

A Study in the
Interrelationships between
Humans and Cattle in the Early
Bronze Age of Southwestern
Asia

PhD Archaeology

Department of Archaeology

Mitchell Miranda

June 2018

Declaration

I confirm that this is my own work, and the use of all material from other sources has been properly and fully acknowledged.

Mitchell Miranda

Abstract

The archaeological investigation of the peoples and cultures of Southwestern Asia has been a subject of study for well over a century, and over time much has been discovered relating to those past individuals and the civilizations they created. With the development of archaeozoology, much information has been uncovered relating to human and animal relationships and the impacts of domesticated species on human dietary and economic practices. Unfortunately, the use of archaeozoological work has not shed much light on the impacts of animals on social practices to determine the utilisation of a particular species by human populations. This is due to the fact that the research focus of most faunal studies is to produce an unbiased documentation of animal material and its relation to food consumption and economic organization and practices. The main purpose of this research is to investigate the interrelationships between humans and cattle both economically and socially to determine how this particular animal affected human behaviour within a specific period in history. By investigating material culture and faunal remains together, we gain a broader image of the animal than merely viewing it as either an artistic representation or as a portion of a faunal assemblage. Even though there have been previous studies relating to human and animal relationships, with a few studies specifically investigating cattle, these studies typically focus on either the material culture representing the animal or the faunal assemblages of a single or multiple archaeological sites.

The results of this research indicate that this interrelationship is much more complex than initially thought; it has also been discovered that the iconography of the species, as well as the faunal remains are concentrated within similar areas, which indicates that the animal was more influential within religious and administrative areas. This means that cattle may have been more influential, at least socially, than other domesticated animal species. This research differs from previous work on the subject by investigating both the material culture and faunal assemblages from multiple sites of

varying sizes as well as multiple cultural regions within Southwestern Asia during a specific period in history. Through this research, it has been discovered that, cattle were kept and cultivated within various environments and were utilised for both economic and social practices. Moreover, the utilization of cattle in the development of agricultural practices was instrumental in the formation of urban living, which may indicate why cattle were so highly valued. As for the social and iconographic role of cattle, it has been established that the animal became associated with particular deities and elite individuals, which may explain why the iconography associated with cattle was so influential and widespread.

Table of Contents

Title Page	i
Declaration	ii
Abstract	iii
Table of Contents	v
List of Figures	xi
List of Tables and Graphs	xxv
Acknowledgements	xxviii
Chapter One: Human-cattle Interrelationships in Early Bronze Age Anatolia and Mesopotamia	1
1.1. Introduction	1
1.2. Aims, Objectives, and Main Questions	2
1.3. Selection and Importance of Research Topic	4
1.4. Differentiation of Cattle Species	12
1.5. Selection of Cultural Regions	15
1.6. Cattle Ecology	18
1.7. Cattle Symbolism	23
1.8. Themes and Debates in Mesopotamia and Anatolia	26
1.9. Conclusions	32
Chapter Two: Research Methodology	35
2.1. Introduction	35
2.2. Nature of the Evidence	38
2.3. Selection of Archaeological Sites and Regions	42
2.3.1. Selection of Study Regions	44
2.3.1.1. Anatolia	45

2.3.1.2. Mesopotamia	45
2.3.2. Selection of Archaeological Sites	46
2.3.2.1. Anatolia	46
2.3.2.2. Mesopotamia	47
2.4. Selection of Artefacts	48
2.4.1. Dates and Chronology	49
2.4.2. Theories and Interpretations of Objects	52
2.4.3. Seals and Impressions	53
2.4.4. Clay Animal Figurines	55
2.4.5. Pendants and Jewellery	58
2.4.6. Stone Objects	60
2.4.7. Clay Objects	61
2.4.8. Other and Unusual Objects	63
2.5. Selection of Archaeozoological Evidence	64
2.5.1. Amount of Material and Limitations of the Material	65
2.5.2. Determining the Use of the Animal	68
2.5.3. Sexing and Identification of Species/Sub-Species of Cattle Populations	69
2.6. Analysis and Interpretation of the Data	72
2.6.1. Comparative Analysis of Material Culture and Faunal Remains	73
2.6.2. Collection of the Data	75
2.6.3. Use of Dating for Material and Faunal Assemblages	76
2.6.4. Possible Limitations and Problems	77
Chapter Three: Cattle in Southwest Asia: Anatolia Culture Region	79

3.1. Introduction	79
3.2. The Site of Alaca Höyük	80
3.2.1. Material Culture	81
3.2.1.1. Clay Bovine Figurines	83
3.2.1.2. Standards and Metal Objects	84
3.2.2. Faunal Remains	88
3.2.3. Context of Material Culture and Faunal Remains	90
3.3. The Site of Titriş Höyük	92
3.3.1. Material Culture	95
3.3.1.1. Clay Objects	95
3.3.1.2. Stone Objects	96
3.3.2. Faunal Remains	97
3.3.3. Context of Material Culture and Faunal Remains	100
3.4. The Site of Sos Höyük	102
3.4.1. Material Culture	104
3.4.1.1. Clay Bovine Figurines	104
3.4.2. Faunal Remains	105
3.4.3. Context of Material Culture and Faunal Remains	108
3.5. Discussion and Comparisons	109
3.6. Conclusions	118
3.7. Figures	122
Chapter Four: Cattle in Southwest Asia: Northern Mesopotamia Culture Region	140
4.1. Introduction	140
4.2. The Site of Tell Beydar	141
4.2.1. Material Culture	142

4.2.1.1. Seals and Impressions	143
4.2.1.2. Clay Figurines and Objects	145
4.2.1.3 Stone Objects	146
4.2.1.4. Metal Objects	147
4.2.2. Faunal Remains	148
4.2.3. Context of Material Culture	152
4.2.4. Context of Faunal Remains	155
4.3. The Site of Tell Brak	157
4.3.1. Material Culture	159
4.3.1.1 Seals and Impressions	160
4.3.1.2. Clay Figurines and Objects	164
4.3.1.3. Jewellery and Pendants	165
4.3.1.4. Other and Unusual Objects	168
4.3.2. Faunal Remains	171
4.3.3. Context of Material Culture	174
4.3.4. Context of Faunal Remains	178
4.4. Discussion and Comparisons	181
4.5. Conclusions	193
4.6. Figures	196
Chapter Five: Cattle in Southwest Asia: Southern Mesopotamia Culture Region	218
5.1. Introduction	218
5.2. The Site of Abu Salabikh	219
5.2.1. Material Culture	222
5.2.1.1. Seals and Impressions	222
5.2.1.2. Clay Bovine Figurines	223

5.2.1.3. Jewellery and Unusual Objects	224
5.2.2. Faunal Remains	225
5.2.3. Context of Material Culture	228
5.2.4. Context of Faunal Remains	230
5.3. The Site of Ur	232
5.3.1. Material Culture	234
5.3.1.1. Seals and Impressions	235
5.3.1.2. Pendants and Jewellery	239
5.3.1.3. Stone Objects	242
5.3.1.4. Other and Unusual Objects	244
5.3.2. Faunal Remains	253
5.3.3. Context of Material Culture and Faunal Remains	255
5.4. Discussion and Comparisons	262
5.5. Conclusions	272
5.6. Figures	277
Chapter Six: Analysis of Results and Interregional Comparisons of Research	322
6.1. Introduction	322
6.2. Mesopotamian Comparisons	323
6.3. Anatolian and Regional Comparisons with North and South Mesopotamia	335
6.4. Faunal Comparisons	348
6.5. Discussion	354
6.6. Conclusions	358
Chapter Seven: Conclusions and Pathways for Future Research	361
7.1. Introduction	361

7.2. Aims and Objectives	362
7.3. Research Questions	367
7.4. General Results and Contributions to the Research Field	372
7.5. Examination of Site Selection and Variable Excavation Practices	376
7.6. Major Findings and Pathways for Future Research	380
7.7. Conclusions and Final Thoughts	383
Appendix I: Seals and Impressions from the Regions of North and South Mesopotamia	386
Bibliography	411

List of Figures

Figure 1.1	Illustration of cattle pulling a plough dating to the Kassite Period (after Potts 1997: fig. III. 9)	7
Figure 1.2	Illustration of aurochs cattle, <i>Bos primigenius</i> (after Velten 2007: p. 11)	13
Figure 1.3	Illustration of taurine cattle, <i>Bos Taurus</i> (after Grigson 1991: fig. 1a)	13
Figure 1.4	Illustration of zebu cattle, <i>Bos indicus</i> (after Grigson 1991: fig. 1b)	13
Figure 1.5	Annual rainfall distribution patterns for Southwest Asia (after Wilkinson 2003: fig. 2.1)	17
Figure 1.6	Map of project area showing the regions of Anatolia [in red] and Mesopotamia [in green], with the seven selected archaeological sites of Alaca Höyük, Titriş Höyük, Sos Höyük, Tell Beydar, Tell Brak, Abu Salabikh, and Ur (Google Earth 2017)	18
Figure 3.1	Bronze Age Anatolia showing three archaeological sites (Google Earth 2017)	122
Figure 3.2	5 and 10 km Radii around Alaca Höyük (Google Earth 2017)	122
Figure 3.3	Site map of Alaca (modified from Gursan-Salzmänn 1992: fig. 3)	123
Figure 3.4	Baked clay knob in the form of a bovine head from Alaca Höyük (after Koşay 1973: pl. LXVI)	123
Figure 3.5	Baked clay ox's head from Alaca Höyük (after Koşay 1973: pl. LXVI)	123
Figure 3.6	Baked clay animal figurine from Alaca Höyük (after Koşay 1973: pl. LXVI)	124
Figure 3.7	Series of eight baked clay animal/bovine figurines from Alaca Höyük (after Koşay and Akok 1966: pl. LIX)	124
Figure 3.8	Baked clay bovine vessel fragment from Alaca Höyük (after Arik 1937: pl. LV)	124
Figure 3.9	Baked clay bovine figurine from Alaca Höyük (after Arik 1937: pl. LV)	125
Figure 3.10	Baked clay bovine figurine from Alaca Höyük (after Arik 1937: pl. CCXXI)	125
Figure 3.11	Copper alloy bull standard from Alaca Höyük (after Arik 1937: pl. CCLXXI)	125
Figure 3.12	Copper-alloy standard with stag and twin bulls from tomb B, Alaca Höyük (after Muscarella 2003: fig. 80)	126
Figure 3.13	Copper-alloy bull standard with electrum detailing from tomb C, Alaca Höyük (after Muscarella 2003: no. 188)	126
Figure 3.14	Copper bull standard from tomb D, Alaca Höyük (after Koşay 1951: pl. CLXI)	127
Figure 3.15	Copper bull standard with electrum detailing from tomb E, Alaca Höyük (after Koşay 1951: pl. CLXIV)	127
Figure 3.16	Copper bull standard with electrum detailing from tomb H, Alaca Höyük (after Koşay 1951: pl. CLIX)	128
Figure 3.17	Copper bull standard with silver detailing from tomb K, Alaca Höyük (after Koşay 1951: pl. CLXVII)	128
Figure 3.18	Copper bull standard from tomb L, Alaca Höyük (after Koşay 1951: pl. CLXX)	129

Figure 3.19	Iron dagger with gold detailing which once covered a hardwood hilt from tomb K, Alaca Höyük (after Koşay 1951: p. 167)	129
Figure 3.20	Plan of tomb E showing placement of cattle crania on roof of the tomb, Alaca Höyük (after Koşay 1951: pl. CLVII)	130
Figure 3.21	Plan of tomb F showing placement of cattle crania within the tomb, Alaca Höyük (after Koşay 1951: pl. CLXVIII)	130
Figure 3.22	Plan of tomb H showing placement of cattle crania within the tomb, Alaca Höyük (after Koşay 1951: pl. CXVIII)	131
Figure 3.23	Plan of tomb L showing placement of cattle crania on roof of tomb, Alaca Höyük (after Koşay 1951: pl. CLXXXIX)	131
Figure 3.24	Plan of cemetery showing locations of tombs at Alaca Höyük (modified from Koşay 1953)	132
Figure 3.25	Area surrounding the site of Titriş Höyük (after Alagze 1999: fig. 1)	132
Figure 3.26	5 and 10 km Radii around Titriş Höyük (Google Earth 2017)	133
Figure 3.27	Vessel fragment with horned decoration from Titriş Höyük (after Matney and Algaze 1995: fig. 7)	133
Figure 3.28	Grey stone casting mould from Titriş Höyük (after Matney <i>et al.</i> 1997: fig. 19)	134
Figure 3.29	Drawing of the mould showing the carving in detail from Titriş Höyük (after Matney <i>et al.</i> 1997: fig. 20)	134
Figure 3.30	Clay animal head (<i>Bos?</i>) from Titriş Höyük (after Wilkinson 1990: fig. B:27. 2)	134
Figure 3.31	Site map of Titriş Höyük (after Algaze 1995: fig. 1)	135
Figure 3.32	Map of Outer Town neighbourhood of Titriş Höyük (after Algaze <i>et al.</i> 2001: fig. 2)	135
Figure 3.33	Map of Lower Town neighbourhood of Titriş Höyük (after Laneri 2007: fig. 3)	136
Figure 3.34	Area surrounding the site of Sos Höyük (after Sagona 2000: fig. 2)	136
Figure 3.35	5 and 10 km radii around Sos Höyük (Google Earth 2017)	137
Figure 3.36	Baked clay animal figurine from Sos Höyük (after Sagona <i>et al.</i> 1996: fig. 12: 13)	138
Figure 3.37	Series of baked clay animal figurines from Sos Höyük (after Sagona <i>et al.</i> 1995: fig. 13)	138
Figure 3.38	Baked clay bovine figurine from Sos Höyük (after Sagona <i>et al.</i> 1995: fig. 1: 15)	138
Figure 3.39	Baked clay bovine figurines from Sos Höyük (after Sagona 2000: fig. 21: 4. 5)	138
Figure 3.40	Site map of Sos Höyük (after Sagona <i>et al.</i> 1995: fig. 2)	139
Figure 4.1	Map of Early Bronze Age Mesopotamia showing locations of Northern and Southern Mesopotamian sites (Google Earth 2017)	196
Figure 4.2	5 and 10 km radii around Tell Beydar (Google Earth 2017)	196
Figure 4.3	Site map of Tell Beydar showing major structures and field locations (after LeBeau and Suleiman 2011: pl. III)	197
Figure 4.4	Seal reconstruction from Tell Beydar (after Mialno and Rova 2014: fig. 27. 9)	198

Figure 4.5	Seal reconstruction from Tell Beydar (after Mialno and Rova 2014: fig. 27. 10)	198
Figure 4.6	Seal reconstruction from Tell Beydar (after Rova 2012: fig. 5. 5)	198
Figure 4.7	Seal reconstruction from Tell Beydar (after Debruyne and Jans 2007: scene 136)	198
Figure 4.8	Seal reconstruction from Tell Beydar (after Rova and Devecchi 2008: fig. 7. 7)	198
Figure 4.9	Seal reconstruction from Tell Beydar (after Rova and Devecchi 2008: fig. 8. 9)	198
Figure 4.10	Seal reconstruction from Tell Beydar (after Mialno and Rova 2014: fig. 27. 68)	198
Figure 4.11	Seal reconstruction from Tell Beydar (after Rova and Devecchi 2008: fig. 16. 18)	198
Figure 4.12	Seal reconstruction from Tell Beydar (after Rova 2012: fig. 9. 56)	199
Figure 4.13	Seal reconstruction from Tell Beydar (after Teissier 1997: fig. 1. 9)	199
Figure 4.14	Seal reconstruction from Tell Beydar (after Rova and Devecchi 2008: fig. 22. 31)	199
Figure 4.15	Seal reconstruction from Tell Beydar (after Rova and Devecchi 2008: fig. 18. 24)	199
Figure 4.16	Seal reconstruction from Tell Beydar (after Teissier 1997: fig. 1. 7)	199
Figure 4.17	Seal reconstruction from Tell Beydar (after Bretschneider and Jans 2012: fig. 22a)	199
Figure 4.18	Seal reconstruction from Tell Beydar (after Rova 2012: fig. 5. 62)	199
Figure 4.19	Seal reconstruction from Tell Beydar (after Debruyne and Jans 2007: scene 94)	199
Figure 4.20	Seal reconstruction from Tell Beydar (after Teissier 1997: fig. 1. 4)	200
Figure 4.21	Seal reconstruction from Tell Beydar (after Rova and Devecchi 2008: fig. 13. 17)	200
Figure 4.22	Seal reconstruction from Tell Beydar (after Rova 2012: fig. 9. 43)	200
Figure 4.23	Baked clay bovine figurine from Tell Beydar (after Goddeeris 2003: fig. 4)	200
Figure 4.24	Baked clay bovine figurine from Tell Beydar (after Goddeeris, Lahlouh, and Stenuit 1997: pl. I. 5)	200
Figure 4.25	Baked clay bovine figurine from Tell Beydar (after Goddeeris, Lahlouh, and Stenuit 1997: pl. I. 6)	201
Figure 4.26	Baked clay bovine figurine from Tell Beydar (after Milano and Rova 2014: fig. 10)	201
Figure 4.27	Baked clay bovine figurine from Tell Beydar (after Milano and Rova 2014: fig. 10)	201
Figure 4.28	Baked clay bovine figurine from Tell Beydar (after Milano and Rova 2014: fig. 10)	201
Figure 4.29	Baked clay double bull proteome from Tell Beydar (after Purß 2011: fig. 3)	201
Figure 4.30	Stone bovine figurine from Tell Beydar (after Debruyne, Jans, and Van der Stede 2003: pl. VII)	202

Figure 4.31	Stone bull's head fragment from Tell Beydar (after Bretschneider, Cunningham, and Jans 2007: fig 2)	202
Figure 4.32	Copper alloy dipper/pin from Tell Beydar (after Bretschneider and Cunningham 2007: fig. 16)	202
Figure 4.33	Copper alloy dipper/pin from Tell Beydar (after Bretschneider and Cunningham 2007: fig. 17)	203
Figure 4.34	Photograph of figure 4.33 copper alloy pin from Tell Beydar (after Bretschneider and Cunningham 2007: fig. 34)	203
Figure 4.35	Copper alloy pin from Tell Beydar (after Debruyne 1997: pl. II. 4)	203
Figure 4.36	Drawing of figure 35 pin from Tell Beydar (after Debruyne 1997: fig. 4)	203
Figure 4.37	5 and 10 km radii around Tell Brak (Google Earth 2017)	204
Figure 4.38	Site map of Tell Brak showing major structures and area Locations (after Matthews 2003: fig. 1. 2)	204
Figure 4.39	Square stamp seal from Tell Brak (after Mallowan 1947: pl. XVIII. 14)	205
Figure 4.40	Rectangular stamp seal from Tell Brak (after Mallowan 1947: pl. XVIII. 28)	205
Figure 4.41	Oval stamp seal from Tell Brak (after Mallowan 1947: pl. XVI. 8, 9)	205
Figure 4.42	Pyramidal stamp seal from Tell Brak (after Emberling and McDonald 2001: fig. 17: 12)	205
Figure 4.43	Cylinder seal from Tell Brak (after Mallowan 1947: pl. XXII. 3, 4)	206
Figure 4.44	Cylinder seal from Tell Brak (after Felli 2001: fig. 180)	206
Figure 4.45	Cylinder seal from Tell Brak (after Felli 2001: fig. 178)	206
Figure 4.46	Cylinder seal from Tell Brak (after Felli 2001: fig. 179)	206
Figure 4.47	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIV. 6)	207
Figure 4.48	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIV. 12)	207
Figure 4.49	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIII. 13)	207
Figure 4.50	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIV. 15)	207
Figure 4.51	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIII. 11)	207
Figure 4.52	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIII. 10)	207
Figure 4.53	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIV. 16)	207
Figure 4.54	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIII. 16)	207
Figure 4.55	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIV. 1)	207
Figure 4.56	Seal impression from Tell Brak (after Oates 1987: pl. XXXVIII. A, B)	208
Figure 4.57	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIV. 3)	208

Figure 4.58	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIII. 2)	208
Figure 4.59	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIV. 9)	208
Figure 4.60	Seal impression from Tell Brak (after Mallowan 1947: pl. XXIV. 17)	208
Figure 4.61	Drawing of seal from Tell Brak (after Matthews, Matthews, and McDonald 1994: fig. 13: 16)	209
Figure 4.62	Drawing of seal from Tell Brak (after Emberling and McDonald 2001: fig. 17: 5)	209
Figure 4.63	Drawing of seal from Tell Brak (after Emberling and McDonald 2001: fig. 17: 6)	209
Figure 4.64	Drawing of seal from Tell Brak (after Emberling and McDonald 2001: fig. 17: 7)	209
Figure 4.65	Drawing of seal from Tell Brak (after Matthews, Matthews, and McDonald 1994: fig. 13: 10)	209
Figure 4.66	Drawing of seal from Tell Brak (after Oates 2001: fig. 167)	209
Figure 4.67	Drawing of seal from Tell Brak (after Matthews 2003: fig. 12)	209
Figure 4.68	Drawing of seal from Tell Brak (after Emberling and McDonald 2003: fig. 47: 4)	209
Figure 4.69	Drawing of seal from Tell Brak (after Emberling and McDonald 2001: fig. 17: 2)	210
Figure 4.70	Drawing of seal from Tell Brak (after Emberling and McDonald 2001: fig. 17: 1)	210
Figure 4.71	Drawing of seal from Tell Brak (after Oates 2001: fig. 171)	210
Figure 4.72	Baked clay bull figurine from Tell Brak (after McDonald 2001: fig. 292)	210
Figure 4.73	Baked clay zebu figurine from Tell Brak (after Matthews 1996: fig. 18)	210
Figure 4.74	Unbaked clay bull figurine from Tell Brak (after Steele <i>et al.</i> 2003: fig. 14)	211
Figure 4.75	Painted clay vessel fragment from Tell Brak (after Mallowan 1947: pl. LIV. 19)	211
Figure 4.76	Baked clay vessel fragment from Tell Brak (after Oates 2001; fig. 202)	211
Figure 4.77	Baked clay tower: detail, from Tell Brak (after Emberling and McDonald 2003: fig. 53)	211
Figure 4.78	Baked clay tower: full object, from Tell Brak (after Emberling and McDonald 2003: fig. 52)	211
Figure 4.79	Stone bovine amulet from Tell Brak (after Mallowan 1947: pl. XII. 4a)	212
Figure 4.80	Underside design of figure 4.79 with two scorpions from Tell Brak (after Mallowan 1947: pl. XII. 4b)	212
Figure 4.81	Stone bovine amulet and underside design from Tell Brak (after Mallowan 1947: pl. XIII. 2a, 2b)	212
Figure 4.82	Stone bovine amulet and underside design from Tell Brak (after Mallowan 1947: pl. XIII. 7a, 7b)	212
Figure 4.83	Stone bovine amulet from Tell Brak (after Mallowan 1947: pl. XIII. 10)	213
Figure 4.84	Stone bovine amulet from Tell Brak (after Mallowan 1947: pl. XIV. 30)	213

Figure 4.85	Stone bovine amulet from Tell Brak (after Mallowan 1947: pl. XIV. 37)	213
Figure 4.86	Stone bovine amulet from Tell Brak (after Mallowan 1947: pl. XV. 4)	213
Figure 4.87	Stone bovine amulet from Tell Brak (after Mallowan 1947: pl. XV. 8)	213
Figure 4.88	Mother-of-pearl human-headed bull from Tell Brak (after Oates 2001: fig. 317)	213
Figure 4.89	Shell bovine pendant from Tell Brak (after Emberling <i>et al.</i> 1999: fig. 23)	213
Figure 4.90	Stone twin headed bull pendant from Tell Brak (after Mallowan 1947: pl. XV. 3)	214
Figure 4.91	Stone twin headed bull pendant from Tell Brak (after McDonald 2001: fig. 475. 110)	214
Figure 4.92	Stone twin headed bull pendant from Tell Brak (after Mallowan 1947: pl. XV. 1)	214
Figure 4.93	Lapis lazuli bearded bull pendant from Tell Brak (after Mallowan 1947: pl. XV. 2)	214
Figure 4.94	Lapis lazuli bearded bull pendant from Tell Brak (after Matthews <i>et al.</i> 1994: fig. 10)	214
Figure 4.95	Stone double headed bull pendant from Tell Brak (after Mallowan 1947: pl. XV. 14)	214
Figure 4.96	Stone bull head pendant from Tell Brak (after Mallowan 1947: pl. XV. 15)	214
Figure 4.97	Lead bearded bull pendant from Tell Brak (after Mallowan 1947: pl. XXXII. 1)	214
Figure 4.98	Stone fragment of bull figure from Tell Brak (after Mallowan 1947: pl. LII. 20)	215
Figure 4.99	Fragment of stone object representing a bull from Tell Brak (after Oates 2001: fig. 275)	215
Figure 4.100	Gold and bitumen bull head from Tell Brak (after Mallowan 1947: pl. XXXVI. 14)	215
Figure 4.101	Lapis lazuli beard inlay from Tell Brak (after Mallowan 1947: pl. XV. 9)	215
Figure 4.102	Bronze pin from Tell Brak (after McDonald, Curtis, and Maxwell-Hyslop 2001: fig. 260)	215
Figure 4.103	Drawing of figure 4.102 from Tell Brak (after McDonald, Curtis, and Maxwell-Hyslop 2001: fig. 65)	215
Figure 4.104	Stone jewellery mould from Tell Brak (after McDonald, Curtis, and Maxwell-Hyslop 2001: fig. 267)	216
Figure 4.105	Stone human-headed bull statue from Tell Brak (after Oates and Oates 1991: pl. XXVI)	216
Figure 4.106	Bifurcated <i>Bos indicus</i> vertebra from Tell Brak (after Matthews 1995: fig. 11)	217
Figure 5.1	Map of Early Bronze Age Mesopotamia showing locations of Northern and Southern Mesopotamian sites (Google Earth 2017)	277
Figure 5.2	5 and 10 km radii around Abu Salabikh (Google Earth 2017)	277
Figure 5.3	Site map of Abu Salabikh showing major mounds and areas (after Postgate 1983: fig. 2)	278
Figure 5.4	Drawing of seal seen on two sealings from Abu Salabikh (after Martin and Matthews 1993: figs. 35. a+b)	279

Figure 5.5	Clay seal impression from Abu Salabikh (after Martin and Matthews 1993: fig. 35. a)	279
Figure 5.6	Clay seal impression from Abu Salabikh (after Martin and Matthews 1993: fig. 35. b)	279
Figure 5.7	Clay seal impression from Abu Salabikh (after Postgate 1977: pl. XXXIV. E)	279
Figure 5.8	Baked clay cylinder seal from Abu Salabikh (after Postgate and Moon 1982: pl. V. A)	280
Figure 5.9	Drawing of seal impression from Abu Salabikh (after Martin and Matthews 1993: fig. 56)	280
Figure 5.10	Drawing of seal impression from Abu Salabikh (after Martin and Matthews 1993: fig. 59)	280
Figure 5.11	Baked clay bovine figurine from Abu Salabikh (after McAdam 1993: fig. 349)	281
Figure 5.12	Baked clay bovine figurine from Abu Salabikh (after McAdam 1993: fig. 353)	281
Figure 5.13	Baked clay bovine figurine from Abu Salabikh (after McAdam 1993: fig. 359)	281
Figure 5.14	Baked clay bovine figurine from Abu Salabikh (after Postgate 1983: fig. 314)	282
Figure 5.15	Baked clay bovine figurine from Abu Salabikh (after Postgate 1983: fig. 319)	282
Figure 5.16	Pendant of calf, pendant of bearded bull from Abu Salabikh (after Postgate and Moorey 1976: pl. XXVI. B)	282
Figure 5.17	Drawing of copper pin with crescent shape at top from Abu Salabikh (after Martin, Moon, and Postgate 1985: fig. 144. 14: 3)	283
Figure 5.18	Drawing of clay dish object from Abu Salabikh (after Martin, Moon, and Postgate 1985: fig. 132. 4)	283
Figure 5.19	Clay dish object from Abu Salabikh (after Martin, Moon, and Postgate 1985: pl. XXVII. B)	283
Figure 5.20	Detail of clay dish object from Abu Salabikh (after Martin, Moon, and Postgate 1985: pl. XXVII. D)	283
Figure 5.21	5 and 10 km radii around Ur (Google Earth 2017)	284
Figure 5.22	Site map of Ur showing cemetery area (highlighted) in the Centre (modified from Zettler 1998: fig. 3)	285
Figure 5.23	Shell cylinder seal from cemetery area at Ur (after Woolley 1934: pl. 99. A)	286
Figure 5.24	Lapis cylinder seal from cemetery area at Ur (after Woolley 1934: pl. 147)	286
Figure 5.25	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 192. 12)	286
Figure 5.26	Gold plating from cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 193. 21)	286
Figure 5.27	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 194. 22)	286
Figure 5.28	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 194. 33)	286
Figure 5.29	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 195. 38)	287
Figure 5.30	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 195. 46)	287

Figure 5.31	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 196. 47)	287
Figure 5.32	Limestone cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 196. 51)	287
Figure 5.33	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 197. 57)	288
Figure 5.34	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 197. 58)	288
Figure 5.35	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 197. 59)	288
Figure 5.36	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 197. 60)	288
Figure 5.37	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 198. 65)	289
Figure 5.38	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 198. 72)	289
Figure 5.39	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 198. 73)	289
Figure 5.40	Marble cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 198. 76)	289
Figure 5.41	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 200. 108)	289
Figure 5.42	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 201. 109)	289
Figure 5.43	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 201. 111)	289
Figure 5.44	Calcite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 201. 117)	290
Figure 5.45	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 201. 118)	290
Figure 5.46	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 201. 119)	290
Figure 5.47	Seal impression, found a total of four times from cemetery area at Ur (after Woolley 1934: pl. 202. 121)	290
Figure 5.48	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 203. 132)	290
Figure 5.49	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 203. 133)	290
Figure 5.50	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 203. 137)	290
Figure 5.51	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 203. 141)	291
Figure 5.52	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 203. 142)	291
Figure 5.53	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 203. 146)	291
Figure 5.54	Calcite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 204. 150)	291
Figure 5.55	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 204. 151)	291
Figure 5.56	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 204. 166)	291

Figure 5.57	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 205. 168)	291
Figure 5.58	Lapis and gold cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 205. 169)	291
Figure 5.59	Haematite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 205. 170)	292
Figure 5.60	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 205. 172)	292
Figure 5.61	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 205. 173)	292
Figure 5.62	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 205. 174)	292
Figure 5.63	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 205. 181)	292
Figure 5.64	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 205. 182)	292
Figure 5.65	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 205. 183)	292
Figure 5.66	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 185)	292
Figure 5.67	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 188)	293
Figure 5.68	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 189)	293
Figure 5.69	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 190)	293
Figure 5.70	Marble cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 191)	293
Figure 5.71	Haematite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 192)	293
Figure 5.72	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 193)	293
Figure 5.73	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 194)	293
Figure 5.74	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 196)	293
Figure 5.75	Marble cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 198)	294
Figure 5.76	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 201)	294
Figure 5.77	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 199)	294
Figure 5.78	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 206. 200)	294
Figure 5.79	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 207. 216)	294
Figure 5.80	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 208. 217)	294
Figure 5.81	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 208. 224)	294
Figure 5.82	Calcite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 208. 225)	294

Figure 5.83	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 208. 226)	295
Figure 5.84	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 208. 227)	295
Figure 5.85	Breccia cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 208. 230)	295
Figure 5.86	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 208. 231)	295
Figure 5.87	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 208. 232)	295
Figure 5.88	Breccia cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 208. 233)	295
Figure 5.89	Haematite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 209. 234)	295
Figure 5.90	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 209. 239)	295
Figure 5.91	Jadeite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 209. 236)	296
Figure 5.92	Jadeite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 209. 237)	296
Figure 5.93	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 209. 238)	296
Figure 5.94	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 209. 247)	296
Figure 5.95	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 253)	296
Figure 5.96	Limestone cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 254)	296
Figure 5.97	Stone cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 256)	296
Figure 5.98	Jadeite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 258)	296
Figure 5.99	Marble cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 260)	297
Figure 5.100	Limestone cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 267)	297
Figure 5.101	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 269)	297
Figure 5.102	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 268)	297
Figure 5.103	Marble cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 270)	297
Figure 5.104	Marble cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 210. 278)	297
Figure 5.105	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 211. 282)	297
Figure 5.106	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 211. 283)	297
Figure 5.107	Steatite stamp seal, impression from cemetery area at Ur (after Woolley 1934: pl. 211. 285)	298
Figure 5.108	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 211. 290)	298

Figure 5.109	Shell cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 211. 293)	298
Figure 5.110	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 211. 294)	298
Figure 5.111	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 212. 302)	298
Figure 5.112	Granite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 212. 307)	298
Figure 5.113	Clay bulla fragment from cemetery area at Ur (after Woolley 1934: pl. 212. 309)	299
Figure 5.114	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 212. 310)	299
Figure 5.115	Haematite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 212. 312)	299
Figure 5.116	Lapis cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 212. 313)	299
Figure 5.117	Steatite cylinder seal, impression from cemetery area at Ur (after Woolley 1934: pl. 212. 316)	299
Figure 5.118	Collection of body ornaments from PG/800 cemetery of Ur (after Woolley 1934: pl. 129)	300
Figure 5.119	Gold earrings from PG/1237 cemetery of Ur (after Pittman 1998: fig. 59)	300
Figure 5.120	Gold earrings from PG/1237 cemetery of Ur (after Pittman 1998: fig. 58)	300
Figure 5.121	Gold earrings from PG/1237 cemetery of Ur (after Pittman 1998: fig. 57)	300
Figure 5.122	Gold earrings from PG/1133 and PG/1195 cemetery of Ur (after Pittman 1998: fig. 56)	300
Figure 5.123	Gold earring from PG/1100 cemetery of Ur (after Woolley 1934: pl. 138)	301
Figure 5.124	Gold fillet from PG/153 cemetery of Ur (after Hansen 1998: fig. 11)	301
Figure 5.125	Diadem of Queen Shub-Ad (Puabi) from PG/800 cemetery of Ur (after Woolley 1934: pl. 140)	301
Figure 5.126	Gold bull ornaments from diadem, cemetery of Ur (after Woolley 1934: pl. 141. B)	302
Figure 5.127	Lapis bull pendant cemetery of Ur (after Woolley 1934: pl. 142)	302
Figure 5.128	Gold plated pendant cemetery of Ur (after Woolley 1934: pl. 142)	302
Figure 5.129	Shell bull pendant cemetery of Ur (after Woolley 1934: pl. 142)	302
Figure 5.130	Lapis bull pendant cemetery of Ur (after Woolley 1934: pl. 142)	302
Figure 5.131	Lapis bull pendant cemetery of Ur (after Woolley 1934: pl. 142)	303
Figure 5.132	Gold bull pendant cemetery of Ur (after Woolley 1934: pl. 143)	303
Figure 5.133	Mixed material diadem fragment cemetery of Ur (after Woolley 1934: pl. 142)	303
Figure 5.134	Lapis bull pendant with beads cemetery of Ur (after Woolley 1934: pl. 143. A)	304

Figure 5.135	Lapis calf pendant with beads cemetery of Ur (after Woolley 1934: pl. 143. D)	304
Figure 5.136	Calcite lamp with bearded bull man motif cemetery of Ur (after Woolley 1934: pl. 182. A)	304
Figure 5.137	Calcite lamp with bearded bull man motif cemetery of Ur (after Woolley 1934: pl. 182. B)	305
Figure 5.138	Gypsum mace head with bearded bull man motif cemetery of Ur (after Woolley 1934: pl. 183. A)	305
Figure 5.139	Standard of Ur “The Peace Panel” cemetery of Ur (after Woolley 1934: pl. 91)	306
Figure 5.140	Standard of Ur “The War Panel” cemetery of Ur (after Woolley 1934: pl. 92)	306
Figure 5.141	Standard of Ur end panels cemetery of Ur (after Woolley 1934: pl. 93)	306
Figure 5.142	Gaming board with shell and lapis details, cemetery of Ur (after Woolley 1934: pl. 96)	307
Figure 5.143	Gaming board with shell and lapis details, cemetery of Ur (after Woolley 1934: pl. 97)	307
Figure 5.144	Shell gaming piece, cemetery of Ur (after Woolley 1934: pl. 98. A)	308
Figure 5.145	Shell gaming piece, cemetery of Ur (after Woolley 1934: pl. 98. B)	308
Figure 5.146	Shell gaming piece, cemetery of Ur (after Woolley 1934: pl. 98. B)	308
Figure 5.147	Shell plaques from possible gaming board, cemetery of Ur (after Woolley 1934: pl. 99. B)	308
Figure 5.148	Shell plaque, cemetery of Ur (after Woolley 1934: pl. 100)	308
Figure 5.149	Shell plaques with lapis and pink limestone details, cemetery of Ur (after Woolley 1934: pl. 103)	309
Figure 5.150	Dagger with copper blade and gold-plated guard and grip, cemetery of Ur (after Woolley 1934: pl. 152)	309
Figure 5.151	Sheet gold binding, cemetery of Ur (after Woolley 1934: pl. 217)	309
Figure 5.152	Silver rein ring with bull mascot, cemetery of Ur (after Woolley 1934: pl. 167. A)	310
Figure 5.153	Copper stick pin with horned head, cemetery of Ur (after Woolley 1934: pl. 231. B)	310
Figure 5.154	Silver bovine head, cemetery of Ur (after Woolley 1934: pl. 120. A)	311
Figure 5.155	Copper bovine head, cemetery of Ur (after Woolley 1934: pl. 120. B)	311
Figure 5.156	Copper horned deity head, cemetery of Ur (after Woolley 1934: pl. 121. A)	312
Figure 5.157	Copper bovine head (one of five), cemetery of Ur (after Woolley 1934: pl. 143. E)	312
Figure 5.158	Gold bovine heads from chariot in PG/800, cemetery of Ur (after Woolley 1934: pl. 125)	313
Figure 5.159	Silver lyre with bovine ornamentation, cemetery of Ur (after Woolley 1934: pl. 111)	313

Figure 5.160	Restored harp with bovine ornamentation, cemetery of Ur (after Woolley 1934: pl. 109)	314
Figure 5.161	Detail of restored sounding box with bovine ornamentation, cemetery of Ur (after Woolley 1934: pl. 108)	314
Figure 5.162	Restored lyre with bovine ornamentation, cemetery of Ur (after Woolley 1934: pl. 114)	315
Figure 5.163	Detail of restored lyre with bovine ornamentation, cemetery of Ur (after Woolley 1934: pl. 115)	315
Figure 5.164	Gold and lapis bull head from sounding box of a lyre, cemetery of Ur (after Woolley 1934: pl. 107)	316
Figure 5.165	Front plaque from lyre sounding box, cemetery of Ur (after Woolley 1934: pl. 105)	316
Figure 5.166	Copper bovine head and shell plaque remains from a lyre, cemetery of Ur (after Woolley 1934: pl. 116)	317
Figure 5.167	Plaster cast of lyre with original copper bovine head, cemetery of Ur (after Woolley 1934: pl. 118. B)	318
Figure 5.168	Copper bovine head from plaster lyre, cemetery of Ur (after Woolley 1934: pl. 119. B)	318
Figure 5.169	Map showing the cemetery area located in the central portion of the site or Ur (after Woolley 1934: pl. 274)	319
Figure 5.170	Map showing the location of the Royal Tombs and death pits, southern end of the cemetery at Ur (after Woolley 1934: pl. 273)	320
Figure 5.171	Map showing current and ancient courses of the major rivers and positions of some settlements in Southern Mesopotamia (after Wilkinson 2003: fig. 5.11)	321
Figure 6.1	Calf figurine from Tell Beydar (after Debruyne <i>et al.</i> 2003: pl. VII)	325
Figure 6.2	Calf pendant from Abu Salabikh (after Postgate and Moorey 1976: pl. XXVI. B)	325
Figure 6.3	Lapis lazuli calf pendant from Ur (after Woolley 1934: pl. 143. D)	325
Figure 6.4	Oval stamp seal with calf motifs from Tell Brak (after Mallowan 1947: pl. XVI. 9)	325
Figure 6.5	Detail of clay tower from Tell Brak (after Emberling and McDonald 2003: fig. 53)	326
Figure 6.6	Detail of clay dish from Abu Salabikh (after Martin <i>et al.</i> 1985: pl. XXVII. B)	326
Figure 6.7	Stone human-headed bull statue from Tell Brak (after Oates and Oates 1991: pl. XXVI)	330
Figure 6.8	Stone human-headed bull statue with shell inlay from Larsa (after Evans 2003: fig. 313)	330
Figure 6.9	Stone human headed bull statue, unknown provenance (after Conrad 1959: p. 34)	330
Figure 6.10	Stone casting mould from Titiş Höyük (after Reinholdt 2003: fig. 163b)	331
Figure 6.11	Stone casting mould from Tell Brak (after McDonald <i>et al.</i> 2001: fig. 267)	331
Figure 6.12	Stone casting mould from Sippar (after Reinholdt 2003: fig. 163c)	331
Figure 6.13	Silver bovine head from Ur (after Woolley 1934: pl. 120. A)	332

Figure 6.14	Copper bovine head from Ur (after Woolley 1934: pl. 120. B)	332
Figure 6.15	Copper bovine head from Tell Telloh (after Conrad 1959: pl. XIII)	332
Figure 6.16	Copper bovine head from Dilmun (after Bibby 1969: pl. V)	333
Figure 6.17	Copper bull standard with electrum detailing from Alaca Höyük, tomb E (after Koşay 1951: pl. CLXIV)	337
Figure 6.18	Gold bull standard from Maikop Kurgan (after Izbitser 2003: fig. 191a)	337
Figure 6.19	Silver bull standard from Maikop Kurgan (after Izbitser 2003: fig. 191b)	337
Figure 6.20	Iron dagger with gold detailing from Alaca Höyük (after Koşay 1951: p. 167)	340
Figure 6.21	Copper dagger with gold detailing from Ur (after Woolley 1934: pl. 152)	340

List of Tables and Graphs

Graph 1.1	Domesticate meat weights showing live animal weights and usable meat weights (after Sasson 2008; Grubestic <i>et al.</i> 2011)	8
Graph 1.2	Domesticate milk yields with number of litres per year (after Sasson 2008)	8
Table 2.1	EBA Period chart (after Scott 2017; Postgate 1992)	49
Table 2.2	Chronological chart, occupational periods of sites shaded	51
Table 2.3	Data collection types, including numbers of faunal material and material culture for the selected sites	74
Table 2.4	Sample chart for site data collection and calculation	76
Table 3.1	The faunal assemblage from Alaca Höyük (after Koşay 1951)	88
Table 3.2	The faunal assemblage from Titriş Höyük (after Allentuck and Greenfield 2010; Greenfield 2002)	98
Table 3.3	The faunal assemblage from Sos Höyük (after Howell-Meurs 2001)	106
Table 3.4	Material culture groups and numbers; sites of Alaca Höyük, Titriş Höyük, & Sos Höyük	113
Table 3.5	Combined faunal remains of species and group totals with species percentages of cattle, sheep, goat, and pig	117
Table 3.6	Combined faunal assemblage total with species percentages; sites of Alaca Höyük, Titriş Höyük, & Sos Höyük	80
Graph 3.1	Depiction of faunal assemblage from the site of Alaca Höyük using the NISP percentages (after Koşay 1951)	88
Graph 3.2	Depiction of faunal assemblage from the site of Titriş Höyük using NISP percentages (after Allentuck and Greenfield 2010; Greenfield 2002)	98
Graph 3.3	Depiction of faunal assemblage from the site of Sos Höyük using NISP percentages (after Howell-Meurs 2001)	106
Graph 3.4	Comparison of material culture groups from the Anatolian sites	114
Graph 3.5	Depiction of Anatolian faunal assemblage showing cattle, goat/sheep, and pig NISP percentages	117
Table 4.1	The faunal assemblage from Tell Beydar (after Van Neer and DeCupere 2000; Siracusano 2014; DeCupere and Van Neer 2014)	149
Table 4.2	The faunal assemblage from Tell Brak (after Emberling <i>et al.</i> 1999; Emberling and McDonald 2001; Weber 2001; Dobney, Jaques, and Van Neer 2003)	171
Table 4.3	Material culture groups and numbers, sites of Tell Beydar and Tell Brak	183
Table 4.4	Glyptic chart showing frequency of motifs from seals and impressions, sites of Tell Beydar and Tell Brak	185
Table 4.5	Combined faunal remains of species and group totals with site individual species percentages	189
Table 4.6	Combined faunal assemblage totals with species percentages of cattle, sheep, goat, and pig	190

Graph 4.1	Depiction of faunal assemblage from the site of Tell Beydar using NISP percentages (after Van Neer and DeCupere 2000; Siracusano 2014; DeCupere and Van Neer 2014)	150
Graph 4.2	Depiction of faunal assemblage from the site of Tell Brak using NISP percentages (after Emberling <i>et al.</i> 1999; Emberling and McDonald 2001; Weber 2001; Dobney, Jaques, and Van Neer 2003)	171
Graph 4.3	Comparison of material culture from the Northern Mesopotamian sites	183
Graph 4.4	Ten motif subject groups from the sites of Tell Beydar and Tell Brak	186
Graph 4.5	Depiction of Northern Mesopotamian faunal assemblage showing cattle, goat/sheep, and pig NISP percentages	190
Table 5.1	The faunal assemblage from Abu Salabikh (after Martin, Moon, and Postgate 1985; Clark 1993)	226
Table 5.2	The faunal assemblage from Ur (after Ramos Soldado 2016; Woolley 1934)	254
Table 5.3	Combined material culture groups and numbers from Southern Mesopotamia	264
Table 5.4	Motif subject groups showing numbers from the sites of Abu Salabikh and Ur	267
Table 5.5	Combined faunal assemblage total with species percentages of cattle, sheep, goat, and pig	269
Table 5.6	Comparison of faunal remains from the sites of Abu Salabikh and Ur with NISP and MNI numbers	270
Graph 5.1	Depiction of faunal assemblage from the site of Abu Salabikh using NISP percentages (after Martin, Moon, and Postgate 1985; Clark 1993)	227
Graph 5.2	Depiction of faunal assemblage from the site of Ur using MNI counts (after Ramos Soldado 2016; Woolley 1934)	254
Graph 5.3	Comparison of material culture groups from the Southern Mesopotamian sites	264
Graph 5.4	Motif subject groups from the sites of Abu Salabikh and Ur showing comparative numbers	267
Graph 5.5	Depiction of Southern Mesopotamian faunal assemblage showing cattle, goat/sheep, and pig NISP percentages	269
Table 6.1	Material culture categories with totals for the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia	342
Table 6.2	Results from the Mesopotamian glyptic study showing regional and combined totals and percentages	300
Table 6.3	Regional faunal assemblages from Anatolia, Northern Mesopotamia, and Southern Mesopotamia showing NISP, MNI, and NISP percentages of cattle, goat, sheep, and pig for each region	351
Graph 6.1	Material culture comparative totals for the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia	345
Graph 6.2	Comparison of cattle remains from Anatolia, Northern Mesopotamia, and Southern Mesopotamia using available NISP percentages	354

Graph 6.3	Comparison of cattle remains from Anatolia, Northern Mesopotamia, and Southern Mesopotamia using available MNI numbers	354
Graph 7.1	Cattle NISP percentages from the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia	364

Acknowledgements

Firstly, I would like to thank my thesis advisors, Roger Matthews and Aleks Pluskowski, for all they have done to help and support me throughout this lengthy process, from helping me narrow my research focus to teaching new methods of research to helping me develop a more academic writing style. I would also like to thank them for keeping me on track and providing me with useful and, at times, tough feedback to help me better my research output. Whenever I had a question, no matter how difficult or esoteric, they always gave good advice and helped me solve any problems. I would also like to thank my panel chair, Mary Lewis, for her support over the years, for keeping me on track, and reminding me of certain aspects to keep in mind while conducting research and writing up my chapters. To Wendy Matthews and Elizabeth Wyeth, thank you for your support and kind words of encouragement during this process and for helping me adjust to academic life in the UK. Also, I would like to thank Louise Martin not only for her help as my master's degree advisor but also for introducing me to archaeozoology and sparking my interest in human and cattle relationships.

Lastly, I would like to thank my family for all they have done to support my education and love of archaeology and research. My brothers, Mark and Matthew, have helped in my understanding of *Excel* and *EndNote* software and helped with reading my work and providing useful feedback. I would especially like to thank my parents for supporting me throughout this process and for their feedback from reading my work as well.

Chapter One

Human-cattle Interrelationships in Early Bronze Age Anatolia and Mesopotamia

1.1. Introduction

Cattle have been one of the most important animals to many cultures around the world in both ancient and more modern times; the animal has been utilized as a source of food, labour, wealth, and prestige from at least the time of the Neolithic. Among all the animals, both domesticated and wild, none seem to be as central to human culture and ritual as cattle. Compared to other domesticates, cattle were not typically part of an individual's diet and were reserved for feasting as well as sacrificial purposes (Katz 2007; McCorriston *et al.* 2012). Cattle also acted as an important source of labour as well as a source of milk and milk products, which were common in temple offerings, and the animal, at times, was even treated as a member of the family (Postgate 1992; Winter 1999: 249). From the time of their initial domestication, as well as before, they have captivated the human imagination (Mason 2011; Howe 2014). In this examination of the interrelationships between humans and cattle in the Early Bronze Age of Southwest Asia, I will examine past human associations and interactions with this animal and how it transformed both social and economic practices within three distinct geographic regions. The term Southwest Asia refers to the geographic area between the Mediterranean Sea and the subcontinent of India to the east and west and to Anatolia and Arabia to the north and south.

When compared with other domesticated species, one begins to question why cattle are so important. Goat and sheep were both domesticated before cattle and, for the most part, produce similar products, such as meat, milk, leather, and bone (Sasson 2008; Gilbert 2002: 10). Moreover, cattle seem to dominate in artistic representations as well as social and religious significance in many areas throughout

Southwest Asia (Rimas and Fraser 2008; Velten 2007: 19). This suggests the importance of this animal to the cultures of this area of the world. In this thesis, I will investigate the geographic and cultural regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia and will focus on seven archaeological sites as case studies. From the region of Anatolia, the sites of Alaca Höyük, Titriş Höyük, and Sos Höyük were chosen. For Northern Mesopotamia, the sites of Tell Beydar and Tell Brak, and for Southern Mesopotamia, the sites of Abu Salabikh and Ur were selected. A comprehensive survey of all available material culture representing or relating to cattle as well as the faunal material from each of the selected sites will be included. The time frame of this review will encompass the Early Bronze Age, approximately 3000-2100 BC, and will endeavour to investigate past relationships between humans and their cattle.

1.2. Aims, Objectives, and Main Questions

The main aim for my research is to produce a comprehensive review of human and cattle interrelationships in the Early Bronze Age by examining both material culture and faunal remains excavated at multiple sites and regions within Southwest Asia. Studying this geographic area is particularly important due to the fact that this is where we find some of the earliest signs of animal domestication and urban settlement patterns (McC. Adams 1966; Potts 1997). Previous research into the subject of cattle and human interrelationships has had a major focus on either the material culture representing or relating to cattle or on the faunal remains from one or a few selected sites, with very little of the research addressing both the material culture and faunal assemblages in an integrated manner (Conrad 1959; Rice 1998). Exploring the topic in this context provides valuable information into how cattle intersected with the development of human behaviour at such an early stage. The main aims of this research are:

1. To investigate the human exploitation of cattle through economic and social cattle-

related activities and impacts based on faunal remains and their archaeological contexts;

2. To investigate in what ways human and cattle populations interacted with each other and how cattle transformed human behaviours within the period and regional focus of this project.

These aims and objectives have been designed to investigate these complex interrelationships and determine their nature and extent.

When investigating the interrelationships between humans and cattle in Southwest Asia, several questions arise that relate to how the animal may have transformed human behaviour, why this species was seemingly more influential than other species in terms of ritual associations, artistic representations, and agricultural productivity, and what the factors were in the development of these interrelationships. It is an intention of the main questions of this research to be addressed by examining both the material culture depicting or relating to cattle and the faunal assemblages from the regions to gain a more detailed image of how humans and cattle interacted within this period.

From extensive examination, two main questions have been developed for this project:

1. Is there variability and similarity in the symbolic and cultic significance of cattle among these sites and regions, or does the symbolic nature of cattle change from site to site? And if so, how?
2. What is the nature of social and economic interrelationships between humans and cattle in the Early Bronze Age of Southwest Asia, in association with ritual, material culture, and agriculture, and how do they affect one another?

These questions allow us to consider such relationships between these two

species within the period of the Early Bronze Age and detect variability, depending on the site or regional preferences. It is important to consider social and economic interrelationships because they allow us to better understand these societies and what each felt was significant. These interrelationships also allow one to consider how societies change and evolve in relation to social and economic practices. The purpose of examining material from multiple sites and regions is to establish if economic and cultural practices were similar throughout each region and to ascertain what, if any, practices may be isolated to a specific region or archaeological site. In addressing these questions, I expect to see some distinctive variability between economic and social practices in the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia, not least of which is because of the widely variable landscapes and ecotones of these regions.

1.3. Selection and Importance of Research Topic

This topic was initially chosen as further development of this researcher's previous work with cattle in the Arabian Peninsula (Miranda 2013). In the first stages of this review, I proposed to investigate multiple regions within Southwest Asia, but due to the constraints of space, it was decided to compare three geographic culture regions. From the body of existing research on human and cattle interrelationships, it is clear that the focus in Southwest Asia and the Mediterranean region usually has been on the bull (Conrad 1959; Rice 1998). Unfortunately, there have not been many studies that investigated relationships with the cow, at least not relating to the selected period. Although there have been studies of cattle dating back several decades, much of the research focuses on material culture from multiple sites and regions, and these studies tend to be more of an artistic survey than an archaeological one. The majority of these works focus on the material culture representing the animal with very few mentions of faunal remains and

economic practices relating to cattle (Sharpes 2006; Velten 2007). As a result, these studies do not provide a very comprehensive view of how cattle and humans interacted on an economic and social scale. There are other studies that discuss cattle and their relation to wider cultural practices with some information on the female of the species (Conrad 1959; Rice 1998), but they are not regionally specific or do not go into much detail regarding individual sites.

It is an objective of this research to include not only material culture and faunal assemblages to come to a comparable conclusion, but also to investigate all the material representing or relating to cattle from each selected site rather than only to include the more interesting or unusual objects. This project also includes material from large and small archaeological communities to determine if the relative size of a community was a factor in the presence and significance of cattle material culture. For example, smaller communities may not have substantial temples or burials, and the only indicators of cattle at a site may be the physical animal remains. Another major difference that will set this research apart from other work on the subject is that this project will investigate material from a single time period, the Early Bronze Age, which is different from other work that includes material from numerous periods of time (Conrad 1959; Sharpes 2006; Rice 1998). Although other studies do include work comparing neighbouring culture regions, again selecting objects to suit a particular purpose, they typically do not include faunal assemblages or discuss the material from a single period. The main reasons for the selection of this topic are to produce a comprehensive review of the impacts that cattle made on social and economic life in the Early Bronze Age, to determine if these impacts are site or regionally specific developments, and learn if there is a general trend in how humans interact with cattle throughout Southwest Asia.

Another reason this topic was selected was to investigate uses of cattle and how the

animal related to or changed human social identity. One of the more interesting signs of cultural or social identity is food, in particular, what was consumed, how it was consumed, and who it was produced for (Anthony 2007: 128; Sasson 2008). Humans first began their complex relationship with this animal, in its domesticated form, as early as the Neolithic and developed this relationship over time. Cattle are one of the first domesticated stock animals and are arguably the most influential of all domesticated species. Roberts states that the animal was economically important, especially in the earlier Neolithic period, while Sharpes and Root stress the ideological importance of the animal (Roberts 2017: 97; Sharpes 2006; Root 2002). Humans can be regarded as both a provider and predator of all domesticated stock, and with the domestication of such social animals as bovines, humans can be seen as a leader of a particular herd or group of cattle (Phillips 2002: 217-218). The use of cattle as a multi-purpose animal has been a major factor in agricultural and social life since the beginning of their domestication. This multi-purpose animal can be utilised not only as food for human populations but can be used as a source of power in agricultural practices, such as the ploughing of agricultural fields and the transportation of products; their waste can be implemented as fuel, and products derived from the animal, such as milk, leather, and bone, have always been an important factor in human economic practices (Johannsen 2011: 14; Sharpes 2006; Rafkin 1992; Kawami 2014).

The use of the animal's physical power in the production of agriculture and the transportation of material can be seen at many sites within Southwest Asia, not only in the physical remains of the animals but also in artistic representations from these sites (Bachhuber 2015; Johannsen 2011; Potts 1997; Woolley 1934). Figure 1.1 is a good example of how humans harnessed the power of the animal and depicts a set of zebu cattle pulling a seeder plough guided by a team of humans. Although this particular artistic example dates to a slightly later period of the Bronze Age, it is a good indicator of how the power of the animal was utilised by human populations within this period. As for the use

of the animal for human sustenance, compared to other domesticated livestock, it can be seen that cattle provided much more meat and milk than sheep, goat, and pig (graphs 1.1 and 1.2). Graph 1.1 shows the meat weights of four major domesticates with live meat weights as well as usable meat weights. The usable meat weight for cattle is 120 Kg, which is the highest domesticate meat yield and is approximately four times as much as the meat weight of sheep at 26.17 Kg. Goat has a lower usable meat weight than sheep at 21.17 Kg per animal, and pigs have the lowest usable meat weight at 18.6 Kg (Sasson 2008: 113; Grubestic *et al.* 2011: 504). The milk production of the four major domesticates shows a similar trend with cattle being the largest milk producers. Cattle on average produce 450 litres of milk per year followed by goat at 75 litres, and sheep produce 50 litres of milk per

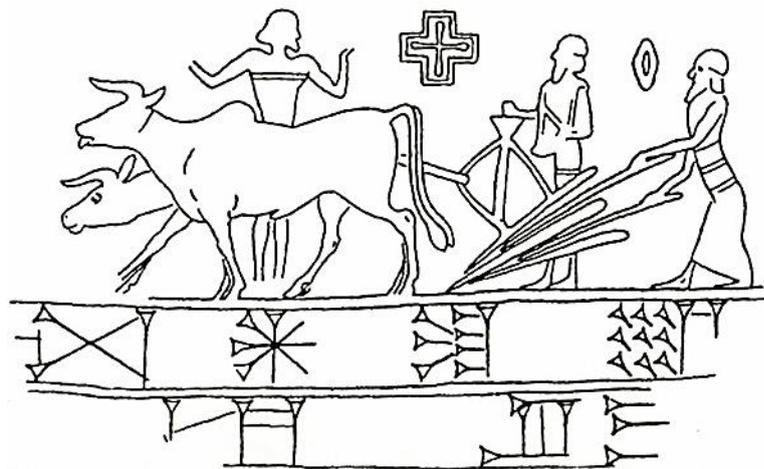
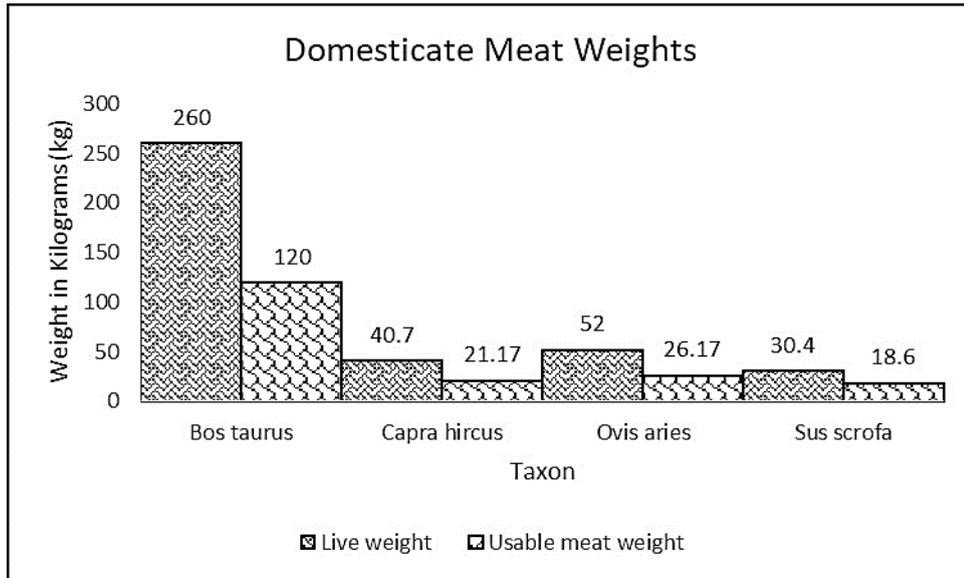
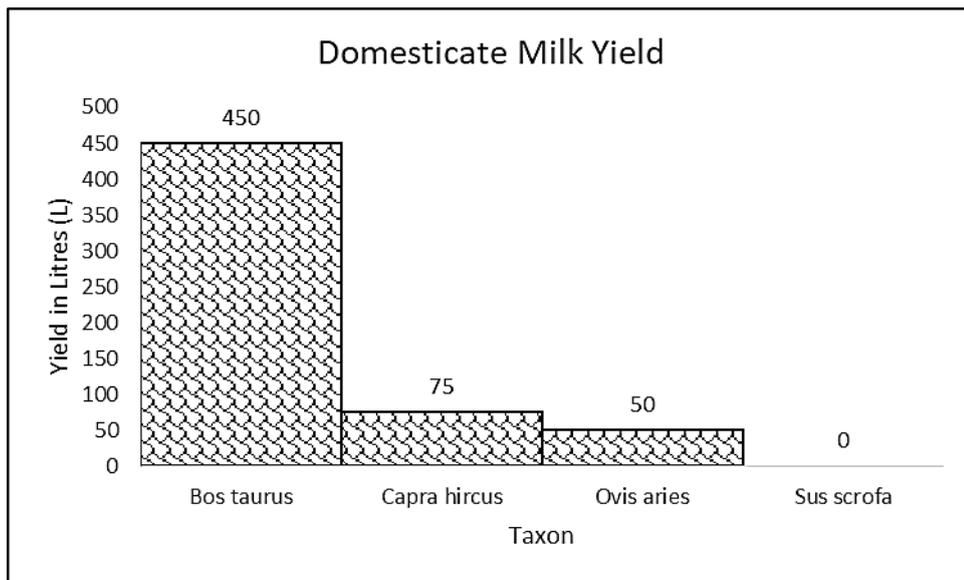


Figure 1.1: Illustration of cattle pulling a plough dating to the Kassite Period, (after Potts 1997: fig. 3)



Graph 1.1: Domesticated meat weights showing live animal weight and usable meat weights (after Sasson 2008; Grubestic et al. 2011)



Graph 1.2: Domesticated milk yields with number of litres per year (after Sasson 2008)

year with pig populations producing no measurable milk, (graph 1.2) (Sasson, 2008: 113). These tables illustrate the importance of cattle as a food producer for humans compared to other major domesticated species. Another product derived from cattle that holds much importance in many cultures is the animal's blood. Although this product is largely utilised for religious purposes, there are some cultures that consume cattle blood as a form of dietary sustenance (Allentuck and Greenfield 2010). We know that cattle were sacrificed

around the Early Bronze Age period in this part of the world (Bachhuber 2015; Carter 2012), and thus, their blood was a symbolic factor in religious activity, possibly representing the power or fertility of the animal; however, it is unclear if the animal's blood was utilised for purposes other than sacrifice.

The economic importance of cattle will also be investigated to determine the impact of the animal in relation to wealth, trade, labour, and social status. Cattle have almost always been connected with wealth, social power, and ritual practices, as illustrated in the animals' associations with deities and elite individuals (Rice 1998; Rimas and Fraser 2008; Wengrow 2001). Images and representations of the animal can be found at many archaeological sites throughout Southwest Asia, and much of these representations can be found associated with religious and administrative contexts, as I will demonstrate in this research. As humans, we create art to express who we are and what we believe, and the inclusion of cattle imagery within an artistic tradition confirms the importance of the animal as a central factor in social identity. From an initial survey of seals and impressions from sites within Northern and Southern Mesopotamia, typically found within religious and administrative areas, cattle imagery can be found on many of these items, which demonstrates the animal's importance as a social and economic symbol. As for draft exploitation of cattle as a source of labour, the extent of such practices can be investigated through faunal material.

The possible use of yokes can be confirmed by depressions on horncores, which result in deformations of the cervical and first thoracic vertebrae. The occurrence of castrated cattle may also indicate draught exploitation. Castrated animals are identified on the basis of slender portions of long bones; however, this may only be visible if the castration took place while the animal was still young (De Cupere *et al.* 2000). Due to the physical power of the animal, cattle have been employed as a source of labour for nearly as long as they have been utilised for food. This can be seen in the physical remains of the

animal, though it can be difficult to detect in some cases (Johannsen 2011: 17). The sex of cattle also can be an indicator of their economic purpose. Male cattle tend to be utilised more for labour purposes, probably due to their larger size, but female cattle can be used as a source of labour as well. Typically, female cattle are kept as a source of milk and milk-based products as well as for breeding purposes, while male cattle usually end up as a source of labour, meat, leather, and bone (Johannsen 2011; Dobney *et al.* 2003; Rafkin 1992). By examining the physical remains of cattle, one can construct a more interdisciplinary and contextual approach of the impact the animal made on Early Bronze Age economic practices.

Cattle are often represented in religious and cultic contexts and in material culture and are argued by Rice as well as Conrad to represent power and fertility on the basis of physical attributes associated with the animal (Conrad 1959; Rice 1998). Compared to other domesticated animals in Southwest Asia, design elements related to cattle, namely the animal horns, are found in many forms and motifs. Items such as seals, figurines, instruments, jewellery, weaponry, cosmetic tools, gaming boards, furniture ornamentation, and statuary can contain representations or design elements relating to cattle. One of the more interesting elements to be examined within this research is the horned crown or mitre, which is usually associated with various deities or as a symbol of divine power; however, the use of a horned crown as a symbol of a specific deity is almost never consistent (Black and Green 1998: 102). When examining the animal's relationship with religion and cultic practices within these regions, there are two Mesopotamian gods from the Early Bronze Age that came to be positively associated with cattle, the first being An, a Sumerian creator god, who is almost always found with a horned crown, and the second is the god Nanna, whose animal counterpart is the bull (Black and Green 1998: 135). Another area to be investigated is the animal's connection to human gender qualities. Interestingly, unlike most other domesticated species, cattle gender qualities became associated and

compared with human gender qualities. Cows became symbols of life, renewal, stability, abundance, and nurturing and loving mothers (Velten 2007).

Bulls, on the other hand, were associated with masculine power, ferocity, fertility, power, virility, control, and strength, and, like cows, were symbols of abundance (Rice 1998; Velten 2007; Miller 2013; McInerney 2010). These qualities display possible human gender ideals and connect cattle to humans on a deeper emotional level than other domesticated and wild animal species. In terms of social or physical associations among cattle, humans, and power, it has long been the case that the animals were associated with male power and authority and, hence, were owned by men and authoritative institutions, such as temples; however, there are cases where the animals can be owned by women as well, indicating that the power associated with the animal may not be gender specific (Shenjere-Nyabezi 2016). In terms of social affiliations with cattle, it has been stated by Harmanşah (2013: 379) that Mesopotamian temples in the Early Bronze Age were compared to cattlepens and that they became a symbolic reference to well-being, collective safety, agricultural prosperity, and orderliness between the natural and social worlds. Because of the fact that cattlepens became associated with temple complexes and social orderliness, one can imagine that the animal held a prominent place within the social organisations of the period.

As mentioned above, previous research on cattle in Southwest Asia and the Mediterranean region traditionally has had a strong focus on the male of the species as opposed to the female (McInerney 2010; Rice 1998). This preference may be due to unrealised personal biases, for instance, male researchers considering the importance of only the male of the species, or the possibility that much of the material culture discovered thus far relating to or representing cattle may be centred on the bull as opposed to the cow. This research plans to examine all instances of cattle representation, both male and female, by investigating the context of such objects and their possible relationships with the

individuals and societies that created them, comparing them with similar objects to determine the relative importance of each sex and the animal in general, both in terms of quantity and social significance.

Due to the lack of information on female cattle and their iconographic importance, this research will hopefully shed new light on the cow and her place in Early Bronze Age life. Previous research typically discusses cattle and their relation to wider cultural practices with some information on the female of the species, at times, but that research is not regionally specific or does not go into much detail regarding individual sites. This research will differ from previous work on the subject of cattle in that it will include not only material culture and faunal assemblages to come to a comparable conclusion but also investigate all the available material culture representing or relating to cattle from each selected site, whereas other investigations may only include the more interesting objects. This project will also include an examination of material culture and faunal remains from both large and small archaeological sites to determine if site size is a factor in the presence of cattle material. Another major difference between this research and other work on the subject is that the current project investigates material from a single period, the Early Bronze Age, which is different from other work on cattle that includes material from numerous periods of time. Although other studies do include work comparing neighbouring culture regions, they do not include faunal assemblages or discuss the material from a single period. It is the focus of this research to produce a complete review of all cattle material, both in the form of material culture and faunal material, from a single time period between multiple culture regions to determine if the interrelationships between humans and cattle differ from one region to another or if these interrelationships remain similar throughout Southwest Asia.

1.4. Differentiation of Cattle Species

Throughout this examination of the interrelationships between humans and cattle,

having a distinct definition of what exactly is meant by the term *cattle* becomes necessary. The term *cattle*, depending on location, can refer to any type of livestock, from goat and sheep to pigs; however, the term as it applies to this research will refer to bovines, more specifically the genus *Bos* (Rimas and Fraser 2008). Although the genus *Bos* is comprised

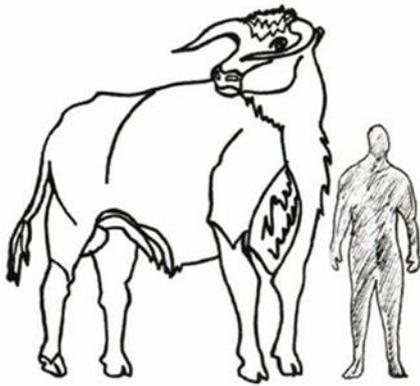


Figure 1.2: Illustration of aurochs cattle, *Bos Primigenius*, (after Velten 2007: 11)

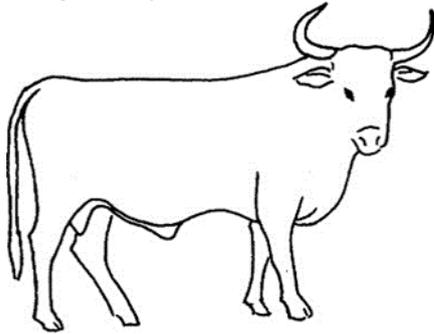


Figure 1.3: Illustration of taurine cattle, *Bos taurus*, (after Grigson 1991: fig. 1a)

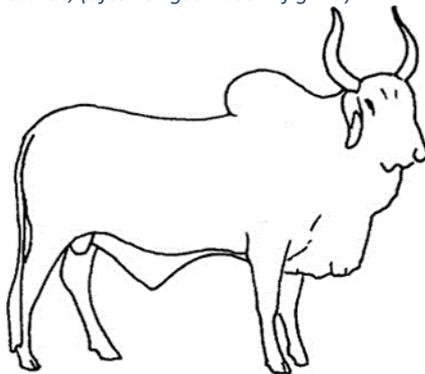


Figure 1.4: Illustration of zebu cattle, *Bos indicus*, (after Grigson 1991: fig. 1b)

of several subspecies, including the now extinct *Bos primigenius* or aurochs, figure 1.2, this project will concentrate on the subspecies *Bos taurus* and *Bos indicus*, figures 1.3 and 1.4 (Velten 2007). Some of the sites under investigation may include remains of *Bos primigenius*, which will be fully inspected where available; however, the two main subspecies previously mentioned will be the primary focus for this research. These two animals are typically the most common forms of *Bos* found throughout Southwest Asia, and thus the term *cattle*, as used in this research, will refer to these domesticates.

I will also use the term *cattle* when referring to both male and female animals of each subspecies and employ the more gender specific terms of cow and bull when referring to particular instances pertaining to the specified sex of the animal, when available. It has been suggested that the

domestication of cattle in Southwest Asia first occurred between 10,000 and 11,000 years ago, after which the two species developed as human populations spread throughout this region of the world, with widespread use of the domesticated form of the animal by the fifth millennium BC (Roberts 2017: 100; Ramos Soldado 2016). As human populations

and their cattle migrated to varying regions, the animal was interbred with local *Bos* species to produce subspecies specifically adapted to particular climates (Velten 2007: 21-22; Ramos Soldado 2016: 46; Grigson 1991). It is important to distinguish regional variations in cattle because it will allow for a better understanding of past environmental patterns as well as indicate human exploitation and even possible species preference, depending on the size and location of a particular archaeological site. Because of these adaptations, the subspecies of *Bos taurus* and *Bos indicus* were developed to suit specific needs and environments based on the location of human populations.

The main physical distinctions between taurine, *Bos taurus*, and zebu, *Bos indicus*, cattle is the very noticeable hump and dewlap of the zebu. From an initial survey of previous faunal investigations, the subspecies of taurine cattle appear to be the more predominant of these two species within Southwest Asia in the Early Bronze Age; see chapter six. This subspecies can be characterized by a straight back, a flat broad face, and large forward-facing horns (Grigson 1991). Taurine cattle are relatively adaptable and can tolerate cold and warmer climates, although the species does prefer more temperate climates. The zebu species is best characterized by its signature humped back, large and heavy dewlap, and upward-orientated horns (Mukasa-Mugerwa 1989). These animals have evolved to withstand hot and dry climates and are well adapted for less temperate areas. Zebu cattle are quite tough animals compared to their taurine counterparts and are reliable work animals in high temperatures and in areas with less available water supplies (Grigson 1991; Matthews 2002). Nonetheless, zooarchaeological identification of zebu cattle in comparison to taurine cattle is extremely difficult, see chapters two and four. It is one of the objectives of this research to consider sites with physical remains of zebu cattle as well as sites with material representations of the species and to compare these to the remains and material representing taurine cattle. This comparison should give some indication of which animal may have been preferred, either economically or socially, to determine the

exact relationship of each species with the human populations of these cultural areas.

Varying studies of cattle within the region as well as studies on wider regional issues will add to our understanding of social and economic practices and will provide information on human and cattle interrelationships by investigating what ways and instances these interactions took place and how the animal aided in the development of Early Bronze Age society; this will be discussed in more detail in section 1.8.

1.5. Selection of Cultural Regions

From the many cultural regions located within Southwest Asia and the Mediterranean, three were chosen for this examination of cattle culture in the Early Bronze Age, which includes Anatolia, Northern Mesopotamia, and Southern Mesopotamia. Although there are cultural regions within Southwest Asia and the Mediterranean that are more intensively studied, such as Egypt and Greece, these particular culture regions were chosen due to the sparsity of previous research on the subject of cattle and human interrelationships. The regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia were primarily chosen for their rich material culture representing or relating to cattle, especially in the case of the Mesopotamian culture regions. These areas are also where we see some of the earliest signs of animal domestication, which by the time of the Early Bronze Age was well established (Düring 2011; Matthews 2003; Gilbert 2002). Thus, the faunal material from these culture regions is, for the most part, well documented. The evidence considered for this research, namely material artefacts and faunal assemblages, is quite good in terms of availability and context, and, therefore, these culture regions were chosen based on the quantity and quality of the material available. By comparing and contrasting these three regions, this review will increase our overall knowledge of cattle iconography and symbolism to determine if the significance and importance of cattle changes between cultural regions and in what respects these changes occur.

Since the selected cultural regions have a wide range of landscapes and settlement structures, which include large and small urban sites, as well as possible similarities in culture and economics, it is sensible that they would comprise the three regions to be examined for this project, figure 1.5. This array of varying landscapes within these culture regions also allows us to compare the symbolic, social, and economic effects of cattle by discussing how these interrelationships change or remain the same, depending on the environment in which the animal is cultivated. The environment throughout Southwest Asia is never stable, and many changes have taken place with the shifting of rivers and other bodies of water, along with changes in precipitation and inhabitable locations (Pollock 1999; Wilkinson 2003). In Anatolia, the landscape surrounding the selected sites is typical steppe environment with flat areas as well as rolling hills with rainfall amounts suited to rain-fed agricultural practices; the Northern Mesopotamian landscape consists of relatively flat areas with areas of higher elevation broken up by rivers and wadis, with similar rainfall patterns to Anatolia, while in Southern Mesopotamian, much of the Early Bronze Age landscape was constructed of alluvial areas and litoral wetlands with lower annual rainfall patterns (Pournelle 2007). Figure 1.5 illustrates typical annual rainfall patterns for Southwest Asia, which will be referred to when discussing paleoenvironments of the specific sites. Populations constantly transform their landscapes, whether they realise it or not, and thus, it can be problematic to determine the exact conditions of these sites in the past (Kouchoukos and Wilkinson 2007). Anatolia was selected as one of the culture regions for this project due to the wide distribution and variation of sites and the range environments within the region. The region, especially in the south, also has close ties with Mesopotamia in terms of social and economic practices, which is another reason for its inclusion within the current review (Zimmermann 2007; Mellaart 1966).

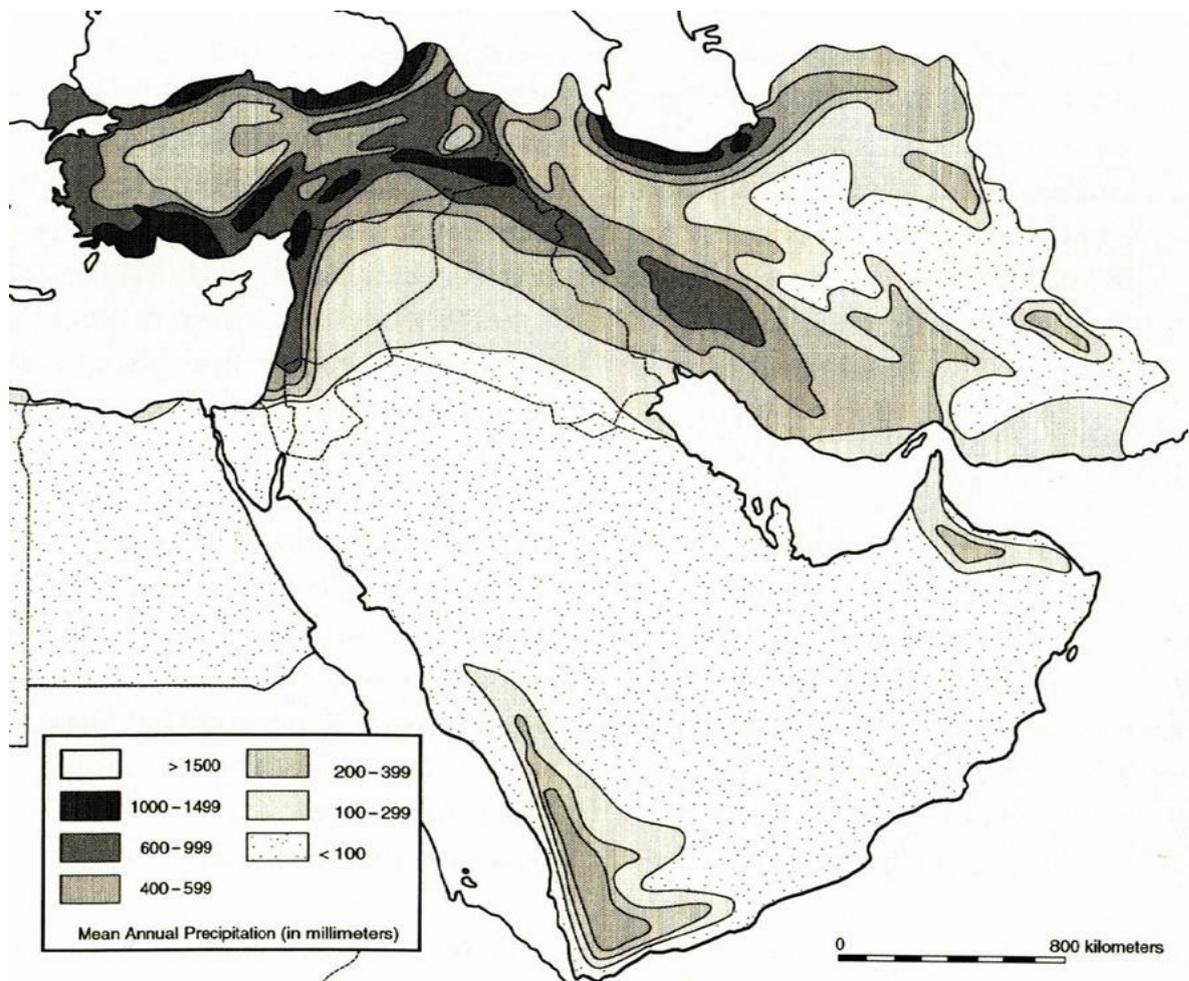


Figure 1.5: Annual rainfall distribution patterns for Southwest Asia (after Wilkinson 2003: fig. 2.1)

The larger region of Mesopotamia, for this research, will be separated into two culture regions consisting of Northern Mesopotamia and Southern Mesopotamia. The culture region of Northern Mesopotamia was primarily chosen based on the site of Tell Brak, which has large and well-studied material and faunal assemblages. The region was also separated from Southern Mesopotamia due to the landscape differences between the north and the south. The material culture in the combined region of Mesopotamia is also significantly larger than that from the culture region of Anatolia, which is another rationale for choosing to separate the larger region into two smaller ones. The culture region of Southern Mesopotamia was chosen initially based on the site of Abu Salabikh and its rather large and unusual Ash Tip deposit located to the southeast of the site's main mound. Since the Early Bronze Age landscape in the north and south were quite different, it makes sense to separate the region into smaller ones to investigate the effects of the landscape

patterns on the interrelationships between humans and cattle. The three culture regions selected for this research are likely to contain both similarities and differences in how humans and cattle interacted as well as the effects each species had on one another. By investigating these three culture regions, I can produce a more complete image of human and cattle interrelationships within the central portion of Southwest Asia, which can be implemented to further studies of human and animal relationships within the Early Bronze Age. One of the goals of this research is to provide a methodological and interpretative framework for understanding human and animal relationships elsewhere in Southwest Asia and the Mediterranean.



Figure 1.6: Map of project area showing the regions of Anatolia [in red] and Mesopotamia [in green], with the seven selected archaeological sites of Alaca Höyük, Titiş Höyük, Sos Höyük, Tell Beydar, Tell Brak, Abu Salabikh, and Ur (Google Earth 2017)

1.6 Cattle Ecology

The ecology of cattle can be a difficult subject to investigate because environments change and develop, and the requirements of cattle are such that it is difficult to keep large herds without the proper conditions; therefore, herding practices are likely to differ depending on location. Unlike sheep and goat, cattle are not as easily adapted to the

Mesopotamian landscape, and it is clear that cattle herding requires a greater degree of attention as well as more organisation compared to other domesticated herding practices (Postgate 1992: 164; Zeder 1991: 28; McClure *et al.* 2006). Cattle herding was an important activity, which was conducted closer to a particular site than caprid herding, and needed to be managed closer to a stable water supply as well (Zeder 1991; Russell 1988). Cattle are relatively easy to control, in their domesticated form, and if there is little risk of rustling, the animal can be left without supervision. In addition to their straightforward supervision, cattle also have a higher resistance to diseases in comparison to sheep and goat; however, it does require more time to increase the size of a herd compared to other domesticates (Dahl and Hjort 1976). This section will briefly discuss the requirements for keeping cattle, such as herd size and breeding, water and food consumption, and pastoral conditions.

The size of a herd and the relative proportions of each sex are central to the continuation of a productive and healthy herd. It has been estimated that the proportion of male to female cattle in a successful pastoral or sedentary herd would be approximately seventy per cent for female cattle and thirty per cent for males with the majority of older animals being female (Dahl and Hjort 1976: 32). This considerable variation indicates that, even though the male of the species may have been more influential socially and symbolically, it is the female of the species that is actually more important in terms of economic stability. From an initial evaluation of literature relating to cattle keeping, it can be seen that the majority of male cattle were either slaughtered while still young or raised to maturity and employed as agricultural labour and transport (De Cupere *et al.* 2000; Kawami 2014; Widell 2013; Postgate 1992; McClure *et al.* 2006). In order to have maximum herd growth, one needs multiple female animals to produce multiple calves, while the number of male cattle needed is rather low. According to the study produced by Dahl and Hjort (1976: 157, 259) the proportion of bulls to cows for maximum growth is assumed to be one bull

for every thirty-three cows, and with these proportions, one can expect that a typical cattle herd would theoretically double within roughly twenty-four years. These figures are based on a hypothetical “average” herd with no physical or environmental hindrances, such as infertility, drought, or other environmental disasters. Although this information is not applicable to all regions, it does give an indication of how humans manage cattle herding and productivity. Cattle herds typically grow at slower rates than sheep and goat, and from research conducted by Russell (1988: 85), the average size of a modern pastoral herd can range from between one 100 and 200 head of cattle with many having a maximum of 150. At night, cattle herds are usually kept in corrals/cattlepens to prevent theft and to protect the animals from predators while during the day, they are taken out to graze, work, and be watered.

