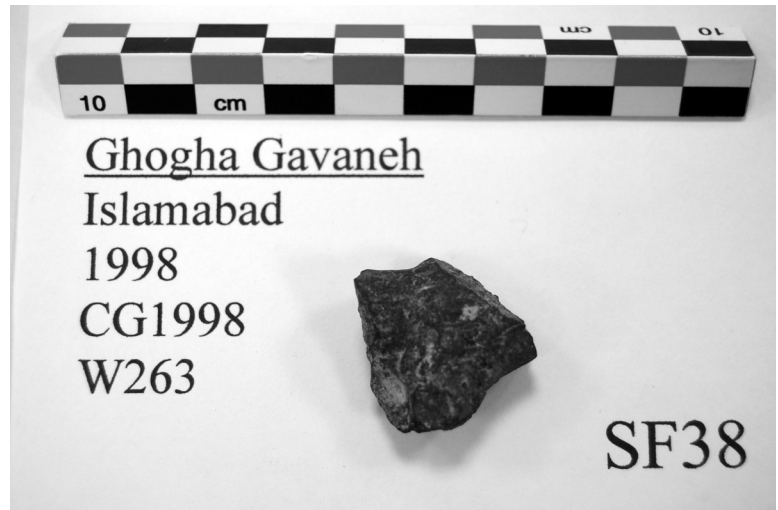
Level D: 370 E: 77 N: 43 cm

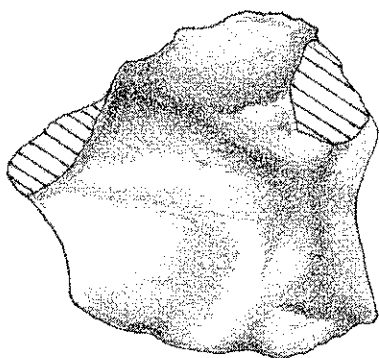
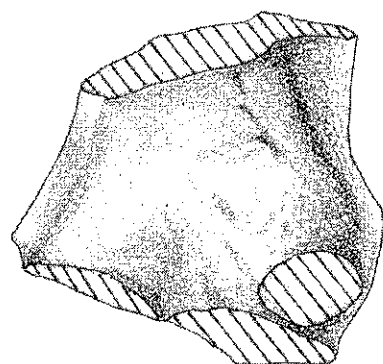
Length 2.31 cm

Weight 7.7 g.

Color GLEY15/N (gray)

Description The fragment was from a clay figurine and was broken off in several places but, it is intact. Dust has embedded itself into tiny flecks on the surface of the fragment, especially in the areas exposed from breakage, causing those parts to have a lighter tan color. There is a distinctive ridge along one side of the fragment.





0 1
cm

CG1998
W263
SF 38

Chogha Gavaneh Small Finds

Number SF39

Object Miscellaneous

Material Clay

State of Preservation Broken piece, with a recessed design in the middle

Excavation Unit W263-VIII

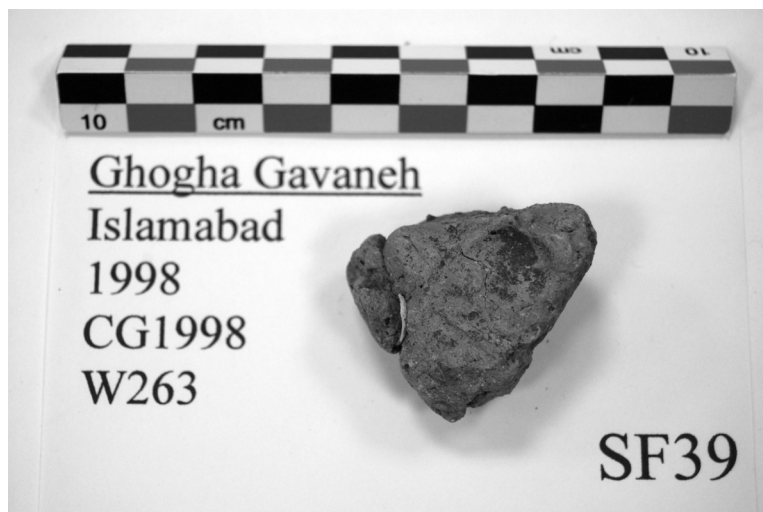
Level D: 308 E: 130 N: 10 cm

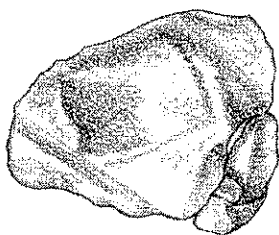
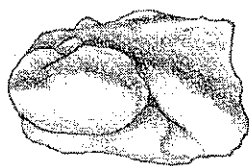
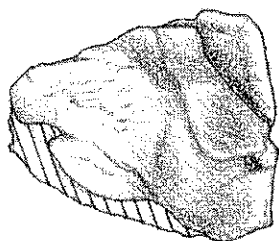
Length 3.44 cm

Weight 15.4 g.

Color 10YR7/2 (light gray)

Description The object has a very irregular shape similar to the triangular shape. It is very thick with a rough surface. There is one large inclusion in clay and a crack on one corner, but it has been mended with glue. Also, there is one shell inclusion and depression on the back with a darker color. We can see a tool line from manufacture with two incised lines on the back. The object seems unfired.





0 1
cm

CG1998

W263

SF 39

Chogha Gavaneh Small Finds

Number SF40-1

Object Sling Bullet

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

Level D: 295 E: 10 N: 5 cm

Length 3.67 cm

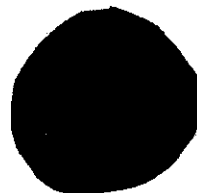
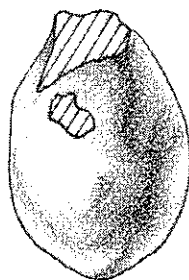
Weight 19.33 g.

Color 10YR7/3 (very pale brown)

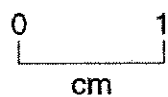
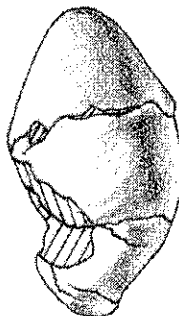
Description It sling bullet is egg-shaped and comes to a rounded point at one end. It has most of one of its widthwise halves neatly sliced off. Most of the object is a very pale brown in color. The surface is smooth and the lengthwise cut that has removed almost half of one of its widthwise ends is also smooth. There are some light patches of gray over the surface of one longer half of the bullet.



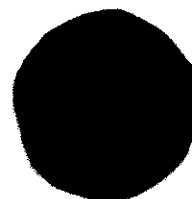
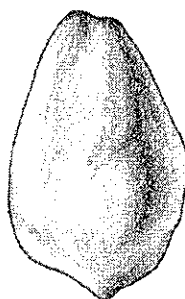
CG1998
W263
SF 40.5



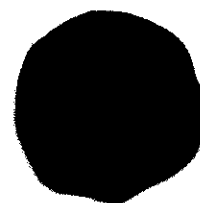
CG1998
W263
SF 40.4



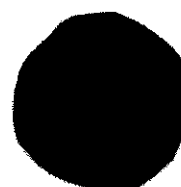
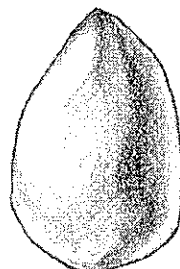
CG1998
W263
SF 40.3



CG1998
W263
SF 40.2



CG1998
W263
SF 40.1



Chogha Gavaneh Small Finds

Number SF40-2

Object Sling Bullet

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

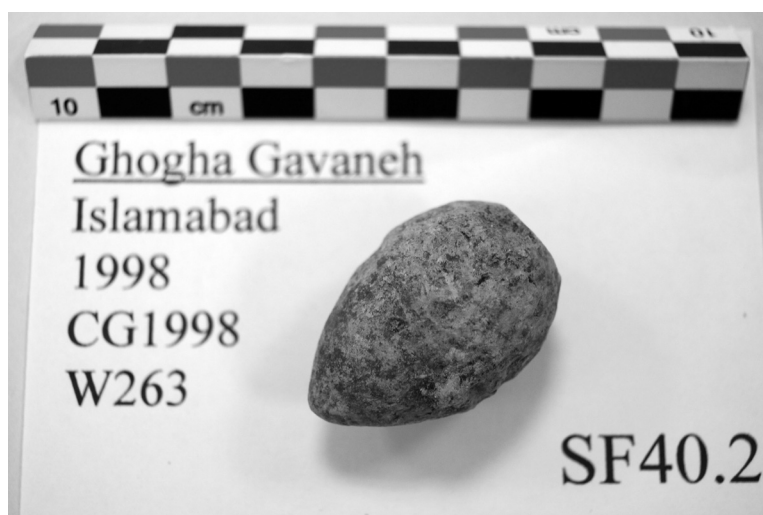
Level D: 295 E: 10 N: 5 cm

Length 3.59 cm

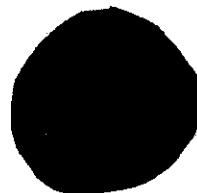
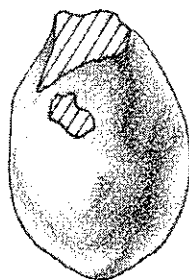
Weight 20.19 g.

Color 10YR7/3 (very pale brown)

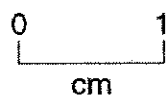
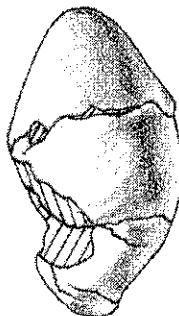
Description The sling bullet is smoothed; one side is completely gone from vertical break (approx. 1/3) and also smoothed over.



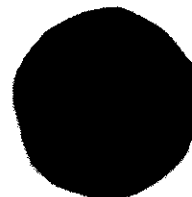
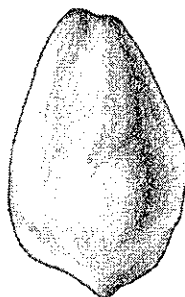
CG1998
W263
SF 40.5



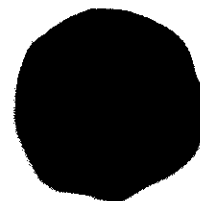
CG1998
W263
SF 40.4



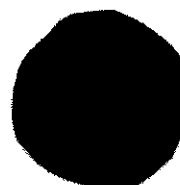
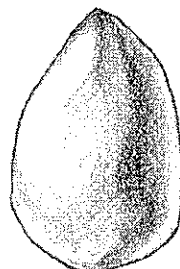
CG1998
W263
SF 40.3



CG1998
W263
SF 40.2



CG1998
W263
SF 40.1



Chogha Gavaneh Small Finds

Number SF40-3

Object Sling Bullet

Material Clay

State of Preservation Broken, but it has been reattached with glue

Excavation Unit W263-VIII

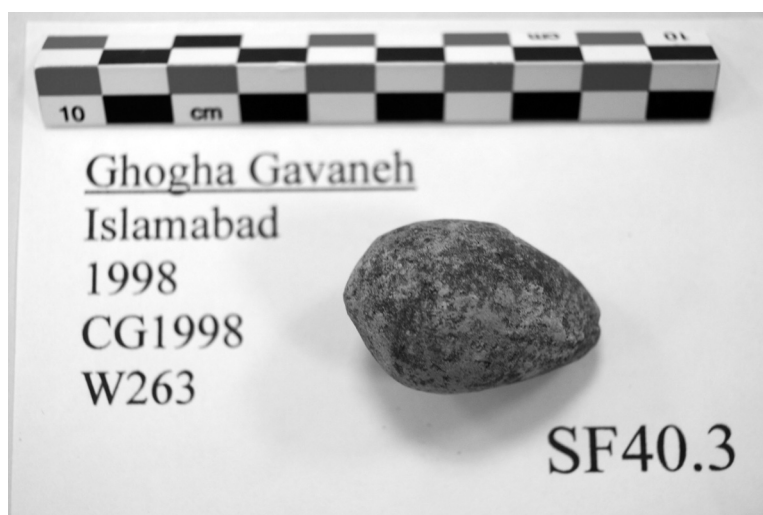
Level D: 295 E: 10 N: 5 cm

Length 3.81 cm

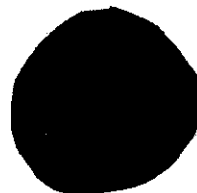
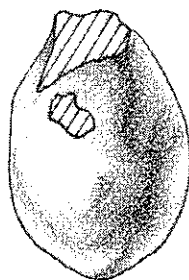
Weight 21.04 g.

Color 10YR7/3 (very pale brown)

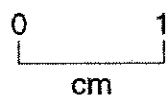
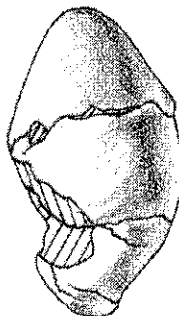
Description The sling bullet is rough with some discoloration on the surface. Also, some possible burning appears on the sling bullet.



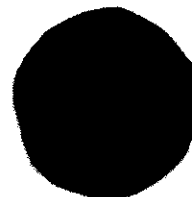
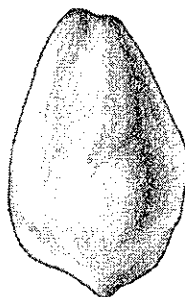
CG1998
W263
SF 40.5



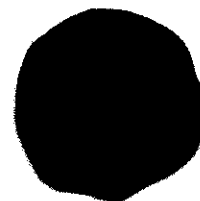
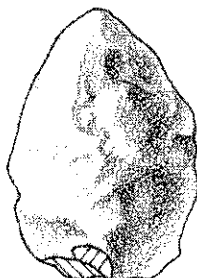
CG1998
W263
SF 40.4



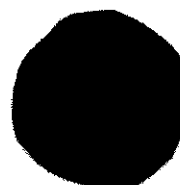
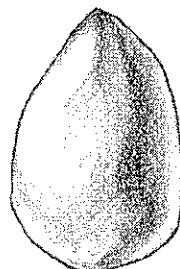
CG1998
W263
SF 40.3



CG1998
W263
SF 40.2



CG1998
W263
SF 40.1



Chogha Gavaneh Small Finds

Number SF40-4

Object Sling Bullet

Material Clay

State of Preservation Broken but, it has been reattached with glue

Excavation Unit W263-VIII

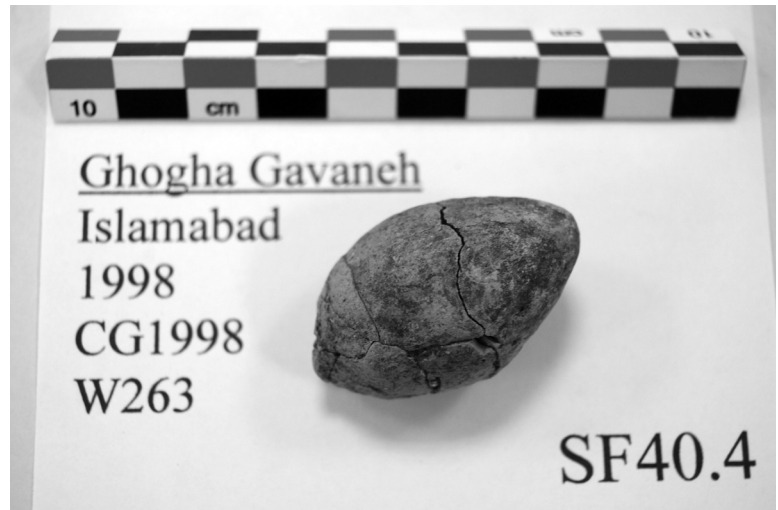
Level D: 295 E: 10 N: 5 cm

Length 4.03 cm

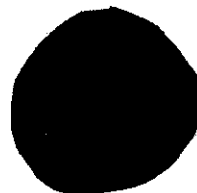
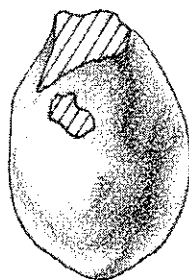
Weight 20.77 g.

Color 10YR7/3 (very pale brown)

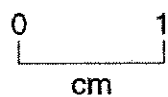
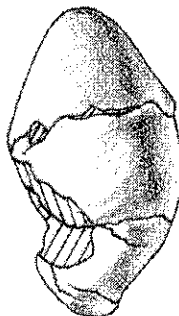
Description One side of sling bullet is chipped off and there is some dark discoloration on the surface.



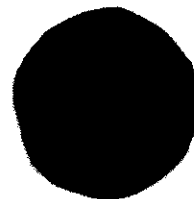
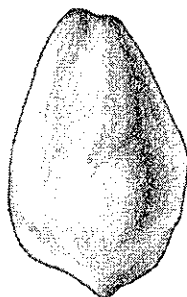
CG1998
W263
SF 40.5



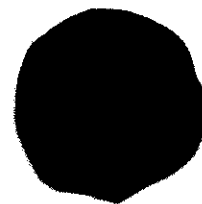
CG1998
W263
SF 40.4



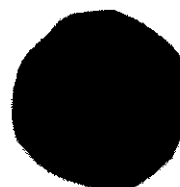
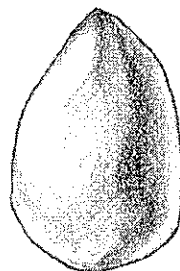
CG1998
W263
SF 40.3



CG1998
W263
SF 40.2



CG1998
W263
SF 40.1



Chogha Gavaneh Small Finds

Number SF40-5

Object Sling Bullet

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

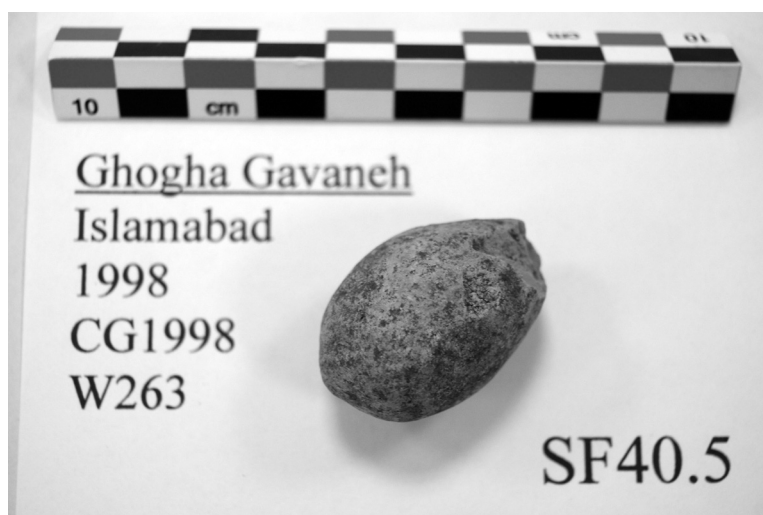
Level D: 295 E: 10 N: 5 cm

Length 3.59 cm

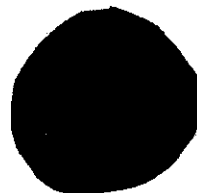
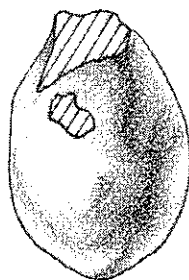
Weight 19.95 g.

Color 10YR7/3 (very pale brown)

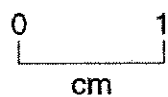
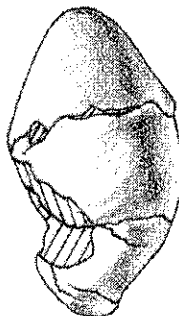
Description The top of the sling bullet is broken, most likely during excavation. There is a sharp and flat cut on the top of the object.



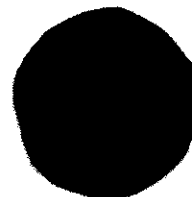
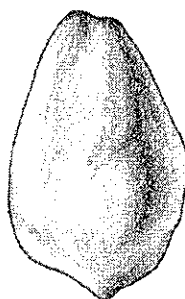
CG1998
W263
SF 40.5



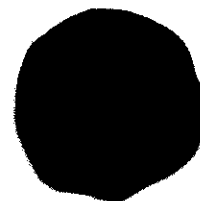
CG1998
W263
SF 40.4



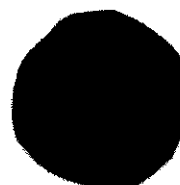
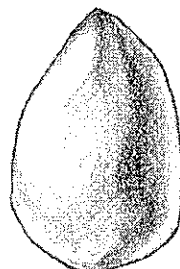
CG1998
W263
SF 40.3



CG1998
W263
SF 40.2



CG1998
W263
SF 40.1



Chogha Gavaneh Small Finds

Number SF41

Object Animal Figurine,
Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

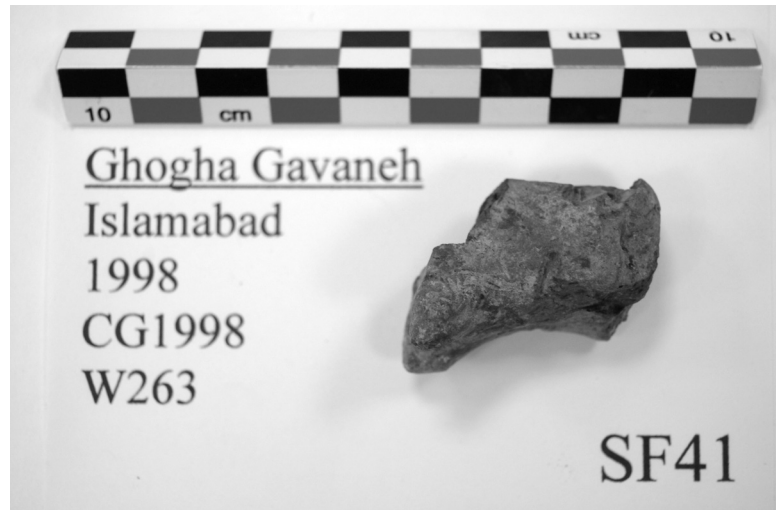
Level D: 295 W: 20 N: 8 cm

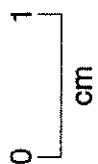
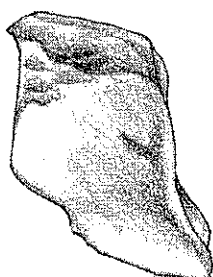
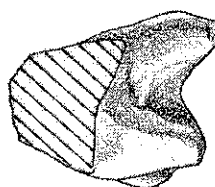
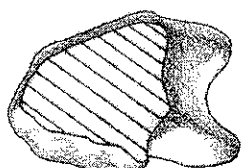
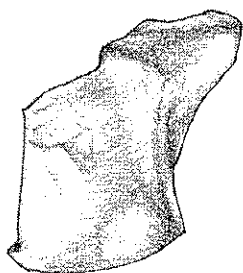
Length 4.18 cm

Weight 15.1 g.

Color 10YR5/1 (gray)

Description A clay trunk of an animal figurine with the front chest, front legs, and head missing, as well as what would be the buttocks broken off. The figure is notably blotchy and discolored, with yellowish-green patches scattered all over the surface. The areas exposed due to breakage display a more reddish color as well as some black patches.





CG1998
W263
SF 41

Chogha Gavaneh Small Finds

Number SF42-1

Object Sling Bullet

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-IX

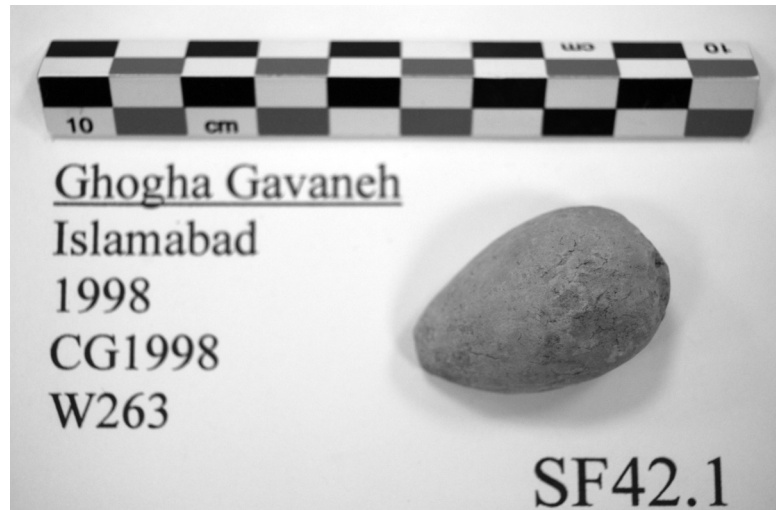
Level D: 295 W: 20 N: 5 cm

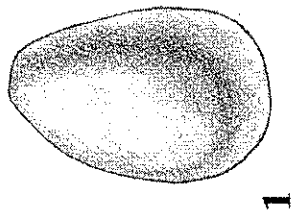
Length 3.06 cm

Weight 16.88 g.

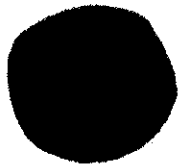
Color 10YR8/3 (very pale brown)

Description It sling bullet is egg-shaped and comes to a rounded point at one end. It has most of one of its widthwise halves neatly sliced off. It is a very pale brown in color. The surface is smooth and the lengthwise cut that has removed almost half of one of its widthwise ends is also smooth. There are some light patches of gray over the surface of one lengthwise half of the bullet.

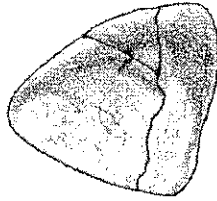




1



2



0 1
cm

CG1998
W263
SF 42

Chogha Gavaneh Small Finds

Number SF42-2

Object Cone-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-IX

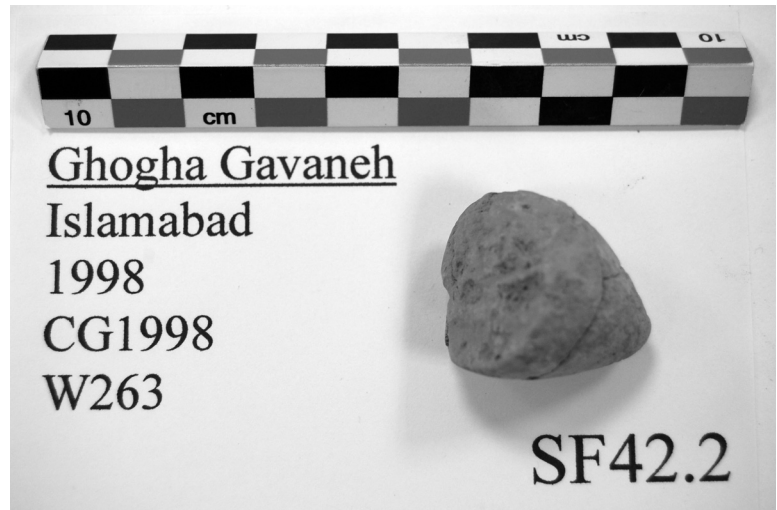
Level D: 295 W: 20 N: 5 cm

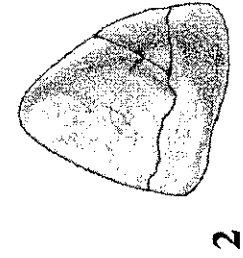
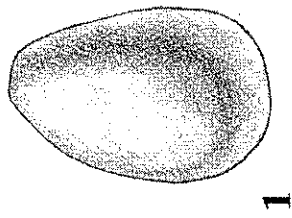
Length 2.48 cm

Weight 14.53 g.

Color 10YR7/3 (very pale brown)

Description It is roughly two-thirds of a ball glued together from three pieces. This fragment has been shaped with the pointy end of a sling bullet. The surface is rough and uneven.





0 1
cm

CG1998
W263
SF 42

Chogha Gavaneh Small Finds

Number SF43-1

Object Sling Bullet

Material Clay

State of Preservation Broken diagonally in half.

Excavation Unit W263-IX

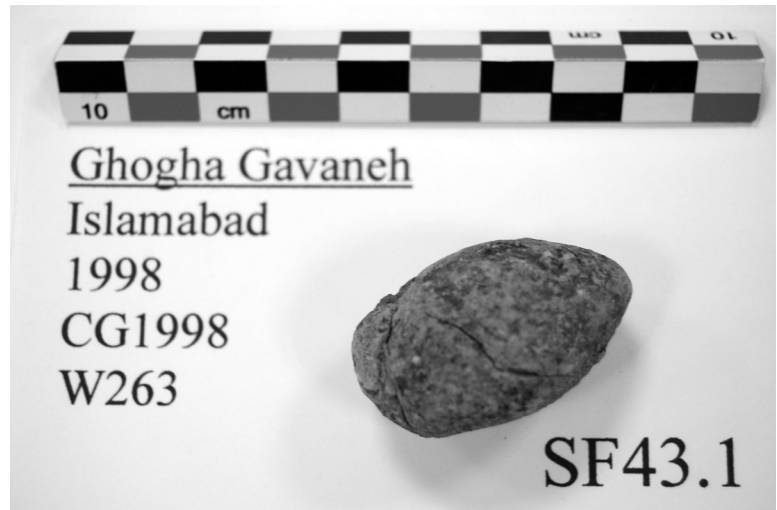
Level D: 295 W: 10 N: 5 cm

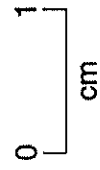
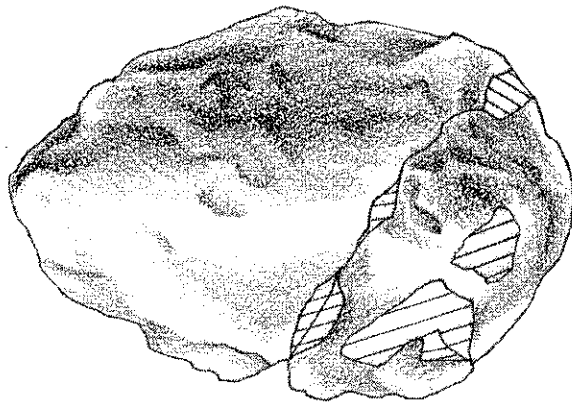
Length 3.61 cm

Weight 21.49 g.

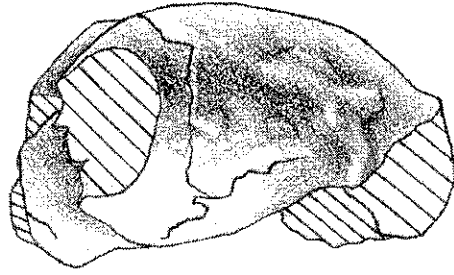
Color 10YR7/3 (very pale brown)

Description The surface of sling bullet is very rough and previously broken. The broken part has been reattached. There is some discoloration with some possible burning on the object.