As for the ageing of cattle, the natural age at death can vary depending on environmental conditions and breed as well as animal use; however, it has been proposed that the life expectancy of cattle is between nine and fifteen years, with the average age at death being twelve years (Dahl and Hjort 1976: 38-39). A regularly bred cow can have a maximum of eight to ten calves within its productive lifetime with the first pregnancy taking place between the ages of two and four years, while the death rate of calves is around thirty-six per cent within the first five years with an average adult mortality rate of five per cent per year (Dahl and Hjort 1976; Russell 1988: 63). Although it is unclear if the juvenile mortality rate includes culling practices, it is still low, considering its span of five years. Such a survival rate can attest to not only the value placed upon the animal but also the nurturing abilities of the animal itself. Along with the pregnancy of cattle comes the production of milk. Although milk is quite perishable when fresh, it can be stored in a number of dairy products, such as cheese and ghee, but it can also be dried. Usually, a third of the total milk production is consumed by calves with the remainder used by humans (Dahl and Hjort 1976: 145). Compared to today, the lactation periods of cattle were

relatively short, with a maximum period of nine months, or once the calf was weaned; and in order for the cow to release milk, the calf needed to be present (Dahl and Hjort 1976: 142; Greenfield 2010: 33). Quality of fodder and water intake can also increase milk yield, and with frequent milking, it has been suggested that a cow can increase milk yield by up to twelve per cent with this practice, which is important since milk can produce a large amount of the animal's caloric productivity (Russell 1988: 94). Another fascinating aspect of modern cattle is that they do not have a specific breeding season, and depending on how successfully herders can keep male and female animals apart, calving can take place at any time, which means that, potentially, a herd can produce milk and offspring continuously throughout the year; however, it remains unclear if this practice was in place within the Early Bronze Age (McClure *et al.* 2006: 207) These practices were vitally important not only for the manufacture of milk and milk products but also for the production of animals and hence the production of power and prestige.

In general, cattle require water more frequently and in larger amounts than other domesticates and thus need to be relatively near to a stable supply of water and, with their use in agricultural labour and dairy production, need to be kept close to settled areas (Zeder 1991). It is more useful to keep cattle near water or bring them to water than to bring water to the animal, due to the large amount they consume; thus settlements located nearer to stable supplies of water would likely have larger proportions of cattle stock, which, as we will see, may be a reason why the relative numbers of cattle remains are larger in Anatolia than they are in the dryer regions of Northern and Southern Mesopotamia. In their study on having herds and herd production, Dahl and Hjort recommend that cattle should ideally be watered every day; however, they can be watered every second, third, or even every fourth day and that cattle may ingest between thirty-five and fifty litres at a time (Dahl and Hjort 1976: 238, 268). The maximum distance cattle can travel, on average, is approximately thirty kilometres, and if these cattle have calves with them, the distance will likely be

considerably shorter (Dahl and Hjort 1976). This maximum distance is taken from modern African pastoralist groups and is not necessarily based on sedentary communities like those of the Early Bronze Age in Southwest Asia. As for the feeding of cattle, it has been suggested that “working” cattle, which does not necessarily include calving or older animals, should graze at least seven hours per day, and based on calculations considering working periods and travel time to grazing fields, it has been estimated that the farthest possible grazing distance would be roughly twelve and a half kilometres (Dahl and Hjort 1976: 241). This means that cattle populations, unless kept by smaller sites further away, were likely common fixtures around the communities and were kept close to their human keepers. The quality of the material that cattle ate was also of great importance to the production and health of a herd that was the direct result of the environment surrounding a particular site. Rainfall, soil quality, and elevation, as well as the degree to which the land was developed by humans, all had a function in the quality and abundance of available fodder.

During the latter half of the fourth millennium, a number of climatic changes occurred, which profoundly changed the environments and hence the way of life within Southwest Asia (Widell 2013: 57). The environment affects all aspects of life and, along with topography, controls the availability of grazable landscapes. Although, as suggested by Zeder (1991: 29), the kinds of pasturage cattle can survive on are more limited compared with sheep and goat, it must also be noted that cattle were exploited and domesticated in many of the same environments as sheep and goat (Russell 1988: 143). When one thinks of raising cattle, he or she automatically envisions wide open areas in places such as Australia or Texas or the idyllic pastures of Europe; however, cattle can survive in a variety of landscapes. Wild cattle, historically and prehistorically, are associated with wooded landscapes where they feed off leaves, grasses, and portions of woody plants (McClure *et al.* 2006: 207). Because humans inevitably change the natural

world around them, they not only changed and domesticated cattle, but they also changed the suitable landscape of the animal to better serve the needs of the herder since cattle are more productive than goat, sheep, or pigs (Winterhalder and Kennett 2006; Russell 1988). Cattle still graze upon leaves, grasses, and, depending on the environment, portions of woody plants and tend to stay in more compact groups than goat and sheep while feeding; also, since cattle need to be relatively near to a water source, the grazable area available to them is more restricted than other domesticates, which can be a problem since a large proportion of seasonal herbaceous growth occurs beyond proposed grazing distance from a water source (Russell 1988: 59). Although it has been suggested that cattle are less adaptable and more difficult to care for than other domesticates, the resources and prestige gained from having cattle stock tend to outweigh the unfavourable aspects of the species.

1.7 Cattle Symbolism

The symbolism, which accompanied cattle within the Early Bronze Age period, had a substantial impact on the human populations within the selected regions and was just as influential as the animals' impact on the economies of the period. The areas where we find the most symbolism relating to cattle are in feasting, social relations, wealth, ritual, and power. In relation to feasting and food production, we know that cattle were exploited for traction purposes, such as transportation and most notably the pulling of ploughs, seeder ploughs in particular, which greatly improved agricultural production and reduced the amount of seed planted by half in comparison to broadcast sowing (Widell 2013: 64; McCormick 2012; Greenfield 2010; Zeder 1991). Because of the fact that cattle labour aided in larger crop yield as well as produced several secondary products, it is no wonder that cattle became associated with abundance. As expressed by Postgate and Katz, cattle were not often sacrificed except under special circumstances, and the animal was likely not a component within the everyday dietary conditions; typically, the animal was reserved for specific occasions, such as banquets and feasts (Katz 2007; Greenfield 2010; Postgate

1992). Feasting is an important social construction device that allows for individuals or groups to accomplish specific goals, such as tribute, payment of debts, remembering past victories or individuals, honouring a god or gods, and commemorating events, for instance, births, deaths, or weddings (Hastorf 2017). Furthermore, feasting is linked to social control and inequality. Not all individuals are allowed to take part in specific events, and feasts can be a method of establishing superiority over lower social or economic classes, with what was eaten being an important display of asymmetrical ideologies (Hastorf 2017: 214; McCorrison *et al.* 2012; Helwing 2003). Since cattle became an important component in feasting, one may conclude that they held higher social importance than other domesticated bovids.

In terms of cattle secondary products, it has been discovered that milk and ghee, clarified butter, were also important within religious and ritual practices. Milk was an element in funerary offerings, and, along with ghee, milk was used as an offering to deities as well (McCormick 2012: 101; Katz 2007). It has been suggested by Winter (1999) that the “lamps” found within the cemetery area at Ur, chapter five, may have actually been ritual pouring vessels, and the fact that they display cattle elements may allude to substances they were used with. Imagery of dairying can be found within Early Bronze Age contexts relating to the Sumerian mother goddess Ninhursag. Even though there are not as many instances of her being associated with cattle, she is associated with the cow at times, and since depictions of cows and dairying are found on her temple at Tell el-Ubaid, it can be said with some confidence that she is connected with female bovine imagery (Kawami 2014; McCormick 2012: 102). Cattle imagery found in various forms, more specifically on seals, larger ritual items, and architecture, can depict multiple animals, and it has been stipulated that this repetition may not be an aesthetic choice but rather a signifier of abundance, which in early and modern societies was both desired and necessary (Winter 2007). It has been discovered through this research that depictions of cattle on seals are

very common, with a majority of seal designs hosting at least one bovine element. According to Ameri *et al* (2018: 6), “[C]ontrol over seal imagery was a sign of control within the community,” and due to the fact that many seals contained cattle imagery, it can be stated that the animal was an important element in social relations and ideology. Cattle imagery and design elements are also found on other objects, such as weapons and jewellery; it is interesting to note that many of the items containing these elements are associated with individuals of higher social standing. This can be confirmed by the fact that much of these items are constructed of precious materials, and many have been discovered within burials and religious or administrative contexts, which indicates that symbolism can be presented as material products, such as jewellery or seals, or through intangible forms, such as religion and ideology (Katz 2007; Pollock 1999).

The meaning behind objects is constructed by the culture that creates them, thus creating socially and psychologically meaningful relationships, which can be difficult and, at times, impossible to reconstruct (Boivin 2008; Boivin 2004). The meaning behind objects can change at any point in time, as well as from person to person; however, from the material relating to cattle within the Early Bronze Age period in these regions, it can be observed that the majority of objects seem to imply that cattle were symbolically more important than other domesticated stock. As for associations with gender, it has been observed that identified sex of a representation can dramatically change the meaning associated with the animal represented, as well as the object, which relates to societal roles associated with specified gender (Boivin 2004: 8). The only positively identifiable representations of female cattle from this period are typically related to dairy production, birthing, and nursing, such as the decoration upon the temple of Ninhursag or the seal design from Tell Brak, which will be discussed in chapter four, figure 4.41 (McCormick 2012; Root 2002; Mallowan 1947). In comparison to female cattle being represented in terms of nurturing and displays of economic abundance, male cattle are often represented as

symbols of power, wealth, and authority (Rice 1998; Arbuckle 2014). Bulls and power over the animal came to be associated with authority, divinity, and kingship, and the keeping of cattle, the cattlepen, also became a metaphor for protection and control (Harmanşah 2013; Winter 2008). Hunting of the wild animal, aurochs, was reserved for kings and other high officials since the hunting of dangerous animals was preserved for those of high political office (Pollock 1999:184). By contrast, with regard to male symbolism and representations, one aspect of male dominance and authority that came to be associated with cattle is the beard. The beard was an important sexual characteristic that displayed the virility and “manliness” of an individual and, in a sense, related to what Winter (1996: 21-22) called “the three dominant ‘p’s’ of maleness: (im)pregnate, protect, provision.” These aspects of manliness are also associated with bulls, which is one reason why men and bulls are so closely linked symbolically within this period in history. The symbolism relating to male and female cattle demonstrates their social importance, and along with the physical power the animal possesses, one can imagine why this species was so influential to these early cultures.

1.8 Themes and debates in Mesopotamia and Anatolia

The Early Bronze Age was a pivotal period in human history; this is the time when we see not only development and evolution of social, ideological, and economic practices, but this is also when we see the emergence of large cities and influential temple complexes. With these important developments comes a wave of new artistic development and increased amounts of permanent material culture and architecture, such as jewellery, seals, and palaces. What this material may have meant to past populations will likely never be fully known; however, by examining multiple themes and debates relating to the regions of Anatolia and Mesopotamia and how they relate to cattle as well as broader archaeological questions, one may develop a clearer image of ancient life. As pointed out by Zeder (1991: 255-256), it is “important to realize that our own view of the past is coloured by our place

in the present,” meaning that we can place individual items or themes at varying levels of significance, depending on our own personal and cultural understanding of the world. By comparing multiple vantage points of selected topics, the probability of a biased result will be lessened. This section will briefly explore the topics of social complexity and prestige, the emergence of cities and urban provisioning, social and economic competition, agricultural practice, trade and resource control, associations of power and ritual, and associations of cattle with deities so that the reader will be better acquainted with such issues prior to a specialized discussion of cattle.

Social complexity and prestige are interesting subjects that can be explored in a number of ways; however, for this section, I will focus on the subject in terms of hierarchy and social control. Cities and urbanization, even in our modern world, are inevitably hierarchical; although centralized urban living may have begun in an egalitarian form, it quickly became extremely segregated into areas dictated by social class and production specialisation, and with the influx of unevenly distributed wealth, these areas developed into a modernly recognizable social structure (Matney 2012). With the evolution of social complexity there is increasing evidence of elite governance and, either through religious means such as temples or through more secular channels such as kings and administrative officials, even though they were also usually associated with the temples. The development of social complexity in Anatolia and Mesopotamia is closely connected with practices and codes of behavior often sanctioned by rules, and the institution of kingship was represented as inaugurated by the gods with individuals chosen by the gods (Winter 2008; Zeder 1991; Stein 2004; Mellaart 1966). There was also a ruling class with increasing evidence of individuals of high economic or religious standing. It has been suggested that common or lower class groups had little direct contact with religious organisations other than large public festivals and that the archetypal image of the city can be compared to the cattlepen with the king acting as caregiver for his subjects (Harmanşah 2013: 376; Pollock 1999).

Cities were considered the house of the gods, and associated with the cattlepen as it relates to wealth and abundance, which were both needed for a city to survive (Ur 2012).

One element of social complexity is burials. Not all deceased individuals had the means to receive a lavish or even formal burial, and combined, no collection of burials can account for the predicted population of a specific settlement; thus the act of burying someone and the material, or lack thereof, associated with the burial can tell much about that individual's place within society (Stein 2004; Pollock 1999: 200-201). The most common burials in these regions are found beneath the floors of houses or in cemetery areas located near to or even within the boundaries of a site. Burial practices do not always mirror a person's actual social status; however, from their relative location, they can provide information on wider social groups and practices (Pollock 1999:196). The ability to direct the production, distribution, and movement of products strongly coincides with social complexity and prestige since there are those who produce the items and those who distribute them. Through considering such themes, one can learn how the evolution of social complexity allowed the further development of urbanization and economic growth.

The emergence of cities, urbanism, and provisioning, as well as economic and social competition, are important factors in Anatolia and Mesopotamia, and in archaeology in general. The early third millennium, Late Chalcolithic and Early Bronze Age periods, saw a marked increase in the size and number of settled urban centres in Southern Mesopotamia, and beginning sometime around 2700 B.C., fully developed cities rapidly emerged from smaller existing settlements in Northern Mesopotamia (Matney 2012: 563; Pollock, 1999). The same trend of increased urbanism at this period can also be seen with the region of Anatolia with many large cities developing from smaller Chalcolithic settlements (Sagona and Zimansky 2009; Mellaart 1966; Bachhuber 2015). With the emergence of cities came the need to provide for them, not only economically and provisionally, but also socially. As a direct result of a developing urban economy, a

substantial segment of civic populations began to participate in specialized activities (Zeder 1991: 250). Most sites were responsible for the administration of their own territory, even if they were under the control of a larger civic centre; moreover, sites larger than ten hectares were surrounded by intensive zones of cultivation (Stein 2004; Postgate 1992). This increased cultivation was not only to support the current urban population but also to build a reserve for years of lower yield. In many cases, especially in Mesopotamia, palaces, temples, and their accompanying estates controlled much of the production and disbursement of crops and herds (Pollock 1999; Ur 2012). It also appears that cities throughout the survey area of this project developed varying methods of production based on their environmental conditions. In Northern Mesopotamia and Anatolia, rain-fed agriculture was the preferred method and came into wide use around 2600 B.C. while in Southern Mesopotamia, the main method of cultivation involved irrigation, and from documents dating to the Early Dynastic Period, settlements located upstream sometimes limited the water flow to settlements downstream, which could reduce the crop yield of such communities (Stein 2004: 61; Pollock 1999: 37; Widell 2013). The development of regional and interregional economic relationships played an important part in the transfer of artistic, economic, and social traditions, and one category of objects where this can clearly be seen is seals and their impressions. These objects displayed designs showing elements relating to religious and social ideologies as markers of personal and civic identity and were used in the transportation of various goods between locations. Seals are articles of social media, utilized by both men and women, and contained identifiers relating to the individual or the community they came from (Ameri *et al.* 2018; McCarthy 2018). Through the introduction of seals, we can determine how trade relations developed over time.

“Cities can only exist in relation to their hinterlands,” meaning that urban settlements are only successful if the environment around them is hospitable, or can be made so (Ur 2012: 536). Agriculture and herd management are critical for the sustainability

of urbanism, and thus, much value was placed upon these aspects of ingenuity that instigated civilization. Nutritional wealth can support a wide array of specialist non-food producers and maintain religious and political social structures, as well as initiate connections between agricultural and pastoral communities (Hastorf 2017; Greenfield 2010). Among the cornerstones of ancient economies is agriculture, and one aspect of agriculture, which thoroughly changed production methods, was the introduction of animal labour, through the employment of cattle, and the invention of the seeder plough (Postgate 1992; Zeder 1991). With the seeder plough and animal labour, much larger crop yields would be produced from smaller amounts of seed, which exponentially increased the productive power not only of crops but also of society as a whole. Environmental conditions dictated the methods of production, and the relationship between rainfall and agriculture was a major component in the success or failure of crops. As previously stated in Anatolia and Northern Mesopotamia, rain-fed agriculture was the traditional practice due to the increased amounts of rainfall in the region while in Southern Mesopotamia, irrigation agriculture was the preferred method. The agricultural preference in Anatolia and Northern Mesopotamia gave lower yields and had a higher transport costs compared to Southern Mesopotamia where there was a steady stream of irrigation and canals, which provided cheaper transport than animals (Widell 2013; Stein 2004: 77). This is one possible reason why cities in Southern Mesopotamia had larger populations than those further north. Herding was an important way to save or store surplus from good years for use when crop yield was low, such as in times of drought (Stein 2004). This is the primary use of the animal, as a provider of meat, hide, and bone, with the use of secondary products developing later. Although it is unclear as to the exact time humans began to use animals for more than their meat, it has been documented that the initial use of secondary products began sometime within the Neolithic, and hence, these traditions were well established by the time of the Early Bronze Age (McCormick 2012; Cakirlar 2012; Greenfield 2010;

Evershed *et al.* 2008). With the sizable increase of agricultural and pastoral production came the introduction of trade and controlling of resources. Although there is no archaeological evidence of what we would consider specific market places, it can be seen through documentation and the use of sealing that trade became a major component in economies and personal relationships (Ur 2012; Postgate 1992). Communities in Northern and Southern Mesopotamia traded provisional resources, such as cereals and livestock, and the movement of non-animate resources, such as wood and minerals, connected Anatolia, Mesopotamia, and neighbouring regions in a web of resource exchange (Pittman 2018; Stein 2004; Pollock 1999). Because of interregional trade connections, we see a change in a variety of economic and public institutions as well as changes in power and ritual.

Nearly all aspects of life entail rituals: birth, marriage, death, religion, initiations, war, eating, and many more. Ritual is one of the drivers of civilization, and based on where an individual originates or resides, rituals change. Since at least the Neolithic period, cattle have played an integral part in the social and ritual functions of human society relating to storm gods in Anatolia and Mesopotamia as well as the Mesopotamian god Nanna-Suen, hereafter referred to as Nanna (McCorriston *et al.* 2012; Greenfield 2010; Green 2003; Black and Green 1998). As stated by Greenfield (2010: 43), “[T]he widespread adoption of more intensive forms of domestic animal exploitation coincides with the rise in complex societies.” What is interesting about cattle, however, is that it appears that the animals were socially and ritually important prior to their initial domestication, and along with wild animals, such as stags and lions, had strong associations with rulers and religion. Temples held enormous influence both socially, by controlling ideologies and religion, and economically (Stein 2004; Postgate 1992). Cattle and their secondary products such as milk were important in both temple and burial ritual, with the animal sacrificed for deities and deceased rulers and milk offered to deities and implemented in burial customs (Katz 2007; Winter 1999). It has also been suggested that milk was considered to be a product of cow

deities and thus a gift from the gods, which may indicate why the product was utilised in the aforementioned ways (McCormick 2012: 100). Religion pervaded all aspects of social life in Anatolia and Mesopotamia in this period and was used as a controlling factor in relation to kings and rule. Most gods and goddesses had a dual role as the god of a specific city as well as the god of a particular branch of life, much like modern Catholic saints, and early concepts of deities connected them to nature in various forms (Pollock 1999: 221; Postgate 1992: 132). As a result of the power and influence relating to gods, rulers came to associate themselves with them and in some cases had themselves buried near the temple of a deity, as seen at the site of Ur and its Royal Cemetery, with some of the burials belonging to individuals associated with the cult of the god Nanna (Costello 2018; Winter 1999). This may be one explanation why there are so many representations of cattle found within the contexts of the cemetery complex, see chapter five. Another important aspect of associations with individuals and displays of power is feasting. Feasting was implemented as a means of differentiating social groups from one another and served as incentives of cooperation and the display of luxurious foods and goods as animals, including cattle, were butchered differently, depending on occasion and use (Hastorf 2017; Costello 2018; McCorriston *et al.* 2012). By investigating the role of cattle within ritual and social activities, including feasting, we can begin to examine the importance of the animal in comparison to other domesticated animals, such as sheep, goat, and pig. In exploring past research into the regions of Anatolia and Mesopotamia, this research examines which aspects have been studied and in what areas there needs to be more development. Due to the fact that the research relating to cattle in this review of themes and debates is relatively sparse, it is important to consider how the animal was utilised within these areas and how this research can be further developed to fill in those gaps within the existing knowledge of our understanding of the past.

1.9 Conclusion

The bond between humans and cattle is one that has withstood the test of time. Humans have been fascinated by the animal for millennia, and since the time of the animal's initial domestication, cattle have played an important part in human social and economic practices (Fagan 2016; Kawami 2014; Arbuckle 2014; Gunter 2002; Collins 2002). This chapter lays the groundwork for the current review of human and cattle interrelationships within the Early Bronze Age by introducing the topic as well as the importance of investigating this influential and lasting bond. The aims and objectives, along with the main research questions, provide an initial framework for the study, which will examine both material culture as well as faunal assemblages to produce a comprehensive review of how cattle changed the behaviours of humans within a specific period in history. The current project will endeavour to include all material from each selected site and investigate multiple cultural regions, along with large and small archaeological sites, to gain a more complete understanding of how cattle influenced human culture and what effects geological location and site size may have had on these influences, including social, cultic, economic, agricultural, and everyday life.

The species or subspecies of cattle is also an important factor in determining the utilisation of the animal. By investigating the species of cattle present at each site, one can gain a better understanding of economic behaviour associated with each species as well as possible indications of past ecological conditions based on the availability of either *Bos taurus* or *Bos indicus* remains. Through investigating the available faunal material, and the context of such material, we can better understand not only the species of cattle present at each site but also the possible significance of these animals based on the location of the faunal material at a particular site. Although other cultural regions throughout Southwest Asia and the Mediterranean may be suitable candidates for such a study, the cultural regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia were chosen for

this review due to their rich material culture assemblages as well as the lack of previous research on the subject of cattle and human interrelationships in this part of the world. These cultural regions are also where some of the earliest signs of animal domestication and urbanisation can be found, and by examining the animal in such contexts, we can establish what characteristics and economic properties of the animal were initially valued by humans at this early point in history.

Chapter Two

Research Methodology

2.1. Introduction

Cattle have had an important relationship with humans both prior to and after their initial domestication in terms of their social and economic influence on humans. With the spread of human populations and cattle, new breeds were developed to better suit specific ecological conditions (Velten 2007; Roberts 2017). As long as cattle have lived alongside humans, they have been considered valuable possessions not only for the visible wealth they show, since more resources are needed to care for them, but for the products and wealth they produce—from meat and milk to hides and dung, all of which can have a number of uses (Manuelli *et al.* 2013; Sharpes 2006). Moreover, cattle can continue to produce milk in the winter months, whereas goats and sheep cannot, thus adding to the overall value of the animals (Howell- Meurs 2001). This chapter outlines the methodology behind the project at hand and discusses past theories and approaches concerning the affiliation between cattle and Early Bronze Age human populations.

Firstly, this review examines the nature of the evidence found at seven sites within Anatolia, Northern Mesopotamia, and Southern Mesopotamia and how that evidence relates to interrelationships between humans and cattle. Section two examines several authorities on the subjects of cattle, Bronze Age culture, and the previously mentioned regions to determine how these subjects have been approached in the past and how they apply to the current interpretations of the connections between cattle and humans in the Early Bronze Age period. The application of these methods addresses the two main questions of this project to verify aspects of this research, such as symbolic continuity and the economic status of cattle. Section three discusses the designation of archaeological

sites and regions for the project, why they were chosen, and the importance of their selection to the project. In section four, I turn to the collection and interpretation of objects utilized in the project and discuss how they relate to cattle and why they have been selected. Additionally, section four consists of the following evidence: seals and impressions, clay bovine figurines, pendants and jewellery, stone objects, clay objects, and lastly, other or unusual objects that could not be fitted to any of the aforementioned categories. Interpretations of material culture can be quite varied, so the inclusion of past discussions and interpretations of objects and categories of objects as well as their relation to society will be included. This section will discuss varying theories relating to artistic practices, object interpretations, and materials of manufacture as well as how such objects can inform on social and economic practices (Robb 2017; Boivin 2008; Winter 2007; Boivin 2004; Winter 1999). In addition, in this section, there will be a discussion of Early Bronze Age dates and chronology relating to the sites and how these sites relate to each other in terms of occupational periods. The two categories of material employed are the material culture from the selected archaeological sites and the faunal assemblages from the sites, which lead to section five, the selection of archaeozoological evidence. Section five covers the faunal remains from the designated archaeological sites and discusses the amount of material and the limitations that may occur when processing and comparing the remains. A discussion also ensues concerning how this project will determine the use of a particular animal as well as methods of animal sexing and ways of determining the species or subspecies of the cattle involved. Additionally, section six is an examination of how the material will be analysed and interpreted. The section discusses the comparative analysis methods applied to the material and faunal data, as well as the collection of data and the implementation of dating methods, and lastly, there is a discussion of limitations and problems that may occur in the process.

Concerning the subject of human populations and their cattle in the Early Bronze

Age of Southwestern Asia, a number of questions begin to arise; however, this project has developed two main research questions that will aid in our understanding of the subject, see chapter one. These two questions allow us to consider the interrelationships between humans and cattle in Early Bronze Age society and how they changed or not from region to region or even site-by-site (Loughlin 2000). I will discuss the two main questions and the methodologies that will be applied to address these questions. Concerning the first question on the symbolic nature of cattle, I compare the artefacts discovered at the selected archaeological sites in the form of seals and impressions, clay bovine figurines, pendants and jewellery, stone objects, clay objects, and other or unusual objects. By comparing these items, I will establish the cultural practices that are common throughout Anatolia, Northern Mesopotamia, and Southern Mesopotamia and what practices and techniques may be isolated to a specific region or even a specific site. This comparison allows us to determine if a particular region valued cattle populations differently than others, aside from the primary and secondary uses, and what part the animals played in the symbolic and artistic traditions of each region.

Regarding the second question on the economic and social impacts of cattle, this question will be addressed by inspecting the faunal assemblages from the selected sites to understand how cattle affected economic and social life at the sites in question and to what extent such impacts occurred. The faunal evidence, more specifically the proportions of cattle remains unearthed at each site, will be scrutinised to ascertain the possible use of the animal, which allows us to determine if the animal was butchered for subsistence or culling practices or was kept to maturity for breeding or other secondary products (McGauran 2014). Apart from exploring the use of cattle in Early Bronze Age economies, I will also investigate the sex and species of the animals to determine if a sex or species was preferred over another between these sites and regions. We know that cattle were prized stock in the Early Bronze Age and that in many places throughout Southwest Asia and the

Mediterranean world, they were considered representations of certain gods and had large influences on economic and social life, such as the use of cattle imagery on seals and their impressions or the implementation of bovine labour (Arbuckle 2014; McInerney 2010; Rice 1998; Sharpes 2006). The goal of the current project is to determine the roles of the bull and cow in the three cultural regions to establish whether the animals were utilised more often for subsistence and economic purposes or if the animals were more important in the social and religious capacities of life, and how these interrelationships may vary depending on location.

2.2. Nature of the Evidence

In order to understand what role, or roles, cattle held in ancient Southwest Asian society, we begin by scrutinising the archaeological sources as well as the material culture from these regions to learn what others have claimed about these objects. For organisational purposes, this review will separate archaeozoological sources, i.e. faunal assemblage reports, from those of the material culture-based reports to examine in more detail what the faunal remains have to tell us as opposed to what may be inferred by placing them in conjunction with material culture. From inspecting the faunal records from the sites and regions under investigation, in terms of cattle, we develop an improved insight into important issues of interest, such as ritual, trade, diet, production of resources, and product specialization (Maltby 2006; Mukasa-Mugerwa 1989). Through investigating the cultural remains together with the faunal assemblages from these sites in multiple regions, the aim is to provide an improved understanding of culture relating to cattle in Early Bronze Age contexts by investigating multiple aspects of human society compared to artistic or zooarchaeological analysis. By having a multidisciplinary approach, a better insight into ancient society can be developed in viewing and interpreting the past (Kawami 2014; Bachhuber 2015; McInerney 2010; Winter 2007).

The archaeological sources discussed in this review of Early Bronze Age cattle

include a variety of publications on Anatolia and Mesopotamia that explore the effects of cattle on these regions, how male and female cattle were utilised, and studies of faunal remains. This research compares and contrasts existing theories and practices relating to cattle and culture in three cultural regions previously mentioned. The majority of academic work relating to cattle tends to focus on the bull. This focus derives from the fact that much of the iconography displaying or relating to cattle is centred on the male of the species (McInerney 2010; Sharpes 2006; Rice 1998; Velten 2007). The two major works on cattle that will presently be discussed focus on the bull and its relation to power, virility, and the gods. In his work on the bull, Rice (1998) examines humanity's fascination with the animal in prehistory and how this fascination developed from hunting aurochs to large bull cults in ancient Greece, Egypt, and the Anatolian Neolithic. He discusses the bull's association with the storm gods of the Early Bronze Age in Southwest Asia and the animal's association with the Greek god Zeus. However, much of the text emphasises the role of the bull at sites such as Catal Höyük or the islands of Cypress and Crete within the Greek civilization, which falls beyond the scope of this research. The major problem with this text, aside from its Mediterranean orientation, is that it only considers the material culture from a number of sites and draws its conclusions without paying attention to the faunal remains. A second text produced by McInerney (2010) investigates cattle in the Greek cultural sphere. He surveys the role of cattle within Greek society and their relation to the gods, such as Zeus, Hera, Apollo, and Hermes. Much of the text focuses on pastoralism, consumption, and economies concerning cattle and is one of the only works that discusses the cow in relation to society in much detail. Although the focus of McInerney's work is on ancient Greece, his use of material culture and faunal remains has aided in this project by providing a means of organisation.

To avoid interpretations based on a particular bias or emotional reaction, which may occur in the case of artistic representations, it is important to contemplate an object in

its original context (Loughlin 2000). Although this may be difficult, and in some cases impossible, due to the documentation of a particular site, it is important to view an object in its original context in order to determine what significance an object might have as opposed to what others claim it is. Art and artistic representation and their relation to humans is an extremely complex subject. In archaeology, many items of material culture are referred to as “art” so that they can be categorised in some form; however, art is subjective and contextual; all objects, whether considered “art” or not, impact us not only “emotionally and sensually, but also socially and biologically—genetically even” (Robb 2017; Boivin 2008: 129; Pollock 1999). All objects trigger an emotional response, be it good, bad, or indifferent, and there are various theories relating to how objects affect humans. Robb (2010: 501), for example, examines the theory of objects having agency and asserts that all things have a form of agency and that, like speech, objects have a “range of play” that can change and act upon social relationships and understandings. All objects play a part in the human story; therefore, representational theories play an important role in the significance of an object. The material from which something is made, the position at a site where it was discovered, what individuals it was constructed for, and the iconography—or lack thereof—all provide valuable clues as to the significance of not only the object but what it and its form represent; see sections 2.4.2 and 2.6.

One theory postulated by Rice (1998) states that the only reason humans are interested in cattle, bulls in particular, is due to the attributes associated with them, such as power, control, and virility. However, cattle are much more than these characteristics. Since cattle were one of the few large domesticated mammal species, it is possible to understand why one may come to such a conclusion that they are associated with the aforementioned attributes (Velten 2007). Conversely, the connection between humans and cattle goes much deeper than Rice argues. Cattle can provide a sense of stability to those who herded them by supplying meat, warmth in the form of hides and fuel, and labour, and

they serve as a connection to the natural, wild world, which is not always the case with other major domesticated animals. Arbuckle (2014: 290) in his work on cattle in Bronze Age Anatolia agrees with these associations, stating that “cattle became a metaphor for abundance.” Another reason individuals and communities may value cattle more than other domesticates is that we see attributes in their nature that coincide with positive attributes of our own, such as strength, endurance, and, in the case of cows, loving and caring mothers (Rice 1998; Sharpes 2006; Velten 2007). It is also interesting to note that we perceive bulls and cows in opposite ways, which overlap with our own understanding of traditional masculine and feminine attributes. Velten (2007: 67) corroborates this perspective in saying that “the attributes of a cow and her associated symbolism are the direct opposite of those of the bull. While he is linked to strength and power, she radiates gentleness.” It is clear that humans and cattle have a close and complex relationship, more so than other domesticated species, which is why the subject is worth further inquiry.

The goal of most archaeologists is to reconstruct the behaviour of humans at specific archaeological sites to the extent that the material will allow (Klein and Cruz-Urbe 1984; Glock 1985). This reconstruction is accomplished by examining the material culture and/or faunal assemblages from the sites and comparing them to similar assemblages within the same cultural region. Since this type of reconstructive work is usually site-specific, a definite lack in the reconstruction of regional and interregional cultural standards exists, which is what this project will improve upon. By developing our understanding of the regions under investigation, we will have a much-improved comprehension of the culture associated with cattle in the Early Bronze Age of Southwestern Asia. Furthermore, the available archaeological sources are placed into two main categories for better organisation. First are the site reports and faunal reports, which indicate the items unearthed, the quantities of these items, and in some cases, precisely where these items were located in the seven selected sites. This category of field and faunal

reports makes up a large portion of the data used in this project due to the primarily objective and quantitative nature of this material. The second category consists of journal articles, books, and academic article reviews. These sources probe into more specific themes, such as religion, cultic practice, subsistence patterns, discussion of material findings, faunal organisation and dating methods, and human and cattle interactions. These resources are where much of the work relating to male and female cattle in Early Bronze Age contexts is found. Although it is quite important to consider original data, such as that found within site and faunal reports, it is equally important to examine themes that are more specific to the symbolic, social, and economic impacts of cattle in the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia. By applying a variety of source materials to the items and themes under investigation, we are better able to add some clarity to the interrelationships between humans and cattle in this period.

2.3. Selection of Archaeological Sites and Regions

This review covers quite a large area, encapsulating a variety of landscapes from the vast pasturelands of Anatolia to the fertile river basins of Mesopotamia and the shared steppe between the two; thus, it is most helpful to separate this area into specific regions (Potts 1997; Roaf 1990). The term *cultural region* is used here to refer to all the cultural/social polities located within defined geographic areas, which are usually inclined to be the same or, if not, very similar in material culture, economic, and political practices. By employing this separation, it is easier to determine the value humans placed on the cattle in a particular region for later comparison, based on the environments in which the animals are raised, as opposed to picking and choosing specific sites or objects from across Southwest Asia and expounding information, which may not be as reliable. The paleoenvironment surrounding a site is important since the environment affects all aspects of economic and social life (Staubwasser and Weiss 2006; Schwartz and Falconer 1994; Kouchoukos and Wilkinson 2007). The environment around a particular settlement can

also provide information as to the relative importance of cattle since cattle require specific conditions for optimal animal and herd size as well for the production of milk, see section 1.6. (Spiteri *et al.* 2016; Zeder 1998).

Although the initial intent of this project was to compare all regions of Southwest Asia, the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia were chosen due to their proximity to one another, which may suggest a similarity in material and animal usage, thus bringing acceptable solidarity to the overall project. Due to the amount of material available in Mesopotamia, this region was consequently subdivided into northern and southern cultural regions. Another rationale for choosing the three regions is the diversity in living arrangements. In the Early Bronze Age, much of the Mesopotamian landscape, especially in the south, was dominated by large urban settlements that controlled much of the lands that surrounded them (Childe 1957; Roaf 1990). Conversely, in Anatolia, there was a mixture of smaller urban centres and villages with limited control of the surrounding landscape, and many of the larger urban settlements began as outposts of the more sizeable Mesopotamian cities (Sagona and Zimansky 2009; Gorny 1989; Palumbi 2011; Özdoğan 2007).

Aside from the civic arrangements of the regions, trade between the three regions was a major component in the development of these settlements, allowing for the transfer of products and resources as well as the evolution and development of ideologies and artistic traditions (McGauran 2014; Özdoğan 2007; Sagona and Zimansky 2009). As for the selection of sites, this project aims to select sites within each specified cultural region that contain items relating to or representing cattle or sites with larger or better documented faunal assemblages, and preferably sites containing both, beginning with major sites and moving to smaller ones. A comparison of the findings from each site will follow to determine the relative applications of both the material culture and faunal remains for each site and what changes or adaptations occur between the sites as well as between the regions

of Anatolia and Mesopotamia, which will establish the possible affiliations humans developed with their cattle.

2.3.1. Selection of Study Regions

Since the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia have a wide range of landscapes and settlement structures, as well as similarities in culture and economics, it makes sense that they would comprise the three cultural spheres examined for this project. This array of landscapes allows us to compare the symbolic, social, and economic status of cattle by discussing how the status changes or remains the same, depending on the environment in which the animal is reared. It has been established that in Anatolian and Northern Mesopotamian settlements rain-fed agriculture was the principal method, while in Southern Mesopotamia crops were watered through irrigation channels (Widell 2013; Kouchoukos and Wilkinson 2007; Pournelle 2007; Wilkinson 2003; Wilkinson 1994). This indicates that agriculture was likely controlled more heavily in the south than elsewhere; it may also indicate that other aspects of food procurement were equally controlled. In addition to paleoenvironments, the modern landscape patterns surrounding each of the seven sites in 5km and 10km radii will be briefly examined to aid in our understanding of the Early Bronze Age landscapes, which may provide some information concerning the relative importance of bovines based on the environs with which they are associated. The details of environments and settlement geography for each site are provided in their respective chapters. Because these cultural regions are connected, which allows for better trade flow, we may be able to determine what products representing or relating to cattle were traded. Another motivation for selecting these regions was the amount of previous work completed regarding these regions, as well as the very detailed work of specific sites, such as Tell Brak and Ur. The main justification for selecting these cultural regions for this project was the importance of cattle to these populations dating back through time.

2.3.1.1. Anatolia

Anatolia, due to its geographic position, has long been considered a crossroads between eastern and western cultures. Because of this distinction, many archaeologists argue that, depending on the location, sites equate more with other cultures, such as the Aegean or Mesopotamia; however, this is not always the case. Anatolia has a distinct culture dating far back into the Neolithic (Özdoğan 2007; Sagona and Zimansky 2009). One aspect of Anatolian archaeology is that it tends to focus on particular sites, as opposed to regional trends, such as those found in Mesopotamia (Gorny 1989). The cultural sphere of Anatolia was selected for this project due to the wide distribution and variation of sites and the range environments within the region. The region also has close ties with Mesopotamia both politically and economically and, because of these connections, has many cultural influences that can be seen in terms of settlement structure and religion (Palumbi 2011; Rice 1998).

2.3.1.2. Mesopotamia

Mesopotamia is home to some of the largest Early Bronze Age sites, including Ur and Tell Brak, two of the sites examined in this work. The Tigris and Euphrates rivers drain an enormous area and act as thoroughfares for trade throughout the region (Potts 1997). Like Anatolia, Mesopotamia is home to larger geographic areas, including flood plains, steppe, marsh, and desert (Laneri 2007). One reason this region was selected was for the material uncovered at the sites relating to or representing cattle and for the intensive study of some of these objects, such as those from the Royal Cemetery at Ur (Irving and Ambers 2002). Mesopotamia also has more artwork and representations of cattle than in the region of Anatolia, at least in terms of the Early Bronze Age material, and the quality of many of these items exceeds that of objects from other regions (Rice 1998). Because of the amount of material culture available as well as the studies of animal husbandry in the region, it is important to include Mesopotamia in this review of human and cattle

interrelationships.

2.3.2. Selection of Archaeological Sites

The archaeological sites selected for this project were chosen to determine the interrelationships between humans and cattle in a variety of environments across the regions of Anatolia and Mesopotamia. In the previous chapter, figure 1.6 displays the regions of Anatolia and Mesopotamia along with the sites selected for each region. The seven sites under investigation were chosen based on four properties:

1. The quantity of material remains relating to or representing cattle;
2. The amount of faunal remains unearthed, as well as the work completed and published for these assemblages;
3. The size of the site and the environment in which it is located;
4. The location of the site within each regional sphere;

Although some of the selected archaeological sites may not contain large amounts of either the material remains or faunal remains, depending on the availability or excavation procedures of a particular site, the point of including such sites is to determine interactions between humans and cattle in all areas of both regions. By investigating sites in all areas of each selected region, we will gain a better understanding of the nature of these relationships by comparing the material as an overall review rather than on a site-by-site basis.

2.3.2.1. Anatolia

For the region of Anatolia, three sites were selected based on the aforementioned criteria and properties. These sites will be briefly discussed in geographical order from west to east. The site of Alaca Höyük was a major religious and economic centre in the Early Bronze Age. Although the faunal remains are not as well documented for this site,

there is a large amount of material uncovered relating to cattle from both the settlement itself and the impressive burials associated with the site (Sagona and Zimansky 2009; Taracha 2012; Zimmermann 2007). This specific site was chosen to investigate the role of cattle primarily in religious and funerary contexts. The next site, Titriş Höyük, is located in the southeastern portion of Anatolia near the border with Northern Mesopotamia. Although the site does not have much in the way of material remains relating to cattle, it does have a sizable and well-documented faunal assemblage. The site is interesting in that it dates to the beginning of the Early Bronze Age and was inhabited for a relatively short period, which allows us to determine the interrelationships between humans and cattle during a single phase (Greenfield 2002; Laneri 2007). The final site chosen for the Anatolian region is Sos Höyük. Located in the northeast corner of the region, Sos Höyük has an impressive and well-documented faunal assemblage as well as some good examples of material culture representing cattle (Sagona *et al.* 1997; Sagona *et al.* 1995). This particular site was chosen both for its location and for work completed on the faunal remains, which has helped in determining how to investigate such remains.

2.3.2.2. Mesopotamia

In Mesopotamia, four sites were chosen for this review, based on the four properties discussed previously. This section will briefly discuss the selected sites in geographical order from the site of Ur in the south to Tell Beydar in the north. The site of Ur, located in the south near the modern banks of the Euphrates River, is home to one of the most impressive cemeteries in the ancient world (Irving and Ambers 2002; Miller 2013). The site was a large commercial and religious urban centre with a collection of material remains that has been well documented and studied. Although the faunal assemblage for the site is quite small due to past excavation and recovery methods, the site was included in this project for the number of objects relating to or representing cattle. The second site selected is Abu Salabikh. The site was once on the banks of the Euphrates;

however, due to changes in the river course, it now lies in between the Tigris and Euphrates rivers. Abu Salabikh was a centre of manufacture and scholarly work in the Early Bronze Age and holds a relatively large faunal assemblage for the size of the site (Clutton-Brock and Burleigh 1978; Pollock 1990). The site was chosen primarily for its location and faunal assemblage. The next site considered is that of Tell Brak located near the border of Mesopotamia and Anatolia. The site is one of the earliest urban centres in Northern Mesopotamia and is home to a rather large faunal assemblage, which will help greatly to determine the effects of cattle on this northern economy (Emberling *et al.* 1999). Apart from the faunal remains, Tell Brak also has a well-documented collection of items representing cattle (Oates and Oates 1994). This site was selected due to the quantity of material relating to or representing cattle, as well as its location within the region. The final site under consideration is the northern site of Tell Beydar. This site is located in Northern Mesopotamia very near to the neighbouring, and much larger, site of Tell Brak. This site has been well studied, and a number of publications have been produced regarding its material culture and faunal assemblage. The site was chosen for its proximity to Tell Brak and for material available from the site.

2.4. Selection of Artefacts

All of the material culture examined from the seven sites included in this project either directly represents cattle, as in the cases of baked clay animal figurines, or have symbolic or stylistic references to cattle, observable in the form of jewellery and seals. A good example of probable symbolic or stylistic references found throughout the regions of Anatolia and Mesopotamia is the use of cattle horns or the implementation of crescent forms. These particular forms observed in the representation of certain gods and goddesses, especially in Mesopotamia, can have several sets of cattle horns atop their heads, symbolising their divine power (Arbuckle 2014; Rice 1998; Rimas and Fraser 2008). This section will begin with a brief discussion of the dates and chronologies of the selected sites

and their material, as well as various theories and interpretations relating to objects and material culture. I will then examine the individual groups of objects relevant for the project, starting with seals and impressions, followed by clay animal figurines, and then will move to pendants and jewellery. Next, stone objects relating to cattle are discussed, and then the clay objects depicting cattle are scrutinised. This section will end with a discussion of other items representing or relating to cattle. In summary, this section examines relative dating and the categories of objects included in this review and explains why they are important to the study of cattle in Early Bronze Age contexts.

2.4.1. Dates and Chronology

Period/Phase	Approximate Dates BC
Jamdat Nasr	3100-2900
Early Dynastic I (EDI)	2900-2750
Early Dynastic II (EDII)	2750-2600
Early Dynastic III (EDIII)	2600-2350
Akkadian	2300-2150
Ur III	2150-2000

Table 2.1: EBA Period chart (after Scott 2017; Postgate 1992)

Relative dates and chronologies for the Early Bronze Age in Southwestern Asia vary more than initially expected and range from a start date of 4000 BC (Roaf 1990) to 2900 BC (Green 2003), depending on the author and methods of creating such dates, such as study regions, C14 dating, or chronotypologies (McCorriston 2011; Mellaart 1966). More generally, it is accepted that the beginning of the Early Bronze Age is approximately 3000 BC, ending between 2100-1900 BC (Bachhuber 2015; Zimmermann 2007; Aruz 2003). For the purposes of the current research, the dates selected as representing the Early Bronze Age run from 3000-2100 BC, which encompasses multiple periods; see table 2.1. Although there are objects that date to almost all periods/phases of the Early Bronze Age concerned in this review, the majority of objects date to the Early Dynastic Periods, 2900-2350 BC (Postgate 1992). In terms of C14 or chronotypologies, it appears that the more generalized dates of this period are chronotypological while the dates of specific sites

employ C14 dating with more regularity. As for the site dates of Anatolia, I will begin with the site of Alaca Höyük. This site was excavated quite early in comparison to the other Anatolian sites, so the dating is based more upon chronologies than C14 dating. The study conducted by Gursan-Salzmänn (1992: 4, 20) indicates that the site has a history pre-dating the Hittite Period of the Middle Bronze Age by some 1500 years and places the Royal Tomb levels within the Early Bronze Age, though no specific dates were given. The site of Titriş Höyük is a good addition to this research due to its location, connecting the heart of Anatolia to the Mesopotamian region. This site has been radiocarbon dated to the Middle to Late Early Bronze Age 2700-2100 BC, with little sign of occupation both prior to and after these dates (Alagze *et al.* 2001: 23). The site of Sos Höyük also has a well-established set of radiocarbon dates, which illustrates that the site was intermittently occupied from roughly 4000 BC to the medieval period (Sagona *et al.* 1998; Sagona *et al.* 1995). As for the Early Bronze Age dates, the excavators separated this level of the site into three periods: VB 3000-2800, VC 2800-2500, and VD 2500-2200 BC with all dates based on C14 records (Sagona 2000).

Moving to the two Mesopotamian regions, I will begin in Northern Mesopotamia with the site of Tell Beydar. The area where Beydar is located has signs of occupation dating back to the Neolithic; however, the site itself began sometime around 2800 BC and grew considerably by 2500 BC, which is when we find the first signs of monumental architecture at the site (De Ryck *et al.* 2003: 580). The neighbouring site of Tell Brak dates back to the Neolithic Halaf Period, through radiocarbon dating, with the settlement beginning to spread around 3900 BC and developing and expanding throughout the Early Bronze Age (Ur *et al.* 2007: 1188; Eidem and Warburton 1996: 53). In the region of Southern Mesopotamia, I begin with the site of Abu Salabikh. The initial settlement of the area began in the Uruk period with the main mound belonging to the Early Dynastic period and continuing through to the Ur III period (Postgate 1983: 1; Postgate and Moon 1982).

The site of Ur was inhabited from ca. 5900 BC, in the Ubaid period, through to the fourth century BC and thus was occupied throughout the Bronze Age, including the Early Bronze Age period (Irving and Ambers 2002: 206). Another interesting fact that should be said is that the burials at Ur, radiocarbon dated to 2500 BC, are contemporaneous with the burials at Abu Salabikh and Alaca Höyük (Gansell 2007; Dickson 2006). The dates provided for the seven selected sites show that they all fit within the Early Bronze Age period, with several pre-dating and post-dating that period, table 2.2.

	Dates BC	Alaca Höyük	Titriş Höyük	Sos Höyük	Tell Beydar	Tell Brak	Abu Salabikh	Ur
	1900							
	2000							
Early Bronze Age Period	2100							
	2200							
	2300							
	2400							
	2500							
	2600							
	2700							
	2800							
	2900							
	3000							
	3100							
	3200							
	Occupation Periods							

Table 2.2: Chronological chart, occupational periods of sites shaded (after Bachhuber 2015; Aruz 2003; Postgate 1992; Mellaart 1966)

2.4.2. Theories and Interpretations of Objects

The relationships between humans and the things they create are always difficult to interpret since such relationships can change and evolve through time and between individuals and cultures. The relationships we have with objects is always contextual and relational, and it is acknowledged that “the things people act upon can act back upon them,” meaning objects can be given a certain agency from which they can affect different aspects of society (Robb 2010; Boivin 2008: 178). This agency of objects is a relatively common theme in modern thought; however, our modern understanding of the theory is likely different from how past individuals constructed such meanings. The things humans create are an integral part of how society functions and understands the world around it, and according to Robb (2010: 514), “[U]nderstanding forms of agency different to our own is perhaps the most difficult challenge we face” as archaeologists. By investigating the material from which an object was constructed, the location of its discovery, who it was crafted for, and the iconography or elements of the design featured on an object, we may be informed of its place and significance within its originating society. Agency has the capacity to incite meaningful relationships between humans and objects, and it is this special relationship that gives an object meaning and importance. Material culture is an emotional and social resource that cannot only form relationships between individuals but display power and authority, constitute a basic need such as for cooking and storage, as well as be implemented in religious and ritual actions (McCormick 2012; Winter 2007; Zettler 1987; Croucher and Belcher 2017; Winter 1996). This active relationship between humans and the material culture they created, involving, or relating to cattle, is one of the things this project addresses. By investigating these relationships, we may learn how the animal, in its represented form, played a part in social practices and in what parts of society this can be seen.

The construction material of an item, such as metals, stone, clay, and wood, can

give us an indication of how a particular object related to ancient society. There is a distinct correlation between the surface and the depth of things, and by examining material culture, in this case, material relating to or representing cattle, and what it is crafted from, this can give a good indication of an object's respective place within human society (Boivin 2008; Frodeman 2004). Although we may not know or fully understand the meaning behind the construction material of an object, we can gain some insight into a material's meaning, at least in terms of status, based on the context of an object, e.g. gold and lapis lazuli items from Ur relating to high status individuals and ritual items from the cemetery area, which is only one of the many reasons why the context of an item is so vital to its interpretation (Boivin 2008; Boivin 2004). Minerals and varying materials can display many meanings, for instance, power and economic importance, stability, and virility, and can be connected with masculine and feminine attributes, see sections 2.4.6 and 2.4.7 (Boivin 2004). Although it may not seem important to consider the material an object was crafted from, it can give us valuable insight into an object's relative significance, which will be important in the examination of the items under investigation for this project.

2.4.3. Seals and Impressions

The group of seals and impressions includes items representing cattle or some aspect of the animal found on cylinder and stamp seals as well as seal impressions; this is by far the largest collection of objects from the six categories, see appendix I. The two types of seals, cylinder and stamp, are found at many of the sites concerned in this work, with seals being more common in Mesopotamia than in Anatolia. It is interesting to note that most seals are one of a kind, which means the iconography and motifs observed on each example are unique (Potts 1997; Rice 1998; Ur 2012; Wright 2007). The point of including seals in this project is to determine which motifs relating to cattle occur in the regions of Anatolia and Mesopotamia and what the significance of these motifs might be.

Seals were crafted from many materials, mostly various types of stone, sometimes clay, and in some cases displayed additional ornamentation such as gold caps. As stated in the previous section, all types of construction material held meanings, which added to the symbolic and social power and influence of such objects (Pittman 2018; Smith 2018; Boivin 2004). Thus, not only do the designs of seals convey meaning, but the material from which they were made do as well. Highly personal objects, seals and sealings played an important role in how the individuals who owned them functioned in the world and how they were viewed by contemporary society (Ameri *et al.* 2018; Smith 2018). Seals were used for many forms of administrative activity, including documents, vessels, and doors; some seals were also recarved in antiquity in adjustment for new owners and according to Smith, there is also evidence that some seals remained in use for hundreds of years, within the objects' roughly 3,000 years of use (Smith 2018: 115; Zettler 1987). Seals typically reflected administrative processes relating to temple management and trade and were also implemented as items of adornment (Costello 2018; Pittman 1998a; Zettler 1987). Since seals were typically owned by those of higher class and since cattle motifs appear to be popular within the Early Bronze Age, and other periods, it is important to include them to determine not only any specific significance associated with the animal but also ascertain which sex was depicted more often and how it may be a factor in an object's relative importance.

In examples of some Mesopotamian seals that include cattle motifs, there is a bull-man design seen throughout the region as well as motifs displaying gods and goddesses wearing horned crowns, at times with multiple sets of cattle horns (Canby 1989; Snell 2011). Another design element, which can be found on seals and their impressions, as well as in other forms of design, such as architectural adornment and carving, is the element representing abundance. The metaphor of abundance can be recognised by the repetition of specific design elements as with animal and plant forms, and although it may be

interpreted as simply a design choice, this researcher and others argue that the repetition of plant and animal forms, especially domesticated species such as cattle and barley likely signify the need and want of abundance (Winter 2007: 121). Sufficient surplus allows a community to have specialized labour and allows for more trade as well, meaning that by representing multiple domesticated species numerous times within a single item, we can see what was important to these individuals (Winter 2007; Pollock 1999). Further, with this design element being present in seal designs along with deities, we can better appreciate the importance of abundance within this period. Another design, which may also represent the theme of abundance, as well as social and economic influence, is that of banquet scenes. Banquet scenes first appear in the Early Dynastic Period in Southern Mesopotamia, which explains their relative abundance within the city of Ur; these scenes show men, women, and deities with horned headdresses taking part in elaborate feasts (Costello 2018: 70). A high level of social control is likely to have been needed in order to create a feasting spectacle where only specific members of society were allowed. Although there are not many complete depictions of cattle within feasting scenes, there are horned deities, which signifies the importance of not only the feast but also the importance of cattle design elements, like horns. By examining seals and their impressions, we can better address questions relating to social status and ownership as well as identity, social norms, and the behaviour of their owners, and even though we will likely never clearly understand the iconography of these tiny scenes, they can give us some insight into a world we are attempting to understand (Ameri *et al.* 2018; Mccarthy 2018).

2.4.4. Clay Animal Figurines

Baked clay animal figurines can be found at many sites throughout the Early Bronze Age in Southwest Asia and depict humans as well as several species of animals; however, the most common form of figurine depicts quadrupedal bovine animals. The tradition of producing clay figurines can be traced to the Neolithic with many figurines

portraying the previously mentioned forms (Loughlin 2000). This creative tradition continued in the Bronze Age with individuals producing these figurines. Although clay figurines have taken on several meanings through the years of their study, it must be made plain that these items did not typically have fixed meanings and were used and discarded with some regularity; in fact, many examples of clay figurines were uncovered from loose fill and without intentional placement or burial, which indicates that they may not have held any religious or cultic meaning (Campbell and Daems 2017; Croucher and Belcher 2017: 454). Unlike other more “mass appealing” items, such as objects made of gold or material from burials, many clay figurines from sites within Anatolia and Mesopotamia remain unpublished and unstudied, and when they do come up in reports and publications, only the most interesting or complete figurines are featured (Croucher and Belcher 2017). This fact may explain why the numbers of figurines from sites are so small, especially for items that appear to be mass-produced.

It seems that the human form of these figurines becomes less popular over time, with the animal forms dominating at many sites, and the majority of these animal figurines depict bovine or bovine-like species (Koşay 1973). As confirmed by Croucher and Belcher (2017: 453), anthropomorphic figurines are outnumbered by zoomorphic figurines, with these figurines making up approximately forty-eight per cent of figurines recorded, at least in the Anatolian region. Even though animal figurines outnumber anthropomorphic ones, animal figurines are less systematically studied and published in comparison (Campbell and Daems 2017). By investigating baked clay bovine figurines, which can be found at most sites in Anatolia and Mesopotamia, one can better understand the worth humans placed on cattle, at least in a material sense, and compare that to interpretations from other material inspected relating to cattle. One thing that must be explained is that these bovid figurines are, at times, sexually ambiguous and fragmented. Many who study these figurines say that they all depict bulls due to the horns many figurines have (Koşay 1973;

Manuelli *et al.* 2013). However, this may not be the case, as some cows do in fact have horns themselves; thus, it makes it all the more difficult to ascertain the possible sex of a figurine by merely determining if a figurine has horns or not (Loughlin 2000; Velten 2007; Wengrow 2003). If we can determine the sex associated with specific bovine figurines, we can attempt to establish the position of each sex within the culture of a particular settlement; however, this is unlikely. Most zoomorphic figurines exhibit the general outlines of the animals they are meant to represent and highlight some specific aspect of the represented species, such as the shape of a head, the horns, and or the tail (Forouzan *et al.* 2012: 3535). In the case of cattle figurines, the most prominent features are the horns and the shape of the head, and this is the principal method this research has used to identify cattle figurines.

The two most common species of the cattle found in the Bronze Age are the *Bos taurus* and *Bos indicus* species (Potts 1997). Though *Bos taurus* is the most abundant species found in the three regions under investigation, there are some examples of *Bos indicus* recorded in the form of baked clay figurines, which, at times, may be the only indicator of that particular species at an archaeological site, see chapter four. The major problem one encounters when investigating these clay figurines is that most of the examples are highly fragmented, and in some cases, only portions of figurines can be located or properly identified (Koşay 1973; Manuelli *et al.* 2013; Wengrow 2003). This fragmentation forces us to ask the question if these figurines are merely in a poor state of preservation or if they may have been intentionally broken. There have been many postulated uses for these figurines, such as lucky or magic charms, figures for hunting or religious rituals, educational objects, or those used as toys, and their scale suggests that these figurines were private or personal items, in opposition to public items (Campbell and Daems 2017: 583; Forouzan *et al.* 2012). As mentioned above, many figurines are discovered in a fragmented state, with the most common breaks occurring with the heads

and horns, at least in the case of cattle figurines, and although one might assume that this fragmentation may be the result of ritualistic practices, it can also be suggested that this is merely the result of frequent use and handling since the most vulnerable parts of a figure tend to be where the most common breaks occur (Croucher and Belcher 2017). Because the majority of these figurines are found within fill or loose within the soil, it is likely they held no religious significance; if they were related to hunting or some personal or familial ritual, we would expect more to be found within household contexts. Since these small objects could be used in ways larger objects could not, it can be suggested that they likely related to either an individual or to a small social group; however, many of these figurines relate to public/administrative context, which may suggest they played an economic role. With the bovine figurines, I will be investigating any possible meaning behind the items, the sex of the representation, if possible, and what place or places these figurines held in Bronze Age society and culture.

2.4.5. Pendants and Jewellery

This category of pendants and jewellery includes several forms of bodily ornamentation. Typical items include necklaces, earrings, pins, hair ribbons, hair rings, combs, and pendants. The jewellery of Southwestern Asia in this period can loosely be characterized as being crafted from gold, shell, and semi-precious stones like lapis lazuli and carnelian in a variety of ways. One interesting fact about jewellery from this period is that, for the most part, jewellery was worn on the upper part of the body, with an individual's hair being adorned as well in some cases (Pittman 1998b). As for pendants, they were made from a variety of materials, including stone, shell, and sheet gold hammered over a bitumen or wooden core. The majority of Early Bronze Age jewellery consisted of strands of beads; however, there are examples of more elaborate items. The imagery of more elaborate jewellery typically relates to plants and animals, and there are a number of depictions of cattle included within this category. According to Pittman (1998b:

88), “[G]arments, and especially jewellery, played an important role in the ritual associated with the entry of the deceased into the underworld.” The fact that jewellery played a part in burial rituals explains why most of the items we see come from burial contexts. From an initial assessment of pendants, it appears that nearly all pendants come in zoomorphic forms, and that bulls, bearded bulls, and double-headed bulls are typical pendant forms and have been found at a number of sites throughout Mesopotamia. One unexpected aspect of jewellery in relation to this project is that there is very little of it found in Anatolia in comparison to Mesopotamia; however, that does not necessarily mean it does not exist. In addition to the typical forms of adornment, it has also been suggested that seals were also worn as a form of bodily ornamentation and were worn either suspended from a string or pinned to garments (Costello 2018; Ur 2012; Pittman 1998a). Jewellery, as well as seals, are highly personal items, which may explain why they are associated with social and personal identity. Pendants and amulets are suggested to be markers of identity as well, which is interesting since many pendants are carved in the form of cattle, and there are examples of crescent forms found in the designs of amulets (Pittman 2018; Campbell and Daems 2017; Reinholdt 2003). Since pendants and jewellery are markers of identity and office, cattle imagery must hold some significance to these individuals, and perhaps too specific groups or offices, due to the relative abundance of such imagery within this category of material culture.

The most abstract items included in this research are the crescent forms, a popular design found throughout the Early Bronze Age in Southwest Asia. The design can be traced back quite early in Anatolia and Mesopotamia and is found most often in the form of jewellery. The crescent form in jewellery is best observed in the form of earrings, see chapter five. The relation of this form to cattle is its similarity to the shape of horns, which is often associated with the phases of the moon. Velten (2007: 19) states, “The moon with its regularly changing phases was a fertility symbol, and the crescent-shaped horns of the

aurochs became associated [with it].” The crescent design developed into a powerful symbol of rebirth and regeneration as well as abundance, vigour, and prosperity, which is why the form came to be found in all corners of Southwest Asia (Rice 1998; Velten 2007). Since the crescent form relates to the shape of cattle horns and is associated with the animal, it was included in this project. Another reason for the selection of the items is the abundance of jewellery in this form (Koşay 1973; Manuelli *et al.* 2013; Rubinson 1991). Aside from the number of items representing crescent forms, there are also examples of earrings in the regions of Anatolia and Mesopotamia, which illustrates the fact that the form was used as bodily adornment, perhaps as a means of affirming a connection between humans, their cattle, and their gods. Dominance, physical power, and sexual potency were all represented and thereby desirable factors in this period, and all of these factors are connected with cattle as well, especially in the case of bulls. Rulers were also associated with such traits and portrayed themselves as being physically strong, which suggested sexual dominance and authority (Winter 1996: 11) This may be one reason for the appearance of cattle forms and iconography in pendants and jewellery: so as to associate oneself with the desirable traits of cattle.

2.4.6. Stone Objects

By far the smallest group of material objects from the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia are the items made of stone that represent or relate to cattle. In Anatolia, items made of stone, which represent cattle, are quite rare indeed; in fact, only a single stone item was discovered between the three sites selected for this project. The fact that stone objects representing cattle are rare in Anatolia is notable since stone was utilised more as a construction material in Anatolia than in Mesopotamia, likely due to the increased amounts of the material in that region (Croucher and Belcher 2017). In Mesopotamia, stone items are still far and few between, possibly due to the amount of time and the artisans needed to produce such items. The use of stone for

monumental objects, as well as smaller items, as Pollock (1999: 181) argues, “can be understood as a desire for permanence, especially in contrast to the predominant use of less durable materials such as clay.” The use of stone in the production of items can be attributed to perspectives and qualities that modern people may not fully understand since different construction material may hold a variety of meanings, see section 2.4.2.

According to Boivin (2004: 5), “[T]he personification of earth as female” contrasts with that of stone being associated with males. The assertion that stone is commonly associated with males cannot be universal. One would expect that since males are associated with stone and also associated with cattle and bulls, at least in these regions, one would expect to find more stone items representing the animal; however, this is not the case.

Interestingly, many of the stone objects from the sites selected are related to areas such as religious or ritualistic/burial contexts, which may give us some information regarding ritual practices and the implementation of cattle. Since this category is so sparse, one may ask why this would even be considered a category; however, there are enough items to constitute such a grouping, and by including this separate group, one is able to see that cattle were implemented in many forms as well as in many materials. This information allows us to comprehend just how important the animal was to include items crafted from stone within the artistic traditions of the cultural regions.

2.4.7. Clay Objects

Of the object groups included in this review, clay objects are one of the smallest groups. Although pottery, in general, is widespread in Anatolia and Mesopotamia, pottery depicting male and female cattle or pottery displaying designs relating to the animals, such as bucrania and crescent forms, is lacking compared to other more abstract designs. As mentioned in the previous section, clay and the earth more generally became symbols of fertility and women due to the material’s life-giving qualities (Boivin 2008: 41; Boivin 2004). Two questions may be addressed in light of clay being associated with females, the

first being if clay relates to females, could that indicate that clay cattle representations, when not explicitly male, could be described as being female? And second, does a lack of clay cattle representations indicate a lack of feminine iconographic importance? By addressing these questions, we may get an indication of the ideological importance and meaning of cows. It should also be said that in Southwestern Asia, people exploited different clays to make different objects; thus, tablets would be crafted from a different clay than pottery or figurines, and by exploring varying clay compositions, we can discover the geographic origins of objects, which can provide information into regional and interregional trade connections; however, this is beyond the scope of the current project (Forouzan *et al.* 2012).

The most common form of pottery representing cattle, at least in the region of Anatolia, comes in the form of the clay rhytons. Rhytons are conical-shaped vessels used for drinking and are, at times, associated with ritual or prestigious living conditions (Canby 1989; Greaves and Helwing 2003). Even though many consider the rhyton to be a distinctly Grecian vessel form, they are found at many sites throughout Anatolia, as well as in Mesopotamia (Koşay 1973; Manuelli *et al.* 2013). Other than rhytons, representations of cattle associated with pottery production include animal heads implemented as handles, as well as decorations representing cranial forms. It is interesting to note that much of the decoration or iconography relating to cattle found in the production of pottery relates to the cranial forms of the animal (Koşay 1973; Manuelli 2013; Matney and Algaze 1995). Since this cranial element is the most distinguishing characteristic of the animal, it is no wonder that the form is seen in examples of pottery found throughout the three cultural regions included in this project. By inspecting clay objects relating to or representing cattle, we can understand how these societies portrayed the animal and why they chose one particular aspect of design over another.

2.4.8. Other and Unusual Objects

The final category of objects considered in this project are those objects that could not be fitted to one of the five material categories above. Examples of items selected for this category include images and statues of cattle and other unusual items such as musical instruments. As explained in the section on pendants and jewellery, the crescent form connects cattle, humans, and certain deities; hence, there will also be some overlap within this category. Horned gods and goddesses are found in all the cultural spheres within this project and represent power, fertility, and regeneration, all of which are associated too with cattle (Arbuckle 2014; Snell 2011; Velten 2007; Green 2003). Thus, it is important to include other forms of material and iconography in this project to determine the role of cattle on religion and religious practices as well as in more secular conditions and how these changed and developed in the regions of Anatolia and Mesopotamia. These more unusual objects are chiefly found within the Northern and Southern Mesopotamian cultural regions and include a variety of forms. This category was chosen so that the items not relating to the aforementioned categories can be scrutinised and discussed based on their own merits.

Each of the previously discussed material culture categories can provide valuable insight into the interrelationships between humans and cattle within the proposed period. By examining not only the iconography but also the context and materials of construction, as well as attributes associated with them, we may better understand why such material was chosen to create these items and in what particular context and, hence, what social groups came to relate to cattle. Cattle, in many areas of Southwest Asia and the Mediterranean, came to be associated with religion and ritual practices, and this project will examine what specific attributes or associations with the animal relate to particular social practices, such as religion, economics, burial customs and rituals, and social differentiation (Bachhuber 2015; Arbuckle 2014; McInerney 2010; Collins 2002; Scurlock

2002). Each data set was chosen to produce a record, which would include social groups of varying class status, as well as multiple human practices, such as religion, economics, and everyday living. The grouping of seals and impressions represents social, economic, and administrative activities and can inform upon iconographic parallels in terms of deity associations and what sectors of society were associated with them. As for the collection of clay animal figurines, they likely represent secular society and individuals or possibly the actions of small social groups and can highlight what specific aspects of cattle were deemed important by examining the more detailed elements of figures. We may also become aware of possible personal relationships with the animals since, as stated above, it is unlikely they represent religious activities. The category of pendants and jewellery represents highly personal items relating to individual and social identity and perhaps public office, which will provide information on varying social status and associations with cattle. The stone objects likely represent a need or desire for permanence in an ever-changing world. This research will also investigate whether male cattle were represented more frequently in stone and female cattle in clay as suggested more widely by Boivin (2008). Clay was implemented for more public or everyday items, and due to the material association with females, and hence, cows, objects made of clay may inform upon the significance and ideological importance of cows.

2.5. Selection of Archaeozoological Evidence

The study of faunal remains from Early Bronze Age settlements in Anatolia and Mesopotamia is a relatively new development in archaeological investigation. However, animal bones make up one of the largest groups of material unearthed from many sites, which reveal information on not only the economies and subsistence patterns of specific sites, but also on what species of animals were kept and how these animals were utilised at such sites (Greenfield 2002; Manuelli *et al.* 2013). A number of questions can be answered through the investigation of faunal assemblages, such as population size, meat

consumption and preference, changes in trade patterns, and secondary animal usage, for example, tools made from bones (Hambleton 1999; Greenfield 2010; Hastorf 2017; Zeder 1991). In terms of species identification, it takes experience to know and correctly identify taxonomic attributes based on morphological features, which is needed to properly distinguish between taurus and zebu cattle species, see section 2.5.3 (Reitz and Wing 2010). Another important factor to consider is the sex and age-at-death of an animal. The sex of an animal can be identified through sexual dimorphism, pelvic analysis, and horncore analysis, see section 2.5.3 (Reitz and Wing 2010; Klein and Cruz-Uribe 1984). The age-at-death of an animal can be determined through epiphyseal fusion, tooth wear patterns, and tooth eruption sequences, see section 2.5.2 (Reitz and Wing 2010). Interestingly, the presence of bovine stock at archaeological sites has been interpreted as signs of more intensive agricultural production as well as an indicator of population concentration and a certain degree of independence from neighbouring settlements (Howell-Meurs 2001; Manuelli *et al.* 2013). One problem that does occur when researching animal populations is that bone assemblages do not necessarily consist of complete specimens; most assemblages are compiled of individual bones, which makes it more difficult to arrive at dependable conclusions (Klein and Cruz-Uribe 1984). However, by comparing these animal remains with the material culture of the settlements, we are better able to draw conclusions that are more reliable as to the relationship between humans and cattle in such contexts. This section discusses the amounts and limitations of the material, investigations into the use of cattle in Early Bronze Age contexts, as well as the use of sexing and identification of cattle species.

2.5.1. Amount of Material and Limitations of the Material

At most archaeological sites considered in this work, the majority of faunal material derives from sheep and goats with cattle usually coming in as the third most represented domesticated in terms of the number of identified specimens, or NISP

(Greenfield 2002: 257; Hopkins 2003; Sagona *et al.* 1997: 192). However, by weight, cattle take precedence over the other species at sites like Sos Höyük (Hopkins 2003; Sagona *et al.* 1997). Depending on the date of excavation, the faunal assemblages of particular sites from earlier archaeological investigations can be quite small in comparison to recently excavated sites, which take into account most of the unearthened remains as opposed to only a select few; such is the case at the sites of Ur and Alaca Höyük. Some sites, such as Sos Höyük in north-eastern Anatolia, have large and skillfully studied faunal assemblages while others, such as Ur in Southern Mesopotamia, do not. Therefore, the amount of identifiable material varies greatly, depending on the excavation techniques and environmental conditions of the sites.

There are two ways of determining which species of animals are present at a site as well as the amounts of these species. The first is to examine the number of identified specimens from a site: NISP, and the second is to study the minimum number of individuals: MNI (Klein and Cruz-Urbe 1984; Lyman 2001; Martin 1994; Reitz and Wing 2010). MNI relates to the number of identifiable elements in an animal and is typically calculated by the most commonly occurring skeletal element of a taxon within that collection (Reitz and Wing 2010; Lyman 2008). Unlike NISP, MNI is usually not affected by skeletal fragmentation, however, MNI is difficult to calculate and needs to be re-calculated with each additional set of data (Lyman 2008). The method of MNI can underestimate the abundance of one taxon while overestimating others and can also accurately determine the abundance of others. Both methods are discounted by some and championed by others; however, due to the relative ease of calculation, NISP will be the main method of assessment for this project. This method allows us to examine the total number of animal bones from the faunal assemblages to determine a possible population size, which will then be compared to the other sites within this project. NISP is the fundamental way in which faunal assemblages are quantified, and applied in this research,

with specimens identified to at least the taxonomic family (Lyman 2008: 27). Using the NISP to study faunal assemblages is also the more common of the two methods and is applied to the majority of the sites under investigation, which results in easier investigation of cattle remains. Moreover, NISP values are additive, which allows for the easy addition of specimens without having to recalculate the entire collection of remains. There are, however, a few problems with using the NISP from archaeological sites. The principal flaw is that using the NISP can exaggerate the abundance of species, which means that it can overemphasize the importance of one species over another, even if the second species had a larger living population (Klein and Cruz-Urbe 1984; Martin 1994). Factors affecting species abundance include fragmentation of specimens, butchery patterns, taphonomic deposition, the survival rate of skeletal elements of a species, and the fact that not all species have the same number of bones and teeth, and according to Lyman, NISP can be a poor measure of a community's diet (Lyman 2008: 30; Reitz and Wing 2010). As with the MNI method, NISP is greatly affected by recovery techniques and laboratory procedures. Recovery techniques, which can greatly skew faunal representation, are the collection of specimens by eye and the lack of sieving; such techniques will highly favour larger remains like cattle while totally excluding smaller animals such as fish, which can alter not only species diversity but also species abundance (O'Connor 2012; Lyman 2008). Another problem likely to occur is an age or sex bias when inspecting cattle remains. Age profiles may not include young animals due to the lack of durability of smaller or younger bones. And according to Klein and Cruz-Urbe, "[S]ex ratios will generally be against females since in most species the best parts for sexing are more durable in males" (1984: 85). Because of these biases, it will be more difficult to determine young or female individuals for further comparison. However, by implementing the NISP, we are able to obtain the best image possible for animal use at the selected sites within Bronze Age contexts.

2.5.2. Determining the Use of the Animal

Determining the use of cattle at sites within the regions of Anatolia and Mesopotamia allows us to not only explore animal husbandry practices during the Early Bronze Age but to reveal the purposes of cattle in terms of primary and secondary products. By investigating the exploitation of the animal, one can establish their role and significance in the economies of these sites. Verifying the age of animals, i.e. kill-off patterns, illustrates animal use as well by determining the proportions of cattle that were kept for breeding or for secondary product development (Hambleton 1999; Nicholson 1991; Sagona *et al.* 1997; Thomas 2005). As stated above, the three most effective methods of determining the age of an animal are through epiphyseal fusion, tooth wear, and tooth eruption sequences. Epiphyseal fusion points are areas in juvenile mammal bones where the bones grow and ossify with age, and if an animal dies or is culled prior to maturity, these fusion points will be larger and more pronounced while in mature animals, such points will be closed due to the completion of the animal's bone growth (O'Connor 2012: 92). Unlike epiphyses, teeth are a better indicator of age and species identification, as they grow and change continuously throughout the life of an animal and are unique to each species (Reitz and Wing 2010; Klein and Cruz-Urbe 1984). By identifying tooth wear stages, one can correctly identify the age range of an animal. Unfortunately, tooth identification, as well as bone metric studies, will not be included within this research because it is outside the remit of the project. Some sites show patterns of large amounts of culling at the juvenile stage of animal development, indicating intensive meat consumption, while others hold more mature populations, signifying an increased use of secondary products, including traction, dung, milk, yoghurt, ghee-clarified butter, and cheese (Pollock and Bernbeck 2005; Potts 1997; Velten 2007). Most of the secondary products relating to cattle derive from the female of the species while young adult and mature male cattle were mostly kept for breeding and labour purposes. In terms of

secondary animal products, it appears that female cattle are far more influential than male cattle in this respect. The secondary products relating to cattle, other than traction, typically involve milk and milk products (McCormick 2012; Greenfield 2010; Zeder 1991). Additionally, milk and milk products were implemented in religious and ceremonial activities (Kawami 2014; McCormick 2012).

There are two categories of secondary products associated with cattle, the first being those products coming from living animals and the second comprised of products derived from the animals' remains, such as leather, horn, and bone. Though this research has been unable to locate much on the use of leather in Early Bronze Age sites, it has been established that the product was employed for a number of purposes (Rice 1998; Rimas and Fraser 2008). The trend of fashioning cattle bones into tools is also well documented. Due to the size of the animals, bone was worked into a number of tools, including blades and cooking instruments (Manuelli *et al.* 2013; Hopkins 2003). Compared to other domesticates, there were larger populations of adult and mature cattle at several sites within the area examined. This is demonstrated by the presence of osteoarthritis in larger proportions of cattle compared to populations of sheep, goat, and other domesticates (Hopkins 2003; Nicholson 1991). Osteoarthritis is typically observed in the metapodials; however, it is not always an exact indicator of age and may represent intensification of an animal's use or a marked increase in the weight of that animal (O'Connor 2012: 100). Due to increased age levels of cattle populations compared to other domesticated species, one may infer that this particular species held more import and a greater diversity of use for human populations than smaller species like sheep and goat.

2.5.3. Sexing and Identification of Species/Sub-Species of Cattle Populations

Another factor when investigating cattle remains throughout the three cultural regions of this project is determining the sex of the cattle populations and the percentages of male and female animal stock. By inspecting the relative proportions of male to female

bovine stock, we improve our overall comprehension of how cattle were employed at these archaeological sites (Howell-Meurs 2001; Klein and Cruz-Urbe 1984). Comparing male and female cattle proportions can tell us how these animals were economically implemented. For example, if adult male, or castrated male, specimens were more dominant, that may indicate that crop production was the primary use for the animal at a site while if there is a greater proportion of female specimens, it might signify increased importance on secondary products (Greenfield 2010; Russell 1988; Roberts 2017). The primary aspect examined when separating the male and female of the species is the relative size of the animal remains, with male cattle having larger bones than female cattle (Klein and Cruz-Urbe 1984: 40; Reitz and Wing 2010: 79). This sexual dimorphism is the most common technique in sexing any faunal population. Other techniques include inspecting the forms of pelvic and cranial remains as well as metacarpus since they are short and slender in cows while being short and broad in bulls; interestingly, castrated bulls can also be identified through metacarpus since theirs are long and slender (Reitz and Wing 2010: 201; Klein and Cruz-Urbe 1984). Observing the sex of an animal can help us ascertain how the animal was used; we can also establish if one sex was preferred over another in terms of meat and butchery practices, as well as which sex was favoured in terms of ritual and religious practices. By determining the preference from site to site and region to region, we will be able to realize the role of each sex in Early Bronze Age populations. The main problem with establishing the sex of an animal is that many of the faunal assemblages from the sites within this project are very fragmented, making it difficult to determine both the age and sex of an animal. The one aspect of identifying sex that cannot reliably be resolved is the ratios of male and female cattle at sites, due to the lack of data available (Klein and Cruz-Urbe 1984). Since female populations of cattle have been largely overlooked by archaeologists in the past, due to the bull having a more important role in the religions and cultures of Anatolia and Mesopotamia, it is important to include

female cattle in this review. By doing so, I can determine if cows actually had a smaller role in each region or if this is due to more selective research practices.

Aside from studying the sex of these Early Bronze Age bovine populations, I also examine the species of the cattle samples concerned with this research. In Southwest Asia, the main species of cattle found throughout the region is the taurine, *Bos taurus*, or the Afro-European species; a straight back, a flat broad face, and forward-facing horns characterize this species (Grigson 1991). They are easily adaptable and can tolerate both cold and warmer climates (Arbuckle 2012; Velten 2007). The second species found in areas of Mesopotamia and Anatolia, usually found in later Bronze Age levels, is the zebu, *Bos indicus*, or the Indian species of cattle. This species, which was initially considered a sub-species or *Bos taurus* but has since been identified as a separate species, is characterized by its signature humped back, large and heavy dewlap, and upward-orientated horns; they can easily tolerate hot and dry climates and are well adapted for the landscapes of Southwest Asia, see sections 1.6 and 2.3 (Arbuckle 2012; Grigson 1991; Mukasa-Mugerwa 1989; Beja-Pereira *et al.* 2006; Machugh *et al.* 1997; Chen *et al.* 2010). Although the two species of cattle seem to be separated by the vast Iranian desert, there are many instances of the zebu breed appearing throughout Southwest Asia, though there is hardly any evidence dating to the Early Bronze Age (Matthews 2002; Potts 1997).

By identifying these two breeds in archaeological faunal assemblages and through the material culture in the forms of bones and artistic representations, we can better determine how each species was employed within Anatolia and Mesopotamia and how the cultural regions compare to one another. The relative size of faunal remains, or sexual dimorphism, as previously stated, is one of the best methods of determining animal use. The age of the animal is also another point to consider; this will determine kill-off patterns and animal use relative to each sex. The remains of the two species can be distinguished by the horn orientation; *Bos indicus* also have larger horncores. The orbital rim in zebu cattle

is usually flat throughout the life of the animal while the orbital rim in taurine cattle is flat as a juvenile and becomes sharper as the animal ages. Because of this, the presence of a flat orbital rim in a mature animal indicates that the specimen is likely a zebu. The skulls of the animals are also different with the taurine having a wider skull than the zebu. Postcranial differentiation is more difficult. Zebu have longer legs and narrower bodies. The thoracic vertebrae also have a distinctive bifid spinous process, which is presumed to be support for the animal's hump (Grigson 1991; Grigson 1980). Although it is quite difficult to determine one species from the other, in terms of faunal remains, the main approach I will be using for this project will be to separate these two species through representations of the animals in material culture, with the most distinguishable *Bos indicus* feature being the animal's characteristic humped back (Arbuckle 2012). By investigating where zebu representations occur and in what respects they occur, one can establish where populations of this species were found and possibly determine how they were integrated into the culture there. With the *Bos taurus* species being the more utilised of the two, it will be interesting to investigate the *Bos indicus* species and determine their importance and prevalence from region to region.

2.6. Analysis and Interpretations of the Data

Determining an analysis and interpretation to examine the data collected for this project has been rather challenging. Since there has been no previous comprehensive review detailing the interrelationships between humans and cattle in the Early Bronze Age, most of the methodology has been developed from the separate studies of faunal remains and the artistic and material culture from the selected cultural regions. In the past, work has focused on examining the material and architecture of sites, at times paying little or no attention to the animal remains; however, this has changed greatly in the past few decades (Nicholson 1991). Currently, archaeologists are examining and comparing all types of material from sites, which has allowed for a more complete comprehension of the past than

ever before. The value of a contextual approach to material culture and faunal remains cannot be overstated. The particular context of an object, or collection of objects or specimens, can add to not only the interpretation of an item but to its perceived value within a society, see section 2.1. Objects play an influential and crucial function to both modern and ancient society and can “act” upon our understanding of the world (Robb 2010). Therefore, by investigating the context of an item, the material from which it was crafted, as well as possible social identities associated with it, we gain an improved insight into the value and role of particular objects and representations. This section examines the methods of comparison implemented in the examination of material culture, as well as from archaeozoological work, to develop a method of analysis for the current project. In addition to methods of analysis, this section details how the data is collected and which dating techniques are employed, in addition to possible limitations and problems that are likely to occur within this project.

2.6.1. Comparative Analysis of Material Culture and Faunal Remains

Within the seven sites considered for this project, similarities in construction, representation, and artistic style in the selected items can be used to determine links to other sites within each region, as well as similarities between regions. This comparison will be examined to investigate whether there were any interregional interactions and establish how male and female cattle are represented as a whole throughout Anatolia and Mesopotamia, at least artistically. In many cases, the material culture does not show the whole animal. Much of the objects representing the animal are found in the form of the animal’s head, bucrania, and, in more abstract designs, only the crescent form is found (Loughlin 2000; Velten 2007). By investigating the size, quality, form, and the material of its construction, i.e. clay, bronze, stone, or gold, we can establish if items representing cattle were more highly valued than those representing other animals and determine which sex is related to finer quality items. This analysis will allow us to consider the hierarchical

status of the item within the society of a site or region.

Data Types Collected From Each Site							
	Alaca Höyük	Titriş Höyük	Sos Höyük	Tell Beydar	Tell Brak	Abu Salabikh	Ur
Site Information							
Date/period of initial settlement	Chalcolithic	2700 BC	4000 BC	2800 BC	Neolithic	Chalcolithic	5900 BC
Location	Anatolia	Anatolia	Anatolia	N. Mesopotamia	N. Mesopotamia	S. Mesopotamia	S. Mesopotamia
Site type	Large urban	Small urban	Small urban/village	Small urban	Large urban	Small urban	Large urban
Faunal Remains							
NISP General	411	6239	1471	11815	11576	3048	3 (MNI)
NISP Cattle	962	1532	1006	693	298	123	12 (MNI)
Material Culture							
Seals & Impressions	0	0	0	19	33	6	95
Clay Bovine Figurines	11	0	7	7	3	5	0
Pendants & Jewellery	0	0	0	1	19	2	20
Stone Objects	0	1	0	1	4	0	3
Clay Objects	3	2	0	0	3	1	0
Other Objects	9	0	0	3	1	1	31

Table 2.3: Data collection types, including numbers of faunal material and material culture for the selected sites

Considering the faunal assemblages, we search for cattle remains at a particular site to collect the NISP and MNI, where available. After the collection of this data, the amounts from each site are added to determine the overall number of cattle remains for each specified cultural region. By adding the site and regional NISPs, I can better comprehend the relative importance of the animal on site-wide, regional, and interregional levels and compare with the material culture to establish if the animal had a larger role and impact on either the economic or ideological sectors of society, or if the roles and impacts were similar in both categories. This number will allow the overall exploitation of the animal for each region to be compared to other domesticated remains. By examining such numbers, one can deduce the purpose for keeping the animals. After this information is calculated for each cultural region, I can then compare it to the results from the material culture investigation, which will shed some new light on the question of why this animal was more highly valued, in terms of economics, religion, and subsistence, than other domesticates in the Early Bronze Age of Southwestern Asia. There are multiple forms of data collected for each site, which include occupation dates, site locations, NISPs of general faunal assemblages and cattle assemblages, and six categories of material culture to examine, table 2.3. This table includes the data types, which were collected for the seven selected archaeological sites as well as the total numbers of faunal remains and material culture

within the six categories, which will be discussed below.

2.6.2. Collection of the Data

The data for this project comes from the seven selected sites within the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia and are documented and categorised using Microsoft Excel software. Depending on the site, some collections of material representing cattle will be small or consist of similar items such as baked clay figurines. The items from each site are separated into six categories consisting of seals and impressions, clay bovine figurines, pendants and jewellery, stone objects, clay objects, and other or unusual objects. From these categories, I will investigate the number of items within each group, establishing which items are more common and in which way they represent or relate to cattle. The material culture objects are identified and classified based on representations and material of construction. The vast majority of these items show obvious features of cattle, such as the head and horns, and in cases where identification may not be as apparent, such as in clay representations, these items are identified based on cranial form and by comparing the questionable item to positively identified ones. Although it is difficult to determine the sex of an item, due to the facts as both sexes can have horns and obvious sexual identifiers are rarely displayed, there are cases where the sex of an item can be identified. One such example of possible sexual identification is the addition of a beard to the representation of an animal, such as those found at the sites of Tell Brak and Ur; however, this may also be an element that relates the animal to kingship or power. The information on identification is collected mainly from site reports or publications relating to objects unearthed from each particular site (Koşay 1973; Sagona *et al.* 1995).

The faunal remains from each site come from published faunal assemblage reports that show the relative number of species and specimens found, and in some cases, the location of the bones within the site (Greenfield 2002; Howell-Meurs 2001; Hopkins

2003). The main species collected are cattle, sheep, goat, sheep/goat, and pig. There are also the categories of wild species and other species, which include other domesticated animals and specimens identified to the level of large, medium, or small mammal. At sites with no published reports on animal bones, the information comes from site reports and supplementary work on animals within each region (Matney and Algaze 1995). The data collected regarding faunal remains are then compiled in a table showing the NISP and MNI for each site, when available, and a calculated site percentage to show the relative proportions of a species at a site/region. Each set of data, material culture and faunal remains, are recorded in tables for comparison and to show the overall numbers and percentages of objects/specimens from a site, table 2.4. This will allow for a better comparison of material culture and faunal assemblages.

2.6.3. Use of Dating for Material and Faunal Assemblages

Sample charts of material collected from each archeological site								
Taxon	Faunal Remains			Object Groups	Material culture			
	NISP	MNI	Percentages%		Site Number	Site Percentage	Group Total	Group Percentage
<i>Bos taurus</i>				Seals & Impressions				
<i>Capra/Ovis</i>				Clay Bovine Figurines				
<i>Capra hircus</i>				Pendants & Jewellery				
<i>Ovis aries</i>				Stone Objects				
<i>Sus scrofa</i>				Clay Objects				
<i>Wild taxa</i>				Other				
<i>Other</i>								
Site Total				Site Total				

Table 2.4: Sample chart for site data collection and calculation

Dating the material and faunal remains from the selected sites permit us to see the period when a particular object was in use, which provides valuable information as to the relative importance of a particular form or animal species through time. Since this project focuses on a single period, the Early Bronze Age, all of the material investigated comes from those levels of occupation at each site. In the case of the faunal assemblages, the dates are taken from site and faunal reports. In the case of the material remains from sites

within Anatolia and Mesopotamia, most of the dates come from the site reports of these settlements. The site reports usually provide accurate dating for objects; however, where this is unavailable, dates will be determined by a stylistic attribute analysis (Plog 1983). A stylistic attribute analysis examines the design characteristics and form of a particular item for comparison with stylistically similar items of a known date from other sites. This practice is also quite similar to the method of cross-dating, whereby object traits are compared to ascertain a possible date or period for a certain object (Blackman 1998; Michels 1972; Plog 1983). Since most of the dates for the artefacts concerned with this project have been verified and widely accepted, there may be no need to employ further dating methodology. However, in the case of an item unearthed at a level where it does not seem to belong, the method of stylistic attribute analysis will be implemented to determine a possible date or period for the item.

2.6.4. Possible Limitations and Problems

The problems and limitations likely to occur come in the form of bias, dating problems, methodological discrepancies and flaws, and the documentation of certain items or sets of items. The main problems that are likely to occur in many cases of faunal assemblages, as well as in the case of material assemblages, are bias and excavation techniques. A particular bias may develop from the person or persons collecting and recording the data, which may lead to a stilted result that could potentially corrupt the overall nature of the assemblage (Glock 1985; Loughlin 2000). As discussed in section 2.5.1, recovery techniques can also be a problem in that they can drastically affect specimen abundance; additionally, recovery/excavation techniques can also affect material culture in what areas of a site are chosen for excavation in comparison to others (O'Connor 2012; Lyman 2008). There may also be a problem when dating certain items from past excavations as well as animal remains from sites due to post-depositional movement or later adaptive use (McGauran 2014). This problem in dating may result in the inaccurate

inclusion of objects that will corrupt the data set of this project to a certain extent. In the investigation of faunal assemblages, the one dilemma likely to occur is inaccuracies in the use of NISP since this method can exaggerate the abundance of one particular species over another, which may hinder the levels of domestic animal use at these sites (Klein and Cruz-Urbe 1984; Martin 1994). Other limitations include the availability of and access to data, misidentification of particular items, and lack of positively identified contexts (Robb 2017; Forouzan *et al.* 2012; Winter 2007). The problem, which is most likely to occur, is the misidentification of items, especially those items within the clay objects, stone objects, and other object categories. These categories are made up of a variety of items, which include pottery fragments, dishes, statues, instruments, and items, which were once ornamentation to larger objects. One set of items, stone lamps from Ur, were initially identified as lamps based on their form; however, it has also been suggested that they may have in fact been pouring vessels or dippers/ladles (Winter 1999). The category of clay figurines may also hold some problems. Due to their simple form and non-systematic deposition, it may be difficult to positively identify clay figurines as positive representations of cattle (Campbell and Daems 2017; Croucher and Belcher 2017). With the possible limitations of the material briefly discussed here, we are able to determine where these problems lie, which will allow for caution when investigating these areas.

Chapter Three

Cattle in Southwest Asia: Anatolia Culture Region

3.1. Introduction

This chapter will focus on the region of Anatolia and will investigate three selected archaeological sites to examine the Early Bronze Age faunal remains and material culture within these particular communities for later discussion. The sites investigated include the following: Titriş Höyük, Sos Höyük, and Alaca Höyük. In exploring these sites, I examine the faunal remains of each selected settlement, paying particular attention to cattle remains, as well as the material culture involving or depicting cattle. To allow for a fuller orientation, the sites selected will be discussed in terms of their geographical location, starting in the west with the site of Alaca Höyük, then to Titriş Höyük in the south, and ending with the site of Sos Höyük in the eastern portion of this vast region, figure 3.1. Although all of the sites here mention deposits of faunal remains, the reports on Alaca Höyük do not go into much detail regarding faunal remains found or the percentages thereof; there is only a small section of one report that discusses the site's animal remains. However, Alaca has produced a very impressive collection of artefacts representing cattle and most notably bulls, as well as a few cattle remains from the site's burials, which are similar to the cattle remains from burials at Ur. The sites of Sos Höyük and Titriş Höyük do have specific faunal reports concerning the amounts and percentages as well as the find spots for some of the faunal remains, which is of great help to this project, even though the material culture relating to cattle from the two sites is less impressive.

By addressing the questions set out at the beginning of the project, see section 1.2, this review will investigate the interrelationships between humans and cattle in the Early Bronze Age period, specific to each respective site. Interestingly, Anatolia is also where we see some of the earliest evidence of milk exploitation dating back to the Neolithic

Period (Cakirlar 2012; Evershed *et al.* 2008). In addition to the criterion for site selection, section 2.3.2., the sites from Anatolia were selected to be of considerable distance from one another to verify if material culture throughout Anatolia was related in terms of constructive style, as it is throughout Mesopotamia, or if the style of construction was different depending upon the site location. It is important to examine the region of Anatolia since this region has such close ties to Mesopotamia and, due to its central location, has been influenced by many cultures. Each section will begin with a short description of the site, including its location and the findings relevant to this project, as well descriptions of the material culture and faunal remains from the site, and at the end of this review, compare and contrast the results to determine these interrelationships in Early Bronze Age Anatolia.

3.2. The Site of Alaca Höyük

The site of Alaca Höyük is located in the Çorum province in north-central Turkey. Although the site initially dates to the Chalcolithic, much of the archaeology pertains to the Bronze Age period. The site has produced remains representing many periods from the Hittite and Phrygian to Roman and Byzantine, which shows that the site has hosted human populations for approximately four thousand years (Muscarella 2003). As discussed in chapter two, I will briefly discuss the modern landscape to gain a better understanding of the area around the site. Knowing that the modern environment is likely different from the paleoenvironment, this survey will give a general assessment of the landscape so the reader can better appreciate the geography of the immediate area. The survey area is separated into two sections beginning with 5km and followed by 10km radii; figure 3.2. Within the 5 km area, much of the landscape is relatively flat with a few areas of higher elevation directly to the west. The modern landscape around the site is covered with small agricultural and pastoral fields, and there is a small river to the southeast of the main mound. Most of the modern landscape is deforested with a small forested area to the

northwest of the site. The landscape within the larger 10 km radius is slightly more varied. Most of the land is still flat agricultural and pastoral fields; however, to the west and south, it is more elevated with a larger proportion of natural vegetation. To the northeast, there is a large forested area leading to more mountainous terrain to the north. Looking to the south and east, interspersed with agricultural fields, there are a series of small wadis as well as a few small creeks.

The natural vegetation in this region consists of mixed broad-leaved and needle-leaved species, which are resistant to cold (Sagona and Zimansky 2009: 6). Because of the topography and, from a modern standpoint, the relative fertility of the area within the 5 km and 10 km radii, it may be suggested that the countryside surrounding Alaca Höyük was suitable for sustaining the population of the settlement as well as sizable populations of domesticated stock such as cattle. Research on the landscape and weather patterns conducted by Wilkinson (2003: 18) suggests that the site is located within a zone that regularly receives between 400 and 600 mm of rainfall per annum, which indicates that Alaca relied on rain-fed cereal production compared to the irrigation methods employed in other areas within this same Early Bronze Age period. Also, according to Wilkinson (2003: 17, 27), Anatolia received much of their annual rainfall in the winter months, and the majority of central Anatolia was heavily forested at in the past. Since rainfall was in the colder months and the landscape was likely to have been forested, along with the lack of irrigation, this may suggest that the site may have relied more heavily on sheep, goat, and cattle stock than cereal crop production.

3.2.1. Material Culture

Alaca Höyük is also known for a massive collection of burial objects, somewhere around seven hundred items in total, which come from the well-known “Royal Tombs” (Sagona and Zimansky 2009; Düring 2011). The tombs contained quite large quantities of metal objects made from silver, iron, copper alloy, electrum, and gold (Muscarella 2003;

Mellink 1956; Bachhuber 2015). These objects include personal adornments, ceremonial standards, sun discs, and various metal vessels; the entire collection is one of the most fascinating Early Bronze Age collections in Anatolia (Çelik 2013). These royal burials illustrate that this site was an important, possibly religious, centre in the Early Bronze Age period and is well worth consideration within this research. The significance of these tombs is that they verify the presence of a major polity that was able to control and organise the population to such an extent, and amass wealth which made such rich burials within the region possible during this period (Muscarella 2003). The area where these tombs were found is located in the southeastern corner of the site between two temple/palace complexes and lies just northwest of the site's famous Sphinx Gate, all of which are from a later date than the burials, figure 3.3.

Alaca is a very impressive site and is one of the first prehistoric Turkish sites to gain archaeological attention as well as one of the earliest excavated sites in the Anatolian region, with the first major excavations being carried out in the early twentieth century (Bachhuber 2015; Muscarella 2003; Düring 2011). Even with all the early attention paid to Alaca Höyük, there is still much we do not know regarding the site within Early Bronze Age contexts, which is the result of the initial excavation practices (Düring 2011: 258). Due to the fact that the Early Bronze Age levels of the site were the first to be investigated since this is where we find the rich burials that made the site so famous, not much is known about the remainder of the settlement for this period. It seems the entire focus of the first excavations headed by Arik and Koşay in the 1930s was to unearth and catalogue what they termed the royal burials, largely ignoring the remainder of the site. Because of this shift in focus, we do not get much information on what else was unearthed, including animal remains, from non-tomb contexts. The site was also a major Hittite centre, and much of the stonework remaining, such as the architecture previously mentioned, comes from the Hittite period (Canby 1989). Alaca Höyük has a sizable quantity of material

culture relating to cattle; however, not much was found or published regarding the faunal assemblage. The only discernible documentation of faunal remains comes from the animals discovered within the cemetery; fortunately, for this project, much of the animal remains come from cattle.

3.2.1.1. Clay Bovine Figurines

The Early Bronze Age material culture found at Alaca Höyük depicting or relating to cattle is impressive. Most items are made of baked clay or metal, such as what was found in the Royal Tombs. To start, I will examine a series of baked clay bovine figurines unearthed at the site, Figures 3.4-3.10. Unfortunately, the locations of these objects are undocumented; however, one can safely assume that they were unearthed on the main mound itself. The first example, figure 3.4, shows a baked clay knob in the form of a bovine head. This fragment was once a portion of a lid to a container and displays a set of hollowed eyes with the end of the nose broken off. The second fragment, figure 3.5, is also made of baked clay and was once most likely part of a vessel as well. The eyes of the animal are in relief with a roughly formed nose. The fragment as a whole is in relatively good condition with only one horn broken off. Additionally, figure 3.6 displays a portion of a baked clay bovine figurine. Compared to the previous two examples, this figurine fragment is roughly fashioned. One of the ears, the front legs, and the back half of the body have been broken over time. Figure 3.7 displays a series of black/grey coloured baked clay animal figurines discovered at the site. To discuss these figurines, I will begin with figure 3.7.1, figure j190 in the image. This image shows a bovine figurine with the legs and horns broken off. Figure 3.7.2, j149, is an animal figurine, most likely a bovine, missing its head. This figurine is quite close in form to the other examples, which leads one to argue that it too depicts a bovine. Figure 3.7.3, j196, the largest of this series, is missing one of its horns as well as a hind leg and the tail. 3.7.4, j191, is another figurine that is missing the head. Like figure 3.7.2, its basic form is that commonly seen in bovine figurines. 3.7.5, m92,

clearly illustrates a bovine with the legs and horns broken off over time. Figure 3.7.6, k145, shows an animal figurine with the head and tail missing.

Although this figurine does not have the features that clearly define a bovid representation, namely the head, the body is crafted in much the same way as other bovine figurines. 3.7.7, k144, is quite a good example of a small cattle figurine; the only missing portions are from the horns and tail. The final figure, 3.7.8, k146, is very similar in form to the other examples in this series, again missing the head and tail (Koşay and Akok 1966). Moving on to figure 3.8, this piece is described as a fragment of a vessel, perhaps a rhyton, and has a length of 2.8cm. In total, there are three examples of clay vessel fragments that display the heads of cattle, making this the largest collection of such items within this Anatolian collection. According to Gunter, the rhyton form, or vessels in the shape of or displaying properties of specific animals, such as cattle, are usually identified as religious or cult related objects, which along with the ceremonial standards discussed below, corroborates the theory that Alaca was a major religious centre within the Early Bronze Age period (2002: 93). The next item, figure 3.9, is another small baked clay bovine figurine made of a pink or light red coloured clay. This figurine measures some 2.5 cm in length and quite closely resembles the other figurine examples from the site in both size and style. The final item within this grouping, figure 3.10, is another small baked clay figurine, which is approximately 3cm in length. When comparing all examples of clay bovine figurines from the site, we find that they share strikingly similar artistic renderings, which are also quite similar to the clay bovine figurines from the site of Sos Höyük.

3.2.1.2. Standards and Metal Objects

One of the most spectacular discoveries from the Early Bronze Age in Anatolia are the Royal Tombs at Alaca Höyük, which date to the EBA I-II period, ca.2800-2600 BC (Bachhuber 2015: 99). There is a total of thirteen elite burials located on the main mound of the site, which is highly unusual in their construction as well as for the items found

within them, many of which have no parallels elsewhere in Anatolia or the rest of Southwest Asia (Düring 2011: 293; Mellink 1956). Among the more interesting and beautiful items are the so-called animal standards discovered within the tombs, which depict both stags and bulls, as well as open, worked geometric and sun disk designs (Sagona and Zimansky 2009; Muscarella 2003; Düring 2011). These standards are large in size, ranging from 56cm to 23cm in height and were placed in the corners of the tombs facing the deceased (Koşay 1951; Sagona and Zimansky 2009). The standards are cast in tin-bronze or arsenic-copper, and several include details of inlaid silver, gold, and electrum (Bachhuber 2015: 100; Muscarella 2003). Also found within these tombs were eight small ceramic figurines in the form of cattle and the remains of several species of domestic animals, most notably cattle.

Of the standards found within the tombs at Alaca Höyük, eight will be discussed within this section. Seven of the objects come in the form of bulls with large protruding and upward facing horns, and the eighth is a rather unusual standard displaying a stag in the central position, flanked by two smaller bulls, and surrounded by a spiralled arch with a set of abstracted cattle horns on either side, figures 3.11-3.18. All except one of these standards come from seven different tombs; B, C, D, E, H, K, and L and are all constructed of copper with some displaying details in silver and electrum (Koşay 1951; Muscarella 2003). The stags and bulls are differentiated by the formation and orientation of the horns represented. There is also a very unusual dagger from tomb K with an unmistakable crescent form, which will also be scrutinised at the end of this section. To begin, I will discuss figure 3.11; this standard from an undisclosed location, though presumably from the same contexts as the other examples, stands to a height of 9.4 cm and is 14.6 cm in length. The eyes protrude from the face, and the mouth is designated by a slight horizontal slit; the animal has a rather long tail, which surpasses the knees. There are rather deep incisions along the back and neck, which may have held some form of secondary metal

such as electrum, though due to the fact that the object is highly corroded, these secondary ornamentations may have been lost over time.

In comparison to the other bull representations, the horns of this example are largely missing. The orientation of the horns is pointed outward toward the muzzle of the figure, which is the typical orientation of bull horns within this collection, while stag horns/antlers are oriented upward. Figure 3.12 is a standard from tomb B. This unusual standard is constructed from copper-alloy and shows a large stag flanked by twin bulls. The three animals rest beneath a spiralled arch, which leads to a set of abstracted cattle horns at the bottom of the item. This particular standard is fascinating because it shows more than one animal, which is the most typical form found in the collection of standards. Figure 3.13 is an example from tomb C of the most common animal form from the collection and displays a beautifully fabricated bull made of copper-alloy with electrum detailing. The horns of the bull are curved upwards, and the animal's head is flat and elongated with bulging eyes; the overall height of the object is 48 cm. There is a thin strip of electrum draped over the shoulders and front legs of the animal. At the base of the figure is a tang, which was most likely employed to attach the standard to a support or stall probably made of wood. Figure 3.14 is quite similar in form to the last bull standard. It is made of copper with no other ornamentation and also displays a flat, elongated cranium with beautifully rendered ears and mouth. The height of the object is 41 cm. Like the last example, the standard from tomb D has large upward-facing horns. Like all of the standards, this one has a tang at the base of the figure for attachment to another object.

The next standard, figure 3.15, is formed of copper and has small circular inlays around the body made of electrum. The position of the animal is a bit different from the others in that the legs of this example are spread further apart. It is also different in that the detailing is spaced across the cranium, neck, and back of the bull; the overall height of the standard is 35 cm. The head of figure 3.15 is styled much like the others with bulging eyes

and perfectly rendered ears with a rather large set of upward-facing horns. Figure 3.16 is the most striking of the collection and comes from tomb H. The object is the largest, at 56 cm, and displays the most detail. This standard is made of copper and is covered with electrum ornamentation in the form of spirals around the neck and body, to the circular motifs on the front and hind legs. The horns are also tipped in electrum, and there is a triangular insert on the top of the animal's head. The head is broad and flat with bulging eyes and a beautifully detailed mouth.

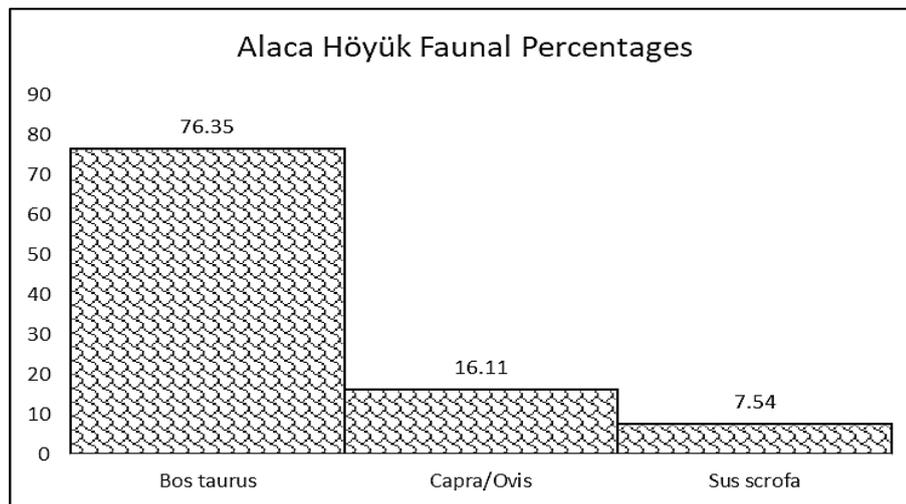
Figure 3.17 is among the smallest of the eight examples; standing only 23 cm and from tomb K, it bears close resemblance to figure 3.14. The animal's legs are much closer together than the previous examples, and it has a more realistically shaped head with quite detailed facial features. This item is made of copper and is the only example of a bull standard with details in silver in the form of a triangular shape on the top of the animal's head. The horns, like the other standards, are long and face upwards, and the tip of the tang is missing. The final animal standard scrutinised here comes from tomb L at Alaca Höyük and stands at a height of 37 centimetres, figure 3.18. The bull is constructed of copper and is rather similar to figure 3.14. What sets this object apart from the others is that the ornamentation on the legs, circular motifs, seems to be imprinted or carved whereas similar ornamentation is produced through the inlay of other metals. The animal has large bulging eyes, a flat broad head, and like the others, long upward-facing horns. One of the more exciting items discovered within these tombs, apart from the standards, is an unusual iron dagger with a crescent-shaped design, figure 3.19. This dagger has an approximate length of 61.5 cm and comes from tomb K. The blade is made of iron, and the hilt once consisted of some sort of hard wood plated with gold (Mellink 1956: 45). The hilt is topped with a triangular shape leading to two crescent-shaped tips oriented toward the blade. This hilt orientation is quite unusual as it does not resemble that of other daggers found at the site and, due to the crescent-shaped tips, does not seem like an ordinary dagger, which leads

one to argue that this item held some other non-utilitarian purpose.

3.2.2. Faunal Remains

<i>Faunal Assemblage from Alaca Höyük</i>			
Taxon	Common Name	NISP	Percentage %
Bos taurus	Cattle	962	76.35
Capra/Ovis	Goat/Sheep	203	16.11
Capra hircus	Goat	0	0
Ovis aries	Sheep	0	0
Sus scrofa	Pig	95	7.54
Wild Taxa	Various	0	N/A
Other	Other	113	N/A
Total		1260	100

Table 3.1: The faunal assemblage from Alaca Höyük (after Koşay 1951)



Graph 3.1: Depiction of faunal assemblage from the site of Alaca Höyük using NISP percentages

This research has yet to discover any detailed reports focusing on the faunal remains for this site. Much of the work for this site is focused on the material culture and those reports that do mention the faunal records only state that subsistence consisted of the basic domesticated species: cattle, sheep, and goat. There is, however, a small section within the report on the 1937-1939 excavation seasons that does give some information on faunal remains from the Early Bronze Age period. This short report does not go into any further detail as to which species were most consumed or if there were any implementation of secondary animal products; we only have the numbers of identified animal remains, table 3.1. In total, there were 2,713 specimens uncovered at the site during these early

seasons, which is quite impressive considering excavations at the time did not place much interest in faunal assemblages. From this number, 1,373 specimens were identified with some certainty. Cattle, *Bos taurus*, construct the largest category of the site's faunal remains with a total NISP of 962, making up 76.35 per cent of the site's total, (graph 3.1). The second largest group is the combined sheep and goat category, *Ovis/Capra*, with an NISP of 203; this is 16.11 per cent of the assemblage. The pig category, *Sus scrofa*, is also intriguing with an NISP of 95, which is 7.54 per cent of the site total. This is the largest collection of *Sus* remains from the three Anatolian sites chosen for this project. The final category of remains is that of other domesticated animals. There is an NISP of 113 for this group; however, the wild taxa and other categories, although represented within the complete faunal assemblage, are not included within the faunal percentages due to a lack of positive species identification.

Aside from this study, there are additional examples of faunal remains in the tombs themselves where we find the remains of sheep, goat, pig, dogs, and cattle (Bachhuber 2015; Düring 2011; Sagona and Zimansky 2009: 216). The faunal remains from the tombs most likely represent the remains of funerary feasting. The majority of animals were found in pairs, and the most notable remains are of cattle; however, the only discernible portions of the animals available were hooves and crania (Bachhuber 2015). Seventy-four bones coming from an estimated twenty-three animals, based on the number of *Bos* skulls, were unearthed from tombs E, F, H, and L. These cattle remains were deposited in pairs, aside from tomb F, which contained five skulls, and placed on the floors, roofs, and even on pedestals within the graves (Bachhuber 2015: 101). Figures 3.20-3.23 show renderings of tombs E, F, H, and L, where we are able to observe the placements of some of these *Bos* crania within the burials. In tomb E, there were three pairs of skulls found on the lower left corner of the tomb's roof. Tomb F shows two sets of skulls on the left side of the tomb proper and a fifth skull located in the centre. The two cattle skulls from tomb H were also

found within the tomb itself in the top central portion of the space. In tomb L, five pairs of skulls were uncovered on the lower left portion of the tomb's roof. The cattle hooves, which account for the majority of the NISP for these tombs, were always located very near to, or even underneath, the animal skulls. The placement of the cattle remains in pairs within the tombs at Alaca Höyük have brought about many theories as to why they were found in such a state, one of which being that they represent draft animals employed to transport the deceased to the site of the burial, which will be examined more thoroughly at the end of this chapter (Bachhuber 2015). The findings from the faunal report for the site are quite striking since the vast majority of identifiable remains belong to cattle. This allows one to suggest the high importance of the animal at this site; however, there is little indication of how these animals were used.

3.2.3. Context of Material Culture and Faunal Remains

Although there is a lack of information regarding the context of the clay objects from Alaca Höyük, in that there are no accounts of find locations for any of the fourteen examples, there is information on the contexts of the nine other items from the site. From excavation records, it has been determined that the clay bovine figurines selected for this review were all unearthed between the years 1935 and 1967 and that excavations in these years centred in the south and southeastern sections of the mound (Gursan-Salzman 1992: 379). Even though we do not know the exact locations where the objects come from, we do have a general idea of where they were at the site. Seven of the eight standards have clear contexts with the eighth most likely originating in a similar context. If we examine the site map once again, figure 3.3, the location of the "Royal Cemetery" can be found in an open area, possibly a later public or ceremonial plaza, situated between two Hittite palace/temple complexes from a later date, one to the northeast and the second to the southwest. The boundaries of this cemetery are closer to the more northern of the two complexes, with the eastern edge of the area terminating at the western wall of the northern

building. This grouping of palatial or ritual buildings is accompanied by Alaca's famous Sphinx Gate and rests in the southeastern quadrant of the mound. All of the Royal Tombs discussed thus far are located within this area of the site. Even though the architecture surrounding this cemetery area is from the later Hittite period, the presence of these structures may indicate that structures of a similar use may have been present within this area during the Early Bronze Age period.

The location of the famous Alaca Höyük cemetery is in an area where the earliest major excavations at the site were carried out, namely the southeastern corner of the mound. Tombs B, C, D, E, H, K, and L all lie within this area. These burials will be discussed starting with the northernmost, tomb H, and end with the southernmost burials, tombs K and L. Tomb H rests at the northern end of this cemetery; below this burial to the west is tomb D, and to the east of this is tomb B. Further south of these three burials near the middle of the cemetery are tombs C and E. Tomb E is near the western edge south of tomb D, and tomb C rests to the southeast of tomb E. At the southern limit of this area are tombs L and K. Tomb L lies to the west and tomb K to the east; all of these burials can be observed in the reconstruction drawing of the area produced by Koşay, figure 3.24. Based on the depth of the burials, we can see that they are not all from the exact same period; however, they all do date to the Early Bronze Age. Since all of the available faunal remains from the site are found within tombs E, F, H, and L, the additional contexts of these remains need not be discussed. The faunal remains from non-tomb contexts have no clear context themselves; the only information given regarding these specimens is that they come from the 1937-1939 excavation seasons. Because all, or at least most, of the objects depicting cattle at Alaca Höyük were discovered in the area of the site that is home to what are later Hittite temple complexes, and perhaps earlier cultic centres, one may argue that representations of cattle may be associated more with religious or cultic practices at the site within the Early Bronze Age period. However, this could just be due to the areas of the site

chosen for excavation, with temple/palatial areas likely being home to more unusual and beautiful objects compared to other areas, leading to a concentration within these settings. It also must be stated that with all of the animal representations from the site, the majority of objects display cattle compared to other wild and domestic animals, which adds further importance to the animal at this particular settlement.

3.3. The Site of Tiritiş Höyük

The ancient city of Tiritiş Höyük is located in the modern province of Şanlıurfa in the southeastern region of Turkey and is situated along the Tavuk Çay, a small tributary of the Euphrates River (Alagze 1999: 547). Tiritiş is positioned within a broad alluvial basin, figure 3.25, and is surrounded by a series of limestone hills, figure 3.26; making its location a prime spot for the production of tradeable resources (Alagze 1999; Wilkinson 1990). Since the site is located relatively close to the region of Northern Mesopotamia and beyond the range of defined Anatolian archaeological sites, there is some debate as to whether the site is really a part of Anatolia or Northern Mesopotamia, based on some architectural similarities and the presence of possible Mesopotamian artefacts (Greenfield 2002; Hartenberger *et al.* 2000; Matney and Alagze 1995) . However, according to the excavators and other researchers, the site can positively be identified as a small indigenous city-state within the Anatolian region, which acted as an important nexus of overland and water-based trade routes (Greenfield 2002: 251; Alagze *et al.* 2001; Matney and Alagze 1995: 50). This means that the site is firmly within the Anatolian region; however, it has been heavily influenced by Northern Mesopotamia. Due to the Mesopotamian influence at the site, it will make an excellent addition to the study by addressing the question of regional and interregional influence upon the ideology associated with cattle.

As with the site of Alaca Höyük, a basic overview of modern landscape and geological features surrounding this site are examined so that we may better understand the limitations placed upon the site by the landscape. Within the 5 km radius, much of the

modern landscape consists of low lying, rich agricultural and pastoral fields situated along the streams of this small basin. The main mound of the site is located on the northern bank of the Tavuk Çay, and to the west and south are a number of small streams, which all lead into the much larger Euphrates River to the west. To the northwest and southeast of the settlement are areas of higher elevation. Unlike the higher elevations near Alaca Höyük, those around Tiriş are not forested. Most of the natural vegetation consists of dwarf shrubland species consistent with the area's steppe topography (Sagona and Zimansky 2009: 6). If we expand our discussion to the larger 10 km radius, most of the area is rather rocky and consists of hills and higher elevation modern pastoral fields. There are two small lower areas with agricultural and pastoral fields to the northwest and southwest of the main site. To the west of the site was a lower basin leading to the Euphrates River; however, this area has since been flooded as a result of the construction of a modern reservoir, and to the north and south, there are a few small streams.

According to Allentuck and Greenfield (2010: 13), some of the area surrounding Tiriş Höyük was once forested and cleared in the Early Bronze Age in favour of more productive land. From an initial investigation of the landscape around the settlement using *Google Earth* software, it does not seem that the land would have fulfilled pastoral and agricultural requirements of the Early Bronze Age human population. It has been suggested that, due to the productivity of the land, the residents of Tiriş Höyük may have imported large amounts of foodstuffs and domesticated animals to supplement their dietary needs (Allentuck and Greenfield 2010: 13). Because of the need to import dietary staples to sustain the city's population, this could illustrate one of the reasons why Tiriş Höyük is only a mid-to-late Early Bronze Age archaeological site. According to work by Wilkinson (2003: 18), the site rests on the border of two environmental zones, one of which, to the north and west, regularly receives between 600 and 1000 mm of rainfall per year while the other, to the south and east, receives the same amount as the area around Alaca Höyük,

which is between 400 and 600 mm per annum. Even though the area received enough rainfall to produce sufficient crop and pastoral resources for the site's residents, its location in a small valley surrounded by rocky outcrops greatly hindered the area's agricultural and pastoral productivity.

Absolute dates place Titriş Höyük in the Early Bronze Age, around 2600-2100 BC, with the maximum extent of the settlement occurring in the Late Early Bronze Age (Matney and Algaze 1995; Alagze 1999). Titriş Höyük is considered one of the first urban centres in the region and is one of the earliest Anatolian settlements displaying a centralised urban plan, one of the earliest in Southwest Asia (Algaze and Mısır 1994). The fortified site was roughly 43 hectares in size with a small acropolis surrounded by a larger lower city. The Lower Town is made up of approximately 11 hectares, and 16 hectares encompass the Outer Town, which extends along a ridge directly north of the main mound (Alagze 1999). It is significant to mention that in many areas, the site only dates to the Early Bronze Age and with less occupation in the Middle Bronze Age, with the majority of the settlement constructed on new foundations. Because this is a relatively short occupational period, it firmly places the settlement within the timeframe of this project. Titriş Höyük is important to this project because it lies on the border between the Mesopotamian and Anatolian cultural regions and rests quite close to the sites of Tell Beydar and Tell Brak in the Northern Mesopotamian region. Due to its location, the site may hold some clues as to the interrelationships between humans and cattle and how both the Anatolian and Mesopotamian cultures influenced these relationships. There are numerous finds that link Titriş Höyük to mainstream Anatolia as well as the Aegean region, including stone and pottery objects from central Anatolia as well as a few examples of pottery from the Trojan tradition, in far western Anatolia. This ancient city does not have much in the form of material culture depicting cattle, at least from the research conducted thus far. It does, however, have a large and well-documented faunal assemblage,

which will be the main focus of this section.

3.3.1. Material Culture

The material culture relating to cattle in comparison to the other sites under consideration is small indeed. Most of the objects come from tombs located near the site; interestingly, however, the items that include bovine motifs were unearthed in household contexts in the Lower and Outer Town areas. Among the items relating to other sites, there is a collection of marble violin-shaped votive figurines, which come from the artistic and cultural traditions of western and central Anatolia as well as from the Aegean (Laneri 2007; Matney and Algaze 1995). These items suggest that there were trade connections between these regions in Anatolia; it may also be suggested that members of the local community may have come from other regions due to these items being found in the cemetery and not in the city itself. Among the six categories of material culture selected for the project, only two are represented from the site, which include clay objects and stone objects.

3.3.1.1. Clay Objects

Some of the only items that illustrate any connection to cattle found at Tiritiş Höyük are the painted fragment of a vessel coming from a trench located in the Outer Town, figure 3.27, and a stone mould uncovered in the courtyard of a well-preserved house on the higher status Lower Town neighbourhood, figures 3.28 and 3.29 (Matney *et al.* 1997). Item B, located in the upper right of figure 3.27, shows a painted ceramic fragment with a distinct *Bos* cranial, or horned, motif. What is most striking about this motif is that it bears a close resemblance to the golden hilt from tomb K found at Alaca Höyük. Because of this similarity, one may infer that the implementation of the horned, or crescent-shaped, motif found at both these sites, as well as at sites in the Mesopotamian cultural regions, might signify some sort continuity in the iconographic representation of cattle. These ceramic

fragments roughly date to the Middle Early Bronze Age and coincide with the burials located near the settlement. Although it is not clear what type of vessel this fragment came from, it is clear that the object's creator had some affinity for the *Bos* form. It is important to note that where this fragment was found, the Outer Town, is considered an average or lower class neighbourhood, suggested by the nature of the architecture located there (Algaze and Mısıır 1995: 139). One object that may depict a bull comes in the form of a clay animal head, figure 3.30. This animal head is 7.5 cm in height, constructed of grey clay painted red, and has deeply incised facial features (Wilkinson 1990: 281). The fragment is hollowed out, which may indicate it was once a portion of a vessel, and if we compare this fragment to similar ones from Alaca Höyük, one may conclude that this was once a portion of a rhyton like those from the northern Anatolian site. Although the fragment no longer has the back section of the head intact, from close examination of the front section of the head, it is clear that this fragment likely represents the fragment of a *Bos* head.

3.3.1.2. Stone Objects

Figures 3.28 and 3.29 illustrate the mould found on the floor of a courtyard of a large house within the Lower Town neighbourhood. This mould is carved from soft grey stone, measures 7.8 cm by 7.3 cm, and is 1cm thick (Matney *et al.* 1997). Although this object does not show an actual bovine figure, it does have a very distinct *Bos* cranial form located on the depiction of an altar to the lower left of the main figure and is strikingly similar to another jewellery mould from the northern Syrian site of Tell Brak, which will be examined in the Northern Mesopotamian regional chapter. In the top corners of the altar, one can clearly observe two frontal-facing cranial forms atop long necks or pillars. What is fascinating about all finds from this site is that they do not depict a full representation of the cattle form but tend to focus on the frontal portions of the animal, namely the horns. This object is one of the reasons why some researchers have suggested

that the site is of Mesopotamian origin; however, the other objects studied from the site suggest otherwise. The presence of a rhyton fragment suggests an Anatolian influence due to the fact that this vessel form shares similarities with forms at Alaca Höyük. The distinct horn design from the other pottery fragment holds no identifiable Mesopotamian equivalent, at least for the sites selected, which may also indicate a different iconographic preference.

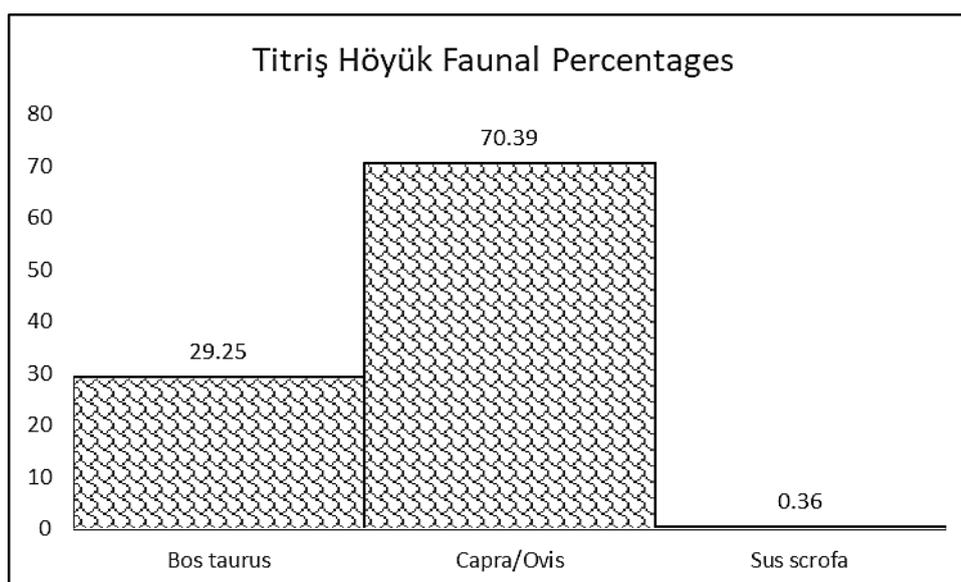
3.3.2. Faunal Remains

The faunal remains from Titriş Höyük are extremely important. A portion of the sample was very fragmented, and roughly 850 bones were unable to be assigned to particular taxa. The main reason why this portion of the assemblage went unidentified was due to the fact that the sample was highly weathered, making it quite difficult to determine fragmented samples (Greenfield 2002). A total of 22,177 animal remains were collected from Titriş Höyük, and 5,444 bone specimens, approximately one-quarter of the sample, were able to be identified to a satisfactory taxonomic level (Allentuck and Greenfield 2010: 14). An additional 2,327 come from an earlier excavation, and the two groups combined make up the assemblage for this project with an overall site total of 7,771 individual specimens. The majority of this identified sample come from domesticated animals with an NISP of 5,237, and a smaller number were attributed to wild taxa, with an NISP of 712. Of the identified sample, a total of 1,532, or 29.25 per cent, are domesticated cattle remains, *Bos taurus*, which were excavated from the settlement, and these remains, according to a recent study, represent the everyday culinary behaviours of non-elite households (Nishimura 2012: 358). According to the faunal report, the most common taxon after sheep and goat was cattle (Greenfield 2002). The approximate number of sheep, *Ovis aries*, is 2,022, and the number of goat, *Capra hircus*, is roughly 1,435. The combined groups are approximately 70.39 per cent of the total with an additional 229 specimens identified as being either sheep or goat, table 3.2 (Allentuck and Greenfield

2010: 20). In addition to the cattle, sheep, and goat remains, there were 19 pig, *Sus scrofa*, specimens from the site and 1,822 specimens that construct the other category for this project, (graph 3.2). This other category includes bones that were identified as being either small, medium, or large animals, as well as other domesticated species. What is most interesting about this individual site is that the faunal investigation was geared more towards creating a representative sample of the average class dietary habits rather than focusing on elite deposits, which is a good contrast to the case at Alaca Höyük.

<i>Faunal Assemblage from Tiriş Höyük</i>			
Taxon	Common Name	NISP	Percentage %
Bos taurus	Cattle	1532	29.25
Capra/Ovis	Goat/Sheep	229	4.37
Capra hircus	Goat	1435	27.40
Ovis aries	Sheep	2022	38.61
Sus scrofa	Pig	19	0.36
Wild Taxa	Various	712	N/A
Other	Other	1822	N/A
Total		5237	100

Table 3.2: The faunal assemblage from Tiriş Höyük (after Allentuck and Greenfield 2010; Greenfield 2002)



Graph 3.2: Depiction of the faunal assemblage from the site of Tiriş Höyük using NISP percentages

The sample, in addition to its focus, comes from a single period, which allows us to gain a greater understanding of animal domestication practices in the Early Bronze Age. Furthermore, this sample was taken from various areas around the Lower and Outer Town neighbourhoods, and according to Allentuck and Greenfield (2010: 13), the centre of the site where the cultic and administrative buildings were located was not excavated to allow for a more in-depth study of the non-elite areas at Titriş Höyük. In areas of the Lower Town, there is strong evidence for processing centres where butchering, hide production, flint knapping, as well as food consumption, all took place (Greenfield 2002; Matney and Algaze 1995; Nishimura 2007; Nishimura 2012). According to one report, these specialised production areas are some of the least understood aspects of Early Bronze Age urban settlements in Southwest Asia, which makes them important not only for this review but for the study of ancient production areas in general (Algaze *et al.* 1996: 135). The faunal report identified a variety of both domestic and wild taxa, which were consumed as part of the daily diet. Sheep and goat, although initially combined, were the most consumed domestic group, followed by cattle and pig. If we consider the NISP, we see the most predominant domesticated species were sheep, followed by cattle, and then goat. Although it is unclear how these animals were used or what relationship they held to humans, Greenfield claims that they were “probably used for both their primary and secondary products” (2002: 257). Primary products include meat, bone, and leather while secondary products can be seen in the form of milk and milk products, traction, dung, and breeding. While this assemblage does not provide us with any clear information as to the food production activities at the site, it does offer relative animal percentages, which can give us some understanding of relative animal proportions utilised at this site within this period.

3.3.3. Context of Material Culture and Faunal Remains

The material culture from Early Bronze Age Titriş Höyük comes from two areas at

opposite ends of the settlement. Figure 3.31 shows the site plan with the main Höyük in the south-central section of the map surrounded by areas known as the Lower Town and Outer Town, with a small modern village at the eastern end of the map. As stated above, the site's excavations were not focused on the central area of the site like so many other archaeological investigations; however, the focus for work at this ancient city was on the Lower and Outer Town areas to gain a better understanding of non-elite or non-religious Early Bronze Age lifeways. Figures 3.32 and 3.33 show sections of the site's Outer and Lower Town neighbourhoods. We can see from the images that the average room size is slightly larger in the Lower Town neighbourhood, with the average overall residence size being larger as well, compared to that of the Outer Town neighbourhood structures. The pottery fragments from figure 3.21 were uncovered in a small room within a building of unknown use in the area of the Outer Town at the far northeastern corner of the site. Figures 3.22 and 3.23, displaying the finely crafted jewellery mould, come from the courtyard of a large and well-preserved house in the Lower Town area at the southwestern portion of the site. Although figure 3.24 has not been allocated a specific find spot, it is likely that it comes from either the Lower Town or Outer Town, since those are the main areas of excavation. It should also be said that the two different neighbourhoods of Titriş Höyük discussed are considered to house populations of specific socio-economic status, with the Lower Town being considered an area of higher status than that of the Outer Town area to the north. This economic orientation may be due to the Lower Town's proximity to the site's primary source of water, the Tavuk Çay. Because the material culture shows no real signs of which socio-economic group is associated more with cattle, at least in the iconographic sense, one cannot gain a clear picture of how the animal may have influenced social behaviour within this site during the Early Bronze Age.

The faunal remains from Titriş come from the same areas as those where we find the site's examples of material culture, namely the Lower and Outer Town

neighbourhoods. When investigating the remains from the site, I can begin to see some rather interesting patterns. Based on domestic mortality profiles produced by Allentuck and Greenfield (2010, 14), it has been suggested that the sheep and cattle were raised primarily for their milk and meat while the goat remains imply the animal was reared for its milk and hair products. There is no indication of which neighbourhood had the largest percentages of cattle stock; however, the sheep and goat remains do appear to be equally represented on both the Lower and Outer Towns, with the Lower Town having slightly higher numbers of domestic animal stock. When examining the remains of wild taxa from the site, it has been found that the area of the Outer Town has larger numbers of wild taxa remains compared to the other excavated area. Since the Outer Town has larger numbers of wild species, and due to the resources needed to care for cattle stock, one may conclude that the Lower Town neighbourhood, based on the proposed wealth and proximity to water, may have held larger numbers of cattle stock compared to that of the less affluent Outer Town neighbourhood. It has been suggested that the sheep and goat herds for Titriş Höyük were raised on a communal basis while the cattle population was produced on a household level (Allentuck and Greenfield 2010: 24). From the proposed economic status of these two neighbourhoods, it can be suggested that cattle may have been more numerous in the wealthier households of the Lower Town compared to other areas. Based on both the material culture and the site's faunal assemblage, it can be concluded that Titriş Höyük might have been a more egalitarian community compared to other contemporary settlements in the region. However, with future research on the yet unexcavated central mound as well as more detailed excavations of the Lower and Outer Towns, this result may change in the future.

3.4. The Site of Sos Höyük

The site of Sos Höyük is located in the modern province of Erzurum, situated in the northeastern portion of Turkey, figure 3.34. This particular site has quite a long history

dating back to the Chalcolithic and continuing through to the medieval period, roughly 3500BC – 1300AD, with a small modern village covering the southern portion of the ancient settlement. One of the reasons for such a long occupation is due to its strategic location in the Pasinler Valley, which links Anatolia to modern Iran as well as the Caucasus region, figure 3.35. Sos Höyük lies within the modern village of Yiğittaşı and stands at an altitude of approximately eight hundred metres above sea level (Howell-Meurs 2001: 5). The modern landscape is relatively flat with many agricultural and pastoral fields. The main mound is directly adjacent to the Dere Suyu, a tributary of the Aras River. To the northwest of the settlement, there is a large area of rock outcrops at a higher elevation with a few small modern fields scattered around. From an initial investigation of the vegetation, there appear to be no forested areas within the 5 km radius; the only visible trees appear within and around eight small modern village areas and along adjacent tributaries. The area to the north seems to vary in elevation and topography while the area to the south of the settlement is dominated by agricultural and pastoral fields.

The main mound is located in relatively marshy surroundings, and the plain on which the site is located is well irrigated by several small tributaries leading to the Aras and Karasu rivers (Howell-Meurs 2001). When exploring general trends in vegetative zones throughout Anatolia, the area around Sos Höyük is located within a region that is home to cold deciduous, broad-leaved mountain woodland; however, much of the area directly surrounding the site is absent of forestation most likely due to modern agricultural and pastoral practices (Sagona and Zimansky 2009: 6). Expanding our view to a 10 km radius, the topography is more diverse. To the north and northwest of the site, the landscape is rather rocky with a few small streams. Directly north of Sos is a small forested area surrounded by rocky hills. Approximately half of the area within this radius has been converted to agricultural and pastoral fields along the Pasinler Valley with several small streams providing adequate irrigation for the modern fields. To the far south of this area,

we find the beginning of a mountainous area with rocky topography, and once again, this radius seems to be lacking in natural vegetation. Much of the plant life comes in the form of crops, grasslands for pasture, and small shrubs, typical of the steppe surroundings. Due to the absence of natural vegetation typical to the region, it can be postulated that the landscape has undergone much modification to arrive at its modern state. Since Sos Höyük has been occupied almost constantly since the Late Chalcolithic, it is difficult to say when this land modification first began; however, one may argue that there was most likely some form of modification in place during the Early Bronze Age period, at least in the area of deforestation. When investigating weather patterns and rainfall distribution, we find that the area has an average rainfall of between 200 and 400 mm per annum (Wilkinson 2003: 18). Due to the amount of average rainfall, it is arguable that the Early Bronze Age settlement could have produced enough cereal crops and pasture land to support the human and animal populations and, with the addition of the nearby constant water sources, may have implemented some form of crop irrigation as well, although this has yet to be proven.

As with the other sites considered within this work, our concentration will be in the Early Bronze Age levels of the settlement. Sos Höyük, at least in the Early and Middle Bronze Ages, was more of a semi-permanent site than the other sites discussed within this chapter. This is based on the interpretation of the Early Bronze Age material as originating from “nomadic, temporary encampments” in comparison to the more permanent structures of the Iron Age levels (Howell-Meurs 2001: 4; Sagona 2000). One aspect worth mentioning is that evidence shows that in the second millennium BC, the settlement was only occupied intermittently, adding further evidence to the semi-permanent culture theory (Sagona *et al.* 1997). Due to this possible pastoralist cultural background, there is not as much material culture at this site compared to assemblages found at other sites. However, there are a small number of objects uncovered through this research that relate to cattle. Of the information found relating to Sos Höyük, by far the most impressive is the work done

relating to the faunal assemblage, and the amount of work that went into the documentation and categorisation of the assemblage is rather impressive.

3.4.1. Material Culture

When it comes to the material culture assemblage from Sos Höyük, all objects relating to cattle consisted of small baked clay animal figurines. According to Sagona *et al.*, the animal figures identified seem to be of a Transcaucasian style (1996). Although these figurines are similar in form to those from other sites, the muzzle of the examples from this site are somewhat different, suggesting an additional influence. Because of this fact, I would agree that they are of a different style, likely Transcaucasian. The material from this site is interesting in that it consists of only a small collection from a single material culture category, which may also indicate a semi-permanent lifestyle, as mentioned above. The presence of such objects may also indicate a possible use for bovine figurines in relation to small social group or individual use, see section 2.4.4. Sos Höyük also has a rather well-developed bone craft industry (Sagona *et al.* 1996; Hopkins 2003). This industry alludes to a larger population of domestic animals, or at least to the mindset of pastoralist peoples who used as much of the animal as possible. Although one cannot clearly determine which animals these objects were crafted from, it is safe to assume that there is a mixture of sheep, goat, and cattle included in this assemblage, based on the relative size of the tools.

3.4.1.1. Clay Bovine Figurines

Figure 3.36 shows one of the animal figurines uncovered within the Bronze Age levels of the site. The object is small, only 2 cm high and 2.5 cm long, and is constructed of baked clay, like many comparable animal figurines. Very similar to the previous item, figure 3.37 shows a series of three figurines. These small objects are most likely more bovine representations and are also constructed of baked clay. These figurines range from

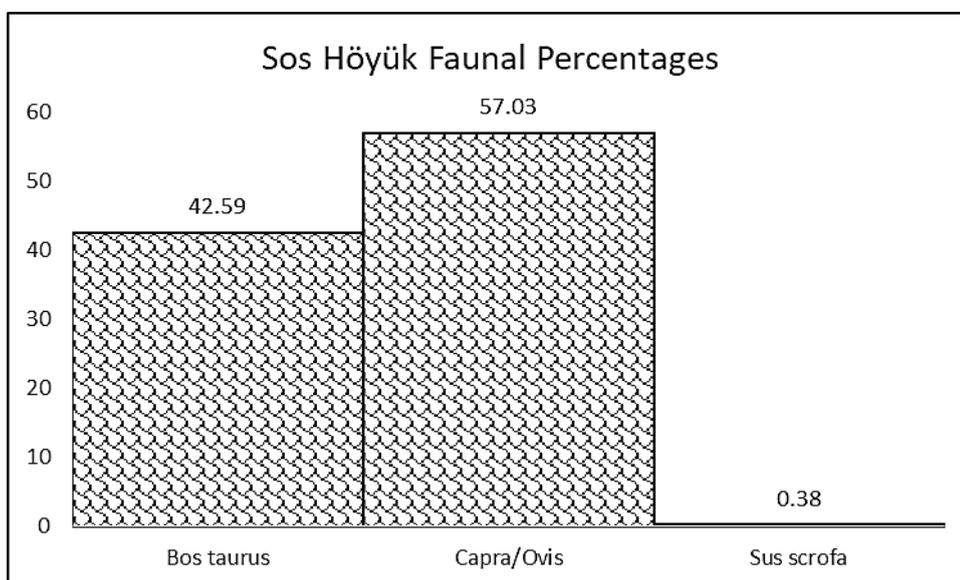
2.5-4 cm in height and are between 4-5 cm long. We can tell that even though the appearance of cattle-related items at Sos Höyük is relatively small, it is still present and is a factor in determining the interrelationships between humans and cattle at this site in the Early Bronze Age. Figure 3.38 is another small bovine figurine from the same period as the previous examples. All the examples of baked clay animal figurines display the same characteristics and general form, which indicates a specific style developed at the site. Figure 3.39 displays a set of figurines unearthed during the 1998-2000 seasons at the site. The top example, being 2 cm high and 2.5 cm long, is missing its head but is crafted in the same fashion as the others, leading one to assume it represents a bovine. The bottom example is in almost perfect condition with only the tips of the horns broken off, and it is 2 cm tall and 3 cm long. All seven figurines presented are crafted of the same material and are approximately the same size, around 4 cm in length and 2 cm high. It is quite interesting that the bovine figurines from Sos are roughly the same size as the examples found at Alaca Höyük, as well as sites in the Mesopotamian cultural regions, see chapters four and five.

3.4.2. Faunal Remains

The animal economy of Sos Höyük in the Early Bronze Age was one focused more on herding as opposed to hunting, like the other sites within this region (Howell-Meurs 2001). This determination means that even though the material culture, including architecture, suggested a semi-permanent society, the methods of food production were more akin to those of permanent settlements, based on the presence and number of bovine remains present at the site, just as the other two sites discussed within this chapter. A total of 10,342 specimens recovered from the site have been analysed, of which 5,264 come from Early Bronze Age contexts. Of the total recovered within these contexts, 2,395 were unable to be attributed to a specific taxon, and 2,477 were identified with relative certainty,

<i>Faunal Assemblage from Sos Höyük</i>				
Taxon	Common Name	NISP	MNI	Percentage %
Bos taurus	Cattle	1006	26	42.59
Capra/Ovis	Goat/Sheep	1347	85	57.03
Capra hircus	Goat	0	14	0
Ovis aries	Sheep	0	36	0
Sus scrofa	Pig	9	2	0.38
Wild Taxa	Various	77	32	N/A
Other	Other	38	6	N/A
Total		2362		100

Table 3.3: The faunal assemblage from Sos Höyük (after Howell-Meurs 2001)



Graph 3.3: Depiction of faunal assemblage from the site of Sos Höyük using NISP percentages

with an additional 392 specimens representing intrusive bones from later periods (Howell-Meurs 2001: 20). Of the 2,477 identified remains, the most abundant group is the combined goat and sheep category, *Capra/Ovis*, with an NISP of 1,347 and an MNI of 85, comprising 57.03 per cent of the overall faunal assemblage. Within this grouping, 93 specimens are attributed to goat, and 244 are attributed to sheep, with the remainder unable to be fitted to either species but identified as being either sheep or goat. The second largest group is cattle, *Bos taurus*. This group has an NISP of 1,006, an MNI of 26, and makes up

42.59 per cent of the total assemblage. The species with the smallest numbers of remains is the pig group, *Sus scrofa*; with an NISP of 9 and MNI of 2, this group accounts for 0.38 per cent of the overall total. There were also some additional domesticated species, which combined have an NISP of 38 and an MNI of 6. The wild taxa from Sos Höyük have an NISP of 77 and an MNI of 32, table 3.3 (graph 3.3).

From the information gathered thus far, the animal economy of the settlement was focused on ovicaprids and cattle and was supplemented by smaller proportions of pig and wild game. When examining the frequency of skeletal elements, we find that the most common element for the categories of sheep/goat, cattle, and pig is the mandible, and for sheep/goat and cattle, the second most abundant element is crania (Howell-Meurs 2001). With regards to investigating kill-off profiles, over half of the identified population survived into adulthood; this survival rate suggests an emphasis on secondary rather than primary products (Sagona *et al.* 1997). The ovicaprids seemed to have been slaughtered at a younger age than the cattle, with many of the animals killed off as either sub-adults or young adults. In the case of cattle, the treatment was slightly different from the sheep and goat populations in that they were usually kept to a more mature age. The *Bos* mortality profile created by Howell-Meurs (2001: 25) is based on the examination of mandibular specimens and has discovered 84 per cent of the animals are aged at older than 30 months with 64 per cent of specimens living beyond 36 months of age, based on examinations of third molars. This age difference can also be established by Hopkins (2003: 111) who stated, “[O]steoarthritis on some cattle bones, along with the presence of castrated beasts, suggests that cattle may have provided traction power, as well as horn, meat and marrow [identified by butchery marks on some bone fragments].” The differentiation in treatment of cattle, based on older age profiles, from other livestock, implies that the bovines likely held a high value to the inhabitants of Sos Höyük, at least economically. A greater investment can be seen not only in the relative population of cattle stock but also in the

measures taken to care for that stock into adulthood; such as grazing and water requirements in comparison to sheep and goat production, see section 1.6. Since cattle could produce larger milk yields than other, harder to control, domesticates and both male and female cattle can be employed as a source of labour, I suggest that the animal had an overall higher economic value than sheep and goat. Although the combined sheep and goat domesticates outnumber those of cattle at Sos Höyük in the Early Bronze Age, cattle appear to have been allotted more value in the economy of the ancient site.

3.4.3. Context of Material Culture and Faunal Remains

Due to the fact that the modern village of Yiğittaşı rests over much of the main mound, most of the excavations carried out at the site have focused on the northern and central areas of Sos Höyük, figure 3.40. The site map provided from Sagona and his team is labelled numerically, starting at 24 on the north end and continuing down to 6 at the southern extent of the surveyed area (Sagona *et al.* 1995: 195). The map is also divided alphabetically, beginning in the west with D and ending in the east with V, which allows the observer to determine specified areas and trenches. The Early Bronze Age levels of the site are found in the trenches located within areas L16, L17, M16, and M17 along the site's northern edge. Figure 3.36 was discovered within the M trench areas, and three figurines from figure 3.37 were unearthed within the M trench areas as well. However, there are no indications as to the exact find spots for these figurines within the texts that discuss them. Figure 3.38, as well as the two figurines in figure 3.39, all come from the L trench area at the site, and, like the previous examples, there is no indication as to specific find spots. The trenches within areas M and L, if not already apparent, rest side by side at the north-central edge of the ancient settlement.

Like the examples of material culture from this site, all of the Early Bronze Age faunal assemblage discussed here were uncovered within the same contexts, areas L17,

M16, and M17. Because a total of 2,814 individual identified animal bones come from just three trenches, this assemblage is rather impressive. From the NISP provided above, a total of 201 individual animals have been positively identified, giving us a sizable MNI for this small area. Even though we are not able to produce overall site proportions such as those from Mesopotamian sites, since the L16/17 and M16/17 are the only Early Bronze Age areas excavated, we are able to view what species are most abundant within a specific context, which should give some indication of animal use within this section of the site. Based on the site's NISP and MNI, we may conclude that as expected sheep, goat, and cattle are the most abundant species; however, cattle are the species with the second highest numbers, indicating that the animal may have been consumed more at Sos Höyük compared to the other sites selected for this region. This is based on the fact the areas where these remains are from have been partially identified as residential areas and not religious or public areas where one would expect to find the largest proportions of cattle remains, due to cultic or religious sacrificial preferences.

3.5. Discussion and Comparisons

Of all the domesticated animals found throughout ancient Anatolia, as well as throughout the rest of Southwest Asia, cattle almost always rank among the top, meaning that these animals likely held more economic and social value to ancient populations than the other major domesticated species. These animals were referred to as symbols of the divine, as well as earthly, authority and power, see section 1.7. Cattle, along with sheep and goat, were essential to the peoples of ancient, and modern, Southwest Asia as providers of much needed primary and secondary products. They provided food, raw materials, and, in the case of cattle, much-needed labour. In terms of cultural continuity in Early Bronze Age Anatolia, due to its location between the Aegean, Mesopotamian, and Trans-Caucasian cultural spheres, it is difficult to pinpoint a specific set of Anatolian cultural traditions. However, from what can be found through the material culture and

faunal assemblages uncovered at the three sites discussed in this vast area, a distinct shift toward increased importance associated with cattle can be observed. This cattle culture documented in ancient Anatolia is very similar to that which can be seen in Bronze Age Arabia and Mesopotamia, perhaps in part due to the regions developing out of a similar Neolithic and Chalcolithic past, see section 1.8 (Miranda 2013). Although it is difficult to say that there is a distinct artistic and cultural unity throughout Anatolia, it should not be regarded as a land of ambiguous, separate cultures because of similarities in a number of material culture categories at sites, such as the clay bovine figurines from Alaca Höyük and Sos Höyük (Çevik 2007; Zimmermann 2007). Another aspect that relates the cattle to the mindset of this Bronze Age culture is the animals' relation to the gods. One particular deity, which holds major influence in Anatolia, was known as the storm god (Collins 2002: 311; Gunter 2002: 91). This storm god, always in the form of a bull, brought life-giving rains as well as flooding and destruction, which tend to be epithets associated with the bull: life-giving and dangerous.

The representations of cattle horns apart from the actual animal can be appreciated in the two examples from Titriş Höyük, as well as in the dagger example from the tombs at Alaca Höyük. This crescent motif dates back early in many areas of Anatolia and the rest of Southwest Asia and generally relates to the lunar phases and the shape of cattle horns (Miranda 2013). The crescent shape can be found in the form of jewellery and personal adornments, moulds, altars, painted or carved motifs, cylinder and stamp seals, and in association with many deities throughout ancient Southwestern Asia, and Anatolia is no exception, see section 2.4.2. (Rice 1998; Sharpes 2006; Miranda 2013). Although not as predominant as in other regions in this part of the world, such as Mesopotamia and Arabia, the crescent shape can be found in not only the form of adornments but also in association with certain gods and goddesses. One aspect of the material culture assemblage in Anatolia, which is quite different from the material culture assemblage from Mesopotamia,

is the lack of seals and seal impressions, at least at the three sites selected for this project. In fact, this research has yet to produce a single seal or seal impression from the three sites that have any form of bovine representation. However, it is still unclear if seals and impressions are common in Early Bronze Age Anatolia compared to later Bronze Age dates.

In terms of faunal assemblages that have been investigated, we cannot get a perfectly clear image of how cattle were incorporated into these economic and social systems and what this meant for the interrelationships between humans and their cattle, which has led many to overlook the importance of this animal to the Early Bronze Age societies that kept them. When determining general trends in kill-off patterns at the sites under investigation, many tend to have older proportions of cattle stock compared to those of sheep and goats. Although there are some instances of younger bovine culling patterns, they still do not compare to the general trend of slaughtering sheep and goat at the sub-adult phase in life (Marom and Hermann 2014). The presence of older cattle stock implies that the inhabitants of these sites utilised cattle more for secondary products, such as traction, dung, milk, ghee, yoghurt, and cheese than for primary products, such as meat and leather. Another aspect of animal use that is difficult to determine is the proportions of male and female animals present at each site. The modern ethnographic observations of Johannsen (2011: 15) suggest that female cattle might have been the dominant animal at many sites since these “multi-purpose cows” are able to provide all the products and labour needed for a single familial group, a subject which I will return to in a later chapter. Bovine populations affected the Anatolian economy not only by providing visible wealth for those who owned them, but also by supplying much-needed traction in a very labour intensive economy as well as producing many products, such as milk and milk products, leather, bone, and the like (Arbuckle 2014; Sharpes 2006). It has also been said that cattle demanded a much higher price than sheep and goat, especially in later Bronze Age

contexts (Arbuckle 2014). So not only did higher proportions of cattle bring more meat and secondary products to Anatolian Bronze Age economies, they also brought higher social and monetary value, which allowed for an increased movement of tradeable items as well as the movement of artistic styles and social change through ideology, see section 1.8.

When comparing the categories of material culture associated with this project, namely, seals and seal impressions, clay bovine figurines, pendants and jewellery, stone objects, clay objects, and other or unusual objects, four of the six categories are represented in this study, table 3.4. From the three sites, there is an overall total of 33 objects that represent cattle, the majority of which come from Alaca Höyük, (graph 3.4). The four categories represented here are the clay bovine figurines, with a total of 18 items, stone objects with a single item, clay objects with five items, and the group of unusual objects with nine total items. The context of the 18 clay bovine figurines is somewhat uncertain compared to those of other items. The 11 figurines from Alaca Höyük, as stated before, unfortunately, have no specific context assigned to them. We may only assume that these figurines, found in the excavation seasons between 1935 and 1967, come from the southeastern and southern areas of the site, based on the locations of the site's excavations within those years. The seven figurines from Sos Höyük have better contexts, however. These figurines come from the trenches in areas of M16, M17, and L16 at the northern end of the mound. These areas have been positively identified as Early Bronze Age sections of the settlement; however, within these areas, we do not get any exact find spots for these figurines. There can be multiple interpretations for these small clay figurines as well as possible associations with the earth and fertility, see sections 2.4.3. and 2.4.7.; however, due to a lack of clearly identifiable contexts, questions as to their use may go unanswered. The second category of the assemblage is that of the stone objects, which is represented by a single jewellery/amulet mould from the site of Titriş Höyük. This mould was uncovered in the courtyard of a well-preserved house complex within the site's Lower Town

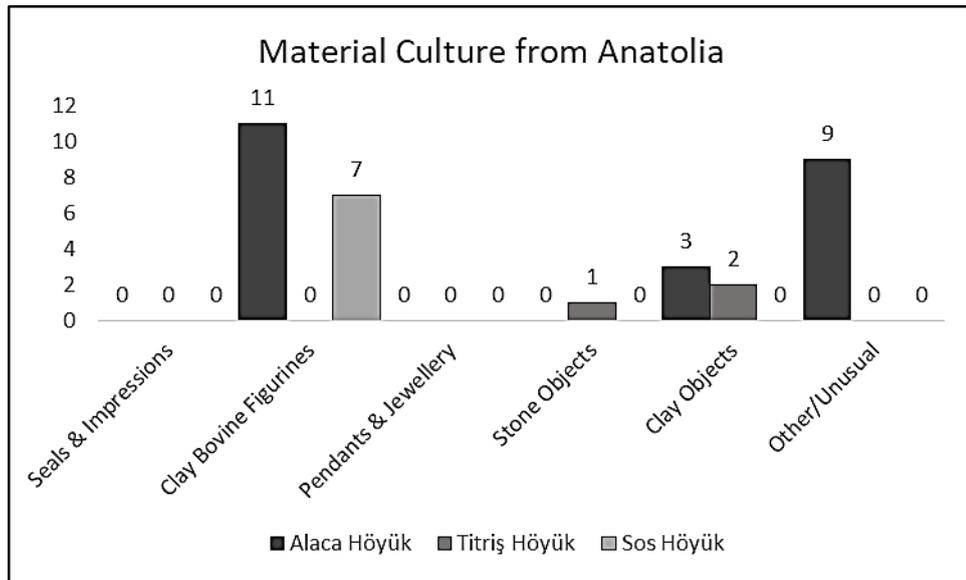
neighbourhood, an area associated with higher status individuals, based on relative residence and room size. The category of clay objects is made up of five objects, three from Alaca Höyük and two from Titriş. As with the other clay items from Alaca, there is no definitive context for these possible rhyton vessel fragments while at Titriş, we get a bit more information. One of the site's two items, a painted vessel fragment, was found within the Outer Town neighbourhood of the site, and the other item, a fragment of a possible rhyton, was given no clear context.

<i>Material Culture groups and Numbers for Anatolia</i>				
Object Groups	Alaca Höyük	Titriş Höyük	Sos Höyük	Group Total
Seals & Impressions	0	0	0	0
Clay Bovine Figurines	11	0	7	18
Pendants & Jewellery	0	0	0	0
Stone Objects	0	1	0	1
Clay Objects	3	2	0	5
Other/Unusual	9	0	0	9
Site Total	23	3	7	33

Table 3.4: Material culture groups and numbers; sites of Alaca Höyük, Titriş Höyük, and Sos Höyük

The final category is that of the other or unusual objects, which includes the objects from the Royal Tombs of Alaca Höyük. There is a total of eight standards and a single dagger from tombs B, C, D, E, H, K, and L; all burials are located at the southeastern corner of the main mound. Unfortunately, there is no indication of what this area of the site may have been used for, due to the lack of Early Bronze Age architecture; however, based on later Hittite buildings, one may conclude this was a religious area since sacred areas most often remain in the same locations through time at similar sites. In total, 14 of the 33 items, slightly less than half the overall total, within this Anatolian assemblage are from areas of presumed higher status, namely the southeast section of Alaca Höyük and the southwestern area of Titriş Höyük, see section 2.4.2. The remaining items are from either lower status or unknown areas, which indicates that many of the items are associated with higher status individuals or hold some form of religious or cultic significance, such as the standards and rhytons. Although the context of several items for this project is questionable, the

information we do have generates some important information as to the symbolic and possible cultic importance of cattle at these sites within the Early Bronze Age period.



Graph 3.4: Comparison of material culture groups from the Anatolian sites

The faunal remains from the sites of Alaca Höyük, Titiş Höyük, and Sos Höyük represent a good sample for the purposes of this review and can be seen side by side in table 3.5. From Alaca, there is a total of 962 individual cattle remains 74 from the Royal Tombs, representing approximately 23 animals, which make up 10.86 per cent of the combined regional total. As stated in the section on Alaca Höyük, it has been suggested that these specimens are the remains of animals utilised to transport the dead to their final resting places and after which the individual bovines may have been consumed as part of a funerary feast. This subject is quite an interesting pathway for the consumption of cattle remains and one that will be discussed further in chapter six. Of the number of identified specimens, NISP, found at Titiş Höyük, more than a quarter, 29.25 per cent, of the overall site assemblage is constructed of cattle bones, making up 17.29 per cent of the combined total. As expected, sheep and goat remains make up the majority of the faunal assemblage for all three sites; however, it is important to state that cattle require a larger investment of time and resources to produce than the other two taxa, see section 1.6. Since the cattle remains make up a large portion of the total assemblage at Titiş Höyük, it may be said that

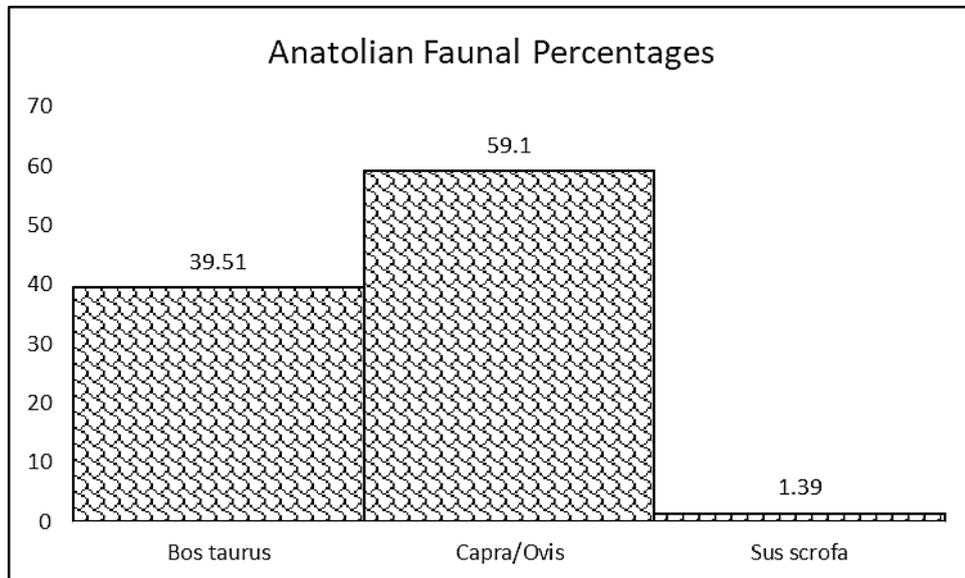
the animal was held in higher esteem compared to the other species due to the resources needed to produce such a sample. Unfortunately, for Titriş, we do not get an indication of the minimum number of individual animals, MNI; however, at Sos Höyük, the MNI of cattle is 26 compared to MNI of 85 in the sheep and goat category. The remains from the site of Sos Höyük also provide good information for this review. The NISP of cattle for this site forms 42.59 per cent of the overall identified site assemblage, which is 11.36 per cent of the Anatolian regional total; however, the percentages of identified large mammal specimens that cannot positively be attributed to a particular species make up a quarter of the unattributed collection (Sagona *et al.* 1997). What is particularly interesting about the identified assemblage from Sos Höyük is that the majority of the cattle population was identified to have been over three years of age, suggesting a strong reliance on secondary animal products (Sagona *et al.* 1997). The identified cattle assemblage from this site indicates that the animals were kept more for secondary products than primary products, such as meat and leather. The sheep and goat populations at the three sites, although not combined, indicate that these animals were likely kept for dietary reasons based on the identified remains from each site.

<i>Combined Faunal Remains from Anatolian Sites</i>					
Taxon	Common Name	NISP	MNI	Site	Percentage %
<i>Bos taurus</i>	Cattle	962	23	Alaca Höyük	10.86
<i>Bos taurus</i>	Cattle	1532	N/A	Titriş Höyük	17.29
<i>Bos taurus</i>	Cattle	1006	26	Sos Höyük	11.36
Total		3500			39.51
<i>Capra/Ovis</i>	Goat/Sheep	203	N/A	Alaca Höyük	2.29
<i>Capra/Ovis</i>	Goat/Sheep	229	N/A	Titriş Höyük	2.58
<i>Capra/Ovis</i>	Goat/Sheep	1347	85	Sos Höyük	15.20
Total		1779			20.08
<i>Capra hircus</i>	Goat	0	N/A	Alaca Höyük	0
<i>Capra hircus</i>	Goat	1435	N/A	Titriş Höyük	16.20
<i>Capra hircus</i>	Goat	0	14	Sos Höyük	0
Total		1435			16.20
<i>Ovis aries</i>	Sheep	0	N/A	Alaca Höyük	0
<i>Ovis aries</i>	Sheep	2022	N/A	Titriş Höyük	22.82
<i>Ovis aries</i>	Sheep	0	36	Sos Höyük	0
Total		2022			22.82
<i>Sus scrofa</i>	Pig	95	N/A	Alaca Höyük	1.07
<i>Sus scrofa</i>	Pig	19	N/A	Titriş Höyük	0.21
<i>Sus scrofa</i>	Pig	9	2	Sos Höyük	0.10
Total		123			1.39
<i>Wild Taxa</i>	Various	0	N/A	Alaca Höyük	N/A
<i>Wild Taxa</i>	Various	712	N/A	Titriş Höyük	N/A
<i>Wild Taxa</i>	Various	77	32	Sos Höyük	N/A
Total		789			
<i>Other</i>	Other	113	N/A	Alaca Höyük	N/A
<i>Other</i>	Other	1822	N/A	Titriş Höyük	N/A
<i>Other</i>	Other	38	6	Sos Höyük	N/A
Total		1973			

Table3.5: Combined faunal remains of species and group totals with individual species percentages

<i>Faunal Assemblage from Anatolian Region</i>				
Taxon	Common Name	NISP	MNI	Percentage %
<i>Bos taurus</i>	Cattle	3500	49	39.51
<i>Capra/Ovis</i>	Goat/Sheep	1779	85	20.08
<i>Capra hircus</i>	Goat	1435	14	16.20
<i>Ovis aries</i>	Sheep	2022	36	22.82
<i>Sus scrofa</i>	Pig	123	2	1.39
<i>Wild Taxa</i>	Various	789	32	N/A
<i>Other</i>	Other	1973	6	N/A
Total		8859		100

Table 3.6: Combined faunal assemblage total with species percentages of cattle, sheep, goat, and pig



Graph 3.5: Depiction of Anatolian faunal assemblage showing cattle, goat/sheep, and pig NISP percentages

If we combine and compare the assemblages of all three sites, table 3.6, we can see that cattle populations constitute over a large portion of the total regional bone count having an NISP of 3,500, making up 39.51 per cent of the overall faunal assemblage for this region, (graph 3.5). This information may indicate that cattle were valued differently than other domesticated animals, due to the resources required to yield such populations as well as the age-at-death of the animals, indicating a reliance of secondary products, at least at Titriş Höyük and Sos Höyük. The combined sheep and goat category has a total NISP of 1,779 and makes up 20.08 per cent of the regional total. The group of positively identified

goat remains has an NISP of 1,435, which is 16.20 per cent of the total. The next group of positively identified sheep remains has an NISP of 2,022 and constitutes 22.82 per cent of the total assemblage. The combined pig group is by far the smallest group within this Anatolian faunal examination. From the three sites, there is a total NISP of only 123 identified specimens; this is only 1.39 per cent of the regional total. The category of wild taxa is the second smallest group with an NISP 789, and the final category for this review, the other category, includes other domesticated animal species as well as specimens that were identified as being either large, medium, or small animals, most of which were identified as mammals. This group has an NISP of 1,973. If we investigate the MNI of each respective taxonomic category, we find that the largest number is that of the combined sheep and goat group with 85 individual animals. The groups of positively identified sheep and goat remains have produced an MNI of 14 for goat and 36 for sheep. The second largest group is that of the cattle with an MNI of 49, with the pig group only having an MNI of 2. The wild taxa and other categories have a combined MNI of 38. What is interesting about these faunal numbers is that, if we combine the sheep and goat categories, cattle have the second largest overall numbers behind the sheep and goat. The only drawback for the information on the minimum number of individuals is that the vast majority of this information comes from a single site, Sos Höyük, with the addition of 23 cattle specimens from the tombs at Alaca Höyük. Although this information may be somewhat inaccurate, due to the fact that we have no MNI information from Titriş Höyük, it does give us some important information as to relative animal populations within this region at this period in time.

3.6. Conclusions

When examining the archaeological sites included in this survey of cattle in Early Bronze Age Anatolia, namely, Titriş Höyük, Sos Höyük, and Alaca Höyük, we realise that the relationships between people and cattle are much more complex than one may have

initially thought. Due to the size of the area investigated and the many influences that added to the value placed upon cattle and beef, it is difficult to determine any specific traditions or ideologies that are associated with this animal. However, from the evidence uncovered at these sites, I can conclude that the Anatolian cultural sphere is very distinct and is an accumulation of several cultural backgrounds, including Mesopotamian, Levantine, Caucasian and, to a lesser extent, Aegean, which all come together with the existing Anatolian background to create something quite unique (Düring 2011; Özdoğan 2007). Considering the first question on variability and similarity in the symbolic significance of cattle, through examination of the material culture from these sites, we are able to determine that many of the artistic preferences, when it comes to the depiction of cattle, are similar at the three settlements examined. Although there is not a single material form that can be found at all three sites, such as clay figurines, it is apparent that some artistic preferences can be found, such as the use of the horn or crescent motif. These similarities show that through both trade and existing traditions, artistic renditions developed into a unified form, displaying the importance of the animal to the human populations of this particular period. The contexts of these items also tell us much about which social groups were more associated with the animal compared to others. Nearly half of the total Anatolian material culture assemblage comes from areas of presumed cultic and social importance, which indicates that cattle played a larger social role, in terms of ideology, compared to other domesticated taxa (Bachhuber 2015; Collins 2002; Koşay 1953). Even though some items could not be fitted to a particular site context, they can be placed within a social context of items that connect the human population to the cattle they kept. There is some form of bovine artistic representation that can be found at each site within this project, which reinforces the connection between humans and cattle in the Early Bronze Age period.

As for our second question on the nature of economic and social interrelationships,

it is clear that these, too, are much the same throughout Anatolia in the Early Bronze Age period. According to the faunal reports investigated for this review, it has been determined that cattle played quite a large role in the Early Bronze Age economy of this region. Not only did these animals provide primary and secondary products, they also gave much wealth and power to the communities that held larger cattle stock, this wealth possibly coming in the form of larger crop yields from the animal labour and from products derived from the animal. Due to the invention of the seeder plough and the implementation of animal labour, chiefly cattle, seeds were dropped, seed by seed, instead of broadcast, which greatly reduced the amount of seed needed and eventually increased overall crop yields, see section 1.8. (Scott 2017: 83; Postgate 1992: 167). The *Bos taurus* remains provide important evidence as to how cattle were used at the sites of the Anatolian region. As for the social impacts cattle held in these communities, they displayed the wealth of the sites. Elites or individual families who owned cattle stock likely held more influence over the settlement than those that held other hoofed stock, which as stated before may have been communally owned. With the appearance of ritual objects, such as the examples unearthed at Alaca Höyük, we notice that the form of the bull was associated with the elite as well as with ritual and cultic practices. Cattle held a greater value to the Early Bronze Age populations of the three sites investigated, which can be seen in the many representations of the animal unearthed throughout the region.

Although there are instances of sheep and goat represented in the material culture found at the three sites, much of the more prominent and religious/ritualistic material chiefly depicts wild taxa and cattle. Because of these representations of the animal being found in the form of everyday objects and ritualistic ones, one can determine that this interrelationship between cattle and humans runs quite deep. When examining the faunal remains, as stated previously, the majority of cattle stock was raised to maturity and implemented in a variety of ways to improve the overall wellbeing of the populations of

the three selected sites. This development suggests that cattle held a special significance to Early Bronze Age human populations by providing for their keepers while relying on them at the same time. The economic function of the animal provided many resources, such as milk, milk products, leather, fuel in the form of dung, bone material for tool making, meat, and traction for crop production and material transport, just to name a few. Overall, cattle had a distinct role in ancient Anatolia, which not only contributed significantly to economic production and trade, to a certain extent, but also were used to establish specific social roles for the Bronze Age Anatolian cultural sphere. This social change supported by cattle, which commenced in the Neolithic period, continued through to the Bronze Age and beyond, not only changing human production and consumption patterns but also changing social and cultural ideologies and relations.