CG1998
W263
SF 43.1



CG1998
W263
SF 43.2

Chogha Gavaneh Small Finds

Number SF43-2

Object Sling Bullet

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-IX

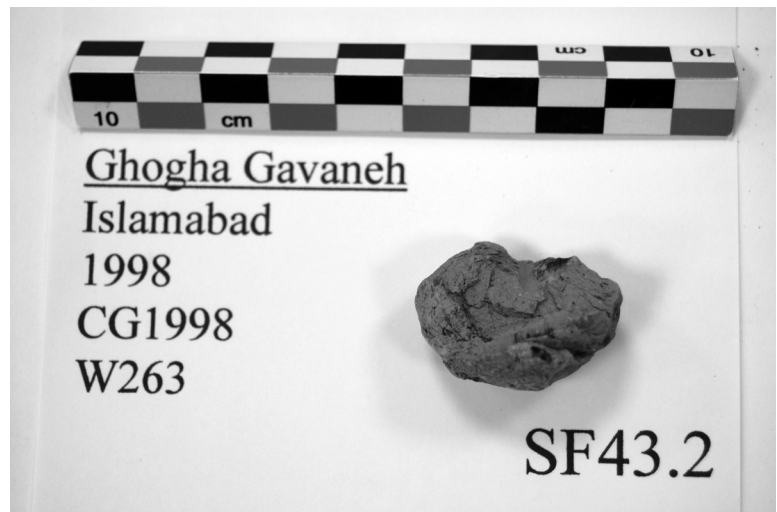
Level D: 295 W: 10 N: 5 cm

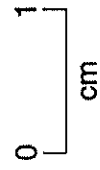
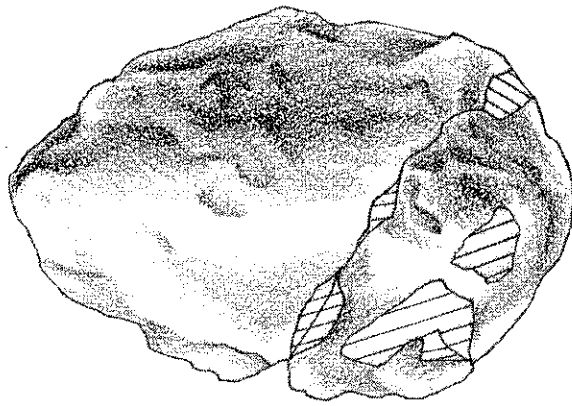
Length 2.97 cm

Weight 10.13 g.

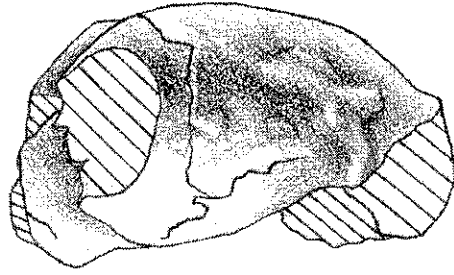
Color 10YR7/3 (very pale brown)

Description A large portion of a sling bullet with a few breaks on the surface. The surface is uneven with the rough texture.





CG1998
W263
SF 43.1



CG1998
W263
SF 43.2

Chogha Gavaneh Small Finds

Number SF44

Object Animal Figurine
Headless

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-IX

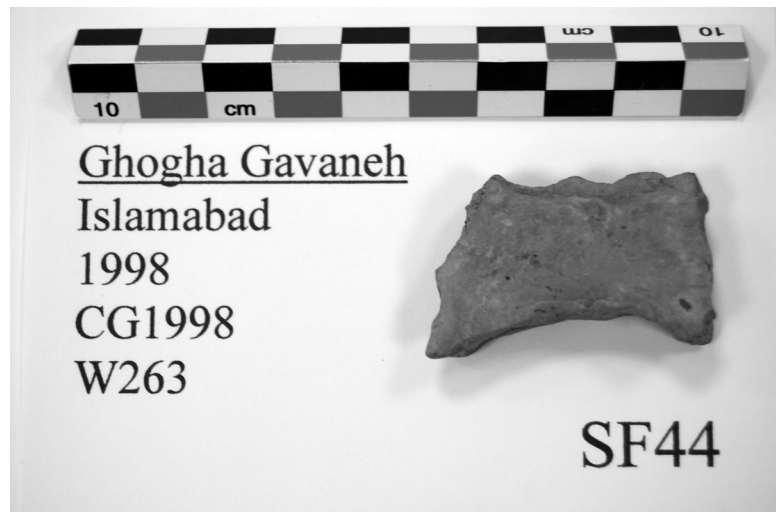
Level D: 300 W: 10 N: 10 cm

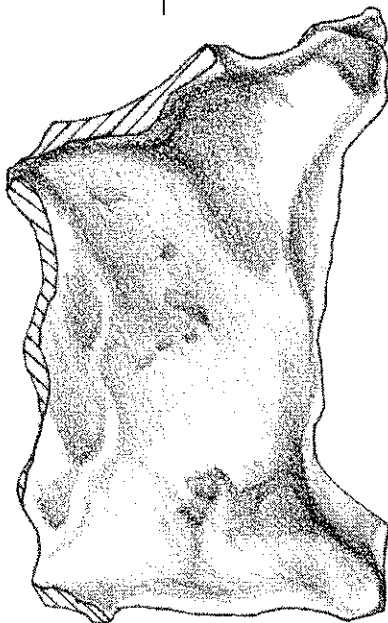
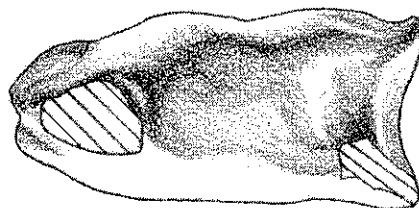
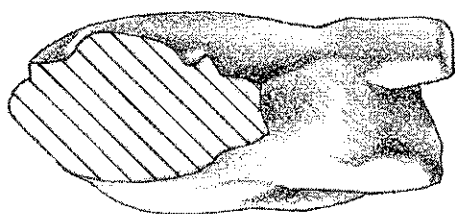
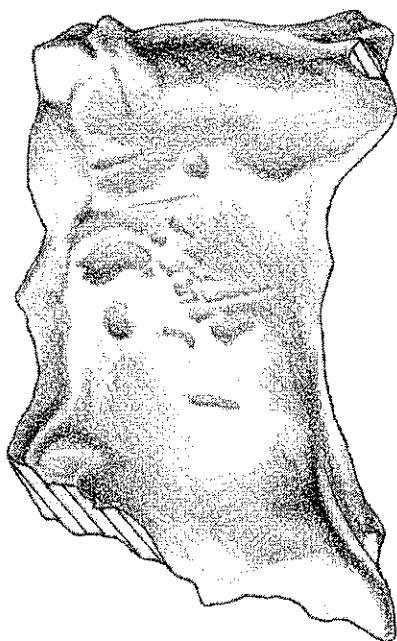
Length 4.21 cm

Weight 14.1 g.

Color 10YR6/2 (light brownish gray)

Description The body of an animal figurine with the neck and head broken off, as well as the tips of two legs chipped. The back of the figure was pinched with fingertips to create a ridge along the spine. The coloration is unusual: the left side of the figure is entirely light brownish gray, while the right side is a much darker gray. Both ends of the figure, however, including the area exposed due to breakage at the neck and head, are predominantly light brownish gray. There is a very tiny amount of yellowish green discoloration along the ridge on the back, as well as a large brown blotch along the underside near the front right leg. There is a small cavity in the middle of the back on the left side. The spinal ridge on the back of the figurine from the aerial view was designed to be thinner along the spine and bulkier along the stomach. This could represent a





0 1
cm

CG1998
W263
SF 44

Chogha Gavaneh Small Finds

Number SF45

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

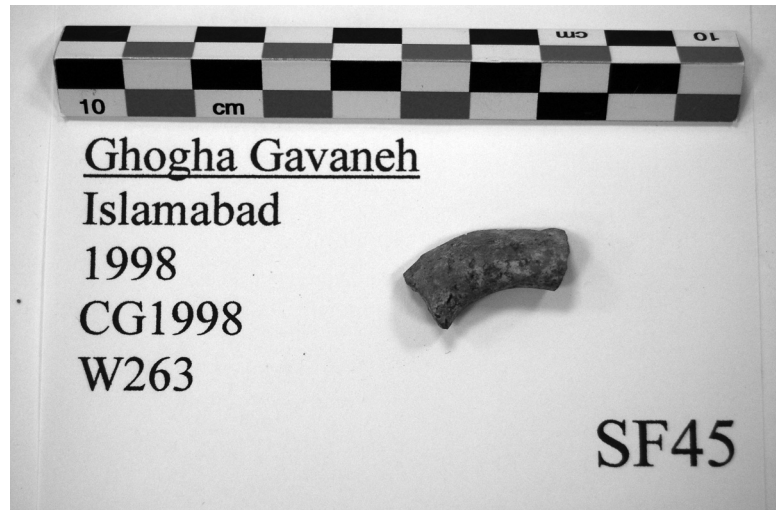
Level D: 310 E: 159 N: 49 cm

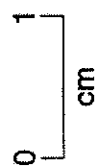
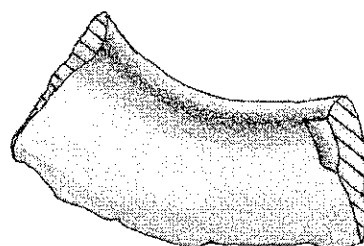
Length 2.45 cm

Weight 2.1 g.

Color 10YR6/2 (light brownish gray)

Description A clay fragment of a horn from an animal figurine, consisting of the base to about halfway to the tip. The outer edge has a ridge, while the inner curve is marked by a light green discoloration, with some tan spots. The general color is a light brownish gray while the exposed area is a reddish brown. It is possibly sheep or goat horn (Fig. 7 from Schmandt-Besserat 1997:50).





CG1998
W263
SF 45

Chogha Gavaneh Small Finds

Number SF46

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

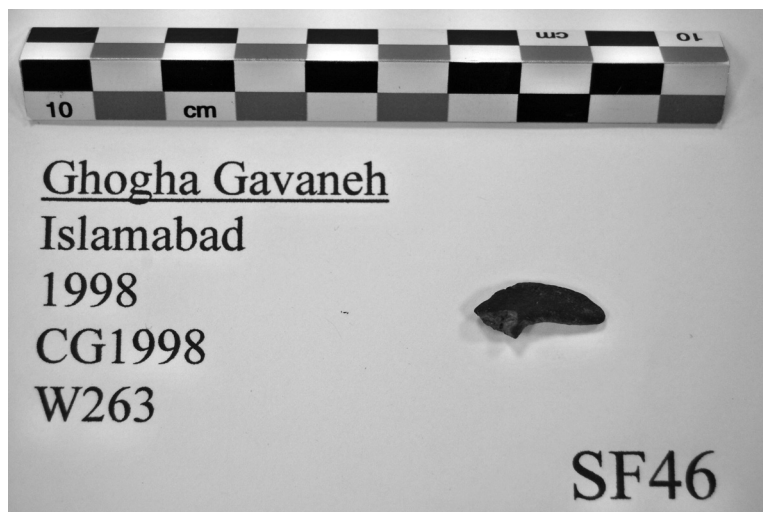
Level D: 278 E: 78 N: 11 cm

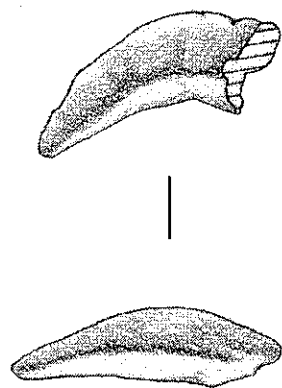
Length 1.75 cm

Weight 0.5 g.

Color GLEY14/N (dark gray)

Description If it was attached to a small figure, this could be the whole horn. The break at the wider end is not clean (straight) and there is a small chunk missing. The clay tip of the horn has a slight ridge along the outer edge. There are some light green and tan flecks on it, especially on the left side (with the horn pointing away from you). The area exposed by breakage is a lighter, reddish-yellow color. The horn could be cattle horn due to angle but the slight ridge is reminiscent of sheep or goat horns (Fig. 7 from Schmandt-Besserat 1997:50).





0 1
cm

CG1998

W263

SF 46

Chogha Gavaneh Small Finds

Number SF47-1

Object Ovoid-shaped Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

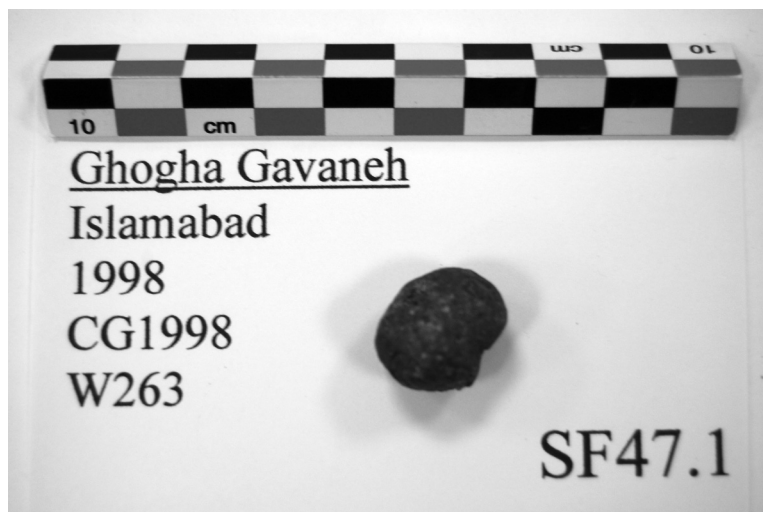
Level D: 302 E: 27 N: 18 cm

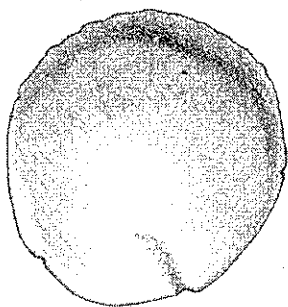
Length 1.09 cm

Weight 4.6 g.

Color 2.5Y5/1(gray)

Description It is intact, except for one part where cracks have developed and tiny fragments threaten to fall out. The small gray clay ovoid is irregular in shape and has tan flecks from dust and wear. There are some light greenish patches in some places as well.

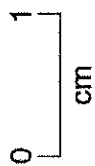
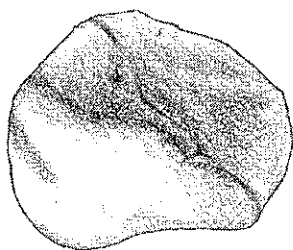




CG1998

W263

SF 47.2



CG1998

W263

SF 47.1

Chogha Gavaneh Small Finds

Number SF47-2

Object Disk-shaped fragment

Material Clay

State of Preservation Intact, except for a some tiny bits “chipped off” the edges

Excavation Unit W263-VIII

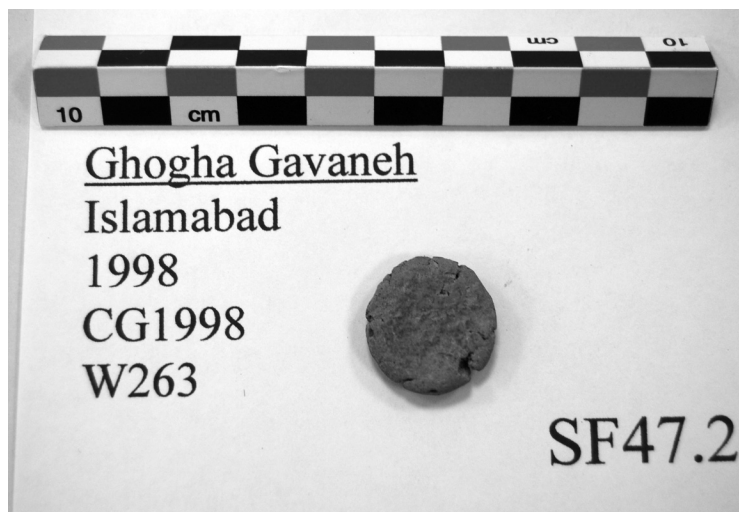
Level D: 302 E: 27 N: 18 cm

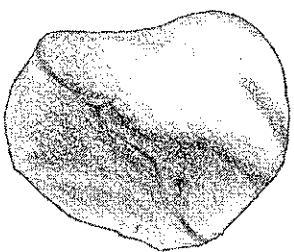
Length 1.92 cm

Weight 2.2 g.

Color 2.5Y6/1 (gray)

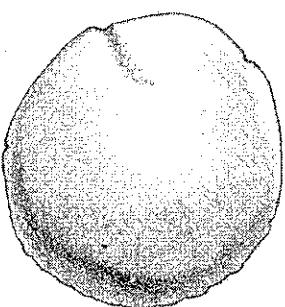
Description Half lenticular or semilenticular disk-shaped. The semilenticular disk is slightly lighter in color on one side, but both sides are lighter than the color of the ball. At the edges it has some small bits “chipped off” and some small cracks.





0
1
cm

CG1998
W263
SF 47.1



—



CG1998
W263
SF 47.2

Chogha Gavaneh Small Finds

Number SF48

Object Miscellaneous

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

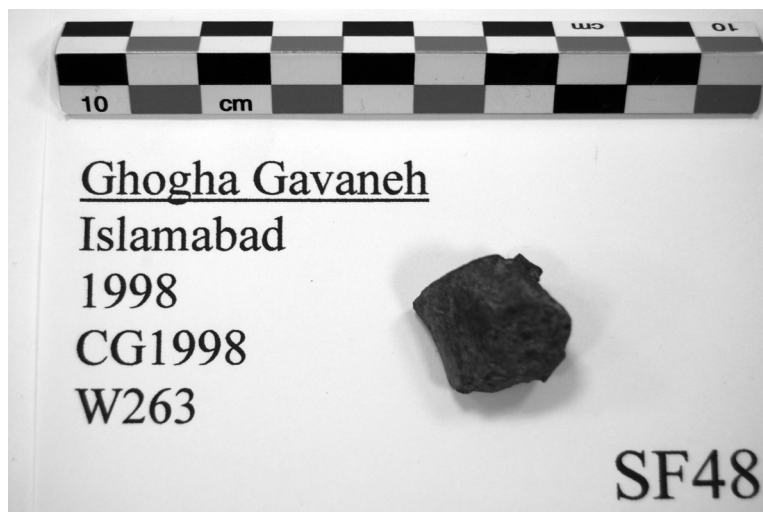
Level D: 301 W: 168 N: 29 cm

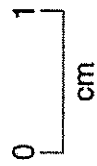
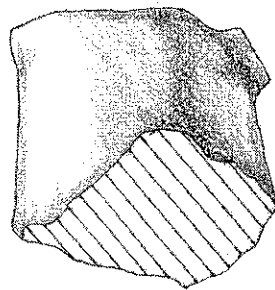
Length 2.04 cm

Weight 4.9 g.

Color 2.5Y6/2 (light brownish gray)

Description A fragment from a figurine that is broken in many places. What part of a figurine this fragment may represent is difficult to determine. The color is a light brownish gray with some places slightly lighter or slightly darker than others, some yellowish green discoloring, and a pale reddish tone over the area exposed by the largest break. On the edge of that break is a tiny knob protruding out.





CG1998

W263

SF 48

Chogha Gavaneh Small Finds

Number SF49

Object Anthropomorphic
Figurine

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

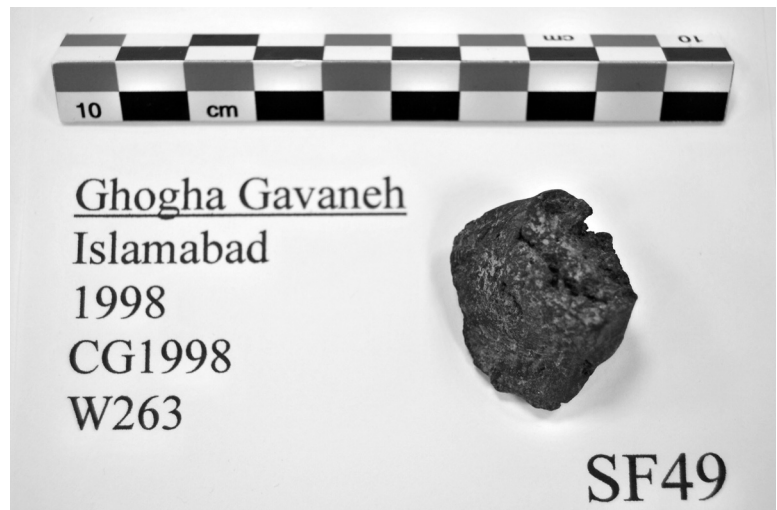
Level D: 298 W: 150 N: 18 cm

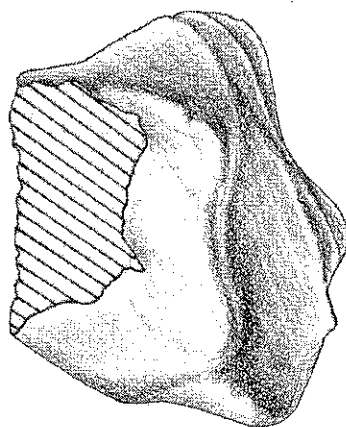
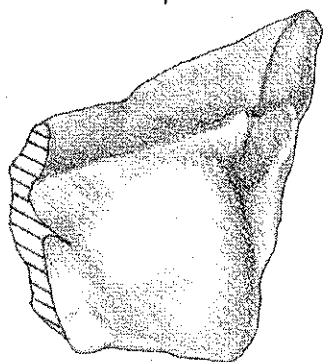
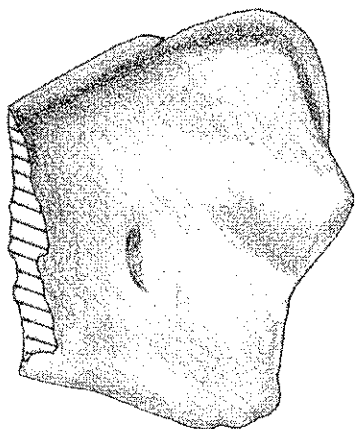
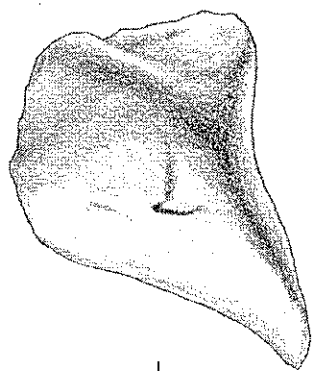
Length 2.61 cm

Weight 11.0 g.

Color GLEY14/N (dark gray)

Description A fragment from a clay figurine, shaped somewhat like a skirt but with one side hanging down longer than the other. The fragment was broken off from the main body of the object at the top (the narrower end). A bit may have been chipped off at the base, but it is difficult to tell. The top portion is jagged and worn. It is dark gray in color with nooks and crannies created by a break and filled in with the tan dust. This dust also covers some indentations on the surface caused by wear. This artifact may be a variation of Jarmo female figurines Fig.157 # 3a and Fig.167 #11 (Braidwood 1983).





0 1
cm

CG1998
W263
SF 49

Chogha Gavaneh Small Finds

Number SF50-1

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

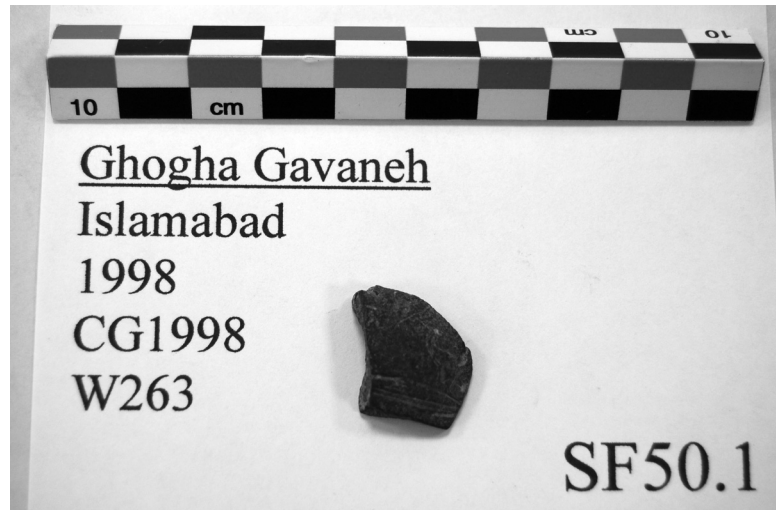
Level D: 280 E: 50 N: 11 cm

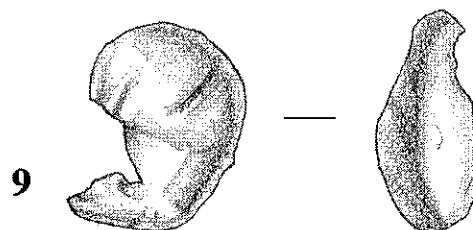
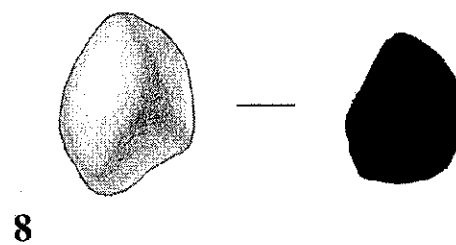
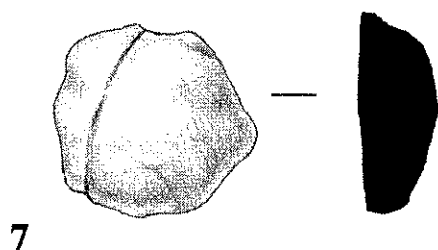
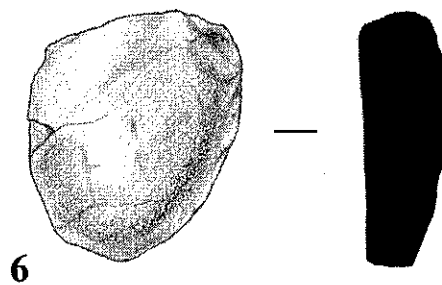
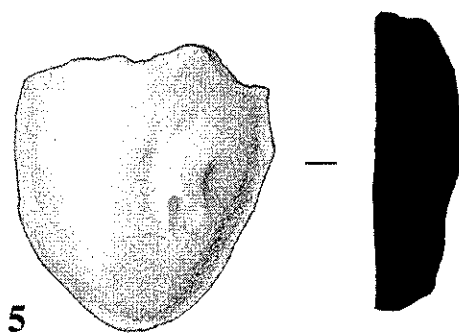
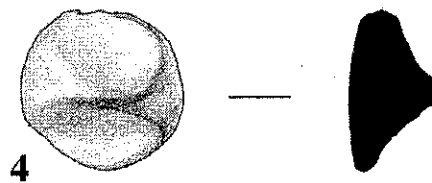
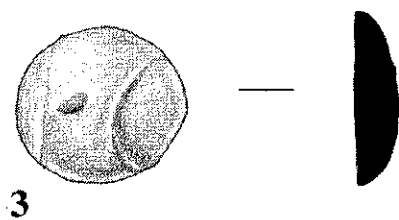
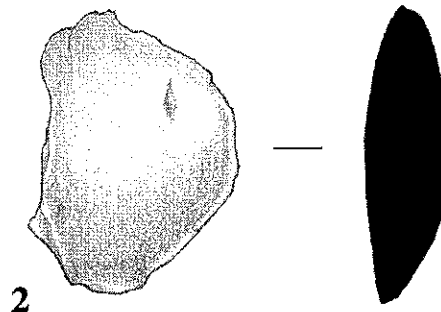
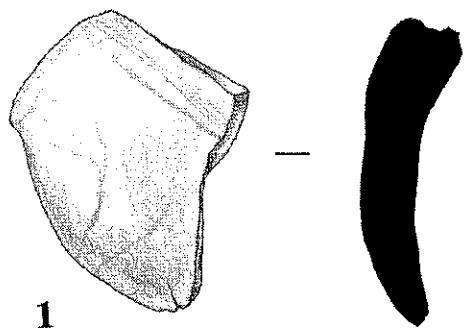
Length 1.76 cm

Weight 1.76 g.

Color GLEY4/N (dark gray)

Description There are three incised parallel lines close together toward the middle of the disk. One surface is dark gray in color while the other is tan. In comparison with the other disk fragments, this one is smooth with only a few minor cracks.