3.7. Figures



Figure 3.1: Early Bronze Age Anatolia showing selected archaeological sites (Google Earth 2017)

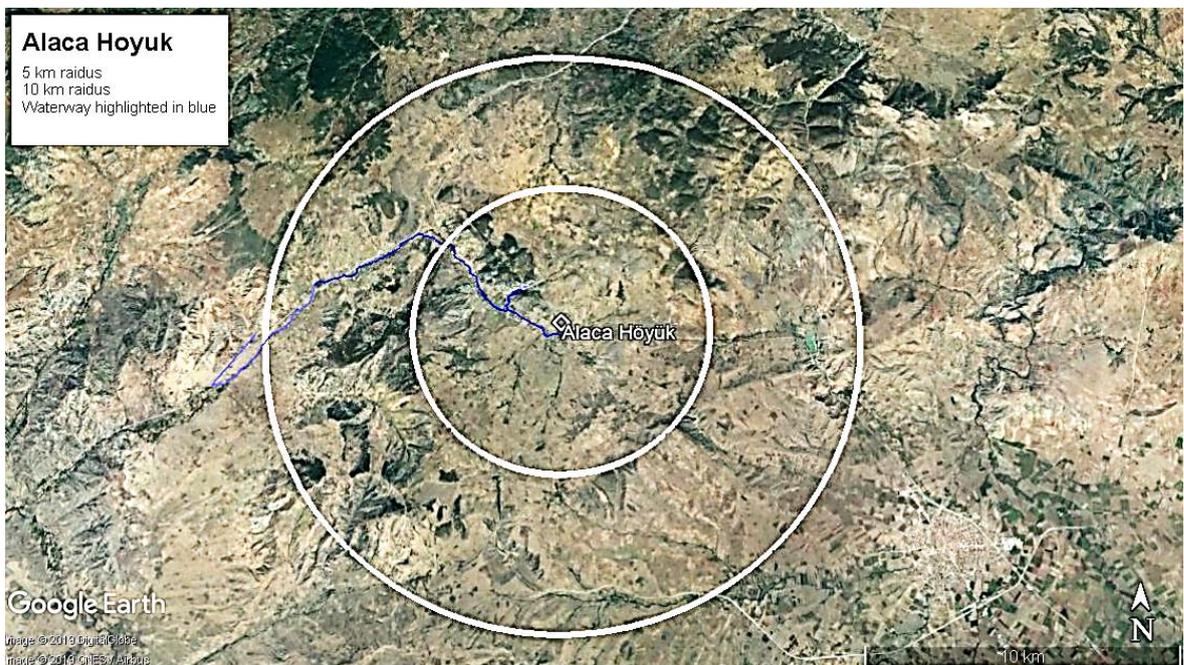


Figure 3.2: 5 and 10 km radii around Alaca Höyük (Google Earth 2017)



Figure 3.3: Site map of Alaca Höyük (modified from Gursan-Salzman 1992: fig. 3)

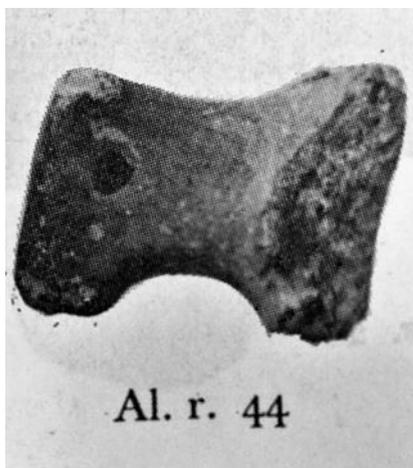


Figure 3.4: Baked clay knob in the form of bovine head. H. 5.5cm x W.4cm (after Koşay 1973: pl. LXVI)



Figure 3.5: Baked clay ox's head. H. 4cm x W. 5cm (after Koşay 1973: pl. LXVI)



Figure 3.6: Baked clay animal figurine. H. 2.5cm x L. 3cm (after Koşay 1973: pl. LXVI)

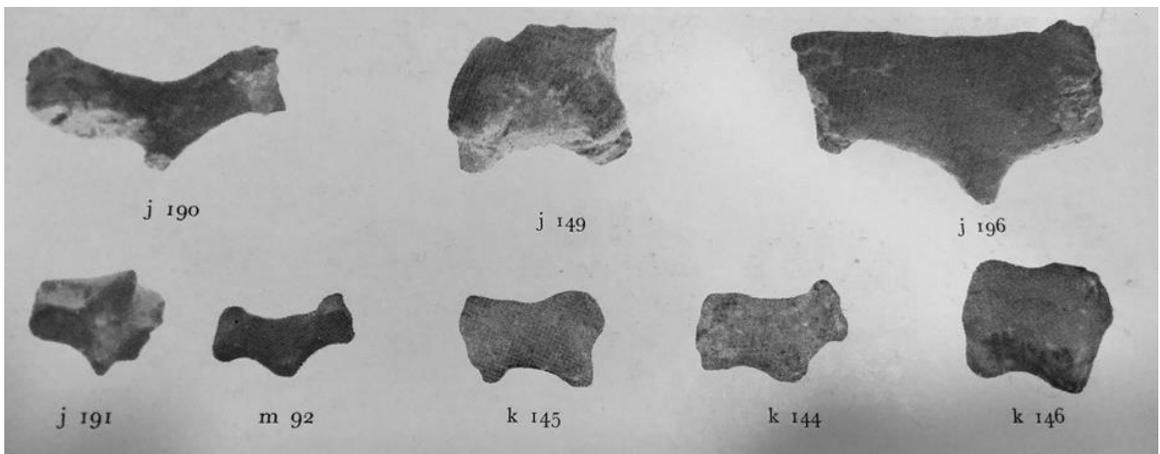


Figure 3.7: Series of eight baked clay animal/bovine figurines. 3.7.1 (j190), H. 3.1 x L.4.5cm 3.7.2 (j149), H. 2.8 x L.3.3cm 3.7.3 (j196), H.3.1 x L. 5.8cm 3.7.4 (j191), H. 2.3 x L. 2.8cm 3.7.5 (m92), H. 2.2 x L.4cm 3.7.6 (k145), H.1.4 x L. 3.5cm 3.7.7 (k144), H.2x L. 3.6cm 3.7.8 (k146), H.2.4 x L. 3.6cm (after Kosay and Akok 1966: pl. LIX)

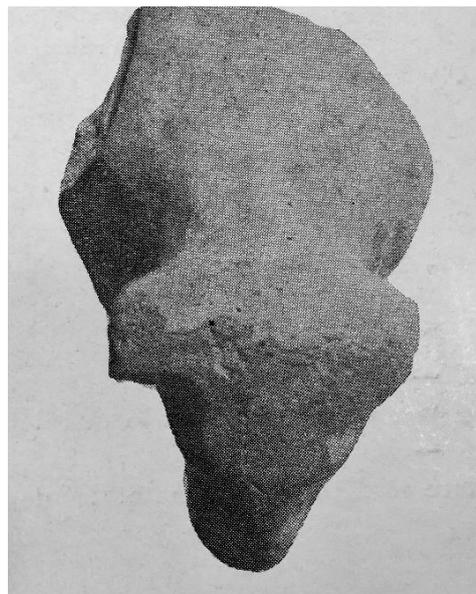


Figure 3.8: Baked clay bovine vessel fragment. L. 2.8 cm. (after Arik 1937: pl. LV)

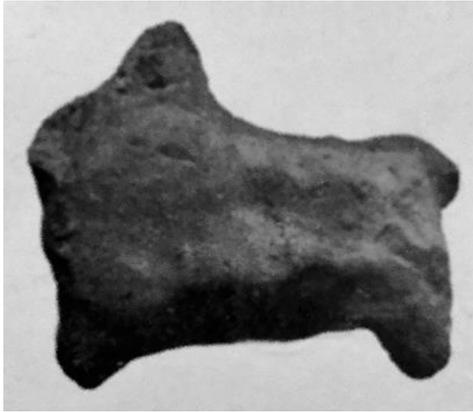


Figure 3.9: Baked clay bovine figurine. L. 2.5cm (after Arik 1937: pl. LV)

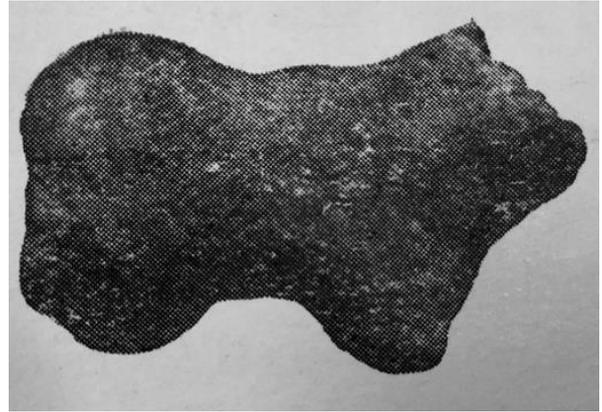


Figure 3.10: Baked clay bovine figurine. L. 3cm (after Arik 1937: pl. CCXXI)



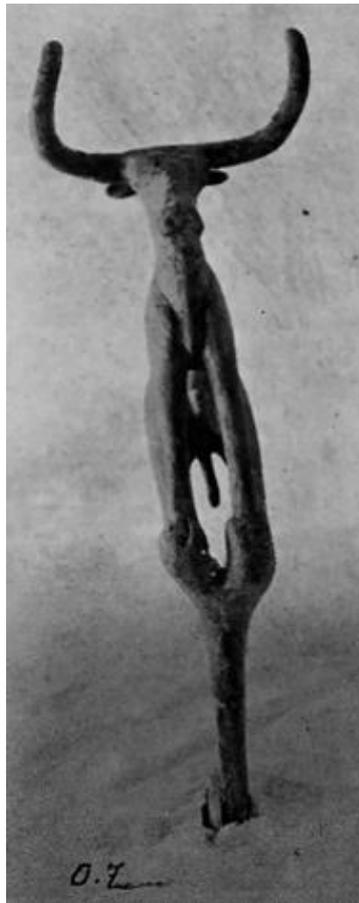
Figure 3.11: Copper alloy bull standard. H. 9.4cm, L. 14.6cm (after Arik 1937: pl. CCLXXI)



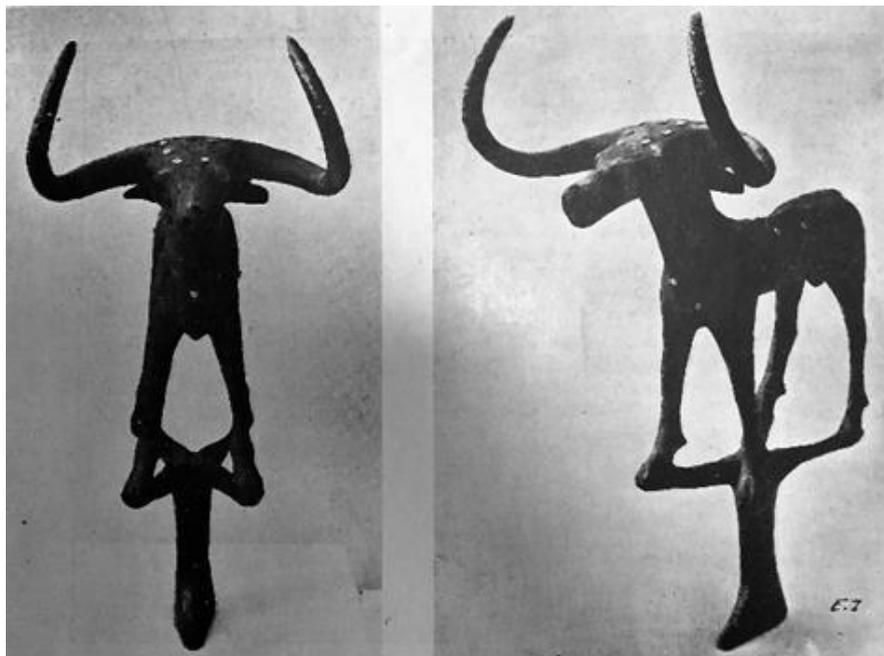
Figure 3.12: Copper-alloy standard with stag and twin bulls from tomb B. H. 22cm x W. 28cm, (after Muscarella 2003: fig. 80)



Figure 3.13: Copper-alloy bull standard with electrum detailing from tomb C. H. 48cm (after Muscarella 2003: no. 188)



*Figure 3.14: Copper bull standard
from tomb D. H. 41cm x L. 25cm
(after Koşay 1951: pl. CLXI)*



*Figure 3.15: Copper bull standard with electrum detailing
from tomb E. H. 35cm x L. 28cm (after Koşay 1951: pl. CLXIV)*



Figure 3.16: Copper bull standard with electrum detailing from tomb H. H. 56cm x L. 34cm (after Koşay 1951: pl. CLIX)

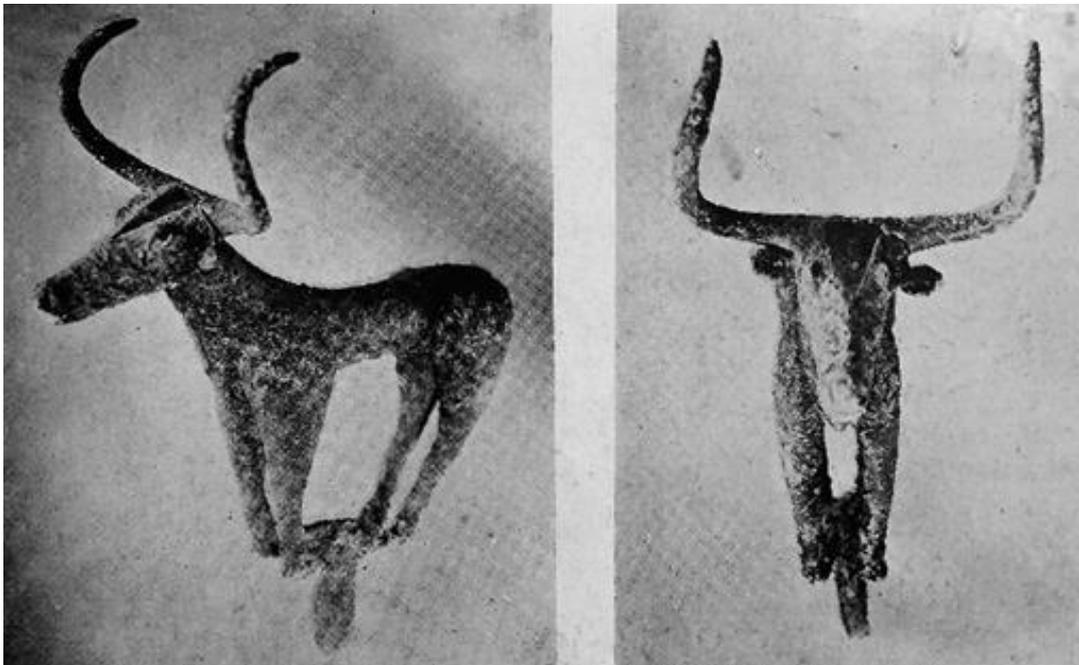


Figure 3.17: Copper bull standard with silver detailing from tomb K. H. 23cm x L. 29.5cm (after Koşay 1951: pl. CLXVII)

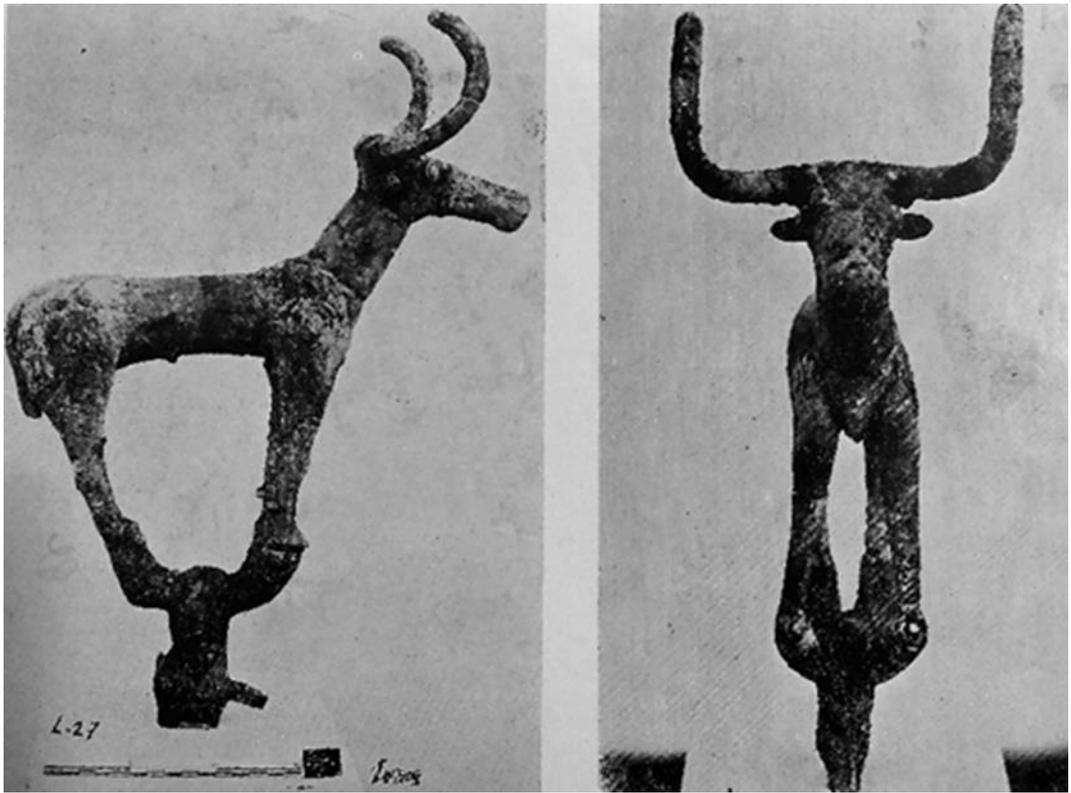


Figure 3.18: Copper bull standard from tomb L. H. 37cm x L. 34.5cm (after Koşay 1951: pl. CLXX)

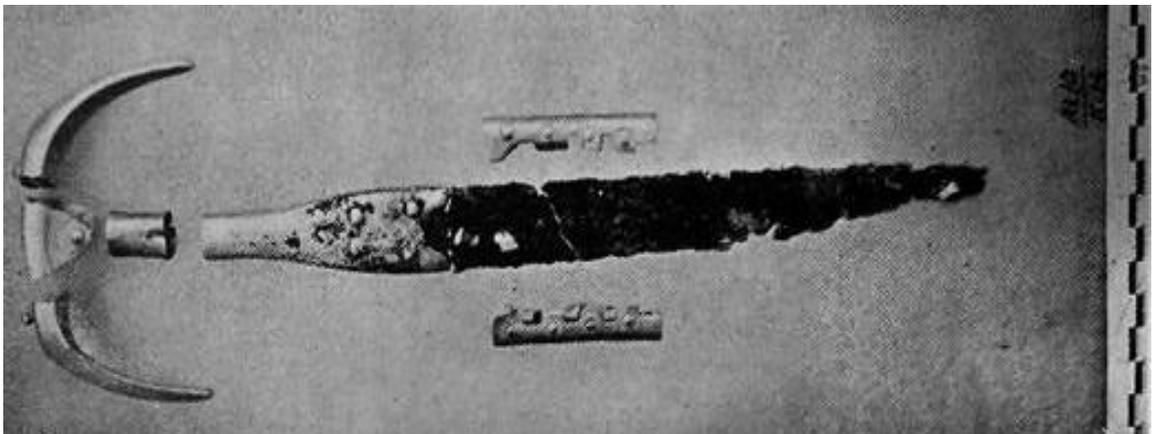


Figure 3.19: Iron dagger with gold detailing which once covered a hardwood hilt from tomb K. L. 61.5cm (after Koşay 1951: p. 167)

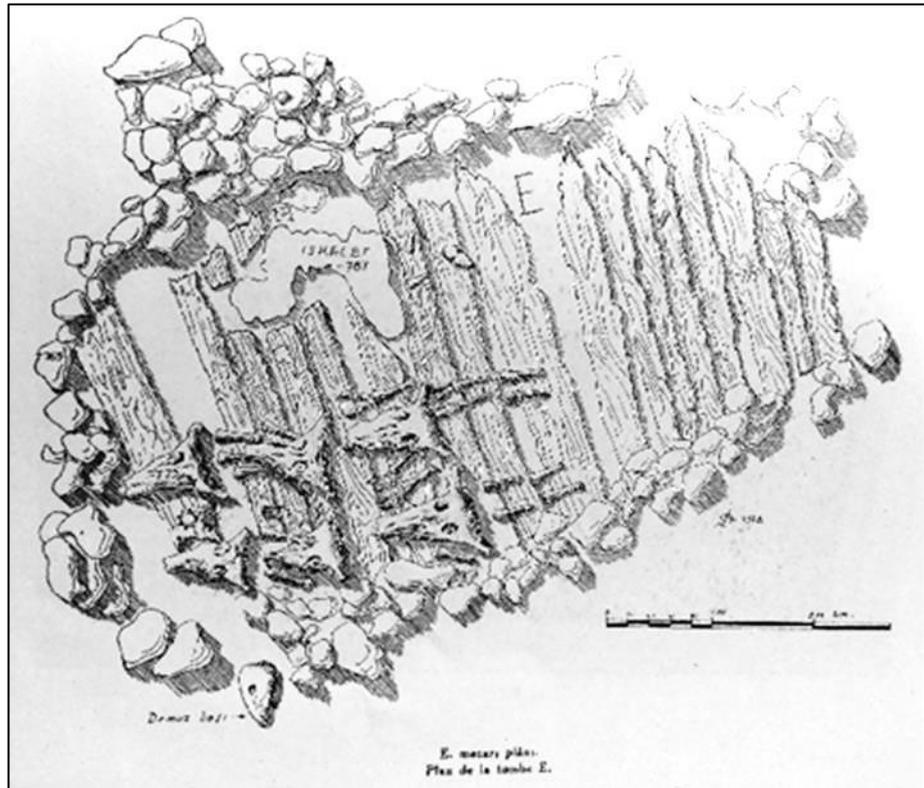


Figure 3.20: Plan of tomb E showing placement of cattle crania on roof of the tomb (after Koşay 1951: pl. CLVII)

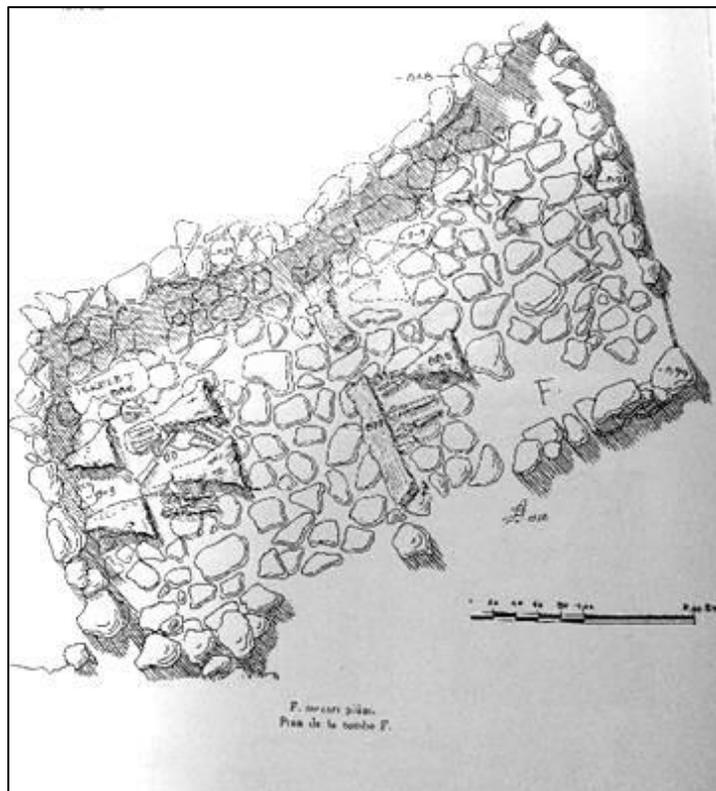


Figure 3.21: Plan of tomb F showing placement of cattle crania within the tomb (after Koşay 1951: pl. CLXVIII)

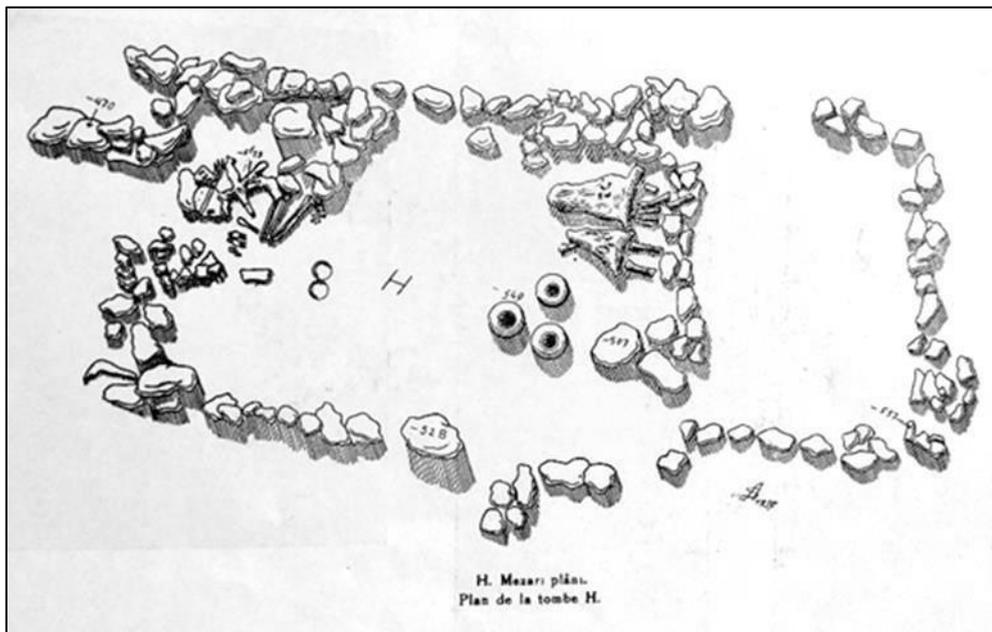


Figure 3.22: Plan of tomb H showing placement of cattle crania within the tomb (after Koşay 1951: pl. CXVIII)

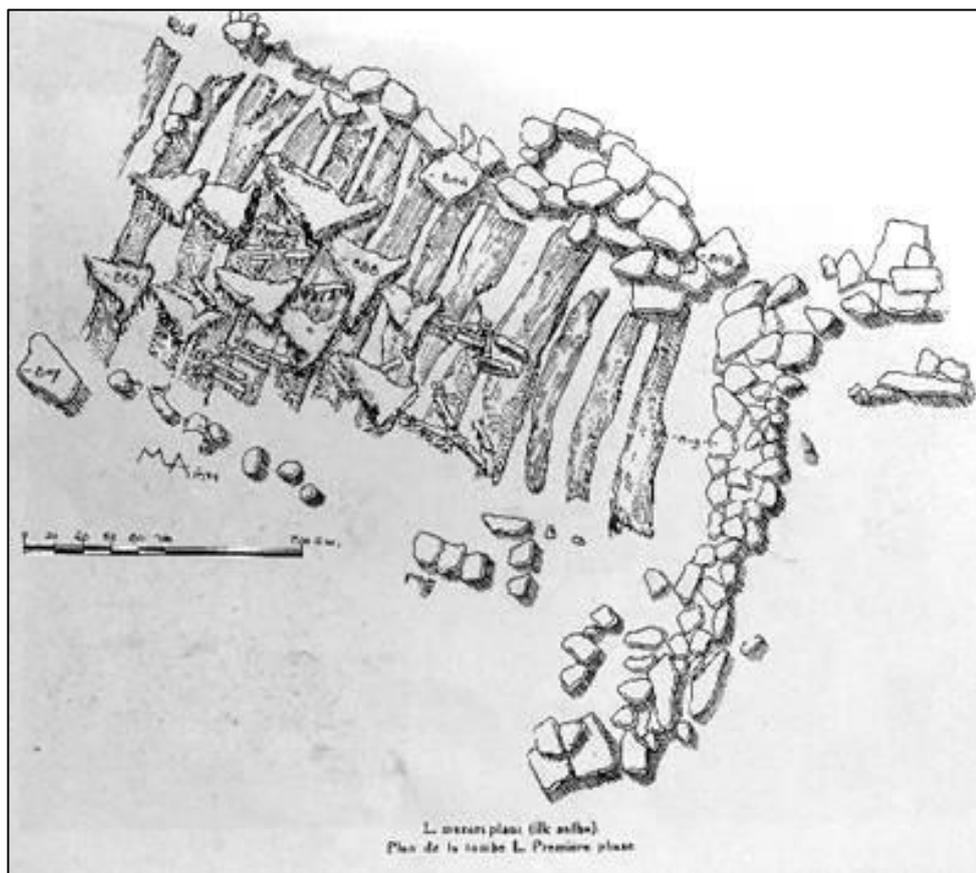


Figure 3.23: Plan of tomb L showing placement of cattle crania on roof of tomb (after Koşay 1951: pl. CLXXXIX)

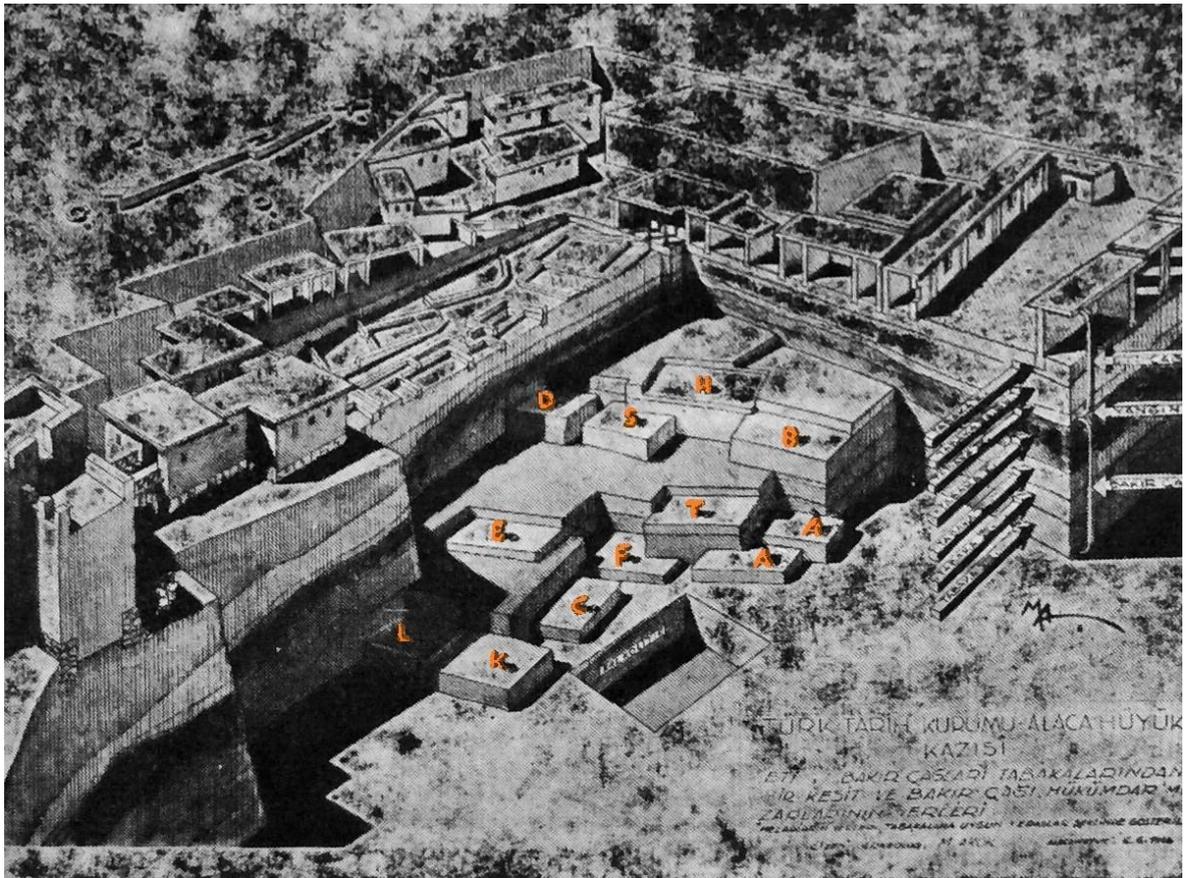


Figure 3.24: Plan of cemetery showing locations of the tombs (modified from Koşay 1953)

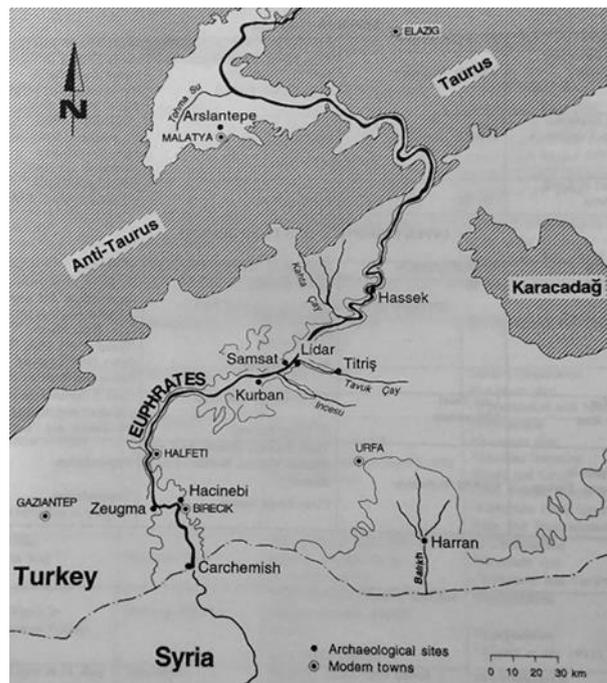


Figure 3.25: Area surrounding the site of Tiritiş Höyük (after Algaze 1999: fig. 1)

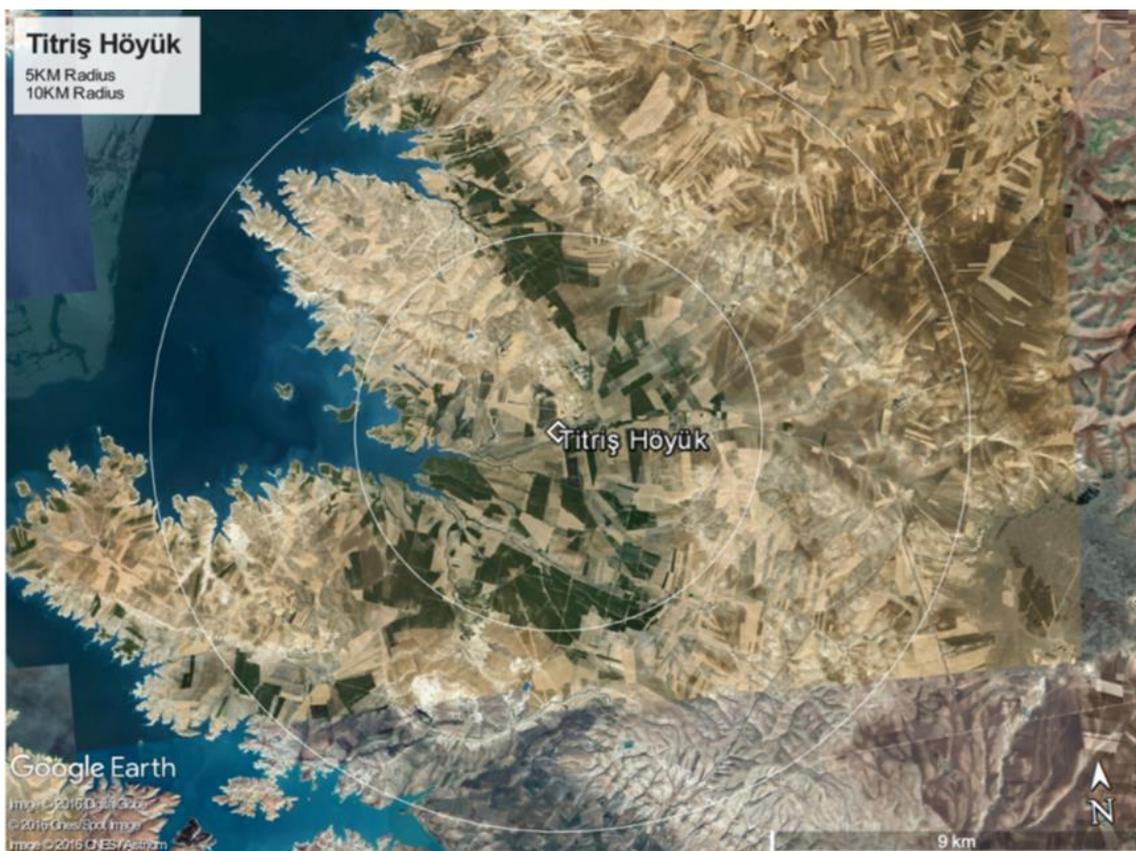


Figure 3.26: 5 and 10 km radii around Titriş Höyük. (Google Earth 2017)

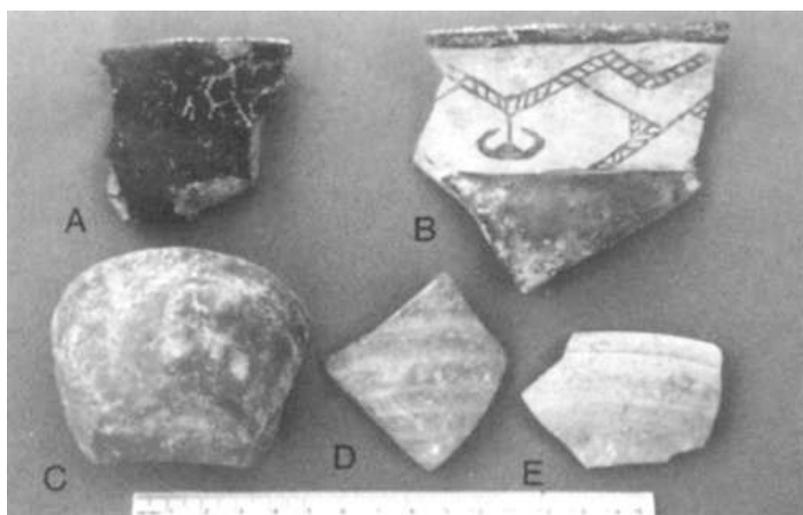


Figure 3.27: Vessel fragment with horned decoration (after Matney and Algaze 1995: fig. 7)



Figure 3.28: Grey stone casting mould (after Matney et al. 1997: fig 19)



Figure 3.29: Drawing of the mould showing the carving in detail (after Matney et al. 1997: fig 20)

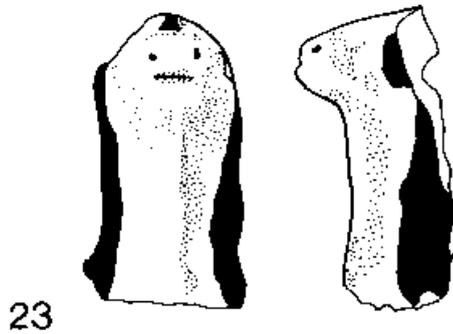


Figure 3.30: Clay animal head (Bos?) H. 7.5 cm (after Wilkinson 1990: fig. B: 27)

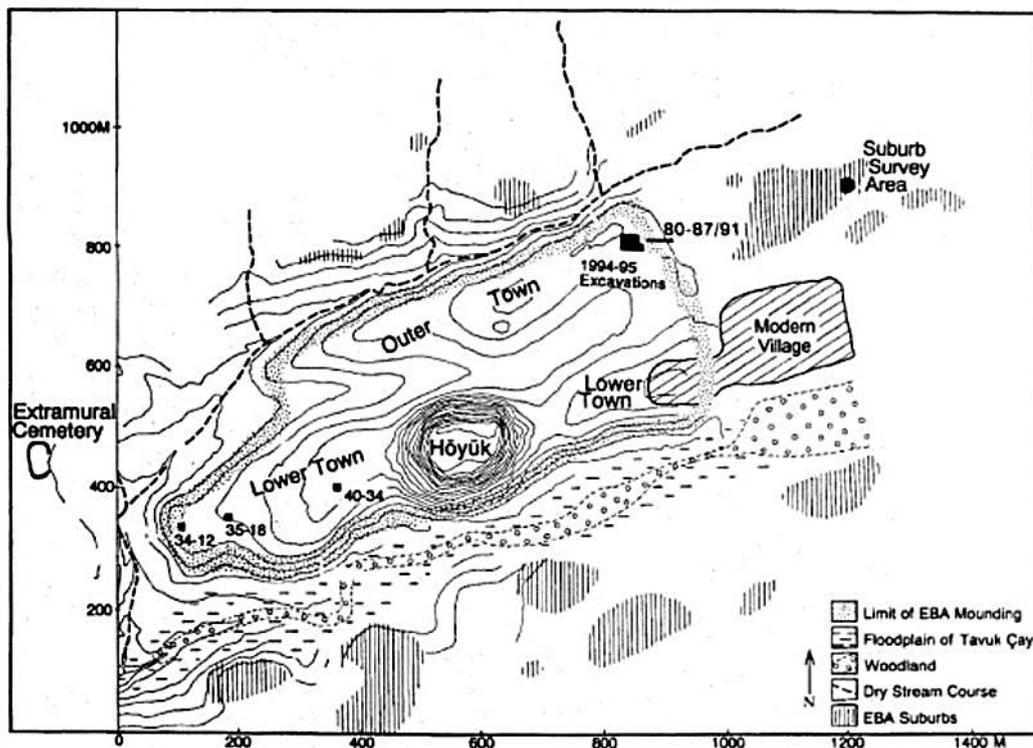


Figure 3.31: Site map of Tiriş Höyük (after Algaze 1995: fig. 1)

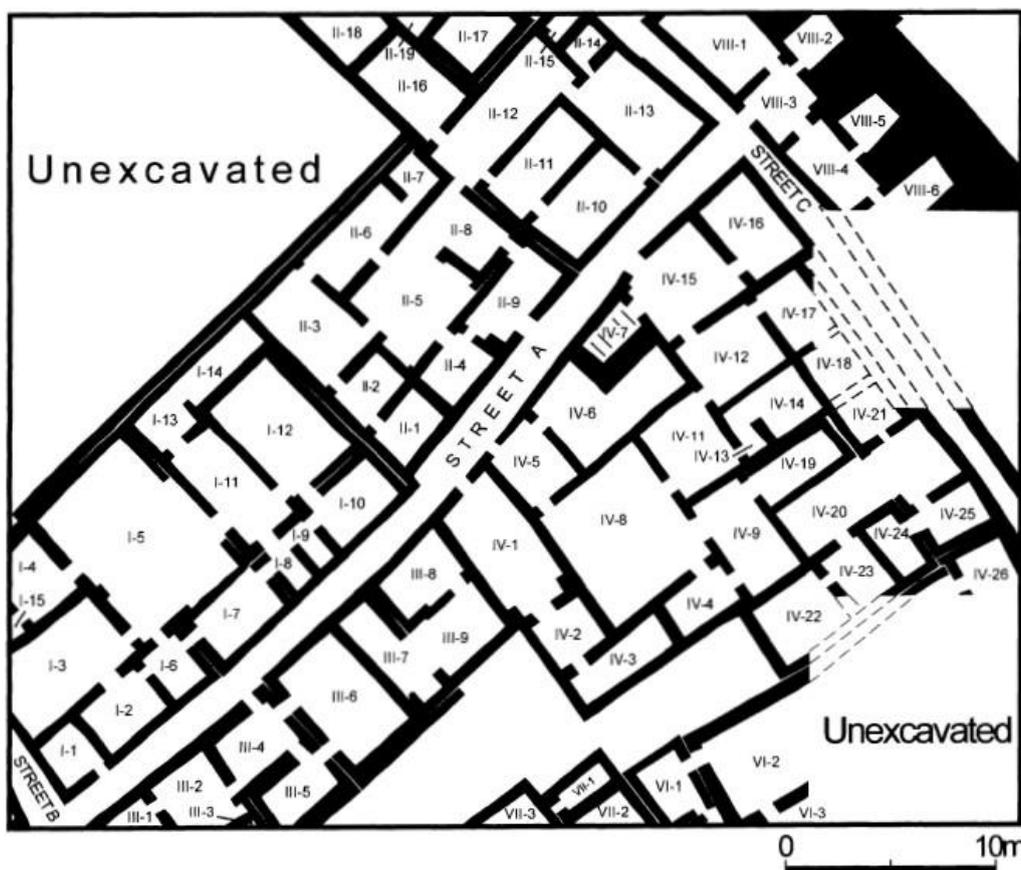


Figure 3.32: Map of Outer Town neighbourhood of Tiriş Höyük (after Algaze et al. 2001: fig. 2)

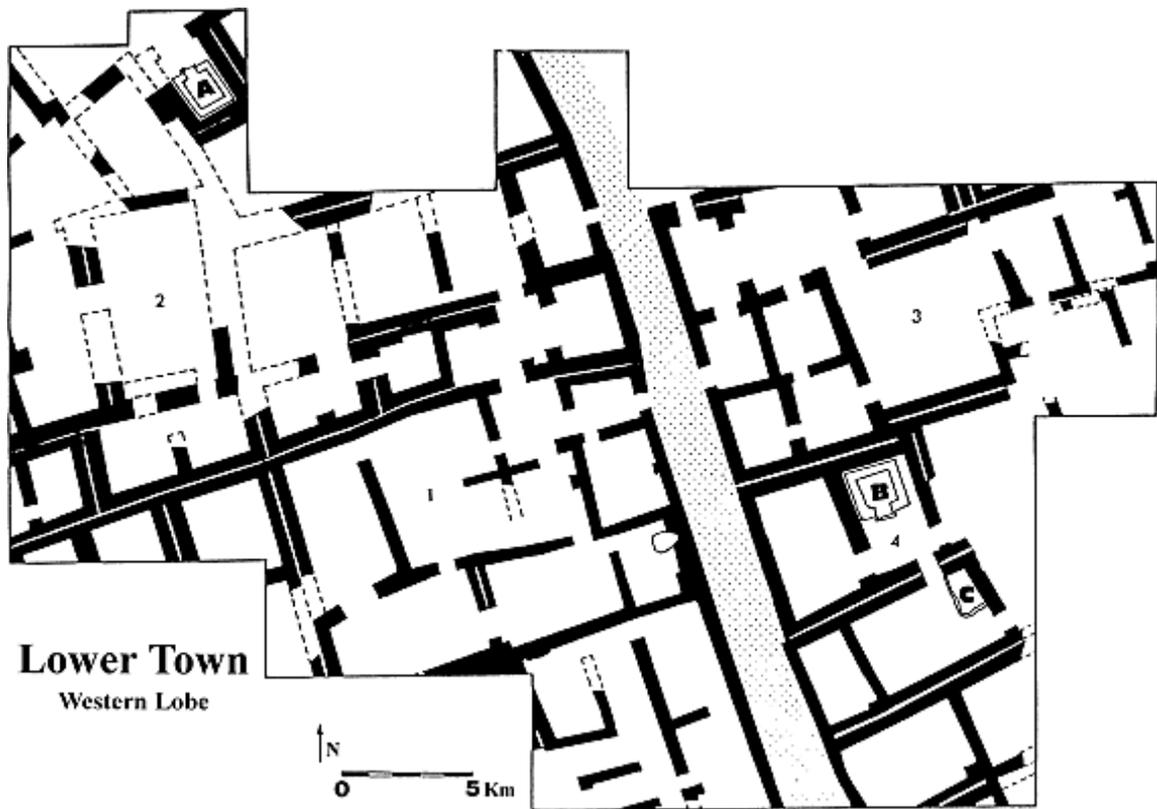


Figure 3.33: Map of Lower Town neighbourhood of Titiş Höyük (after Laneri 2007: fig. 3)

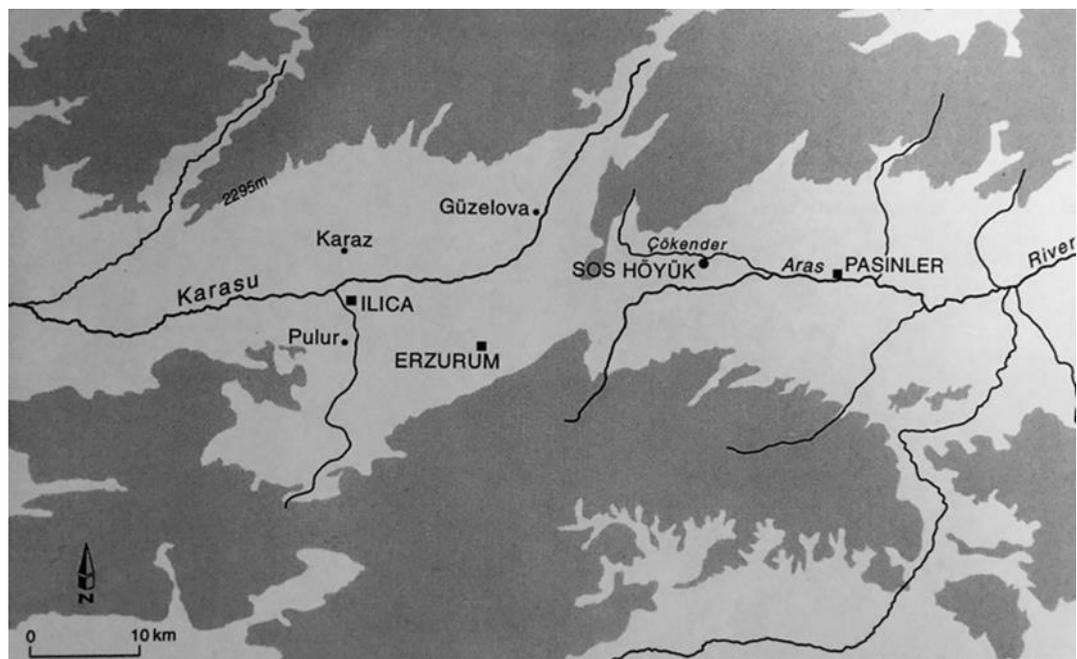


Figure 3.34: Area surrounding the site of Sos Höyük (after Sagona 2000: fig. 2)



Figure 3.35: 5 and 10 km radii around Sos Höyük (Google Earth 2017)

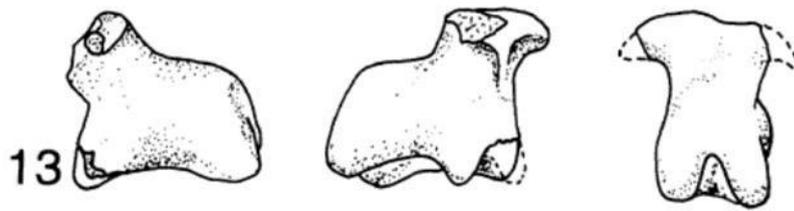


Figure 3.36: Baked clay animal figurine H. 2cm x L.2.5cm (after Sagona et al. 1996: fig. 12: 13)

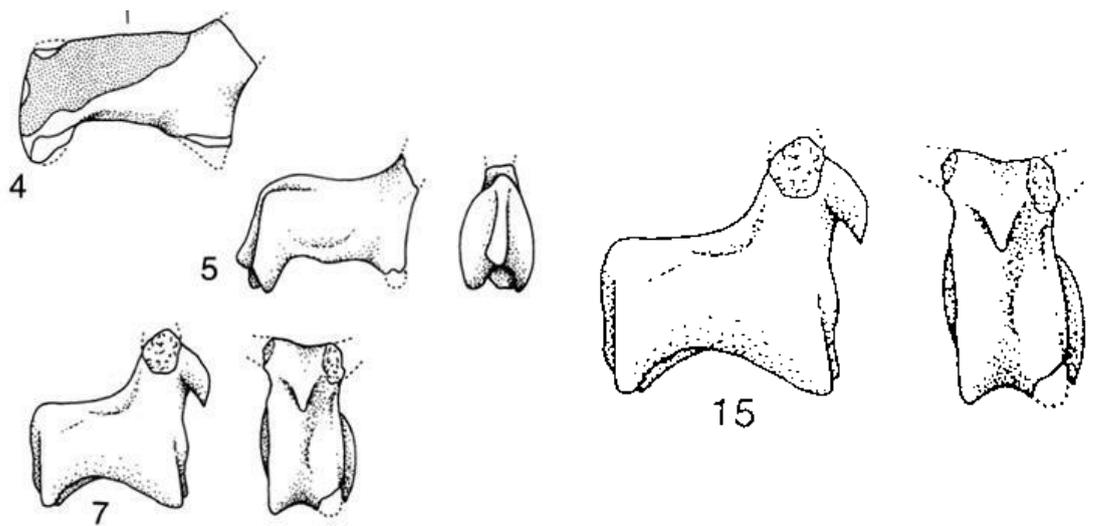


Figure 3.37: Series of baked clay animal figurines
 22:4 H. 2.5cm x L. 5cm. 22:5 H.2cm x L. 4cm. 22:7
 H.4cm x L.4cm (after Sagona et al.1995: fig. 13)

Figure 3.38: Baked clay bovine figurine (after
 Sagona et al. 1995: fig. 1:15)

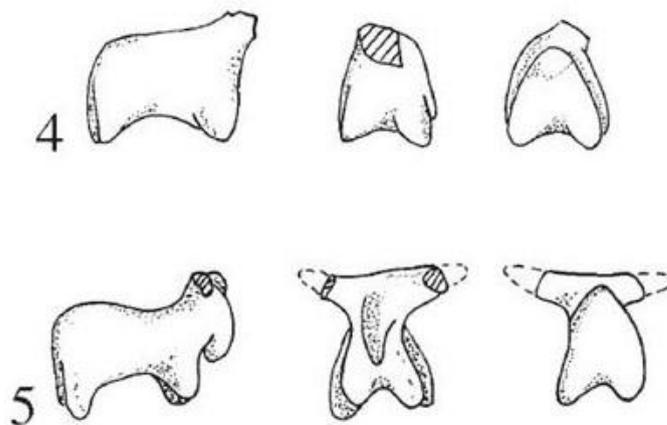


Figure 3.39: Baked clay bovine figurines 24:4 H.2cm x L. 2.5cm.
 24:5 H. 2CM x L.3cm (after Sagona 2000: fig. 21: 4. 5)

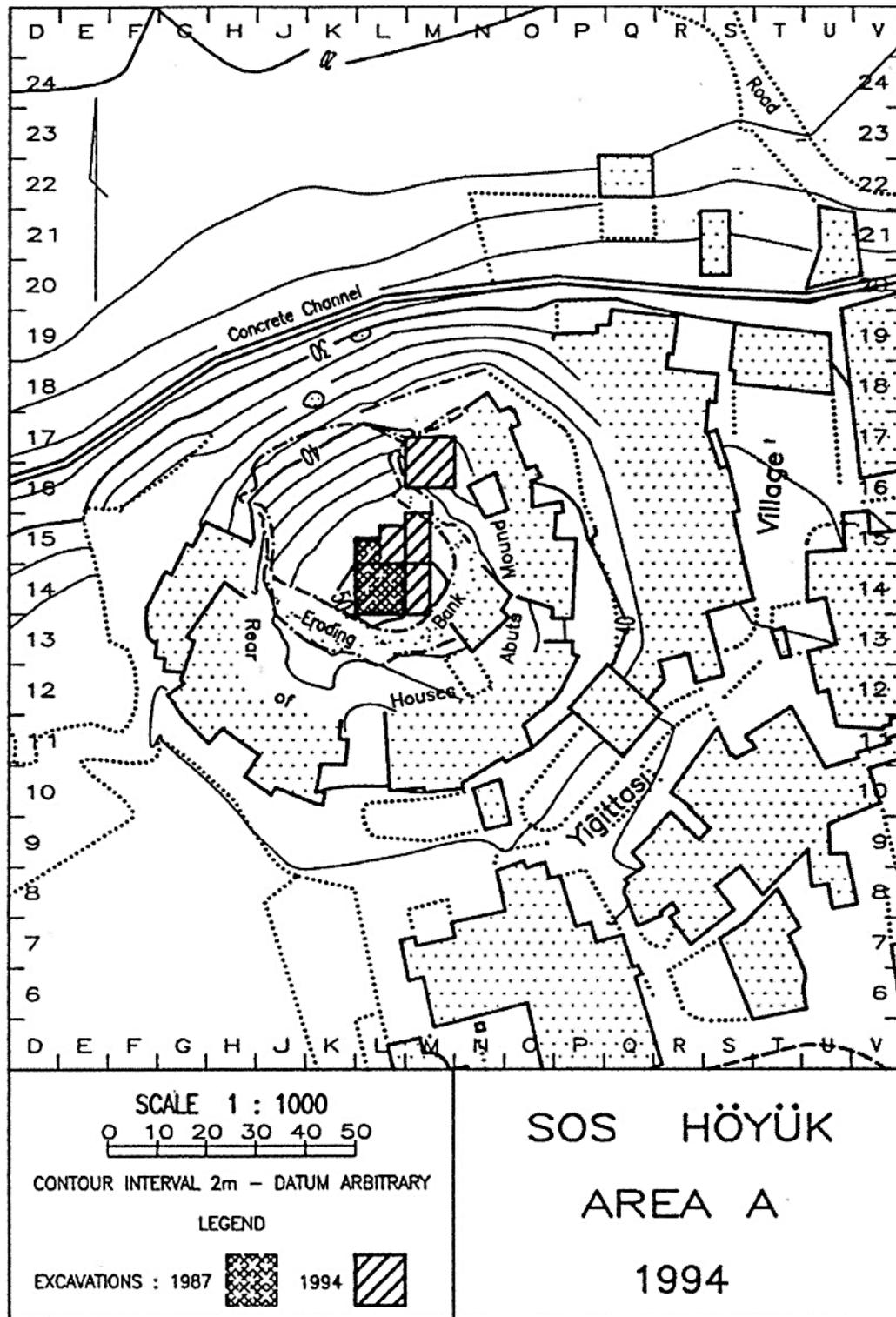


Figure 3.40: Site map of Sos Höyük (after Sagona et al. 1995: fig 2)

Chapter Four

Cattle in Southwest Asia: Northern Mesopotamia Culture Region

4.1. Introduction

This second chapter on cattle culture within Southwest Asia will focus on the region of Northern Mesopotamia and takes into account two selected archaeological sites to examine the Early Bronze Age faunal remains and material culture within these particular communities for later discussion. The sites considered include Tell Beydar and Tell Brak. The sites are important because they represent how large, Tell Brak, and small, Tell Beydar, urban centres interacted with and utilised cattle both in economic and social instances, see sections 1.8 and 2.3. The areas surrounding the two sites are relatively similar, due to their close proximity, and should give some information as to how cattle were used within rain-fed agricultural environments, see sections 1.5 and 1.6. In exploring these sites, I examine the faunal remains of each selected settlement, paying particular attention to cattle remains, as well as the material culture involving or depicting cattle. To allow for a fuller orientation, the sites selected will be discussed in terms of their geographical location from west to east, beginning in the west with the site of Tell Beydar and moving on to the neighbouring site of Tell Brak further east, figure 4.1. These sites were chosen based on their locations, their contexts, and the amount of material available for study. Unlike the sites discussed in the previous chapter, those selected for this region are well published and include in-depth studies of both the material culture and faunal assemblages. Unfortunately, when it comes to the investigation of material culture relating to or depicting cattle, we find an absence of information, aside from a few examinations of objects from the site of Tell Brak. Although both of the sites selected within this region have published reports on faunal remains, it must be stated that the proportions of cattle are not as high as those from the sites in the chapter on the Anatolian region, which may in

part be due to the landscapes and water sources around each site. It is also worth mentioning that the proportions of pig remains are substantially larger than those found in Anatolia. Both of the selected archaeological sites for the region of Northern Mesopotamia do have objects that either relate to or depict cattle; however, the site of Tell Brak by far has the largest collection of bovine depictions. By once again addressing the two questions assigned at the start of the project, see section 1.2, this review will investigate the interrelationships between humans and cattle in the Early Bronze Age period, specific to each respective site. Each section will begin with a short description of the site, including its landscape, location, and the findings relevant to this project. At the end of this review, there is a comparison of the data from the two sites to determine these interrelationships in Early Bronze Age Northern Mesopotamian contexts and a section to address the questions previously stated.

4.2. The Site of Tell Beydar

The site of Tell Beydar is located in the Al-Hasakah Governorate in the northeast portion of modern-day Syria. This site, once known as Nabada, was first settled in the Mesopotamian Early Dynastic period around 2800 BC, which places it firmly within the timeframe of this project, see section 2.4.1 (De Ryck *et al.* 2003). Tell Beydar is positioned near the Khabur River, a tributary of the Euphrates, and covers an area of some 22 hectares with the main mound being separated into upper and lower cities (Sallaberger and Purß 2015). For the purpose of determining possible land use and herding practices around the site, I will examine the landscape immediately surrounding the settlement. The area examined is separated into two sections, figure 4.2. Within the 5 km area, much of the landscape is broad, low pastoral land with a few modern agricultural fields directly to the north. To the southwest of the main mound lies a basalt plateau, which covers an area of some five hundred square kilometres (Ur and Wilkinson 2008). Directly to the east of the site is a small wadi, which runs roughly north to south through the 5km area. The

landscape within the larger 10km radius is slightly more varied. As stated before, to the south and west lies the large basalt plateau, which is home to a few modern agricultural and pastoral fields. To the north of the site, the landscape is blanketed by more modern agricultural and pastoral fields with a few small wadis to the north and east. Along with these fields, there are a few small villages. To the east and south of the site, the countryside is made up of arid steppe lands interspersed with a few small modern villages and small ancient tells. In the initial survey of the area, there seem to be no real signs of natural vegetation aside from the species of grasses and shrubs, which coincide with the steppe landscape; however, this may merely be the result of seasonal vegetation cycles from the date of the satellite's recording of the site. Based on the work of Ur and Wilkinson (2008: 305), it has been found that the ancient economy was based on rain-fed agriculture and animal husbandry, with the average rainfall in the Khabur region being approximately 250-300mm per year.

The broad lowland area where the site is located has been settled since the Neolithic and was home to many smaller sites that are contemporary with Tell Beydar, as well as multiple sites that predate and postdate the site from the Neolithic up to the Roman period (Ur and Wilkinson 2008; De Ryck *et al.* 2003). It has been estimated that seventeen Early Bronze Age sites have been identified surrounding Tell Beydar with several connected through multiple linear hollows (Wilkinson 2003:131). The site was at the centre of a small network of villages located on a fertile and well-watered plain, the ideal location for both animal and cereal production (Ur and Wilkinson 2008). Because Tell Beydar was at the centre of a small village system within a fertile plain, it became an influential urban site with multiple temple complexes and its own unique style of seal designs, which will be discussed below.

4.2.1. Material Culture

The site of Tell Beydar was initially settled at the beginning of the Early Bronze

Age and shortly thereafter reached its greatest size and influence (LeBeau and Suleiman 2016; Ur and Wilkinson 2008). Like the site of Tell Brak, Beydar is located in the Khabur Valley along the Wadi Awaïdj and lies closer to the Euphrates than the regional centre of Brak. During the third millennium, the site was centralised to the main mound, which was home to two major palatial buildings, a sizable granary, and five large temples surrounding a large ceremonial main plaza (LeBeau and Suleiman 2016: 103). Beydar is situated within the regional territory of ancient Nagar, Tell Brak, and is a fine example of a secondary, or satellite, settlement within the Early Bronze Age (Sallaberger and Purß 2015). Although this site does not share the same long excavation history as its neighbour to the east, it has been excavated almost continuously since 1992 (Cunliffe 2014). A total of thirty-one objects have been discovered at Tell Beydar that represent cattle or have some stylistic motifs relating to the animal. The objects selected for this brief survey are separated into three categories and will be examined in the order of seal and seal reconstructions, clay and stone bovine representations, and metal objects.

4.2.1.1. Seals and Impressions

The first group, that of seal and seal reconstructions, consists of nineteen examples, all but one of which come from the central area on the mound around the five temples: fields B, F, I, M, N, P, and S. The remaining seal was unearthed near the granary in field E, figure 4.3. The nineteen examples are further examined within appendix I, and for this current section, I will discuss some of the more general and unusual aspects of this collection. Compared to other Mesopotamian sites, the examples from Tell Beydar have been reconstructed from a number of sealings found throughout the site. Consequently, this section examines these reconstructed examples rather than each individual sealing. The typical design layout of many of the reconstructed seals is almost chaotic in nature with no clear divisions of registers (Rova 2012: 154). Nine of the examples are fashioned in what is known as the typical Tell Beydar style, figures 4.6, 4.7, 4.8, 4.13, 4.14, 4.15, 4.18, 4.19,

and 4.20. Of these examples, figure 4.6 is considered by Rova (2012) to have belonged to a high ranking official. Figure 4.15 is also a bit unusual in that it displays “the coils of a standing intertwined snake,” which is one of only two such examples of snakes from the site (Rova and Devecchi 2008: 89). Another unusual example in the Beydar style is figure 4.18. What makes this image different from other such processions is that others show a boat-god carrying a deity and followed by another deity; however, in this procession, the boat-god has been replaced by a seemingly quadrupedal deity.

The remainder of these reconstructions have varying style characteristics similar to examples from neighbouring sites, such as Tell Brak, or from other areas of Mesopotamia. With five examples, another style of seal is those made of multiple registers separated by a twisted cable, like a number of seals from Tell Brak, which is typical of the site’s style of seals (Milano and Rova 2014). Figures 4.4, 4.5, 4.9, 4.12, and 4.16 all show influence from the site of Tell Brak. The iconography of the seals is Beydar in form, most notably with the inclusion of boat deities; however, they are separated by a twisted cable with the majority of lower registers displaying various animal crania. Figure 4.17 is one of the more bizarre images within this collection of seal reconstructions. The design shows two rather strange animal-like figures, one with extremely long legs and strange offshoots near the figure’s head, and the other has a long upright tail with projections coming from what appears to be the animal’s neck. To the right of these two animals is what has been interpreted by this research as a rampant bovine figure with its head facing towards the strange animals. This is the only example with such unusual animals from any of the sites in either North or South Mesopotamia. Figures 4.10, 4.11, 4.21, and 4.22 all show design influences from Southern Mesopotamia and are quite similar to examples from the southern site of Ur. Figure 4.22 also shares similarities to figure 4.66 from Tell Brak. Both consist of multiple columns of animal crania and include central columns of bearded bovine crania. This example shows what appear to be lion heads along the sides with the central column

containing a series of bull-man heads. Interestingly, these heads appear to display more human characteristics and may, in fact, represent a ruler or god in a horned headdress as opposed to the bull-man deity (Black and Green 1998; Winter 1996).

Although many of the reconstructed seal impressions from Tell Beydar illustrate a distinct style developed at the site in the Early Bronze Age, there are also numerous stylistic similarities to the corpus of seal impressions from the site of Tell Brak as well as influences from Southern Mesopotamia. The collection of nineteen seal impressions from Beydar are rather unusual compared to those from other sites due to their lack of motif organisation as well as the inclusion of the boat-god motif found in nearly all of the examples. The seal examples briefly discussed here illustrate that there were multiple stylistic influences at the site since not all of the seal examples display the Tell Beydar seal style. The fact that the majority of seals were unearthed within temple contexts suggests that the temple may have held more influence at this site, which is unusual since many Northern Mesopotamian sites were controlled through palace complexes (Stein 2004). This may indicate that Tell Beydar was initially colonized by individuals from Southern Mesopotamia, where temple control is more common, as opposed to being an indigenously settled Northern Mesopotamian settlement like Tell Brak.

4.2.1.2. Clay Figurines and Objects

The second category of objects from Tell Beydar has been classified as clay objects, which have been positively identified as bovine based on their form and comparison with other positively identified bovine figurines from contemporary sites, see section 2.4.4. The first object, Figure 4.23, was found in the filling layer of the warehouse building in Field E and measures 7.8cm in length and 3.5cm high. The baked clay bovine figurine has been broken, and only the back half of the item remains. The fur and anus of the bovine are indicated by an incised design. The right side of the figurine is pierced, which may indicate it was once part of a pair of animals, possibly pulling a cart or chariot

(Goddeeris 2003). Figures 4.24 and 4.25 also come from field E in another fill context and are roughly the same size as the previous figurine. The first shows a baked clay figurine with the front legs and left hind leg broken, and the head has been broken at the neck. This particular item also has a well-preserved tail. Figure 4.25 is a baked clay figurine with only the back half of the animal intact. The back-right leg is missing, and there seems to be a slight indication of a tail. The next three figures were uncovered from a thick layer of ash in room 87760 from field I and may have been discarded due to a fire in the room in which they were found (Milano and Rova 2014: 91). The first example, figure 4.26, measures 3.5cm long and approximately 2cm high and is constructed of baked clay. The object is in a relatively complete state, with the only damage presumably coming from the fire previously mentioned. Figure 4.27 is made of baked clay and measures roughly 2cm by 2cm. This fragment displays the back half of a bovine with the back-left leg broken and the front of the body missing just before the front legs, and there are also some vertical incised lines along the side of the animal. The last figurine from this burnt room, figure 4.28, measures 3cm in length and 2cm tall and is constructed of baked clay. The front right leg has been broken, and the head of the bovine is missing. Compared to the other examples found in this room, figure 4.28 has been burned to such an extent that it appears black. The next item, figure 4.29, has been described by Purβ and Schmitt (2011) as a double bull-protome with an unknown or unclear symbolism. This small item, found near a palatial building in field P, rests on a pillared base with one of the heads missing. Although there is not much detail in the construction of the piece, the horns and muzzle of the remaining head are nicely modelled. The object is made of a light coloured baked clay and has been fired well.

4.2.1.3. Stone Objects

This next category is quite small and only includes two objects, figures 4.30 and 4.31. Figure 4.30 has been described as a small zoomorphic figurine made of stone and

measuring 1.9cm in length and 1.5cm high (Debruyne *et al.* 2003). This item is completely preserved and was unearthed in an ashy filling within field F. The object is rather plain in style and may be described as being unfinished with no indications of a nose, eyes, legs, or tail. The basic form of the object is exceedingly similar to an example of a small identified calf pendant from the site of Abu Salabikh, which leads one to suggest that this item represents a small reclining calf as well, both of which will be discussed in further detail in chapter six. The last item within this category of clay and stone bovine representations is a finely carved stone bull's head, which was discovered in the remains of temple A within field F, figure 4.31. The head, carved from white coloured stone, was found in a large mixture of debris from the floor of a narrow room within the temple. The object is realistically rendered with the nose, eyes, and fur of the animal carefully incised; the only damage is the loss of the right ear and horn. Though the purpose of the item is unclear, it has been suggested that it may have been a portion of a larger statue or perhaps a finely detailed piece of inlay or ornamentation (Bretschneider *et al.* 2007: 46). It is also unclear as to the function of the narrow room in which the item was found. The nine objects within the clay and stone categories illustrate the high degree of craftsmanship among the artisans at Tell Beydar, especially in the rendering of detail within the clay bovine figurines that stand out against those from other sites, which are crudely constructed at times.

4.2.1.4. Metal Objects

The last category of items from Tell Beydar is that of metal objects found displaying crescent-shaped motifs. There have been three such objects found at the site that meet such a description and are very similar in style to items from Tell Brak and Abu Salabikh. The first of these objects, figure 4.32, was found in what was described as an elite Akkadian grave located at the acropolis, presumably around field F (Bretschneider and Cunningham 2007). This example of an unguent dipper is made of a copper alloy, measuring 8.1cm in length and 1.7cm at its widest point. It was found near the head of the

grave's occupant along the western wall of the tomb. The head of the pin displays an upward-facing crescent motif and was connected to a small incomplete vessel with small amounts of wood preserved around the pin, and it may have been a part of the occupant's toilet kit. Figures 4.33 and 4.34 show another so-called unguent dipper found within the same tomb. The item is made of copper alloy and measures 7.2cm in length and 1.5cm at its widest point. It was discovered in the northeast corner of the tomb near the occupant's feet and, like the previous example, was connected to a small, incomplete vessel. The design of the pin or dipper is exactly like that of figure 4.32 with an upward-facing crescent motif at the top. The third pin/dipper object, figures 4.35 and 4.36, was discovered in the grave of a man between the ages of 30 and 50, under a palatial building in the northwest corner of field F (Debruyne 1997). This pin is made of copper alloy as well and measures 6.3cm in length. Stylistically speaking, this pin is the same as the other two, with a crescent-shaped motif at the end; the only major difference is that there are no vessel remains surrounding the shaft of the pin. This style of pin is relatively rare in this period throughout Mesopotamia and is characterised by a small shaft topped with a horn-like ornament (Tonussi 2008: 222). To have three such examples from the same site within the same period, and found in closely situated elite graves, is a rare occurrence indeed. These infrequent objects will be compared to the similar finds from Tell Brak and Abu Salabikh later. Although the design of these three objects can be found at the other two Mesopotamian sites, the examples from Beydar stand out due to their frequency at the site; it also must be noted that these are the only items from the site relating to cattle that are made of metal.

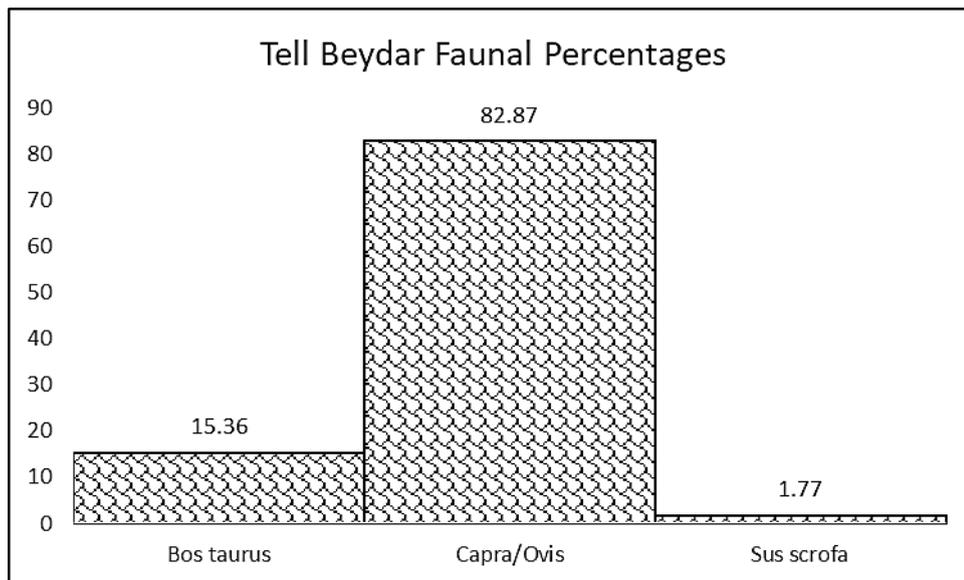
4.2.2. Faunal Remains

The faunal remains from Tell Beydar have been well studied since the beginning of the site's excavations in 1992. From the Early Bronze Age contexts, there have been two studies for the site's animal remains with a combined total of 12,508 specimens

identified to a satisfactory taxonomic level (Van Neer and De Cupere 2000; Siracusano 2014; De Cupere and Van Neer 2014). The categories of wild taxa and other are represented within the survey; however, they are not included within the site faunal percentages due to a lack of positive species identification. The remains were unearthed between the years of 1992 and 1997, as well as 1999 and 2004. Although there are numbers of remains dating to the Late Chalcolithic and Hellenistic periods, the samples that are studied here can be dated to the Early Dynastic Period with a few dating to the later Early Akkadian period. The sample was constructed from excavations in fields B, E, F, G, H, I, K, N, P, and S, table 4.1. By far, the largest sample, numbering 8,207, came from temple complexes in field F at the centre of the ancient site, with the smallest sample only consisting of three specimens being unearthed in field S, also in the centre of the site. The largest proportion of specimens, accounting for NISP of 7,997, comes from the combined grouping of wild and other species, with the domestic sample having an NISP of 4,511, (graph 4.1).

<i>Faunal Assemblage from Tell Beydar</i>			
Taxon	Common Name	NISP	Percentage %
<i>Bos taurus</i>	Cattle	693	15.36
<i>Capra/Ovis</i>	Goat/Sheep	3052	67.66
<i>Capra hircus</i>	Goat	222	4.92
<i>Ovis aries</i>	Sheep	464	10.29
<i>Sus scrofa</i>	Pig	80	1.77
<i>Wild Taxa</i>	various	1898	N/A
<i>Other</i>	Other	6099	N/A
Total		4511	100

Table 4.1: The faunal assemblage from Tell Beydar (after Van Neer and DeCupere 2000; Siracusano 2014; DeCupere and Van Neer 2014)



Graph 4.1: Depiction of faunal assemblage from the site of Tell Beydar using NISP percentages

The cattle population, *Bos taurus*, has an NISP of 693 specimens, making up exactly 15.36 per cent of the collection. The category of positively identified goat, *Capra hircus*, has an NISP of 222 and accounts for 4.92 per cent of the overall total. The grouping of sheep, *Ovis aries*, with an NISP of 464 makes up 10.29 per cent of the assemblage. The category of specimens identified as being either sheep or goat, *Capra/Ovis*, is by far the most sizeable collection of domestic species with an NISP of 3,052 and accounting for 67.66 per cent of the overall identified faunal sample. Compared to the site of Tell Brak, Tell Beydar has a rather small pig population, *Sus scrofa*, having an NISP of only 80 and making up 1.77 per cent of the total sample. It also must be said that the sample of cattle remains from Tell Beydar is the larger of the two sites selected for this project. According to one study, the food production for the site was based on rain-fed agriculture and animal husbandry, which may account for the lack of *Sus scrofa* remains since pigs require a steadier water supply than other domesticated stock (Sallaberger and Purß 2015: 86; Siracusano 2014: 300). Since the closest constant sources of water lie some distance from the site, this may account for the smaller numbers of pigs, which are more likely to be concentrated within the confines a settlement. Although there is a small wadi directly east

of the main mound, it remains unclear if it provided a constant supply of water in comparison to more reliable Khabur River, which is located approximately 18 kilometres due south.

As stated before, ovicaprines are the largest grouping of the domesticated stock, with sheep outnumbering goat throughout all periods of the site (Van Neer and De Cupere 2000: 78). The kill-off patterns from Beydar regarding sheep and goat indicate that old and very young animals are represented in larger numbers than prime adult animals with most of the sample embodying animals between the ages of twelve months and two years (Siracusano 2014: 285). With the older population, females outnumber males in those specimens that could be sexually identified, indicating that these older animals were utilised more for breeding and secondary products such as wool. The cattle kill-off patterns are separated into two age brackets, the first being animals aged between six and twelve months, and the second incorporating the ages of two to three years of age (Siracusano 2014: 286). Dating of cattle specimens indicates that there was an increase in the animals' numbers starting in the Early Bronze Age, which began to decline with the Akkadian levels of the settlement. The faunal studies suggest that cattle were used for both their primary and secondary products, and although they are far outnumbered by the sheep and goat stock, it must be said that in terms of meat production, it takes seven sheep or goat to provide the same quantity of meat as a single bovine (Van Neer and De Cupere 2000; Siracusano 2014: 286). The largest numbers of 348 cattle specimens come from field F, the location of three of Tell Beydar's temples, and lie at the highest point of the settlement. The location of these remains may indicate the relative importance of the animal due to the fact that this area was controlled by priests and high-ranking officials, see section 1.7. This may also indicate communal or group feasting practices related to upper status or religious individuals due to the fact that cattle were a preferred sacrificial and feast animal and such displays of power were meant to isolate and differentiate social groups (Hastorf 2017; Rice

1998). Most of the domesticated species discovered at Beydar would be very likely to thrive in the modern-day environment with lowland fields and constant water sources located a few kilometres to the south and west (Sallaberger 2004; Van Neer and De Cupere 2000; Ur and Wilkinson 2008). This fact indicates that the Early Bronze Age environment surrounding Tell Beydar was likely quite similar to the modern-day environmental conditions.

4.2.3. Context of Material Culture

The context of the objects and faunal remains from Tell Beydar is very intriguing indeed. Most of the material culture from the site comes from various temple and palatial areas, with the rest coming from the South Square and granary areas of the settlement. In terms of the faunal assemblage, there have been samples collected from all areas of the site; however, the largest numbers of domesticated remains come from the temple contexts. Some of the most substantial numbers of cattle remains come from field I with 106 bones and field F with 211 positively identified *Bos taurus* remains. The groups of material culture include seal reconstructions, clay bovine figurines, stone bovine representations, and pins and dippers. By far, the category with the highest numbers is that of the seal reconstructions. There are 19 examples of this category, all of which come from the central acropolis of Beydar. Six of the seal reconstructions, figures 4.4, 4.5, 4.6, 4.10, 4.11, and 4.18, come from field M. Of these items, figures 4.5, 4.10, and 4.18 were unearthed within the confines of temple E. Field M lies at the centre of the Tell Beydar acropolis, and the other three objects come from locations very close to the temple. Figures 4.6, 4.8, 4.12, and 4.22 were found in field S, the area known as the South Square. This area lies directly to the east of field M and south of field N, the location of temple D. From the context of these items, it may be stated that these seals were connected with the temples in some form or fashion. Two of the seal reconstructions come from sealings found in field B: figures 4.6 and 4.17. Field B lies just north of the main acropolis and is a residential area with the

building known as the Acropolis Palace at the southern edge. Although one of the sealings, figure 3, has no specific find spot, figure 4.17 was found near the entrance to the Acropolis Palace. Two seal reconstructions, figures 4.14 and 4.21, have been attributed to the context of field I, also located on the acropolis. This area, located directly east of field F, is at the centre of the acropolis and is home to temple A, the city's main street, and the largest of the Beydar's administrative buildings. One seal reconstruction comes from fragments found in field P. This area is to the northeast of field I and is the location of the site's Eastern Palace. There are five additional seal reconstructions from Tell Beydar that cannot be attributed to any specific context; however, due to the locations of the other examples, one may assume that they come from a relatively similar context due to the fact that the acropolis is the most intensively excavated area of the settlement.

The second grouping of objects is that of clay bovine figurines. Although this collection is rather small, consisting of seven objects, these figurines were discovered on or very near to the site's acropolis. Three of the figurines, figures 4.26, 4.27, and 4.28, all come from a thick ash deposit in room 87760 in field I. The items, as stated before, were most likely discarded due to a fire within the room; however, from their context, it may be suggested that they held some importance because this area is the administrative heart of ancient Beydar. From field E, an additional three figurines were found coming from a warehouse and the building known as the granary, figures 4.23, 4.24, and 4.25. Field E is located to the south of field P and east of field S. Figure 4.23 was found in the remains of a warehouse, and figures 4.24 and 4.25 come from a fill layer of the granary. It is strange that such items were discovered within this area since almost all similar figures from the region have been found within the context of houses and administrative areas. However, since the figurines are from fill contexts, one may conclude that the items were discarded in antiquity, leading to the unusual context of their location. The most unusual clay bovine representation, figure 4.29, was unearthed near the Eastern Palace in field P. This twin-

headed bull protome is a unique find from the site with no other similar items found at Tell Beydar. Since the figurine comes from a palatial context and is so finely executed, one can conclude that the item was constructed for someone of high ranking, making this item an important find from the Early Bronze Age levels of the site.

The category of stone bovine representations consists of 2 items, figures 4.30 and 4.31, both of which come from field F. Figure 4.30 is the small, unfinished calf pendant, which was found in a filling layer, and from the location of the item, near temples A and B, one might assume that the item was meant for some kind of religious purpose. Figure 4.31, the stone bull head fragment, was found within the confines of temple A. The item is finely constructed and due to the context of its finding may represent a portion of a larger ceremonial item. The last grouping of items from the site of Tell Beydar is a group consisting of two dippers and one pin displaying the crescent motif, figures 4.32, 4.33, 4.34, 4.35, and 4.36. The first two items come from what is assumed to be an elite Akkadian grave located within field F. Field F is at the centre of the settlement where a number of temples are located. Because of this context, it may be suggested that the grave belonged to someone of high status, such as a priest or city leader. The final item is a pin with a strikingly similar finial from an elite grave located under a palatial building within field F. Since all three of these similar items were found in graves within the same area of the site, this indicates that the form was associated with higher status individuals, meaning that the crescent motif was implemented solely by upper classes of individuals, at least in the case of Tell Beydar. In terms of their identification, I can say with some confidence that the first two items are, in fact, dippers due to their being discovered in association with their original containers. As for the pin, however, its identification may not be as clear. Based on the form of the object and its slightly smaller size, one may refer to it as a pin; however, with regard to the ambiguous use of the object and varying interpretations of objects, see section 2.4.2, the item may also be interpreted as an additional dipper (Winter

1999). The context of this final item, figures 4.35-4.36, from a palatial complex as well as the absence of a related vessel are likely the rationales for its initial identification as a pin as opposed to a dipper.

4.2.4. Context of Faunal Remains

The context of the faunal remains is equally telling of a community with a possible high regard for their cattle. Early Bronze Age animal specimens have been discovered in ten fields at the site: fields B, G, H, E, I, F, N, K, P, and S. What is particularly useful about these remains is that they come from fields in all areas of Tell Beydar, which allows for a better understanding of the overall nature of animal exploitation at the site compared to the material culture remains depicting cattle, which are only found around the site's acropolis. Although the numbers of positively identified faunal remains are rather small in several areas, it is still helpful to examine these numbers to determine possible trends in animal exploitation practices. To begin with, in field B, located north of the acropolis, a total of 930 bones were found. Of this sample, 69 were identified as having come from cattle. Field G is at the northern end of the main mound where 123 individual specimens were uncovered, only 20 of which were identified as cattle. In the area of field H, located northeast of the main mound is the area known as the outer city. Again, the number of remains is rather small, consisting of only 31 samples, two of which come from cattle. The next area, field N, is located at the centre of the site near temple D and the building known as the Watch Tower. In this field, only 14 animal bones were found with just one being attributed to cattle. Field K is the second area located off the main mound and rests to the northwest of the site near Beydar's excavation house. A total of 24 identified remains come from this field with three identified as cattle.

Field S, as discussed before, is at the southern end of the acropolis near temples E and D. There have only been three bone fragments found in this area with no remains of

cattle. In the area around the Eastern Palace, field P, located just east of the acropolis, a total of 57 animal remains were found, 13 of which were identified as coming from cattle. The next three areas hold the largest numbers of faunal remains, as well as the largest numbers of remains coming from cattle. Field E is an area to the east of the acropolis and is home to the site's granary. From this field, 577 identifiable animal remains were discovered, of which 61 were identified as having come from cattle. In the area around temple A and the main administrative building, field I, 2,542 samples were found with 176 coming from cattle. By far, the area with the largest numbers of positively identified faunal remains is field F. Located near temples A and B as well as near the area called the Artisanal Quarter, this field has produced a grand total of 8,207 individual animal bones. From this sample, we find the largest proportions of domesticated stock, as well as the largest numbers of cattle remains with 348 specimens.

From the information presented, we can tell that the areas with the highest proportions of animal remains, namely fields E, I, B, and F, account for the highest percentages of both total remains as well as the remains of cattle. The structures in field F indicate that these animal populations may have been utilised as either sacrifice or as food for those operating the temples. The same may be said for the faunal remains from field I, which is located next to field F. One opposing theory for the high amounts of remains may be that these animals were processed and distributed in these areas due to the presence of the artisanal production centre and administrative building being present within these areas. In terms of the remains from field E, the interpretation is a bit unclear. However, since this area is home to the granary, one may assume that there were other food production areas in or near this building. As for the context of the material culture from Tell Beydar, I can conclude that the majority of objects depicting cattle, bulls in particular, were discovered at the acropolis, indicating that the animal and its accompanying motifs relate to religious and administrative practices. The highest numbers of objects

representing cattle come from fields F, I, M, and S. These are also the areas where all of the site's temples are found, which reinforces the theory of relating cattle iconography and religious or cultic practices.

Considering the first question asked at the start of this chapter on the continuity of the symbolic significance of cattle, we find that, in terms of symbolism, cattle seem to be a predominant motif in relation to administrative practices as well as in items of fine craftsmanship relating to burials and religious buildings. To address our second question on the economic and social impacts of the animal at Tell Beydar, we find that the total of all cattle remains at the site is one of the larger groups of domesticated species, with an NISP of 693, with the largest categories being those of the combined sheep and goat category and the other category. This indicates that cattle did, in fact, have an economic impact on the site, although it is unclear as to the exact nature of this impact. With the highest percentages of the cattle remains coming from areas of religious importance, it can also be said that the animal held social importance as well, being utilised as either temple sacrifices or as foodstuffs for priests and individuals of high rank. Focusing on the question of how cattle may have influenced the behaviour of the society at Beydar, we find that the bull, as seen in the reconstructions of seal impressions, is almost always seen in association with deities. We also find that motifs, such as the crescent shape, have been found in association with elite individuals, both of which indicate that the animal had a significant effect on the human population of Early Bronze Age Tell Beydar.

4.3. The Site of Tell Brak

The site of Tell Brak, like the site of Tell Beydar, is located in Al-Hasakah Governorate in northeastern Syria. Although the site shows almost continuous occupation from roughly 6000 BC to 1200BC, the timeframe examined here will be the Early Bronze Age, approximately 3000 to 2100 BC (Oates and Oates 1991). Tell Brak, ancient Nagar,

began to grow in size in the Late Chalcolithic and quickly developed into a major regional centre during the Early Bronze Age. The main mound is located south of the modern town of the same name and rises more than 40m above the plain with an area of some 43 hectares (Oates 1985). The site is positioned where the Jaghjagh River flows into the larger Khabur River. As with Tell Beydar, I explored the landscape immediately surrounding the settlement to determine possible land use and herding practices. Within the smaller 5 km radius, figure 4.37, most of the landscape consists of flat pasture and agricultural fields. The modern town, as stated previously, is located just north of the ancient tell with the two rivers to the east and south of the main mound. Along with the modern town, there are a number of smaller villages and mounds surrounding the main site. As confirmed by Eidem and Warburton (1996: 52), the modern landscape around Brak is intensively cultivated, which may indicate that the landscape could have been cultivated to a similar extent in the Early Bronze Age. The landscape within the larger 10 km radius is much the same.

The area is flat and consists of modern pastoral and agricultural fields. The Khabur River runs in an east to west direction, approximately 2.8 kilometres south from the main mound, roughly cutting the landscape in half with the smaller Jaghjagh River coming from the north, 3 kilometres east of the site, and terminating at the larger Khabur. To the north and east, there are several small modern villages, and the areas south and west of the main mound are flat and arid pastoral land. As with the survey of the landscape around Tell Beydar, there seems to be no visible natural vegetation; however, one must assume that the species associated with a typical steppe landscape may be found within the confines of this area. Due to the water sources in close proximity to the site and by briefly investigating the modern countryside, we can consider that the surrounding agricultural and pastoral land led Brak to become the large and important city that it was in the Early Bronze Age. The estimated rainfall limit produced by Wilkinson (2003: 18) suggests that Tell Brak received between 400 and 599 millimetres per year, which is highly suited to rain-fed agricultural

production. With the addition of multiple small wadis as well as the two rivers located in the area, which have all been suggested to have maintained relatively similar course and flow in the Early Bronze Age, as well as the flat and seemingly fertile soil allowed Tell Brak to become a large and influential urban centre (Eidem and Warburton 1996: 52). According to detailed surveys of the Tell Brak area it, like the area around Tell Beydar, was surrounded by a number of smaller sites, mostly to the east, with Brak as a central administrator and, along with other large urban centres like Ebla, controlled large portions of Northern Mesopotamia in this period (Ur *et al.* 2007; Eidem and Warburton 1996; Wilkinson 2003: 210). These smaller satellite settlements likely provided additional foodstuffs for the population of Tell Brak, and based on the easy access to water and the annual rainfall estimates, the site could sustain quite a large population. The presence of field scatter surrounding Brak, an indicator of large-scale use of fertilizer, suggests that as the population increased, the total agricultural production needed to increase as well (Wilkinson 2003: 126). With a large population and the site being the economic and presumed religious centre, which can be confirmed by the large number of seals and impressions at that site, a portion of which will be discussed below, we gain a better understanding of the importance of Tell Brak within this region and period.

4.3.1. Material Culture

Tell Brak is a remarkably well documented and studied city at the northern fringes of ancient Mesopotamia. The site lies at the modern limit of cultivation in the Khabur Valley and rests at the centre of an east-west trade route connecting Northern Mesopotamia to the Mediterranean, as well as connecting this cultural region to the Anatolian cities in the north (Wilkinson *et al.* 2001; McMahon 2013; Oates and Oates 1991). From ancient texts regarding Tell Brak found at Ebla, we have discovered that this site shared the same status as other contemporary urban centres like Mari and was a major stop on the trade route from Nineveh and the Tigris River Valley (Ramos Soldado 2016: 10). Excavations at

the site began in the 1930s with Max Mallowan and, after several decades, were resumed in 1976 by the team of David and Joan Oates. In comparison to the other archaeological sites in this chapter, Brak has one of the largest numbers of material objects representing cattle, as well as the only identified example of *Bos indicus* remains from the larger Mesopotamian region, although the *indicus* remains are from a slightly later date. The 64 objects unearthed at the site have been assigned to four categories for a more structured discussion, namely: seals and impressions; clay objects and figurines; jewellery and pendants; and lastly, other or unusual items. All of the objects were discovered in areas TC, CH, ER, FS, HP, SS, HS, HN, and HH of the main mound, figure 4.38, with the majority coming from areas ER, TC, and CH. Although some of the areas show signs of Late Chalcolithic occupation, such as areas CH and HS, the majority of areas mentioned above date from the early third millennium; areas TC, CH, ER, SS, HS, as well as from later periods within the Early Bronze Age (McMahon *et al.* 2007; Emberling and McDonald 2001). Areas FS, HP, HN, and HH all have been dated to the Akkadian Period, see section 2.4.1 on dates and chronology (Emberling *et al.* 1999; Matthews *et al.* 1994). All of the material is stylistically similar with what appears to be a slight evolutionary change in the artistic detail over time.

4.3.1.1. Seals and Impressions

The collection of seals and impressions from Tell Brak displaying cattle motifs is rather large. There are four examples each of stamp and cylinder seals, fourteen examples of sealings, and eleven reconstructed seal drawings from sealings, making a grand total of thirty-three specimens. This section will examine some of the general aspects of the collection, as well as some of the more unusual items. A complete examination of all seals and impressions can be found within section two of appendix I at the end of this thesis. The four stamp seals, figures 4.39, 4.40, 4.41, and 4.42, are somewhat unusual in that this form of seal is not as common in the Mesopotamian regions as in other areas in Southwest Asia.

Figures 4.39, 4.40, and 4.42 are all similar in form, with square dimensions and varying forms of designs. Figure 4.41 is more unusual in that it is oval in shape and displays some of the only positively identified images of cows and calves. The strange image appears to show a three-headed cow with elongated horns that is feeding one calf while giving birth to a second. Of the material representing cattle from Brak, this is one of two examples that represents a female bovine and the only one that can be undoubtedly confirmed. These appear to be the earliest seals with bovine elements, which is interesting since they are all in the form of stamp seals, indicating an evolution in the preference for cylinder seals over time.

There are four examples of cylinder seals from the site: two showing complete images of cattle and two displaying horned deities. Figures 4.43, 4.44, 4.45, and 4.46 are all crafted from stone, and three of the four examples come from area ER, with the fourth coming from area CH. These areas roughly date to the early third millennium and are similar in style, and date, to those from the Southern Mesopotamian site of Ur. Figures 4.43 and 4.44 are ritual or processional scenes with horned deities in front of an altar or cauldron and are crafted in similar form. Figures 4.45 and 4.46 show complete images of cattle under attack by lions. The forms of seal design on these two examples, that of context or hunting scenes, are not as common in Northern Mesopotamia, but are rather common in the South, especially at the site of Ur.

The next category consists of a grouping of various sealings from Brak that display the full or partial images of cattle as well as images of bearded bull-men. Of the fourteen examples of sealings under consideration, there are ten specimens featuring images of these bull-men and an additional four with full or partial images of cattle. To begin with the images of bull-men, there are ten examples that show bull-men: figures 4.47, 4.48, 4.49, 4.50, 4.51, 4.52, 4.53, 4.54, 4.55, and 4.56. All of the designs either display complete figures or the cranium of this unusual animal. The imagery on these examples show these

bull-men attacking or being attacked by other animals, and there are others that simply show a standing bull-man or the head of one. The most unusual object within this design category is a clay bulla, which was unearthed in area FS, figure 4.56. This is one of very few examples of a clay bulla discovered through this research. The design shows a lion on either side of a small inscription. Directly to the left of the lion is a bull-man combatting the animal. The last four sealing samples to be discussed in this section display full or partial cattle imagery: figures 4.57, 4.58, 4.59, and 4.60. All but one of the four sealings were discovered within the Naram Sin Palace complex, and the fourth was from area CH. Each of the four designs is also different, see Appendix I for details, displaying a variety of themes from a contest scene to a processional scene. From these sealings, one is more unusual than the others, figure 4.58. Although quite fragmented, it is very finely impressed and was discovered within the Naram Sin Palace complex. From its design layout, it may be postulated that this sealing was made by a stamp seal rather than a cylinder seal, as most of the other sealings clearly were. The design shows the right-facing figure of a bull with a sunburst and crescent motif above the animal's back.

This last section on seals and sealings investigates the reconstructed drawings of eleven seals unearthed at Tell Brak: figures 4.61, 4.62, 4.63, 4.64, 4.65, 4.66, 4.67, 4.68, 4.69, 4.70, and 4.71. Nearly all of these seal reconstructions were recreated from multiple sealings and were unearthed in areas HS, SS, HP, and TC with six of the examples coming from area TC and the Oval Building located therein. These items display a variety of scenes and style influences; however, are all typical of Early Bronze Age Mesopotamian artistic style, and four of the reconstructions include the twisted cable, which was discussed with the seals and impressions from Tell Beydar, figures 4.61, 4.62, 4.63, and 4.65. Figure 4.62 is a more unusual example and was reconstructed from a fragmented bulla and once again has a twisted cable in the centre of the design (Emberling and McDonald 2001: 52). This example is from the Oval Building in area TC as are several of

these seal reconstructions. In the centre separating the cable is the figure of a lion attacking a caprine figure, and to the right and left of this scene are a series of stylised bull crania. The design of figure 4.64, also worth discussing further, is made up of two columns of animal heads; one column consists of lioness heads while the other is a series of bull heads. This is similar in style and content to figure 4.22 from Tell Beydar as well as figure 4.66. The next item, figure 4.66, was reconstructed from another bulla as well as a few other sealings from room eighteen in area SS of the site (Oates 2001a: 135). The image is constructed of five vertical columns. The four outer columns are made of a series of stylised lioness heads, with the central column displaying a number of bull crania and, as previously stated, is remarkably similar to other seals from Tell Brak and Tell Beydar. Figure 4.67, from area HS, is another unusual reconstruction due to its simplicity of design. This design shows a scene with the figure of a caprine and bull. Filling up the rest of the space are a number of seemingly abstract figures; the only figure that is relatively identifiable is that of a scorpion above the back of the bull.

Figures 4.68 and 4.71 are also unusual in that they display characteristics similar to seals and impressions from the Southern Mesopotamian site of Ur. Figure 4.68 is made of two registers and shows pairs of crossed rearing animals in the midst of battle, much like numerous examples from Ur. The concluding example is rather complex. Figure 4.71, from area SS, which was once the seal of a scribe, has been found on more than twenty impressions from Tell Brak and displays a scene of battling gods (Felli 2001). This scene shows two seated deities with the right deity wearing a headdress with three sets of cattle horns. Behind the left seated figure are four figures, three of which have headdresses with multiple sets of cattle horns. Like the previous seal reconstruction, this design is remarkably similar in design and content to a variety of seals from the southern site of Ur. It must be noted that in the case of deities discussed from the seals and sealings found at Tell Brak, almost all of the examples wear headdresses or crowns containing multiple sets

of cattle horns. In conclusion, the assortment of seals and impressions from the site of Tell Brak is diverse with examples displaying northern design elements, such as the twisted cable and animal crania, to those seals that show a southern influence, including rearing crossed animals and processional motifs. These influences have created a large and impressive collection of seals and impressions, which all display either representations of cattle or motifs relating to the animal. From the seals discussed, one can see a slight evolution from more simplistic design elements of the stamp seals, through to Early Dynastic designs, which are the most common, and ending up at the seemingly more defined and detailed Akkadian examples.

4.3.1.2. Clay Figurines and Objects

The next grouping of material culture from Tell Brak consists of six objects: three clay bovine figurines, two vessel fragments, and one very unusual clay tower. The first of the three figurines, Figure 4.72, measures 10cm in length and 7cm high and comes from area FS. The bottom portions of the legs are missing as well as the horn tips. This is the only baked clay bovine figurine found in the third millennium Brak levels during the excavations from 1976-1993 (McDonald 2001). The second figurine, Figure 4.73, was unearthed during the 1996 season excavations in area HN and measures approximately 9.5cm in length and 7cm high. The horns of the animal are broken off, and the hind legs are missing. What is absolutely unique about this particular figurine is that it depicts the representation of a zebu bull, as distinguished by the distinctive hump on the animal's neck (Matthews 1996). This is the only instance of a baked clay *Bos indicus* figurine from the Mesopotamian sites, and although not contemporary with the other examples, dating to the early second millennium, it shows that the species was present at the site at a slightly later date, which is important since it shows the spread of the animal through the region, from the south to the north. The third bovine figurine, figure 4.74, is made of unbaked clay, is 5cm in length and 4cm high, and was found in area HP. All four legs and the tips of the

horns are broken off. The following two items are fragments of vessels with the smaller of the two having been painted. Figure 4.75, from area ER, depicts the head of a cow made of red clay and is beautifully painted with black detail. The fragment measures 7.5cm in height and is hollow; it is fashioned with the snout of the animal as a pouring feature.

Figure 4.76 is the second vessel fragment with the snout pouring feature. The item, from area FS, is made of baked clay and measures 9.8cm in length. Although the object is not painted like the previous example, the eyes are pierced, and there are very peculiar incised markings on the back of the animal. The final item in this section is a very unusual clay tower, figures 4.77 and 4.78. It was discovered in a number of broken pieces in room one of the Cut in Building in area TC, late third millennium levels. The item measures 43cm in height and is 11 by 11cm wide. This tower, possibly an incense burner, has a door at the bottom and a few small windows further up. The tower has no roof, and there are three sets of beams, which have small birds resting on them. On the top of this structure, seven of an original eight animal heads sit facing outward. Although referred to as possible wild goat crania by Emberling and McDonald (2003), this researcher argues that the heads represent those of cattle due to the shape of the snout and horns. Due to a similar incense tower being unearthed at Abu Salabikh from this same period, a more complete discussion of the Brak tower will occur later. The grouping of clay objects is small compared to other object categories from Brak, and we find that these items are typical among clay objects within the region, aside from the strange clay tower.

4.3.1.3. Jewellery and Pendants

In the grouping of jewellery and pendants from Tell Brak, there are eighteen examples found thus far, which date to Early Bronze Age contexts. The main corpus of these objects consists of recumbent singular bovines and twin-headed bulls. The first example figures 4.79 and 4.80, measures 4.7cm in length, is made of black and white

alabaster, is pierced for suspension, and comes from an unknown context. This bovine is reclining, and the head is turned facing the tail; the underside is etched with a pair of scorpions. The following figures 4.81 through 4.85 were all found south and southwest of the Eye Temple, although no specific location or area was given. Figure 4.81 measures 2.6cm long, is made of soapstone and is pierced for suspension. The bull is reclining with the head facing to the left side. The underside of the piece is etched with two figures, though it is unclear what they may represent. The next item, figure 4.82, is very similar in style to the previous example. The item measures 3.3cm in length, is made of translucent alabaster, and is pierced for suspension. The figure is reclining, and its head faces to the right side. Like the other examples, the eyes have been hollowed out. The underside is etched; however, it is unclear what the design may represent. Figure 4.83 is in the same style as figure 4.48, reclining with the head to the left side. However, this item is very weathered. The item measures 3cm in length, is pierced for suspension, and is constructed from alabaster. The next example, figure 4.84, measures 2.5cm long, is pierced for suspension, and is made of a deep greenish-black coloured stone. The animal is also reclining; however, the head is reasonably lower than the other items thus far discussed. Underneath the object is an engraving of a stag with a few other unidentified markings. Figure 4.85 is 2.8cm in length, is made of black coloured stone, and is pierced for suspension. The bull is once again reclining with its head facing to the left. On the underside of the object is the design of a scorpion. Figure 4.86, from area CH, is another weathered example, measures 2cm long, and is made of lapis lazuli, and, as with all the items thus far, it is pierced for suspension. The animal is reclining with the head facing to the right. The last of these similar bovine amulets found on the south side of the Eye Temple, figure 4.87 is also the smallest, measuring 1.9cm in length. The piece is constructed of white marble and is pierced for suspension. This animal is reclining, and its head faces to the right. The eyes of the animal are hollowed out, and the underside of the

item is etched with nine tiny circles.

One of the more unusual items in this category of amulets and pendants is a human-headed bull amulet made from mother-of-pearl, figure 4.88. This item measures 5.6cm by 5.25cm, comes from room sixty-three of area CH, and is decorated with a number of concentric circles across the body, with circles forming the eyes of the animal as well. The human/bull animal is in a reclining position, and its head faces to the left. Figure 4.89 is another bovine constructed of shell, measuring approximately 5cm in length, and unearthed in area TC. Like the aforementioned item, this object is decorated with a set of concentric circles near the animal's rear. The item is pierced through the top centre, and the eyes are etched out. Unlike the other examples in this category, the head of the object in figure 4.89 faces forward, making it rather atypical. Figure 4.90, from area CH, shows a twin-headed, reclining bearded bull. This object measures 2cm in length and is made of a green coloured stone. The item is beautifully crafted and displays the resting curled horns found in other items from Tell Brak. The following two specimens are similar in style to the item in figure 4.90 in that they are more examples of twin-headed bulls. Figure 4.91 measures 1.4cm in length and is constructed of lapis lazuli. This object, from area FS, is vertically pierced for suspension, and the heads of the animals have broken off. Figure 4.92 is the third example of a twin-headed figural bull pendant and comes from area CH. The item measures 1.5cm in length, is made of black coloured stone, and is pierced through the centre for suspension. This example also displays the resting curled horns from Brak, which will be discussed in more detail later.

The example in figure 4.93 is a rather interesting pendant showing two front-facing bearded bull heads, side by side. The item was found in the remains of a house from area ER, is pierced through the centre for suspension, measures 1.7cm in length, and is made of lapis lazuli. Figure 4.94 is another example of the same motif, is made of lapis lazuli, and measures approximately 2cm wide; it is also pierced in the same position as the previous

example. This object was discovered in an alley east of the Hoard Room of area HS. As with the previous example, the pendant depicts two front-facing bearded bull heads and is nearly identical to the pendant in figure 4.93. Both specimens also display the resting curled horns previously discussed. Figure 4.95, from area HH, is another small pendant measuring 1.5cm in length and is made of a black coloured stone. The item is pierced for suspension and shows two connected bull heads facing in opposing directions. The item is decorated with incised details, including a set of concentric circles quite similar to those found on the items made of shell. Figure 4.96, found southwest of the Eye Temple, measures 2.3cm in length, is pierced for suspension, and is made of a dark grey coloured stone. The item is a front-facing bovine cranium and displays the resting curled horns found in other items examined. The last item in the grouping of amulets and pendants is a curious pendant of a bearded bull from a house in area CH; the item is made of lead and measures 2.1cm by 2.7cm, figure 4.97. The animal is in profile with its head facing to the front; the tail is curled upwards and is connected to a small ring for suspension. On the main body of the animal are two rows of small vertical lines, possibly representing the hair of the animal. This collection of jewellery and pendants from Tell Brak is important because this is the largest group of jewellery displaying cattle within this region; it also must be stated that the majority of these cattle representations are in a recumbent position. As with the seals and impressions category, we find that the degree of detail increases from the Early Dynastic periods to the Akkadian period.

4.3.1.4. Other and Unusual Objects

This final section on material culture from the site of Tell Brak includes seven objects, which this research has classified into the group of other and unusual. The first object, found near the Eye Temple, figure 4.98 is a fragment displaying the hindquarters of a bovine. The object is made of limestone and stands to a height of 8.5cm. Although the beautifully carved object does not show the entire animal, it is clear that the item depicts

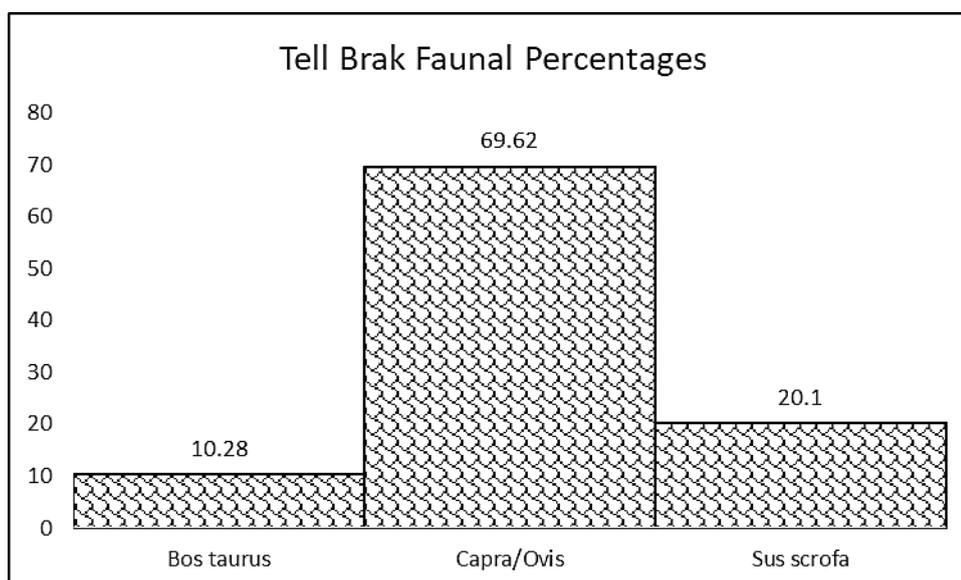
the form of a bovine. Figure 4.99, from area SS, is a small stone fragment of a possible bovine pendant. The item measures 1.9cm by 1.65cm and is finely carved on both sides (Oates 2001). The item shows the front lower portion of the animal. The next example, figure 4.100, is a miniature form of a bull's head and comes from an area on the east side of the Naram Sin Palace. The object is made of sheet gold over a base of bitumen. This is the only example of a gold item representing a bull discovered from this research at the site of Tell Brak, which makes it rather curious. Although figure 4.101 does not represent a bovine, it may indicate a portion of a larger possible bovine creation. The item, from the Naram Sin Palace, is a small piece of inlay made of lapis lazuli in the form of a beard section, similar to inlay from Southern Mesopotamia. Even though I am not able to determine what item this may once have been a part of, from the presence of a number of bearded bull depictions, one might assume that this piece of inlay was once a section of yet another bearded bull. Figures 4.102 and 4.103 show the image and a more detailed drawing of a small bronze toggle-pin from the Naram Sin Palace in area ER. The item measures 11cm in height and 2.3cm at its widest point and depicts a grooved crescent shape at its top end. The item is in quite good condition with only a small bend halfway up the pin. What is interesting about this item is that it is one of the only examples of a crescent motif that was not found on the image of a seal. Moreover, there is a very similar toggle-pin that was unearthed at the site of Abu Salabikh, both of which will be discussed in greater detail later on. Figure 4.104, from area FS, is a jewellery mould made of stone measuring 10.3cm by 7.1cm by 2.4cm. The mould has eight small figures and two pin moulds on the left-hand side. These small figures include a woman wearing a distinct headdress terminating in two crescent motifs; next to that is the figure of a twin-headed bull. Other figures include those of a bovine, a caprine, a wheel, and a number of unidentified figures. This jewellery mould is noticeably similar to the jewellery mould previously discussed from the Anatolian site of Titriş Höyük. The two moulds will be compared and discussed in a later chapter.

The most unusual object excavated from Tell Brak that depicts a bovine is a human-headed, bearded recumbent bull statue, which was found in the 1990 field season under the direction of David and Joan Oates (Oates and Oates 1991; Hansen 2001). Figure 4.105 shows images of the item's front and back, which was discovered on the south side of a courtyard leading to room thirty of area SS, although not *in situ*. The statue measures 40cm in length, 30cm high, and 20cm in width, and is constructed of white limestone. From the context of the object, it was initially dated to the Akkadian period; however, the object has stylistic similarities to other Mesopotamian bull items dating to the Early Dynastic period, 2900-2350 BC (Oates and Oates 1991: 133). The statue is strikingly unnatural in its depiction of both human and animal forms. Although most of the animal portion is naturalistic, the position of the animal's legs most certainly is not. The human portion also has unnatural facial features, including the beard, which is connected to the head via a string or ribbon. The eyes of the are inlaid with ivory set in a black material, most likely bitumen, with the eyebrow inlaid with the same material. According to one source, this human-faced bull may depict a creature known as a *Kusarikku*, which was usually associated with the sun god (Hansen 2001: 259). When investigating the position of the animal's legs, we see that it has one leg bent at the knee and raised with the hoof resting on the floor, which may indicate that the animal is about to rise from the ground. This is interesting since the animal is associated with the sun god; this action may allude to the rising of the sun. About half of the objects in this group are in a fragmented state; however, the most atypical items, namely the jewellery mould and recumbent bull statue, are in absolutely perfect condition. These items suggest that cattle did have some significant role in religious life due to the location of the statue and use of the mould's castings as possible religious objects.

4.3.2. Faunal Remains

<i>Faunal Assemblage from Tell Brak</i>			
Taxon	Common Name	NISP	Percentage %
<i>Bos taurus</i>	Cattle	298	10.28
<i>Capra/Ovis</i>	Goat/Sheep	1630	56.21
<i>Capra hircus</i>	Goat	159+*65	5.48
<i>Ovis aries</i>	Sheep	230+*83	7.93
<i>Sus scrofa</i>	Pig	583	20.10
<i>Wild Taxa</i>	Various	2649	N/A
<i>Other</i>	Other	6325	N/A
Total		2900	100

Table 4.2: The faunal assemblage from Tell Brak (after Emberling et al. 1999; Emberling and McDonald 2001; Dobney, Jaques, and Van Neer 2003)
 * identified specific species amount from overall group (Emberling and McDonald 2001)



Graph 4.2: Depiction of faunal assemblage from the site Tell Brak using NISP percentages

The faunal remains from Tell Brak have turned out to be rather typical of Early Bronze Age Mesopotamia in that sheep and goat by far outnumber other domesticated animal species. The remains come from areas FS, HS, HF, HL, TW, and TC. From Early Bronze Age contexts, there have been four studies for the site's animal remains with a combined total of 11,874 specimens identified to a satisfactory taxonomic level (Weber

2001; Dobney *et al.* 2003; Emberling *et al.* 1999; Emberling and McDonald 2001). The majority of the identified sample comes from the combined grouping of the wild and other categories, table 4.2 and (graph 4.2), with an NISP of 8,974. Of the identified sample that is explored here [cattle, sheep, goat, and pig], the remains represent a significant portion of the overall faunal assemblage, with an NISP of 2,900 respectively. From this sample, the remains of cattle, *Bos taurus*, have an NISP of 298 and make up 10.28 per cent of the total assemblage. The NISP of the goat category, *Capra hircus*, is 159, making up 5.48 per cent, and the NISP of the sheep category, *Ovis aries*, is 230, which is 7.93 per cent of the EBA assemblage. The collection of pig remains, *Sus scrofa*, gives an NISP of 583 and has an overall percentage of 20.10. By far, the largest collection of animal remains within this grouping of four domesticates is the combined *Capra/Ovis* category, which consists of animals identified as being either goat or sheep. This category has an NISP of 1630 and makes up 56.21 per cent of the total assemblage.

From the evidence presented, it may be said that wild taxa constitute the largest percentage of identifiable specimens, which indicates that Tell Brak may not have relied as heavily on domesticated animal species as other contemporary sites in Mesopotamia during the period of the Early Bronze Age (Emberling *et al.* 1999). Because of the relative abundance of water from the Khabur River as well as from a number of wadis surrounding the site, one may come to the conclusion that the majority of foodstuffs came from cereal and other crops as well as wild animal species, lightly supplemented by domesticated taxa. Due to the relatively arid landscape surrounding Brak, the lack of available natural fodder may provide evidence for the lower numbers of cattle remains and the increased numbers of goat and sheep (Weber 2001; Emberling and McDonald 2003). In terms of domesticated animal species, the largest group is that of sheep and goat followed by pig, with the smallest NISP coming from domestic cattle. Although it is not uncommon for sheep and goat to be the most abundant domestic species, it is interesting that the numbers of pig

remains are roughly twice that of those from cattle. And what is more, in the area material culture, the representations of cattle outnumber those of the other domesticated species, which raises the question, why this animal was so highly represented artistically while being underrepresented in the faunal assemblage? Perhaps the most remarkable zoological find from Tell Brak is a bifurcated vertebra from a zebu, *Bos indicus*, which was unearthed in the 1995 season of excavations under the direction of Roger Matthews. Figure 4.106, from area HN, is the only example of *Bos indicus* remains discovered at the site, and one of only two examples that display the presence of this animal at Brak in the Bronze Age, the other being a small clay figurine, Figure 4.73, which has already been discussed.

Unfortunately, both of these items are from a slightly later date than the other material discussed; however, it is important to mention the presence of such items. This specimen dates to the early part of the second millennium, the same period as the clay figurine, and may indicate a shift in environmental conditions at the beginning of the Middle Bronze Age that coincides with the abandonment of many Northern Mesopotamian sites (Matthews 2002: 438; Matthews 1995). Because zebu cattle are better suited for more arid conditions, the presence of such examples may indicate that changes in the paleoenvironmental conditions caused the area around Tell Brak to become less hospitable after the end of the Early Bronze Age, see sections 1.4 and 1.6. Since zebu have different pastoral and water requirements than taurus cattle, it also may be suggested that, even with more arid conditions, humans still wanted and needed to maintain herds of cattle, even if the environment was not well suited for them. Even though the faunal assemblage from Tell Brak does not give a clear image of food production involving wild and domestic species, it does provide a framework for the implementation of primary animal products from Early Bronze Age contexts.

4.3.3. Context of Material Culture

In contextualising the material culture and faunal remains from Tell Brak, we find that the highest proportions of material culture expressing bovine forms come from areas TC, CH, and ER. Area TC contains a large public area, sizable public buildings, and the site's Oval Building and is located near the centre of the settlement. Area CH has been described as a ritual and residential centre directly to the east of Brak's famous Eye Temple. And area ER, located approximately halfway between areas TC and CH, may be categorised as an elite residential area. The most substantial numbers of cattle remains have been found in areas FS, with 90 individual specimens, and TC, with a total of 63 individuals. Area FS is located at the northeastern corner of the main mound and is home to a temple area and a large building, possibly used as a storehouse. The groups of material culture examined include the following: seals and seal impressions, clay objects, pendants and jewellery, and unusual items made of various materials. The category with the largest quantity of items is that of the seals and seal impressions, which will be discussed first. There are 33 items in this category with the highest amount, 14 in total, being unearthed in area ER: figures 4.41, 4.44, 4.45, 4.46, 4.47, 4.48, 4.50, 4.51, 4.53, 4.54, 4.55, 4.58, 4.59, and 4.60. The area with the second highest numbers of seals and impressions is area TC, with figures 4.42, 4.62, 4.63, 4.64, 4.68, 4.69, and 4.70. All of these examples come from the Oval Building with one, figure 4.68, coming from room two within the area. Since areas ER and TC have been associated with religious and elite individuals, it is no surprise that over half of the seals and seal impressions containing images of cattle were discovered within these areas. Within area CH, there were four seals and impressions found, figures 4.43, 4.49, 4.52, and 4.57. As previously mentioned, this area has one of the largest collections of items with images of cattle and is located towards the centre of the main mound. Area HP, figures 4.61 and 4.65, and area SS, figures 4.66 and 4.71, each has two examples displaying bovine motifs. Areas HP and SS rest at the southwestern corner of the

site, with SS being the larger of the two areas. Within HP, several residences have been found, as well as a building that may have been a warehouse, based on the size of the structure. Area SS is largely accepted as a ceremonial area and is also the location where an unusual bull statue was uncovered. Areas FS and HS both have a single example within this category, figures 4.56 and 4.67. Area FS, as stated before, is at the northeastern corner of the site, and area HS is located at the northwestern corner of Brak. Area HS can be described as a residential area, which may explain why there have only been two objects representing cattle found within the confines of the area. The final items within this category include one that has come from shaft number one, excavated by Mallowan, figure 4.40, and another found just south of the Eye Temple, figure 4.39.

The next group of items is those made of clay, which seem to be evenly distributed throughout the settlement. Area FS, associated with religious activities, has produced two clay items displaying a bovine form, figures 4.72 and 4.76. One represents a bovine figure, and the other is a fragmented clay vessel. Figure 4.73 was uncovered in area HN, located in the western section of the site. This area has been identified as a residential zone, and the item discovered here represents the only example of a *Bos indicus* or zebu representation from the site; this is also one of the only zebu representations discovered within Early Bronze Age contexts from any site within this project. Figure 4.74 comes from area HP and shows a typical fragmented bovine figurine. As stated before, area HP lies at the southwestern corner of the Brak mound and has been identified as a residential area with a possible warehouse structure. The example from area ER, figure 4.75, is a rather unusual painted fragment, which may have once been a part of a vessel similar to that in figure 4.76. ER is an area known to have possible elite residences, which may explain the fine quality of the object. The final item within the clay objects category is a baked clay tower, figures 4.77 and 4.78. This rare find comes from a deposit within a tannur from room one of area TC, located at the centre of Tell Brak. Since area TC is an

area with several public buildings as well as the site's Oval Building, it may be suggested that the item held some sort of public function.

The next category consisting of pendants and jewellery, with 18 examples, is the second largest group of items with bovine representations. Of this category, the areas with the largest numbers are CH and the area around the Eye Temple, which are directly next to each other. All of the items attributed to being found near the Eye Temple come from the south side or southwest corner of that structure. Figures 4.81, 4.83, 4.84, and 4.87 all come from the area south of the Eye Temple while figures 4.82, 4.85, and 4.96 were discovered at the southwest corner of the building. There is also one pendant of a very similar form, figures 4.79 and 4.80, which has not been attributed to any specific area; however, since this item is in the same group as the other pendants found by Mallowan in the 1930s, one may assume that it might have come from around the same area. As predicted in the hypothesis that seals and sealings represent administrative, ritual, and elite contexts and sectors of society, the second highest number of items in this category comes from area CH, near the northeast corner of the Eye Temple. Figures 4.86, 4.90, 4.92, and 4.97 were unearthed during the first seasons of excavation whereas figure 4.88 comes from room 63 and was found during the excavations in the 1990s. Since area CH has the label of a ritual and, presumably elite, residential area, it may be suggested that these pendants were items owned by individuals of considerable social standing. The item in figure 4.84 was unearthed in area TC and bears a strong resemblance to figure 4.88 in that they are both cattle pendants made of shell and decorated with various concentric circles. What makes it more fascinating is that the similar items were found in relatively close proximity to one another. From the temple area of FS, one fragmented double-headed bull pendant was found, figure 4.91. Two similar pendants were also found in area CH, figures 4.90 and 4.92. Since areas FS and CH have ritual and religious areas, and since these are the only places at Tell Brak where these items have been located, this may indicate that the double-

headed bull motif held some cultic significance. Figures 4.93 and 4.94, the twin-headed bearded bull pendants, come from areas ER and HS respectively. As previously stated, ER is an elite residential area located at the centre of the main mound between areas TC and CH. The pendant in figure 4.93 was discovered under the remains of a house in ER. Figure 4.94 was found in an alley area east of the Hoard Room in area HS, which is located in the northwestern corner of the settlement. What is interesting about the context of both items is that they were deposited in residential areas separated by some distance, which gives no real indication as to an apparent use aside from personal adornment. The last item in this category, figure 4.95, is somewhat similar to figures 4.90-4.92 in that it shows a double-headed bull pendant. However, this particular pendant is stylistically different from the previous figures and shares the same concentric circular motifs found in the shell pendants. The item comes from area HH, which is located at the northern end of Tell Brak parallel to area CH. Although this area is the location of a later period Mitanni palace, this research has yet to discern the area's possible use during the Early Bronze Age levels of the site.

The last group of material culture from Brak in this contextual analysis is that of the unusual items unearthed at the site. There are seven items in this group with the largest collection coming from area ER. Those items from area ER, figures 4.100, 4.01, 4.102, and 4.103, were all found in the building known as the Naram Sin Palace. Since these items are made of materials such as gold, lapis lazuli, and copper, and due to the craftsmanship of their construction, it is assumed that they were made for a person or persons of high status. One item in particular from this group, figures 4.102 and 4.103, has strikingly close parallels to other items found at other Mesopotamian sites, which will be discussed later. Figure 4.98 comes from the area around the Eye Temple. Another unusual item found at Tell Brak, figure 4.104, was found in area FS. This jewellery mould is interesting because it was found in an area housing a temple and other large structures. Since the mould was discovered in this particular setting, it may be assumed that the amulets that this object

produced had some religious or cultic significance. The last two items discussed here, figures 4.99 and 4.105, were both acquired in area SS. As said before, area SS is a ceremonial area, which makes the discovery of the items here all the more interesting. Figure 4.99 is a fragment of a finely carved recumbent bovine whereas figure 4.105 is a stone sculpture of a recumbent human-headed bovine. Since the two share a similar form, it may indicate the importance of the bull in this particular area. However, figure 4.105 was not found *in situ*, but due to the size, weight, and condition of the statue, one may say that the object was not transported very far from its original location.

4.3.4. Context of Faunal Remains

The context of the faunal remains from Tell Brak is equally interesting. The identifiable animal remains come from four areas: TW, TC, HS, and FS. There are also two additional groups labelled as remains coming from third-millennium levels but not attributed to a specific area, and another group that comes from early and middle third millennium levels as well and not associated with any particular area or areas. To be discussed first are those remains from area TW. TW is located at the northern end of the mound halfway between areas HH and FS. This area is known for its niched building and may have been a production area as well. Within this context, a total of 2,537 individual animal remains were found, 30 of which belong to cattle. From area TW, the majority of remains are placed within the other category, which includes other domesticated animals, such as dogs and horses, as well as identified domestic mammal remains that could not be fitted to particular taxa and, hence, were separated into small, medium, and large mammal groups. The largest identified group in this area is that of the combined sheep and goat specimens; however, due to the numbers of other species that could not be identified past the mammalian level, it is unclear what the dominant species may have been. The next area to consider is HS, which is a residential area in the northwestern corner of Brak. Of the four groups assigned to specific areas, the numbers from HS are the smallest. A total of

681 individual bones were discovered, with 25 being identified as having come from cattle. Within this collection, the most abundant species is domesticated pig, with the combined total of all wild species coming in second. In area HS, cattle represent the smallest sample group. These numbers indicate that pig was the most consumed animal in this area and that this may not have been an elite residential area due to the fact that pig populations do not need a specific food supply, as cattle do, and can survive off scraps produced by humans.

The groups with no association to any particular area have a combined total of 3,378, and within this total, 90 individual cattle bones have been identified. The highest numbers in the two groups come from the other category, incorporating various domestic species as discussed previously. As one might expect, the largest group of identified domestic mammals is that of the combined sheep and goat group, followed by wild taxa and pig. Although it would be very helpful to know the area or areas of Tell Brak where these remains were unearthed, it is still useful information into the general trends in domestic animal use at the settlement in the 3rd millennium. The areas with the largest proportions of identified cattle remains are TC and FS. Both areas are associated with public activity and religious or administrative practices, which make it all the more intriguing that these are the areas with the highest cattle remains counts. Within area TC, located in the central portion of the site, a total of 2,131 individual animal bones have been found. Of this number, 63 were positively identified as coming from cattle. The largest numbers within this area come from the other category with the highest numbers of domesticated stock attributed to the combined group of sheep and goat. Interestingly, the second most populous group is that of pigs, meaning that cattle have the smallest population of total animals within the area. The remains from area FS have a total of 3,147 and constitute the largest collection of faunal remains from any area of Tell Brak. From the remains discovered in area FS, 90 have been positively identified as having come from domestic cattle. In contrast to the other areas, the most substantial numbers come from

wild taxa, and the largest population of domestic animals is the combined group of sheep and goat once again. The sheep and goat group is followed by pigs, and cattle once again come in last. Even though cattle have the smallest numbers in areas TC and FS, it must be noted that due to the functions of these areas and the fact that the largest numbers of identified cattle remains come from these areas, it can be assumed that cattle may have held another significance to the people of Brak, aside from their primary function as meat providers.

From the information given regarding the context of both the material culture with representations of cattle and the faunal remains from the site, one may conclude that cattle indeed held at least some form of importance to the Early Bronze Age population of Tell Brak, aside from their use as a primary meat source. A total of 298 cattle remains have been found at the site, representing multiple bodily elements, and although this number is not very high, the largest numbers of remains come from areas associated with religious practices and public, possibly administrative, areas. What is also interesting is that areas TC and FS have numbers of remains that are more than double those from areas TW and HS, indicating a possible preference for cattle in these particular areas. One thing that was rather surprising when investigating the faunal remains was that pigs constituted the second largest group of domesticated species, behind that of the combined group of sheep and goat. These larger pig populations could account for the Early Bronze Age environment around the settlement, indicating a greater abundance of water, or even a dietary preference. Concerning the material culture, the areas with the most objects depicting cattle are ER, TC, and CH. From these areas, the majority of objects are seals and seal impressions, and the area with most of these items is ER. Areas ER, TC, and CH are public, religious, and elite centres, indicating a preference for the bovine form by those of higher status. Because of this finding, one may infer that the image of cattle may have been associated more with these individuals than other population factions.

To address the first question on the chronological and contextual variation of the symbolic significance of cattle at Tell Brak, it can be seen that the majority of material culture representing cattle from the site comes from areas associated with religious and public life, indicating that the animal held some form of importance consistent with the areas in which these items were unearthed. We also find that most of these depictions come from seals and seal impressions, of which many incorporate religious and cultic imagery, which may denote a special reverence for the animal. Considering the second question on the economic and social impacts of cattle at the site, we find that, although cattle are not the dominant domesticated species within Early Bronze Age levels, they do appear most often in the areas relating to religious and public life. So, it may be said that even if the animal did not have a measurable impact on the economic aspects of life at Brak, they did hold some meaning within the social practices carried out there. With regards to the question on the nature of human and animal interrelationships at Tell Brak, we find that even with the low NISP of cattle remains and a possible low economic impact at the site, the social impact of the animal is rather distinct with many representations of cattle and motifs associated with them being uncovered in all areas of the settlement, indicating the animal had a significant effect on the lives of the site's ancient inhabitants. The animal's value and role, at least at this site, appears to be ideological and is likely associated with a ruling class and religious practices since the numbers of the actual animal are relatively low in comparison to those found in Anatolia, see section 1.7 on symbolism. This may also indicate that the secondary products associated with cattle were not desired to the extent as they were elsewhere, or that such products were attained from other domesticated stock.

4.4. Discussion and Comparisons

This section will examine five previous points in further detail, starting with the boat-god motif. The boat-god motif is relatively common among the seals and sealings from Tell Beydar and Tell Brak; however, there is a surprising lack of this motif in the

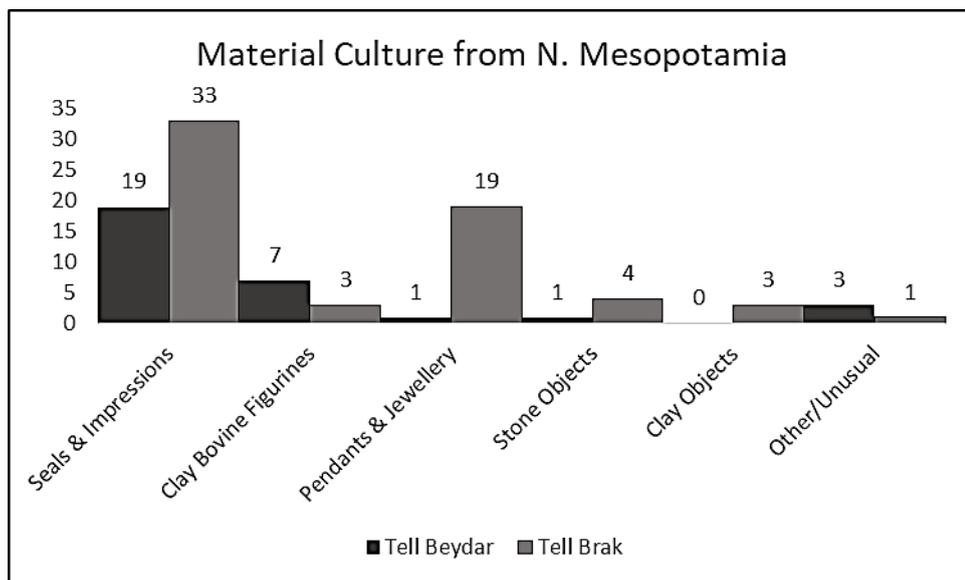
south. The material culture from the two sites as well as its context has provided very useful information as to the iconographic role of the animal. The comparison of faunal remains allows us to determine possible economic importance of the animal on a regional scale. Landscapes and environmental patterns of both sites can also give us an indication of not only the influence of the animal at a site but also the influence of the site itself. Lastly, there will be a discussion of the unusual resting cattle horns found on items from Brak for later comparison with similar material from Southern Mesopotamia. Since this chapter surveys the material culture representing cattle and faunal remains from two ancient Northern Mesopotamian cities, we hope to come to a better understanding of the interrelationships between humans and cattle and how humans not only affected cattle, but how cattle affected humans in return. By considering this question, one can discover why the animal was used within the iconography of the sites for a later comparison with the findings from the Anatolian and Southern Mesopotamian cultural regions, see chapter six. In comparing the similarities and differences between these regions, I may uncover why this animal was important and in what respects this impacted Early Bronze Age human behaviour.

The boat-god motif is found in many sealing samples from both Northern Mesopotamian sites, especially within the glyptic collection from Tell Beydar. There are several theories as to what this boat-god design may represent, including ritual excursions of men and gods or divine journeys (Black and Green 1998: 44-45). This design comes in several forms; however, the form most common at Tell Beydar and Tell Brak displays this subject of a boat with the head of a horned deity rowing itself forward. According to Black and Green (1998: 45), this may represent a minor deity known as Sirsir. It is strange that this motif, even though it is known as a Mesopotamian motif, is chiefly found at the two northern sites and not at the sites selected from the southern sector of the region. However, this could be due to the fact that no examples have yet to be unearthed or perhaps because

of the preferences of a particular site or geographic area. The unusual resting horn design found in a number of pendants, as well as in the stone human-headed bovine statue, is only found on objects from Tell Brak. Due to the lack of similar design elements from the other sites selected from the Mesopotamian cultural region, this design may be a site-specific one, at least in this region.

<i>Material Culture Groups and Numbers for N. Mesopotamia</i>			
Object Groups	Tell Beydar	Tell Brak	Group Total
Seals & Impressions	19	33	52
Clay Bovine Figurines	7	3	10
Pendants & Jewellery	1	19	20
Stone Objects	1	4	5
Clay Objects	0	3	3
Other/Unusual	3	1	4
Site Total	31	63	94

Table 4.3: Material culture groups and numbers, sites of Tell Beydar and Tell Brak



Graph 4.3: Comparison of material culture groups from the Northern Mesopotamian sites

The material culture from the northern sites of Tell Beydar and Tell Brak that represent cattle reveals that the animal did have an impact on the Early Bronze Age human populations of these Northern Mesopotamian sites. Table 4.3 illustrates all objects examined for this region and shows a rather interesting trend. In total, 94 objects are

considered in this review. For a better understanding of what items were assessed, the objects have been separated into six object groups: seals and seal impressions, clay bovine figurines, pendants and jewellery, stone objects, clay objects, and other or unusual objects. The largest combined object group is that of seals and seal impressions, with a total of 52, (graph 4.3). The fact that such a significant portion of the combined material consists of seals and their impressions attests to the fact that both sites were administrative centres, most especially Brak, which was along multiple trade routes within the period (McMahon 2013b). The second most populous group is that of the pendants and jewellery, with 20 individual specimens. Although the numbers for the seal and seal impression group were expected, those of the second group were met with considerable astonishment. Initially, it was thought that the second largest group would be that of the clay bovine figurines since they can be found at almost every site in this period; however, the combined sample in this study shows only 10 figurines from Northern Mesopotamia. The final numbers for the pendants and jewellery grouping were significantly larger than initially anticipated and is double that of the bovine figurines.

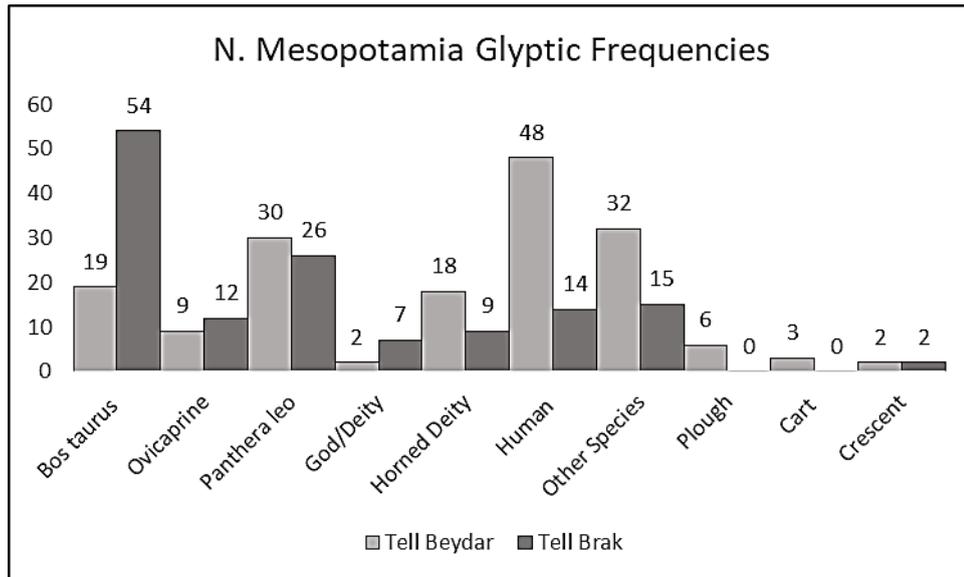
This may indicate that the personal adornment, which includes seals as well, was an important factor in social identification at the two sites, and Tell Brak especially since this is where the majority of such items originate, see section 2.4.5; this also suggests that there were increased numbers of higher status individuals at the two sites, based on the material of construction for many of the items (Ameri *et al.* 2018; Robb 2010). The group of stone objects has a total of five items, one from Tell Beydar and 4 from Tell Brak. The other object group has a total of four items with three coming from Tell Beydar and one from Tell Brak. The final and smallest grouping of material culture is that of the clay objects, which only has three examples. When it comes to overall site totals, we see that the site with the largest collection of items representing cattle is Tell Brak, where 63 individual objects have been unearthed, and with a total of 31 individual objects, Tell Beydar comes

in second.

Considering the context of the material culture representing cattle or displaying cattle motifs, it has been discovered that the vast majority of these items come from religious or administrative areas, indicating that the animal influenced the activities associated with these areas. At Tell Beydar, the areas with the most material culture relating to cattle are fields F, I, M, and S, all of which are located at the site's acropolis and that is home to five temples and the site's main administrative complex. With regards to the site of Tell Brak, the areas with the largest numbers of material are areas ER, CH, and TC. As with Tell Beydar, these areas are at the centre of the settlement and relate to both public and ritual practices, with the addition of a presumably elite residential area. At both of the sites chosen for this review on cattle culture in the Northern Mesopotamian region, the areas with the largest percentages of objects representing cattle and cattle motifs relate to religious and administrative life. This indicates that, even though at this point it is still unclear exactly how the animal changed human behaviour, it did have some modifying involvement in the religious and social lives of Early Bronze Age populations, at least in the case of these settlements.

<i>Glyptic Motif Frequencies from N. Mesopotamia</i>			
Motif Subject	Tell Beydar	Tell Brak	Subject Total
<i>Bos taurus</i>	19	54	73
<i>Ovicaprine</i>	9	12	21
<i>Panthera leo</i>	30	26	56
God/Deity	2	7	9
Horned Deity	18	9	27
Human	48	14	62
Other Species	32	15	47
Plough	6	0	6
Cart	3	0	3
Crescent	2	2	4
Site Total	169	139	308

Table 4.4: Glyptic chart showing frequency of motifs from seals and impressions, sites of Tell Beydar and Tell Brak



Graph 4.4: Ten motif subject groups from the sites of Tell Beydar and Tell Brak

Another point of enquiry relating to the material culture from our sites is the glyptic representations found on the designs of seals and seal impressions. Table 4.4 displays the motifs most commonly found on these items and includes total numbers as well as subject site percentages. There are ten motif categories to consider, which include the following: cattle, ovicaprine, lions, god/deity, horned deity, human, other species, plough, cart, and crescent. In total, 308 motif subjects were identified and classified from the 52 seals and seal impressions from the two sites. In comparison to the total numbers of material objects from the sites, the site with the largest number of representations is Tell Beydar, with 169, followed by Tell Brak, with 139 representations in total. In terms of subject matter, the motif seen with the most regularity is that of cattle, which includes bulls, bull-human hybrids, and bull crania; this particular motif is found 73 times within the 52 examples. The subject of humans is the second highest with 62 individual representations in total. After cattle and humans, the lion is the most commonly found motif with 56 motifs found; a comparative graph displaying site motifs can be found in (graph 4.4). In the category of other species, which include fish, scorpions, and unidentifiable animals, there are 47 representations.

On the lower end of the spectrum is the group of horned deities, which is found a total of 27 times within the study. The subject of god/deity is only a third the size of the horned deity category with only 9 examples. The next group is that of the ovicaprines, which has been identified a total of 21 times in this investigation. The three smallest categories are those of the plough, cart, and crescent motifs. The plough is found 6 times, only in the seals from Tell Beydar, while the cart group is also only found at Tell Beydar and includes 3 representations. The last motif subject, that of the crescent, is found a total of 4 times, two from each site. As discovered with this research, the most common motif found within the seal glyptic is that of cattle representations. This result may indicate that the animal, at least in an iconographic form, played a part in the economic and social activities at both sites within the timeframe of the Early Bronze Age. It must also be stated that in many cases where a god or deity is found in a seal or seal impression, there is usually a bovine, or some variation thereof, located nearby. The same can also be said in the case of lion motifs; whenever I find a lion, there is usually a bull within the same design. The results from this glyptic survey add to the importance of cattle within these archaeological sites in that the animals are the most common motif implemented in such a capacity; which adds to the effects of cattle on economic and social life.

When comparing the faunal assemblages from the sites of Tell Beydar and Tell Brak, we can see that cattle make up a very small percentage of the overall totals. Table 4.5 shows the number of identified specimens for each species side by side with percentages of these numbers from the combined regional total. Concerning the numbers of cattle specimens per site, it can be seen that Tell Beydar has the largest cattle NISP with 693 positively identified examples and is followed by Tell Brak with an NISP of 298. In terms of numbers and overall percentages, this collection of Northern Mesopotamian cattle is rather small in comparison to the total number of combined animal remains from both sites. In assessing the percentages of Tell Beydar's cattle remains, we find that the site

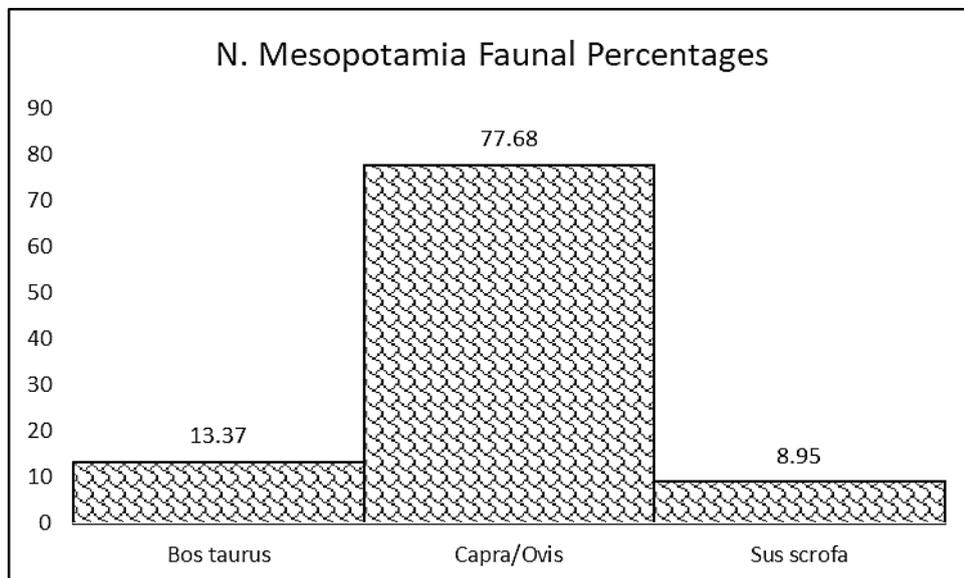
constitutes 9.35 per cent, and the remains from Tell Brak make up 4.02 per cent of the combined faunal total for these sites. The combined faunal totals, found in table 4.6, allow us to compare the faunal populations of both sites at one time. The final total has an NISP of 24,382, with 7,411 specimens being positively identified and included within the site NISP percentage. As expected, the domesticated species with the largest population is the category of combined sheep and goat populations, with an NISP of 4,682. The sheep/goat category is 63.18 per cent of the overall assemblage; however, it is not the largest category. The largest category of the regional sample is that of the remains ascribed to as other; this category has an NISP of 12,424 and makes up approximately half of all animal bones of the total sample. We also find that pigs have a surprisingly large number with an NISP of 663, which makes up 8.95 per cent of this assemblage. Those specimens positively identified as goat have an NISP of 381, or 5.14 per cent, and the positively identified sheep with an NISP of 694 make up 9.36 per cent of the assemblage total. The identified cattle remains from Tell Beydar and Tell Brak have an NISP of 991 and make up only 13.37 per cent of the assemblage, graph 4.5. Although this makes cattle the largest positively identified domesticated animal species, it does not take into account the combined sheep/goat total, which is four times larger than the cattle population.

<i>Combined Faunal Remains from N. Mesopotamian Sites</i>				
Taxon	Common Name	NISP	Site	Percentage %
<i>Bos taurus</i>	Cattle	693	Tell Beydar	9.35
<i>Bos taurus</i>	Cattle	298	Tell Brak	4.02
Total		991		13.37
<i>Capra/Ovis</i>	Goat/Sheep	3052	Tell Beydar	41.18
<i>Capra/Ovis</i>	Goat/Sheep	1630	Tell Brak	21.99
Total		4682		63.18
<i>Capra hircus</i>	Goat	222	Tell Beydar	3.00
<i>Capra hircus</i>	Goat	159	Tell Brak	2.15
Total		381		5.14
<i>Ovis aries</i>	Sheep	464	Tell Beydar	6.26
<i>Ovis aries</i>	Sheep	230	Tell Brak	3.10
Total		694		9.36
<i>Sus scrofa</i>	Pig	80	Tell Beydar	1.08
<i>Sus scrofa</i>	Pig	583	Tell Brak	7.87
Total		663		8.95
<i>Wild Taxa</i>	Various	1898	Tell Beydar	N/A
<i>Wild Taxa</i>	Various	2649	Tell Brak	N/A
Total		4547		N/A
<i>Other</i>	Other	6099	Tell Beydar	N/A
<i>Other</i>	Other	6325	Tell Brak	N/A
Total		12424		N/A

Table 4.5: Combined faunal remains of species and group totals with site individual species percentages

<i>Faunal Assemblage from N. Mesopotamian Region</i>			
Taxa	Common Name	NISP	Percentage %
<i>Bos taurus</i>	Cattle	991	13.37
<i>Capra/Ovis</i>	Goat/Sheep	4682	63.18
<i>Capra hircus</i>	Goat	381	5.14
<i>Ovis aries</i>	Sheep	694	9.36
<i>Sus scrofa</i>	Pig	663	8.95
<i>Wild Taxa</i>	Various	4547	N/A
<i>Other</i>	Other	12424	N/A
Total		7411	100

Table 4.6: Combined faunal assemblage total with species percentages of cattle, sheep, goat, and pig



Graph 4.5: Depiction of Northern Mesopotamian faunal assemblage showing cattle, goat/sheep, and pig NISP percentages

Viewing the material remains and faunal remains in concert, we find that although the cattle NISP of 991 is much larger than the 94 samples of material culture, the animal remains may not have had the same influence on the human populations as the material culture did. Due to the fact that the largest numbers of cattle bones come from areas associated with administrative and religious activities, it can be inferred that these animals were used as sacrificial offerings as well as possible food sources for individuals related to these areas. Since the numbers of cattle remains are comparatively smaller in residential sectors, it may indicate that beef was not a meat for the masses, which also explains the

high numbers of sheep, pig, and goat remains. Concerning the material culture, the same can also be said—that items representing cattle or displaying cattle motifs tend to be found in the same areas as the largest proportions of cattle remains. I also discovered that the cattle glyptic numbers, at 73, are almost as high as the total number of objects under investigation, at 94. This may imply that the cattle motif held more influence on the economy and trade in the form of sealing various materials, such as containers and doors, than the actual animal did. Overall, the findings suggest that physical cattle remains were more widely represented and significant in religious and cultic life than on economics and foodstuffs, at least in terms of consuming the animal. It also suggests that the animal's symbolism may have had a greater effect on the economy of these Early Bronze Age cities than the animal itself.

When investigating the landscape and environments around the Northern Mesopotamian sites of Tell Beydar and Tell Brak, we find that, due to their proximity to one another, the landscape patterns surrounding the sites are relatively similar. Both sites rest within the area of the Khabur River, and both lie along smaller wadis or tributaries, which feed into the larger waterway. The landscape consists of modern agricultural and pastoral fields. Around Tell Brak, the majority of fields are used for agriculture, while around the smaller site of Tell Beydar, the majority of the landscape is utilised as pastoral land. According to previously discussed studies on the land use around Tell Brak, it has been found that the landscape around the site today is intensively cultivated and that the Early Bronze Age land use was most likely similar. According to paleoenvironmental studies of the region, the areas surrounding both sites were well suited for rain-fed agricultural production and herding (Ur and Wilkinson 2008; Wilkinson 2003; Wilkinson *et al.* 2001). Such herds were likely made of ovicaprids based on the amount of sheep and goat remains unearthed at each site. Since cattle herds need larger quantities of water in comparison to other domesticates, see section 1.6, the smaller numbers of cattle stock from

Tell Beydar makes sense; however, there are also smaller proportions of cattle stock at Tell Brak, which is located in close proximity to reliable water sources. The fact that both sites hold smaller quantities of cattle remains in comparison to the Anatolian sites may suggest that the animal was not as economically important in Northern Mesopotamia compared to other regions. The presence of linear hollows leading from the two sites and the occurrence of multiple smaller settlements surrounding them indicates that Beydar and Brak were administrative and trade centres, with Tell Brak being the larger and more influential of the two. This also suggests an increased carrying capacity of the Northern Mesopotamian landscape in the Early Bronze Age and that the region was more temperate and hospitable than it is currently (Kouchoukos and Wilkinson 2007; Staubwasser and Weiss 2006; Zeder 1998). The only major geological difference between the two northern sites is that to the southwest of Tell Beydar, we find a large basalt plateau, whereas the land around Brak is largely a relatively flat steppe.

A study of relative rainfall patterns around Southwest Asia produced by Wilkinson (2003: 18) suggests that the two sites receive different amounts of rainfall with Tell Beydar receiving between 200 and 400 mm per annum and Tell Brak between 400 and 599 mm. This means that the two sites both relied on rain-fed agriculture and may have produced similar product yields. It may also be said that Tell Brak may have produced larger crop yields due to the site's access to additional water sources and indications for the use of fertilizer in agricultural production. The Tell Beydar area is currently home to larger areas of pastoral land, and based on the relative distance from water, the site likely held large ovicaprid herds in the past as well. This study of the landscape and environment of Northern Mesopotamia is important to our understanding of human and cattle interrelationships because it adds to the interpretation of material culture and faunal remains to suggest that even though the landscape could support populations of cattle, the faunal remains suggest that cattle were not as economically important and that the social

value of the animal was more influential.

4.5. Conclusions

When exploring the Northern Mesopotamian sites of Tell Beydar and Tell Brak, it has been discovered that the interrelationships between humans and cattle in the Early Bronze Age period is much more complex than initially assumed. Compared to the vast separation between the selected Anatolian sites, the sites within this review are situated much closer to one another, which allows for a more regionally specific examination of the area's complex relationship with the animal. The evidence from the two sites indicates that the connection between humans and cattle is relatively analogous in both the iconographic and economic capacities. Both sites have large numbers of objects that represent cattle: 31 from Tell Beydar and 63 from Tell Brak, and at both sites, the largest numbers are found within the object grouping of seals and seal impressions. This suggests that the animal, at least iconographically, had an impact on the economic sector of society with a total of 73 cattle motifs having been identified from the 52 seal and seal impressions found. It appears there is a shared set of stylistic characteristics between the two sites within the period, which can be seen especially in the seals and impressions from the two cities. Due to the fact that the motifs found on many of the seals are strikingly similar, even though the design orientation between the sites is slightly different, it can be stipulated that the iconography associated with these motifs is similar at both sites as well, see sections 1.7 and 2.4.3.

This research has also found that the second largest material group consists of pendants and jewellery, indicating that cattle held an important place within the non-economic areas of society as well. Jewellery was, and still is, utilised to indicate social differentiation, based on the material of construction and symbolism associated with the items, can display wealth, social standing, and ritual or religious orientation, see sections 2.4.2 and 2.4.5 (Boivin 2004; Miller 2013; Pittman 1998b). The act of wearing jewellery

illustrates that an individual holds a particular place within a group or society, and since the majority of objects from this category come from areas associated with religious activity or of higher social classes, we may come to the conclusion that cattle came to be associated with such individuals based upon depictions of the animal on objects coming from such areas. The vast majority of material culture uncovered at these sites was also discovered in very similar locations, near religious or cultic buildings as well as near administrative centres, which may imply that the animal held some importance to the individuals of higher status. The few burials discovered at the site of Tell Beydar also lie within the same area, near religious buildings, and the site's more unusual items, the only metal items with bovine motifs, were found within these graves. The location of the Beydar graves finds an interesting parallel in the Royal Tombs from the Anatolian site of Alaca Höyük, which as suggested in the previous chapter, may also be associated with religious or cultic structures.

Although the remains of cattle from the sites of Tell Beydar and Tell Brak are somewhat small compared to other Early Bronze Age sites, with a combined total of 991 individual specimens, they do give us some important information as to the use of the animals within the Northern Mesopotamian region. As stated before, the largest proportions of cattle remains are found in the same areas where we find the largest proportions of material culture representing cattle, namely within religious and administrative contexts. This suggests that the animals were possibly used for religious purposes, such as sacrifices or group feasting, or to feed important individuals, for example, priests and temple workers or administrative employees (Hastorf 2017; Helwing 2003; Bachhuber 2015; Rafkin 1992). From the combined regional faunal assemblage, it can be seen that cattle have the highest numbers of positively identified domesticated stock; however, the combined group of sheep/goat is four times larger than the cattle stock, see table 4.6. Sheep and goat remains and, to a lesser extent, pig remains can be found in

all areas of the two sites; however, cattle remains are not as widespread, which may signify that the animal was not eaten as much by individuals of lower status. Because of the fact that the majority of cattle remains are located within religious and administrative contexts, I can safely say that the animal held more importance than other domestic stock, at least in these locations.

To address the first question referring to variability and similarity in the symbolic and cultic significance of the animal and if this significance changes depending on the site, it has been discovered that there is a similarity in the iconographic representation of cattle at the two sites. The artistic representations of all objects from the two sites, in terms of construction techniques and motif style, are quite similar, with the exception of the resting cattle horns from Tell Brak, and other than some minor differences between the layouts of seal designs, the rendering of bovine motifs is nearly identical at both settlements. This iconographic resemblance indicates that the two sites had similar views of how the animal should look artistically, which leads one to conclude that the symbolic and cultic significance of the animal was much the same at Tell Beydar and Tell Brak. As for the second question on the social and economic interrelationships between humans and cattle, I also found some striking similarities between the two sites. Even though the numbers of cattle remains are rather different from the two sites, with 693 specimens from Tell Beydar and 298 from Tell Brak, the majority of these remains come from identical contexts. This suggests that the animal itself was utilised in much the same way at both locations, which means that the same amount of importance was placed on the animal at both sites within the Early Bronze Age period. When combining the information presented, we can see that the interrelationships between humans and their cattle were quite complex and that the populations of these two sites placed a higher social value on the animal above other domesticated stock by incorporating cattle not only into their religious and administrative practices but also within the combined social identities of those living at the sites.

4.6. Figures



Figure 4.1: Map of Early Bronze Age Mesopotamia showing locations of Northern and Southern Mesopotamian sites (Google Earth 2017)

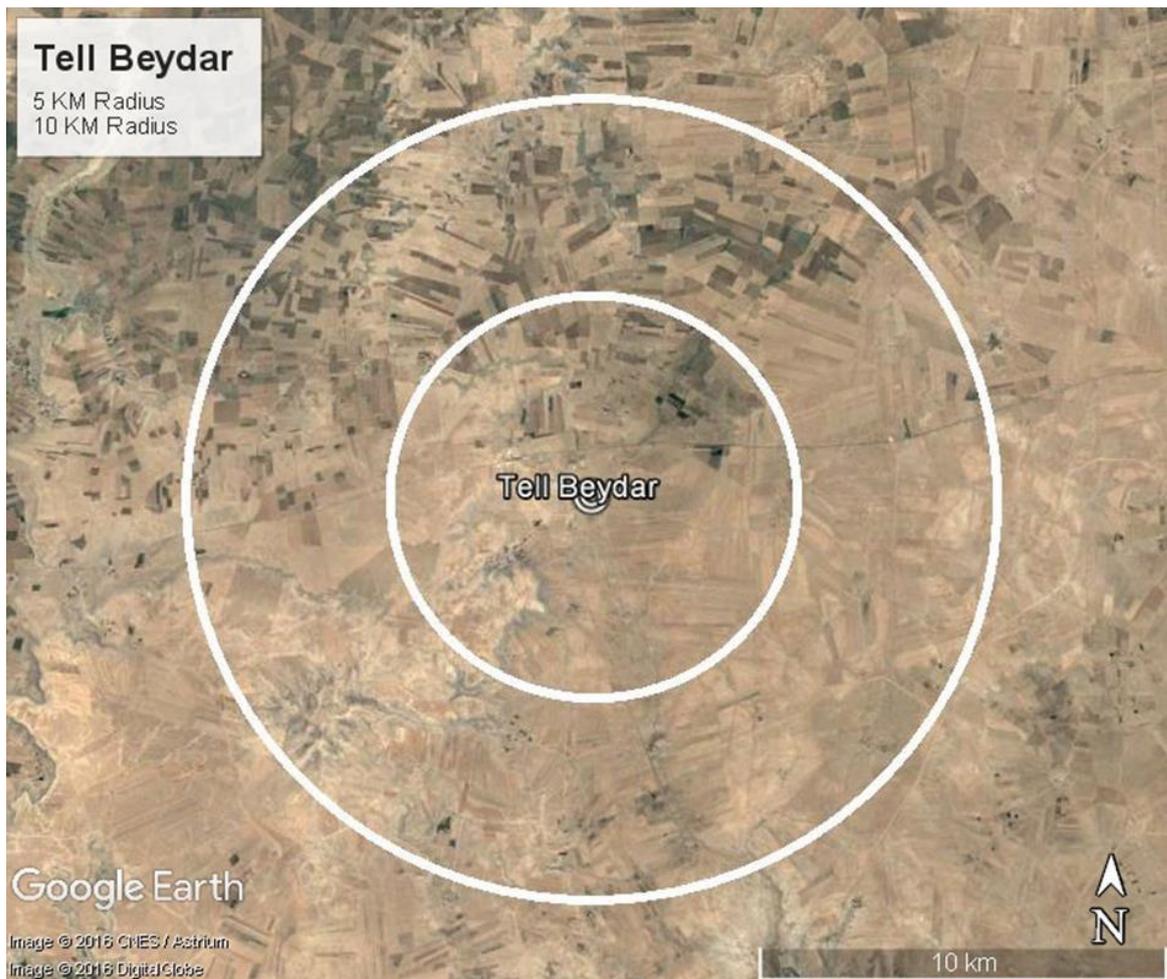


Figure 4.2: 5 and 10 km radii around Tell Beydar (Google Earth 2017)

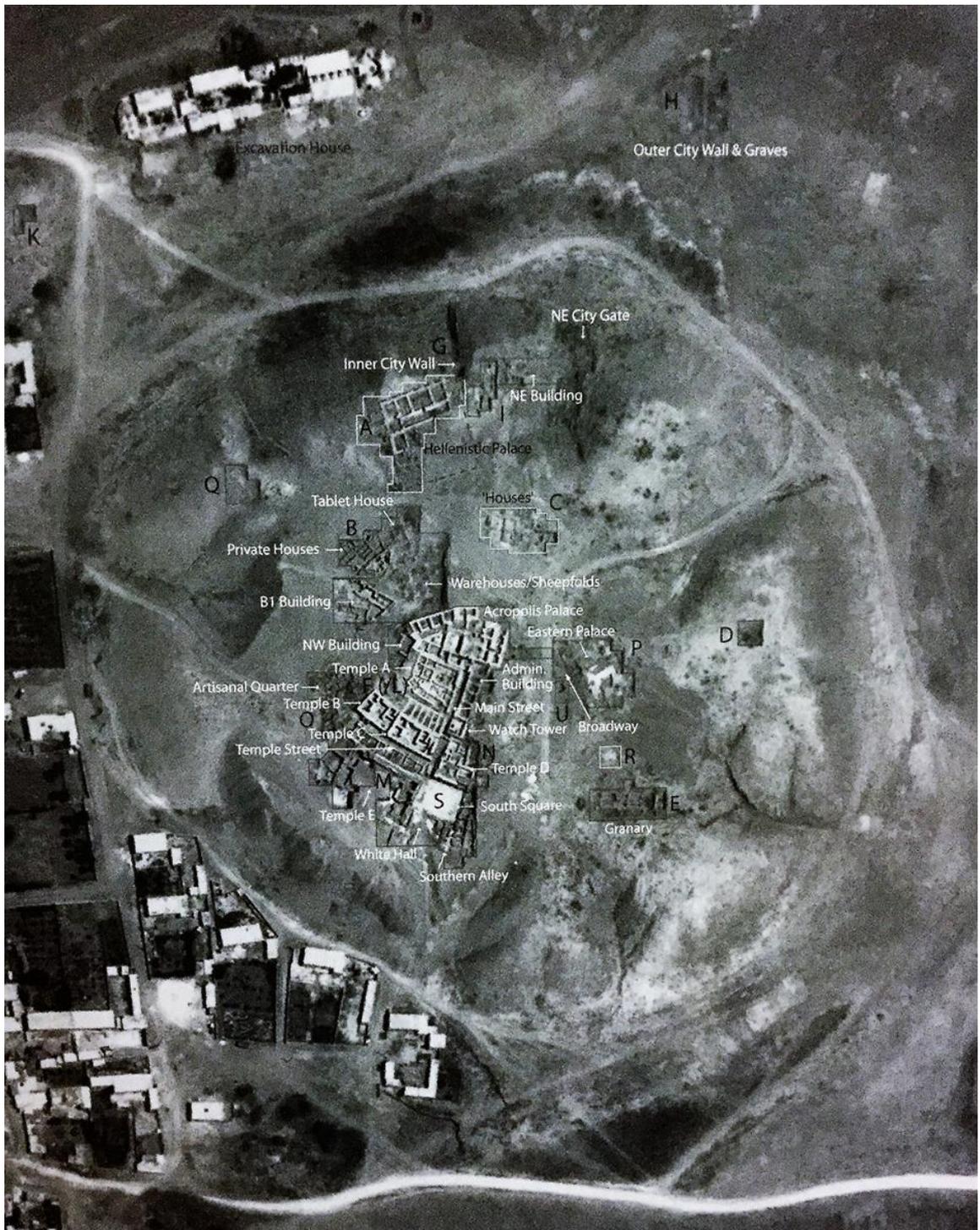


Figure 4.3: Site map of Tell Beydar showing major structures and field locations (after LeBeau and Suleiman 2011: pl. 3)

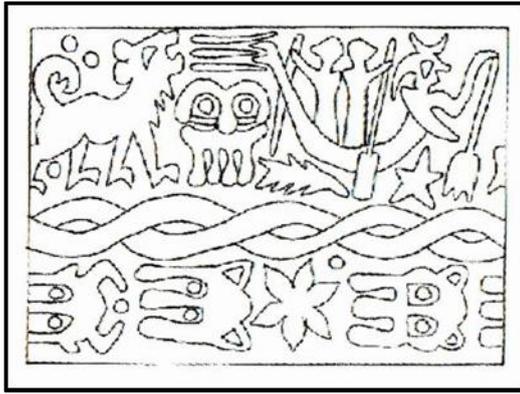


Figure 4.4: Seal reconstruction 3.4 X 2.2 cm (after Mialno and Rova 2014: fig. 27. 9)

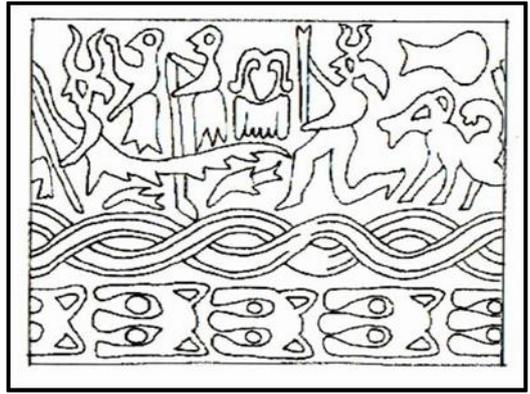


Figure 4.5: Seal reconstruction 3.5 X 2.5 cm (after Mialno and Rova 2014: fig 27. 10)

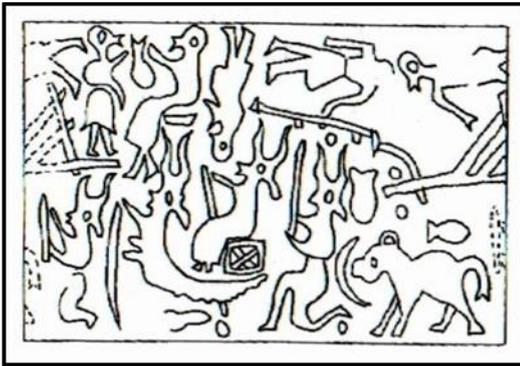


Figure 4.6: Seal reconstruction 2.8 X 1.7 cm (after Rova 2012: fig 5. 5)

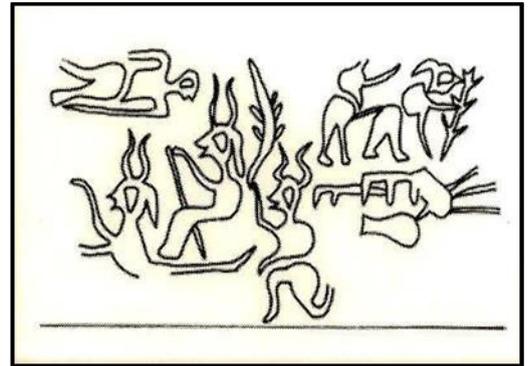


Figure 4.7: Seal reconstruction 4 X 2.1 cm (after Debruyne and Jans 2007: scene 136)

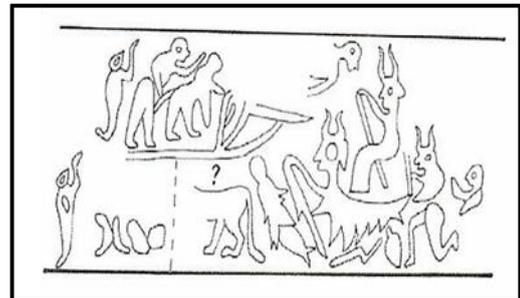


Figure 4.8: Seal reconstruction 4.2 X 1.8 cm (after Rova and Devecchi 2008: fig. 7. 7)



Figure 4.9: Seal reconstruction 2.5 X 1.6 cm (after Rova and Devecchi 2008: fig. 8. 9)

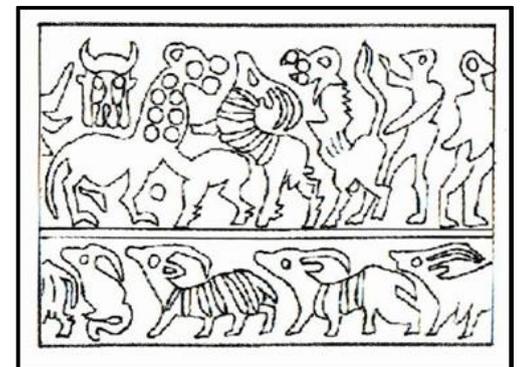


Figure 4.10: Seal reconstruction 3.3 X 2.4 cm (after Mialno and Rova 2014: fig 27. 68)

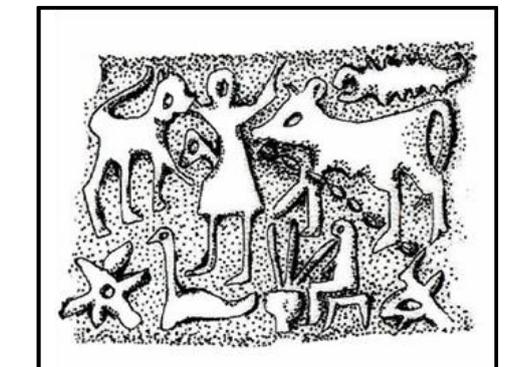


Figure 4.11: Seal reconstruction 4.1 X 3 cm (after Rova and Devecchi 2008: fig. 16. 18)

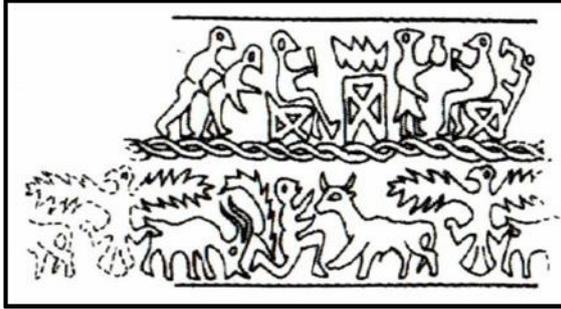


Figure 4.12: Seal reconstruction 3.3 X 1.4 cm (after Rova 2012: fig. 9. 56)

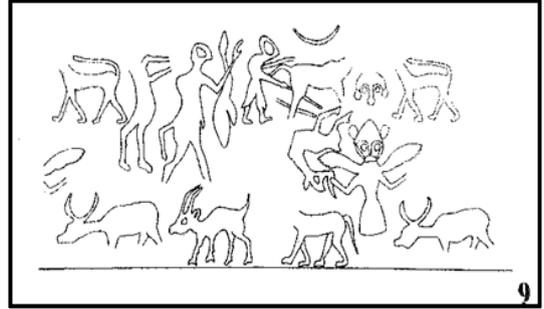


Figure 4.13: Seal reconstruction 2.25 cm (after Teissier 1997: fig. 1. 9)