0 1
cm

CG1998
W263
SF 50

Chogha Gavaneh Small Finds

Number SF50-2

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

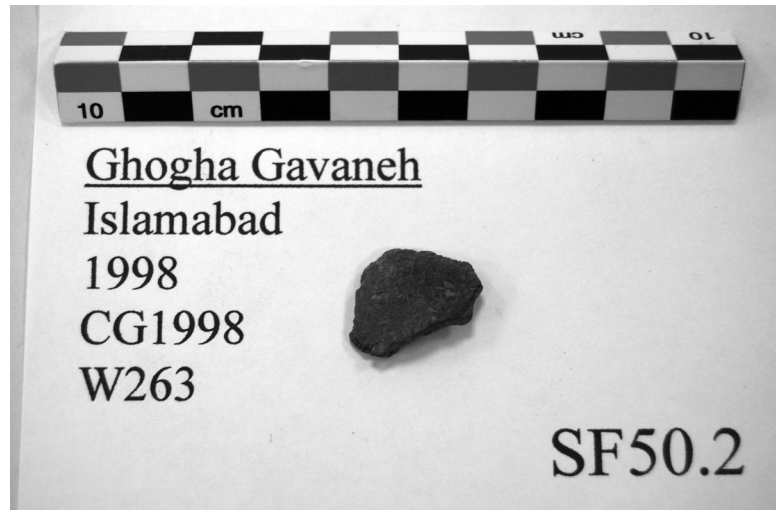
Level D: 280 E: 50 N: 11 cm

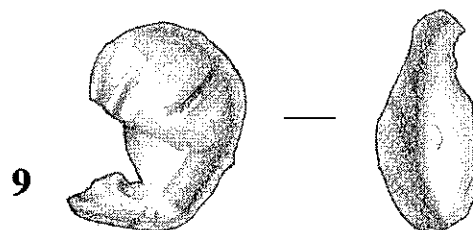
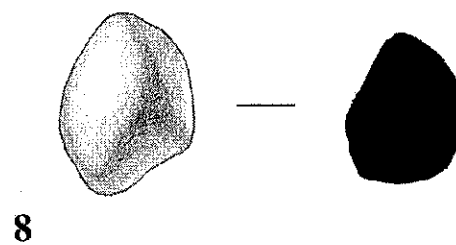
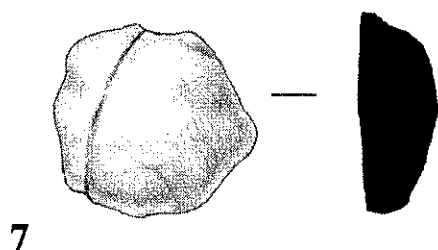
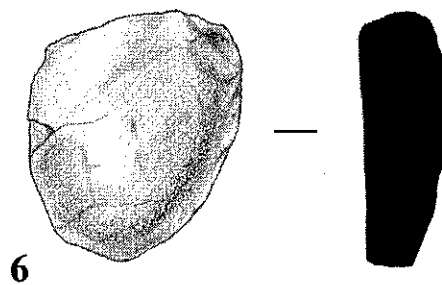
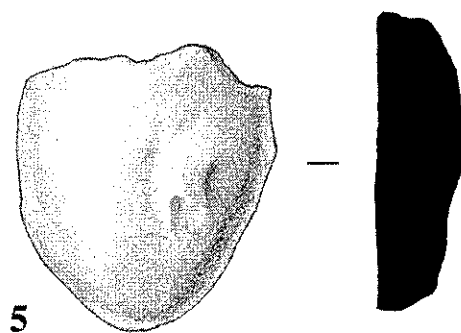
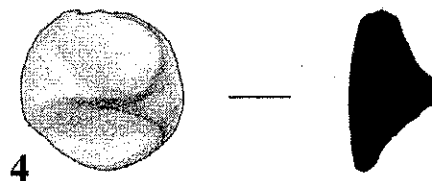
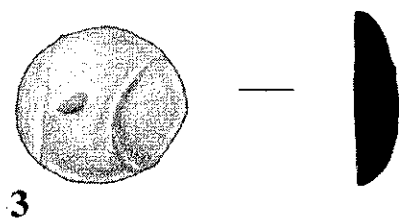
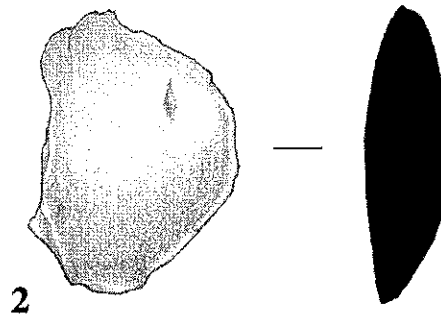
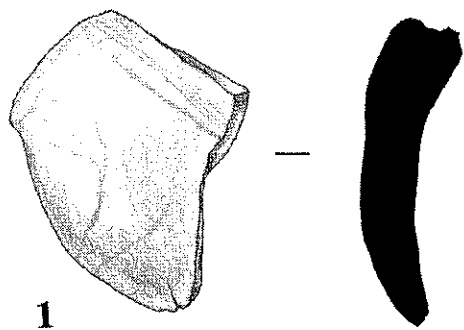
Length 2.04 cm

Weight 1.36 g.

Color 10YR5/1 (gray)

Description The disk is flat with brownish-grey color on the concave side. There are at least two incised lines on one side of the object with a small incision along with a possible small punctuate. The object is slightly convex on the other side.





0 1
cm

CG1998
W263
SF 50

Chogha Gavaneh Small Finds

Number SF50-3

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

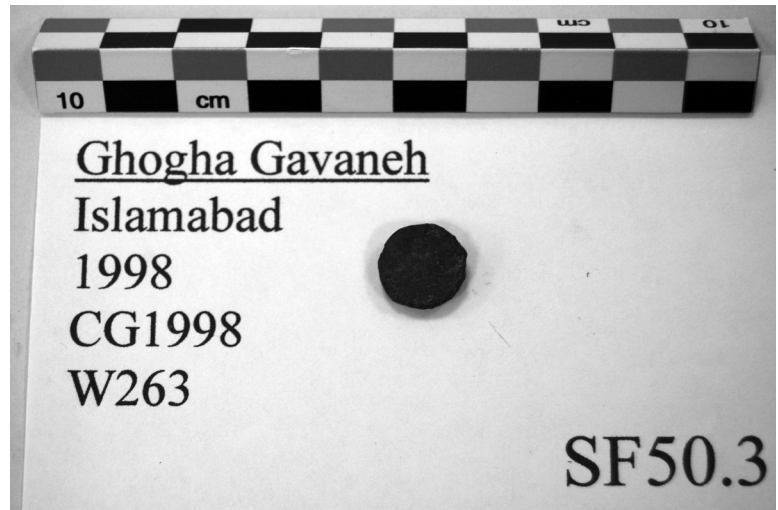
Level D: 280 E: 50 N: 11 cm

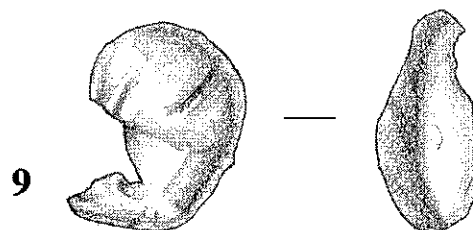
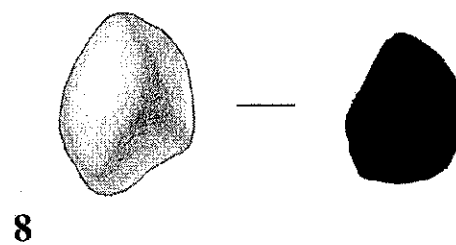
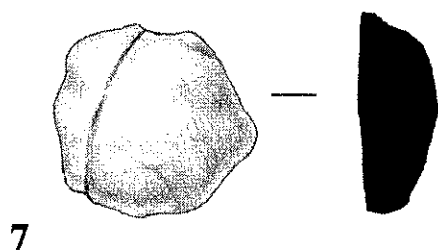
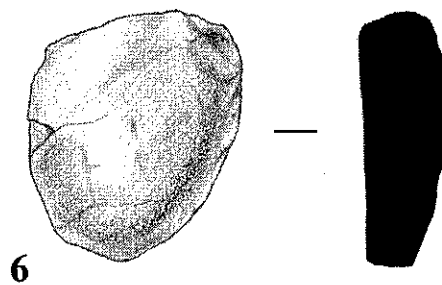
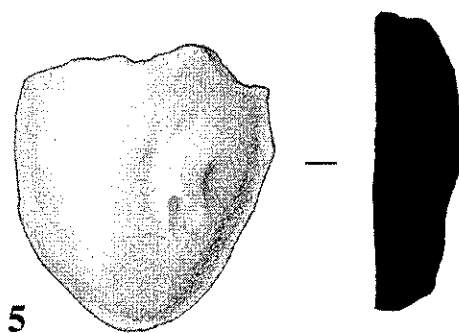
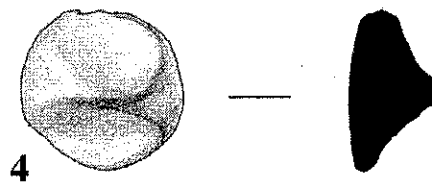
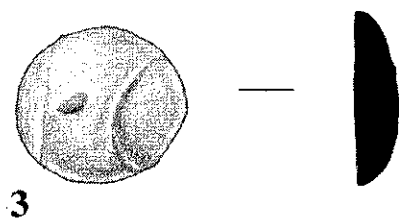
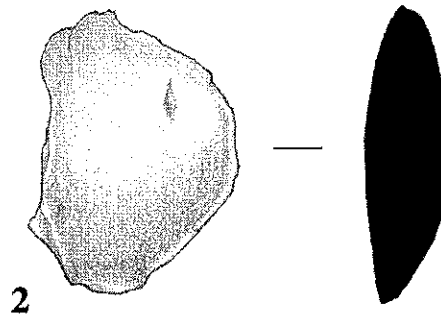
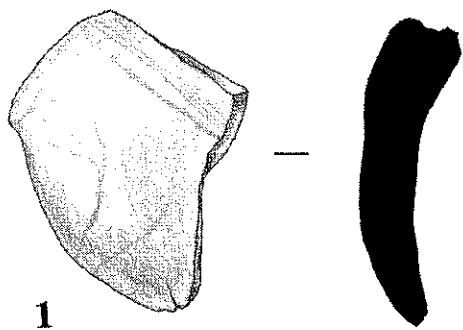
Length 1.20 cm

Weight 0.51 g.

Color GLEY4/N (dark gray)

Description On one side of the object there are two incised lines at the edge of the surface. It is similar to Fig 3:19 (Schmant-Besserat 1996:135). This side of the disk is slightly convex with a smooth surface. The other side is flat with a smooth surface.





0 1
cm

CG1998
W263
SF 50

Chogha Gavaneh Small Finds

Number SF50-4

Object Cone-shaped Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

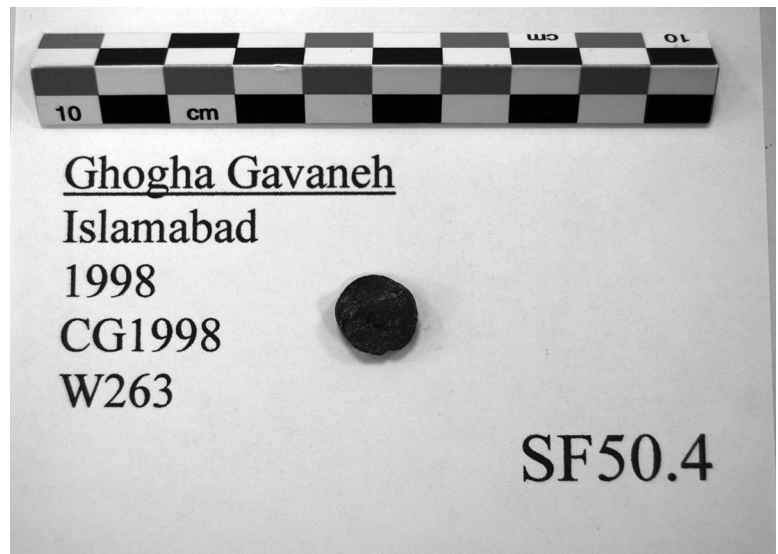
Level D: 280 E: 50 N: 11 cm

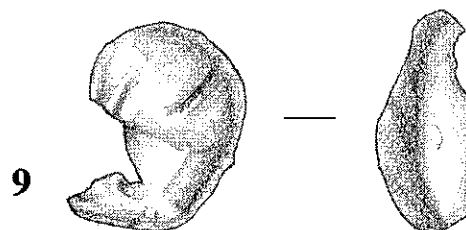
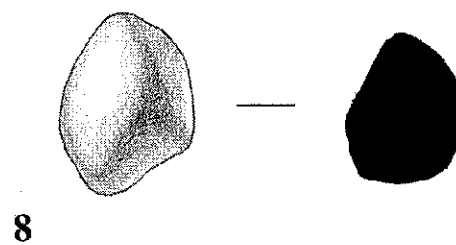
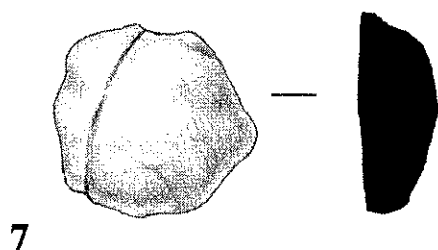
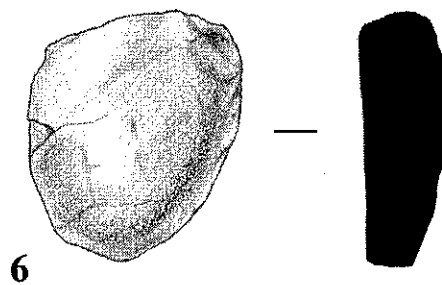
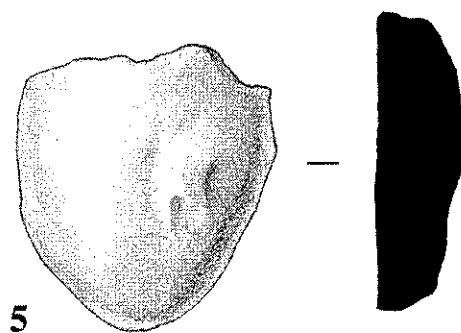
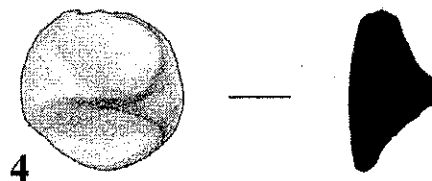
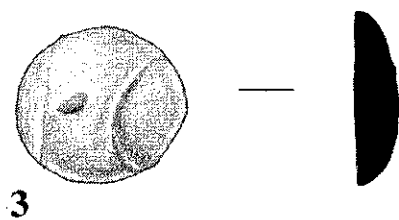
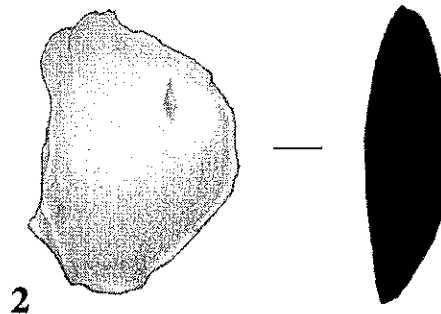
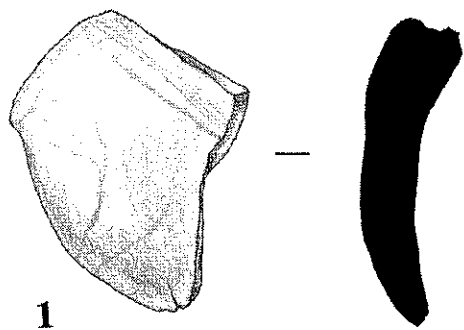
Length 1.19 cm

Weight 0.80 g.

Color GLEY4/N (dark gray)

Description Disk-shaped object with one flat side. The other side appears to be pinched.





0 1
cm

CG1998
W263
SF 50

Chogha Gavaneh Small Finds

Number SF50-5

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

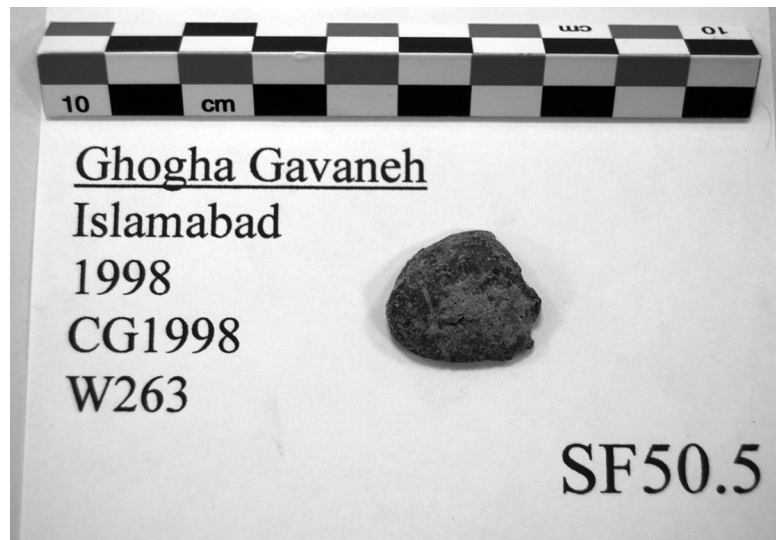
Level D: 280 E: 50 N: 11 cm

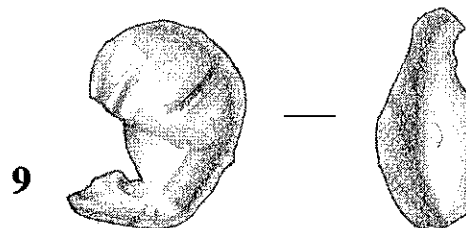
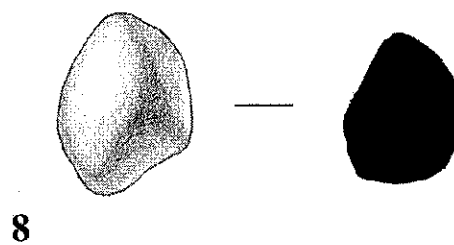
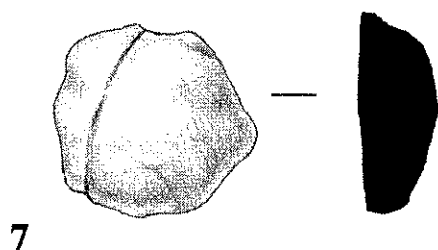
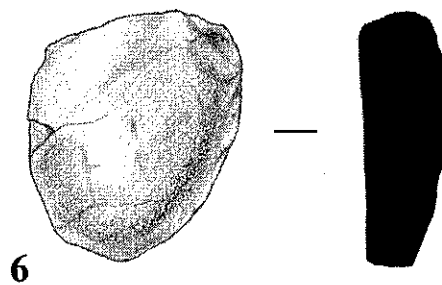
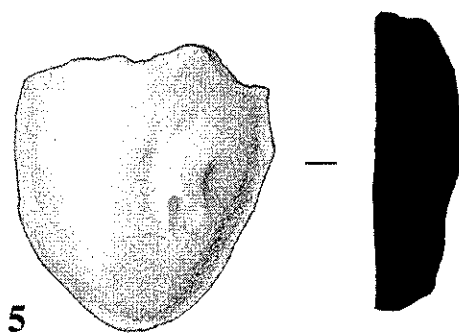
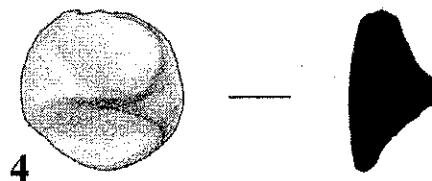
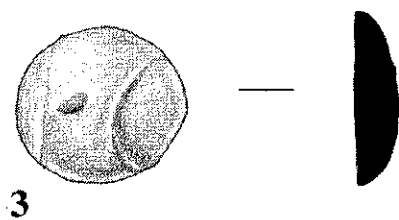
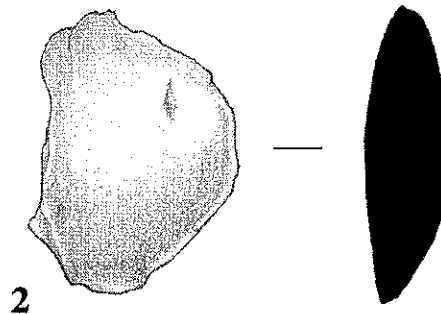
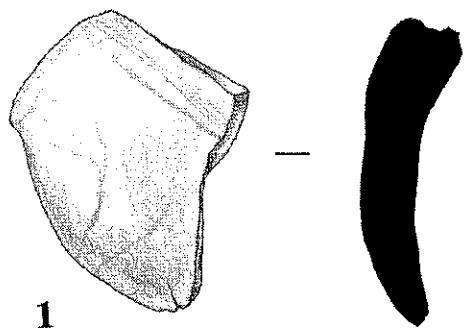
Length 2.49 cm

Weight 2.49 g.

Color GLEY5/N (gray)

Description This object has convex and flat surfaces with one incised line on the convex surface. The convex area is rough and light gray with tan scattered patches. Also, there are a few scratches on the flat side of the token with an oval shape.





0 1
cm

CG1998
W263
SF 50

Chogha Gavaneh Small Finds

Number SF50-6

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

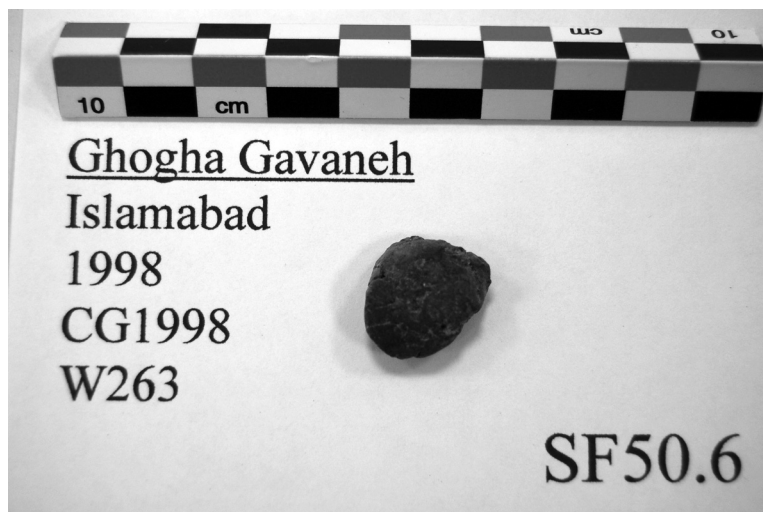
Level D: 280 E: 50 N: 11 cm

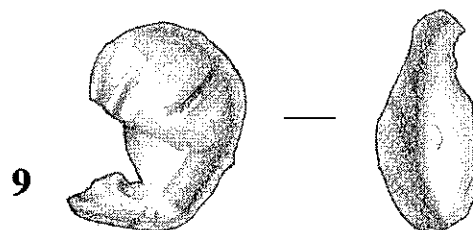
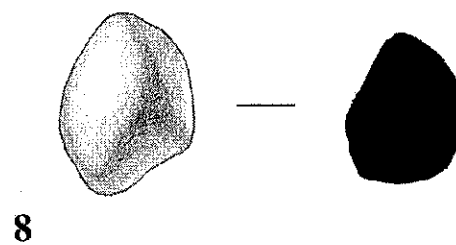
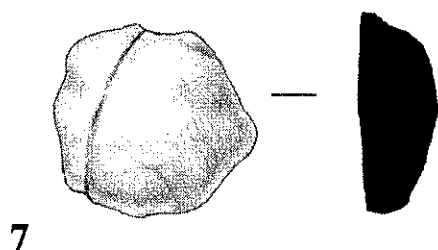
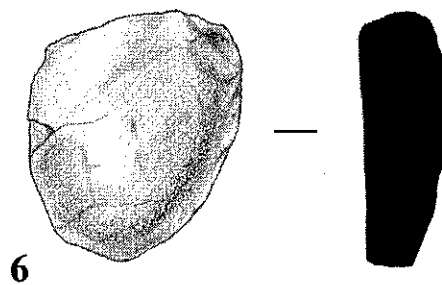
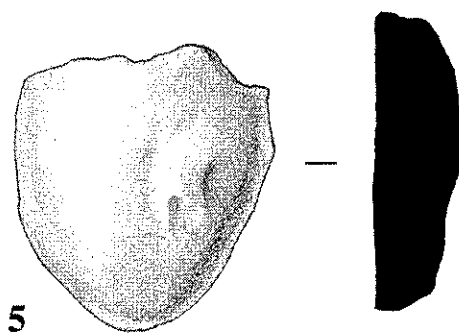
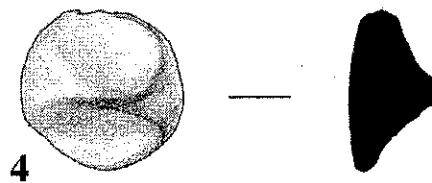
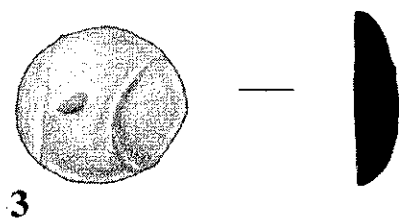
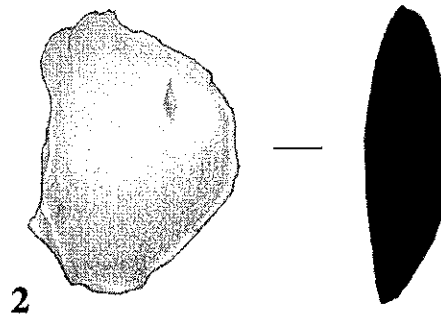
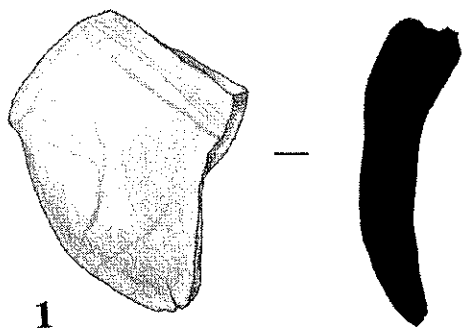
Length 1.81 cm

Weight 2.19 g.

Color GLEY4/N (dark gray)

Description This object is rougher and thicker than the majority of the disk-shaped fragments. The disk is an oval shape with some cracks on one surface. On another side of the disk there are at least three incised lines with irregular spacing. The incised lines seem a bit wider than some of the others. Also, one incised line cuts across the edge.





0 1
cm

CG1998
W263
SF 50

Chogha Gavaneh Small Finds

Number SF50-7

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

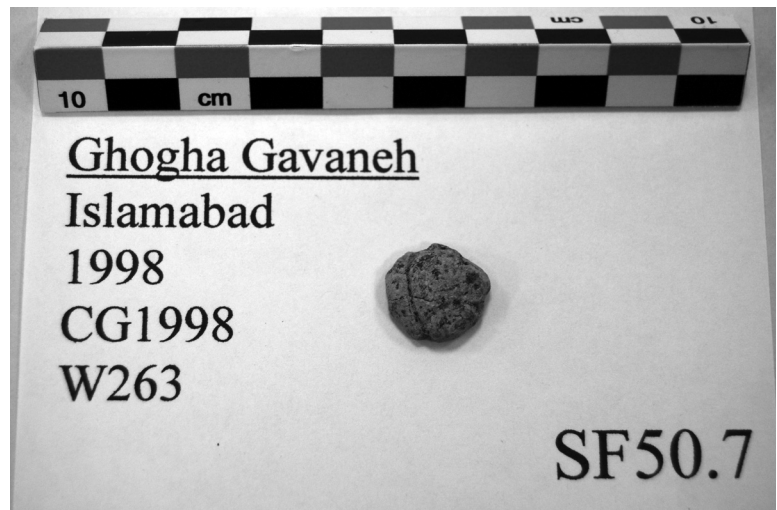
Level D: 280 E: 50 N: 11 cm

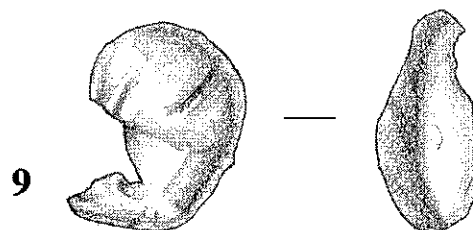
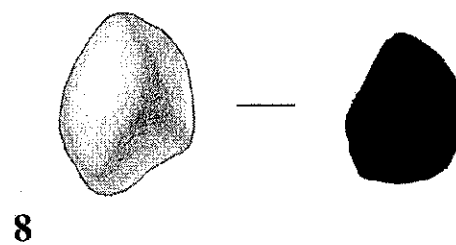
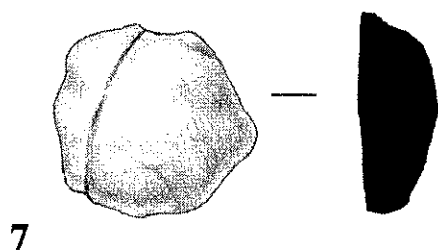
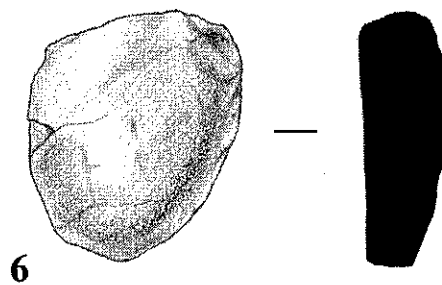
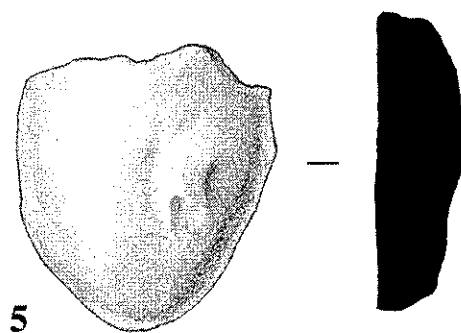
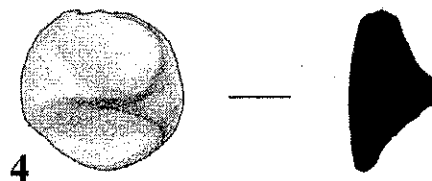
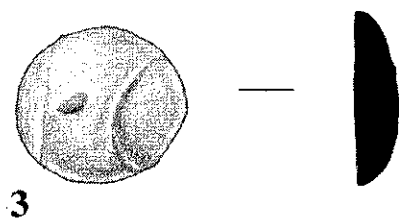
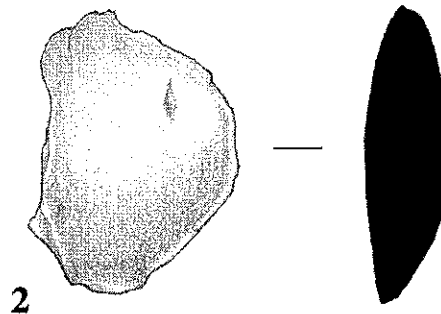
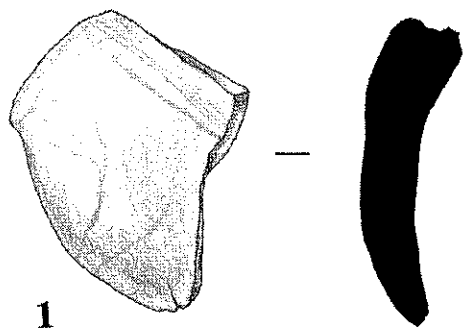
Length 1.35 cm

Weight 1.06 g.

Color 2.5Y8/2 (pale yellow)

Description The disk is almost white in color. The object looks like a complete circle with chipped edges. One side of the disk has one incised line close to the edge. The non-incised side is flat and smooth. It seems the clay object was not fired or had basked in the sun, similar to SF50.18. Also, the object is similar to Fig.9, the disk-shaped item from from prehistoric site of Munhata, in the central Jordan Valley (Garfinkel 1995:85).





0 1
cm

CG1998
W263
SF 50

Chogha Gavaneh Small Finds

Number SF50-8

Object Sphere-shaped
Fragment

Material

**State of
Preservation** This fragment is missing
from the collection

**Excavation
Unit** W263-VIII

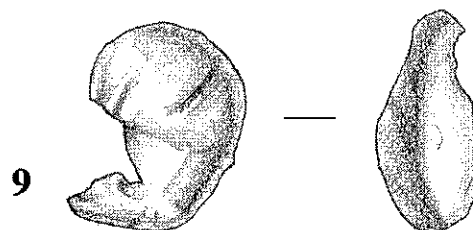
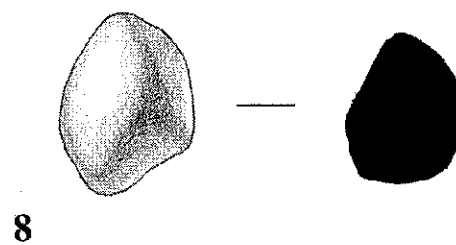
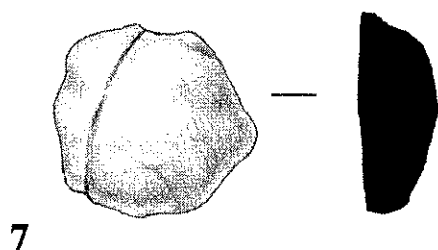
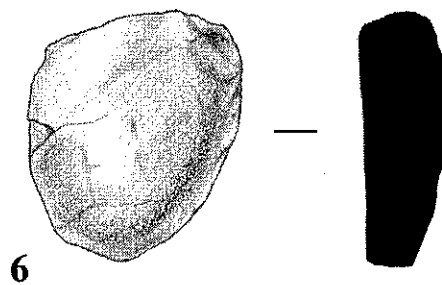
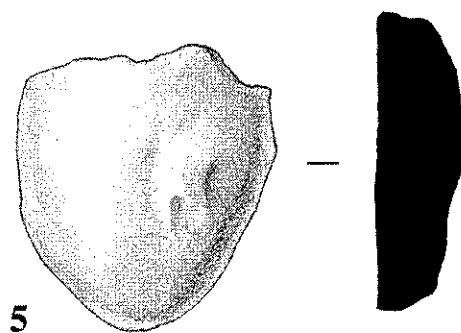
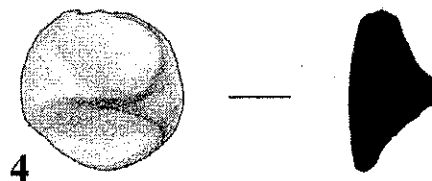
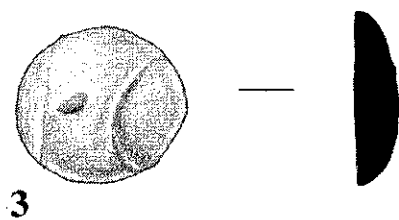
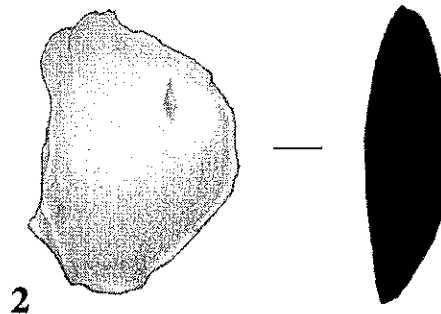
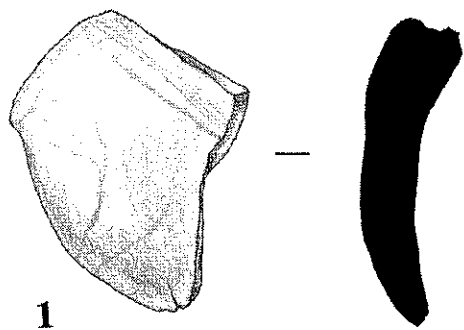
Level D: 280 E: 50 N: 11 cm

Length

Weight

Color

Description



0 1
cm

CG1998
W263
SF 50

Chogha Gavaneh Small Finds

Number SF50-9

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

Level D: 280 E: 50 N: 11 cm

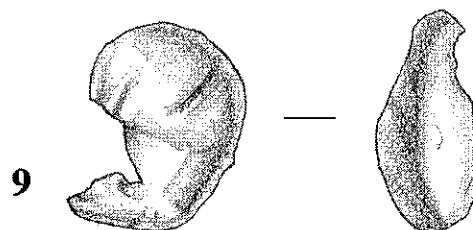
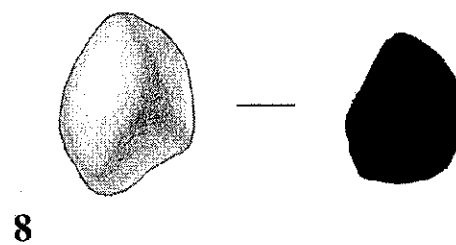
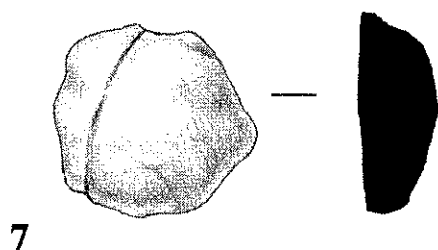
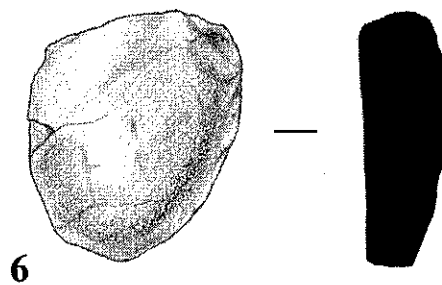
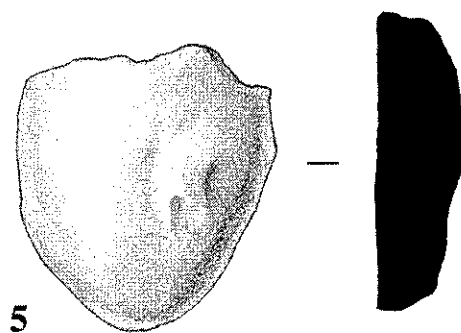
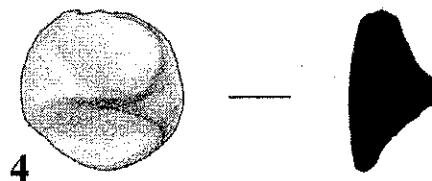
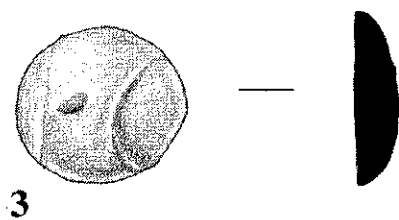
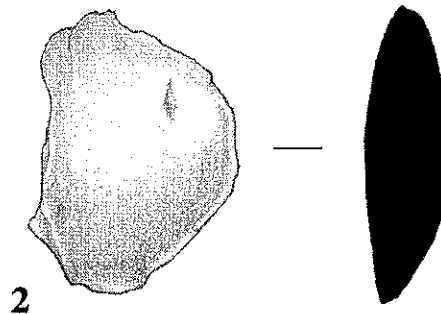
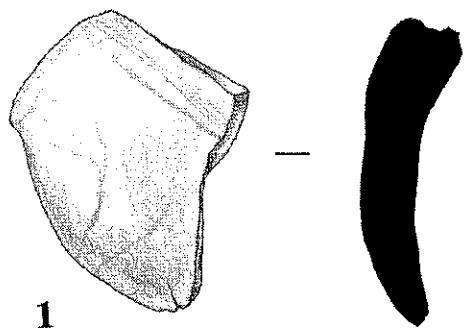
Length 1.63 cm

Weight 1.06 g.

Color 10YR6/2 (light brownish gray)

Description The disk has been broken severally. It is a teardrop with a thick and convex surface similar to Fig.3:63, the disk is with intersecting line design (Schmandt-Besserat: 1996:135). One side of the disk is smoother and has a darker color. The other side is broken and rougher with some spots in a lighter color.





0 1
cm

CG1998
W263
SF 50

Chogha Gavaneh Small Finds

Number SF50-10

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

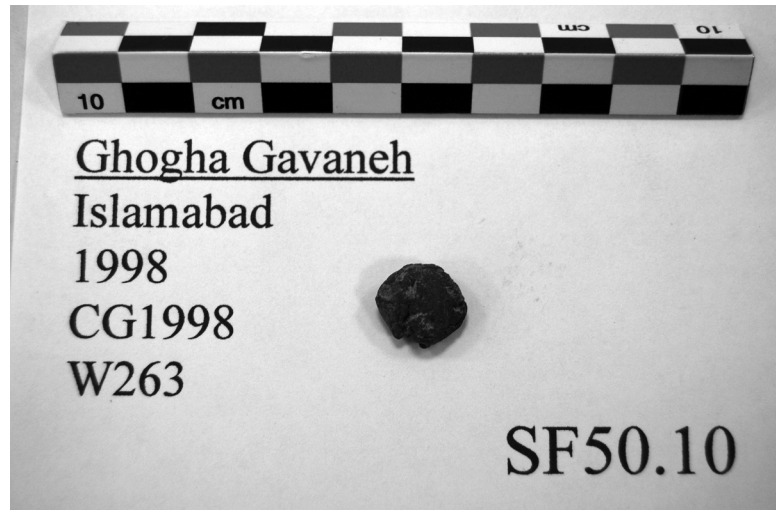
Level D: 280 E: 50 N: 11 cm

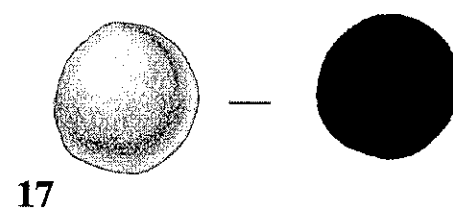
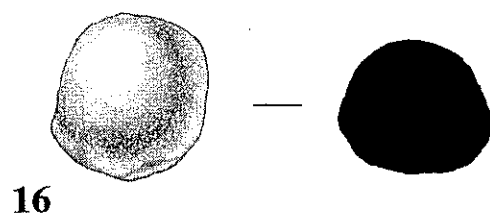
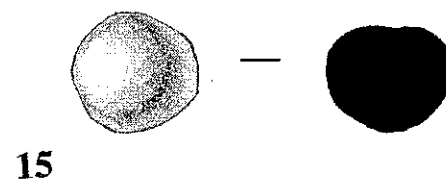
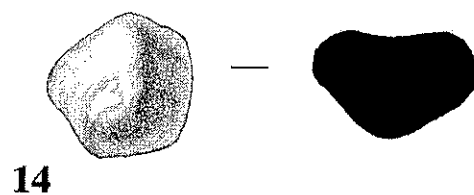
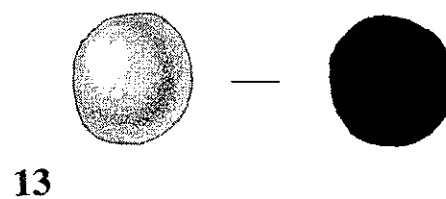
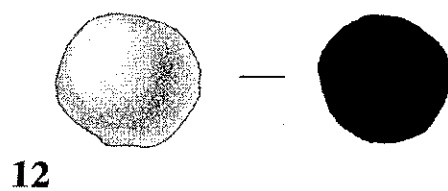
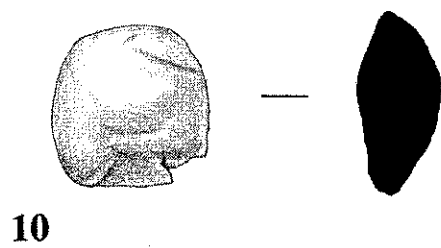
Length 1.19 cm

Weight 0.73 g.

Color GLEY4/N (dark gray)

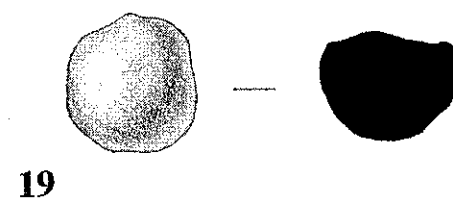
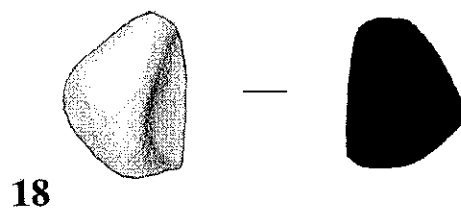
Description The object is rough with some areas that are cracked. The shape of the object is irregular and is chipped on side but almost intact. It seems the creator made this object in a fast-timing process.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-11

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

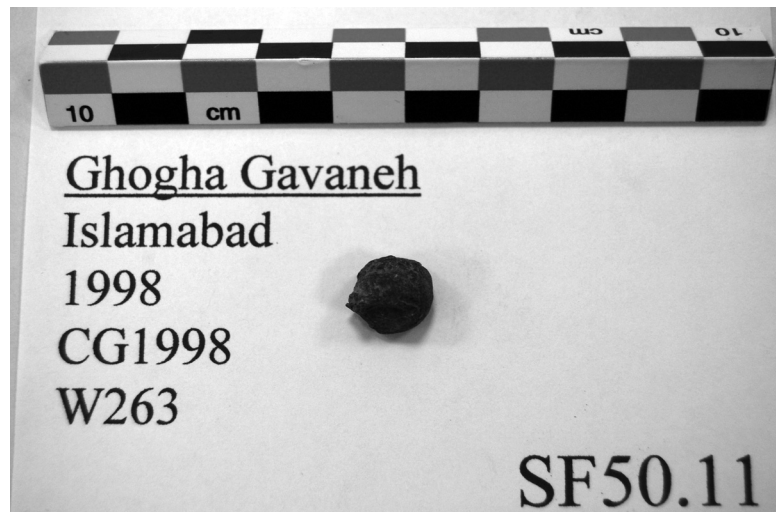
Level D: 280 E: 50 N: 11 cm

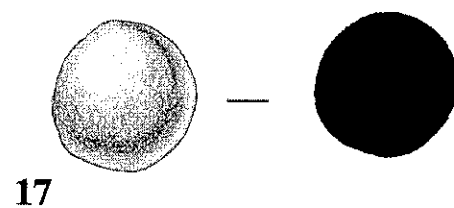
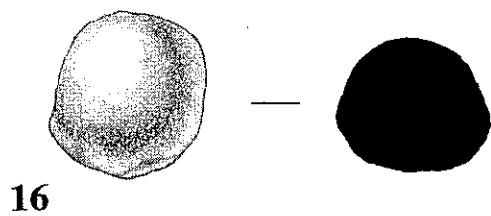
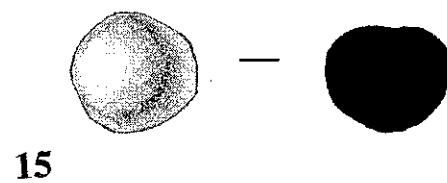
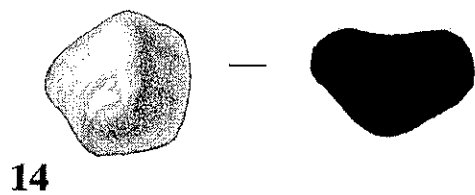
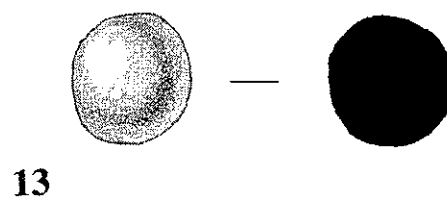
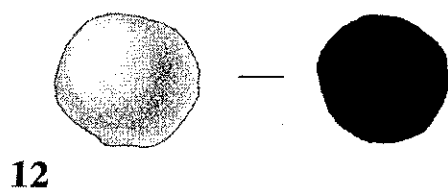
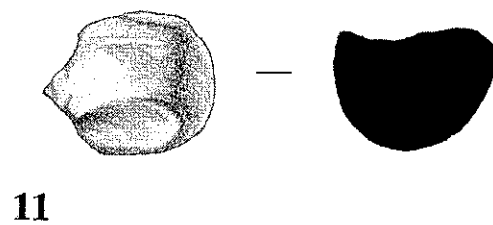
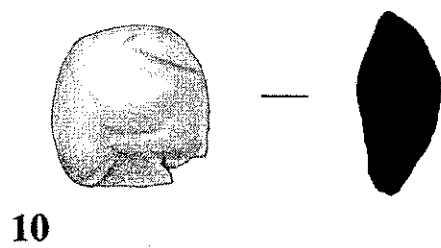
Length 1.01 cm

Weight 0.95 g.

Color GLEY3/N (very dark gray)

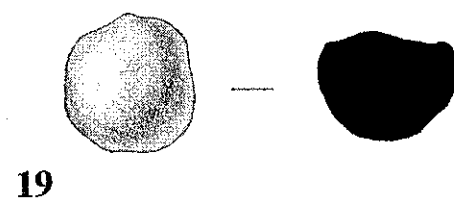
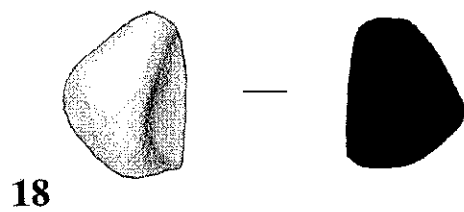
Description The object is roughly chipped on both sides.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-12

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

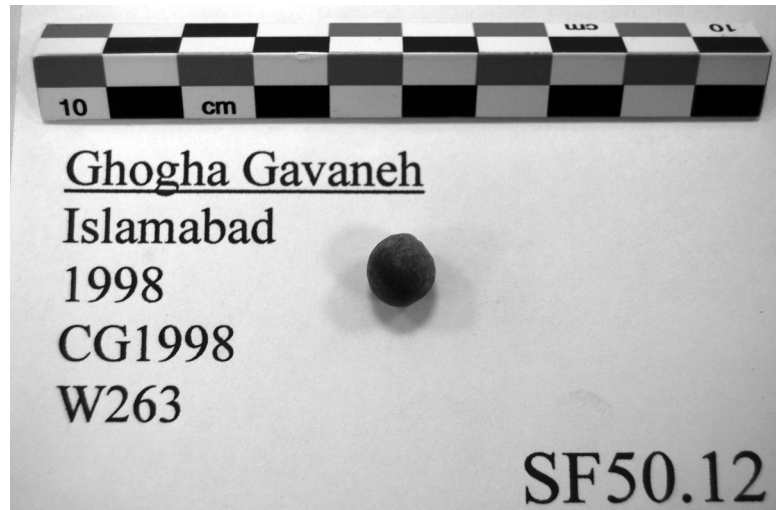
Level D: 280 E: 50 N: 11 cm

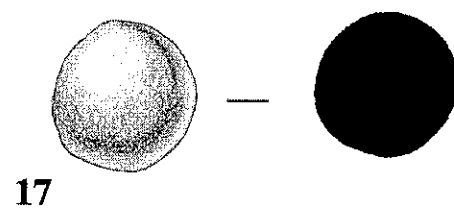
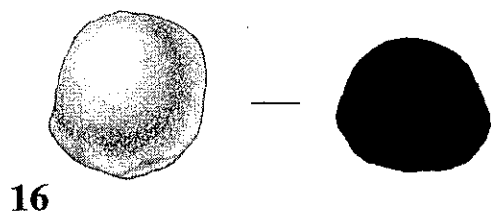
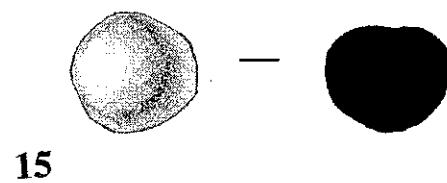
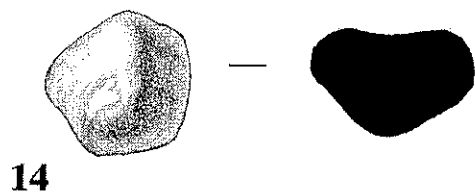
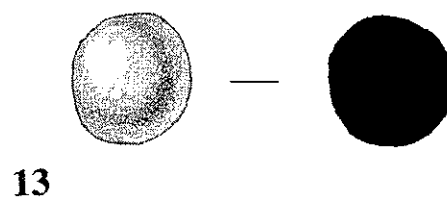
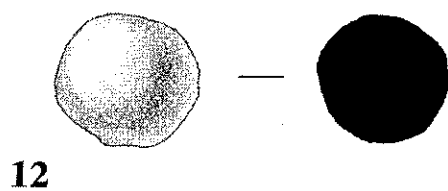
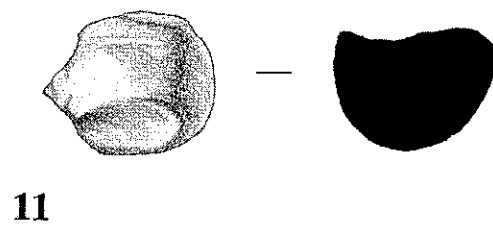
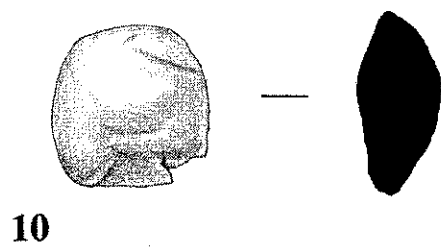
Length 0.94 cm

Weight 0.83 g.

Color 2.5Y6/2 (light brownish gray)

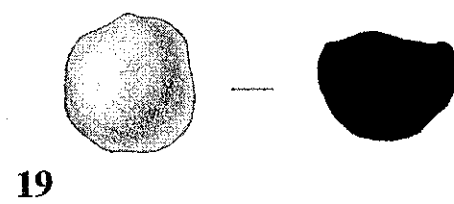
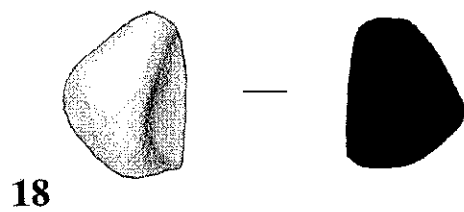
Description The object is in a perfect circular shape with a smooth surface similar to the plain spheres in Fig 2:1 (Schmandt-Besserat 1996:131). Some part of the surface is burnished.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-13

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

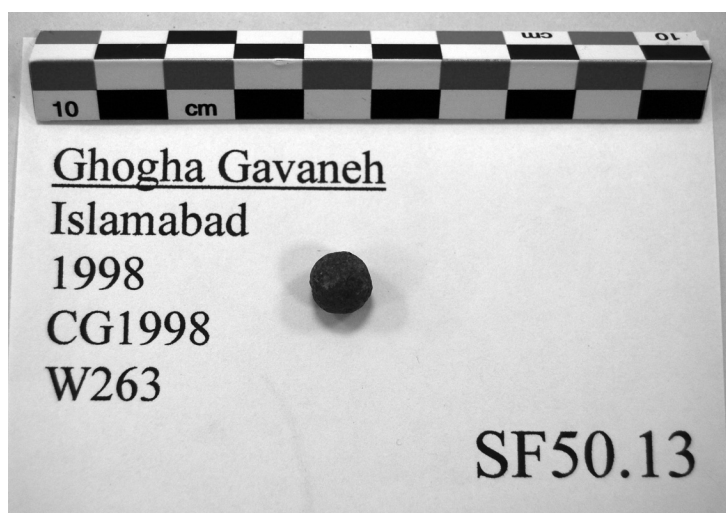
Level D: 280 E: 50 N: 11 cm

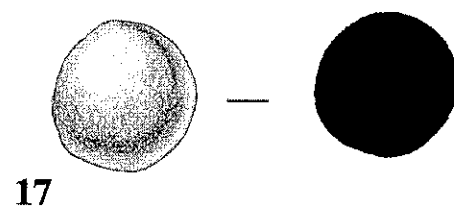
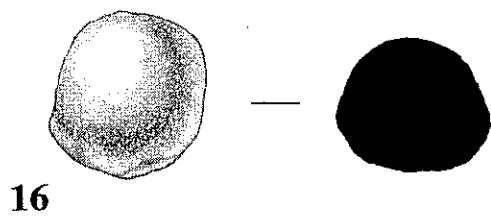
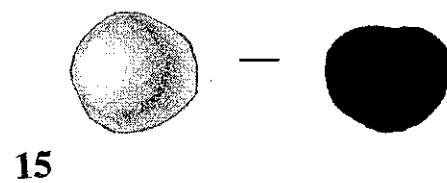
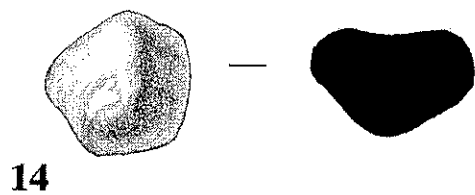
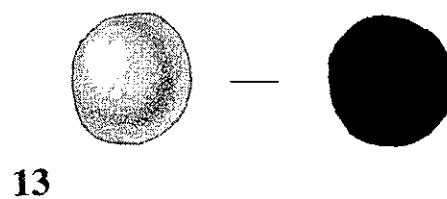
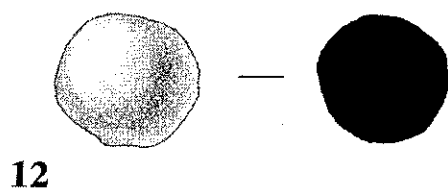
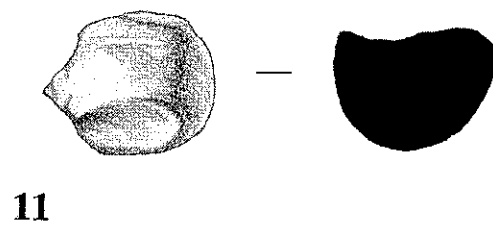
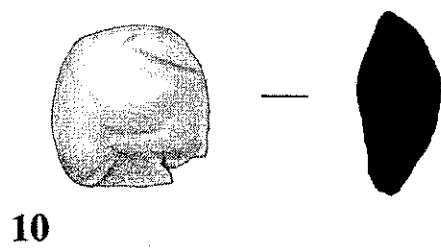
Length 0.94 cm

Weight 0.86 g.

Color 2.5Y5/1 (gray)

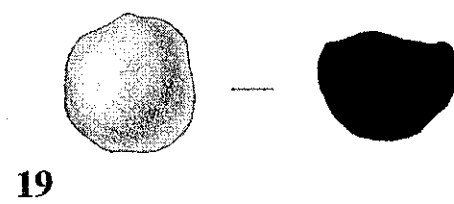
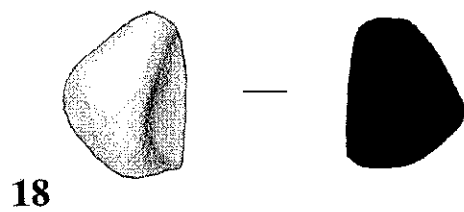
Description The object is almost in a perfect circular shape with a rough surface similar to the plain spheres shown in Fig 2:1 (Schmandt-Besserat 1996:131).





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-14

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

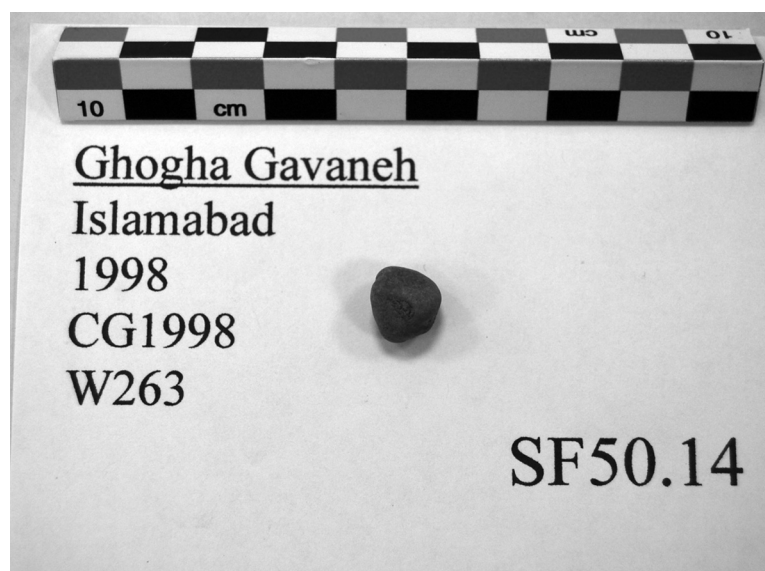
Level D: 280 E: 50 N: 11 cm

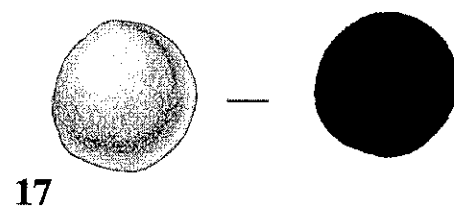
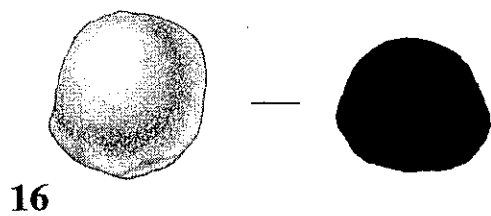
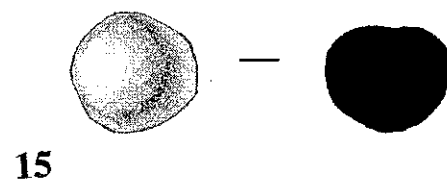
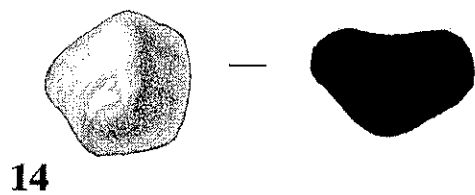
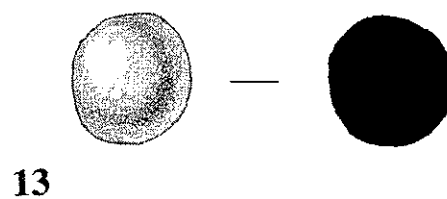
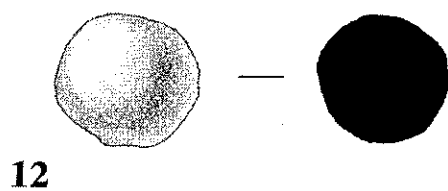
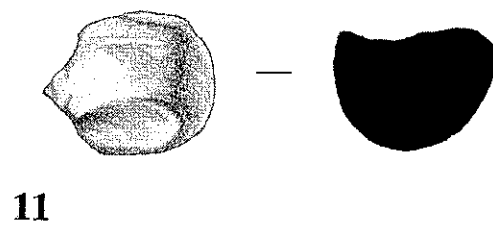
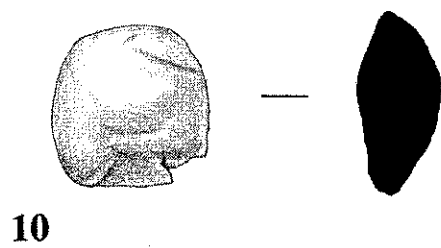
Length 1.04 cm

Weight 1.03 g.