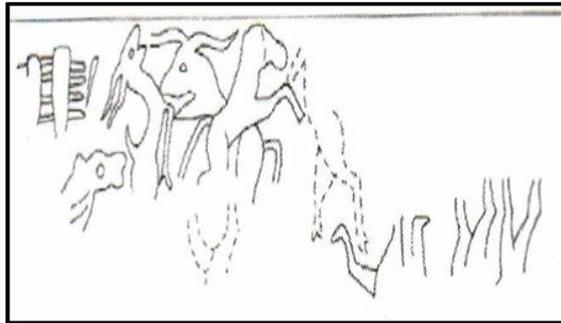


Figure 4.14: Seal reconstruction 2.8 X 1.3 cm (after Rova and Devecchi 2008: fig. 22. 31)

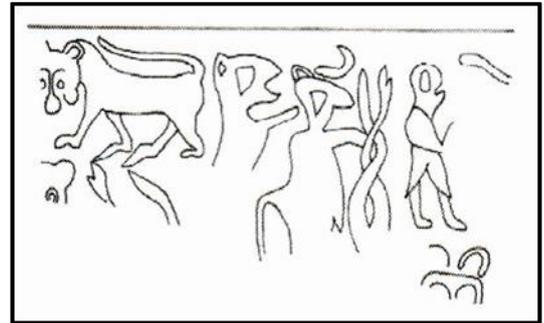


Figure 4.15: Seal reconstruction 3.7 X 2.1cm (after Rova and Devecchi 2008: fig. 18. 24)

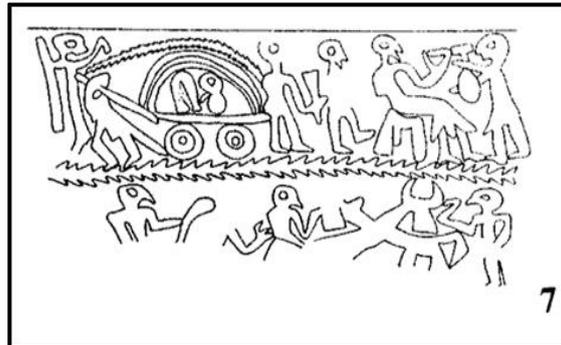


Figure 4.16: Seal reconstruction 1.9 cm (after Teissier 1997: fig. 1. 7)

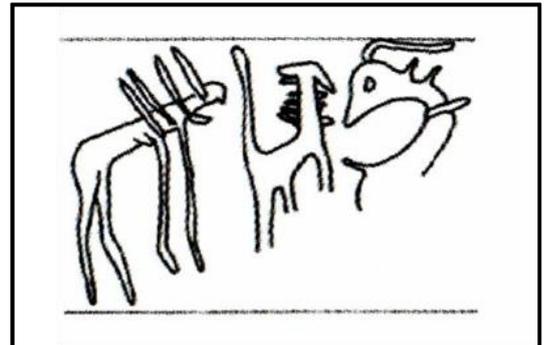


Figure 4.17: Seal reconstruction 2.4 X 1.9 cm (after Bretschneider and Jans 2012: fig. 22a)

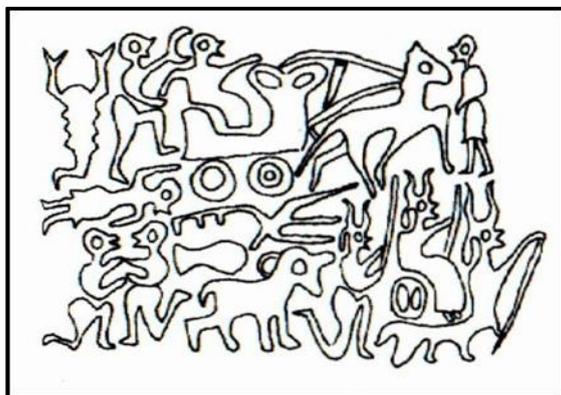


Figure 4.18: Seal reconstruction 2.5 X 2cm (after Rova 2012, fig. 5. 62)

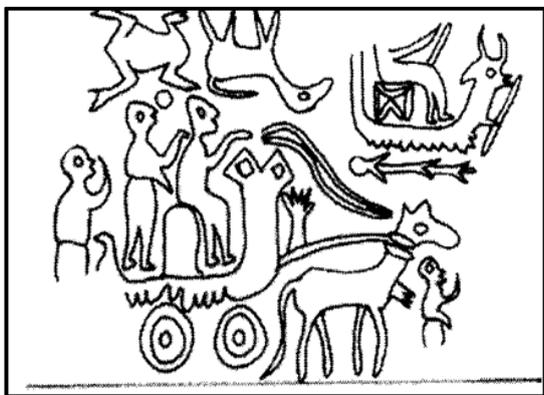


Figure 4.19: Seal reconstruction 4 X 2.6cm (after Debruyne and Jans 2007: scene. 94)

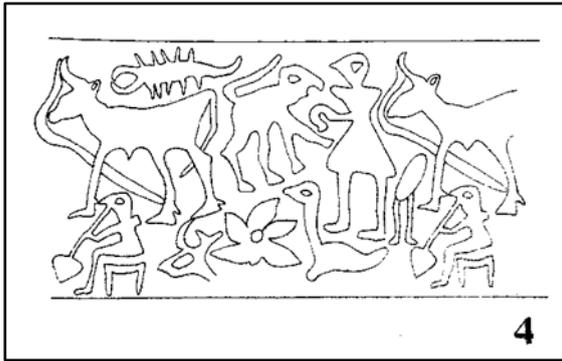


Figure 4.20: Seal reconstruction 3cm (after Teissier 1997: fig. 1.4)

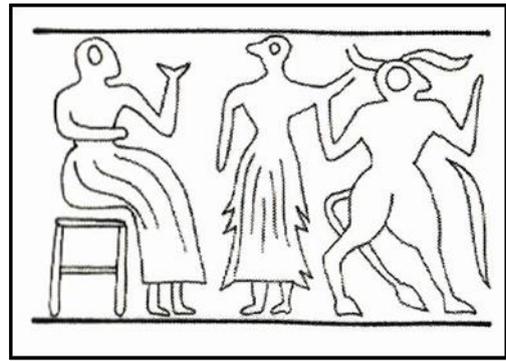


Figure 4.21: Seal reconstruction 3.5 X 2.3cm (after Rova and Devecchi 2008: fig. 13. 17)

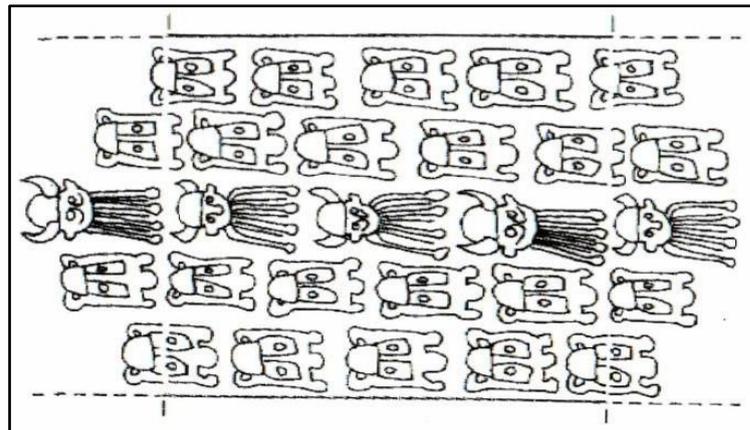


Figure 4.22: Seal reconstruction 4 X 2cm (after Rova 2012: fig. 9. 43)

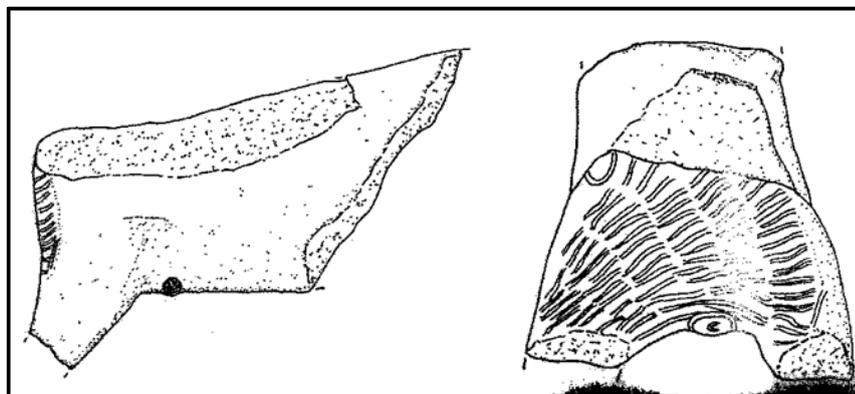


Figure 4.23: Baked clay bovine figurine, 7.8cm X 3.5cm (after Goddeeris 2003: fig. 4)

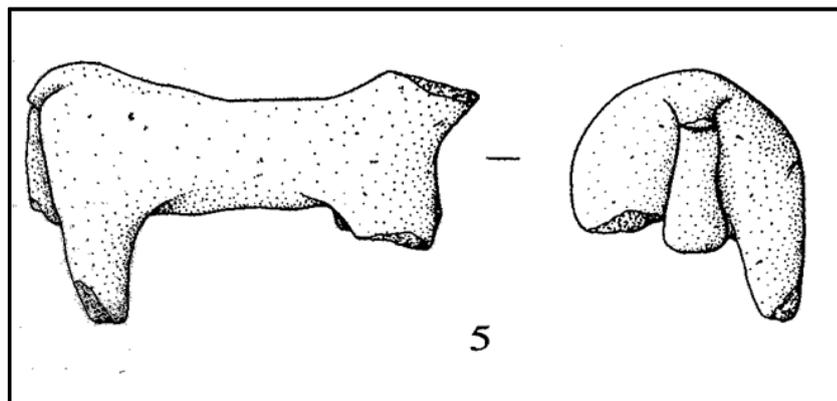


Figure 4.24: Baked clay bovine figurine (after Goddeeris, Lahlouh, and Stenuit 1997: pl. 1. 5)

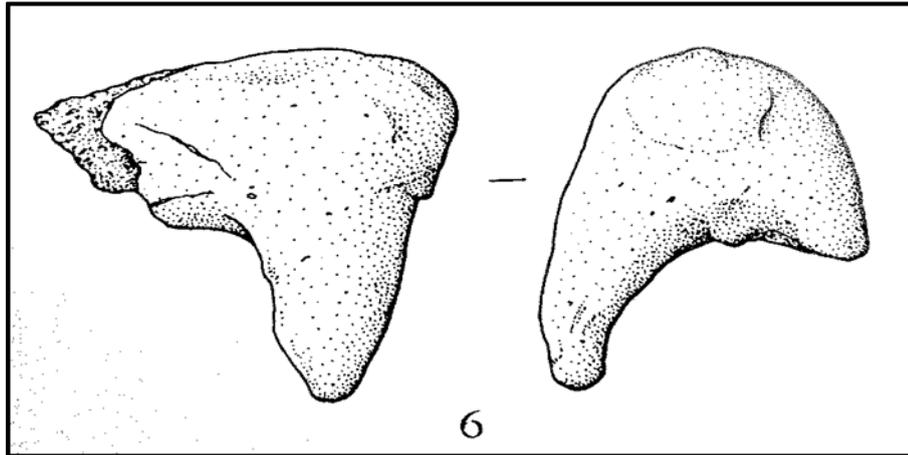


Figure 4.25: Baked clay bovine figurine (after Goddeeris, Lahlouh, and Stenuit 1997: pl. 1. 6)

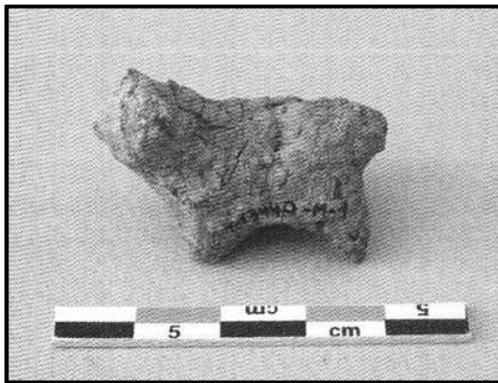
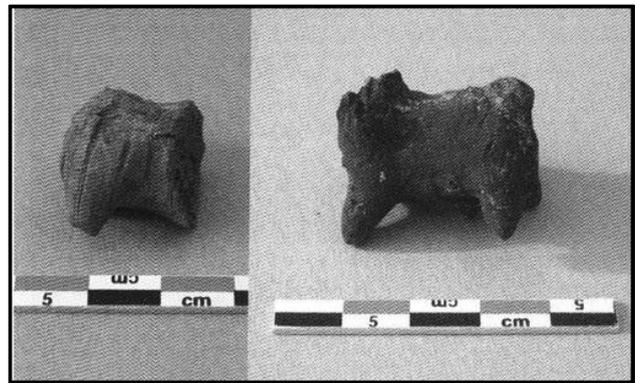


Figure 4.26: Baked clay bovine figurine, 3.5cm X 2cm (after Milano and Rova 2014: fig. 10)



[left to right] Figure 4.27: Baked clay bovine figurine, 2cm X 2cm.
Figure 4.28: Baked Clay Bovine Figurine, 3cm X 2cm (after Milano and Rova 2014: fig. 10)

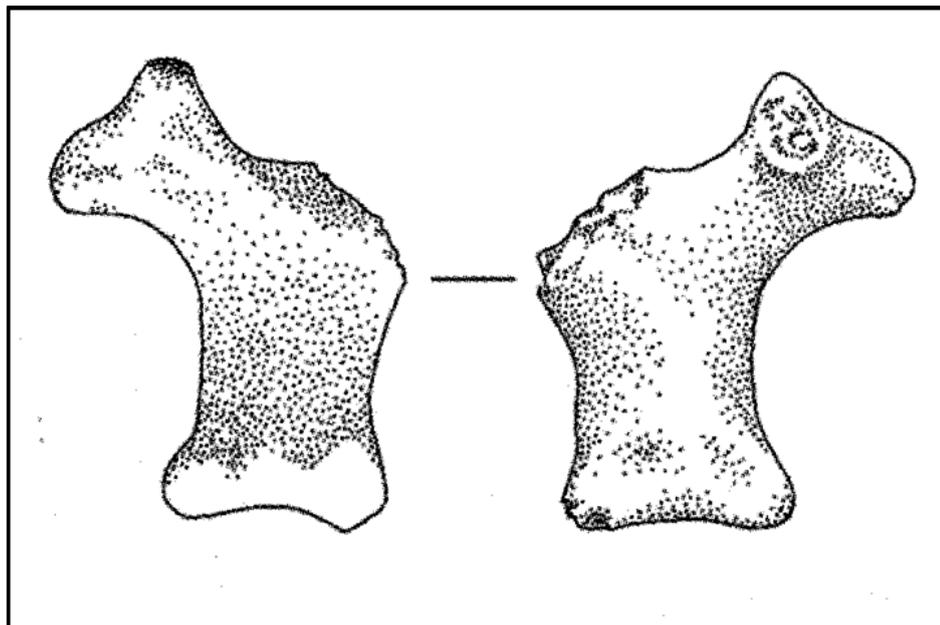


Figure 4.29: Baked clay double bull protome (after Purß 2011: fig. 3)

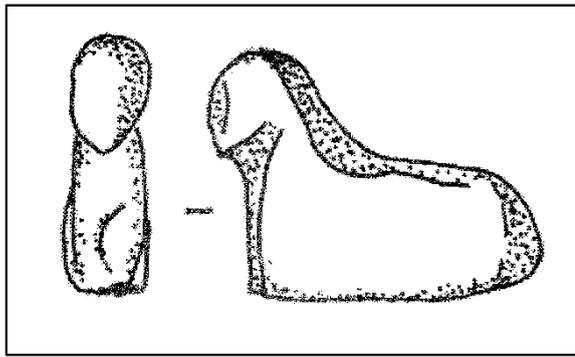


Figure 4.30: Stone bovine figurine, 1.9cm X 1.5cm (after Debruyne, Jans, and Van der Stede 2003: pl. VII)

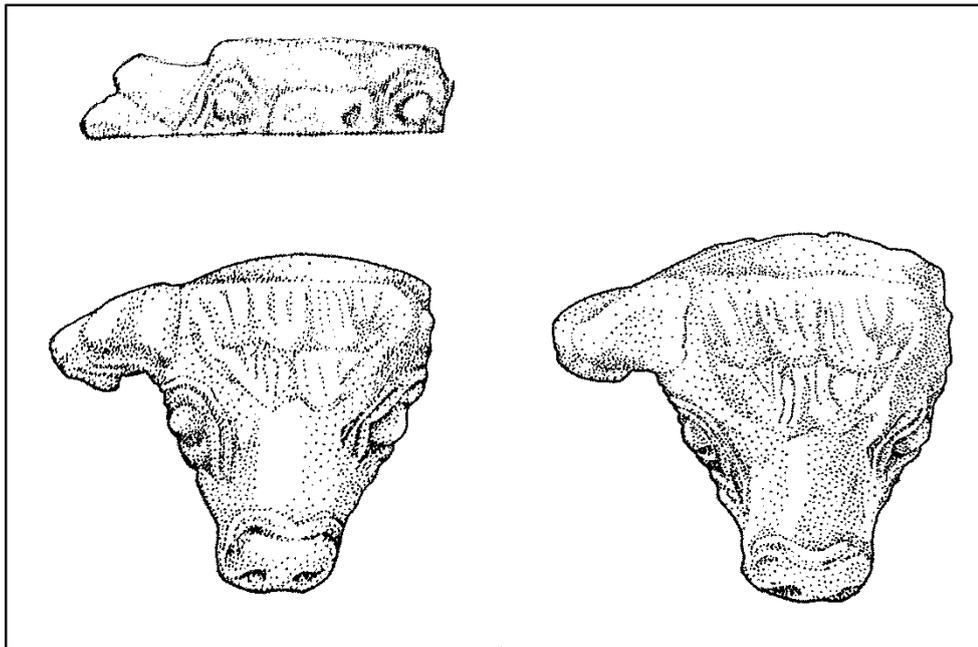


Figure 4.31: Stone bull's head fragment (after Bretschneider, Cunningham, and Jans 2007: fig. 2)

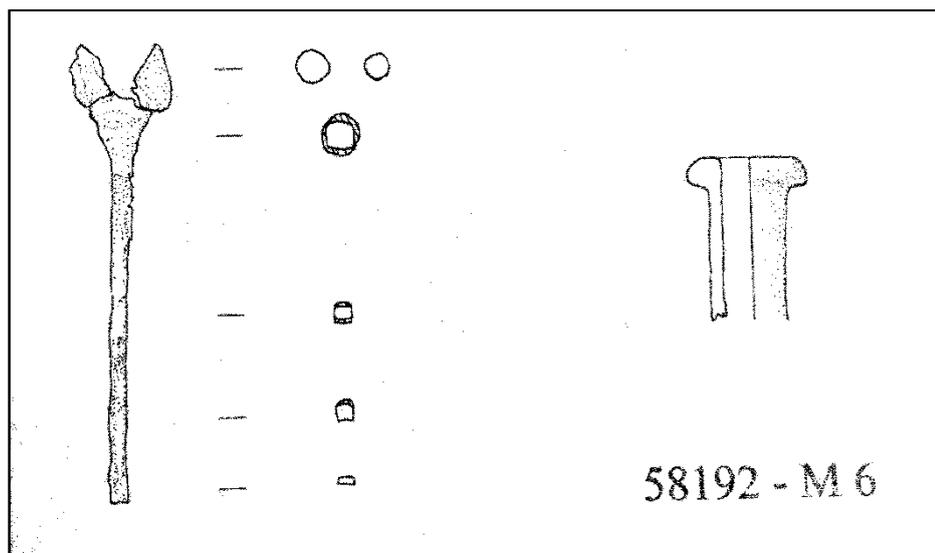


Figure 4.32: Copper alloy dipper/pin, 8.1cm X 1.7cm (after Bretschneider and Cunningham 2007: fig. 16)

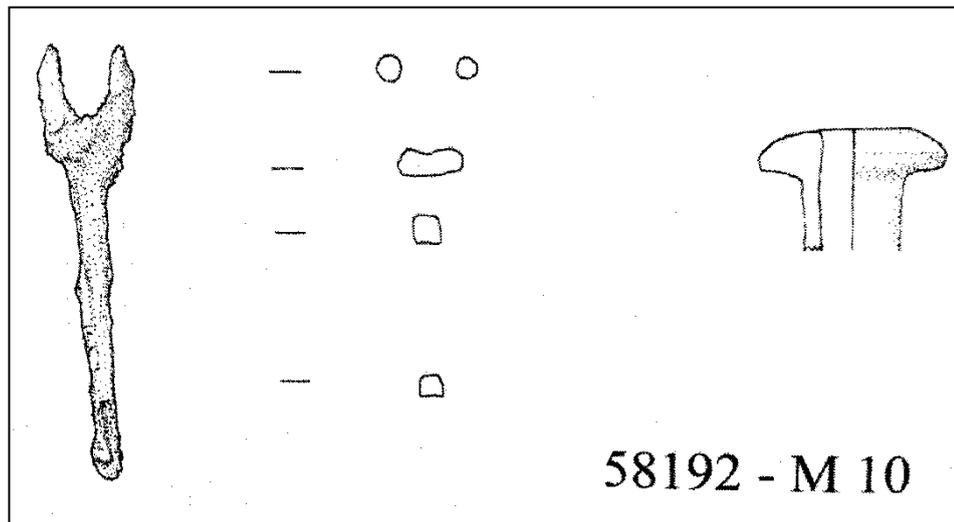


Figure 4.33: Copper alloy dipper/pin, 7.2cm X 1.5cm (after Bretschneider and Cunningham 2007: fig. 17)



Figure 4.34: Photograph of figure 33 copper alloy pin (after Bretschneider and Cunningham 2007: fig. 34)

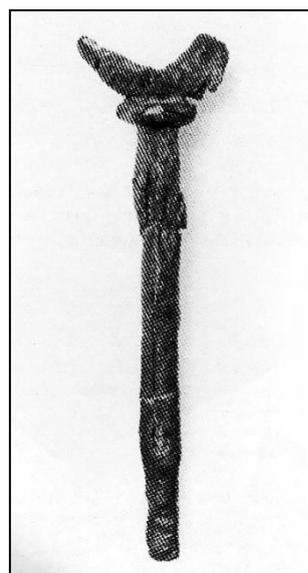


Figure 4.35: Copper alloy pin, 6.3cm (after Debruyne 1997: pl. 2. 4)

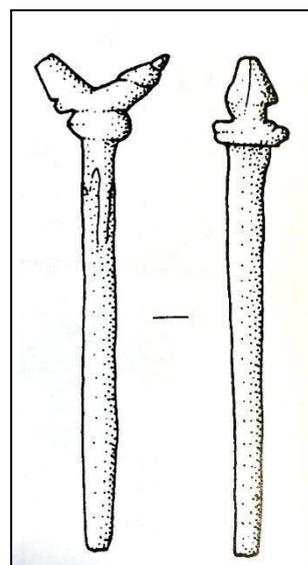


Figure 4.36: Drawing of figure 35 pin (after Debruyne 1997: fig. 4)

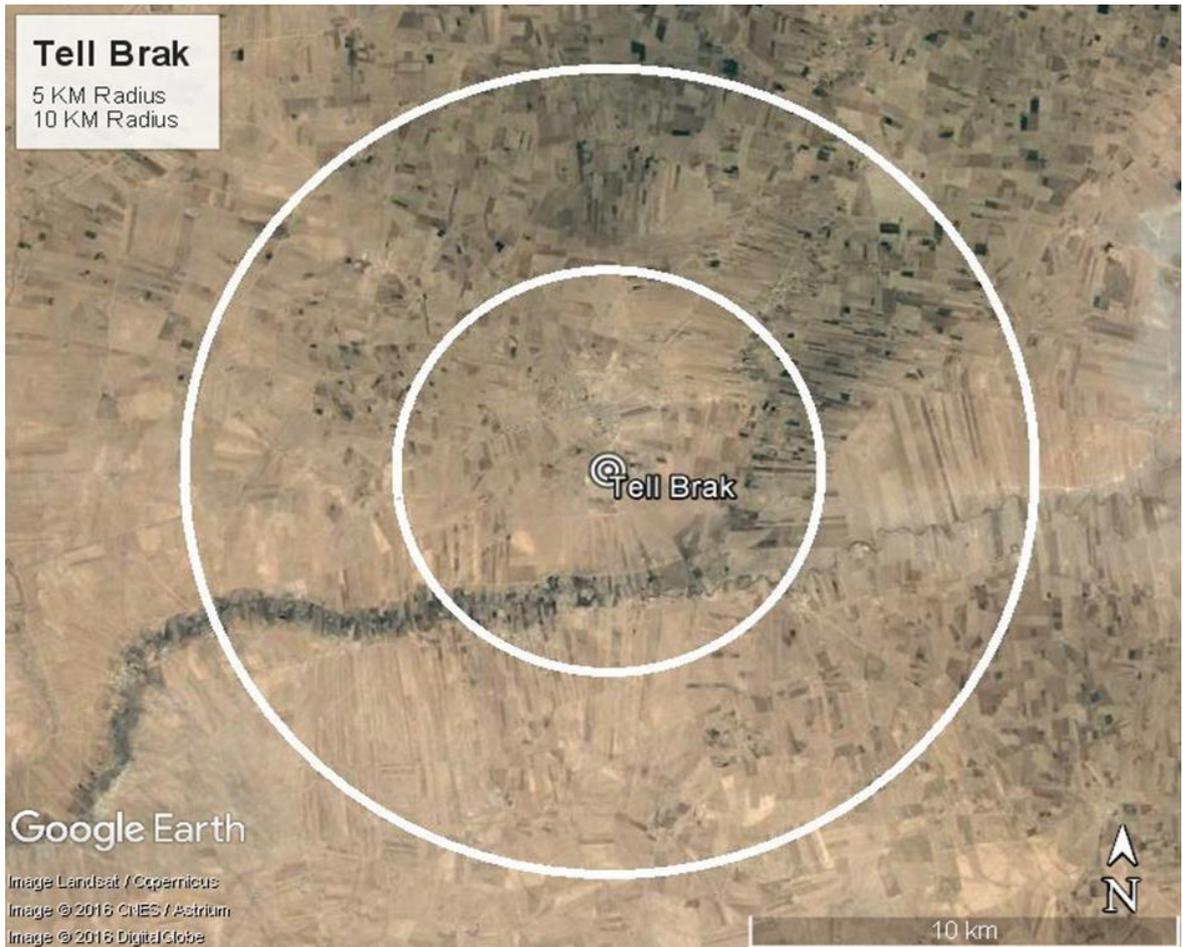


Figure 4.37: 5 and 10 km radii around Tell Brak (Google Earth 2017)

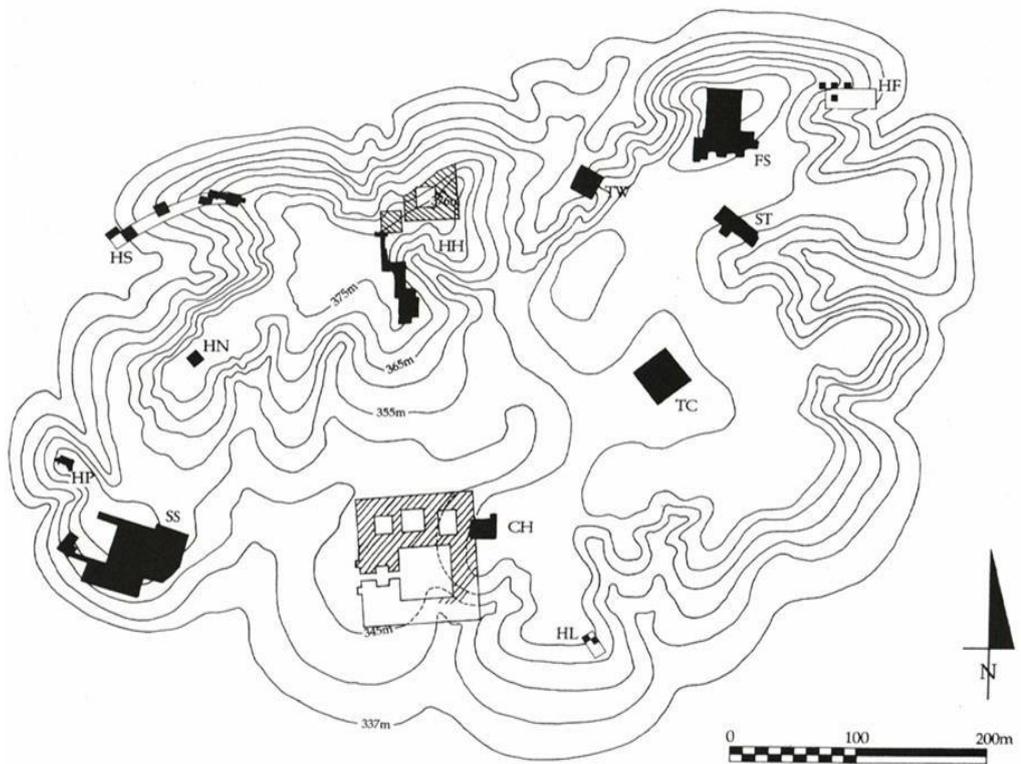


Figure 4.38: Site map of Tell Brak showing major structures and area locations (after Matthews 2003: fig. 1. 2)

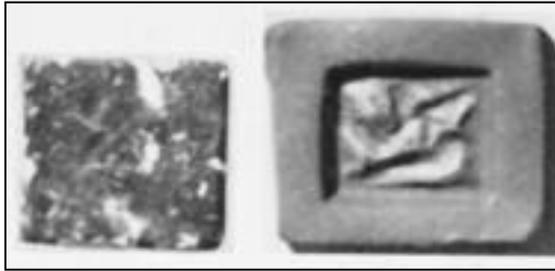


Figure 4.39: Square stamp seal 1.6 X 1.6cm (after Mallowan 1947: pl. XVIII. 14)



Figure 4.40: Rectangular stamp seal, 3.7X 4.2cm (after Mallowan 1947: pl. XVIII. 28)

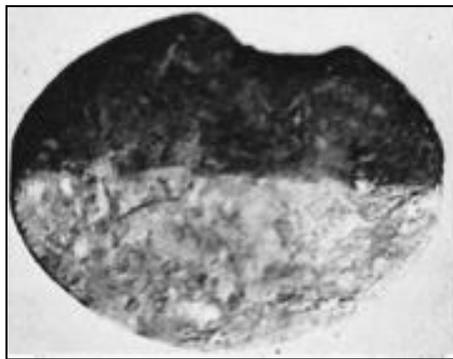
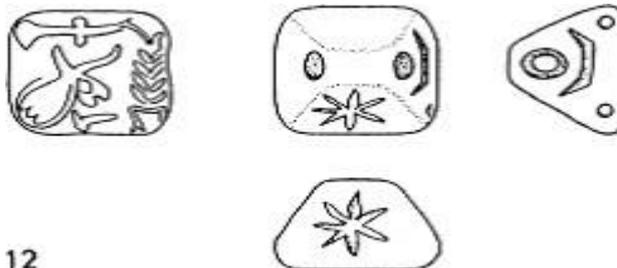


Figure 4.41: Oval stamp seal, 3.4 X 3cm (after Mallowan 1947: pl. XVI. 8, 9)



12

Figure 4.42: Pyramidal stamp seal, 1.35 X 1.3 X 0.95cm (after Emberling and McDonald 2001: fig. 17: 12)



Figure 4.43: Cylinder seal, 2.5cm high (after Mallowan 1947: pl. XXII. 3, 4)



Figure 4.44: Cylinder seal, 3.27cm high (after Felli 2001: fig. 180)

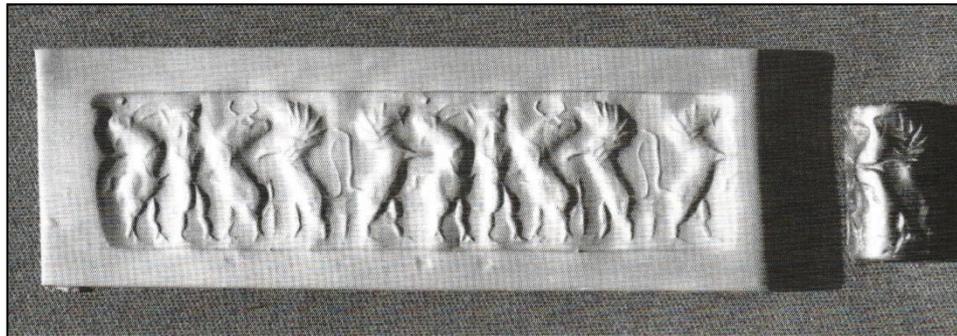


Figure 4.45: Cylinder seal, 2cm high (after Felli 2001: fig. 178)



Figure 4.46: Cylinder seal, 2.2cm high (after Felli 2001: fig. 179)



Figure 4.47: Seal impression 2.2 X 4cm (after Mallowan 1947: pl. XXIV. 6)



Figure 4.48: Seal impression 4 X 5.6cm (after Mallowan 1947: pl. XXIV. 12)



Figure 4.49: Seal impression 4.8 X 4cm (after Mallowan 1947: pl. XXIII. 13)

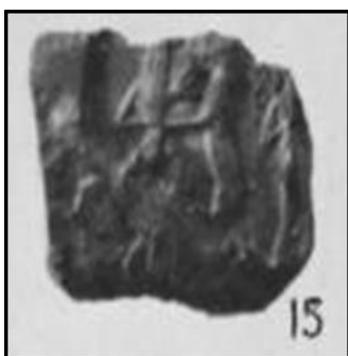


Figure 4.50: Seal impression 4.8 X 4cm (after Mallowan 1947: pl. XXIV. 15)



Figure 4.51: Seal impression 6 X 5cm (after Mallowan 1947: pl. XXIII. 11)



Figure 4.52: Seal impression 6 X 7cm (after Mallowan 1947: pl. XXIII. 10)

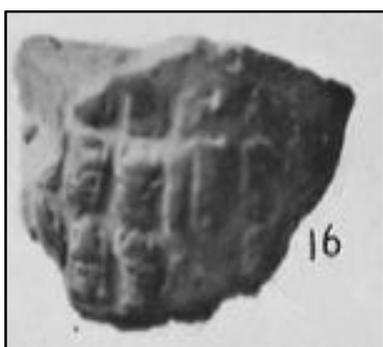


Figure 4.53: Seal impression 6 X 5cm (after Mallowan 1947: pl. XXIV. 16)



Figure 4.54: Seal impression 6 X 6cm (after Mallowan 1947: pl. XXIII. 16)



Figure 4.55: Seal impression 7 X 6.4 cm (after Mallowan 1947: pl. XXIV. 1)

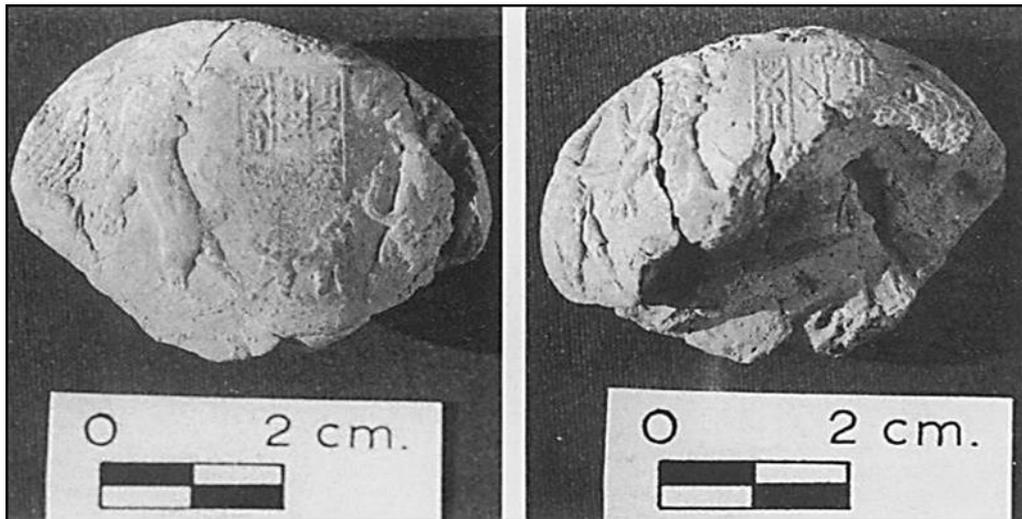


Figure 4.56: Seal impression 5.2 X 4cm (after Oates 1987: pl. XXXVIII. a, b)



Figure 4.57: Seal impression 5.8 X 6cm (after Mallowan 1947: pl. XXIV. 3)



Figure 4.58: Seal impression 4 X 4cm (after Mallowan 1947: pl. XXIII. 2)



Figure 4.59: Seal impression 4.8 X 4cm (after Mallowan 1947: pl. XXIV. 9)



Figure 4.60: Seal impression 6.4 X 4.4cm (after Mallowan 1947: pl. XXIV. 17)



Figure 4.61: Drawing of seal 5.5 X 3cm (after Matthews, Matthews, and McDonald 1994: fig. 13: 16)

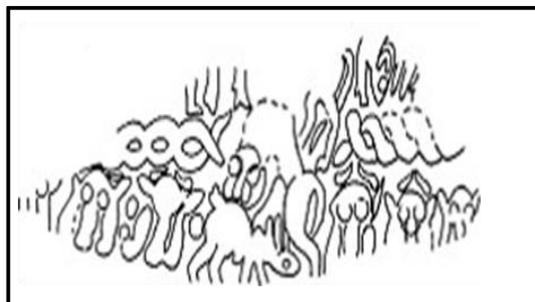


Figure 4.62: Drawing of seal 5.2 X 3 X 1.7cm (after Emberling and McDonald 2001: fig. 17: 5)

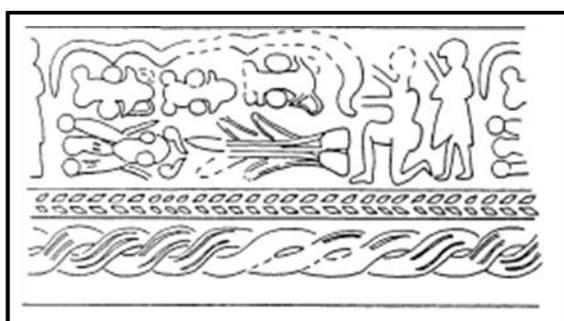


Figure 4.63: Drawing of seal 2.9 X 4.55cm (after Emberling and McDonald 2001: fig. 17: 6)



Figure 4.64: Drawing of seal 3 X 3.5cm (after Emberling and McDonald 2001: fig. 17: 7)

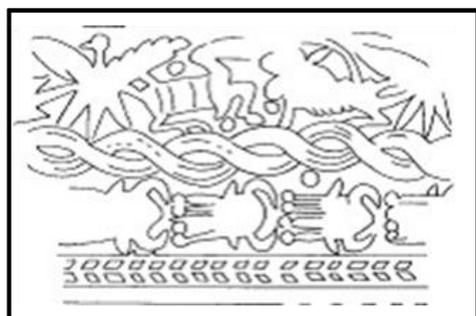


Figure 4.65: Drawing of seal 5 X 3.1cm (after Matthews, Matthews, and McDonald 1994: fig. 13: 10)

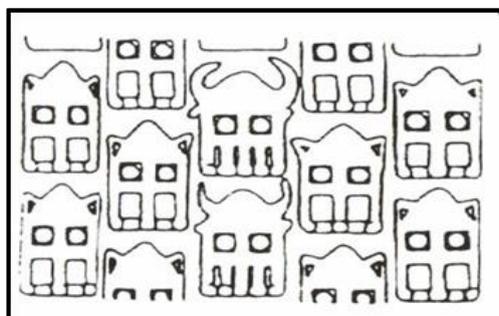


Figure 4.66: Drawing of seal 3.1 X 2.1cm (after Oates 2001: fig. 167: 1)



Figure 4.67: Drawing of seal 5.5 X 1.5cm (after Matthews 2003: fig. 12)



Figure 4.68: Drawing of seal 6.5 X 3.9cm (after Emberling and McDonald 2003: fig. 47: 4)



Figure 4.69: Drawing of seal 2.15 X 3.7cm (after Emberling and McDonald 2001: fig. 17: 2)



Figure 4.70: Drawing of seal 2.45 X 3.5cm (after Emberling and McDonald 2001: fig. 17: 1)

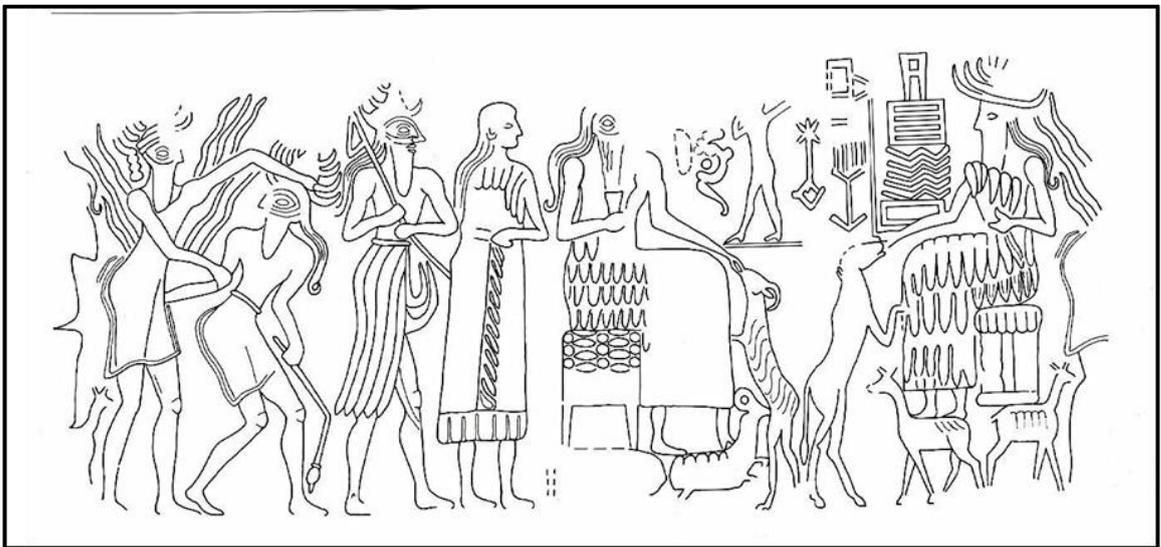


Figure 4.71: Drawing of seal 4.05cm (after Oates 2001: fig. 171)

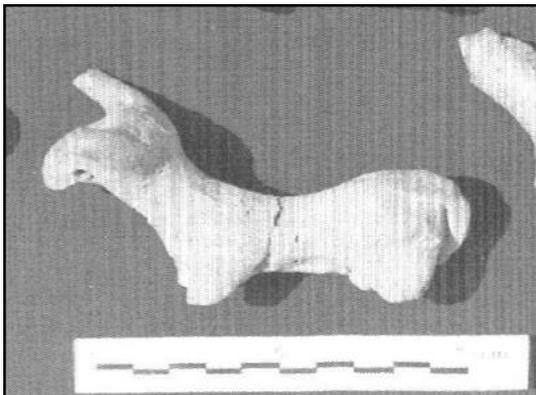


Figure 4.72: Baked clay bull figurine, 10 X 7cm (after McDonald 2001: fig. 292)



Figure 4.73: Baked clay zebu figurine, 9.5 X 7cm (after Matthews 1996: fig. 18)

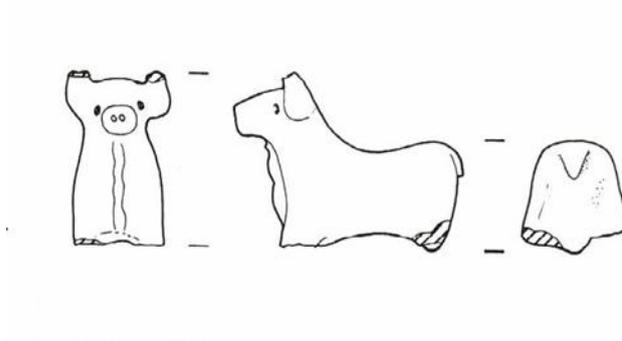


Figure 4.74: Unbaked clay bull figurine, 5 X 4cm (after Steele et al 2003: fig. 14)



Figure 4.75: Painted clay vessel fragment, 7.5cm (after Mallowan 1947: pl. LIV. 19)

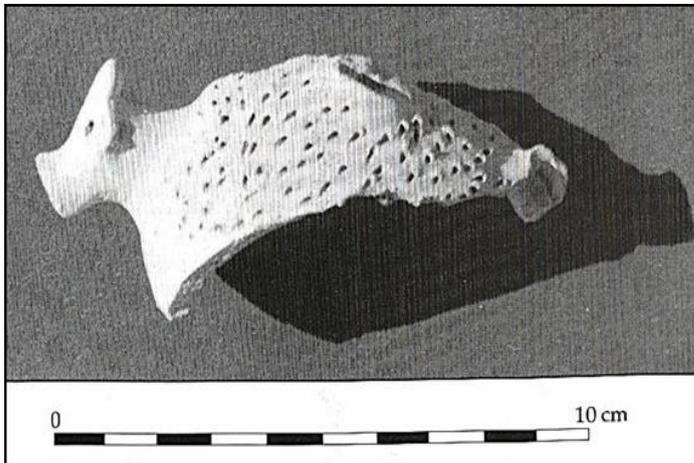
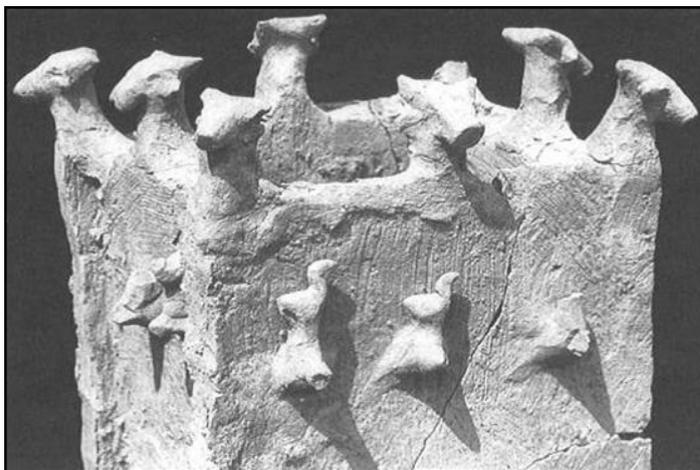


Figure 4.76: Baked clay vessel fragment, 9.8cm (after Oates 2001: fig. 202)



Figures 4.77 & 4.78: Baked clay tower, 43 X 11 X 11cm. Above: detail of top of tower. Right: full tower (after Emberling and McDonald 2003: figs. 52, 53)

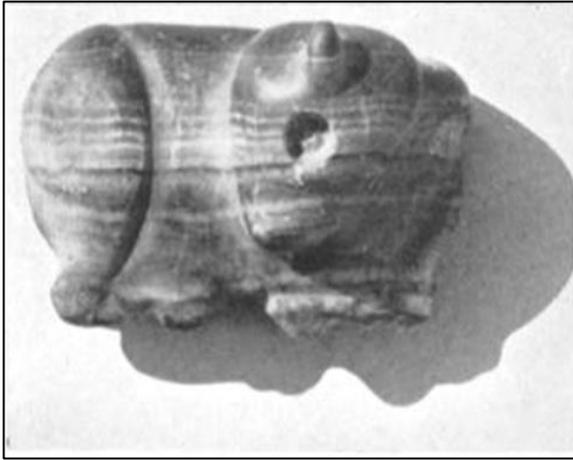


Figure 4.79: Stone bovine amulet, 4.7cm (after Mallowan 1947: pl. XII. 4a)



Figure 4.80: Underside design of figure 79 with two scorpions (after Mallowan 1947: pl. XII. 4b)



2(a)



2(b)

Figure 4.81: Stone bovine amulet and underside design, 2.6cm (after Mallowan 1947: pl. XIII. 2a, 2b)



7(a)



7(b)

Figure 4.82: Stone bovine amulet and underside design, 3.3cm (after Mallowan 1947: pl. XIII. 7a, 7b)



Figure 4.83: Stone bovine amulet, 3cm (after Mallowan 1947: pl. XIII. 10)



Figure 4.84: Stone bovine amulet, 2.5cm (after Mallowan 1947: pl. XIV. 30)



Figure 4.85: Stone bovine amulet, 2.8cm (after Mallowan 1947: pl. XIV. 37)



Figure 4.86: Stone bovine amulet, 2cm (after Mallowan 1947: pl. XV. 4)



Figure 4.87: Stone bovine amulet, 1.9cm (after Mallowan 1947: pl. XV. 18)

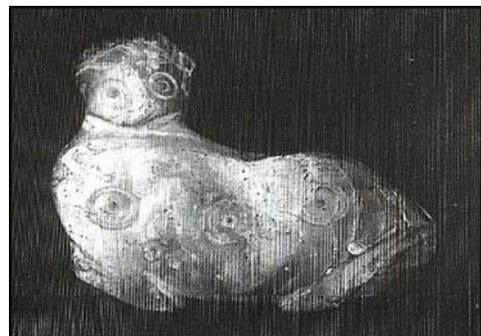


Figure 4.88: Mother-of-pearl human-headed bull, 5.6 X 5.25cm (after Oates 2001: fig. 317)



b

Figure 4.89: Shell bovine pendant, 5 X 2cm (after Emberling et al 1999: fig. 23)



Figure 4.90: Stone twin headed bull pendant, 2cm (after Mallowan 1947: pl. XV. 3)

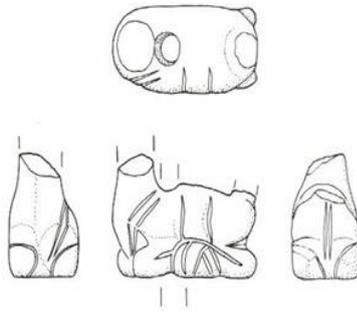


Figure 4.91: Stone twin headed bull pendant, 1.4cm (after McDonald 2001: fig. 475. 110)



Figure 4.92: Stone twin headed bull pendant, 1.5cm (after Mallowan 1947: pl. XV. 1)



Figure 4.93: Lapis lazuli bearded bull pendant, 1.7cm (after Mallowan 1947: pl. XV. 2)



Figure 4.94: Lapis lazuli bearded bull pendant, 2cm (after Matthews et al 1994: fig. 10)



Figure 4.95: Stone double headed bull pendant, 1.5cm (after Mallowan 1947: pl. XV. 14)



Figure 4.96: Stone bull head pendant, 2.3cm (after Mallowan 1947: pl. XV. 15)



Figure 4.97: Lead bearded bull pendant, 2.1 X 2.7cm (after Mallowan 1947: pl. XXXII. 1)

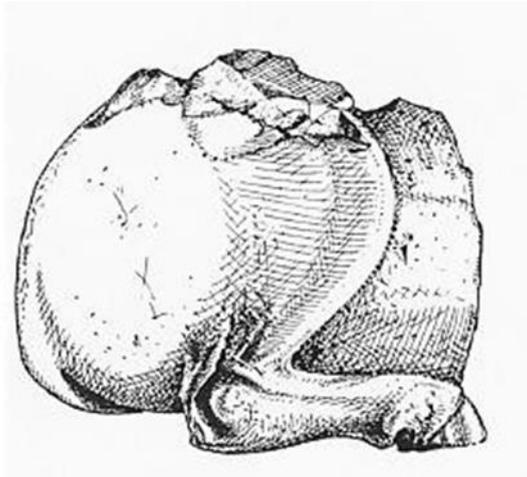


Figure 4.98: Stone fragment of bull figure, 8.5cm (after Mallowan 1947: pl. LII. 20)

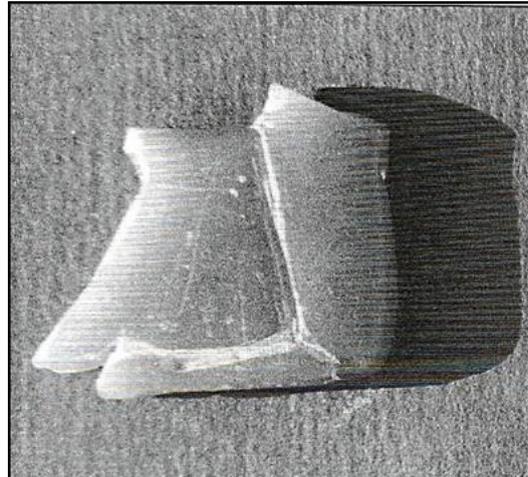


Figure 4.99: Fragment of stone object representing a bull, 1.9 X 1.56cm (after Oates 2001: fig. 275)



Figure 4.100: Gold and bitumen bull head (after Mallowan 1947: pl. XXXVI. 14)



Figure 4.101: Lapis lazuli beard inlay, 2.3cm (after Mallowan 1947: pl. XV. 9)

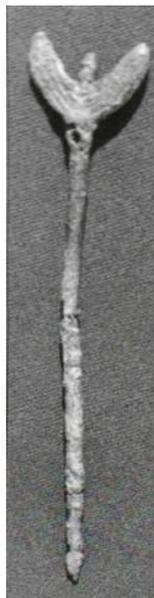


Figure 4.102: Bronze pin, 11 X 2.3cm (after McDonald, Curtis, and Maxwell-Hyslop 2001: fig. 260)

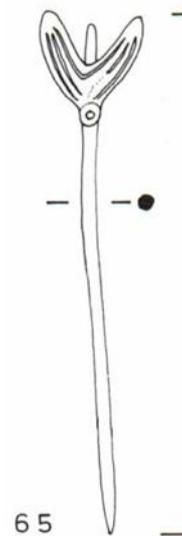


Figure 4.103: Drawing of bronze pin (after McDonald, Curtis, and Maxwell-Hyslop 2001: fig. 65)

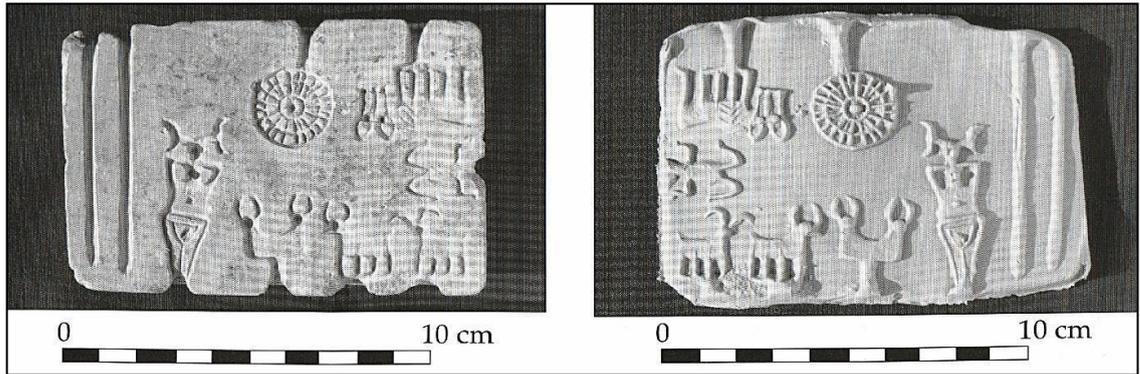


Figure 4.104: Stone jewellery mould, 10.3 X 7.1 X 2.4cm (after McDonald, Curtis, and Maxwell-Hyslop 2001: fig. 267)



Figure 4.105: Stone human-headed bull statue, 40 X 30 X 20cm (after Oates and Oates 1991: pl. XXVI)

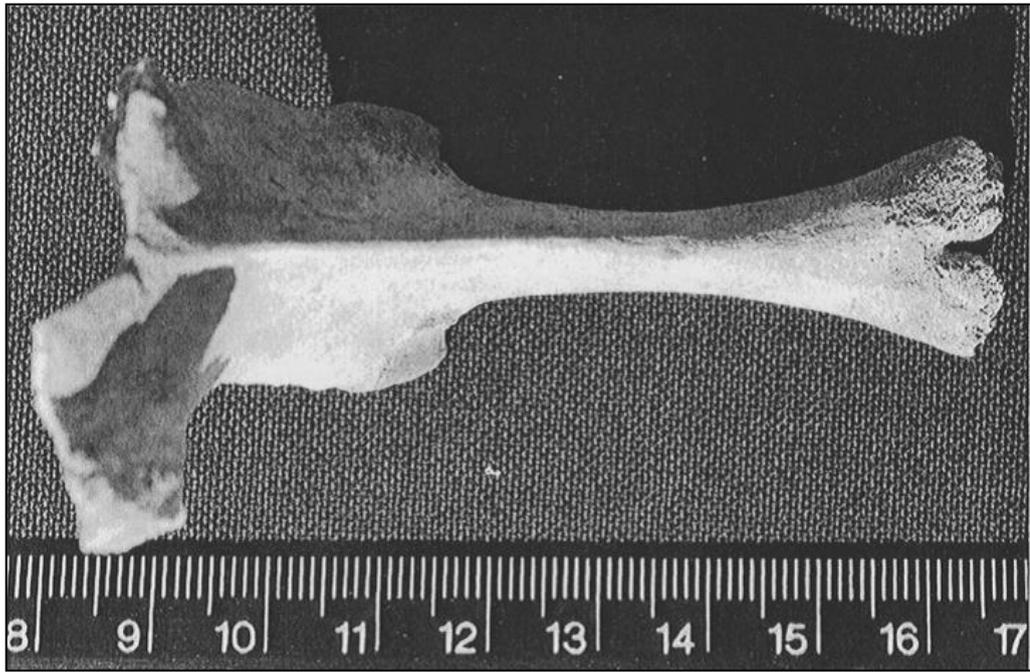


Figure 4.106: Bifurcated Bos indicus vertebra, 9 X 4cm (after Matthews 1995: fig. 11)

Chapter Five

Cattle in Southwest Asia: Southern Mesopotamia Culture Region

5.1. Introduction

This third chapter on cattle within Southwest Asia focuses on the region of Southern Mesopotamia and discusses the sites of Abu Salabikh and Ur within the Early Bronze Age. As with the previous two chapters, the faunal remains and material culture within these particular communities will be scrutinised to determine possible interrelationships between humans and cattle within this period. In exploring these sites, I examine the available faunal remains of the ancient settlements, paying particular attention to cattle remains, as well as the material culture involving or depicting cattle. The two southern sites were chosen based on their location, contexts, and the amount of material available for study. The site of Abu Salabikh has produced good information on the faunal assemblage; however, there is no detailed work on the faunal remains from Ur. Although Abu Salabikh does have an impressive faunal report, it should be made plain that this report only discusses the faunal material from the Ash Tip area of the site and does not take into account faunal remains from other areas. From the information available regarding Abu Salabikh, much of the research has focused on the Ash Tip, the Uruk Mound, or studies relating to pottery or the large number of texts discovered at the site. Because of this, and due to the lack of material culture and faunal remains discussed within field reports and other studies, the Ash Tip was chosen as the main focus of examination for the site.

As with the sites in the chapter on Northern Mesopotamia, the proportions of cattle are not as high as those from the sites in the chapter on the Anatolian region, which may in part be due to the landscape or the context from which the faunal sample was taken. It is also worth mentioning that the proportions of pig remains are substantially larger in the

selected Mesopotamian sites than those from the Anatolian cultural region. By once again addressing these two questions, see section 1.2, this review will investigate the possible interrelationships between humans and cattle in the Early Bronze Age period, specific to Southern Mesopotamia. This section will begin with a short description of each site, including its landscape, location, and the findings relevant to this project. At the end of this review, I will discuss the findings from the southern sites and compare them to those from Northern Mesopotamia to establish the interrelationships between humans and their cattle in Early Bronze Age Southern Mesopotamian contexts as well as within the broader Mesopotamian cultural sphere.

5.2. The Site of Abu Salabikh

The site of Abu Salabikh is located in the Al-Qādisiyyah Governorate of modern south-central Iraq, figure 5.1. The occupation of the site dates to the Uruk period in the Late Chalcolithic, with the site reaching its maximum size in the Early Bronze Age. This small Sumerian city lies within the upper portion of the Euphrates delta near a probable ancient bed of the Euphrates River traced to the west of the main mound (Matthews 2003: 163; Wilkinson 1990). Unlike the other sites within this project, Abu Salabikh is made up of four mounds: The Main Mound, the South Mound, the West Mound, and the Uruk Mound, with an additional four smaller mounds to the north and east of the main group. Although it is a small city, Abu Salabikh is centrally positioned among the ancient cities of Southern Mesopotamia, being located about 25km to the southwest of Maškan-Šapir and 20km to the northwest of Nippur. Based on the number of cuneiform tablets uncovered at the site, it can be suggested that the Sumerian city was an important administrative centre or may have acted as a centre for learning (Postgate 1992). Since it has been proposed that the city was once located on the Euphrates River, it was likely easier to travel to neighbouring cities, such as Nippur, or cities further away like Sippar (Wilkinson 2003). Being centrally located within the ancient Sumerian countryside meant that Abu Salabikh

likely had connections to multiple cities, which also may explain the increased number of textual sources discovered there. Within a 5km radius of the site, figure 5.2, we can see that the landscape is broken up by several modern roads and canals. To the north and east, the area seems to be more arid with large outcroppings of rock and numerous pastoral fields. East of the main mounds, there is what seems to be an indication of a wadi, which has since been converted into a canal. South and west of the site, the landscape is covered with modern agricultural and pastoral fields.

Within a larger 10km radius, the terrain is relatively similar. To the northeast is a continuation of the large rock outcropping, which is surrounded by a few modern agricultural and pastoral fields. As in the 5km radius, the topography is broken up by modern canals and roads interspersed with more agricultural and pastoral fields. To the southwest, there is an area that seems to be relatively untouched rocky soil. Unlike the countryside surrounding the other sites, there are no visible modern towns or villages; it seems to be a purely agrarian landscape. According to several studies by Wilkinson, not only was an ancient bed of the Euphrates River located directly to the west of the site, the city of Abu Salabikh was once separated by third millennium canal running from northwest to the southeast that was later replaced by a more north-south orientation (Wilkinson 2003; Wilkinson 1990: 82). These available water supplies meant that the Early Bronze Age landscape around the site was once much greener than it is now and able to support a larger human population. The modern natural vegetation around Abu Salabikh is rather sparse, with only a few small shrubs and trees visible upon close inspection. However, this was not always the case. Archaeological investigations of the site have shown that the remains of several species of trees have been identified, including willow and date palm, which indicates that the landscape was much more temperate around the time of occupation (Matthews 2003). With the lack of these species in the modern landscape and the fact that a Euphrates River bed was once near the site, one may conclude that the Early Bronze Age

landscape surrounding Abu Salabikh was quite different than it is at this point in time. Like other Sumerian cities located near the Tigris and Euphrates delta, Abu Salabikh likely sat in, or very near to, a marshy environment (Postgate 1992: 7). It is likely that the population of Abu Salabikh consumed large amounts of fish, although, due to element preservation rates, it may not be indicated in the faunal record.

Unlike the other Mesopotamian sites, the Abu Salabikh settlement consisted of four main mounds, each of which was surrounded with its own protective wall (Stone 2013). Of the four mounds that make up the site, the oldest, aptly named Uruk mound, dates to the Uruk period. The other mounds have their earliest dates in the Early Dynastic I period, see section 2.4.1, through the Early Dynastic III period, with the later levels attested through surface scatter on the West Mound dating to the Akkadian period (Postgate 1983; Postgate and Moorey 1976). The main finds from this site are documented in a number of volumes published in the 1980s and 1990s by the British School of Archaeology in Iraq. Most of the finds representing or relating to cattle from the site were discovered in the large Ash Tip area of the site as well as in several of the many graves there. The first series of archaeological excavations at Abu Salabikh began in the 1960s where over 500 Old Sumerian tablets were unearthed; this has led to the belief that the ancient city was once home to a scribal school, making this an important cultural centre in the early third millennium BC (Postgate 1982: 50). Excavations resumed in 1975 under the direction of J. N. Postgate and P. R. S. Moorey and continued through the 1980s.

Although the settlement was relatively small and little work has been done regarding the site since the early 1990s, the residences are unusually large, and according to Matthews, “[W]e know more about the daily lives of ordinary folk at Abu Salabikh than at any other contemporary site” (Stone 2013; Matthews 2003: 163). Interestingly, it appears that nearly all of the architecture at the site represents residential buildings, with no positively identified administrative or religious buildings, and the only possible public

structures located in the southeast corner of the Main Mound adjacent to the Ash Tip (Matthews 2003; Green 1993). From the items found at Abu Salabikh during the seasons of excavation, fifteen have been identified as representing cattle or displaying bovine motifs. These items were discovered in two main locations: The Main Mound, where the Ash Tip is located, and the smaller West Mound, figure 5.3. Many of the items were found as a result of surface clearance or within the Ash Tip, and a few come from various graves.

5.2.1. Material Culture

From the objects about to be examined, most are either seal impressions or clay figurines with three additional unusual items. These items are all crafted in a similar style to items from the other three selected Mesopotamian sites. There are also several stylistic and material comparisons between these items and items from other Mesopotamian sites which will be made in chapter six. Interestingly, nearly all of the material culture from the site comes from a single area, with a few of the items coming from other areas of the ancient city. The majority of the material comes from either the Ash Tip itself or the cemetery which lies partially underneath it. Other areas represented include the northern portion of the Main Mound and the West Mound. From the six categories of material culture, five are represented with the category of stone objects containing no items. The seals and impressions include six examples; there are five clay figurines, two objects within the pendants and jewellery group, and one item each in the clay objects and other/unusual object categories, which are discussed below.

5.2.1.1. Seals and Impressions

The collection of seals and impressions with depictions of cattle from Abu Salabikh is rather small, six in total. In total, there are five impressions, two created from the same seal, which is now missing, and only a single cylinder seal. Figures 5.5, 5.6, 5.9, and 5.10 are all from the Ash Tip area of the site. The remaining examples are from the Main

Mound, figure 5.7, and the West Mound, figure 5.8. Figure 5.5 may have come from a peg and door sealing and is one of the two impressions from the reconstructed seal found at the site, figure 5.4 (Martin and Matthews 1993: 53). An interesting impression, figure 5.7, was discovered on a clay strip, which was found on the Main Mound within an area of kiln debris. Figure 5.8, the only complete seal from the site, was discovered within grave 193 on the West Mound. This seal is intriguing because it is crafted from clay that seems to have had the design cut away after firing. The collection of seal impressions from the site is somewhat different in comparison to those found in the northern sites as well as the other southern site. The numbers are considerably smaller, and the motifs seem to show slightly greater detail than their northern counterparts, which, as we will see, is a common feature in Southern Mesopotamian seals and sealings.

5.2.1.2. Clay Bovine Figurines

The first object in this collection, figure 5.11, is a small, fragmented animal figurine in the form of a bovine and comes from the Ash Tip. The baked clay figurine measures 3.7cm by 4.6cm by 3.7cm with only the front portion of the item intact. The legs are short with one of them broken at the tip, and there are also indications of the animal's ears and horns. Although this figurine was not indicated as representing a bovine, from the style of its construction and by comparing it to other examples of bovine figurines, it is the opinion of this researcher that the item was meant to show the image of a bull or cow. Figure 5.12 is another baked clay figurine from the Ash Tip, which went unidentified. The object measures 3.8cm by 2.4cm by 1.9cm and, based on the form of the body, most likely represents a bovine. All four legs are broken, and the head is missing; there is also a small pinched ridge between the back legs that represents male genitalia (McAdam 1993: 102). The example in figure 5.13, like the previous figurines from the Ash Tip, was only listed as a baked clay animal figurine. The object measures 5.3cm by 2.7cm, and through further inspection, it can be said that the animal represents a bovine as well. All four legs are

missing, and the animal's head has broken off. There is also a pinched ridge between the legs, which may represent male genitalia. Figure 5.14, found on the West Mound during surface clearance, is the front portion of an animal figurine made of clay measuring 5.3cm by 3.3cm. Although not specified, the animal seems to represent a bovine figure. The front legs are moulded together, and the horns have broken off. The final figurine, figure 5.15, also from the West Mound, is made of baked clay and measures 3.5cm by 5.9cm. This bovine figurine has been broken in half; the tail and all four legs have been broken, as well as the horns and right side of the head. What is curious about this figurine is that the eyes have been indicated by small circular indentations. These five figurines are typical of all clay figurines from the Mesopotamian region, which may indicate some form of continuity in the representation of clay objects.

5.2.1.3. Jewellery and Unusual Objects

Figure 5.16, from area E of the Main Mound, shows three small pendants found at Abu Salabikh, two of which represent cattle. In the image, the top figure shows the pendant of a recumbent calf measuring 2cm by 1.5cm and made of lapis lazuli. The item in the bottom right is a pendant representing a resting bearded bull. The item measures 2.5cm by 2cm and is also constructed of lapis lazuli. It must be noted that the horns of this animal display the same characteristics found on a number of other bull images from Tell Brak—the resting curled horns. It is also worth mentioning that two of the only pendants representing animals from the site are in the form of cattle and are made of the highly prized lapis stone. Figure 5.17 is also a piece of jewellery measuring 36.6cm in length, is made of copper, and comes from grave 14 in area E of the Main Mound. This pin, coming from grave number fourteen and found near the head of the grave's occupant, is rather unusual in that the end is topped by a crescent-shaped motif resting atop a very corroded figural head (Martin *et al.* 1985: 55). This is the only example of such an item from the site with other parallels being found at the sites of Tell Beydar and Tell Brak. The last item to

be examined is an unusual circular item identified as being a dish (Martin *et al.* 1985). The item, figures 5.18, 5.19, and 5.20, is made of ceramic and was discovered in grave number 51 in area E of the Main Mound. This object is similar to the incense burner previously discussed from Tell Brak and measures 41cm high with the base and top measuring 37cm and 11.5cm respectively. The bottom of the round dish consists of three separated levels displaying varied etched designs, with the central section consisting of a tower featuring two narrow doors or openings on opposite sides. Above these openings are perched two small bird figures, and on the top are four bull figures in profile with their heads facing outwards. Resting above these figures was a small dish, which has since been missing. This item, as stated before, is similar in style to the tower object found at Tell Brak in that the item has openings/doors at the base as well as the inclusion of bovine elements. This group of objects bears some resemblance to similar items from Tell Brak; however, the stylistic properties are distinctly different, indicating distinct Northern and Southern Mesopotamian stylistic preferences.

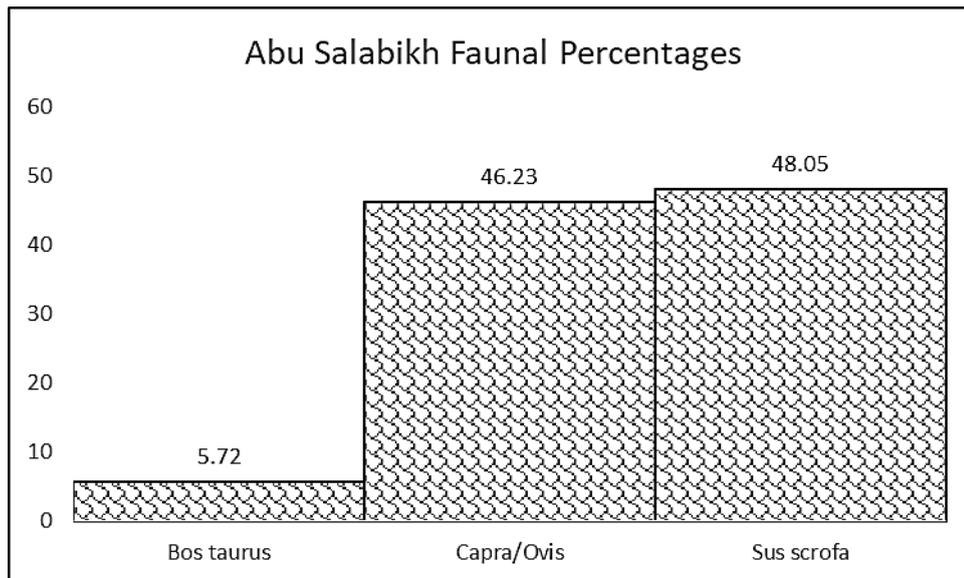
5.2.2. Faunal Remains

Unlike the faunal remains from Northern Mesopotamian sites, most of the cattle remains from Abu Salabikh come from a single source with some additional information gathered from grave contexts (Clark 1993; Martin *et al.* 1985). The advantage of the remains is that they all come from the same context of the Ash Tip area of the site's Main Mound and date to the Early Bronze Age period, making this a good study of Southern Mesopotamian faunal consumption from a specific period. An additional ten bovine bones come from graves 1, 2, 12, 27, 40, 45, 51, 69, 88, and 98 of area E on the Main Mound. From the available material, table 5.1, a total of 3,171 specimens were identified to a satisfactory mammalian taxonomic level with an additional ten bovine bones from ten of the site's graves. Although the wild and other categories are included within the faunal assemblage, they are not included within the faunal percentages due to a lack of positive

species identification. The largest groupings come from the combined wild and other group and from the pig remains group. The remains of the wild and other category have a combined NISP of 1,021, and an MNI of 26. The category of cattle, *Bos taurus*, has an NISP of 123 and an MNI of 13 and represents 5.72 per cent of the assemblage, (graph 5.1). Although the study has no separate groups for sheep, *Ovis aries*, and goat, *Capra hircus*, due to the similarity of the samples, there is a combined *Ovis/Capra* category, which will be discussed. This category has a total NISP of 994 and an MNI of 36 individuals, which accounts for 46.23 per cent of the overall faunal assemblage. The last, and largest, group of remains to be discussed here is that of the site's pig, *Sus scrofa*, population. What is interesting about this collection of pig remains is that they were identified as representing domesticated animals with no evidence of wild individuals, which indicated a possible preference for the animal at the site (Clark 1993: 182) This grouping has an NISP of 1,033 and an MNI of 42, making up 48.05 per cent, nearly half, of the total faunal specimens. This is the first site this researcher has encountered where the pig population not only outnumbers that of the combined sheep/goat populations but is the largest taxonomic grouping overall.

<i>Faunal Assemblage from Abu Salabikh</i>				
Taxon	Common Name	NISP	MNI	Percentage %
<i>Bos taurus</i>	Cattle	123	13	5.72
<i>Capra/Ovis</i>	Goat/Sheep	994	36	46.23
<i>Capra hircus</i>	Goat	0	0	0
<i>Ovis aries</i>	Sheep	0	0	0
<i>Sus scrofa</i>	Pig	1033	42	48.05
<i>Wild Taxa</i>	Various	935	0	N/A
<i>Other</i>	Other	86	26	N/A
Total		2150		100

Table 5.1: The faunal assemblage from Abu Salabikh (after Martin, Moon, and Postgate 1985; Clark 1993) * additional 10 cattle bones from 10 separate graves (Martin, Moon, and Postgate 1985)



Graph 5.1: Depiction of faunal assemblage from the site of Abu Salabikh using NISP percentages

From the Ash Tip sequence, a sample of 7,502 faunal specimens were discovered; however, the concentration of the available study was on the mammalian species, which suited the current review perfectly (Clark 1993). It should be revealed that the material examined here comes from only a single area, the Ash Tip of the Main Mound, due to the lack of work completed on the faunal specimens from Abu Salabikh, and thus may not represent the consumption habits of the site as a whole. In 1978, the team of Clutton-Brock and Burleigh produced a study of the faunal remains from the site; however, there was no information pertaining to the amounts of remains from individual species or the percentages thereof. According to the study, approximately 10,000 faunal elements were uncovered, though there is no account of what species these elements come from (Clutton-Brock and Burleigh 1978: 89). One similarity found between this report and the examination conducted by Clark is that both reveal pig, *Sus scrofa*, as being one of the most abundant mammalian species. Another aspect discovered was that both studies claim the majority of identifiable cattle remains came in the form of teeth and cranial elements (Clutton-Brock and Burleigh 1978; Clark 1993). From the work done by Clark (1993: 180), it has been found that sheep, goat, and pig populations were culled around two years

of age with the numbers of cattle surviving between two and a half and four years of age, indicating that cattle may have been exploited more for their secondary rather than their primary products. Although the category of cattle, *Bos taurus*, remains has the smallest NISP and MNI, based on the culling patterns presented, and from the fact that a sizable amount of iconography and material was discovered, one may come to the conclusion that this particular animal might have had a larger overall impact on the citizens of Abu Salabikh than other mammalian species in the Early Bronze Age.

5.2.3. Context of Material Culture

When analysing the context of the material culture representing cattle at Abu Salabikh, it has been found that the objects examined were unearthed in five separate areas: The Ash Tip, areas A and E, section G2 of the West Mound, and section G6 of the Main Mound. As for the faunal remains, all specimens found come from the site's Main Mound, the majority of which were found as the result of excavations in the Ash Tip area, with the other specimens coming from individual graves within area E. Compared to the sites of Tell Beydar, Tell Brak, and Ur, Abu Salabikh had a relatively small collection of items representing cattle; the numbers of positively identified cattle remains is also quite small. Although these proportions are quite small, it is still useful to investigate their contexts to determine the effects they may have had on the human population of Early Bronze Age Abu Salabikh. The material, again, is separated into the categories of seals and impressions, clay objects, and pendants and jewellery. The first group to be discussed is that of the seals and impressions from the site, with seven examples unearthed in the Ash Tip, the West Mound, and section G6. The largest number of these items comes from the Ash Tip, figures 5.4, 5.5, 5.6, 5.9, and 5.10. The Ash Tip is an area in the southeastern corner of the site's Main Mound, which overlaps with area E. Within area E are two main structures known as the central complex and the southeast complex. It is argued that the Ash Tip was made up of the refuse produced by these two structures. The central complex

structure is thought to be an administrative and residential area while the southeast complex is widely argued to be the remains of a temple, both of which comprise a centralised religious and administrative area for the Main Mound. Because the items from the Ash Tip may have been associated with administrative and religious activities, it is interesting that the largest number of objects relating to cattle were discovered within this context.

To continue with the examples of seals and seal impressions, all but two have been found within the Ash Tip area, with the other two examples being located rather close to this area. Figure 5.7 was found in section G6 directly north of area E, and figure 5.8 comes from grave 193 between areas A and B of the West Mound. The West Mound lies, not surprisingly, to the west of Abu Salabikh's Main Mound, separated by an unused canal. This mound has been identified as a residential quarter, with many houses and public fire installations, possibly public ovens. The second category of items to consider are those from the clay objects group. Like the collection of seals and seal impressions, these objects come from the Main and West mounds of the site. The largest number of items was discovered within the Ash Tip deposit, figures 5.11, 5.12, and 5.13. Although many baked clay animal figurines have been found at the site, only five can be identified as representing bovines. The other two bovine figurine examples were found within section G2 of the West Mound during surface clearance operations in the 1980s. The last and most impressive clay object discovered at Abu Salabikh is what has been identified as the stem of a ceramic stemmed dish, which has similar motifs to the tower example found at Tell Brak. This item, figures 5.18, 5.19, and 5.20, was found within grave 51 in the northeastern corner of area E, directly north of the Ash Tip. Grave 51 has been described as a rather rich one, and although the majority of grave goods were looted prior to excavation, there was still a large number of items found at the northern and southern ends of the tomb. This grave is located within room ten in a residential area with many similar graves.

The last category of material objects from the site, pendants and jewellery, is also the smallest and consists of only three items, figures 5.16 and 5.17. It must also be said that these items all come from area E of the Main Mound. Figure 5.17 is a metal pin with a distinct crescent shape as its finial. This pin, with parallels found at Tell Beydar and Tell Brak, was found with the contents of grave 14. This grave is found to the northeast of the mound's temple structure, at the northern end of the Ash Tip. Due to the grave's contents, mostly personal adornments with no weapons or blades, it is assumed that this was the grave of a well-off woman. Since this grave lies within the confines of the Ash Tip, it may be stipulated that the woman may have had some connection with the administrative and religious complex next to the area where the grave was found. The other two items in this category are a small recumbent bull pendant and a recumbent calf pendant of similar size, figure 5.16. These pendants were found in section G6 within area E of the site's Main Mound. Since these items do not come from graves, and due to their being found in area E, it may be suggested that they were associated with the administrative and religious complex since most of the items representing cattle come from the same context.

5.2.4. Context of Faunal Remains

As discussed before, the faunal material from Abu Salabikh is rather small with only one report examining the numbers of specimens and percentages thereof. All but ten specimens come from the Ash Tip area of the Main Mound. The remaining ten bone, identified as bovine hooves or other fragmented bovine remains, come from graves 1, 2, 12, 27, 40, 45, 51, 69, 88, and 98, all of which are located in area E. Since the Ash Tip is one of the most studied areas of the site, it is no surprise that there is a report specifically focused on the remains from that area; however, it is rather unusual that there are no reports discussing the overall faunal assemblage of the site. The overall NISP for the site is 3181, which includes the ten bovine samples from the graves. The cattle remains comprise the third largest group of domesticated species with an NISP of 133, including those from

area E graves, behind the combined sheep and goat group and the pig group, which is the largest. Since the Ash Tip is associated with the activities of the neighbouring religious and administrative centre, it can be suggested that this collection represents sacrificial and dietary practices of individuals connected to the complex. When examining the remains found in the E area graves, it is unknown why bovine hooves are the most predominant element; however, it may be suggested that this particular element had a special meaning or purpose to the inhabitants of the graves. Since there are no cattle remains to compare with those from the Ash Tip collection, one cannot come to a measurable conclusion as to the meaning behind such a sample; nonetheless, since these remains are linked to possible religious practices, it may be said that cattle held some form of importance in the religious life of the site's Early Bronze Age population.

When reflecting on the first question asked at the outset of this project about determining if there is any variability or similarity in the symbolic significance of cattle at the site of Abu Salabikh, we find that, artistically, representations of cattle in the form of figurines and seal motifs are consistent throughout the objects discussed. This indicates that the symbolic view of the animal is consistent, at least within the timeframe of this project. Considering the second question on the nature of interrelationships between humans and cattle at this ancient city, it is rather more difficult to discuss. Since the faunal remains come from a single area and there are no indications of remains from other areas of the site, at least to the knowledge of this researcher, I cannot confidently assess the economic impact of the animal simply because there is not enough viable information for a comparative analysis, however, the social impacts of the animal may be considered. Since all of the cattle remains come from either the Ash Tip area, which is assumed to have been associated with religious and administrative practices, or from the graves of area E, it can be said that this animal did hold some form of importance in cultic and burial customs of this area, though it is unclear if this holds true for the other mounds or areas of the site due

to the lack of material available for this review. To address the question of the role of and significance of cattle and how they may have changed the social and economic behaviour of humans at this site, one can observe that they are represented in items associated with public life, such as seals, meaning that they did have an effect on public life. However, from a lack of comparable faunal evidence, I cannot come to a positive conclusion as to the degree to which the animal affected human populations during this period.

5.3. The Site of Ur

The site of Ur is located in the Dhi Qar Governorate of south-central Iraq, near the modern city of Nasiriyah, figure 5.1. The earliest occupation of the site dates to the Ubaid period in the Late Chalcolithic, with the site reaching greatest influence in the Early to Middle Bronze Age. Of the archaeological sites investigated for this project, Ur is by far the most well-known; however, the majority of work relating to the site tends to focus solely on the material from the so-called Royal Tombs, with little available information on the rest of the site and almost no information on the ancient city's faunal remains. Fortunately for this research, the objects from the royal cemetery all approximately date to the Early Bronze Age period. In the roughly one hundred and fifty years of archaeological history, the materials from these Royal Tombs are some of the most celebrated finds to date. The site was first excavated by C. L. Woolley in the 1920s and 1930s, with the Royal Cemetery having been discovered in the autumn of 1922 and much of the more well-known objects, such as the standard, being found in the 1927-1928 seasons (1934: 5, 7). This research will focus on the material from the cemetery area of the site due to the lack of published work relating to other areas of the settlement within this period, which will be a good contrast to the material from the royal cemetery at the Anatolian site of Alaca Höyük. Also known as Tell al-Muqayyar, Ur rests on the floodplain between the Tigris and Euphrates rivers and rises some twenty metres above the surrounding landscape (Zettler 1998). Compared to the other sites selected for the Mesopotamian regions, the site of Ur

has come to rest in a more urban modern environment. The other sites are situated among agricultural and pastoral landscapes with only the site of Tell Brak being located near a small modern village. The modern city of Nasiriyah is located approximately seventeen kilometres to the northeast of the mound with the outlying areas of the city on the edge of our survey area, and directly south of the ancient site is the Tallil Air Base, a former U.S. occupied base, still in operation.

Within a 5km radius, figure 5.21, most of the modern landscape is desert with a few roads crossing the northern area. From the north, there are three large canals, which follow the path of former wadis, and from a cursory survey, there is no indication of any pastoral or agricultural fields. To the south of the site, we find the Tallil Air Base, which covers roughly half of the 5km area; in fact, the site rests along the northern perimeter of the air base and may be partially within the confines of the base itself. If we turn our attention to a larger 10km radius, the landscape is much the same. Just beyond the far northern portion of the radius is the southern bank of the modern Euphrates River, and as in the smaller radius, there are a number of small canals with the majority of the landscape consisting of flat sandy soil. The south and west of the larger area consists of desert landscape with the air base covering a portion of the area and a large modern road running from the north, curving around the bottom of the base, and continuing to the east. One aspect of the wider landscape that must be addressed is the large modern city, which lies just outside of the survey area to the northeast and is built up along both sides of the Euphrates. The proximity of the city most likely accounts for the presence of the air base. Because of the modern human presence in the area and the ever-changing landscape of the Southern Mesopotamian region, it is safe to assume that the Early Bronze Age landscape around the site of Ur was decidedly different from its current state. From an initial survey of the modern landscape, the natural vegetation surrounding the site, the only material visible upon close inspection are a few trees and shrubs around the wadis and the occasional small

grouping of trees. In fact, the Early Bronze Age landscape was much different from how it is today. The site was once along the banks of the Euphrates River and even was home to what has been identified as an ancient port since it has been discovered that the shore of the gulf was once much further inland than it is at present, with Ur being at the ancient head of the gulf (Crawford 2015; Pournelle 2007; Wilkinson 2003; Postgate 1992). Since the site was located within the marshlands of Southern Mesopotamia, it likely depended much on the litoral biomass, as well as on irrigation agriculture and herding, and like the ancient environment near or around Abu Salabikh probably had various species of trees, along with plant species associated with marshlands, such as reeds (Pournelle 2007). As stated before, all of the material under investigation here was excavated from the cemetery area in the central portion of the site, figure 5.22, with the majority of objects depicting cattle falling within the category of seals and impressions; the other categories of objects include pendants and jewellery, clay and stone objects, and other or unusual objects. Unfortunately, this research has yet to produce much material relating to the faunal remains from the site within the Early Bronze Age period; however, the material from the cemetery contexts should give us a respectable indication of the interrelationships between humans and cattle within this timeframe.