Color 2.5Y5/1 (gray)

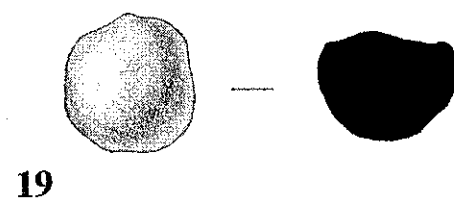
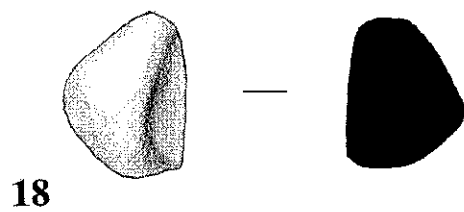
Description The object is an irregular sphere-shape with a smooth surface.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-15

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

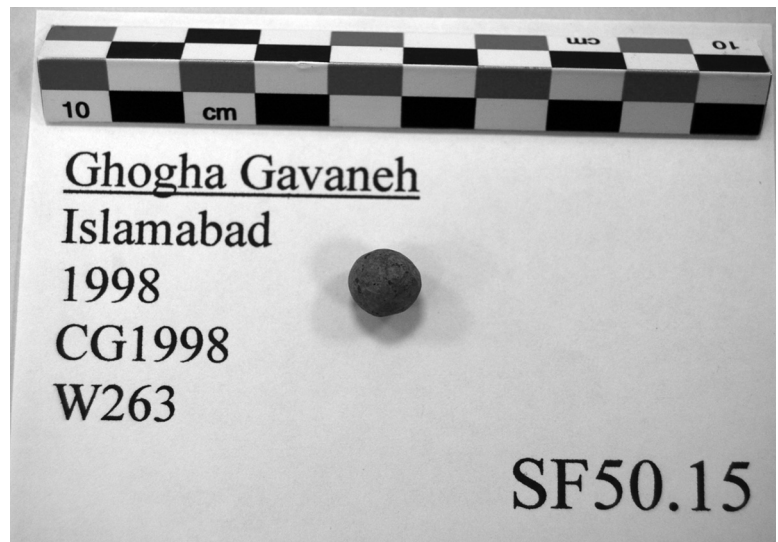
Level D: 280 E: 50 N: 11 cm

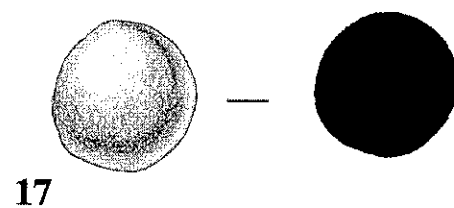
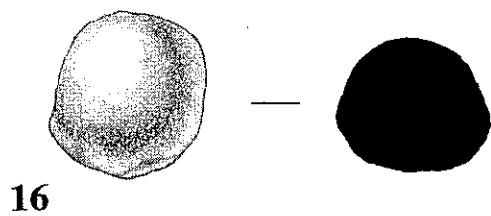
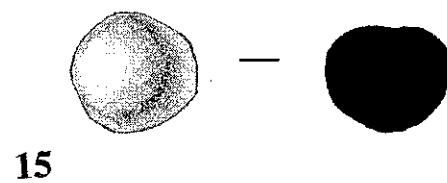
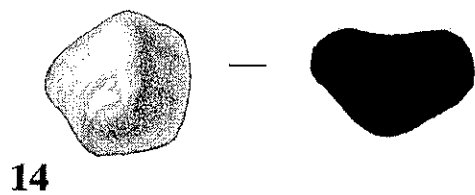
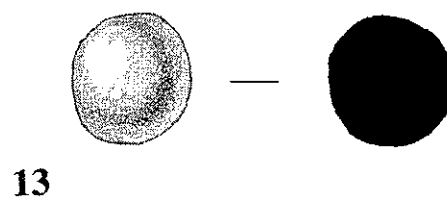
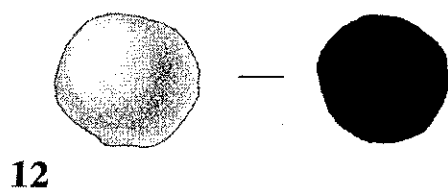
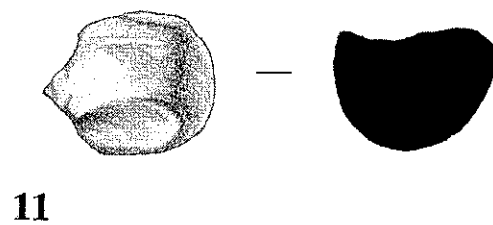
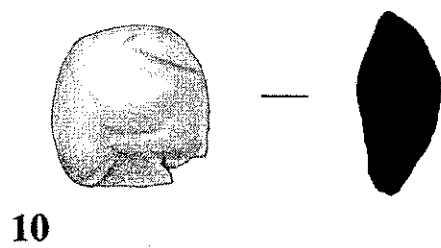
Length 0.93 cm

Weight 0.72 g.

Color 2.5Y7/2 (light gray)

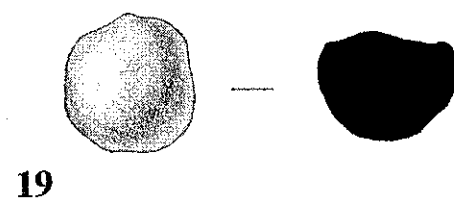
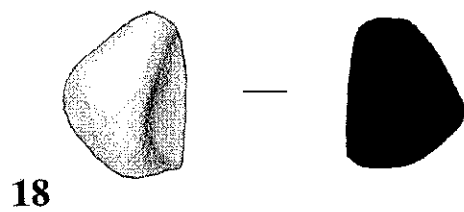
Description The object is in a perfect circle shape with a rough texture on the surface similar to the SF50.12, SF50.13, SF50.14, and plain spheres Fig 2:1 (Schmandt-Besserat 1996:131).





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-16

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

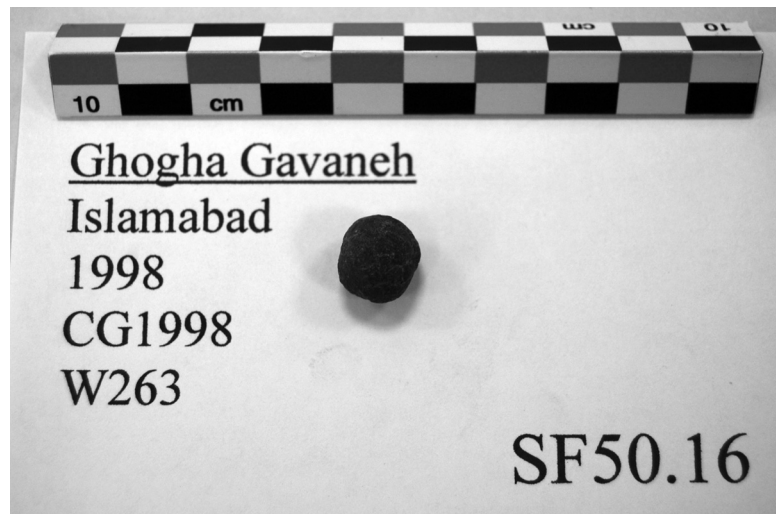
Level D: 280 E: 50 N: 11 cm

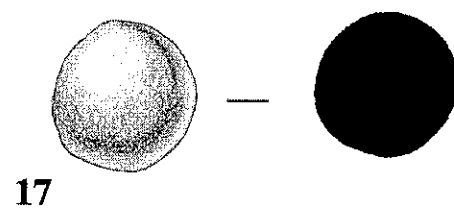
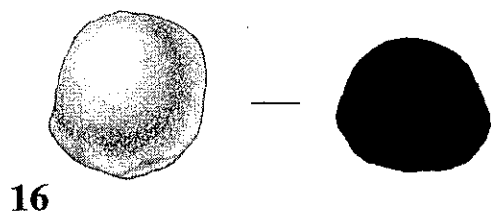
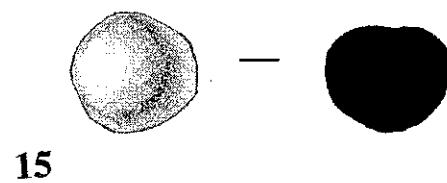
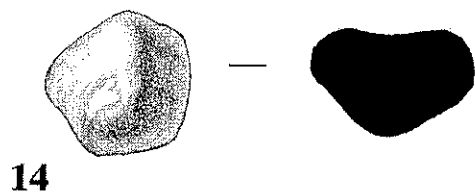
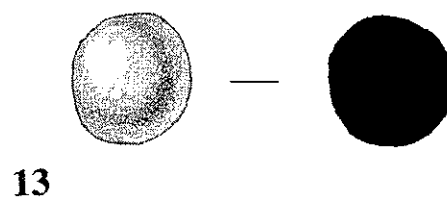
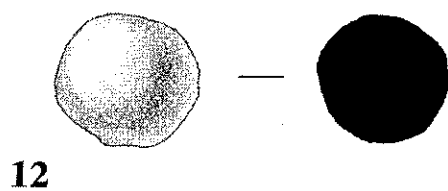
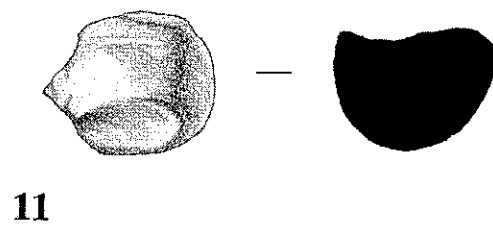
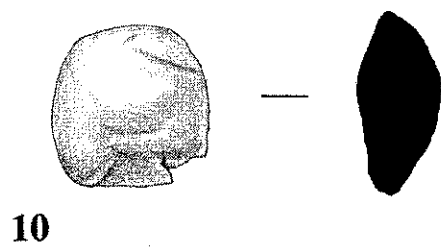
Length 1.04 cm

Weight 1.03 g.

Color GLEY3/N (very dark gray)

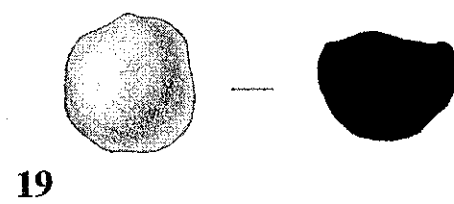
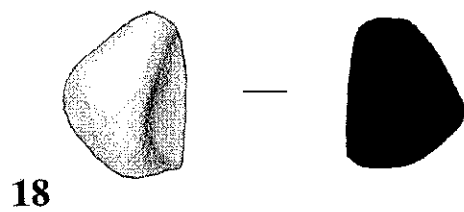
Description The object is in a perfect circle shape with a rough texture on the surface similar to the SF50.12, SF50.13, SF50.14, and plain spheres fig 2:1 (Schmandt-Besserat 1996:131).





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-17

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

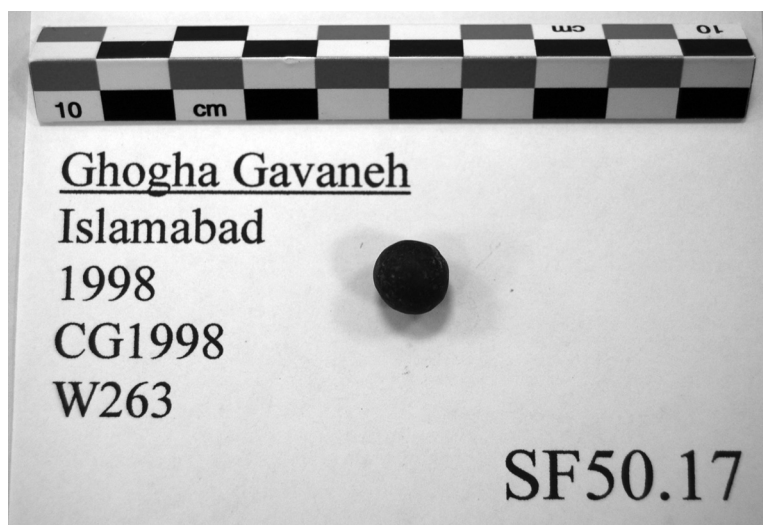
Level D: 280 E: 50 N: 11 cm

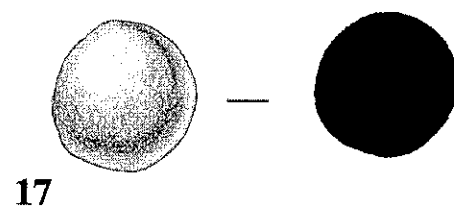
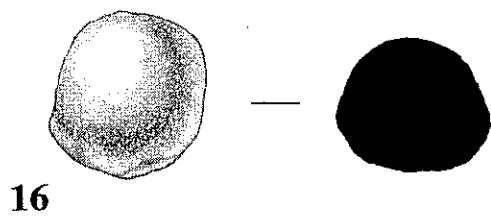
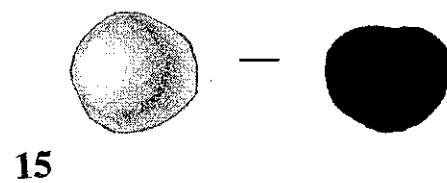
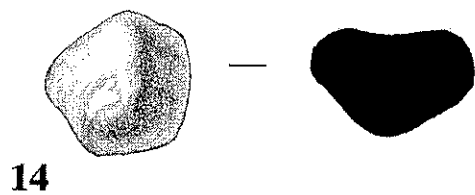
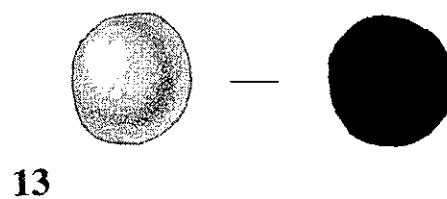
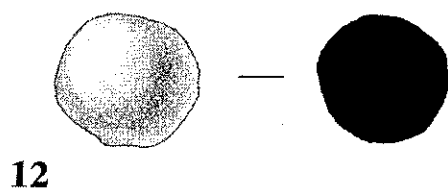
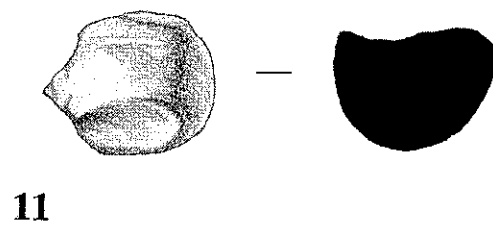
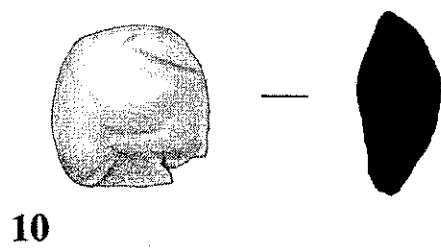
Length 1.01 cm

Weight 1.12 g.

Color GLEY3/N (very dark gray)

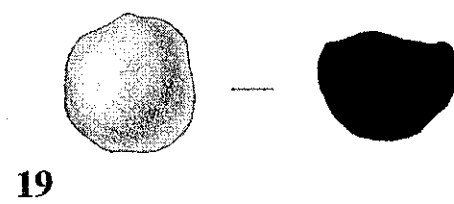
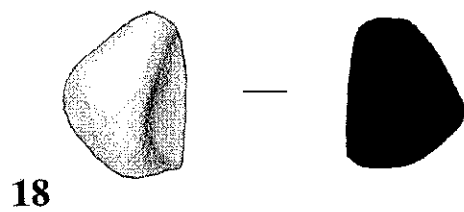
Description The object is a perfect circular shape with a smooth surface similar to SF50.12, SF50.13, SF50.14, SF50.16, and the plain spheres in Fig 2:1 (Schmandt-Besserat 1996:131). Some part of the surface is burnished.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-18

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

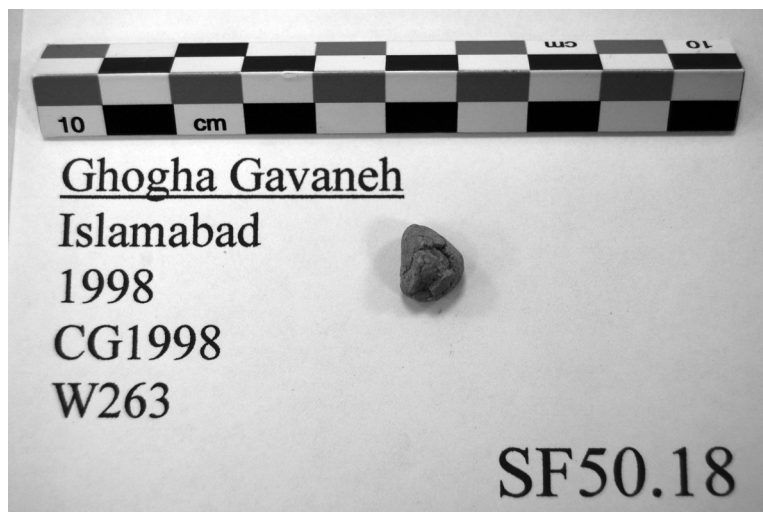
Level D: 280 E: 50 N: 11 cm

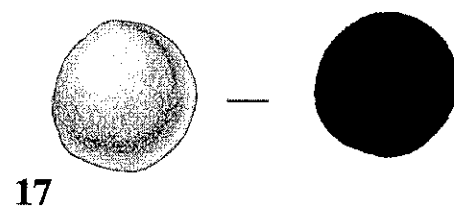
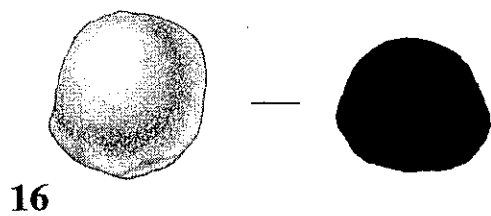
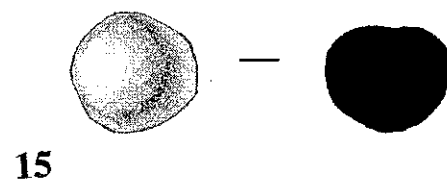
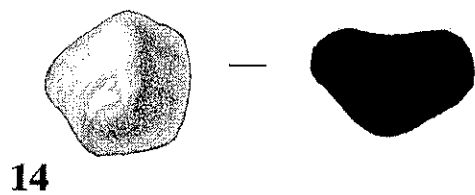
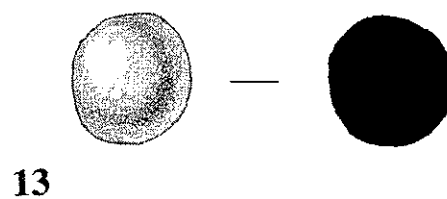
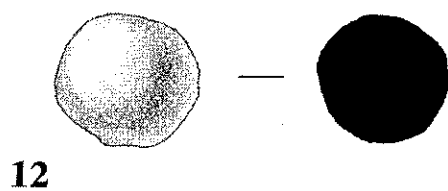
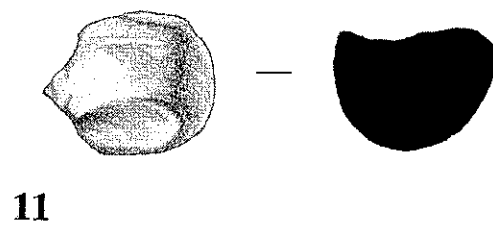
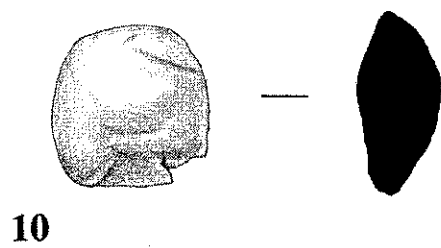
Length 1.09 cm

Weight 0.75 g.

Color 10YR7/2 (light gray)

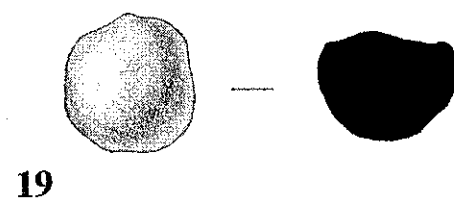
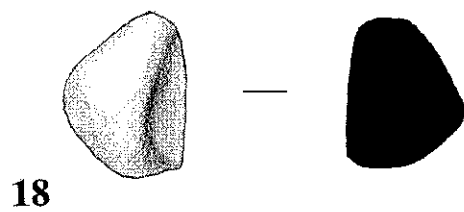
Description The object is an irregular, triangular shape similar to the triangle-shape in Fig 8:1 flat section (Schmandt-Besserat 1996:145). The surface is very rough with a light grayish color. Also, the clay object seems unfired or was baked in the sun similar to the SF50.7.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-19

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

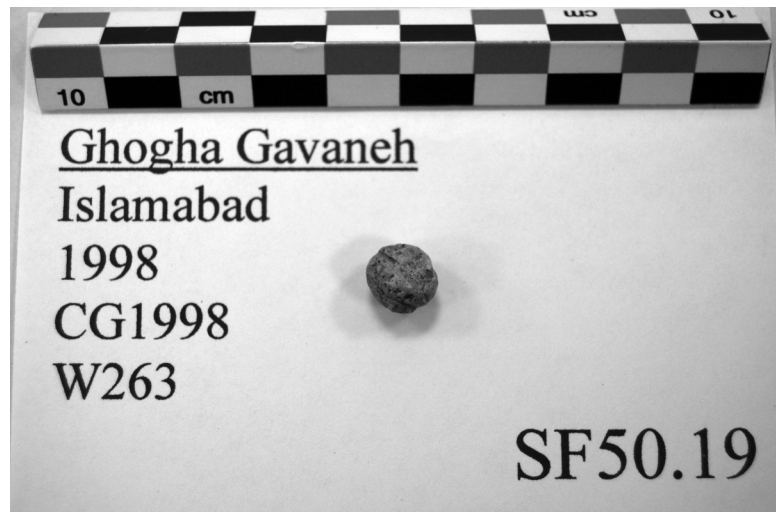
Level D: 280 E: 50 N: 11 cm

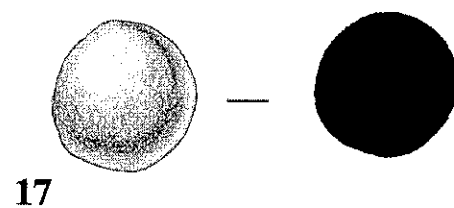
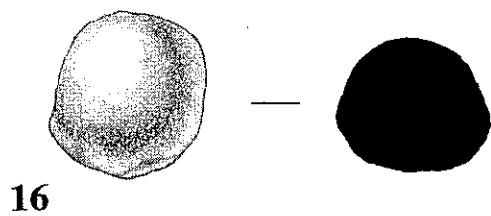
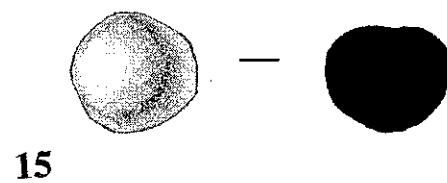
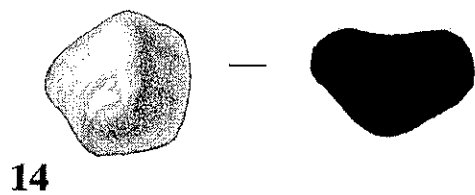
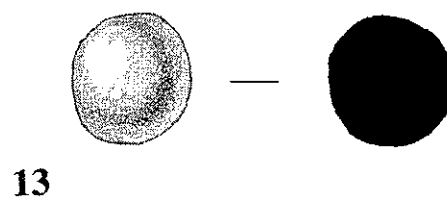
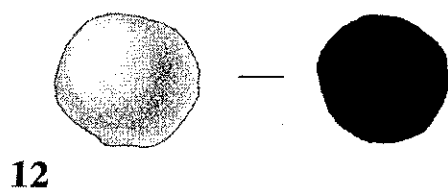
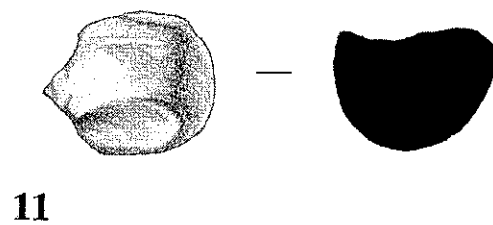
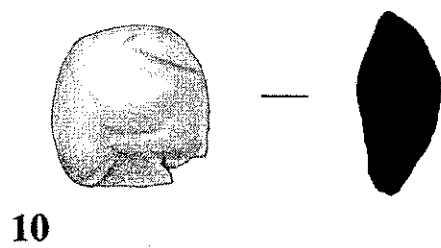
Length 0.99 cm

Weight 0.69 g.

Color 10YR7/2 (light gray)

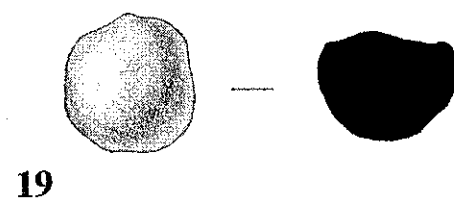
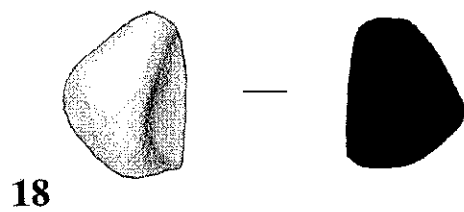
Description The object has a rough texture, uneven surface, and is chipped off. There is one incised line down to the center of object.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-20

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

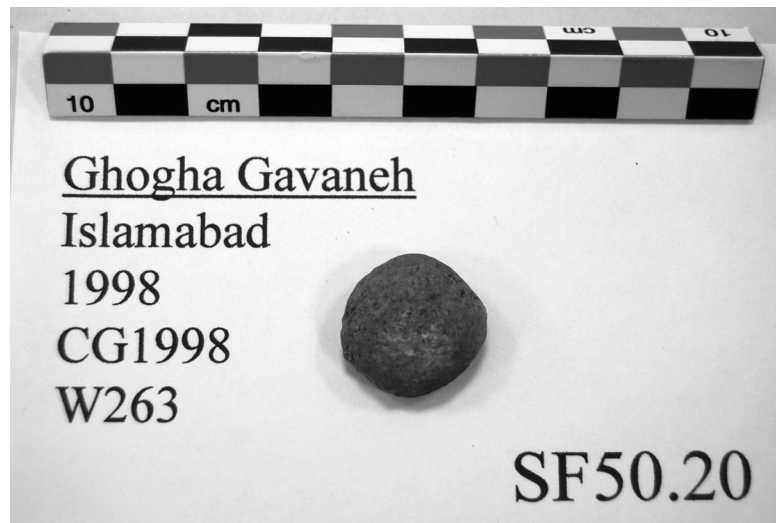
Level D: 280 E: 50 N: 11 cm

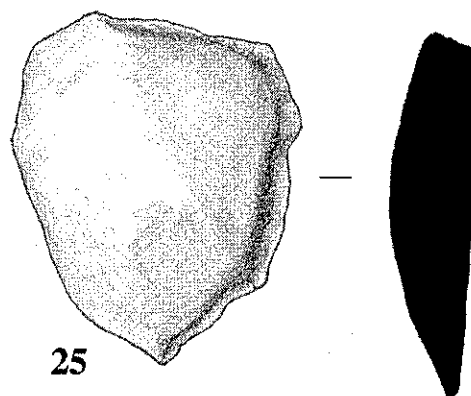
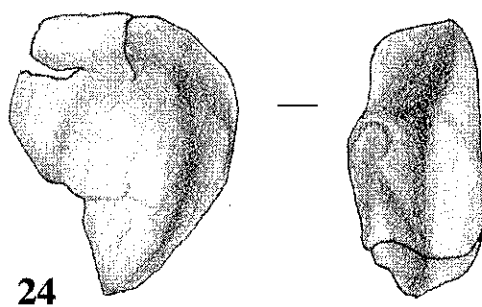
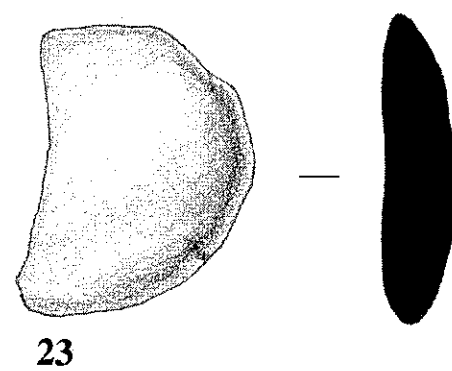
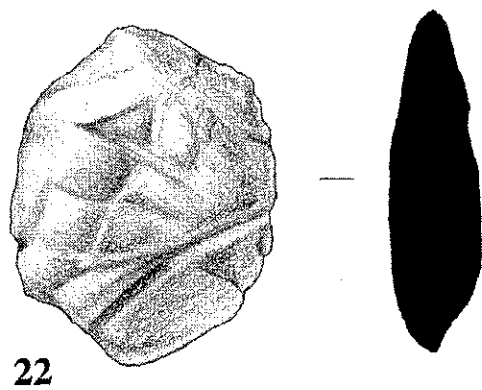
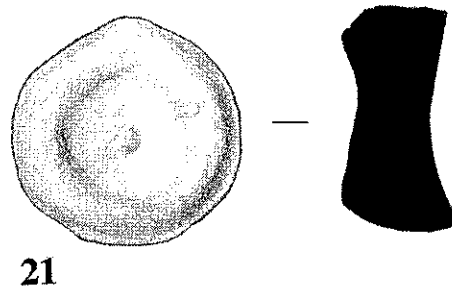
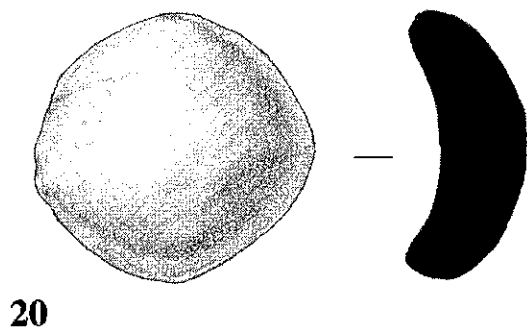
Length 1.87 cm

Weight 3.22 g.

Color 2.5Y5/1 (gray)

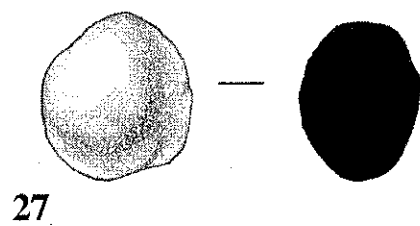
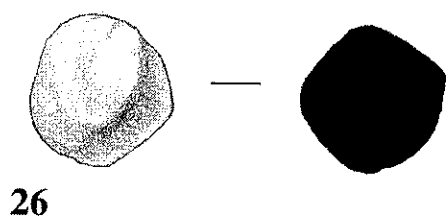
Description One side of the object is flat with a smooth surface. The other side has a slightly convex base with a rough texture. Perhaps it is a bulla/token similar to Fig 3:2 (Schmandt-Besserat 1996:133).