5.3.1. Material Culture

What is unusual about the material depicting cattle from the ancient economic and religious centre of Ur is that all of the material culture from this site comes from the context of the cemetery area to the south of the city centre. In comparison to the other Mesopotamian sites examined for this project, this is rather unusual. The material from the Northern Mesopotamian sites of Tell Beydar and Tell Brak come from various sections of each city with the majority of items coming from religious and administrative contexts. In the Southern site of Abu Salabikh, the material also comes from what may be described as an administrative and religious area as well, however, the material from Ur is decidedly

different in its context as well as in the material utilized in its construction. This examination of material culture will be interesting in that we will be able to investigate material culture within a distinct funerary context which is a good comparison to the context of the other three Mesopotamian archaeological sites.

5.3.1.1. Seals and Impressions

From the material culture uncovered within the cemetery area, the category with the largest numbers is that of the seals and impressions, with more than four hundred individual seals discovered (Pittman 1998a: 75-76). By far, this is the largest collection of seals and impressions from any of the seven sites within this project. Two hundred and fifty of these seals were found within the various graves at the site while the rest were found loose in the soil around them (Woolley 1934: 323). Of the seals and impressions that have relatively recognizable designs, 95 have bovine motifs, or some variation thereof. Among this group of seals is a rather intriguing stamp seal with Indus Valley motifs, figure 5.107, which attests to the trade connections between Southern Mesopotamia and the Indus Valley at this point in time. Since there are so many seals and sealings to discuss individually and in-depth, this section will only discuss the common seal designs and materials of construction. A more detailed description of each example can be found within section four of appendix I. The seals and impressions from Ur can be fitted to one of five design categories, which include procession/tribute scenes, combat/hunt scenes, banquet scenes, animal/wild scenes, and other scenes. Each of these categories will be briefly discussed in this section, as well as some of the more interesting or unusual seals and impressions found at this site.

The main material used in the construction of these seals is stone, with two examples of impressed clay sealings, figures 5.47 and 5.113. The largest number of seals are made from lapis lazuli, with 31 examples. There are 20 examples of seals made from shell and an additional 20 seals made of steatite in various colours. Furthermore, there are

three examples each that are made of limestone, calcite, and jadeite; and six that are crafted from marble. There are also four examples made of haematite, two made from breccia, and a single seal crafted from granite. The first design category is that of procession/tribute scenes, with a total of 22 examples. This design typically displays a seated individual, usually a horned deity, with several additional standing figures in front of and facing the seated individual. Moreover, some of the designs include crescent and star/rosette motifs, while others display floral or tree designs, usually behind the seated individual. Some of these examples also include small altars in front of the seated figures. There are two examples within this category, which merit further discussion. Figure 5.50 comes from PG/1079 and is very similar to examples of seals from the site of Tell Beydar in that the field is packed with figures, and there is no real indication of registers or organisation. At the bottom right is a boat-god figure, also a common theme at Beydar, paddling to the left carrying a horned, seated figure. In the bottom left is a bearded bull walking to the left with what appears to be a scorpion above the animal's back. The rest of the field is covered with eight unidentifiable animals. Figure 5.100 comes from PG/583 and has an unusual design that shows a horned deity facing right and a human figure facing to the left. Between the two figures is a recumbent bull that appears to have a dewlap. This is the only such example of this design from the site.

The next and largest category, with 55 examples, is those seals and impressions that display combat/hunt scenes. These scenes typically consist of human or anthropomorphic figures battling rearing animals, which are usually identified as lions, caprids, and bovines. There are also scenes that show animals, sometimes crossed, attacking other animals. Some of these designs are separated into two registers; however, the majority of examples consist of a single register. These scenes tend to look chaotic and can have few human and animal figures or many; this is also the category where we find the largest numbers of bull-men representations. One of the more unusual seals from this group is figure 5.36, which

comes from PG/261. Compared to other seals from Ur, this example is notable due to its orientation, with two lions attacking a caprid superimposed over a background made of two registers. On the upper register, there are two small crossed bulls, and below that, there is a human figure lifting the hind legs of two unidentified animals. The category of banquet scenes includes 11 seals and has two of the more interesting designs among the seals from Ur: figures 5.26 and 5.27. These scenes usually consist of seated figures and standing attendants. In the majority of these scenes, the seated individuals are drinking from large vessels, and some appear to be holding small drinking bowls or cups. Additionally, there are some crescent motifs and plant or floral motifs, and a few of the designs include combat and processional scenes located in lower registers.

Figure 5.26, from PG/1054, has a design consisting of two registers. The upper register shows a banquet scene with two standing and two seated human figures, and the lower register seems to be a continuation of the banquet with a group of three musicians accompanied by a dancer. What is so unusual about this particular design is that one of the musicians plays a large harp or lyre in the form of a bull, which is almost identical to those from the site's burial contexts. The next example, figure 5.27, has a design quite similar to the previous item. The seal was discovered in PG/1237 and has a banquet design in two registers. The top register shows a seated figure at the far right being attended to by a standing figure, with two seated figures drinking at the left end. In the lower register, we find a musical procession of nine with the central figure playing a harp or lyre with the same bovine form as the previous example; the harp is carried by two smaller figures. These seal designs display these unusual instruments in use, which adds to their implementation as items of high status.

The category of animal/wild scenes is rather small with four identified examples. These scenes typically show cattle in their natural docile positions within a natural landscape surrounded by plant and floral forms. One of the examples contains an

additional crescent motif, and two are separated into two registers, with the remaining example being a clay sealing with the inclusion of some text. The crescent motif is found throughout Southwest Asia and became the symbol of Nanna, the moon god, whose related animal is the bull (Black and Green 1998: 135). The final category, that of other scenes, has three total examples. Two of them show what appear to be battle scenes with horned deities who seem to be attacking seated horned deities, figures 5.77 and 5.78. The third example, figure 5.107, is made of a glazed grey coloured steatite and comes from PG/1847. What is most unusual about this stamp seal is that its form and design is in the Indus Valley style, indicating a strong connection between the two cultures. Due to a lack of *Bos indicus* motifs from this and other sites, this example has been included in the *Bos taurus* motif subject group for the glyptic study. The simple design clearly shows a humped zebu bull beneath some Indus writing. This makes the seal the second material culture example of a *Bos indicus* discovered within the larger Mesopotamian region from this period. Based on the form of the seal and its design and writing, it can be suggested with some confidence that this seal came to Ur from the Indus Valley.

If we examine the designs found on the seals from the cemetery area at Ur, many consist of contest or hunting scenes as well as tribute or processional scenes. Compared to the seals from other Mesopotamian sites, the material used to construct the seals varies greatly from lapis lazuli to shell, steatite, haematite, jadeite, marble, and granite. Also at Ur, it has been discovered that a number of seals, usually those made of lapis lazuli, were fitted with golden caps at the ends. Although it is unclear as to why this was done, one may suggest that these additions were merely a way of displaying additional wealth or influence compared to other seal holding individuals. In terms of iconography, the most common motifs found on this collection of seals are lions, bull-men, deities, bulls, and caprids (Hansen 1998: 50; Pittman 2013: 330). The majority of imagery consists of bovines or bovine elements, such as the horned mitres from the deities, which provides us with some

valuable information as to the iconographic importance of the animal the Early Bronze Age population at this Southern Mesopotamian cultural centre.

5.3.1.2. Pendants and Jewellery

The next category of objects to be discussed is that of the pendants and jewellery. Although this collection is considerably smaller than the previous grouping of seals and impressions, the craftsmanship and beauty of these items are no less impressive. In total, there are 22 examples that will be examined, including crescent earrings, stone pendants and ornaments, and a rather unusual thin golden headband, which Woolley identified as a fillet. There is a total of 11 individual earrings. The first example, figure 5.118, is a rather large pair of gold crescent or lunate earrings measuring 11cm in diameter and can be seen in the upper section of the figure. These objects have two opposing crescent shapes connected at the top by a gold wire. According to Woolley, the set was unearthed on either side of the skull within PG/800 also known as the tomb of Queen Puabi. Figure 5.119 is a nearly identical pair of gold earrings, which were found in PG/1237, the burial known as The Great Death Pit, and measure 11cm in diameter. The next set, figure 5.120, is from PG/1237, made of gold, and measures 7.5cm in diameter. Figure 5.121 is also from PG/1237, made of gold, and measures 6.5cm in diameter. Each pair of earrings from The Great Death Pit, PG/1237, was discovered near the skulls of three separate individuals. The earrings in figure 5.122 are similar individual items from two different burials. The first, shown on the left, is made of gold and measures 1.8cm in diameter, from PG/1133. The second earring is from PG/1195, measures 1.3cm in diameter, and is made of gold as well. Figure 5.123, from PG/1100, is a more ornate version of the previous earrings, with small ball motifs along the bottom of the crescent form. This design difference indicates that the item was most likely not constructed in the method as the previous pieces. One may suggest that this earring was moulded rather than fashioned from plate gold.

Figure 5.124 is what was described as a fillet by Woolley and has since been more

accurately identified as a headband or headdress. The band, from PG/153, is made of hammered sheet gold and pierced at the ends. This item is 32cm in length and 2.8cm high and displays a complex and finely detailed hunting or pastoral scene. At each end of the band is a single rosette, and from left to right, it shows a bull eating a plant followed by a caprid figure; behind that is a human figure leading two more bulls by ropes. In the centre is a group of three deer and a plant followed by two human figures, one with a caprid in a basket on his back. At the right is a human with a spear, riding what appears to be a caprid and chasing an unidentifiable animal. It has been suggested that this was once part of a ceremonial headdress, and based on the material of its construction, this may be correct. If this was part of such an item, it indicates that cattle likely held some importance within religious or ceremonial practices of the population at Ur within this period. Figure 5.125 is the famous Diadem of Queen Puabi. This masterwork of Early Bronze Age jewellery measures 88cm in length and is crafted from lapis lazuli, carnelian, gold, and bitumen on a reconstructed leather base. The background is made of a vast number of minute lapis beads strung on a leather band. Fixed on top of the brilliant blue backdrop is a collection of finely crafted gold animals; “each animal was originally modelled in bitumen; the form was then covered with gold foil and chased with details” (Pittman 1998b: 92). There are four sets of animal ornaments: gazelles, rams, stags, and bearded bulls. Aside from these animals, there are a number of botanical forms, which include rosettes, pomegranates and leaves, plant stems made of twisted gold wire, and several wire pendants suspended from the bottom of the piece. As stated before, the bearded bull figures, figure 5.126, are made of gold plating over a bitumen base, are 3cm in height, and are located to the left of the item’s centre.

Figure 5.127 is the first of a series of small pendants from the site. This example is finely crafted from lapis lazuli and shows a recumbent bull with its head facing outward. The horns of the animal are slightly curled and appear to rest on the head, forming an abstract crown. The pendant is pierced for suspension, measures 2cm by 2cm, and was

discovered loose within the soil. This example was not found in the cemetery area, and no specific find location was given, but it was positively dated to the same Early Bronze Age. The next example, figure 5.128, comes from PG/800, measures 3cm by 2.9cm, and is made of sheet gold placed over a core, most likely bitumen. The pendant is in the form of a recumbent twin-headed bull with upward facing horns. The rendering of the body is fairly rudimentary; however, the rest of the item is nicely detailed. Although Woolley claims that this pendant illustrates two antelopes, from close inspection of the item and by comparing it to a similar item from the Northern Mesopotamian site of Tell Brak, this research suggests that the item represents a twin-headed bull as opposed to two antelope. Figure 5.129 is made of shell, measures 3cm by 3.5 cm, and was discovered in PG/55. The pendant is in the form of a recumbent young bull with short horns. The left front leg is raised and bent at the knee, and the hoof is resting on the ground, much like similar examples from Tell Brak. The pendant is pierced vertically for suspension. Figure 5.130 is made of lapis lazuli, measures 3cm by 2cm, and is vertically pierced for suspension. Strangely, there is not much information given on this object, and there is no indication of where it was unearthed. The pendant represents a twin-headed, bearded bull with the same curled resting horns as other examples. The figure is in profile, and both heads are facing outward. Figure 5.131 is finely crafted from lapis lazuli, measures 2.7cm by 2cm, and was uncovered within PG/221. The figure, pierced vertically for suspension, is in profile, and the head is facing over the shoulder and outwards. The resting bull wears a curled beard that has been strapped on under the muzzle, and the horns are slightly curled and resting atop the animal's head. The next example, figure 5.132, is made of gold, presumably over a bitumen base like similar items from the site, is pierced vertically for suspension, and measures 1.8cm by 1.5cm. This pendant is incredibly similar to the previous lapis example with a curled beard strapped on beneath the muzzle. The only major difference between the two pendants is that the horns of this bull are facing upwards. Although this object was not

found within any specific burial, it was discovered near to PG/184.

Figure 5.133 is a reconstructed portion of a diadem similar to the example from PG/800. The item was discovered in PG/1130 in a badly preserved state and is made of gold, silver, glazed frit, and bitumen. The body of the item is made of alternating rows of gold and silver beads strung horizontally with a glazed frit ornament and two small ornaments depicting twin-headed, bearded bulls made of sheet gold over a bitumen core. The bulls are in a recumbent profile pose with their heads facing outward. The horns of all four heads are slightly curled and resting upon the heads, identical to other examples from Ur and Tell Brak. Between the two bull ornaments and not connected to the diadem is a group of gold leaves and pomegranate fruits connected by twisted silver wire. At the top of the figure and also not connected to the diadem is a rosette made of carved shell. Figures 5.134 and 5.135 are both from PG/800 and were discovered above each shoulder of Queen Puabi. Figure 5.134 is made of lapis lazuli, measures 3.9cm in length, and was found above the left shoulder. The pendant is vertically pierced and is suspended on a string along with four large beads. The bull is in a recumbent position and has a curled beard, and the horns are slightly curled and rest atop the animal's head. The body is in profile with the head facing outwards and is rather similar to other pendants from Ur. Figure 5.135 is also made of lapis lazuli, measures 3.4cm in length, and was found over the right shoulder of PG/800. This pendant is also pierced vertically and suspended along with three large beads. This pendant is unusual in that it represents a resting calf with the body in profile and head turned and facing the animal's backside. There are very similar calf pendants found at the sites of Tell Brak and Abu Salabikh.

5.3.1.3. Stone Objects

The category of stone objects is by far the smallest from the cemetery area of Ur and is made up of only three objects, figures 5.136, 5.137, 5.138. It must also be stated again that this material only represents the cemetery area of the site and does not consider

the material culture from other areas of the site due to the lack of material from other areas. Figure 5.136 is what was identified by Woolley as an oil lamp made of a translucent, white coloured calcite and measures 15cm in length, 3.5cm high, and 7.4cm wide. This lamp was discovered above PG/871 loose within the soil, and although it is not directly associated with the burial, it was categorised with the items uncovered with the burial. The “lamp” has been described as being in the form of a shell, and the side displays a well rendered recumbent human-headed bull with a beard and the distinctive resting horns, which can be found on other items from the site. The hair of the object has remains of black paint which indicates that the object was once brilliantly painted. Figure 5.137 is a very similar item in that it is another “lamp” made of a translucent white coloured calcite. This item was also described as being in the form of a shell, measures 14.5cm in length, and was found within PG/1134. The side displays a finely carved recumbent human-headed bull figure with a beard. Like the previous example, the horns of the animal are also resting atop the head, almost forming a rudimentary crown. The head of the animal forms a spout, and there are also some remains of black paint within the crevices of the beard. These two objects are rather unusual in that they are the only two examples of such items with bovine ornamentation that have been found within the confines of this project. They are also the only examples of “stone lamps” that this research has come across. It has been proposed by Winter (1999) that these “lamps” are not lamps at all but may, in fact, have been objects for the pouring of libations in association with funerary rights. This assessment of the items’ use is highly likely since they contained no indications of having been used as lamps, and based on their context, it is highly possible that they were implemented as vessels for funerary rights.

The last stone item from the site that will be discussed is a gypsum mace head, which is pear-shaped and measures 12cm in height. Figure 5.138 was found loose within the soil of the cemetery area and is not associated with any particular burial. The carving

on the object closely resembles that found on the previously discussed oil lamps; the only major difference is in the state of preservation of the mace head. This object has a number of animals, including a lion that appears to be attacking a bovine figure, as well as two recumbent human-headed, bearded bulls towards the bottom of the weapon. As with the two lamps, these objects display the distinctive resting cattle horns. There is also an inscription dedicated to the god Shamash, a sun god, and the person who dedicated the weapon named An-Bu with the title Lugal, or king (Woolley 1934: 378). This inscription indicates that this mace head was likely a ceremonial or status item rather than a weapon. It also suggests that the cattle or bull motif is associated with higher status or religious individuals. Although this collection of stone objects constitutes the smallest subject category from ancient Ur, each item is finely crafted, and all display images of recumbent human-headed, bearded bulls, indicating that the objects were connected to religious or cultic practices based on similar observations from other Mesopotamian sites.

5.3.1.4. Other and Unusual Objects

This category of other and unusual objects includes an array of items made of shell, stone, wood, gold, silver, and other materials. To begin, I will examine those items that include shell in their construction, move on to items principally crafted from metal, examine a number of finely rendered bovine heads made of metal, and end this section with an inspection of the famous bull-headed instruments from the ancient cemetery. The first item to be discussed is the well-known standard of Ur, figures 5.139-5.141. This masterpiece of early Mesopotamian artistry comes from PG/779. It measures 50.4cm in length and 21.7cm high, and the sides measure 5.6cm at the top and 11.6cm at the base. The panels are made of shell, lapis lazuli, and a reddish pink coloured limestone affixed to a wooden base. The first panel, figure 5.139, displays the so-called peace panel, which shows a banquet procession with human figures carrying grain, fish, and livestock in the lower registers while a series of seated figures reside in the uppermost register. Among the

livestock in the central register are two cattle figures, both being led by teams of human figures. The most fascinating aspect of this panel is in the far right of the top register where one is able to see a musician playing a harp or lyre with the head of a bull attached to the front, indicating that these items were not constructed specifically for ceremonial or burial objects, but were actually in use within certain aspects of society.

Figure 5.140 shows the obverse side of the standard and its war or battle scene. Like the banquet scene, this panel is made of three registers, the bottom with chariots and horses trampling opposing troops. The central register has a number of figures taking other figures prisoner, and the top register shows a fifth chariot as well as several warriors and prisoners flanking a central standing figure. The next image, figure 5.141, shows the side panels of the standard; both sides have a number of shell plaques surrounded by a mosaic of lapis lazuli. Due to the side panels being discovered in a shattered condition, it is unclear what the original orientation of each panel was. The orientation of each side has undergone several changes since the initial excavation, but it is clear that two of the small shell plaques show recumbent human-headed, bearded bulls with upward facing horns. Figure 5.142 is a gaming board with shell plaques and lapis lazuli borders set in silver. This item was found in PG/789 and measures 27cm by 13.5cm. Among the abstract and floral designs of the tiles are several tiles that display animal figures. Three of these tiles show pairs of rearing cattle facing each other while eating from some type of plant; a fourth tile in the top left of the larger section displays the image of a lion figure attacking a rearing bull. The next item, figure 5.143, is another gaming board with shell and lapis lazuli details set in silver and resting on a wooden base. The board measures 12cm at the widest point and was originally found within PG/779. The shell tiles of this board are much the same as in the previous example; however, the majority show lions attacking various caprid figures. There are three tiles that are nearly identical to those from the other gaming board and display pairs of rearing bulls facing each other and eating from some type of plant or

shrub.

The next three figures show a series of gaming pieces or tiles that have bull motifs. Figure 5.144 is a small shell tile, which measures 3cm wide and tall and shows a grazing bull in front of a large plant. Figure 5.145 is another small shell tile from PG/800 that shows a human-headed, bearded bull with some type of bird on its back and a large plant at its left side. The last individual gaming piece, figure 5.146, is also from PG/800 and displays a rearing bull battling a male figure. Figure 5.147 is a series of shell plaques that are framed in lapis lazuli and limestone; this is most likely a third gaming board and was found within PG/580. The object measures approximately 9cm by 7cm and shows a series of animal figures surrounded by vegetative forms. Of these tiles, there are two that can positively be identified as having bull figures and a third one, which shows a human-headed, bearded bull; there is also a broken tile, which displays another bearded bull with the top half of the scene missing. The other tiles have caprid figures or are unidentifiable. Figure 5.148 is a small piece of engraved shell from PG/800 that displays a rearing bull battling a human-headed bull. The final item that includes shell, figure 5.149, is a series of shell plaques with lapis lazuli and pink coloured limestone detailing. This item measures 13.5cm by 5.7cm and was found loose within the soil and is not associated with any particular burial. There are four plaques, or tiles, with animal motifs, and two of these tiles display standing bull figures in front of abstract, possibly floral designs. It should be noted that all of the plaques and gaming tiles discussed with bull figures are always accompanied by floral or plant motifs.

The next four items are made of various types of metal and once again all come from the same context of the cemetery area. Figure 5.150 is a large copper dagger from PG/755 measuring 33cm in length and 13cm at its widest point. The blade is fashioned from copper, and the grip and guard are wooden with gold sheeting. What is interesting about this particular dagger is the guard, which is in the shape of a crescent, relating to the

horns of a bull, as will be discussed in chapter six. This burial of a man, PG/755, contained four other daggers, and although it is not the finest weapon from this burial, it is the one located closest to the body, having been found behind the head of the occupant. The next object, figure 5.151, is a fragment of sheet gold, possibly some sort of binding, and was discovered within PG/1236. The item measures 12cm in length and 4.5cm in height and displays a contest scene very similar to scenes found on a number of seals from the site. The scene shows two rearing bulls in the centre, each fighting a bearded human figure. To the right behind the human figure is a tall plant form and what appears to be a third rearing bull figure. Behind the second bearded figure is a caprine figure being attacked by a lion, and a second lion crosses the first, possibly attacking the third bull figure. Figure 5.152 is one of a number of rein rings from the cemetery contexts; however, this is the only such example that exhibits the figure of a bull. This rein ring from PG/789 measures 17cm in height and 11cm at its widest point. The item is made of silver, and the top displays a finely moulded bull figurine standing to attention with upward-facing horns. The eyes and other facial features of the animal are shown in accurate detail, and the animal has an almost life-like feel. The next item, figure 5.153, is an unusual copper stick pin that was found loose in the soil and is not associated with any particular burial. The pin measures 16.25cm in length and is the only such object from the site. At the top end of the pin is an unusual horned head; it must be said that there are similar pins found at the other Mesopotamian sites within this project.

The next five objects are individual bovine heads, which were discovered around the cemetery area of Ur. Figure 5.154 is a bull head cast in silver with eyes inlaid in shell and lapis lazuli. This head measures 15.5cm across the horns and was found within PG/800. The muzzle was damaged, and one horn was broken prior to restoration; the item was found with a number of shell plaques attached to the lower end, indicating that it may have once been a portion of a lyre or harp. The eyes and facial features are finely detailed

and based on the material of its construction and the location of its discovery one is able to conclude that it was an ornamental piece for a high-ranking individual. The burial in which the piece originates, PG/800, is known as the tomb of Puabi, which was the burial associated with some of the site's most valuable finds. Figure 5.155 is a copper bull's head with the characteristic Southern Mesopotamian curled hair. This head, from PG/789, was another portion of a harp or lyre, due to it being discovered with three shell plaques and the wooden remains of the instrument itself, and measures 13cm at its widest point. The animal's eyes are inlaid with shell and lapis lazuli, and the facial features and hair are worked to a high degree. PG/789 lies almost directly under PG/800 and is also considered one of the site's most important burials. This lyre fragment was discovered near the body of what is considered a servant of the person buried within the grave; it should also be stated that the silver rein ring was found within this burial as well. One of the more unusual items from the site of Ur is the copper human head with bull horns, possibly representing a deity, which was found loose within the soil of the cemetery area, figure 5.156. This head measures 12cm by 11cm and was likely some type of ornamentation. The face is hollow cast, and the features are in good detail with the eyes once housing inlay of shell and lapis lazuli; only a single piece of lapis remains in the left eye. This item is significant because it may represent a bull-man, a protector spirit who acts as a barrier to evil (Black and Green 1998). This is also the only object of its kind from the site, and this research has yet to locate any comparable objects from Mesopotamian contexts. This example is similar to other horned heads discovered in the Arabian Peninsula, which will be discussed in more detail within chapter six, and may indicate an increased Arabian social presence in Mesopotamia.

Figure 5.157 is one of five similar bull heads, all of which were found in the foundations of a wall above the shaft of PG/1850. The head pictured is the fifth of the set and measures 14cm by 10.5cm, with the others measuring 15cm by 11cm, 14cm by

11.5cm, 13.5cm by 10.5cm, and 15cm by 9.5cm. The general form of all five heads is the same with a few minor differences, but all appear to be some sort of ornamentation to be attached to a larger item, perhaps a chariot or piece of furniture. If these items were in fact ornamentation, it means that cattle iconography may have been implemented in forms and on items used in everyday situations; it could also mean that the items the heads were attached to were related to religious or high-status individuals. It can also be suggested, more generally, that based on the large presence of cattle imagery within the cemetery complex of Ur, cattle symbolism played some function in burial practices and the differentiation of social class. Figure 5.158 is another series of bovine heads that were once part of a chariot, which was found within PG/800. These heads all measure approximately 3cm by 3.25cm, are constructed of gold, and were attached along the top trimming of the chariot. The facial features are not to the same degree as those of the other metal head examples previously discussed, and they are considerably smaller in scale. The eyes and muzzle display good detail, and based on the relative size of the horns, one may conclude that these heads represent either cows or young bulls. The final ten figures represent six individual musical instruments from five separate burials. All of the examples are either in a fragmentary condition or have been restored at the time of excavation.

The first instrument, figure 5.159, is a lyre from PG/1237 and measures 106cm by 97cm. This instrument has been restored at the time of excavation from a flattened state and is constructed of sheet silver over a wooden base. The ornamentation includes bands of lapis lazuli and shell as well as a shell plaque below the bovine head showing some animal scenes. The head of the bull is finely detailed and includes lapis and shell inlaid eyes, and along the top bar of the lyre are a series of what appear to be tuning pins. Figures 5.160 and 5.161 show a harp that comes from PG/800, the burial of Queen Puabi, and measures 107cm at its largest dimension. The harp was discovered in a very fragmented state and was restored at the time of excavation. The main body of the item is made of wood, which

was replaced, and ornamented with lapis lazuli, shell, gold sheeting, and some form of red coloured paste. The pins are made of solid gold, and the head of a bearded calf is made of lapis and sheet gold atop a wooden core. Figure 5.160 shows the complete restored harp, and figure 5.161 displays the front of the sounding box and the calf head. The front plate of the sounding box is made of a series of four scenes of engraved shell; the top scene is of a winged deity and two rearing caprines. The scene below consists of two rearing bulls in front of some type of abstracted floral form, and the scene below that is a combat scene with a human-headed bull battling two leopard-like animals. The bottom scene displays a lion attacking a bull figure; all four scenes appear to be typical of the artistic traditions found on other items from the cemetery. The calf head is beautifully detailed with eyes made of lapis and shell, and the head and hair of the animal are made of small lapis sections affixed to the wooden base.

Figures 5.162 and 5.163 show another restored lyre from PG/1237, which measures 120cm by 140cm. This appears to be the largest of the musical instruments from the burials at Ur and is also one of the most highly ornamented. The body of the lyre is made of wood with details made of lapis lazuli, shell, and a red coloured limestone in an ornate pattern. The upright sides are made of gold-plated wood with the same secondary materials or lapis, shell, and limestone, and the top bar is wooden covered with gold and silver sheeting. The front plaque of the sounding box is made of engraved shell with four registers displaying animal scenes. The top register shows a scene similar to one on the previous instrument with a human-headed bull battling two leopard-like figures. The scene below that has two caprine figures eating from a plant, and the next scene shows two lions attacking a bucking bull. The bottom register is too decayed to determine what is represented, unfortunately. Atop the shell plaque is the head of a bull with upraised horns made of gold over a wooden base. This head is quite finely detailed with sharp features and eyes made of lapis and shell inlay; the animal's beard and hair are curled and made of gold,

which is unusual considering the other examples of these beards are constructed of lapis fragments. Figures 5.164 and 5.165 are fragments of a lyre from PG/789, with the bull head measuring 25cm at its widest point and the plaque measuring 6cm by 7.8cm by 22.1cm. Figure 5.164 shows the head of the lyre, which is very similar in style and construction to the head from figure 5.161; the only major difference is that the previous example represents a bearded calf while this example shows a more mature bull. The head is crafted from sheet gold over a wooden base, and the hair and beard of the animal are crafted from lapis lazuli pieces carved with a curled design; what makes this example interesting is that the tops of this bull's horns are made from lapis and not gold like several of the other instrument ornamentations. As with most of these bovine heads, the eyes are made of lapis and shell inlay, and the facial features are finely rendered, bringing an almost life-like expression to the pieces of ancient art. Figure 5.165 shows the front plaque of the lyre sounding box, which, like other examples, is created from engraved shell. What is most intriguing about this particular plaque are its designs, which are separated into four registers. The top register shows a naked bearded man in the midst of combat with two bearded and human-headed bulls, which is somewhat similar to designs found on the various seals from the city, while the three lower registers are considerably more unusual. The second register shows two lions, one with a dagger at the waist, taking part in some sort of ceremonial practice. The male lion carries an oil lamp, or vessel, and the female lion holds an altar with animal remains on the top. The register below that shows a horse or mule playing a large harp in the form of a bull, nearly identical to those from the cemetery, while a bear figure holds the other end and a small unidentifiable animal shakes a rattle. Lastly, the bottom register has a scorpion-man holding a vessel, followed by a standing caprine holding two vessels. Although the basic layout of these designs is nothing entirely unusual, it is unusual that these actions are carried out by animals instead of humans.

The next item, figure 5.166, is the fragmented remains of yet another bull-headed

lyre. This example was found within PG/1332 and was unearthed in the northeast corner of the burial. This instrument, unrestored, was chiefly fashioned from wood, which has since deteriorated, and all that remains is the bull's head and a shell plaque from the front of the sounding box. This head is crafted from copper over a bitumen core and has the normal lapis lazuli and shell inlay in the eyes. What is different about this head from the others, aside from its non-wooden core, is a small inverted lapis triangle on the forehead, which is quite similar to the facial ornamentation found on several standards from the cemetery at Alaca Höyük. At the time of excavation, there was a collar of lapis and shell tiles connecting the bull head to its sounding box; however, they were not reattached. The plaque of this lyre is similar to the construction of the standard in that it is crafted from shell figures with a lapis background; this is the only example of this technique found on the instruments at the site. The last two images, figures 5.167 and 5.168, show a lyre reconstructed in plaster at the time of excavation coming from PG/1151. This lyre measures 100cm by 90cm and was originally made of wood; at the time of its discovery, plaster of Paris was poured into the area where the wood once sat, thus creating an impression of the lyre. All that remains of the original item are the front plaque of the sounding box and the bull head above the plaque. The head of the bull, figure 5.168, is made of copper with finely detailed facial features and the characteristic lapis lazuli and shell inlay for the eyes. Although this bull is not bearded, it does have the curled hair between the horns, indicative of Southern Mesopotamian artistic traditions. The front plaque is poorly preserved, and the only identifiable portion of the plaque is the top register, which displays two rearing caprid figures facing away from each other. These instruments may be related to banquets and feasting. If we examine the plaque from figure 5.165, we find that the three levels may depict some sort of ceremony or burial. If we read the plaque from top to bottom, it shows a combat scene or hunt scene, possibly representing the procurement of food for a feast, followed by a ceremony relating to either

a deity or individual, perhaps a burial, and ending with a banquet or feast accompanied by music. Similar scenes can be found within seals, figures 5.26-5.29. Figures 5.26 and 5.27 both illustrate banquets accompanied by music and dance while the other examples, figures 5.28 and 5.29, show banquets accompanied by a combat or hunting scene. This signifies that cattle imagery, and likely their meat as well, were implemented within banquets and ceremonies and may have also been associated with burials and burial feasts. The artistic preferences for the ancient city of Ur, particularly in their representations of cattle and other animals, are quite true to life for items of such an early date; in fact, the only other site with similar artistic traditions related to this project and period are a number of items from the Northern Mesopotamian site of Tell Brak.

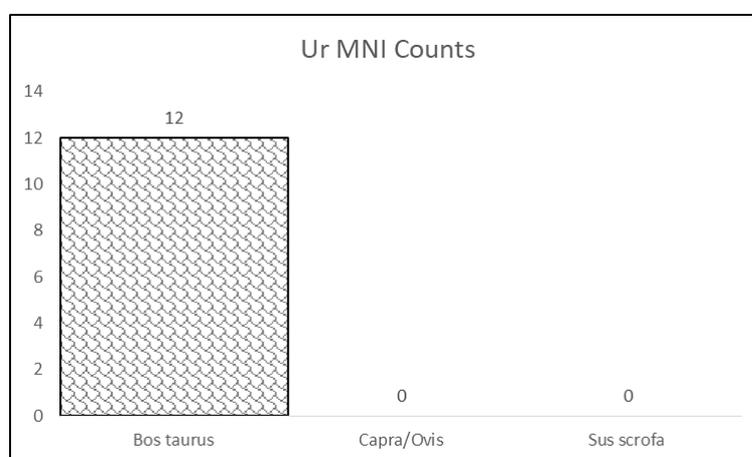
5.3.2. Faunal Remains

Unfortunately, it was not possible to locate any specified reports regarding the animal remains from the cemetery area or from the site in general. In Woolley's report on the cemetery and its remains, there is only a single small section that discusses the animal remains (Woolley 1934: 409-410). This discussion gives some quick remarks on what types of remains were discovered within the cemetery area, which include cattle, sheep, pig, gazelle, and a various category. There is a discussion of one bovine from PG/789 that was found attached to one of the carts; however, the skeleton was found crushed with the only preserved remains being long bones and a few teeth. Based on the lack of cranial evidence as well as the methods of tooth identification available at the time of excavation, it is difficult to determine if this specimen was actually a bovid or some other large mammal. As with the cattle remains, the majority of remains collected include teeth and various long bones as well as an example of the horn of a sheep. There are no indications of how many specimens were unearthed, and the remains discussed are associated with only nine specific burials. Within the sections describing specific burials, the text typically discusses the material culture and the human remains, and when it does indicate faunal

remains, it typically states that animal remains were found, going into no further detail. From a careful examination of the material regarding the faunal remains from Ur, it has been discovered that a total of 15 individual animals were positively identified within the cemetery area, table 5.2. In total, 12 individual bovines, two donkeys, and a single gazelle were identified, (graph 5.2). Apart from the remains just discussed, there were several bovine long bones and a few bovine teeth that were discovered in PG/1050; however, there is no indication as to how many were identified. Although there is not much information regarding the faunal remains from the site of Ur, we do know that certain species were present within the cemetery area, indicating that these animals were placed there for some purpose. Other than those remains found in association with carts, it is unclear as to whether these animals were interred as either foodstuffs or if they held some type of ceremonial significance.

<i>Faunal Assemblage from Ur</i>				
Taxon	Common Name	NISP	MNI	Percentage %
<i>Bos taurus</i>	Cattle	0	12	N/A
<i>Capra/Ovis</i>	Goat/Sheep	0	0	N/A
<i>Capra hircus</i>	Goat	0	0	N/A
<i>Ovis aries</i>	Sheep	0	0	N/A
<i>Sus scrofa</i>	Pig	0	0	N/A
<i>Wild Taxa</i>	Various	0	1	N/A
<i>Other</i>	Other	0	2	N/A
Total		0		N/A

Table 5.2: The faunal assemblage from Ur (after Ramos-Soldado 2016; Woolley 1934)



Graph 5.2: Depiction of faunal assemblage from the site of Ur using MNI counts

5.3.3. Context of Material Culture and Faunal Remains

When examining the context of the material from the site of Ur, as stated before, all of the material from this project is associated with the cemetery area located within the central portion of the Main Mound just to the southeast of the palace of Ur-Nammu, figure 5.22. This location is positioned along the southern edge of the site's main acropolis and very near to several temple complexes. Figure 5.169 shows a detailed map of the cemetery area that was constructed by Woolley's team with the vast majority of the burials located in the southeastern area of the cemetery. Of the 149 individual objects discovered in the cemetery complex, 27 were unearthed loose within the soil and are not associated with any particular burial site. Even though I do not have any information on these items past their general descriptions, these items do provide some useful insight into what items are found within burial contexts. However, these items may have just been deposited within the fill of the burials and thus may merely represent the refuse of a certain point in time. The largest grouping of objects is that of the seals and impressions with a total of 95, making up 64.47 per cent of the overall material culture assemblage. Nearly all of these seals and seal impressions come from 70 individual burials scattered around the cemetery complex with the remaining items having been found loose within the soil or found in association with other items representing cattle or cattle motifs. Unfortunately, from the work carried out for this project, there are no indications of items from other areas of the site; much of the material relating to the site focuses on either architecture or the material from the cemetery area. Interestingly, this is much the same as the material recovered from the Anatolian site of Alaca Höyük in that the majority of material relating to the timeframe of this project was discovered within funerary contexts of larger or royal burials. In fact, there are some striking similarities between the material culture from Alaca Höyük and Ur, which will be discussed in chapter six.

For the sake of time, this section will not be discussing each individual burial;

however, it will discuss in some detail the burials containing more than a single item. In total, there are 14 burials that contain more than one item pertaining to cattle, and six of these burials are considered to be royal burials based on the size of the tombs and the material culture discovered within. The so-called royal burials of Ur are located in the central and western sections of the cemetery complex and are differentiated from other burials by the size of the interments as well as the material found within. Figure 5.170 shows in more detail the complex of these Royal Tombs apart from the other burials in the area. Of the six Royal Tombs with material relating to cattle, three, PG/779, PG/580, and PG/1054, contain two items representing cattle or displaying cattle motifs while three, PG/800, PG/1237, and PG/789, contain more than two items. To begin our discussion of the burials, I will start with the non-royal interments and move on to those considered to be royal burials. PG/153 is a simple trench burial located 3.4m beneath the ground surface. Within this burial, two items relating to cattle were found, figure 5.49, a cylinder seal made of lapis lazuli, and figure 5.124, which is the sheet gold fillet, most likely a cranial ornamentation. PG/559 is a coffin burial with signs of partial cremation and was discovered at the same depth as the previous grave, 3.4m. This burial contained two cylinder seals, figures 5.60 and 5.68, both of which are crafted from steatite. PG/861 lies at the northern end of the cemetery complex, to the west of much larger PG/800. Like PG/559, this burial is another coffin burial that had signs of cremation. PG/861 was discovered 6.2m below the modern surface and contained two cylinder seals with bovine iconography, one of which was crafted from lapis lazuli and the other from marble, figures 5.39 and 5.40.

PG/1081 is a trench burial that lies at a depth of 4.4m and is located to the east of the larger PG/779. This burial also had two cylinder seals, one of steatite and one of shell, found in conjunction with a small bowl, figures 5.48 and 5.55. As one can probably assume at this point, most of the objects from these non-royal interments are cylinder seals,

indicating that the individuals from these graves held a higher than usual social status. PG/1173 is another trench burial where the individual was wrapped in some form of matting. This burial was found at a depth of 5.7m and is located to the south of the larger PG/1237. Two cylinder seals come from this burial: figure 5.80 made of lapis lazuli, and figure 5.82 made of calcite. The next burial, PG/1845, is located directly north of the much larger PG/800. This burial is different than the others discussed thus far in that it consists of a square pit with various burials at different levels. Although it is unclear which of these individuals the two cylinder seals are related to, they are still associated with higher status individuals; both seals, figures 5.105 and 5.106, are constructed from steatite. PG/1847 is very much the same as the previous burial in that it consists of a number of individuals interred within a large rectangular pit. This pit is located directly to the northwest of PG/1845 and, like the other pit, contained two seals. The first seal, figure 5.109, is a typical Southern Mesopotamian cylinder seal made of shell while the second seal is a very unusual Indus style stamp seal, made of steatite, with a *Bos indicus* motif as well as the typical Indus script, figure 5.107. The final non-royal burial is a third large burial pit, PG1850, which is located directly east of PG/1845. Like the other burials, PG/1850 contains multiple individuals as well as two lapis lazuli cylinder seals with bovine motifs; figures 5.24 and 5.110. What is an unusual find for this type of grave are the five copper bovine heads, figure 5.157, which were discovered beneath the foundation of a wall directly above the top burial. Although these heads are not directly associated with an individual from this pit, they are associated with this particular set of burials. Based on the relative uniformity in construction and size, as well as in the fact they were found together, one may suggest that these were once some form of ornamentation possibly related to furniture or a chariot, such as the example from PG/800.

PG/580 is the first of the Royal Tombs that will be discussed. This burial was discovered at a depth of 5m and is located at the northwest corner of the cemetery

complex. Within the burial were three bovine skulls near the eastern corner as well as a finely carved shell cylinder seal, figure 5.23. Also found in this burial were a series of small carved shell plaques, which were most likely a portion of a gaming board, figure 5.147. The next tomb, PG/779, lies 11.5m below the modern surface and is located in the centre of the royal burial area, figure 5.170. This tomb is made of four chambers and is the burial from where the famous standard was discovered. The first item with cattle iconography is a gaming board made of engraved shell plaques with lapis lazuli borders and set with silver, figure 5.143, which was found within chamber D at the eastern end of the tomb; the remains of approximately six human bodies were also found within this chamber. Also from chamber D was found the standard, figures 5.139-5.141, which was against the wall with the “War Panel” facing up. It is worth saying that both items discussed from PG/779 were found within the same chamber in close proximity to each other. The next tomb, PG/789, is known as the “King’s Grave” based on the number and craftsmanship of the grave goods. This tomb is located at the northeastern section of the cemetery complex, directly against PG/800. There are four objects from this tomb that display cattle or cattle iconography; in total, there were sixty-two items from this context. The first, figure 5.142, is a gaming board made from engraved shell plaques and lapis lazuli edging over a wooden base. Figure 5.152 is a rather unusual rein ring made of solid silver with the figure of a bull at the top. The third item, figure 5.155, is a copper bovine head, which, although not found in conjunction with any other item, was likely some type of ornamentation for a larger wooden object. At the entrance to the tomb were found two carts along with the remains of what Woolley deemed oxen, each with silver nostril rings and silver collars formed in the shape of a crescent. Even though there has been some debate as to what draft animals are associated with the burials at Ur, these particular animals may be confirmed as oxen based on the presence of their horns. The final item from this burial representing cattle is the remains of a musical instrument, figures 5.164

and 5.165. All that remains of this instrument is a bull's head made of gold with lapis lazuli hair and the shell plaque, which once covered the front of the sounding box.

The next royal tomb that will be discussed is PG/800, also known as the tomb of Queen Puabi. This burial has the largest collection of items representing cattle within the cemetery complex, at 14. The tomb is located at the northern end of the complex and lies directly against the PG/789. The first item is a set of golden, crescent-shaped earrings, which were discovered around the head of the tomb's principal inhabitant, and are accompanied by an elaborate headdress, figure 5.118. The next two items, figure 126, are small golden bull ornaments, which once adorned a diadem, figure 5.125. Figure 5.128 is a small golden pendant in the form of a double-headed recumbent bull, similar in style to pendants from Tell Brak. Figure 5.133 is a smaller diadem, which has two golden double-headed bull pendants hanging on either side of a group of fruit. The next two items, figures 5.134 and 5.135, are quite similar in that they both represent recumbent cattle with one bearded bull and one calf, both of which are crafted from lapis lazuli and hang at the end of two sets of beads. Figures 5.145 and 5.146 are small engraved shell gaming pieces that show representations of cattle. Figure 5.148 is a small engraved shell inlay with a rearing bull; it is unclear as to what this piece was once a part of. Figure 5.154 shows a silver bovine head with fine detailing, and although it was not found in association with any particular item, one can assume that it was once some sort of ornamentation based on the unfinished back of the item. The next four items, figure 5.158, are small golden bovine heads, which once adorned a chariot from the grave, along with other ornamentation, such as lioness heads and shell and lapis inlay. The last item to be discussed is a harp, which was restored at the time of excavation, figures 5.160 and 5.161. The bull head on the front of the harp is made of gold with eyes made of shell and lapis lazuli inlay, and there is a beard and hair made of lapis as well. This tomb is by far the richest in terms of items representing cattle, the majority of which are finely crafted from gold.

Burial, PG/1054, is located to the southeast of PG/779. This tomb housed the remains of four individuals, including the chief burial, and was home to a relatively large number of objects. The two items representing cattle from this burial are both related to cylinder seals. Figure 5.25 is a complete cylinder seal made of lapis lazuli, and figure 5.26 is a piece of gold plating, which once covered a base, most likely of bitumen, of a second cylinder seal. The last of the royal graves to be discussed in this section is PG/1237, known as “The Great Death Pit.” This tomb rests at the western edge of the royal burial complex and was home to large numbers of human remains and grave goods. The majority of the items from this burial are jewellery made of gold and silver. Figures 5.120 and 5.121 are two examples of earring sets, which come from the burial. Both are made of gold and have the distinct crescent or lunate shape, a shape and motif that has been located at all sites within the Mesopotamian cultural areas. The next item, figure 5.27, is a cylinder seal made of lapis lazuli. By far the most impressive items to come from this tomb are the two lyres. The first, figure 5.159, is made chiefly of silver and has the finely made head of a bull with shell and lapis lazuli eyes resting atop the sound box. Figures 5.162 and 5.163 shows the second lyre that is chiefly ornamented with gold as well as shell and lapis inlay. The bull’s head on this example is different in that the beard of the animal is completely made of gold whereas, in other examples, the beard is made of lapis lazuli. The roles of the items from this cemetery vary from those associated with jewellery and pendants, see section 2.4.5, to those related to seals, stone objects, and the “other” objects, see sections 2.4.3 and 2.4.6. The seals and jewellery likely represent the personal adornments related to social status of individuals while they were still living. The stone objects may represent ritual associated with the burial of a person, based on their context, and the collection of instruments illustrates the importance of feasting and social cohesion within Early Bronze Age societies and may also relate to the ceremony and ritual associated with burials.

Based on the context of these items from the ancient city of Ur, I may conclude that

cattle did play an important role in the iconography of this site. Roughly a third of all seals and impressions uncovered within the cemetery complex contain some kind of cattle iconography in the forms of horned deities, bull men, crescent motifs, as well as in the form of the animal itself. This indicates that the symbolism relating to cattle played some part in the administrative life of the city as well as within religious and cultic practices based on the number of religious processions and horned deities that were identified on these objects. In terms of the other items representing cattle, such as jewellery, ornamentation, and musical instruments, we can establish that the animal was highly revered since this is one of the most common animal forms found, in terms of iconography, within the site's cemetery area. The most fascinating aspect of this material is the instruments, which have bull head ornamentation. It is unclear why this particular animal was chosen to adorn all of the instruments from the site; however, based on the presence of these items in seal impressions as well as in one of the sound box plates, we can observe that these harps and lyres were utilised in religious or cultic processions or ceremonies. Because of this documentation as to their use, one may articulate that the bull held some significance in the ceremonial life of the site within the Early Bronze Age.

As for the faunal remains, it remains unclear as to what the animal consumption patterns from the site are, due to the surprising lack of material available on the subject of faunal remains at such a well-known archaeological site. There is evidence that animals are present within several of the grave and tomb sites; however, in many cases, it is indistinguishable as to the exact animal species present and how many remains were excavated from these places. We do know that bovines, pigs, and ovicaprids were discovered within a number of these burials; however, in most cases, there is not enough information available to construct an argument as to what they may have been implemented for. From the 15 identified individual animals, twelve are identified as *Bos* remains and come from three separate burials. From PG/580, there were four bovine

specimens; from PG/789 there were six, and from PG/800 there were two. There were also two sets of donkey remains discovered within PG/1232 and a series of *Bos* long bones and teeth as well as the horns of a gazelle from PG/1050. The only instance where we do have some indication as to the use of a particular species is with the bovine remains in that they were employed as draft animals in the graves that contained carts, PG/789 and PG/800. However, there has been some debate as to the exact species that are present within these contexts. Although not much has been learned from the presence of faunal remains within this context, there is a lot of valuable information on the material culture, which is lacking at other sites within this project.

5.4. Discussion and Comparisons

This section will discuss patterns discovered relating to the material culture representing or relating to cattle from the two selected Southern Mesopotamian sites of Abu Salabikh and Ur; as well as compare the material culture and faunal remains from each settlement. This comparison should prove rather compelling due to the difference in size between the two selected sites with Ur being a large regional centre and Abu Salabikh being a small town. By considering the question of what the interrelationships are between humans and cattle in the Early Bronze Age period, we may gain a much-needed understanding of how cattle transformed human behaviour and in what forms this took place. The main method of assessment to answer this question is to investigate both the material culture and faunal remains from these sites to determine what the items displaying cattle iconography are and to what area of society they belong, e.g. ceremonial, religious, or everyday items. The faunal remains allow us to gain some perspective into how animals were consumed in terms of dietary and labour preferences and what societal groups are more associated with cattle than others. By implementing these modes of assessment, I will achieve a more detailed picture of how humans and cattle changed each other's behaviours and practices within Southern Mesopotamia.

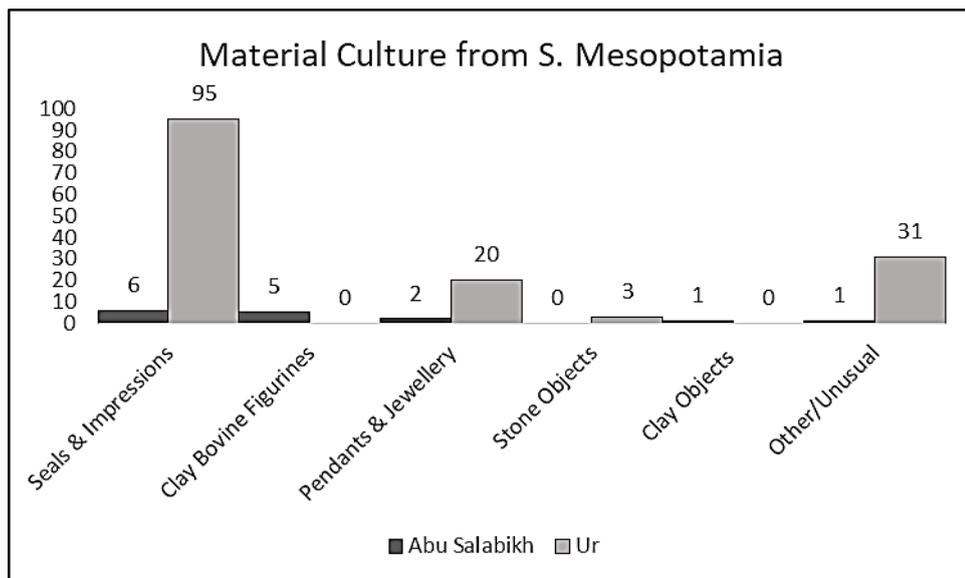
The material culture from the southern sites of Abu Salabikh and Ur that represent cattle reveals that the animal did have an impact on the Early Bronze Age human populations of these Southern Mesopotamian sites. Table 5.3 illustrates all of the material culture examined from both sites within this region. In total, there are 164 individual objects considered in this review. As with the previous regional chapters, the objects have been separated into six object groups for a better understanding of exactly what types of items are assessed: seals and seal impressions, clay bovine figurines, pendants and jewellery, stone objects, clay objects, and other or unusual objects. By far, the largest group is that of the seals and impressions with a total of 101, 95 from Ur and six from Abu Salabikh, (graph 5.3). This category is important because it allows us to examine both the iconography associated with the animal and gives us some indication of the social importance of cattle due to its implementation within the administrative sector of society, as well as its use as markers of social identity, see section 2.4.3 (Ameri *et al.* 2018; Pittman 2018; Zettler 1987). The material group with the second largest number is that of the other and unusual objects with a total number of 32. Interestingly, all but one of the items in this collection were discovered at the site of Ur within the cemetery complex. This collection includes the musical instruments as well as the metal bovine heads that were previously discussed.

The other category is interesting because not only does it include items that were not able to be classified as one of the other five material culture groups, but the material in this group, for the most part, does seem to have some sort of ceremonial or ritual connotation associated with it. Such examples include the instruments from the cemetery complex of Ur, which may be associated with banquets and perhaps burial practices. The next group is that of the pendants and jewellery with a combined total of 22, as with the previous category, the majority of items come from the site of Ur, with only two items having been found at the site of Abu Salabikh. This category represents not only the wealth

of individuals but with the various depictions of cattle and cattle motifs, which indicates that the animal had some influence within social and personal identity as well as social standing, see section 2.4.5 (Crawford 2015; Pittman 1998b).

<i>Material Culture Groups and Numbers for S. Mesopotamia</i>			
Object Groups	Abu Salabikh	Ur	Group Total
Seals & Impressions	6	95	101
Clay Bovine Figurines	5	0	5
Pendants & Jewellery	2	20	22
Stone Objects	0	3	3
Clay Objects	1	0	1
Other/Unusual	1	31	32
Site Total	15	149	164

Table 5.3: Combined material culture groups and numbers from Southern Mesopotamia



Graph 5.3: Comparison of material culture groups from the Southern Mesopotamian sites

The entire group of clay bovine figurines was recovered from the site of Abu Salabikh with a total of five. It is strange that from all of the items found at Ur that there is not a single example of a clay bovine figurine. This may indicate that this type of item was not related to those of higher status and that they may relate to those individuals of lower societal standing; at least at this site. However, this may also be because there are no items from Ur that come from contexts other than the cemetery area. Due to a lack of such

objects within cemetery contexts, it may indicate that these figurines do not relate to ritual or religious practices, see section 2.4.4. This is intriguing because it could suggest that the clay figurine did not have a place within funerary ritual and may have served in some other social or perhaps even economic respect. The next material culture group is that of the stone objects. In total, three were discovered, and all three stone items come from the site of Ur. This implies that stone was utilised more in ritual than in other social practices, which can be confirmed in the material's association with death (Boivin 2004). The last category is that of clay objects with a single item from Abu Salabikh. It is intriguing that all of the stone items were found within the larger city while the clay items come from the smaller town. This indicates that the larger cities had more specialized craftsmen who were able to work with stone while the smaller settlements worked more with the medium of baked clay. This same trend can be seen with the Northern Mesopotamian sites of Tell Beydar and Tell Brak in that there are a larger number of stone items from the larger site of Tell Brak compared to the smaller Tell Beydar.

Unlike the material from the Northern Mesopotamian cultural region, the vast majority of material culture relating to or depicting cattle motifs come from religious or burial contexts whereas the largest quantities from the north come from public/administrative and religious contexts. It also must be stated that a considerable proportion of the overall regional total is made up of seals and sealings, which indicates that the public/administrative sector is also well represented and that these items were buried with the individuals who operated them rather than having been discovered within actual public or administrative areas. As for the context of items from the two sites, nearly all of the material from Abu Salabikh comes from the area known as the Ash Tip, which is considered to be a refuse point for the temple and administrative complexes in the southeastern sector of the site. Although there are a few items that were found in two of the other mounds of the site, and a small number that came from burials beneath the Ash Tip,

one may suggest that the material from Abu Salabikh representing cattle are associated with religious and administrative activities. At the site of Ur, the entirety of the material examined for this project was found within burial contexts, and based on the social classes the material represents, it can be said that the items, here too, represent religious and administrative practices. Even though, at this point, it remains a bit unclear as to how cattle affected the social and economic activities of humans, it is clear that this animal did have some involvement, at least iconographically, in the religious and administrative life in Southern Mesopotamia at that time.

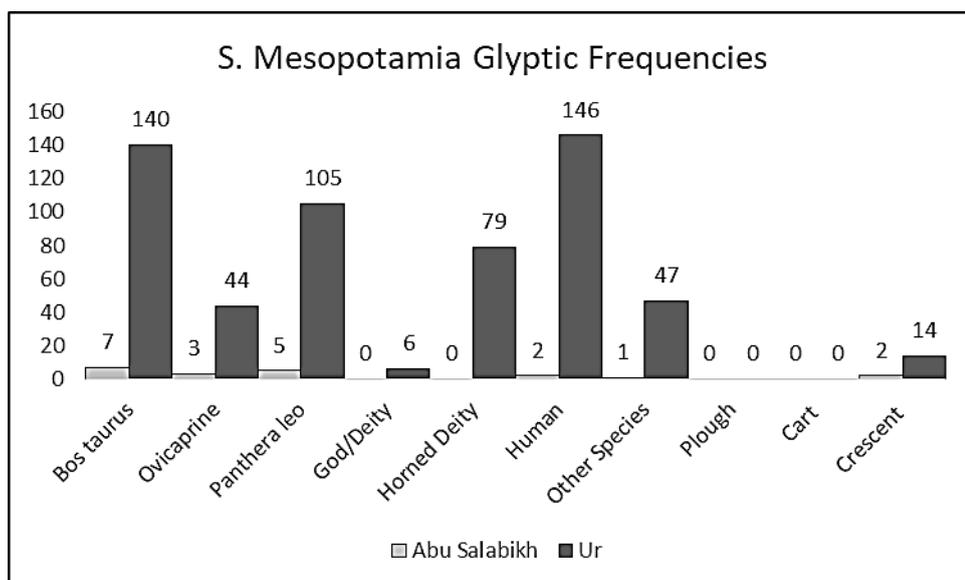
Another method of assessing the material culture for Southern Mesopotamia is by investigating the glyptic information from the seals and sealings found at each site. Table 5.4 shows the glyptic information, which has been separated into ten subject groups. These motif subject groups are as follows: *Bos taurus*, *Ovicaprine*, *Panthera leo*, god/deity, horned deity, human, other species, plough, cart, and crescents. From the 101 individual seals and impressions observed from both sites, a total of 601 motifs were positively identified. The site with the largest number of representations is Ur, with 581, followed by Abu Salabikh, with 20 representations in total. The subject with the largest numbers is that of the human motifs with 148, and the second largest category is that of the cattle motifs with 147. It is interesting to note that both groups have nearly identical numbers. The group of lion motifs consists of 110 individual motifs, and the horned deity group is next with 79 motifs represented.

The next category is that of other species, this collection consists of all other animals, such as scorpions, leopards, birds, fish, and motifs that were unable to be clearly identified, this group has 48 motifs. With a regional total of 47, is the *Ovicaprine* group, which includes representations of sheep and goat. The crescent category has sixteen positively identified motifs. One of the smallest groups is that of the god/deity motifs. This group was only identified six times from the 104 seals and impressions. The last two

groups are those of the plough and cart motifs. Surprisingly, there were no such motifs found on any of the examples from Southern Mesopotamia, which indicates that these motifs may be a northern regional preference due to the fact that there were a number of these motifs identified at the sites of Tell Beydar and Tell Brak. (Graph 5.4) shows the site numbers of each motif subject and how they compare to one another. The results from this glyptic survey add to the importance of cattle within Southern Mesopotamia in that the animal is the second most common motif implemented in such a capacity, which adds to the effects of cattle on economic and social life within the Early Bronze Age.

<i>Glyptic Motif Frequencies from S. Mesopotamia</i>			
Motif Subject	Abu Salabikh	Ur	Subject Total
<i>Bos taurus</i>	7	140	147
<i>Ovicaprine</i>	3	44	47
<i>Panthera leo</i>	5	105	110
God/Deity	0	6	6
Horned Deity	0	79	79
Human	2	146	148
Other Species	1	47	48
Plough	0	0	0
Cart	0	0	0
Crescent	2	14	16
Site Total	20	581	601

Table 5.4: Motif subject groups showing numbers from the sites of Abu Salabikh and Ur

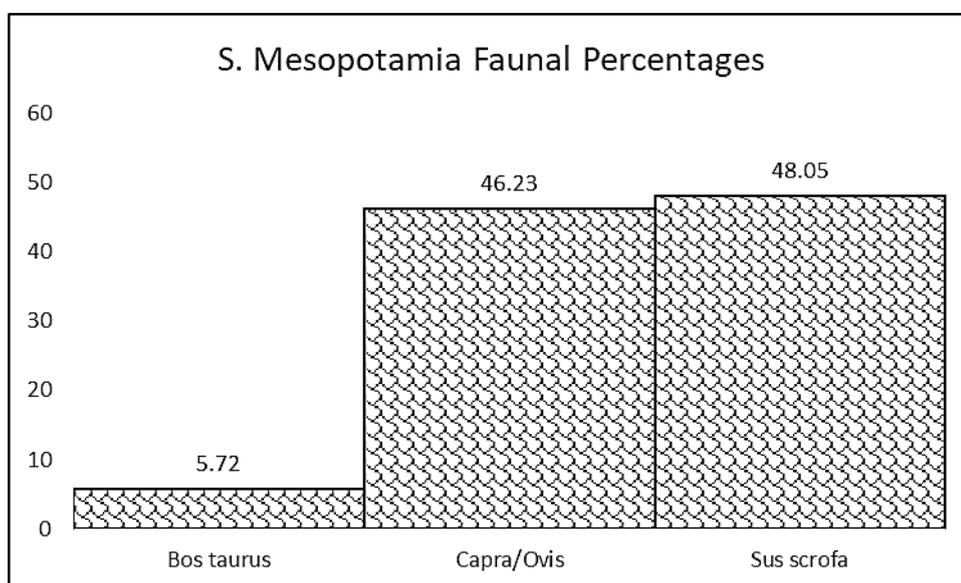


Graph 5.4: Motif subject groups from sites of Abu Salabikh and Ur showing comparative numbers

When comparing the faunal assemblages from Abu Salabikh and Ur, we see that the smaller of the two sites has a much larger faunal assemblage available for study due to more modern recovery techniques and interest in the everyday aspects of human life than the larger site of Ur. Since there is no indication of the number of identified specimens, or (NISP), from Ur, we must investigate the minimum number of individuals (MNI), which is, thankfully, present for both of these sites. Table 5.5 shows the combined faunal assemblage for the Southern Mesopotamian cultural region, and as we can see, the NISP for the region is unchanged due to a lack of information from the site of Ur; however, the combined MNI for the region does give some indication of the relative numbers of individual animals present within this region, (graph 5.5). The largest number of identified individuals comes from the *Sus scrofa* category with 42 specimens, the second largest is that of the combined *Capra/Ovis* specimens with a total of 36. The next group is that of other taxa, which includes the two donkey specimens from Ur; this group has 28 specimens. The second smallest category is that of the *Bos* specimens with a combined total of 25 individual animals, and the smallest category, consisting of a single individual, is the wild taxa group. Table 5.6 shows a comparison of the NISP and MNI from each site for the region. We can see that the MNI of cattle is nearly identical for Abu Salabikh, with 13, and Ur, with 12. As for the ovicaprines, there were no such instances of the animals being found at Ur and only 36 individual animals coming from Abu Salabikh. The same is true for *Sus scrofa* remains; all remains for this species were uncovered at the site of Abu Salabikh. Interestingly, the only positive example of a wild species from Southern Mesopotamia was found within the cemetery at Ur and consists of the horns of a gazelle. As for the other category, 26 individuals were discovered at the site of Abu Salabikh, and two were found at Ur.

<i>Faunal Assemblage from S. Mesopotamian Region</i>				
Taxa	Common Name	NISP	MNI	Percentage %
<i>Bos taurus</i>	Cattle	123	25	5.72
<i>Capra/Ovis</i>	Goat/Sheep	994	36	46.23
<i>Capra hircus</i>	Goat	0	0	0
<i>Ovis aries</i>	Sheep	0	0	0
<i>Sus scrofa</i>	Pig	1033	42	48.05
<i>Wild Taxa</i>	Various	935	1	N/A
<i>Other</i>	Other	86	28	N/A
Total		2150		100

Table 5.5: Combined faunal assemblage total with species percentages of cattle, sheep, goat, and pig



Graph 5.5: Depiction of Southern Mesopotamian faunal assemblage showing cattle, goat/sheep, and pig NISP percentages

<i>Combined Faunal Remains from S. Mesopotamian Sites</i>					
Taxon	Common Name	NISP	MNI	Site	Percentage %
<i>Bos taurus</i>	Cattle	123	13	Abu Salabikh	5.72
<i>Bos taurus</i>	Cattle	0	12	Ur	0
Total		123	25		5.72
<i>Capra/Ovis</i>	Goat/Sheep	994	36	Abu Salabikh	46.23
<i>Capra/Ovis</i>	Goat/Sheep	0	0	Ur	0
Total		994	36		46.23
<i>Capra hircus</i>	Goat	0	0	Abu Salabikh	0
<i>Capra hircus</i>	Goat	0	0	Ur	0
Total		0	0		0
<i>Ovis aries</i>	Sheep	0	0	Abu Salabikh	0
<i>Ovis aries</i>	Sheep	0	0	Ur	0
Total		0	0		0
<i>Sus scrofa</i>	Pig	1033	42	Abu Salabikh	48.05
<i>Sus scrofa</i>	Pig	0	0	Ur	0
Total		1033	42		48.05
<i>Wild Taxa</i>	Various	935	0	Abu Salabikh	N/A
<i>Wild Taxa</i>	Various	0	1	Ur	N/A
Total		935	1		N/A
<i>Other</i>	Other	86	26	Abu Salabikh	N/A
<i>Other</i>	Other	0	2	Ur	N/A
Total		86	28		N/A

Table 5.6: Comparisons of faunal remains from the sites of Abu Salabikh and Ur with NISP and MNI numbers

From this evidence and from the context of these findings, I suggest that all of the faunal remains from the Southern Mesopotamian cultural region represent ritual and cultic slaughtering from the contexts studied here. All of the faunal material from the smaller site of Abu Salabikh was unearthed within the Ash Tip deposit area located in the southeastern sector of the city, and has been identified as refuse material from a temple and administrative complex to the northwest of the deposit. However, since this deposit also relates to the aforementioned administrative complex, a portion of these animal remains may represent the dietary practices of public officials as well. One aspect of the material from Abu Salabikh that should be mentioned, even though it does not relate to cattle, is the fact that within the Ash Tip deposit, an entire and nearly complete equid was discovered, which is rather fascinating. As for the faunal remains from the city of Ur, all of the animal material, like the material culture, comes from the cemetery area, and all of the individual

animals represented here come from individual burials. Based on this information, it can be said that all of the faunal remains from Ur represent the ritual deposition of an animal after the death of an individual. As for the purposes of these animals, the majority, fourteen animals, represent draft animals, which were found in conjunction with carts within the burials, and the remaining animal, in the form of gazelle horns, may represent some form of ritual killing. Although cattle clearly held a place within the iconography of the region, their primary importance was as a source of labour, with contemporary texts stating that they were used within the ploughing and seeding processes (Postgate 1992: 163).

Interestingly, there are no indications of large herds of cattle from this period in Southern Mesopotamia, and it has been suggested that there may have been herds from the Uruk period based on iconography; however, this may not be the case since the use of multiple animals within iconography could also suggest the importance and need for abundance by humans within the period (Winter 2007; Postgate 1992). The study of contemporaneous textual sources referencing cattle would also aid greatly in our understanding of human and cattle interrelationships within the period, yet such an examination lies beyond the parameters of the current project.

The landscapes surrounding the sites of Abu Salabikh and Ur have several similarities, starting with the fact that the modern landscape has placed them within dry and arid areas. The modern landscape surrounding the site of Abu Salabikh is dotted with small agricultural and pastoral fields broken up by modern canal systems, and the overall nature of the land is rather rural. According to paleoenvironmental studies, we know that this was not always the case, and that the Early Bronze Age environment surrounding the site was much different (Wilkinson 2003; Wilkinson 1990a). Abu Salabikh once rested along the Euphrates River, and in comparison to the current arid nature of the environment, it has been verified that the landscape near the city was likely marshland, or at least much more hospitable than it is currently (Ramos Soldado 2016; Postgate 1992). As for the area

around the site of Ur, most of the modern landscape is dry arid plains with a few small pastoral fields. Although Ur is outside of the modern city of Nasiriyah, the overall nature of the landscape is more urban than that of the smaller Abu Salabikh. Based on the assumed large population of the ancient city of Ur and that fact that agricultural productivity for such a population should be a high one, one can safely say that the Early Bronze Age landscape was measurably quite different (Wilkinson 2003: 18). As with the proposed paleoenvironment around Abu Salabikh, Ur was located within a marshland environment, and like the smaller site was also once along the banks of the Euphrates (Pournelle 2007; Postgate 1992). Additionally, and perhaps more importantly, in this period Ur was located at the head of the Persian Gulf and was home to a large port, which likely added to its influence in the region and may also account for the increased amounts of high-status materials discovered within the tombs (Crawford 2015). Figure 5.171 shows a map produced by Wilkinson that shows the modern and ancient courses for the Tigris and Euphrates rivers. This shows that the sites of Abu Salabikh and Ur were both positioned on the Euphrates River in the Early Bronze Age confirming that the ancient landscape around each site was quite different during this time than it is currently. Figure 1.5 displays the mean annual rainfall records for Southwest Asia. This map shows that the average annual precipitation for the areas around Abu Salabikh and Ur is approximately between one hundred and three hundred millimetres. Because of this degree of rainfall, it is not likely that the sites would have been able to produce much agricultural yield, and based on the presence of ancient canal systems present around Abu Salabikh, one can come to the conclusion that these settlements relied on irrigation agriculture to account for the populations of the sites, especially in the case of the site of Ur.

5.5. Conclusions

When examining the Southern Mesopotamian sites of Abu Salabikh and Ur, it has been discovered that the interrelationships between humans and their cattle in the Early

Bronze Age period is a rather complex one. Although these two sites are not as closely linked as the Northern Mesopotamian sites of Tell Beydar and Tell Brak, the two southern sites do allow for a good regionally specific review of this subject within a confined geographic area. When compared to the sites from the Anatolian cultural region, which are separated by much greater distances, I find that cattle did have an equally important influence in Mesopotamia. Although the number of cattle remains is rather low, the importance of the animal iconographically is considerable. The material culture and faunal evidence from the two sites indicates that the connection between humans and cattle is relatively analogous in terms of both the iconographic and economic capacities. From the site of Abu Salabikh, the material culture collection is relatively small with only 15 objects that depict or relate to cattle; however, the faunal assemblage for the site is quite detailed and rather impressive (Clark 1993; Clutton-Brock and Burleigh 1978). As for the material from Ur, one can see that the material culture from the site is considerably more extensive and impressive than that from Abu Salabikh; with a total of 149 objects. However, in terms of the faunal assemblage, Ur leaves much to be desired in that only fifteen animals have been positively identified (Ramos Soldado 2016; Woolley 1934). As with the material culture from the Northern Mesopotamian cultural region, the largest numbers of items come from the material category of seals and impressions with a combined total of 101 items.

The large numbers of seals and impressions suggests that the animal, at least in terms of iconography, had quite a measurable influence within the economic and social sectors or society with a total of 147 *Bos* motifs discovered from the 104 seals and impressions. Also included within the *Bos taurus* motif group are two examples of unusual *Bos* forms: Figure 5.107, which displays the image of an Indus style humped zebu bull, *Bos indicus*, and figure 5.113, which shows the impression of a rather unique water buffalo, *Bos bubalus*. These figures are the only instances of the species from the two sites

from the Early Bronze Age period. Overall, the second largest specific grouping of material culture is that of pendants and jewellery with 22 examples, only two of which come from Abu Salabikh. However, in terms of site percentages, this category has nearly the same overall representation at both sites; making up approximately 13 per cent of each site assemblage. One aspect of the material assemblage that was met with some astonishment was the fact that at the site of Ur, there are no examples of clay bovine figurines whereas the smaller site of Abu Salabikh produced five of these figurines. This is the only Mesopotamian site in this project where this particular style of object was not discovered. One possible reason for this is that the other sites had further reaching excavations covering public, religious, household, and administrative areas whereas, at Ur, the only information focuses on the cemetery area of the central city (Crawford 2015; Woolley 1934). This may indicate that these items may not have had a cultic or religious connotation as initially thought; however, this may also be an artistic preference for the site, see section 2.4.4. One aspect that may connect the site of Ur to other sites for this project is the fact that the cemetery area of the site is located very near to a large religious complex in the central sector of the city (Zettler 1998b; Woolley 1963). This trend can also be observed at the Mesopotamian sites of Abu Salabikh and Tell Beydar and at the Anatolian site of Alaca Höyük.

The remains of cattle in Southern Mesopotamia are considerably smaller than the other two cultural regions considered for this project, with a regional total NISP of 123 and an MNI total of 25. These remains do, however, give us some important information as to the interrelationships between humans and cattle in that they are all from cultic or religious contexts. As with the cattle remains from Northern Mesopotamia, the largest numbers of remains come from areas associated with ritual and religious practices. This information suggests that the animals were possibly used for religious purposes, such as sacrifices or group feasting, or to feed important individuals, for example, priests and temple workers or

administrative employees, and in the case of Ur, employed as draft animals for burial practices, see section 1.7 (Costello 2018; Hastorf 2017; McCorrison *et al.* 2012; Zettler 1998a). One aspect of the regional faunal assemblage that must be discussed is the unusually large number of *Sus scrofa* remains. Even though these remains all come from the site of Abu Salabikh, they constitute roughly one-third of the region's NISP as well as 31.82 per cent of the MNI. At this point, it is unclear as to how the animal was consumed at the site; in terms of use, it is clear that they come from the same context as the majority of the faunal assemblage. Since this animal has no clear iconographic or religious presence, it may be suggested that the remains represent the dietary practices of administrative individuals. Due to the presence of cattle within these religious and burial contexts, it can be said that they may have held more importance than other domesticated livestock.

Referring to the first question asked at the beginning of this research, addressing the variability and similarity in the symbolic and cultic significance of cattle at these sites, it has been revealed that there is some form of similarity in the iconographic representations of cattle at both Abu Salabikh and Ur. The depictions of cattle at both sites are extremely similar, with the only major differences being the use of material and the unusual resting cattle horns from the site of Ur. These resting cattle horns, however, are found on a number of items from the Northern Mesopotamian site of Tell Brak, indicating an artistic and iconographic connection amongst larger Mesopotamian cities. This iconographic similarity indicates that these two southern sites had similar views of how the animal should be portrayed, which leads one to conclude that the symbolic and cultic significance of the animal was much the same at both Abu Salabikh and Ur. Considering the second question on the nature of economic and social interrelationships between humans and cattle, it has been found that there are some similarities between the two sites. Even though the faunal assemblages are radically different in terms of overall size, we do

find that the contexts are rather similar and relate to burial and religious practices. The only measurable difference between the two sites is that the context at Abu Salabikh is also related to administrative practices (Clark 1993). Although I cannot clearly state how the animal related to social and economic life due to a lack of information from Ur, I can say with some confidence that the animal was implemented in the religious and cultic practices of both sites within the Early Bronze Age period. In compiling this information from both sites, it can be seen that the interrelationships between humans and cattle is rather complex, in that we know they were present in material culture and faunal remains; however, we do not know the capacities or extent of such relationships. From this research, it has been determined that, at least iconographically, the human populations at Abu Salabikh and Ur valued this animal more highly than other domesticated stock.

5.6. Figures



Figure 5.1: Map of Early Bronze Age Mesopotamia showing locations of Northern and Southern Mesopotamian sites (Google Earth 2017)

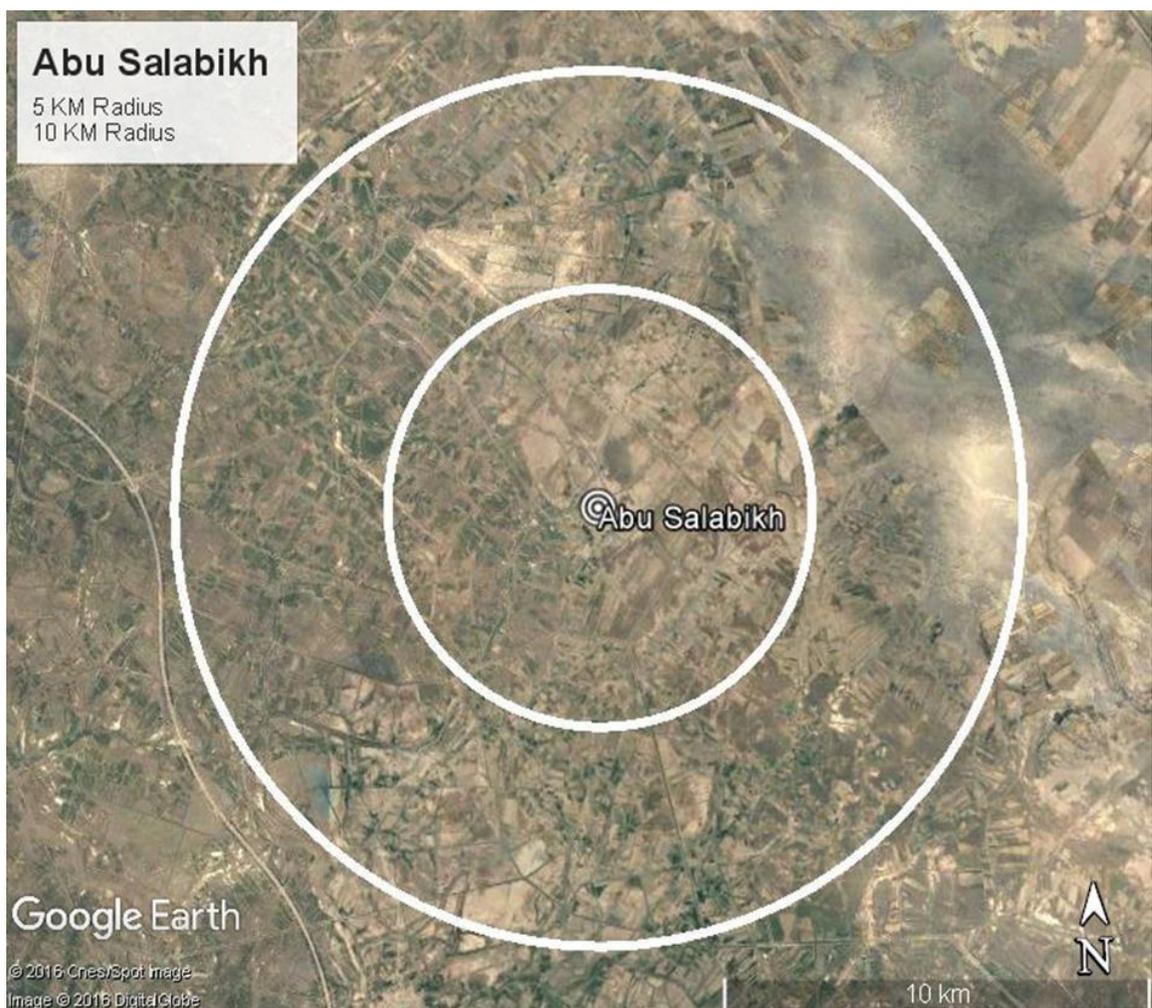


Figure 5.2: 5 and 10 km radii around Abu Salabikh (Google Earth 2017)

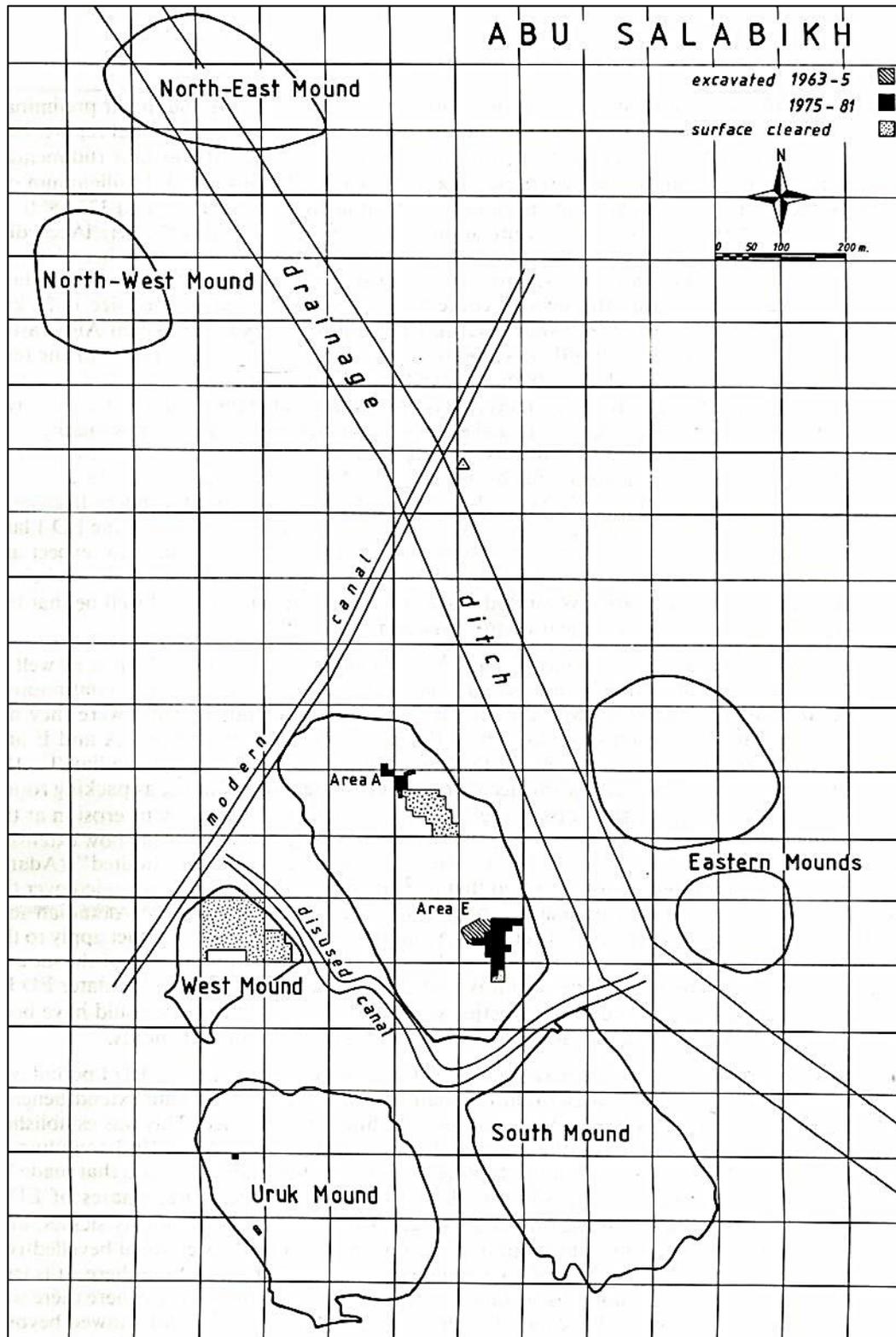


Figure 5.3: Site map of Abu Salabikh showing major mounds and areas (after Postgate 1983: fig. 2)

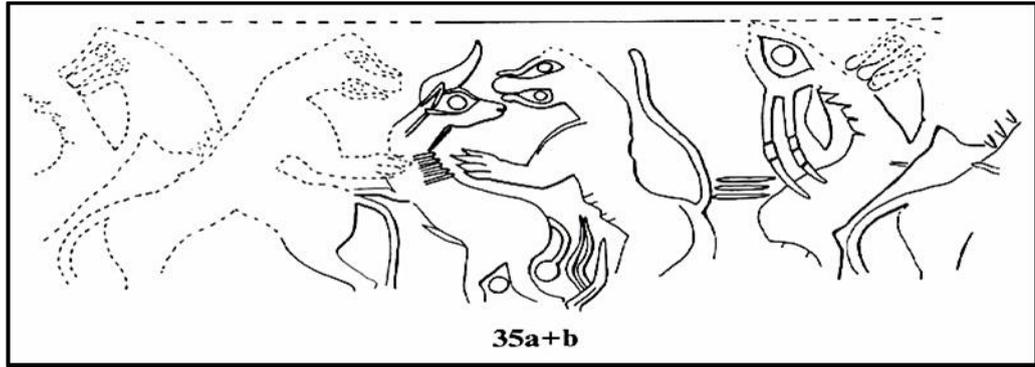


Figure 5.4: Drawing of seal seen on two sealings (after Martin and Matthews 1993: figs. 35 a+b)



Figure 5.5: Clay seal impression, 3 X 3.7cm (after Martin and Matthews 1993: fig. 35a)



Figure 5.6: Clay seal impression, 5.7 X 4cm (after Martin and Matthews 1993: fig. 35b)



Figure 5.7: Clay seal impression, 5.3 X 3.7cm (after Postgate 1977: pl. XXXIV. E)

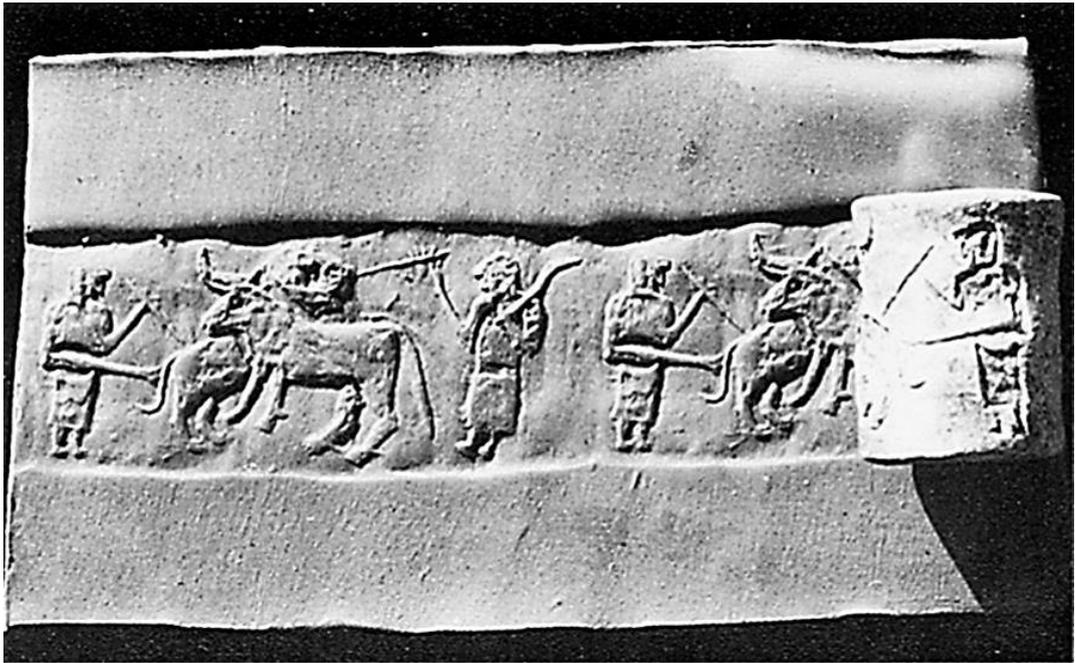


Figure 5. 8: Baked clay cylinder seal, 2.6cm (after Postgate and Moon 1982: pl. V. A)



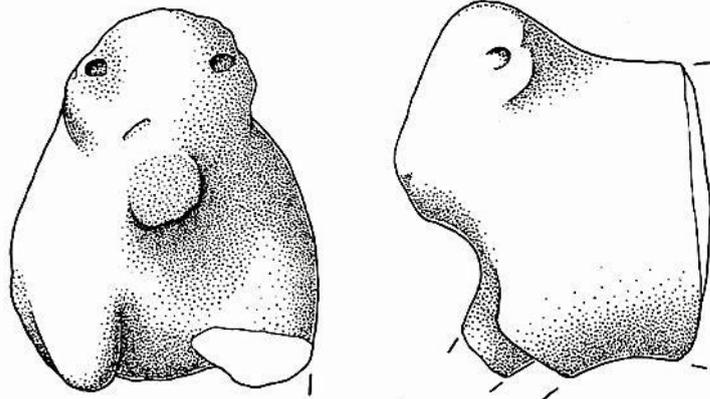
56

Figure 5.9: Drawing of seal impression 3.3 X 3.4cm (after Martin and Matthews 1993: fig. 56)



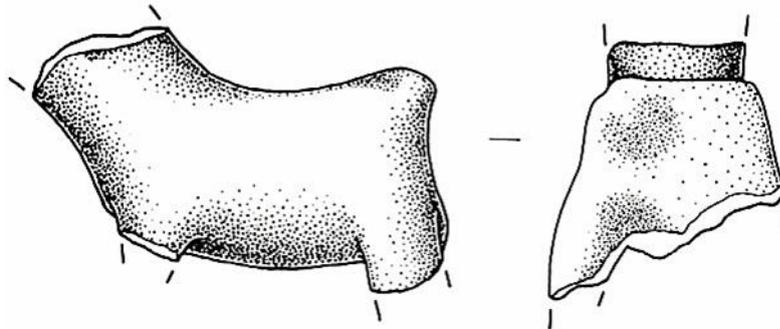
59

Figure 5.10: Drawing of seal impression 2.5cm (after Martin and Matthews 1993: fig. 59)



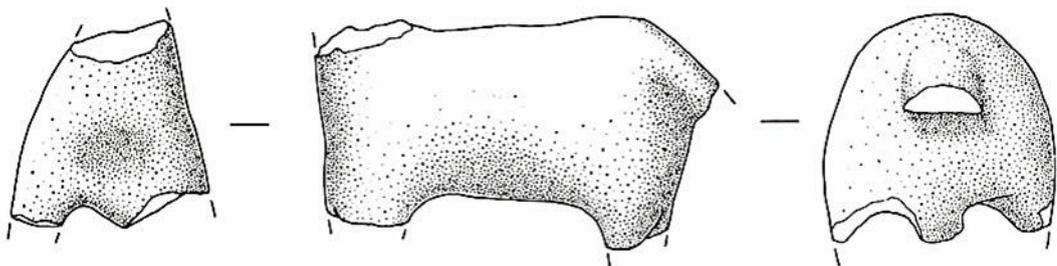
349

Figure 5.11: Baked clay bovine figurine, 3.7 X 4.6 X 3.6cm (after McAdam 1993: fig. 349)



353

Figure 5.12: Baked clay bovine figurine, 3.8 X 2.4 X 1.9cm (after McAdam 1993: fig. 353)



359

Figure 5.13: Baked clay bovine figurine, 5.3 X 2.7cm (after McAdam 1993: fig. 359)

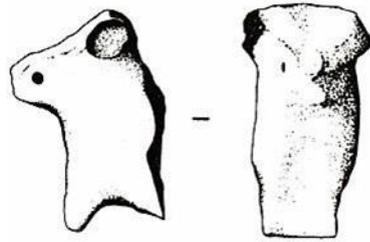


Fig. 314. 2GS:15.