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-21

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

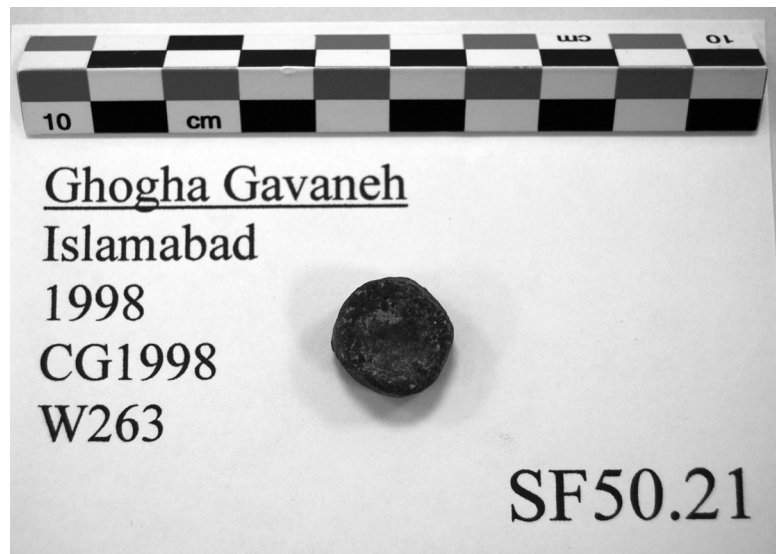
Level D: 280 E: 50 N: 11 cm

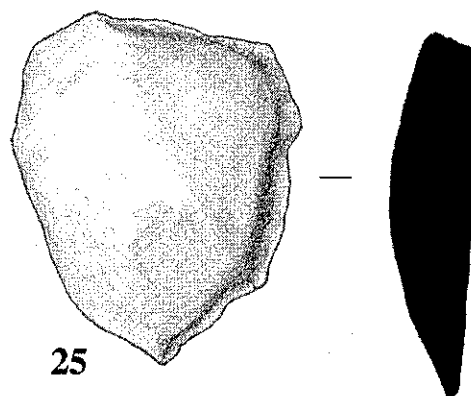
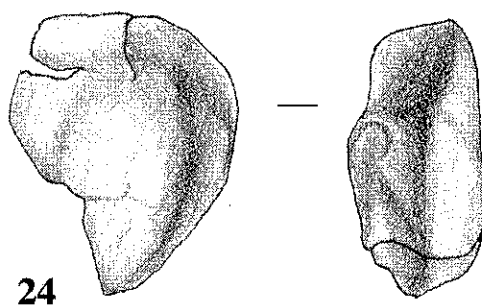
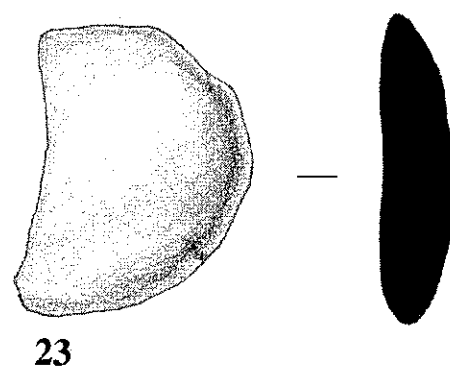
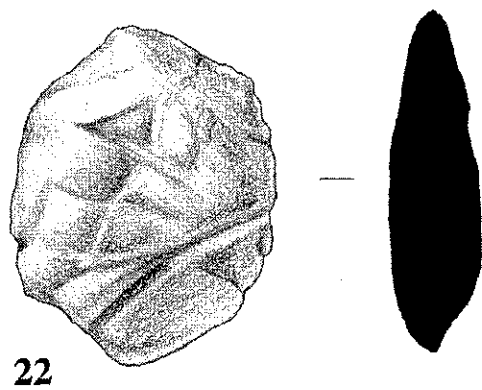
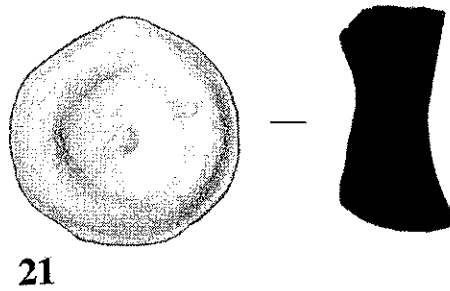
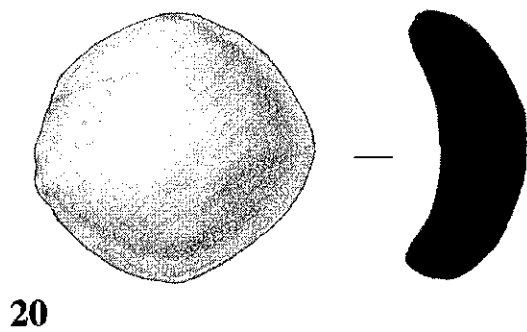
Length 1.59 cm

Weight 2.47 g.

Color GLEY4/N (dark gray)

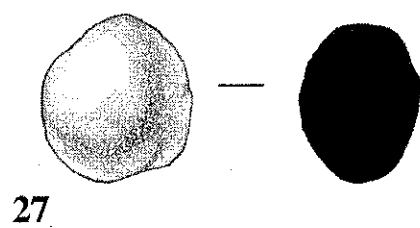
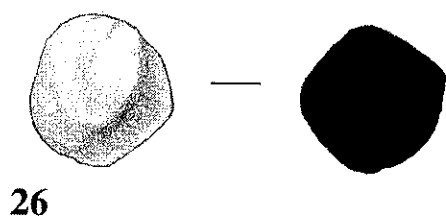
Description A thick flat disk with a smooth surface that is slightly concave-shaped similar to the geometric-shaped object in Fig 3:6 (Schmandt Besserat 1996:133)..





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-22

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

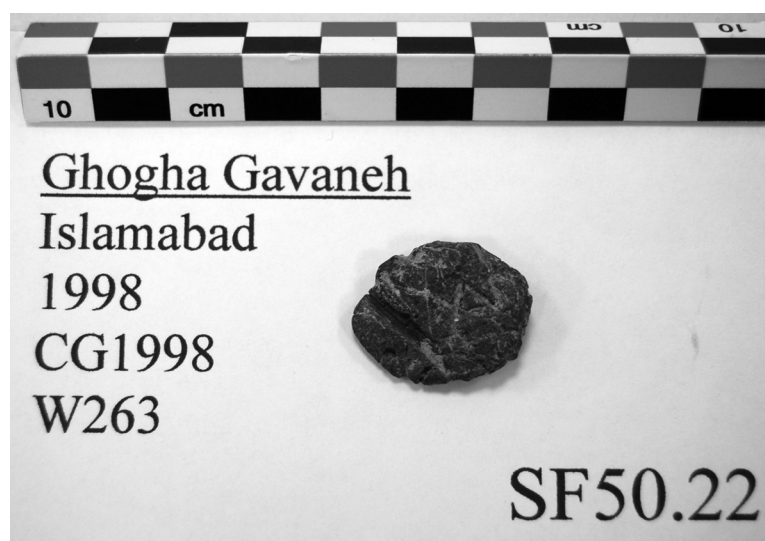
Level D: 280 E: 50 N: 11 cm

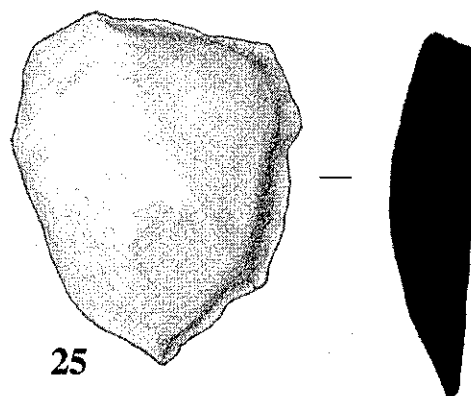
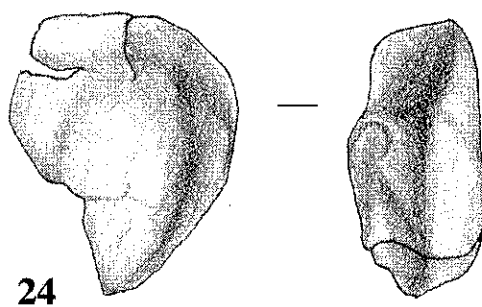
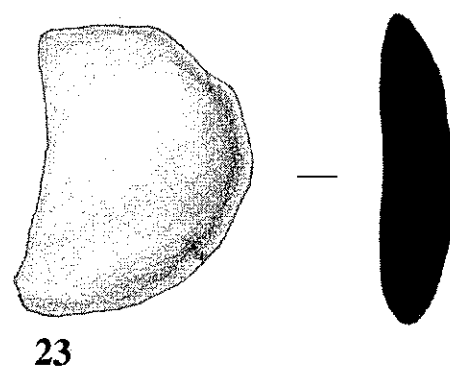
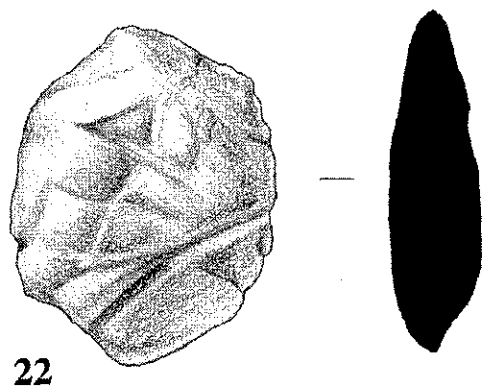
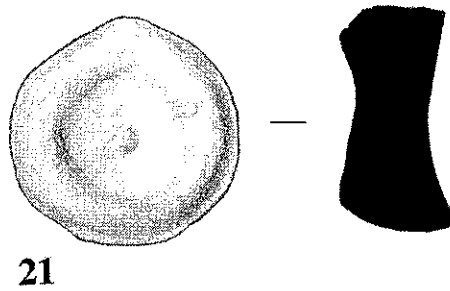
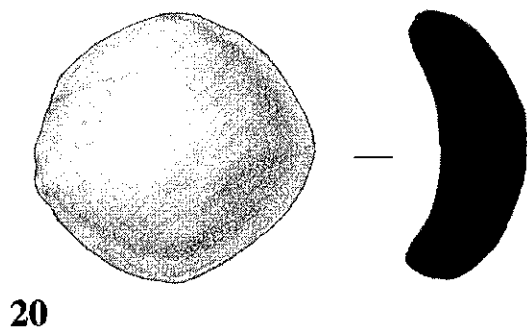
Length 2.18 cm

Weight 2.55 g.

Color GLEY4/N (dark gray)

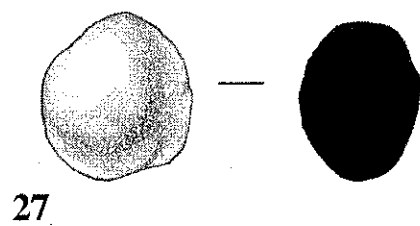
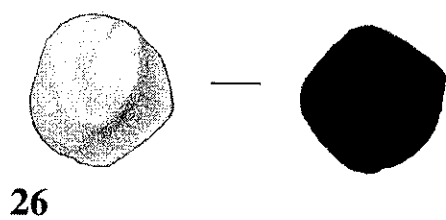
Description The object is oval-shaped with thick and rough surfaces. One side has thick incised lines with a dark brownish-gray color and it is similar to Fig. 3:62, the Disk with intersecting lines (Schmandt-Besserat: 1996:135). Also, one deep incision might have been made with a different implement. The non-incised side is chipped with some scratches around the edges.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-23

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

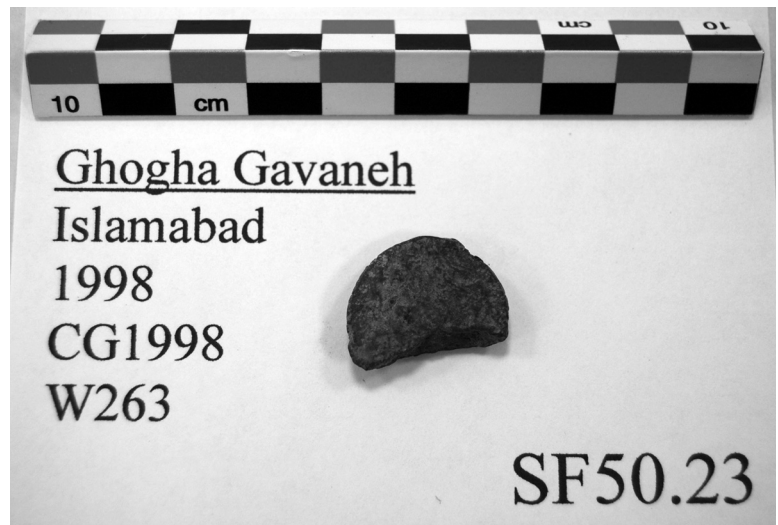
Level D: 280 E: 50 N: 11 cm

Length 2.21 cm

Weight 1.93 g.

Color GLEY4/N (dark gray)

Description The disk-shaped fragment is very flat with smooth surfaces on both sides. The object is chipped around the edges.



Chogha Gavaneh Small Finds

Number SF50-24

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

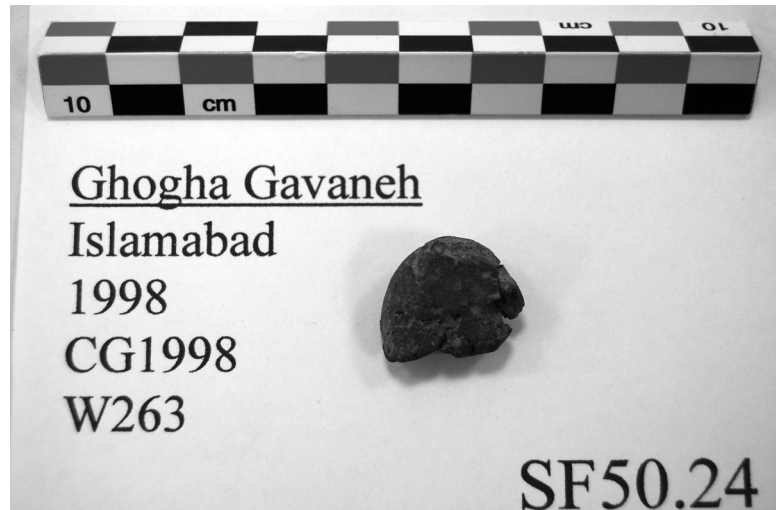
Level D: 280 E: 50 N: 11 cm

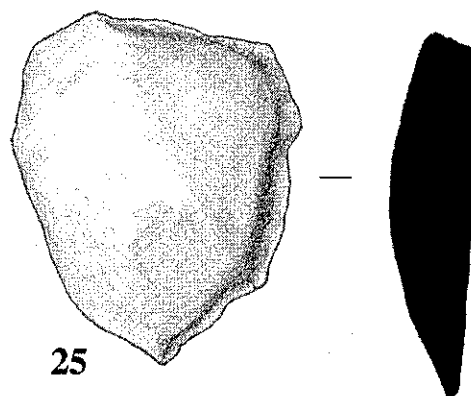
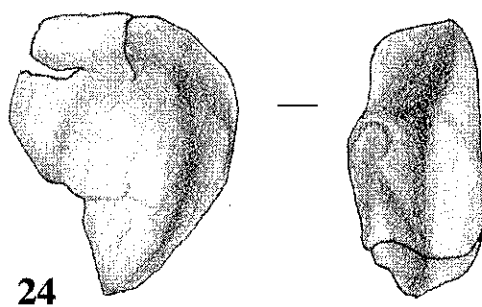
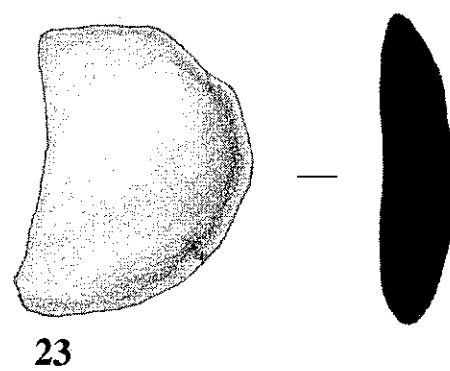
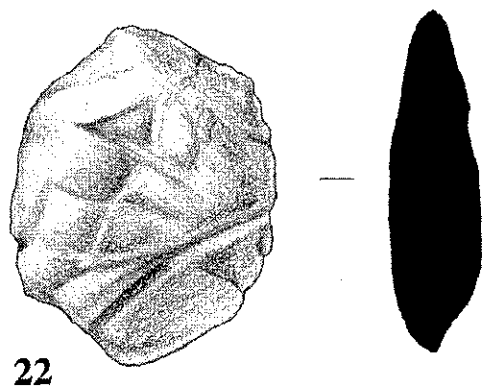
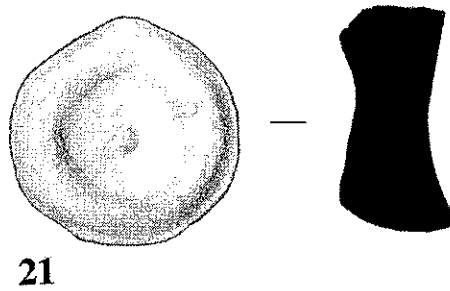
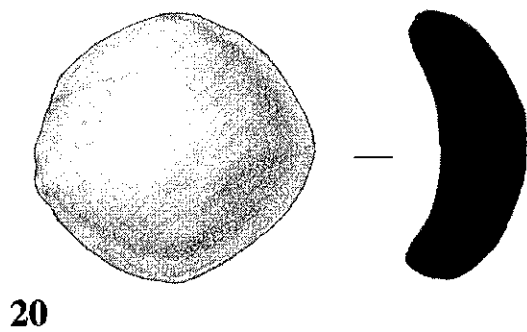
Length 2.04 cm

Weight 2.91 g.

Color GLEY4/N (dark gray)

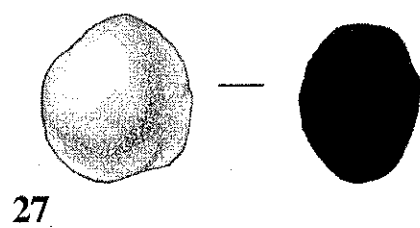
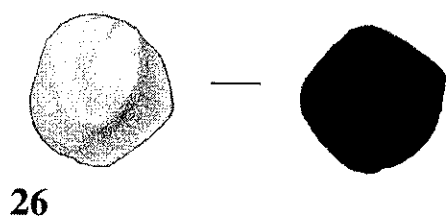
Description The disk-shaped object has a rough and uneven surface. One side is cracked severally. Also, there are finger depressions on both sides of the object.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-25

Object Disk-shaped Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

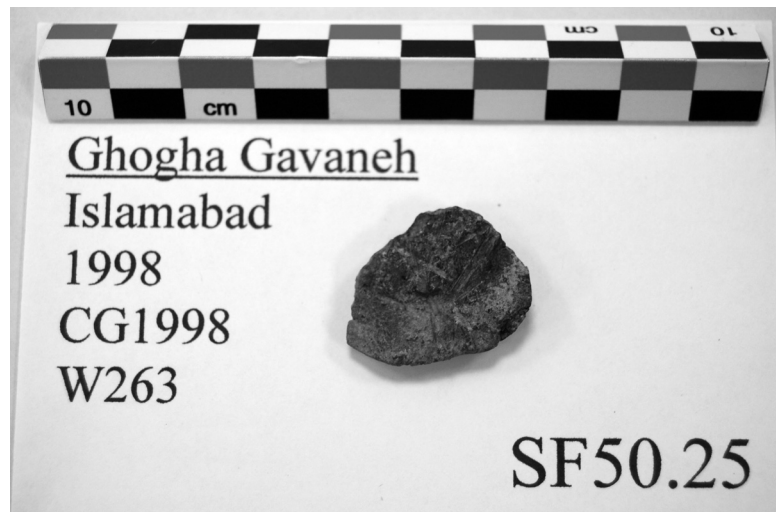
Level D: 280 E: 50 N: 11 cm

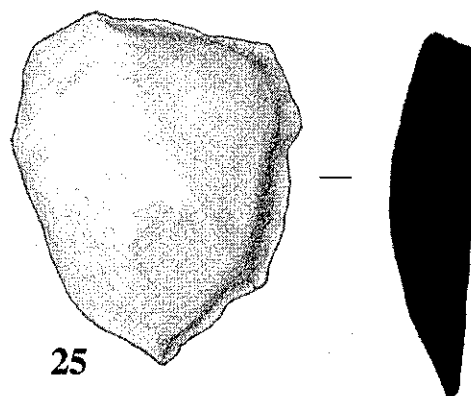
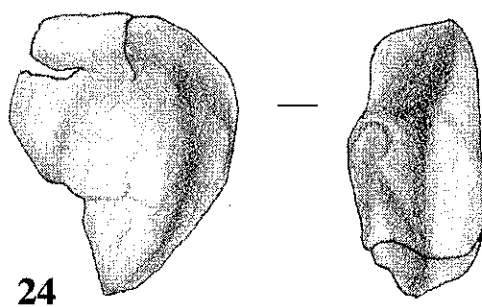
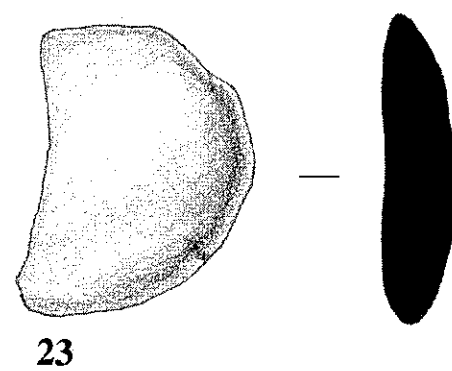
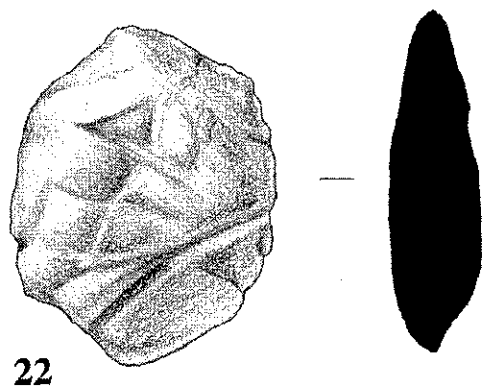
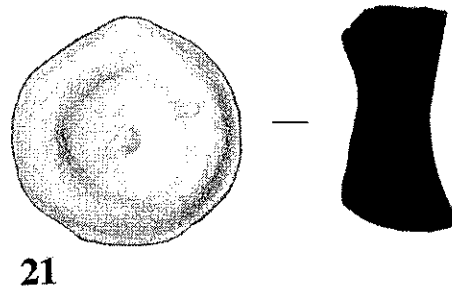
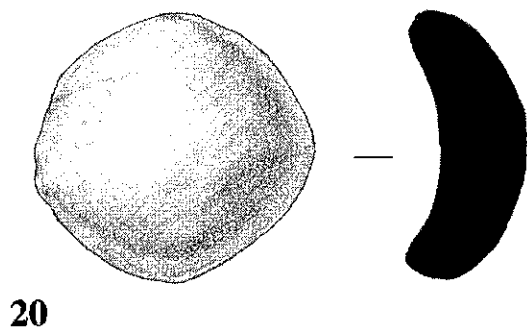
Length 2.51 cm

Weight 3.00 g.

Color 2.5Y5/1 (gray)

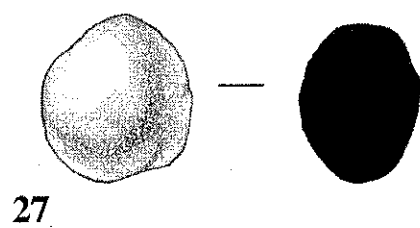
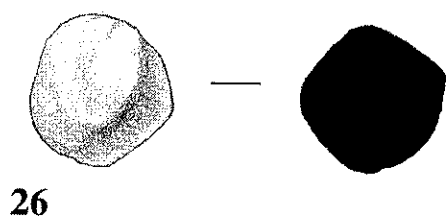
Description The object is oval-shaped with a flat surface on one side. The other side has irregular and thick incised lines. There are at least four incised lines on the rough surface of the disk. Two of the lines are crossed together. There are also some tan patches with chipped edges on the rough surface of the disk.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-26

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

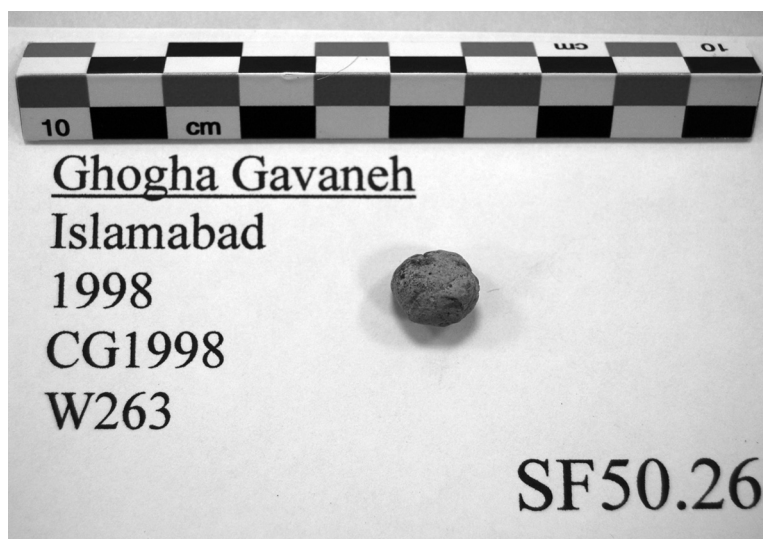
Level D: 280 E: 50 N: 11 cm

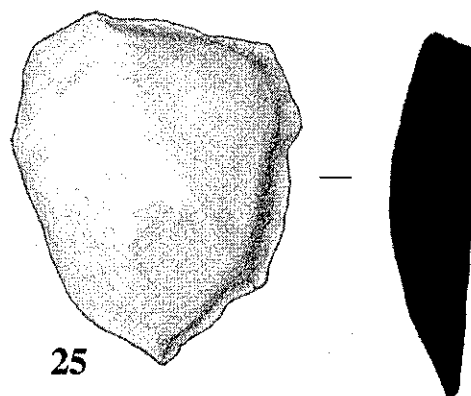
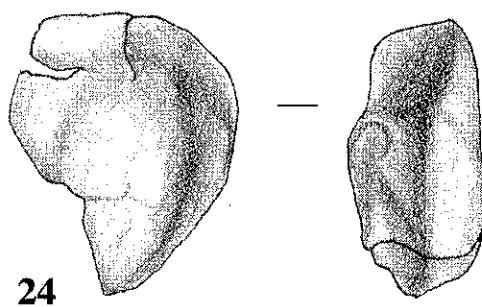
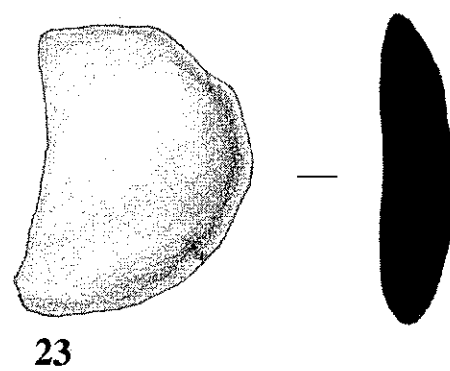
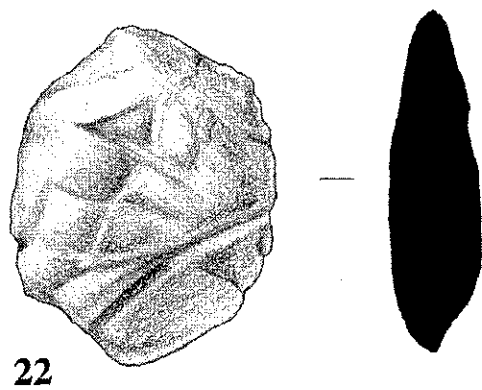
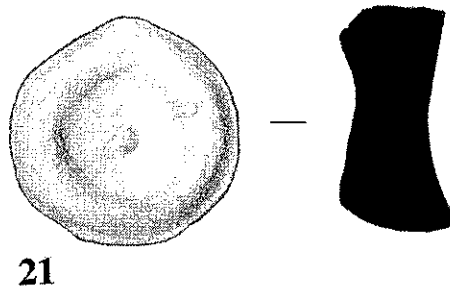
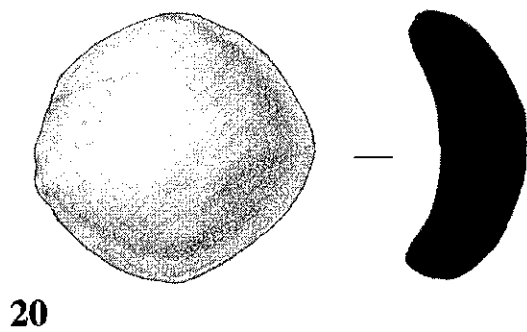
Length 0.96 cm

Weight 1.43 g.

Color 10YR8/2 (very pale brown)

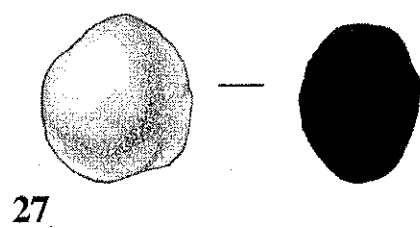
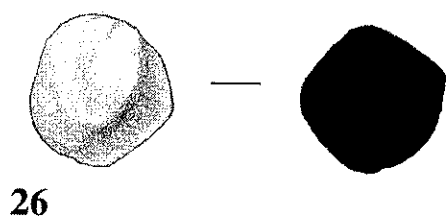
Description The object modeled is an irregular spherical shape with a rough and uneven surface. Some areas on the surface are slightly chipped. Also, there at least two straight slits on the surface of the object.





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF50-27

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

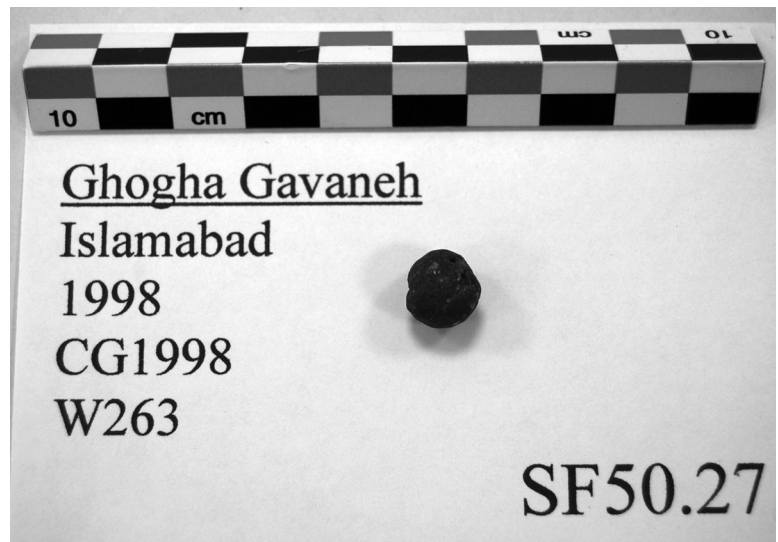
Level D: 280 E: 50 N: 11 cm

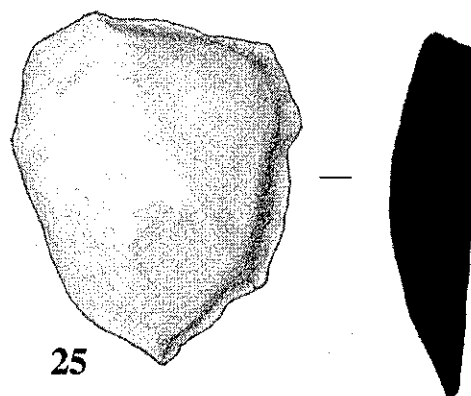
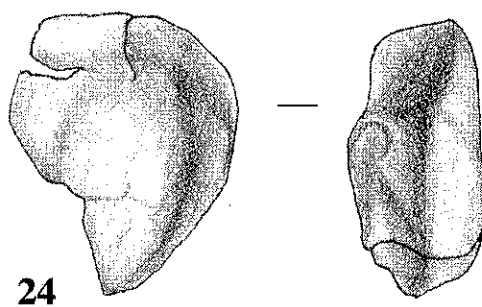
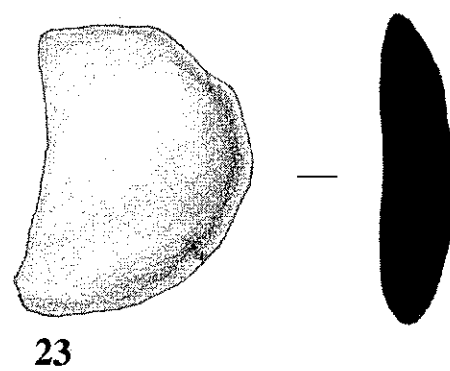
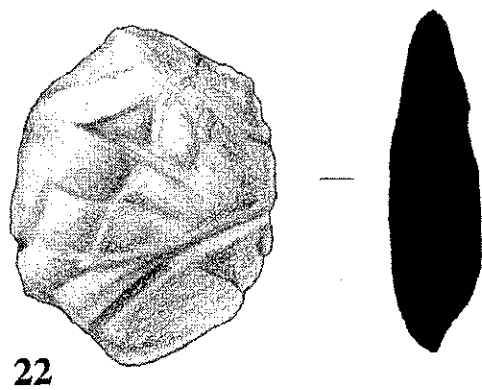
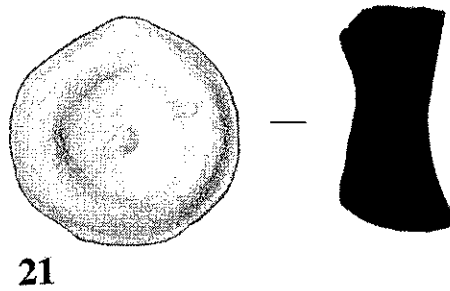
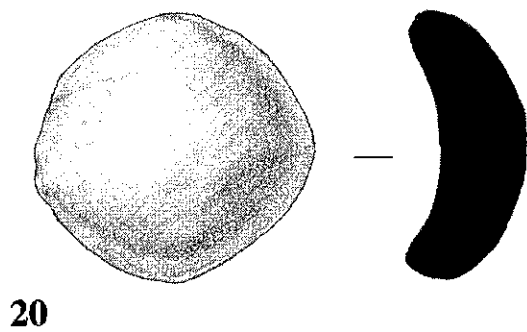
Length 1.19 cm

Weight 1.02 g.

Color GLEY4/N (dark gray)

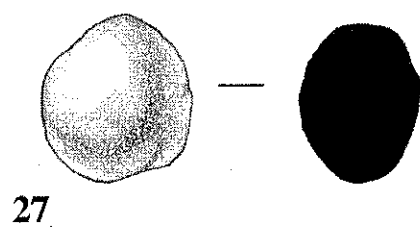
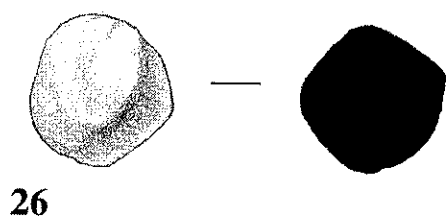
Description The spherical object has a rough and uneven surface. Some of the surface is slightly chipped. The object is similar to “the plain spheres” shown in Fig 2:1 (Schmandt-Besserat 1996:131).





0 1
cm

CG1998
W263
SF 50



Chogha Gavaneh Small Finds

Number SF51

Object Miscellaneous

Material Clay

**State of
Preservation** Broken

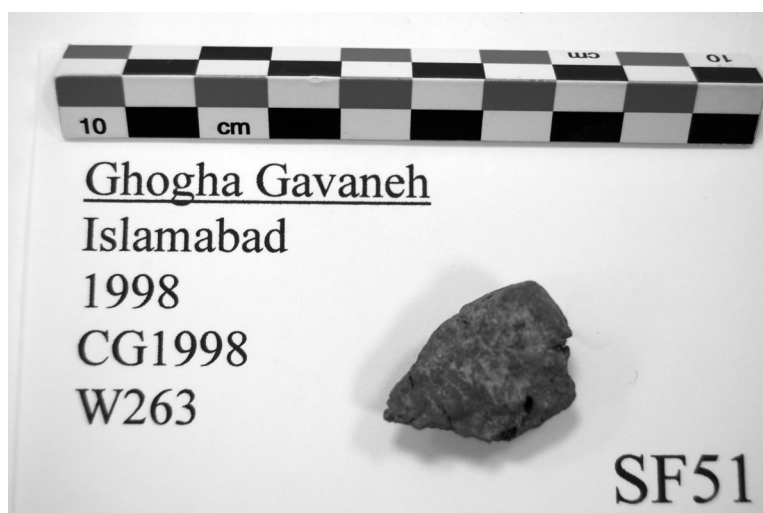
**Excavation
Unit
Level** W263-VIII
N/A

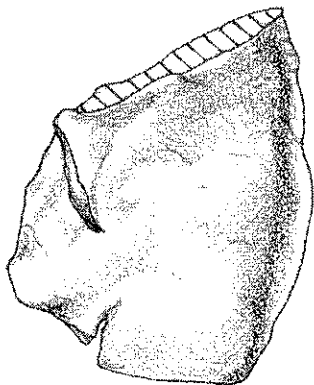
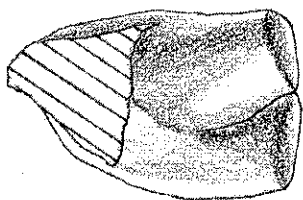
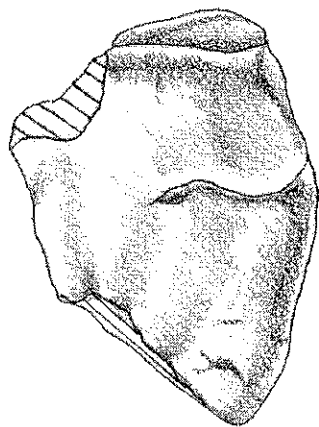
Length 2.08 cm

Weight 5.5 g.

Color 10YR6/2 (light brownish gray)

Description It seems the creator started to make animal hindquarters but never finished. In case of the animal figurine the torso and tail is broken off. Also, the underbelly of the animal is rough and narrow. Some parts of the fragment are pinched in. Additionally, it is possible that the object may be a lump of clay.





0 1
cm

CG1998

W263

SF 51

Chogha Gavaneh Small Finds

Number SF52

Object Animal Figurine,
Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

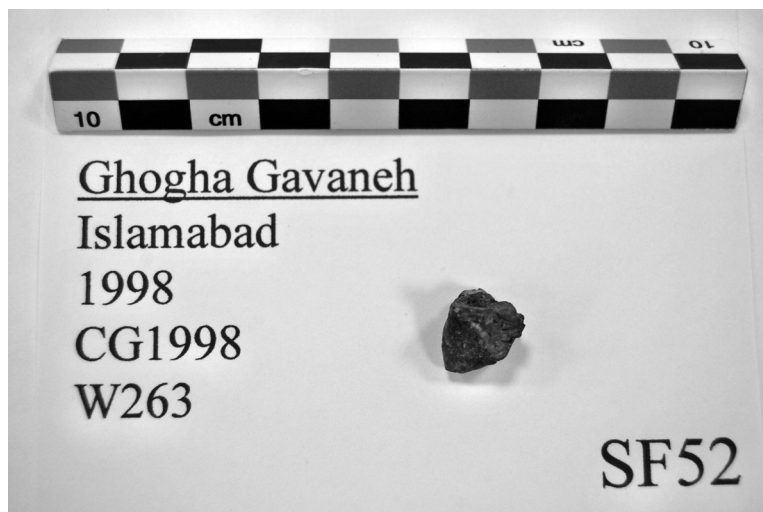
Level D: 288 E: 52 N: 10 cm

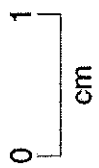
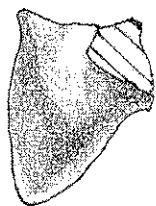
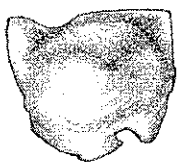
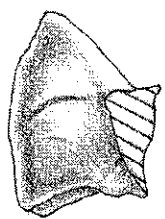
Length 1.39 cm

Weight 1.6 g.

Color GLEY14/N (dark gray)

Description A dark gray clay figurine fragment, shaped somewhat like the tip of a pointy egg but with a very irregular base. The fragment was broken off from the rest at the wide end. There is a large cavity along an edge of the break that might be intentional. This object could be a leg of an animal figurine. There is some yellowish-green discoloration scattered all over, and the color of the area exposed due to the break is a lighter tan.





CG1998

W263

SF 52

Chogha Gavaneh Small Finds

Number SF53

Object Concave-shaped
Fragment

Material Clay

**State of
Preservation** Broken on both side

**Excavation
Unit** W263-VIII

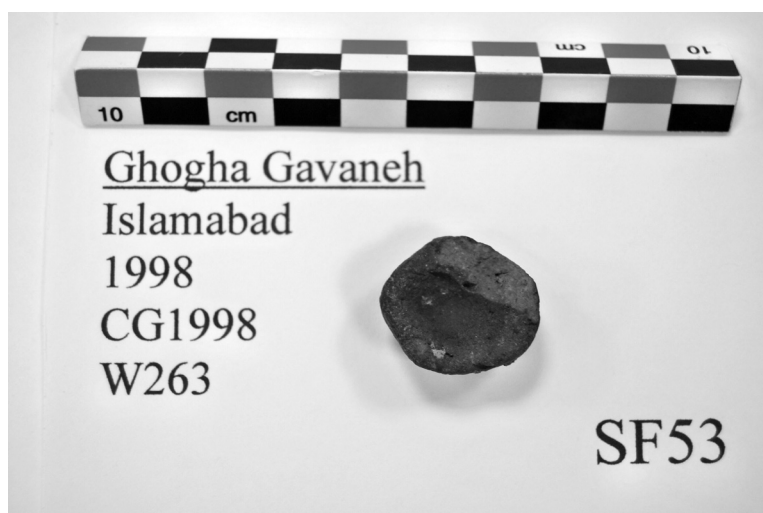
Level D: 310 E: 29 N: 29 cm

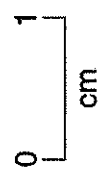
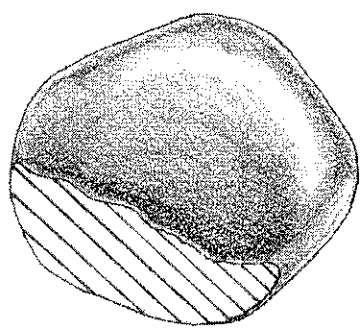
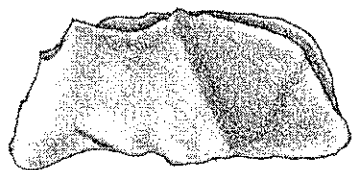
Length 2.33 cm

Weight 4.6 g.

Color GLEY14/N (dark gray)

Description A concave-shaped fragment, possibly a token, that is dark gray in color with occasional tan flecks from dust and wear. The fragment was broken off from the rest of the Figure at the base of “the bowl,” and about a third of the edge of the bowl is chipped off. The area exposed is due to the chipping at the edge and is a light tan color.





CG1998
W263
SF 53

Chogha Gavaneh Small Finds

Number SF54

Object Animal Figurine,
Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

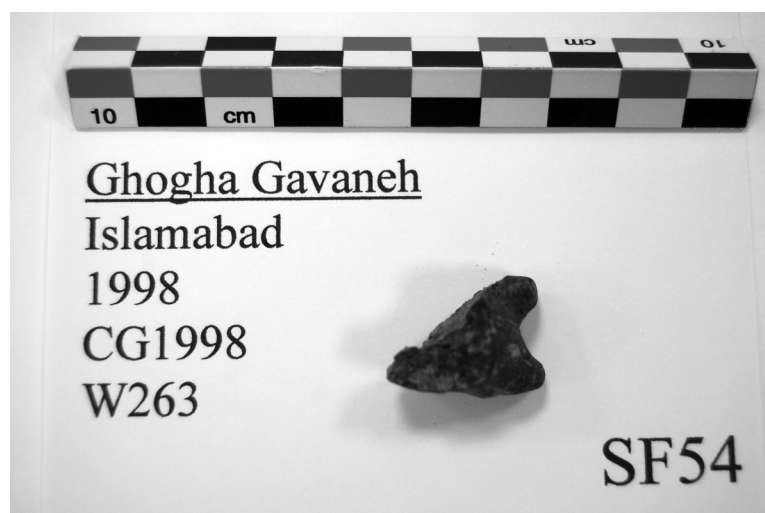
Level D: 280 E: 40 N: 13 cm

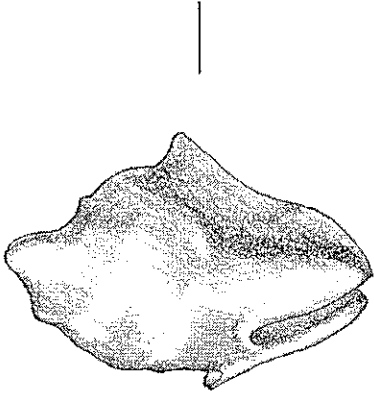
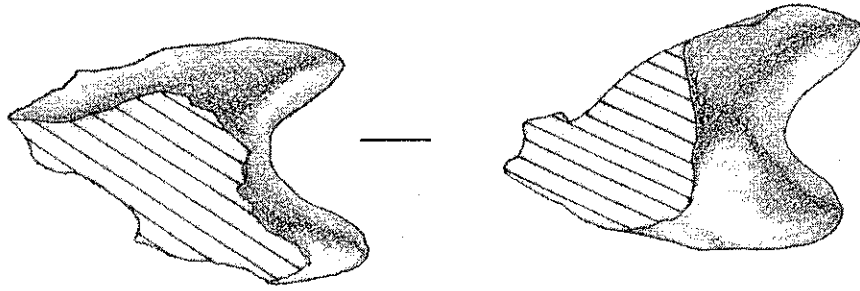
Length 1.69 cm

Weight 4.6 g.

Color GLEY14/N (dark gray)

Description This fragment consists of the front legs and part of the chest of an animal figurine, the rest of the animal is missing. The color is generally a dark gray with tan flecks from dust and wear, and the area exposed from the largest break is a pale brown color. There is also some yellowish-green discoloration on the front of the left leg and on the underside of both legs.





0 1
cm

CG1998
W263
SF 54

Chogha Gavaneh Small Finds

Number SF55-1

Object Sling Bullet

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

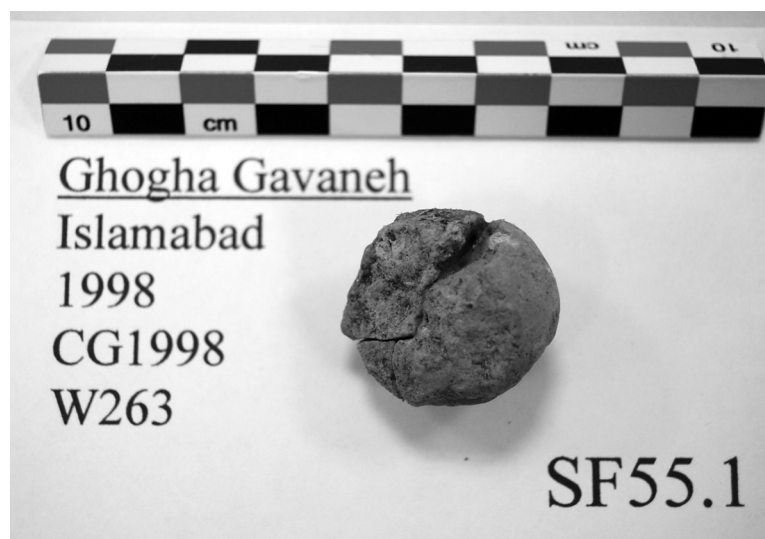
Level D: 272 E: 10 N: 38 cm

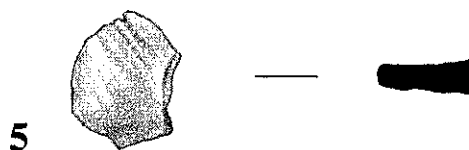
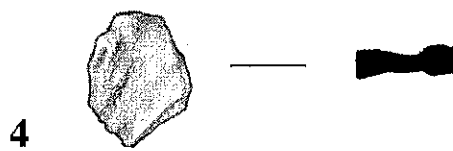
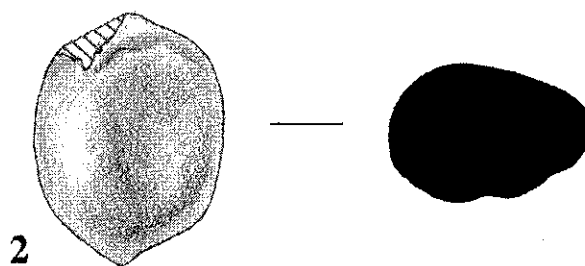
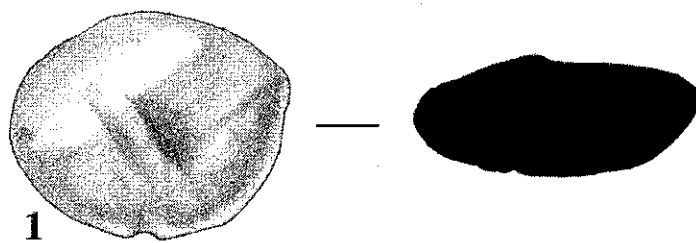
Length 2.20 cm

Weight 14.23 g.

Color 7.5YR7/4 (pink) 10YR7/3 (very
pale brown)

Description Half of the sling bullet is broken off and only the base of the object remains. In addition, the broken parts have been reattached with glue. The object has a rough texture and some discoloration is apparent on the surface.





0 1
cm

CG1998

W263

SF 55

Chogha Gavaneh Small Finds

Number SF55-2

Object Sling Bullet

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

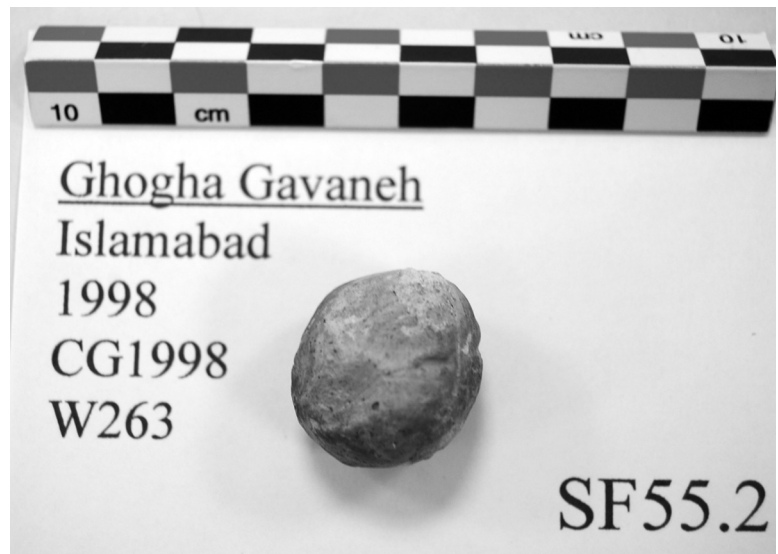
Level D: 272 E: 10 N: 38 cm

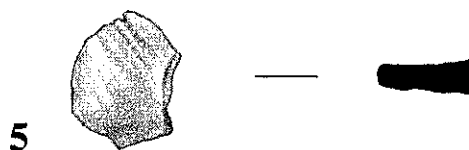
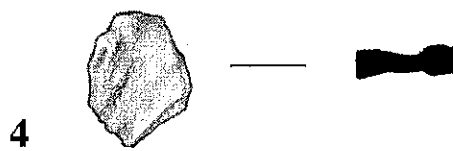
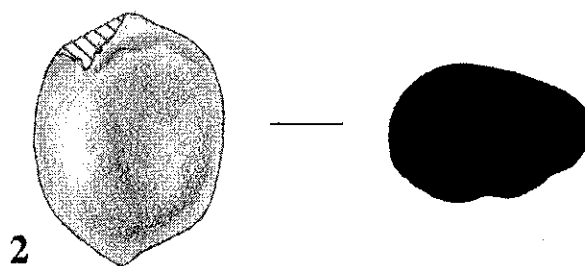
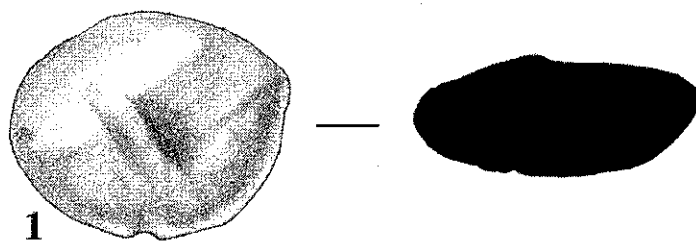
Length 2.51 cm

Weight 13.06 g.

Color 10YR7/2 (light gray)

Description The object is multicolored due to firing. On some part of the object are black and red discolorations. This sling bullet is more spherical in shape than the other sling bullets in the collection. The surface of the object is rough and uneven. There are at least three incised lines on the surface. One almost completely encircles the artifact, and is intersected by two other lines. The second one seems to go halfway around the sphere and the third one is disappears into a rough patch. Also, there are several smaller scratches that appear parallel to one of the lines as it travels through a flat area. In addition, there is one small dip on one side of the surface.





0 1
cm

CG1998

W263

SF 55

Chogha Gavaneh Small Finds

Number SF56

Object Sling Bullet

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

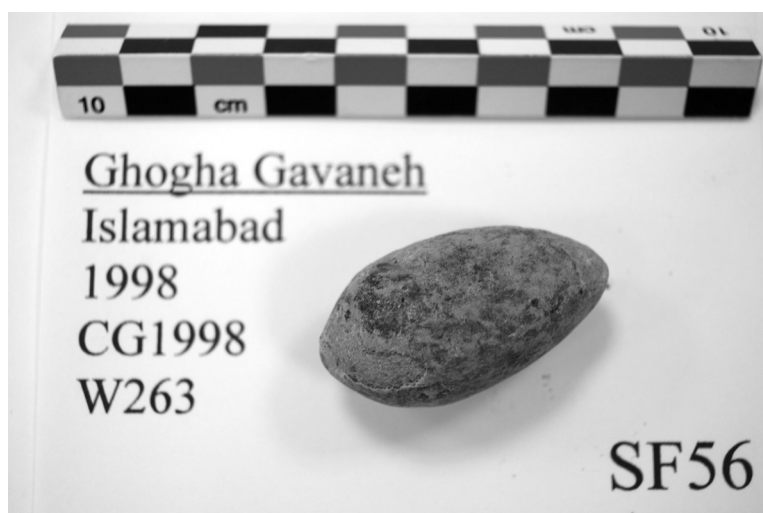
Level D: 268 E: 72 N: 58 cm

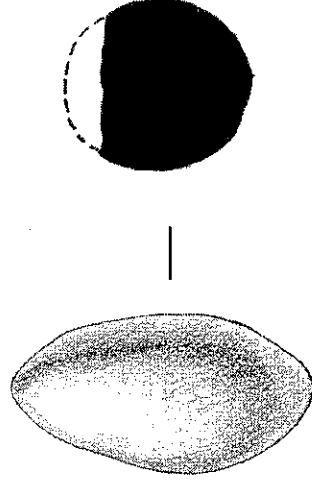
Length 4.00 cm

Weight 19.7 g.

Color 10YR6/2 (light brownish gray)

Description A sling bullet shaped like an elongated egg and slightly pointed at both ends, more so than other sling bullets in the collection. The color is a light brownish gray with scattered black patches. There is some very minor chipping at each end.





0 1
cm

CG1998
W263
SF 56

Chogha Gavaneh Small Finds

Number SF57-1

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-VIII

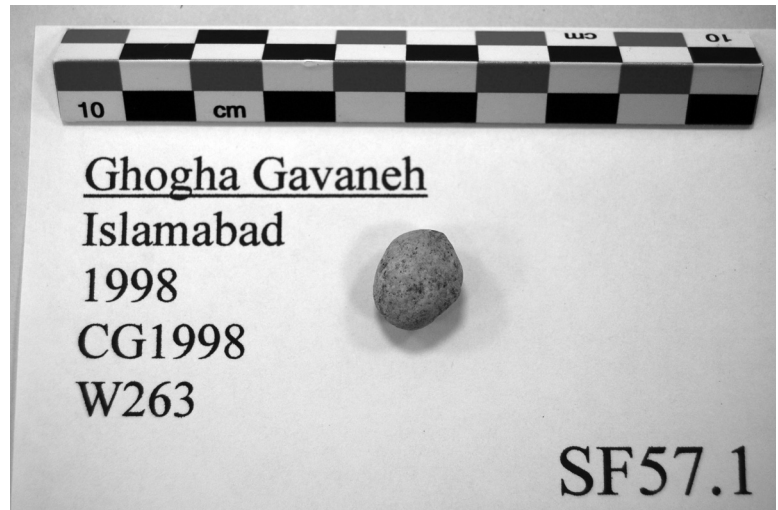
Level D: 258 E: 30 N: 20 cm

Length 1.45 cm

Weight 1.9 g.

Color 10YR8/2 (very pale brown)

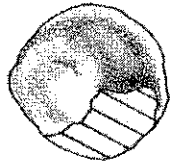
Description It is an irregular sphere-shaped fragment that is partly flattened. The fragment has a smooth surface.



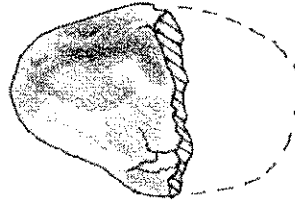
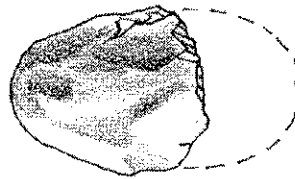


0 1
cm

1



2



3

0 1
cm

CG1998
W263
SF 57

Chogha Gavaneh Small Finds

Number SF57-2

Object Sphere-shaped
Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

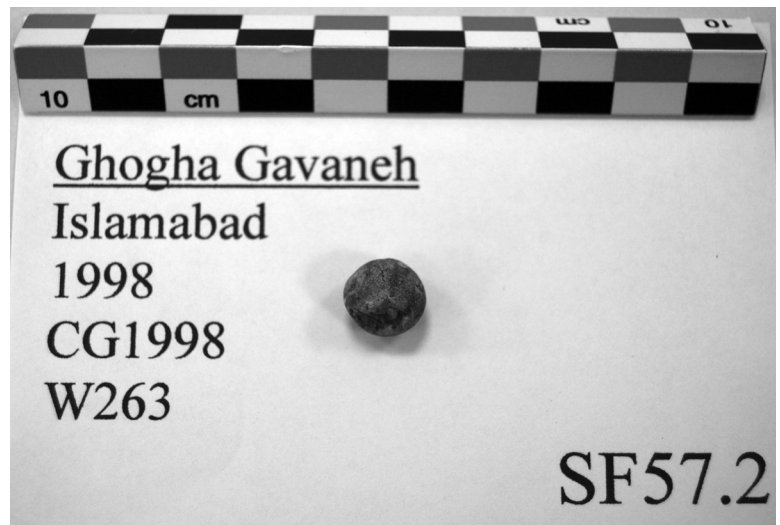
Level D: 258 E: 30 N: 20 cm

Length 0.83 cm

Weight 0.98 g.

Color 10YR6/2 (light brownish gray)

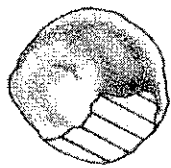
Description spherical-shaped object has a rough and uneven surface. The object is similar to the plain spheres in Fig 2:1 (Schmandt-Besserat 1996:131).



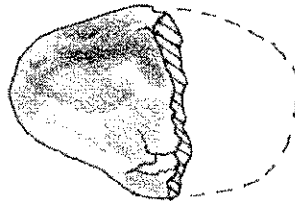


0 1
cm

1



2



3

0 1
cm

CG1998
W263
SF 57

Chogha Gavaneh Small Finds

Number SF57-3

Object Sling Bullet

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

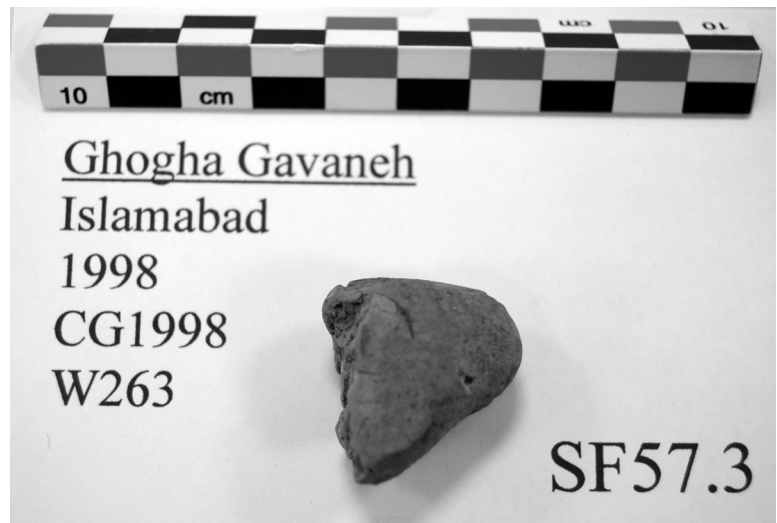
Level D: 258 E: 30 N: 20 cm

Length 2.83 cm

Weight 12.67 g.

Color 10YR5/2 (grayish brown)

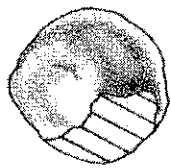
Description Only the top of the sling bullet has remained and the other half is broken poorly. The object has a smooth surface that is severely broken on the horizontal axis. There is finger pressure on one side of the surface.



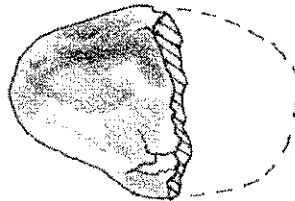
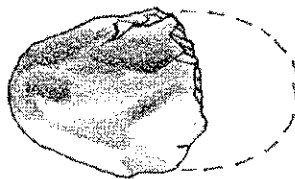


0 1
cm

1



2



3

0 1
cm

CG1998
W263
SF 57

Chogha Gavaneh Small Finds

Number SF58

Object Sling Bullet

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-VIII

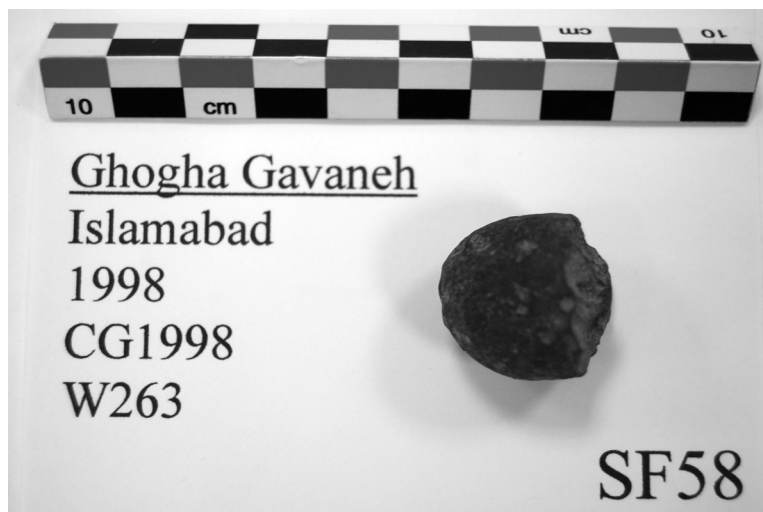
Level D: 258 E: 30 N: 20 cm

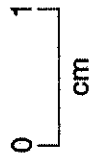
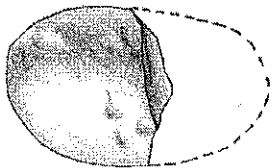
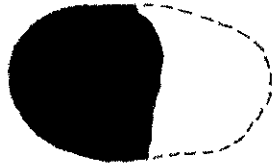
Length 2.26 cm

Weight 11.5 g.

Color GLEY15/N (gray)

Description The fragment is about half of a whole sling bullet, with the break made in the middle of the bullet. It is gray in color with some specks of light tan where dust has settled into punctuated areas exposed by the break and on the surface. In addition, the rounded end of the fragment has some yellowish-green and brown discoloration. At the opposite sides of the fragment, along the edge of the break, have several crater-like indentations which could be intentionally or unintentionally.





CG1998
W263
SF 58

Chogha Gavaneh Small Finds

Number SF59

Object Stone Dish

Material Limestone

**State of
Preservation** Broken

**Excavation
Unit** W263-IX

Level D: 330 E: 26 N: 8 cm

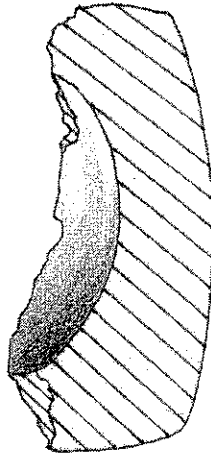
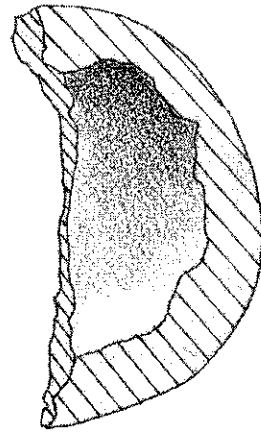
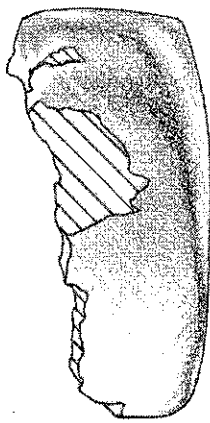
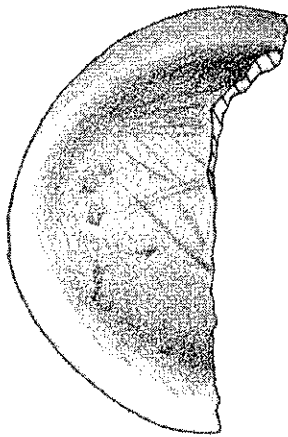
Length 5.86 cm

Weight 59.88 g.

Color very pale brown

Description A limestone stone dish in which half of the object is missing.





0 1
cm

CG1998
W263
SF 59

Chogha Gavaneh Small Finds

Number SF61

Object Sling Bullet

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-IX

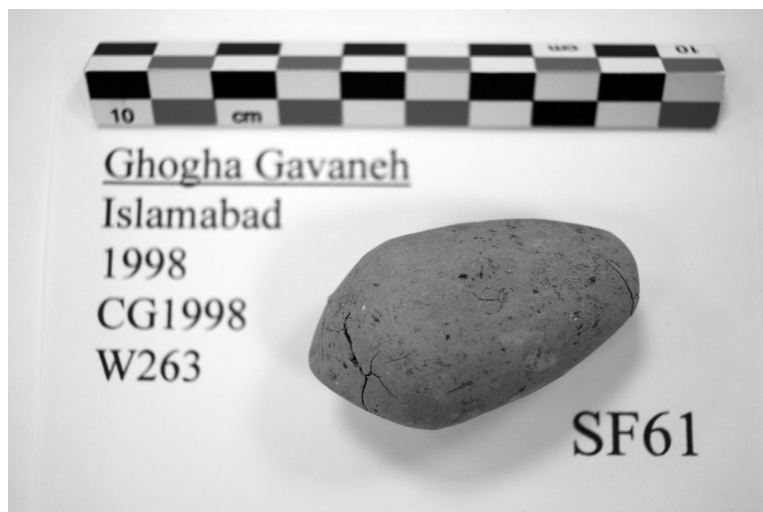
Level D: 357 E: 80 N: 0 cm

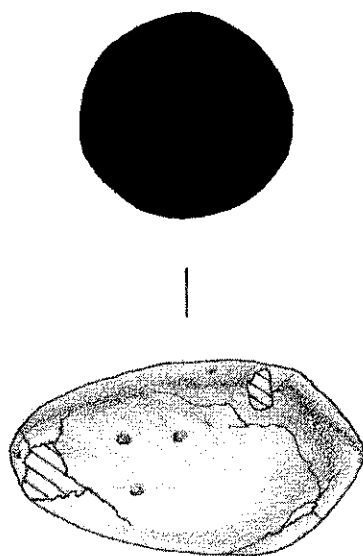
Length 4.98 cm

Weight 36.4 g.

Color 10YR7/2 (light gray)

Description A light gray sling bullet, shaped somewhat like a top, with the widest part rounded and off-center and with one end tapering very quickly to a point, and the other end tapering very quickly to a point. There is a small portion of the bullet missing near the narrow end (where cracks have developed), and a smaller piece chipped off with two cracks at the wide end. The bullet has scattered black spots on its surface. There are also three tiny pin-sized holes on the side. These tiny pin-sized holes could have been made either intentionally or unintentionally.





0 1
cm

CG1998
W263
SF 61

Chogha Gavaneh Small Finds

Number SF62

Object Complete Animal
Figurine

Material Clay

**State of
Preservation** Mostly intact

**Excavation
Unit** W263-IX

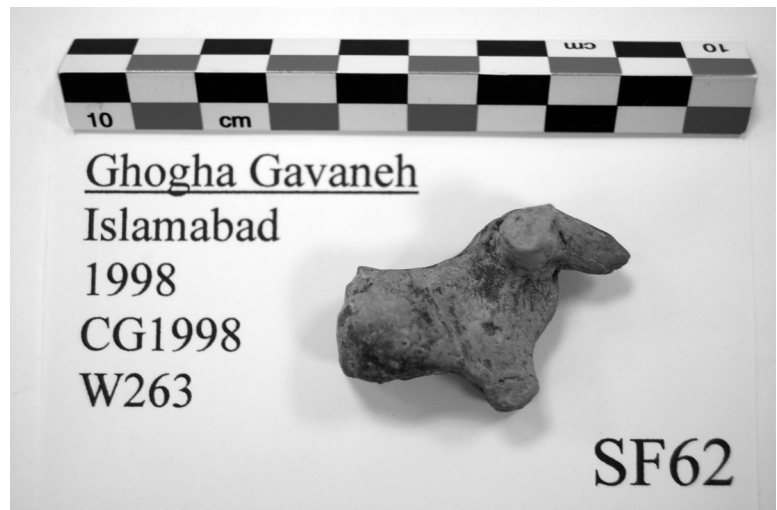
Level D: 365 E: 20 N: 5 cm

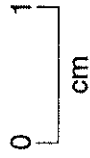
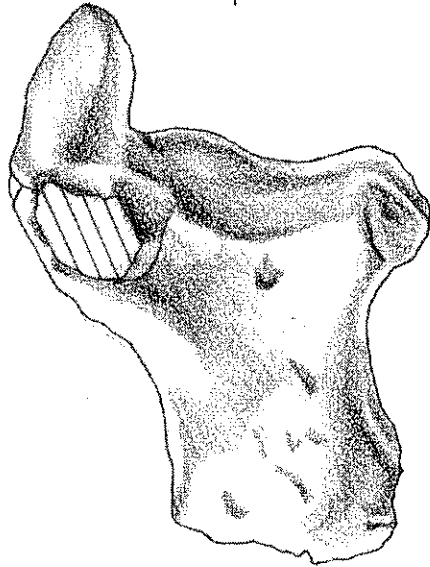
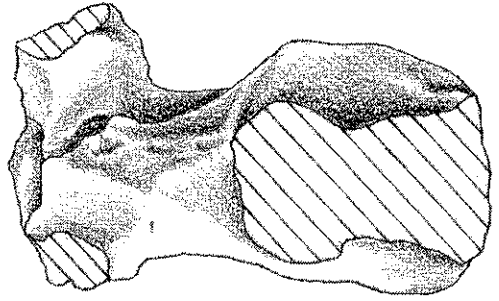
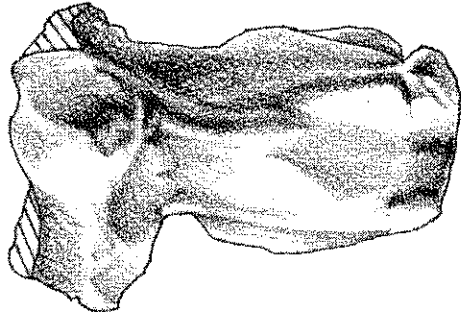
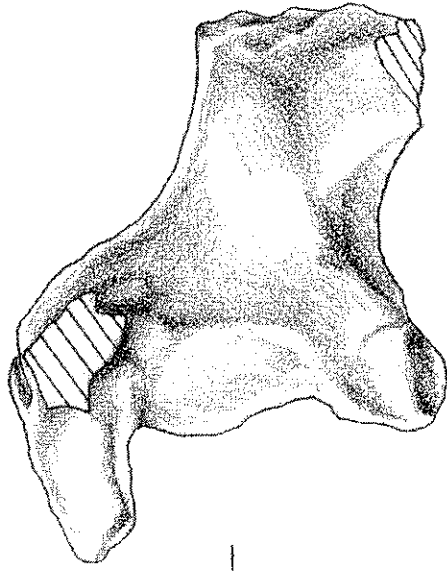
Length 3.05 cm

Weight 12.1 g.

Color 10YR7/2 (light gray)

Description Of the two large horns that came out from the head, the left is broken off while only the base remains on the right. The back legs are missing and the rear is heavily damaged. The forequarters and hindquarters are fused together in this figurine as well as in SF13 and SF64. There are some light green and dark brown blotches on the figure, especially around the head and neck. The left side of the figure is a slightly darker gray than the right. Where the rear has been chipped away there is a very dark gray discoloration. The pointy face is a bit exaggerated in this figurine compared to the others in the collection. In addition, there is skin/hide hanging under the neck, possibly indicating the animal's age. It is most likely a wild sheep due to the curved backward horn.





CG1998

W263

SF 62

Chogha Gavaneh Small Finds

Number SF63

Object Disk-shaped fragment

Material Clay

**State of
Preservation** Intact

**Excavation
Unit** W263-IX

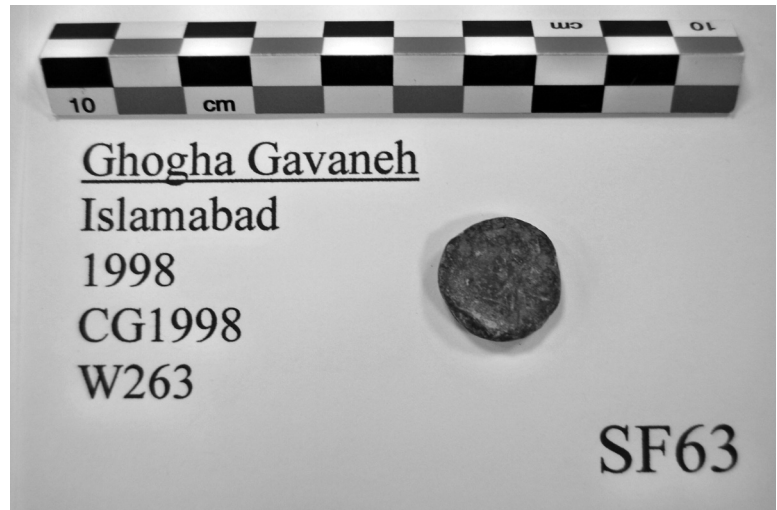
Level D: 345 E: 20 N: 5 cm

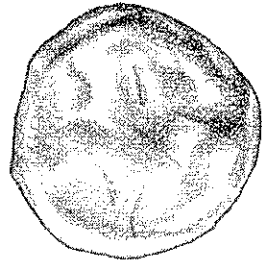
Length 1.76 cm

Weight 1.7 g.

Color GLEY13/N (very dark gray)

Description A clay disk with one very dark gray side and one lighter side. There are a few light scratches on the surface of the object. The disk is tan where dust has settled into some of the scratches on its surface.





0 1
cm

CG1998
W263
SF 63

Chogha Gavaneh Small Finds

Number SF64

Object Complete Animal
Figurine

Material Clay

**State of
Preservation** Intact

**Excavation
Unit
Level** W263-N/A

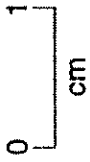
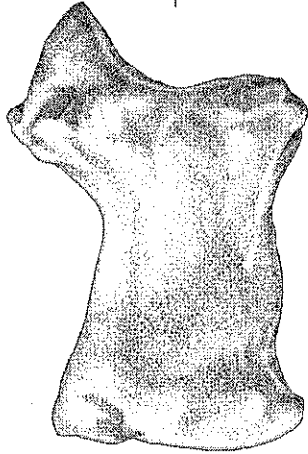
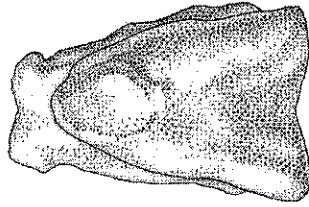
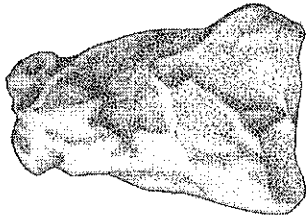
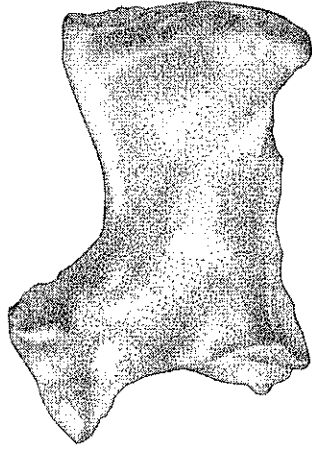
Length 3.6 cm

Weight 10.1 g.

Color 5Y6/2 (light olive gray)

Description The left front leg is missing, and a large part of the chest and tail have been chipped off. The figure is light olive gray in color but this is mostly seen only on its left side, for the rest of the figure is covered in a very dark brown with a yellowish green about the edges. The fused and webbed forequarter and hindquarter in this figurine is similar to the animal figurines SF62 and SF13. The figurine possibly represents a sheep due to the short neck and short tail straightly turned down.





CG1998

W263

SF 64

Chogha Gavaneh Small Finds

Number SF65

Object Spindle Whorls

Material Clay

**State of
Preservation** Intact

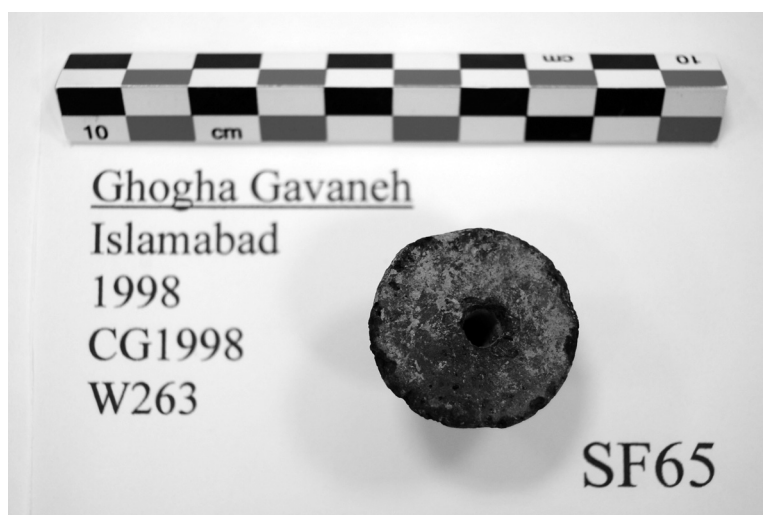
**Excavation
Unit
Level** W263-N/A

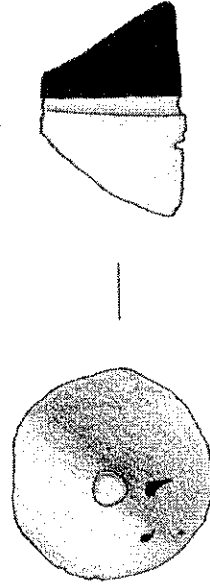
Length

Weight 8.7 g.

Color 2.5Y6/3 (light yellowish brown)
GLE4/N (gray)

Description A cone-shaped spindle whorls with a hole through the middle and flat top at the bottom.





0 1
cm

CG1998
W263
SF 65

Chogha Gavaneh Small Finds

Number SF66

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

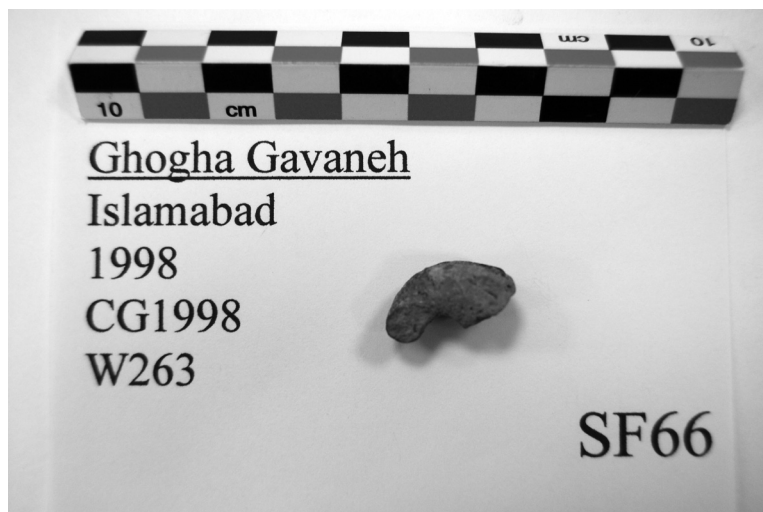
**Excavation
Unit
Level** W263-XIX

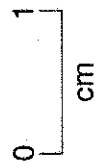
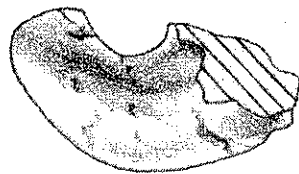
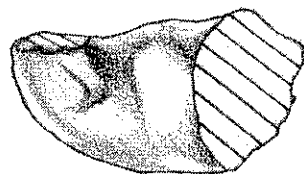
Length 1.92 cm

Weight 1.8 g.

Color 10YR7/2 (light gray)

Description A horn fragment from an animal figurine. Both ends of the fragment are broken off, so the tip is missing and more of the base broken off as well. The inner curve of the horn has a lighter tan color while the area surrounding the outer curve is gray. There are tiny cracks along the outer curve and the general area also has some spots of yellowish green discoloration. The horn is curved in a manner that resembles a sheep or goat.





CG1998

W263

SF 66

Chogha Gavaneh Small Finds

Number SF67

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

**Excavation
Unit** W263-IX

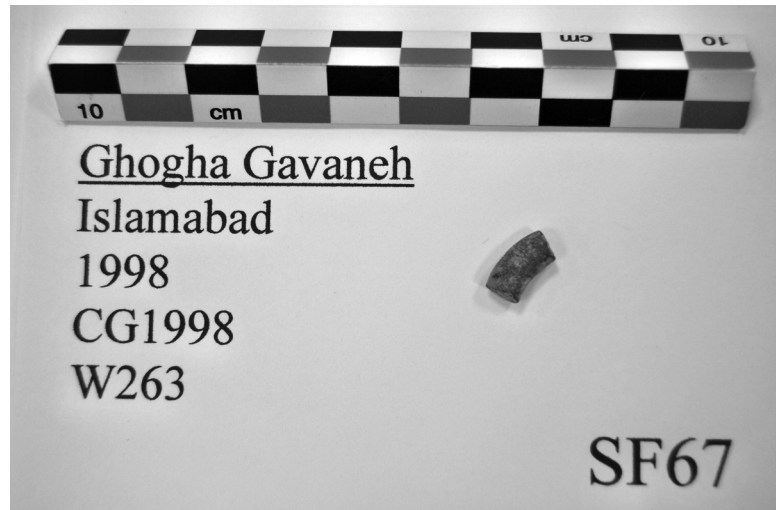
Level D.353 cm, N: 35 cm, W:
80 cm

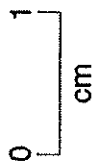
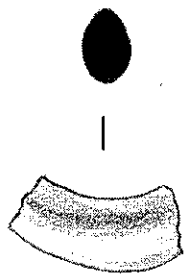
Length 0.32 cm

Weight 0.32 g.

Color Inside: 10YR8/2 (very pale brown)
Outside: 10YR6/1 (gray)

Description The object is broken off at the base. The horn is slightly curved. Because it is so fragmentary exact identification is problematic. The slight curve and thin width may suggest a gazelle (Fig. 7 from Schmandt-Besserat 1997:50).





CG1998

W263

SF 67

Chogha Gavaneh Small Finds

Number SF68

Object Shell Ring

Material shell

**State of
Preservation** Broken

**Excavation
Unit** W263-N/A

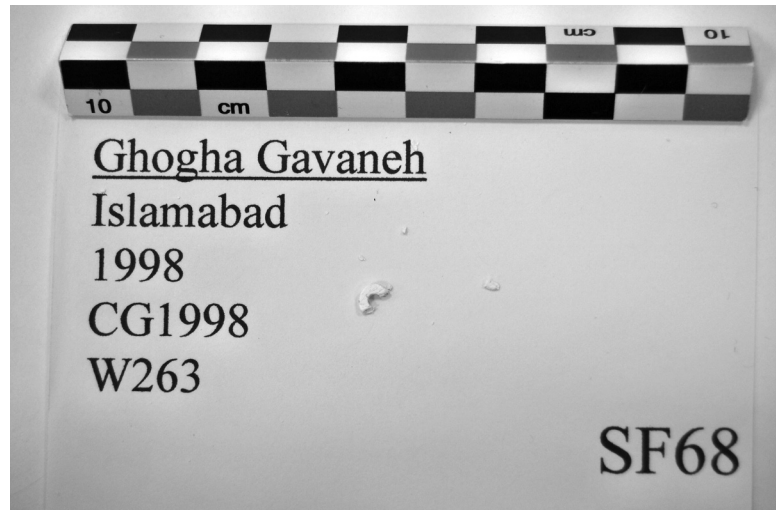
Level D.353 cm, N: 35 cm, W:
80 cm

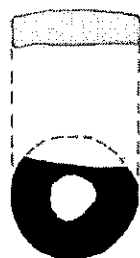
Length 0.44 cm

Weight 0.1 g.

Color

Description Tiny-flat disks with round holes in the middle. The half of the shell ring is missing.





CG1998

W263

SF 68

Chogha Gavaneh Small Finds

Number SF69

Object Shell Ring

Material shell

**State of
Preservation** Intact

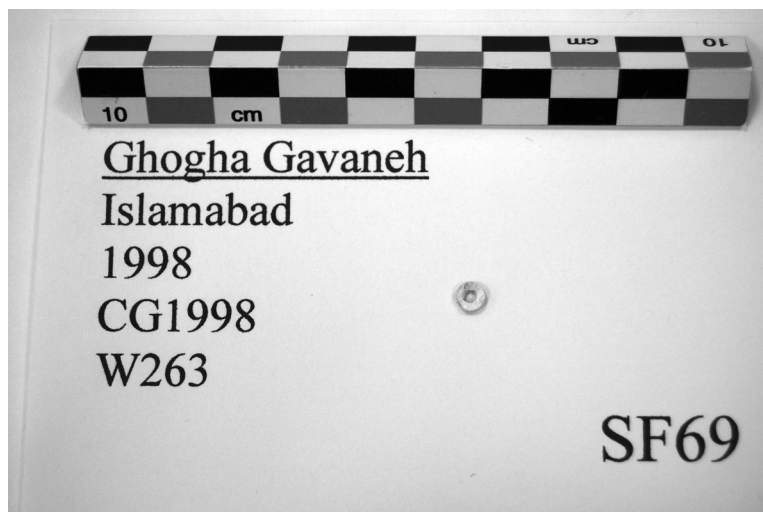
**Excavation
Unit
Level** W263-N/A

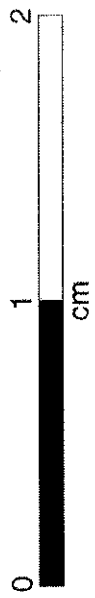
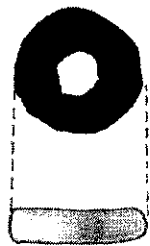
Length 0.44cm

Weight 0.01 g.

Color

Description Tiny-flat disks with round holes in the middle.





CG1998

W263

SF 69

Chogha Gavaneh Small Finds

Number SF70

Object Horn Fragment

Material Clay

**State of
Preservation** Broken

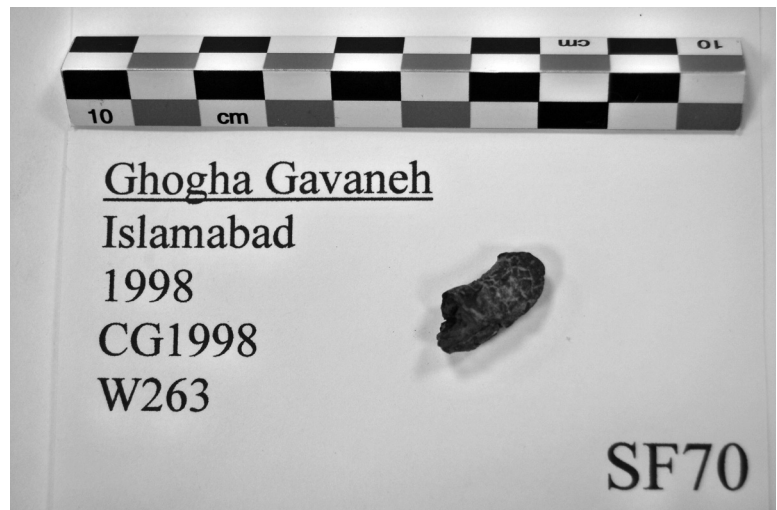
**Excavation
Unit
Level** W263-XXI

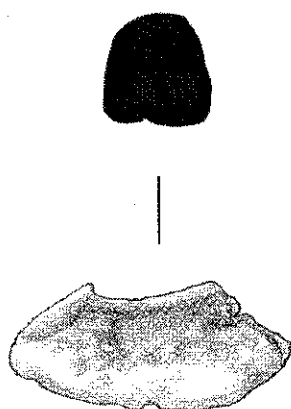
Length 1.93 cm

Weight 1.2 g.

Color GLEY14/N (dark gray)

Description The object is broken off at the slightly wider end and has numerous cracks all over its surface. There is also a large indentation along the outer edge of the curve. An elongated tubular object, bent in a curve might indicate that it was possibly part of a horn from an animal figurine. The color is a dark gray with tan streaks from where dust has settled into the numerous cracks along its surface. There is a break at the slightly wider end, where the color is a darker brownish gray. The indentation around the outer edge has some yellowish green discoloration. It is possibly a sheep horn due to the round and thick curve (Fig. 7 from Schmandt-Besserat 1997:50).





0 1
cm

CG1998

W263

SF 70