Figure 5.14: Baked clay bovine figurine, 5.3 X 3.3cm (after Postgate 1983: fig. 314)

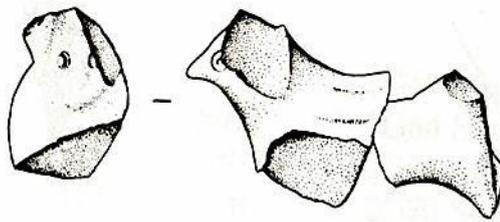


Fig. 319. 2GS:287.

Figure 5.15: Baked clay bovine figurine, 3.5 X 5.9cm (after Postgate 1983: fig. 319)

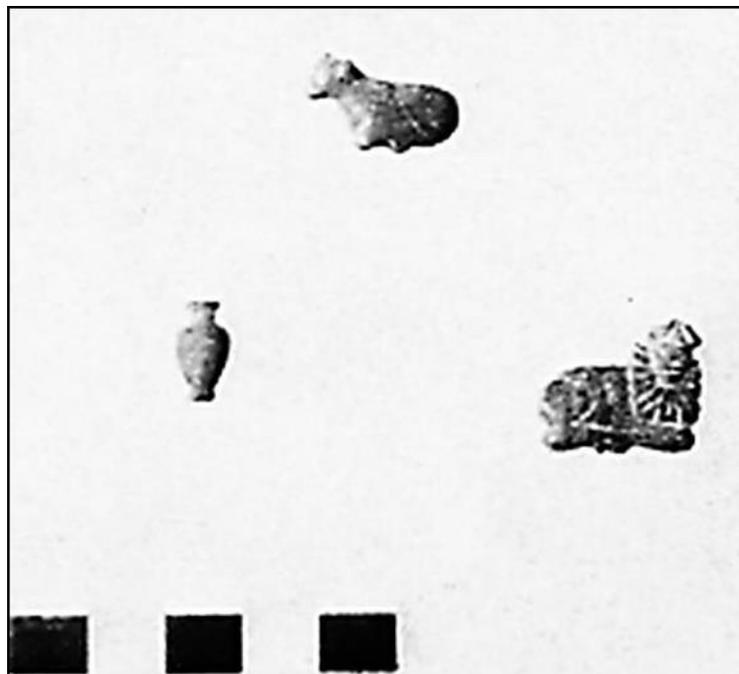
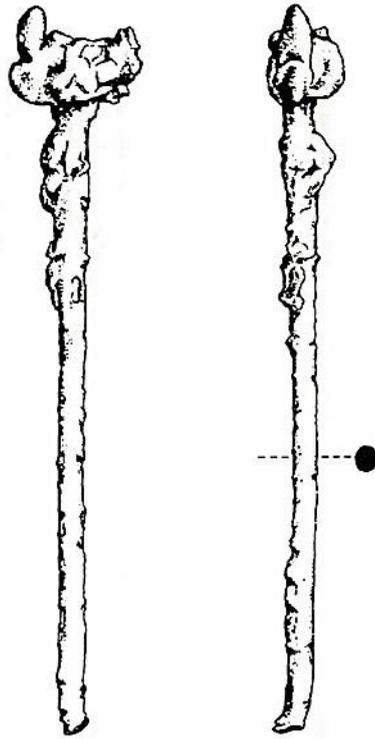
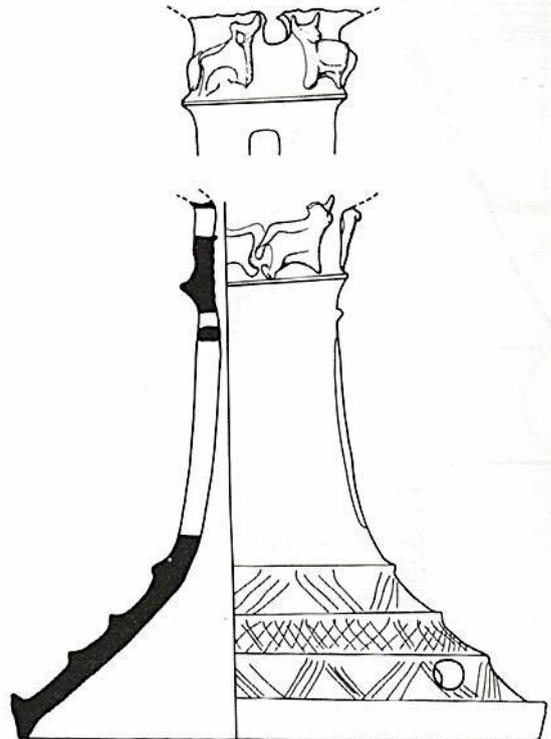


Figure 5.16: Top, pendant of calf, 2 X 1.5cm. Bottom right, pendant of bearded bull, 2.5 X 2cm (after Postgate and Moorey 1976: pl. XXVI. B)



Gr. 14:3

Figure 5.17: Drawing of copper pin with crescent shape at top, 36.6cm (after Martin, Moon, and Postgate 1985: fig. 144. 14: 3)



4

Figure 5.18: Drawing of clay dish/tower object (after Martin, Moon, and Postgate 1985: fig. 132. 4)



Figure 5.19: Clay dish object, 41 X 37 X 11.5cm (after Martin, Moon, and Postgate 1985: pl. XXVII. B)



Figure 5.20: Detail of clay dish object (after Martin, Moon, and Postgate 1985: pl. XXVII. D)

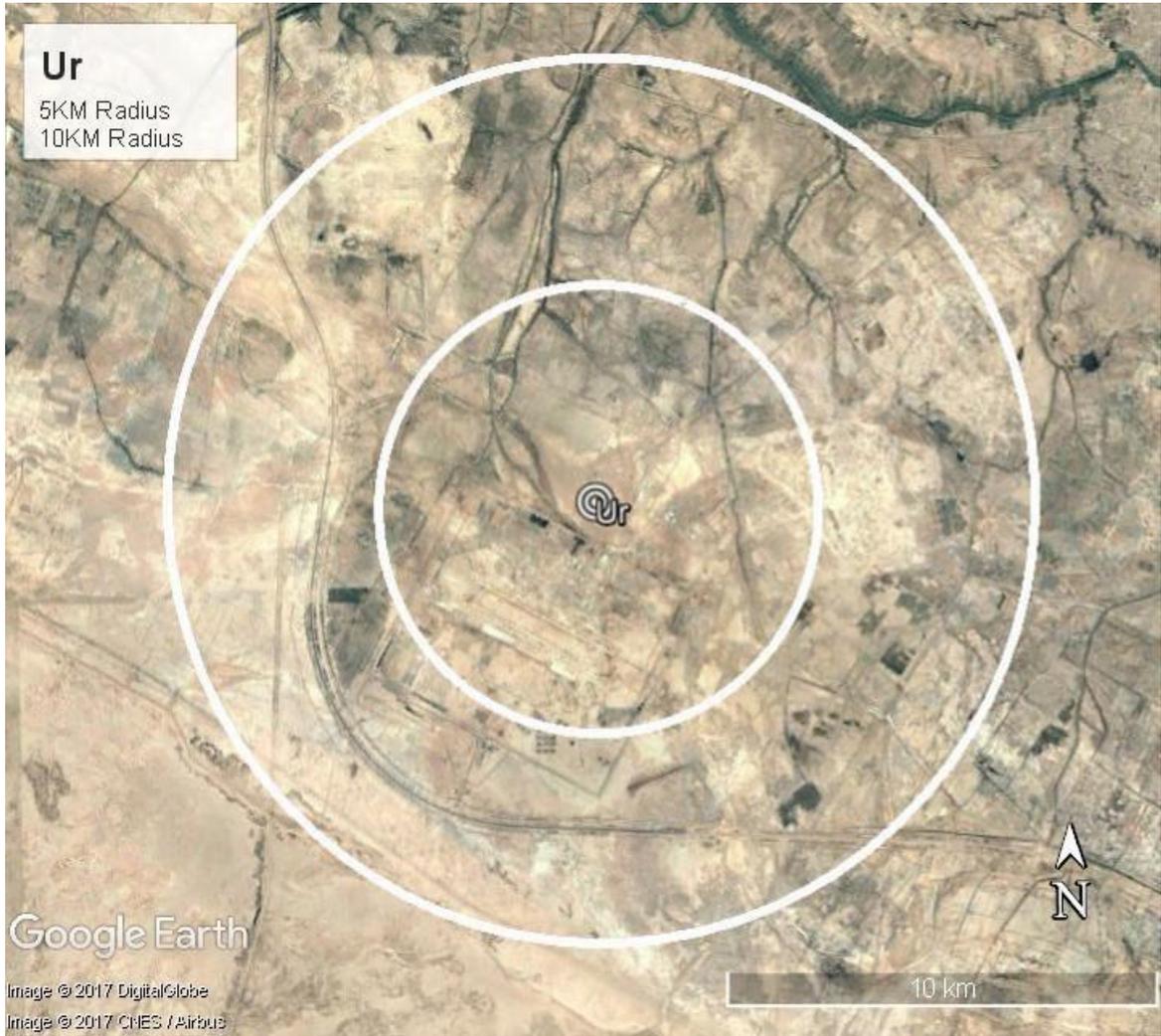


Figure 5.21: 5 and 10 km radii around Ur (Google Earth 2017)

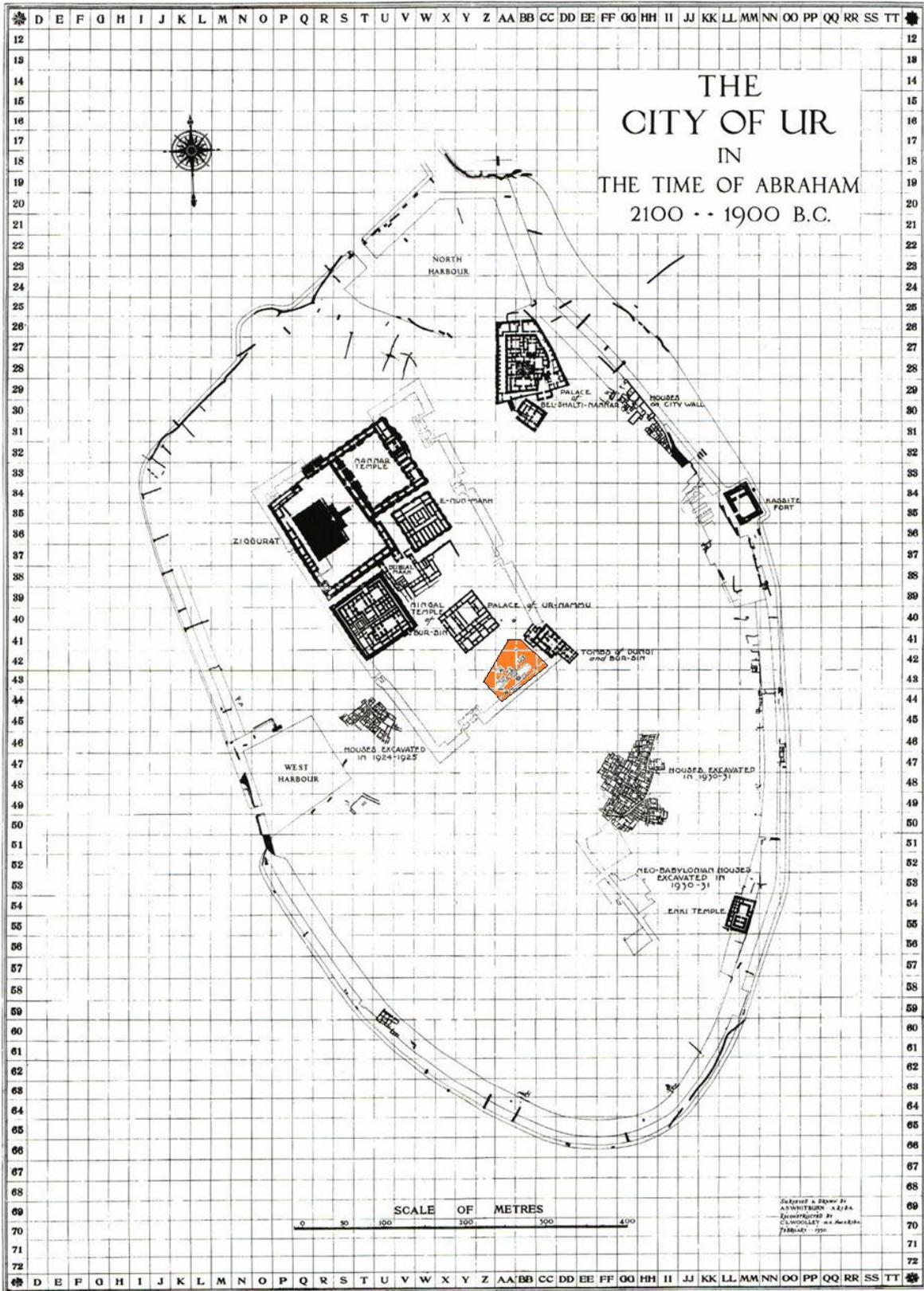


Figure 5.22: Site map of Ur showing cemetery area (highlighted) in the centre (modified from Zettler 1998: fig. 3)



Figure 5.23: Shell cylinder seal, 3.8 X 2.3 cm (after Woolley 1934: pl. 99. a)



Figure 5.24: Lapis cylinder seal, 3 X 1.5cm (after Woolley 1934: pl. 147)



Figure 5.25: Lapis cylinder seal, impression, 3.6 X 2.3 cm (after Woolley 1934: pl. 192. 12)

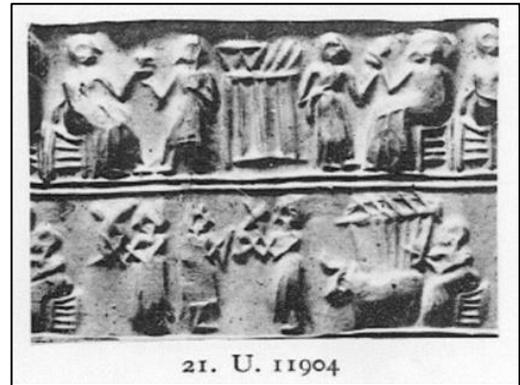


Figure 5.26: Gold plating from cylinder seal, impression, 4 X 1.8 cm (after Woolley 1934: pl. 193. 21)



Figure 5.27: Lapis cylinder seal, impression, 4.1 X 1.7 cm (after Woolley 1934: pl.194. 22)

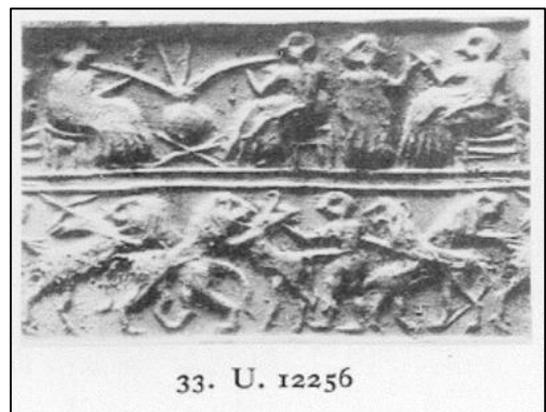


Figure 5.28: Lapis cylinder seal, impression, 3.6 X 1.5cm (after Woolley 1934: pl. 194. 33)



Figure 5.29: Shell cylinder seal, impression, 4.2 cm (after Woolley 1934: pl. 195. 38)

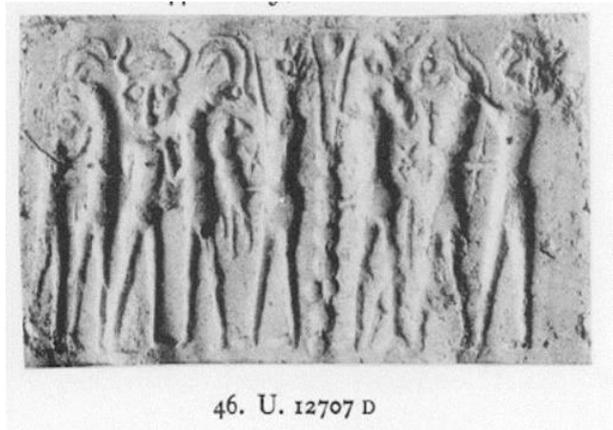


Figure 5.30: Shell cylinder seal, impression, 3.7 X 2.5 cm (after Woolley 1934: pl. 195. 46)

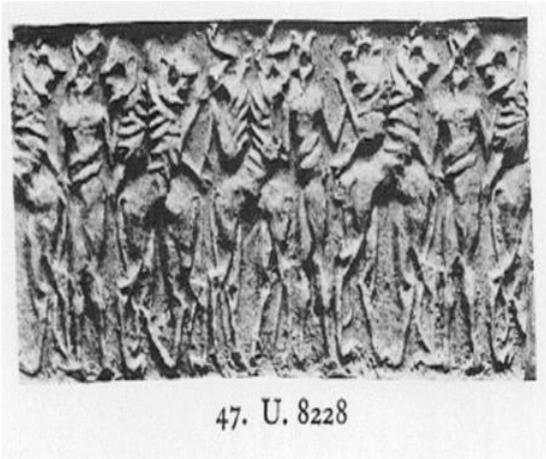


Figure 5.31: Lapis cylinder seal, impression, 3cm (after Woolley 1934: pl. 196. 47)

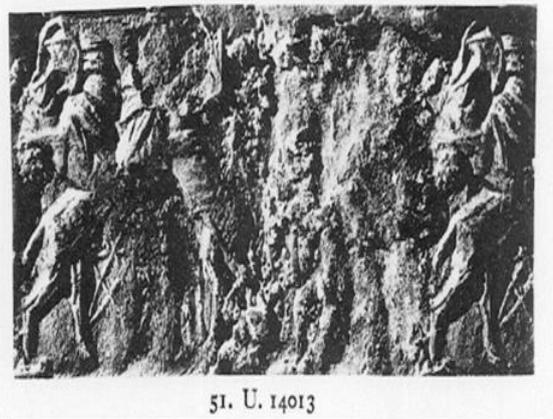


Figure 5.32: Limestone cylinder seal, impression, 3.9 X 2.3 cm (after Woolley 1934: pl. 196. 51)



Figure 5.33: Shell cylinder seal, impression, 5.1 X 3.6 cm (after Woolley 1934: pl. 197. 57)



Figure 5.34: Shell cylinder seal, impression, 4.2 X 3.1 cm (after Woolley 1934: pl. 197. 58)

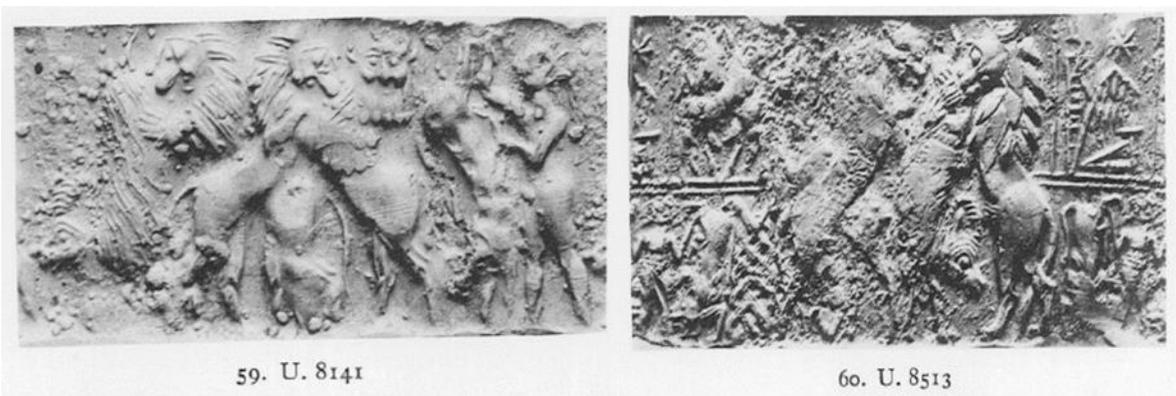
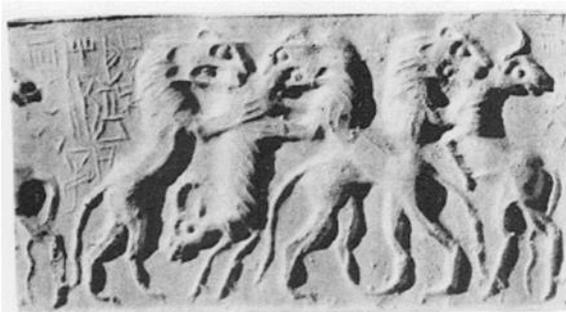


Figure 5.35: Shell cylinder seal, impression, 4.5 X 2.3 cm (after Woolley 1934: pl. 197. 59)

Figure 5.36: Shell cylinder seal, impression, 4.5 X 2.7 cm (after Woolley 1934: pl. 197. 60)



65. U. 11825

Figure 5.37: Lapis cylinder seal, impression, 3.5 X 1.9cm (after Woolley 1934: pl. 198. 65)



72 U. 12413

Figure 5.38: Lapis cylinder seal, impression, 3.5 cm (after Woolley 1934: pl. 198. 72)



73. U. 11112

Figure 5.39: Lapis cylinder seal, impression, 2.2 X 1.5 cm (after Woolley 1934: pl. 198. 73)



76. U. 11107

Figure 5.40: Marble cylinder seal, impression, 3.7 X 2.5 cm (after Woolley 1934: pl. 198. 76)



108. U. 15477

Figure 5.41: Shell cylinder seal, impression, 3.7 X 2.1 cm (after Woolley 1934: pl. 200. 108)



109. U. 14270

Figure 5.42: Shell cylinder seal, impression, 3.2 cm (after Woolley 1934: pl. 201. 109)



111. U. 11852

Figure 5.43: Steatite cylinder seal, impression, 3.4 X 2.4 cm (after Woolley 1934: pl. 201. 111)



Figure 5.44: Calcite cylinder seal, impression, 3.6 X 2cm (after Woolley 1934: pl. 201. 117)



Figure 5.45: Lapis cylinder seal, impression, 2.3 X 1.6 cm (after Woolley 1934: pl. 201. 118)



Figure 5.46: Shell cylinder seal, impression, 2.9 X 1.5cm (after Woolley 1934: pl. 201. 119)

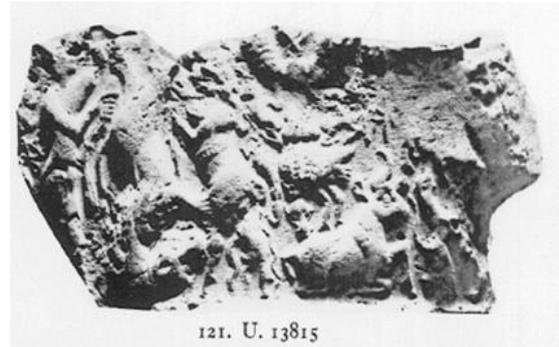


Figure 5.47: Seal impression, found a total of four times (after Woolley 1934: pl. 202. 121)



Figure 5.48: Steatite cylinder seal, impression, 4.4 X 1cm (after Woolley 1934: pl. 203. 132)



Figure 5.49: Lapis cylinder seal, impression, 1.9cm (after Woolley 1934: pl. 203. 133)



Figure 5.50: Shell cylinder seal, impression, 3.8 X 2.3 cm (after Woolley 1934: pl. 203. 137)

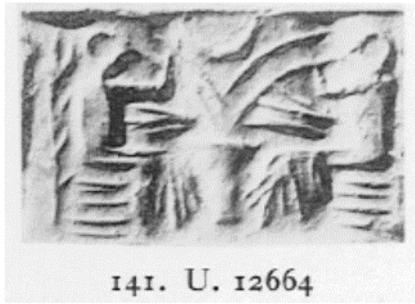


Figure 5.51: Lapis cylinder seal, impression, 2.2 X 1 cm
(after Woolley 1934: pl. 203. 141)



Figure 5.52: Shell cylinder seal, impression, 2.3 cm
(after Woolley 1934: pl. 203. 142)



Figure 5.53: Lapis cylinder seal, impression, 2.9 X 1.6 cm
(after Woolley 1934: pl. 203. 146)



Figure 5.54: Calcite cylinder seal, impression, 4 X 2.3 cm
(after Woolley 1934: pl. 204. 150)



Figure 5.55: Shell cylinder seal, impression, 4.2 X 2.2 cm
(after Woolley 1934: pl. 204. 151)

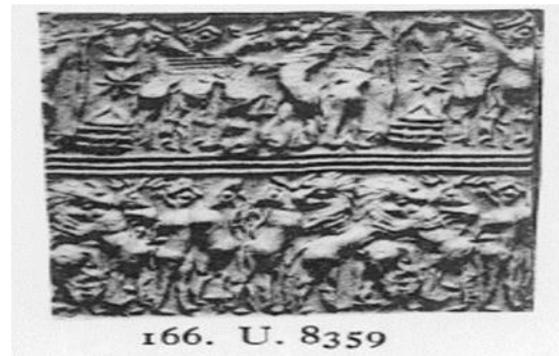


Figure 5.56: Lapis cylinder seal, impression, 3.9 cm
(after Woolley 1934: pl. 204. 166)



Figure 5.57: Lapis cylinder seal, impression, 2.2 X 1.3 cm
(after Woolley 1934: pl. 205. 168)



Figure 5.58: Lapis & gold cylinder seal, impression, 2.6 X 1.3 cm
(after Woolley 1934: pl. 205. 169)



Figure 5.59: Haematite cylinder seal, impression, 2.7 X 1.7cm (after Woolley 1934: pl. 205. 170)



Figure 5.60: Steatite cylinder seal, impression, 3.4 X 2.2cm (after Woolley 1934: pl. 205. 172)



Figure 5.61: Shell cylinder seal, impression, 2.7 X 1.4 cm (after Woolley 1934: pl. 205. 173)



Figure 5.62: Steatite cylinder seal, impression, 3.1 X 2.2cm (after Woolley 1934: pl. 205. 174)



Figure 5.63: Lapis cylinder seal, impression, 3.3cm (after Woolley 1934: pl. 205. 181)

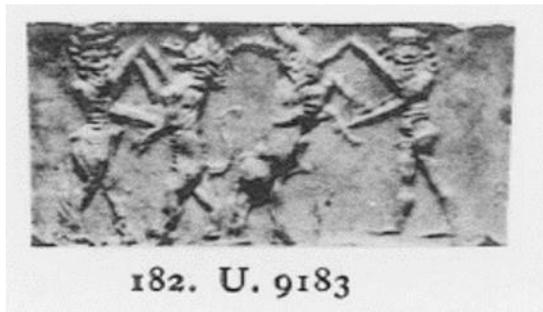


Figure 5.64: Lapis cylinder seal, impression, 3.7 X 1.4cm (after Woolley 1934: pl. 205. 182)



Figure 5.65: steatite cylinder seal, impression, 2.7 cm (after Woolley 1934: pl. 205. 183)



Figure 5.66: Steatite cylinder seal, impression, 3.5 X 2.4 cm (after Woolley 1934: pl. 206. 185)



188. U. 7956

Figure 5.67: Lapis cylinder seal, impression, 4.6 X 1.3cm (after Woolley 1934: pl. 206. 188)



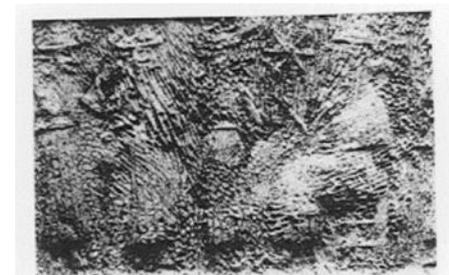
189. U. 9282

Figure 5.68: Steatite cylinder seal, impression, 2.7 X 1.6cm (after Woolley 1934: pl. 206. 189)



190. U. 9681

Figure 5.69: Lapis cylinder seal, impression, 2.4 X 1 cm (after Woolley 1934: pl. 206. 190)



191. U. 9829

Figure 5.70: Marble cylinder seal, impression, 3.1 X 2cm (after Woolley 1934: pl. 206. 191)



192. U. 9721

Figure 5.71: Haematite cylinder seal, impression, 2.9 X 1.9 cm (after Woolley 1934: pl. 206. 192)



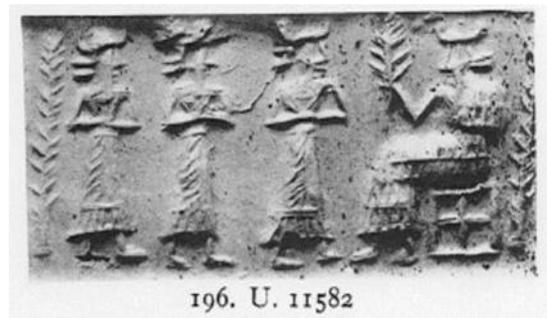
193. U. 11476

Figure 5.72: Steatite cylinder seal, impression, 2.8 X 1.8 cm (after Woolley 1934: pl. 206. 193)



194. U. 9261

Figure 5.73: Shell cylinder seal, impression, 2.7 X 1.5 cm (after Woolley 1934: pl. 206. 194)



196. U. 11582

Figure 5.74: Steatite cylinder seal, impression, 3 X 2.1cm (after Woolley 1934: pl. 206. 196)



Figure 5.75: Marble cylinder seal, impression, 3.1 X 2.1 cm (after Woolley 1934: pl. 206. 198)



Figure 5.76: Shell cylinder seal, impression, 2 X 1.3 cm (after Woolley 1934: pl. 206. 201)



Figure 5.77: Steatite cylinder seal, impression, 2.6 X 1.4 cm (after Woolley 1934: pl. 206. 199)



Figure 5.78: Shell cylinder seal, impression, 2.1 X 1.2 cm (after Woolley 1934: pl. 206. 200)



Figure 5.79: Lapis cylinder seal, impression, 4.1 X 1.3 cm (after Woolley 1934: pl. 207. 216)



Figure 5.80: Lapis cylinder seal, impression, 4 X 1.7 cm (after Woolley 1934: pl. 208. 217)

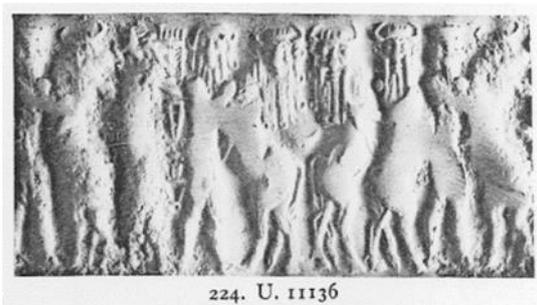


Figure 5.81: Shell cylinder seal, impression, 3.8 X 2.1 cm (after Woolley 1934: pl. 208. 224)

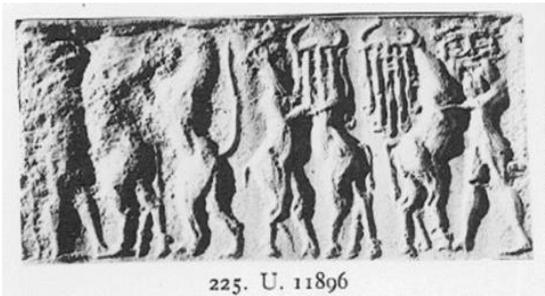


Figure 5.82: Calcite cylinder seal, impression, 3.3 X 2 cm (after Woolley 1934: pl. 208. 225)

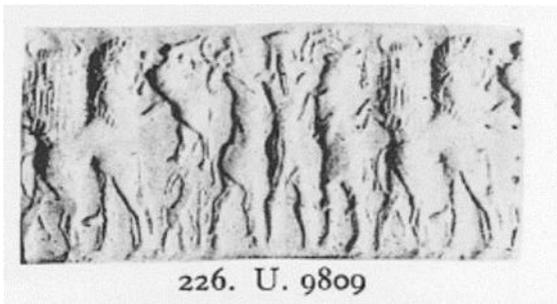


Figure 5.83: Lapis cylinder seal, impression, 2.3 X 1.1 cm (after Woolley 1934: pl. 208. 226)



Figure 5.84: Lapis cylinder seal, impression, 2.2 cm (after Woolley 1934: pl. 208. 227)



Figure 5.85: Breccia cylinder seal, impression, 3.4 X 2 cm (after Woolley 1934: pl. 208. 230)



Figure 5.86: Steatite cylinder seal, impression, 4.2 X 2.7 cm (after Woolley 1934: pl. 208. 231)



Figure 5.87: Steatite cylinder seal, impression, 4.1 X 2.7 cm (after Woolley 1934: pl. 208. 232)



Figure 5.88: Breccia cylinder seal, impression, 3.6 X 2.3cm (after Woolley 1934: pl. 208. 233)

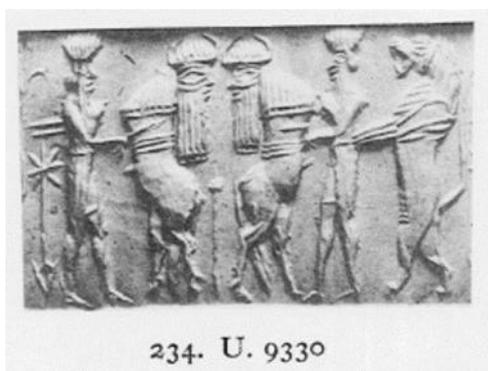


Figure 5.89: Haematite cylinder seal, impression, 3 X 1.9cm (after Woolley 1934: pl. 209. 234)



Figure 5.90: Lapis cylinder seal, impression, 3 X 1.1 cm (after Woolley 1934: pl. 209. 239)



Figure 5.91: Jadeite cylinder seal, impression, 3 X 1.8 cm (after Woolley 1934: pl. 209. 236)

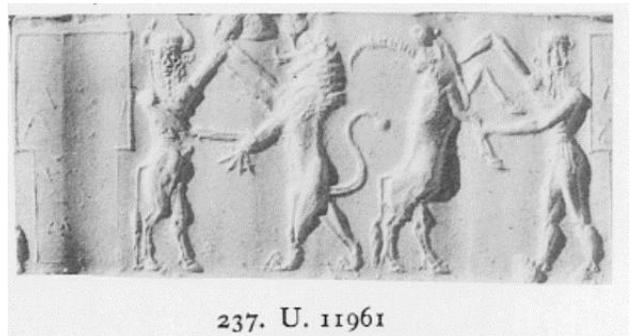


Figure 5.92: Jadeite cylinder seal, impression, 3 X 2.1 cm (after Woolley 1934: pl. 209. 237)



Figure 5.93: Shell cylinder seal, impression, 3.4 X 2.2 cm (after Woolley 1934: pl. 209. 238)

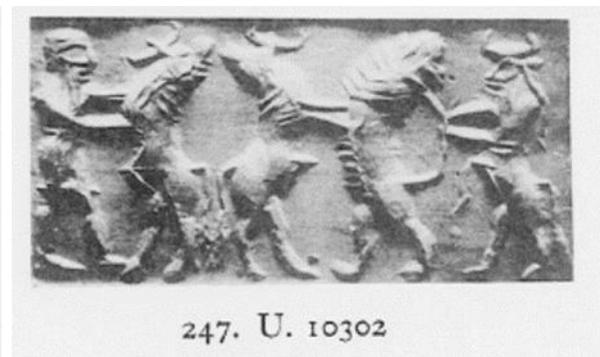


Figure 5.94: Steatite cylinder seal, impression, 2.5 X 1.7 cm (after Woolley 1934: pl. 209. 247)



Figure 5.95: Lapis cylinder seal, impression, 1.5 X 0.7 cm (after Woolley 1934: pl. 210. 253)



Figure 5.96: Limestone cylinder seal, impression, 2.3 X 1.6 cm (after Woolley 1934: pl. 210. 254)



Figure 5.97: Stone cylinder seal, impression, 2 cm (after Woolley 1934: pl. 210. 256)



Figure 5.98: Jadeite cylinder seal, impression, 2.2 X 1.2 cm (after Woolley 1934: pl. 210. 258)

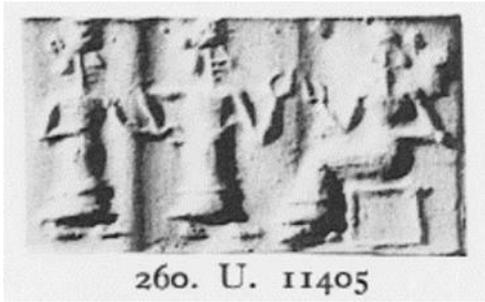


Figure 5.99: Marble cylinder seal, impression, 2.1 X 1.2 cm (after Woolley 1934: pl. 210. 260)



Figure 5.100: Limestone cylinder seal, impression, 3.6 X 2.1 cm (after Woolley 1934: pl. 210. 267)



Figure 5.101: Steatite cylinder seal, impression, 3.1 X 2 cm (after Woolley 1934: pl. 210. 269)



Figure 5.102: Steatite cylinder seal, impression, 3.1 cm (after Woolley 1934: pl. 210. 268)



Figure 5.103: Marble cylinder seal, impression, 3.1 X 2.1 cm (after Woolley 1934: pl. 210. 270)



Figure 5.104: Marble cylinder seal, impression, 3.1 X 2 cm (after Woolley 1934: pl. 210. 278)



Figure 5.105: Steatite cylinder seal, impression, 3 X 1.6 cm (after Woolley 1934: pl. 211. 282)



Figure 5.106: Steatite cylinder seal, impression, 1.9 X 1 cm (after Woolley 1934: pl. 211. 283)



Figure 5.107: Steatite stamp seal, impression, 2.2 cm (after Woolley 1934: pl. 211. 285)



Figure 5.108: Lapis cylinder seal, impression, 2.8 X 1.8cm (after Woolley 1934: pl. 211. 290)



Figure 5.109: Shell cylinder seal, impression, 3.1 X 1.9 cm (after Woolley 1934: pl. 211. 293)



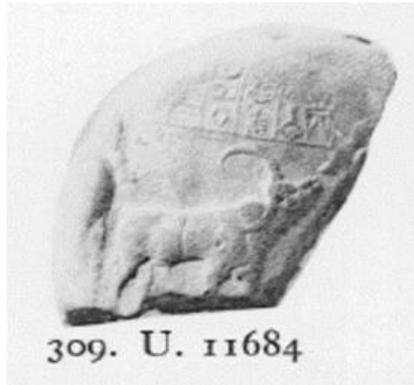
Figure 5.110: Lapis cylinder seal, impression, 3 X 1.5 cm (after Woolley 1934: pl. 211. 294)



Figure 5.111: Lapis cylinder seal, impression, 2.7 X 1.4 cm (after Woolley 1934: pl. 212. 302)



Figure 5.112: Granite cylinder seal, impression, 3.7 cm (after Woolley 1934: pl. 212. 307)



309. U. 11684

Figure 5.113: Clay bulla fragment, 2.5 X 2.5 cm (after Woolley 1934: pl. 212. 309)



310. U. 9693

Figure 5.114: Lapis cylinder seal, impression, 2 X 1.1 cm (after Woolley 1934: pl. 212. 310)



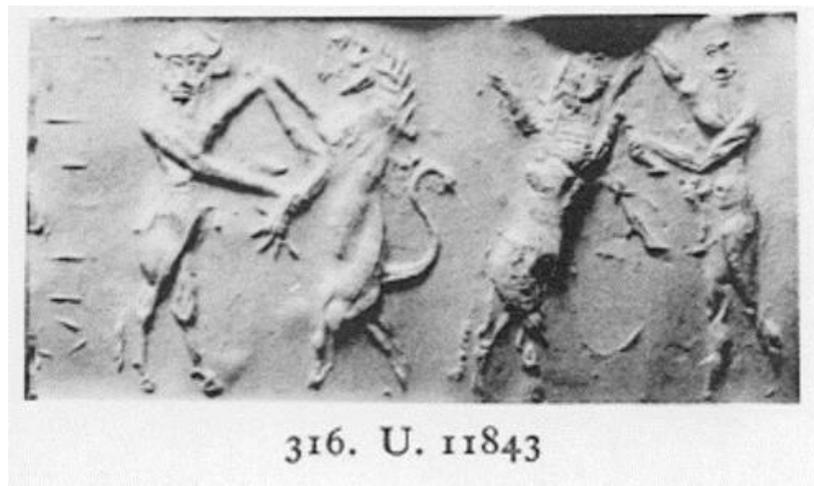
312. U. 9291

Figure 5.115: Haematite cylinder seal, impression, 1.8 cm (after Woolley 1934: pl. 212. 312)



313. U. 9813

Figure 5.116: Lapis cylinder seal, impression, 3.5 X 2 cm (after Woolley 1934: pl. 212. 313)



316. U. 11843

Figure 5.117: Steatite cylinder seal, impression, 3.1 X 2 cm (after Woolley 1934: pl. 212. 316)



Figure 5.118: Collection of body ornaments from PG/800, earrings 11cm (after Woolley 1934: pl. 129)



Figure 5.119: Gold earrings from PG/1237, 11cm (after Pittman 1998: fig. 59)



Figure 5.120: Gold earrings from PG/1237, 7.5cm (after Pittman 1998: fig. 58)



Figure 5.121: Gold earrings from PG/1237, 6.5cm (after Pittman 1998: fig. 57)



Figure 5.122: Gold earrings from PG/1133, 1.8cm & PG/1195, 1.3cm (after Pittman 1998: fig. 56)



Figure 5.123: Gold earring from PG/1100 (after Woolley 1934: pl. 138)

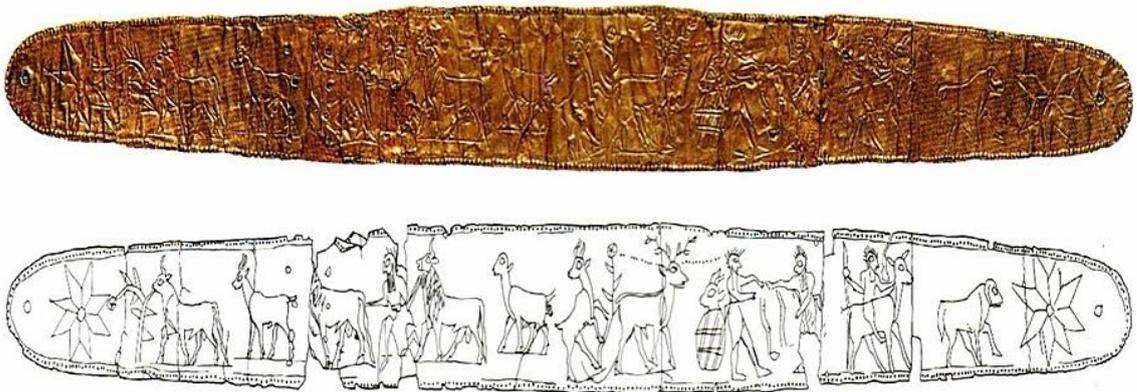


Figure 5.124: Gold fillet from PG/153, 32 X 2.8 cm (after Hansen 1998: fig. 11)



Figure 5.125: Diadem of Queen Shub-Ad (Puabi) from PG/800, 88 cm (after Woolley 1934: pl. 140)

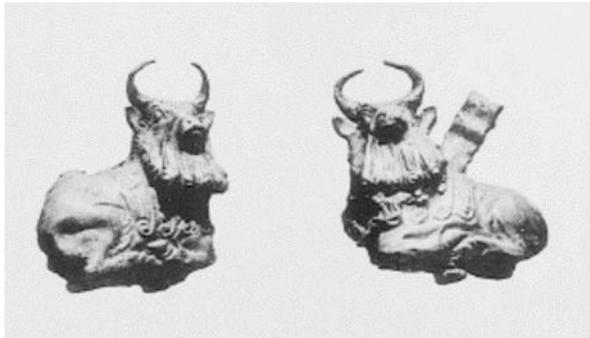


Figure 5.126: Gold bull ornaments from diadem, 3 cm (after Woolley 1934: pl. 141. B)



Figure 5.127: Lapis bull pendant, 2 X 2cm (after Woolley 1934: pl. 142)



Figure 5.128: Gold plated pendant, 3 X 2.9 cm (after Woolley 1934: pl. 142)



Figure 5.129: Shell bull pendant, 3 X 3.5cm (after Woolley 1934: pl. 142)



Figure 5.130: Lapis bull pendant, 3 X 2cm (after Woolley 1934: pl. 142)



Figure 5.131: Lapis bull pendant, 2.7 X 2 cm (after Woolley 1934: pl. 142)



Figure 5.132: Gold bull pendant, 1.8 X 1.5 cm (after Woolley 1934: pl. 143. C)



Figure 5.133: Mixed material diadem fragment (after Woolley 1934: pl. 142)

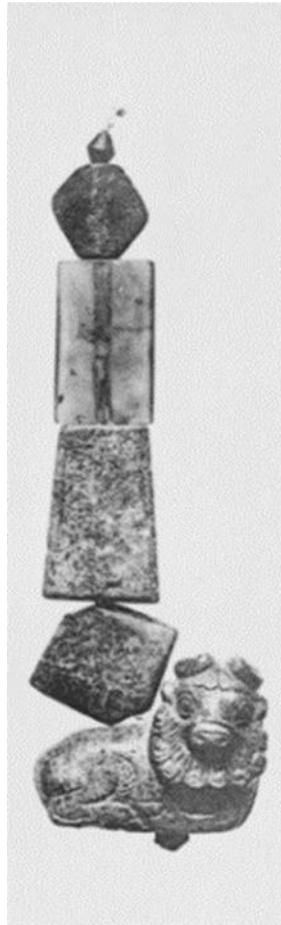


Figure 5.134: Lapis bull pendant with beads, 3.9 cm (after Woolley 1934: pl. 143. A)



Figure 5.135: Lapis calf pendant with beads, 3.4 cm (after Woolley 1934: pl. 143. D)

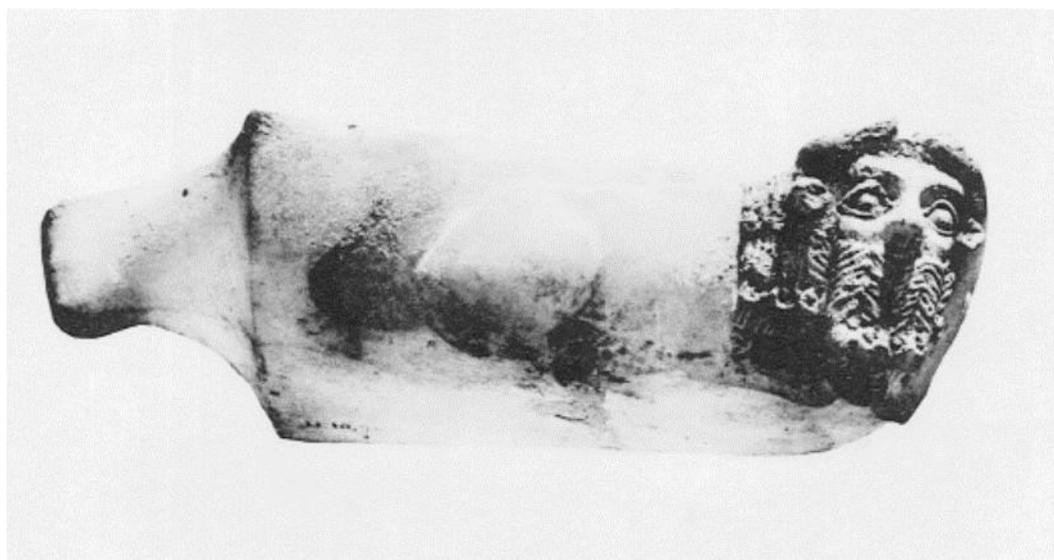


Figure 5.136: Calcite object with bearded bull man motif, 15 X 7.4 X 3.5 cm (after Woolley 1934: pl. 182. A)

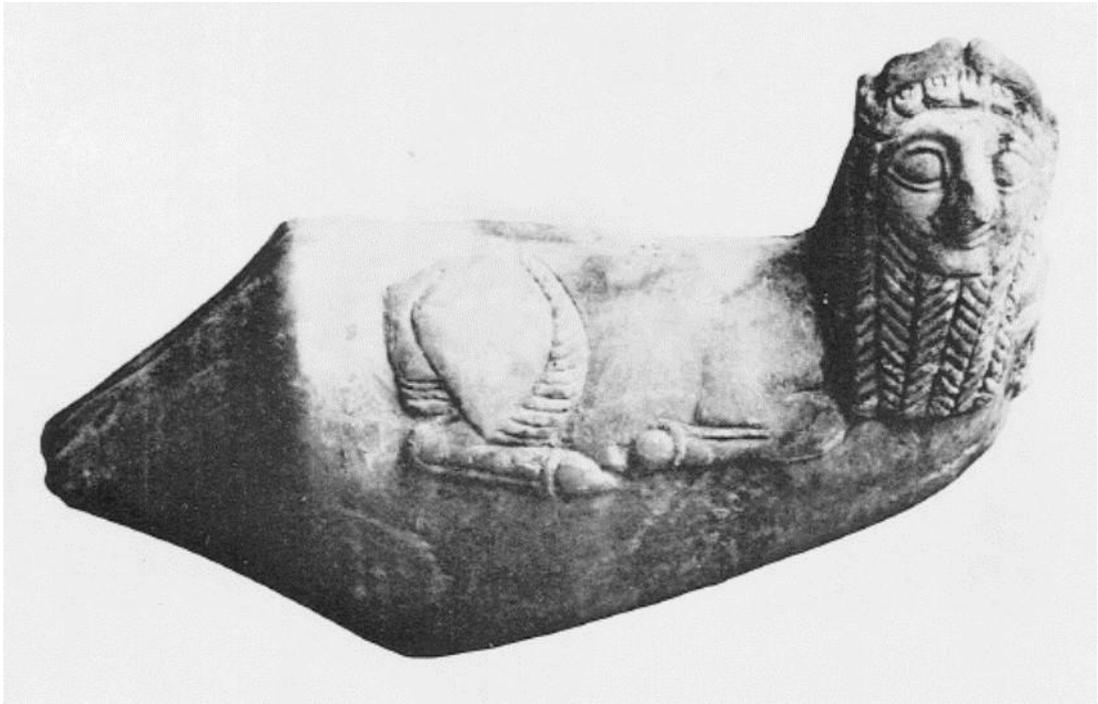


Figure 5.137: Calcite object with bearded bull man motif, 14.5 cm (after Woolley 1934: pl. 182. B)



Figure 5.138: Gypsum mace head with bearded bull man motif, 12 cm (after Woolley 1934: pl. 183. A)



Figure 5.139: Standard of Ur "The Peace Panel", 50.4 X 21.7cm (after Woolley 1934: pl. 91)



Figure 5.140: Standard of Ur "The War Panel", 50.4 X 21.7cm (after Woolley 1934: pl. 92)



Figure 5.141: Standard of Ur end panels, 5.6 X 11.6 X 21.7cm (after Woolley 1934: pl. 93)

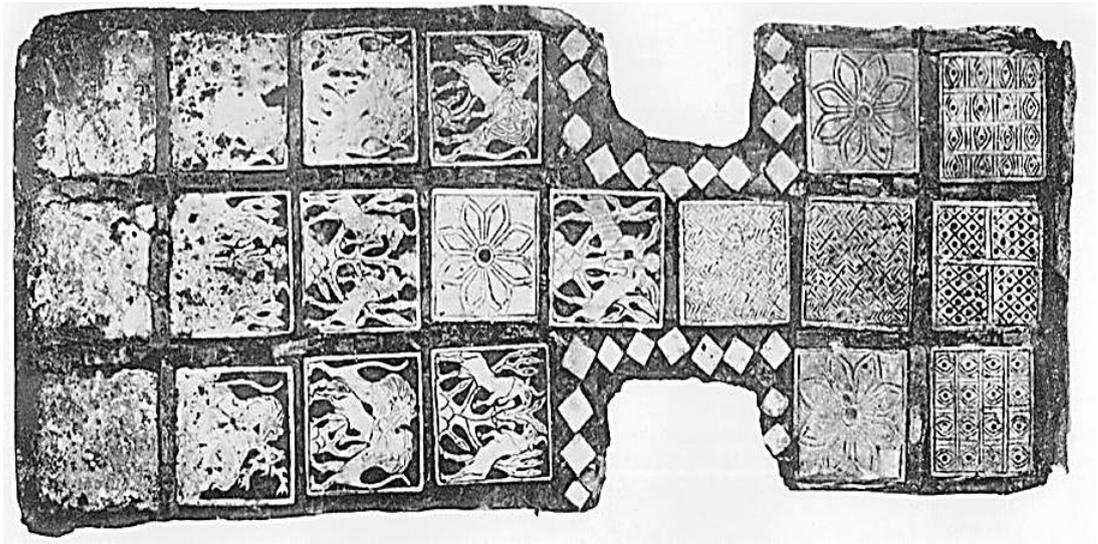


Figure 5.142: Gaming board with shell and lapis details, 27 X 13.5cm (after Woolley 1934: pl. 96)



Figure 5.143: Gaming board with shell and lapis details, 12cm (after Woolley 1934: pl. 97)



Figure 5.144: Shell gaming piece, 3cm (after Woolley 1934: pl. 98. A)



Figure 5.145: Shell gaming piece (after Woolley 1934: pl. 98. B)



Figure 5.146: Shell gaming piece (after Woolley 1934: pl. 98. B)



Figure 5.147: Shell plaques from possible gaming board, 9 X 7cm (after Woolley 1934: pl. 99. B)



Figure 5.148: Shell plaque (after Woolley 1934: pl. 100)

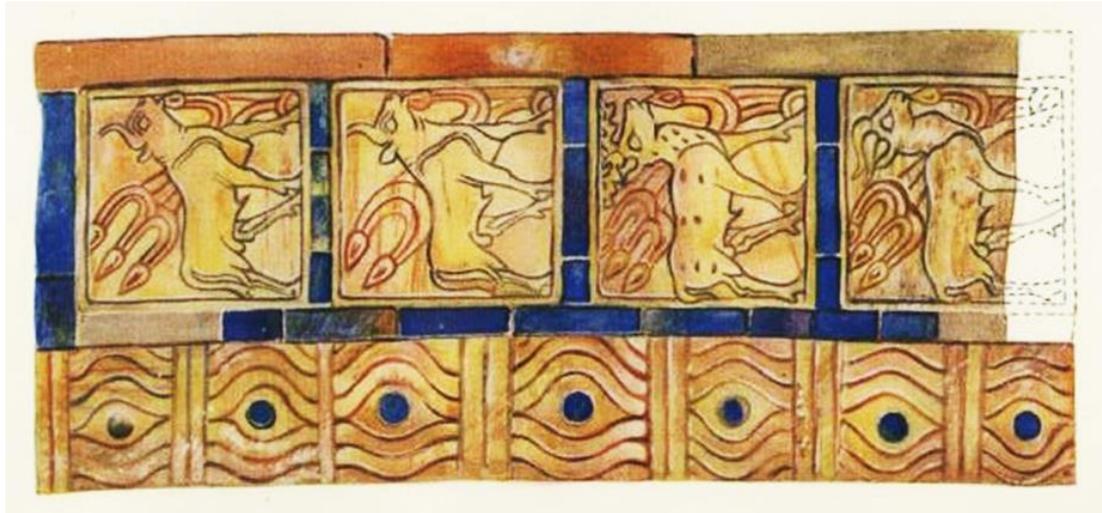
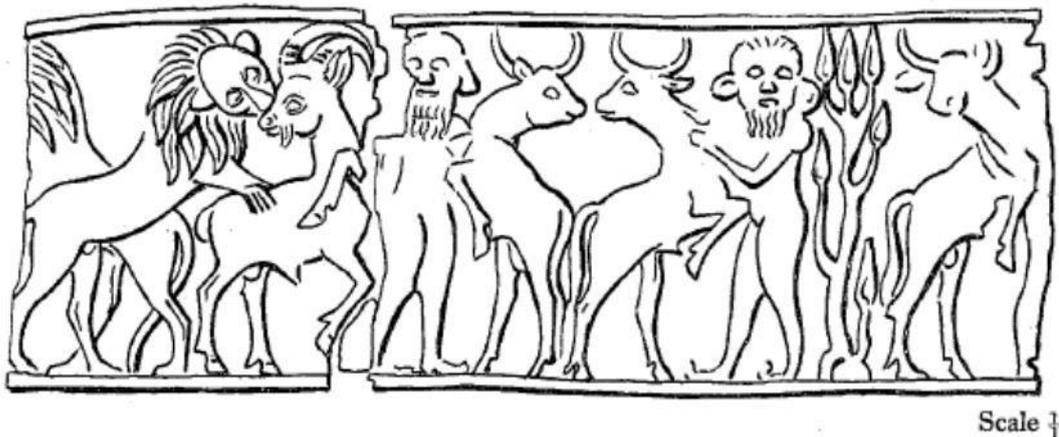


Figure 5.149: Shell plaques with lapis and pink limestone details, 13.5 X 5.7cm (after Woolley 1934: pl. 103)



Figure 5.150: Dagger with copper blade and gold-plated guard and grip, 33 X 13cm (after Woolley 1934: pl. 152)



Scale †

Figure 5.151: Sheet gold binding, 12 X 4.5cm (after Woolley 1934: pl. 217)



Figure 5.152: Silver rein ring with bull mascot, 17 X 11cm (after Woolley 1934: pl. 167. A)

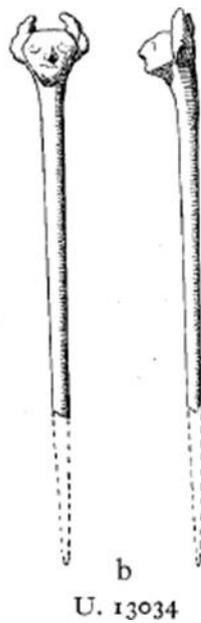


Figure 5.153: Copper stickpin with horned head, 16.25cm (after Woolley 1934: pl. 231. B)



Figure 5.154: Silver bovine head, 15.5cm (after Woolley 1934: pl. 120. A)



Figure 5.155: Copper bovine head, 13cm (after Woolley 1934: pl. 120. B)



Figure 5.156: Copper horned deity head, 12 X 11cm (after Woolley 1934: Pl. 121. A)



Figure 5.157: Copper bovine head (one of five) 14 X 10.5cm (after Woolley 1934: pl. 143. E)

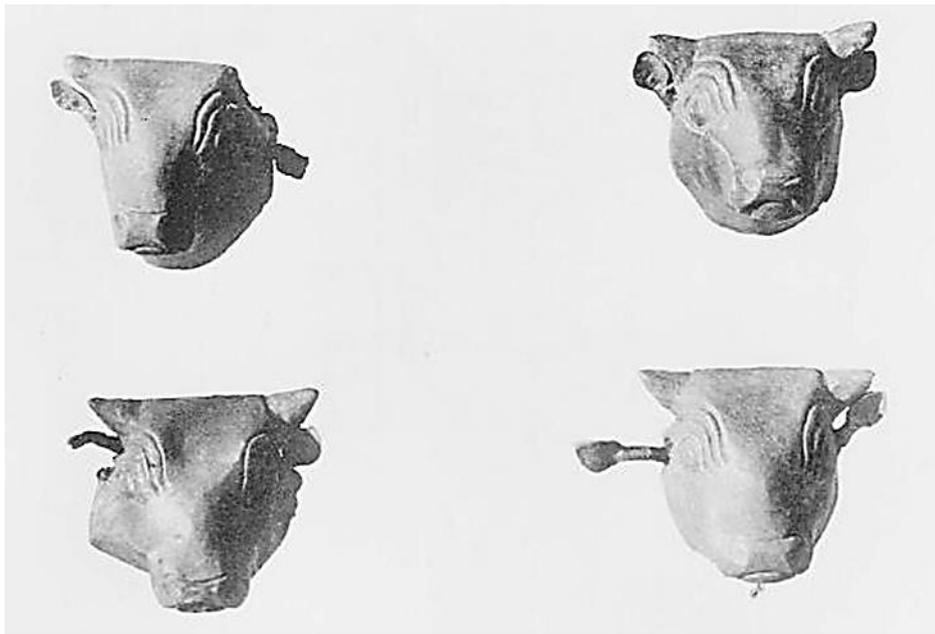


Figure 5.158: Gold bovine heads from chariot in PG/800, 3 X 3.25cm (after Woolley 1934: pl. 125)



Figure 5.159: Silver lyre with bovine ornamentation, 106 X 97cm (after Woolley 1934: pl. 111)



Figure 5.160: Restored harp with bovine ornamentation, 107cm (after Woolley 1934: pl. 109)

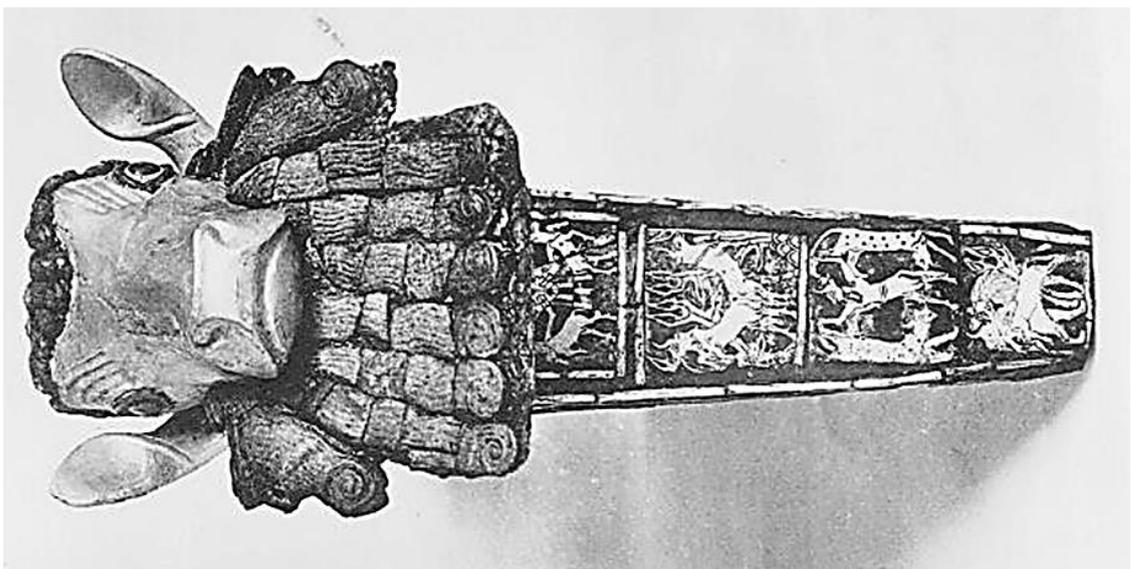


Figure 5.161: Detail of restored sounding box with bovine ornamentation (after Woolley 1934: pl. 108)



Figure 5.162: Restored lyre with bovine ornamentation, 120 X 140cm (after Woolley 1934: pl.114)

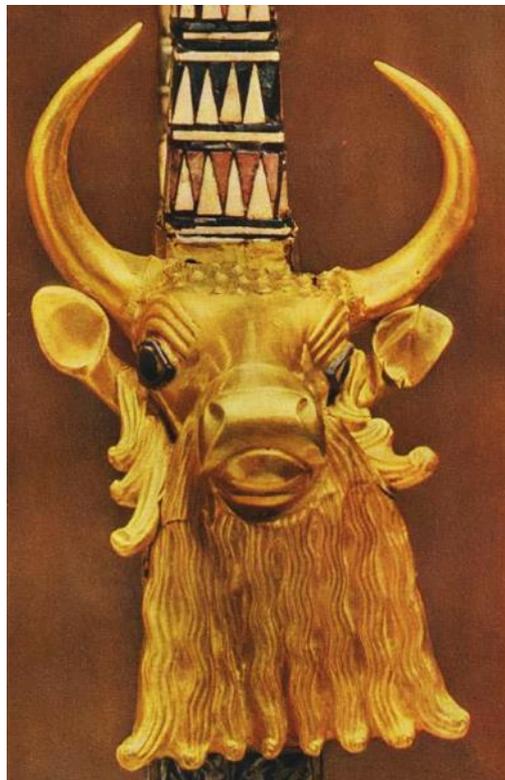


Figure 5.163: Detail of restored lyre with bovine ornamentation (after Woolley 1934: pl. 115)



Figure 5.164: Gold and lapis bull head from sounding box of a lyre, 25cm (after Woolley 1934: pl. 107)



Figure 5.165: Front plaque from lyre sounding box, 6 X 7 X 22.1cm (after Woolley 1934: pl. 105)



Figure 5.166: Copper bovine head and shell plaque remains from a lyre (after Woolley 1934: pl. 116)

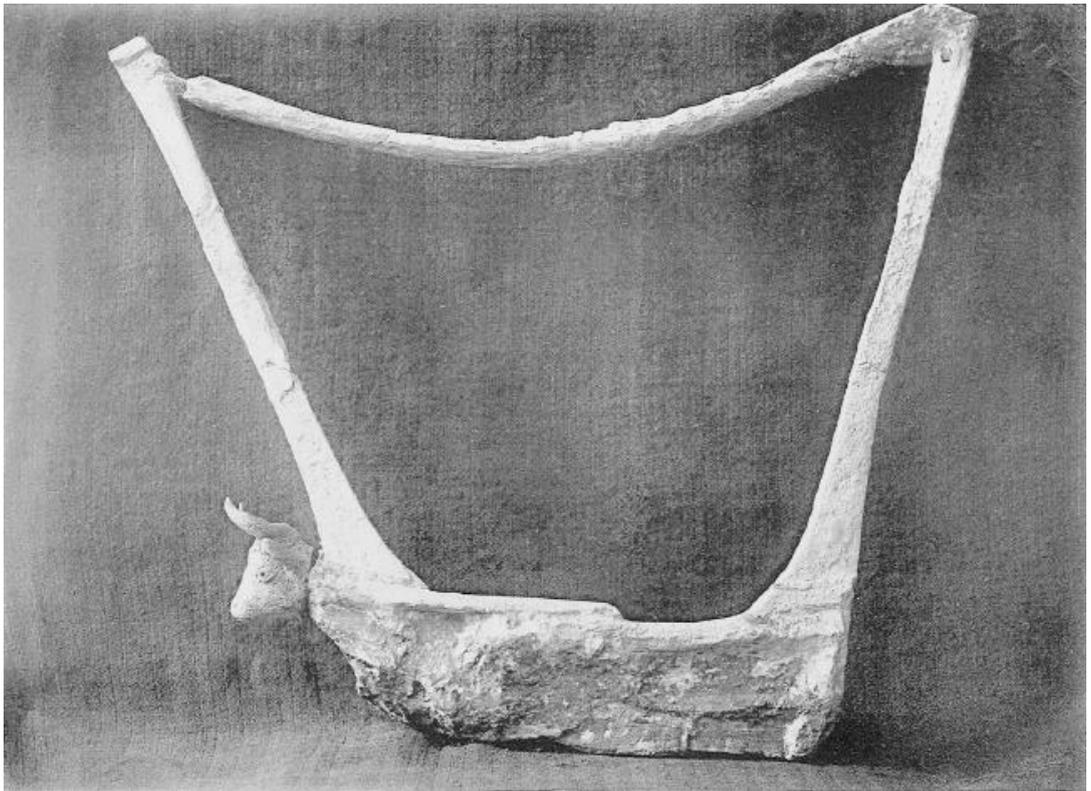


Figure 5.167: Plaster cast of lyre with original copper bovine head, 100 X 90cm (after Woolley 1934: pl. 118. B)



Figure 5.168: Copper bovine head from plaster lyre (after Woolley 1934: pl. 119. B)

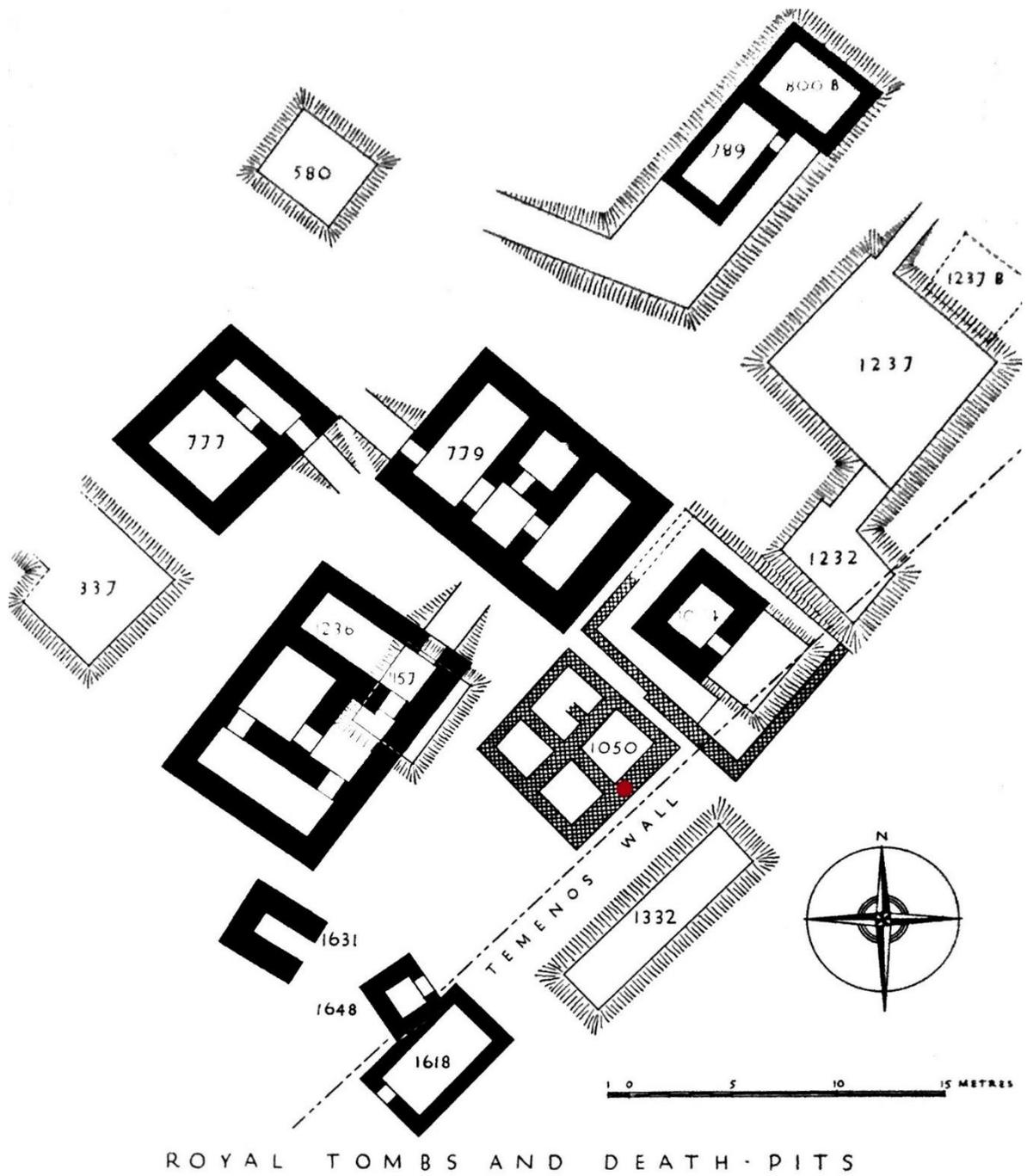


Figure 5.170: Locations of Royal Tombs and death pits, southern end of cemetery (after Woolley 1934: pl. 273)

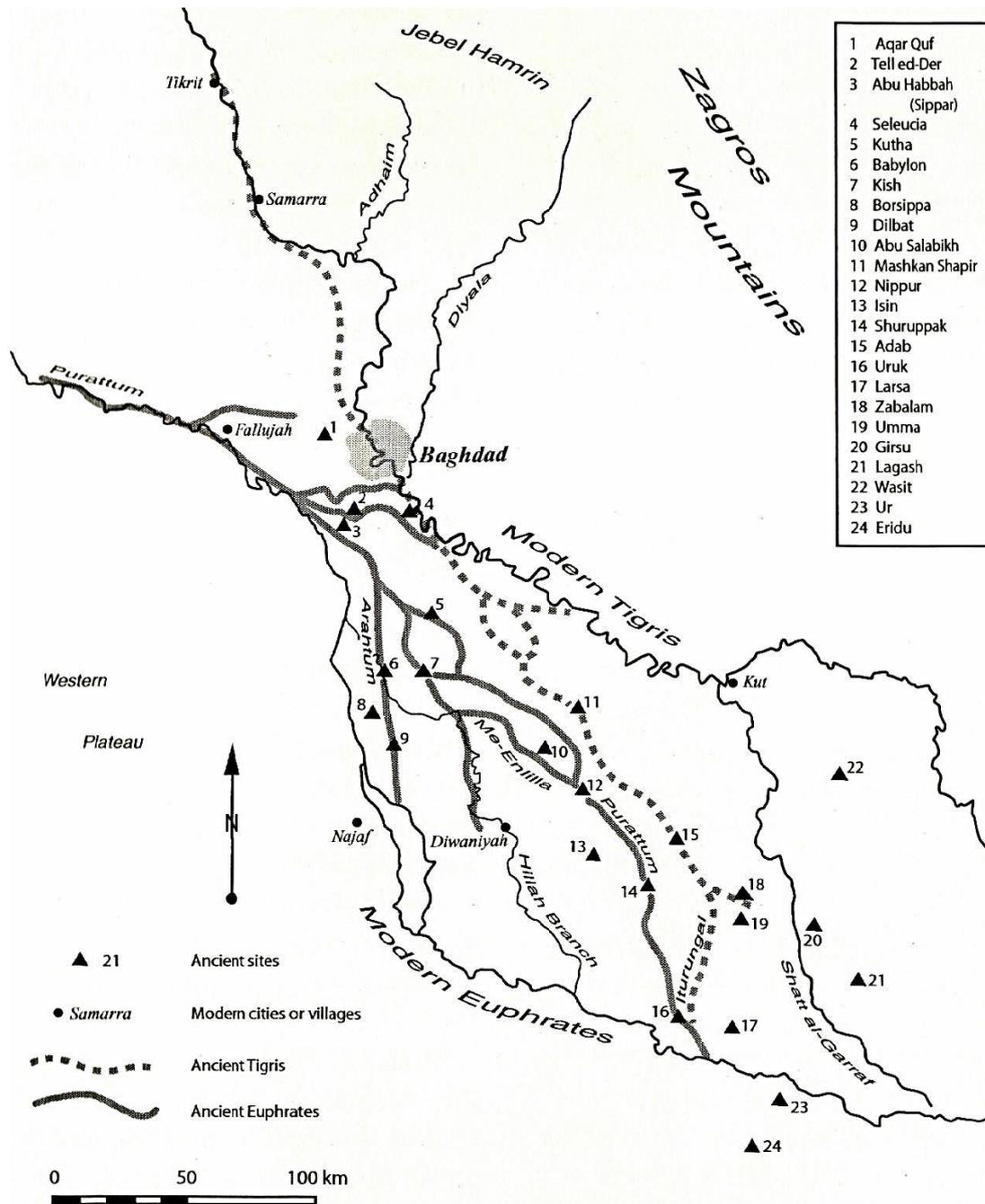


Figure 5.171: Map showing current and ancient courses of the major rivers and positions of some settlements (after Wilkinson 2003: fig. 5. 11)

Chapter Six

Analysis of Results and Interregional Comparisons of Research

6.1. Introduction

This chapter will focus on comparing the material from the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia and will discuss the categories of material culture, the logic for their selection, and how the material relates to the current project. In this research, the six material culture categories inform upon the social relationships between humans and the animal while the faunal remains were chosen to examine the possible economic interactions with cattle. The groups of seals/seal impressions and pendants/jewellery inform on the social class and personal/social relationships with cattle. Clay figurines and stone objects were initially chosen to determine possible religious or cultic practices associated with the animal; however, the social contexts with such objects did not support such assumptions. The clay objects were chosen to determine if cattle iconography was associated with all social classes or a select few. As for the category 'other', this group was initially selected to examine the iconography of items that could not be fitted to one of the above-mentioned groups; however, many of the items within the collection are associated with ritual and cultic practices, which is rather intriguing.

I will also examine specific themes and material forms that are unique to particular sites or regions and how they relate to human and bovine interrelationships. This comparison will begin by investigating the material culture for Northern and Southern Mesopotamia and will then compare the combined Mesopotamian region with that of Anatolia. Next, there will be a discussion of the faunal remains from the seven selected sites within the three regions, paying particular attention to the bovine remains and what this material may suggest when investigating human and cattle interrelationships in the

Early Bronze Age of Southwest Asia. The structure of this discussion will follow the structure of previous chapter discussions, examining material culture followed by faunal remains, with the addition of regional comparisons. There will then be an analysis of the results of this research and how these results address the aims and objectives laid out at the beginning of this project. I will end with a brief discussion of the differences between the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia and how these differences add to our understanding of the human and animal interrelationships within this period.

6.2. Mesopotamian Comparisons

The material culture from Mesopotamia that represents or depicts cattle indicates that the animal was highly interactive with the Early Bronze Age populations at the four selected Mesopotamian sites for this project. This section will discuss the objects from the Mesopotamian sites of Abu Salabikh, Ur, Tell Brak, and Tell Beydar, as well as examine comparisons between subject groups within northern and southern contexts. The material culture for this project was chosen because an object either clearly represented a bovine or there was an element of design within the object relating to cattle, such as a crescent motif; see section 2.4. The material culture from all of the sites selected for this project, in both Mesopotamia and Anatolia, was then separated into one of six categories, which include seals and impressions, clay bovine figurines, pendants and jewellery, stone objects, clay objects, and other or unusual objects. As for comparisons within the combined Northern and Southern Mesopotamian region, I will focus on those items in the north that have similarities in structure or design with items in the south and vice versa, and, where available, these items will be compared to similar items from sites not investigated within the frame of this project. I will begin with a discussion of the calf pendants and figurines from the sites of Tell Beydar, Abu Salabikh, and Ur, as well as the pictorial representations of calves from Tell Brak. Additionally, I examine the unusual clay objects from the

northern site of Tell Brak and the Southern Mesopotamian site of Abu Salabikh, as well as the symbolism behind the crescent motifs found in seals and the pins and cosmetic/ointment dippers discovered at the Mesopotamian sites. These comparisons may give us some information as to the nature of involvement for cattle in the social and economic tendencies of Early Bronze Age Mesopotamia.

The calf pendants from Tell Beydar, Abu Salabikh, and Ur are rather perplexing. The items are all almost the exact same size and are some of the only instances this research has thus far produced that show the representation of a bovine calf from the four Mesopotamian sites examined in this project, figures 6.1, 6.2, and 6.3. The representation of a calf can be identified by features such as anatomical proportions, figural pose, and the lack of horns (Loughlin 2000). Calves are typically shown as being in a seated position with smaller heads and the lack of horns, or the indication of developing horns. In comparison, bulls are always shown with horns and beards, on occasion, and cows can also display horns. The position of the animal, being either seated or standing, seems to also depend upon the object type. From this research, it has been discovered that seals and one-dimensional representations of cattle typically display the animals in a standing position, while three-dimensional objects, such as pendants, usually show cattle in a recumbent position, except in the case of clay figurines. Whether or not the relative position of an animal adds to its social function has yet to be positively determined, yet it does seem to be a factor. The examples from Tell Beydar, figure 6.1, and Abu Salabikh, figure 6.2, are similar; both show a forward-facing animal in a recumbent position. While the example from Abu Salabikh shows more detail than the Beydar example, their relative position and size are nearly identical, which demonstrates a sense of connectedness in the artistic representation of the animal at the two sites. Figure 6.3 shows the calf pendant, which was discovered at the site of Ur. The design of this example is slightly different in that the animal's head is facing to the rear; however,

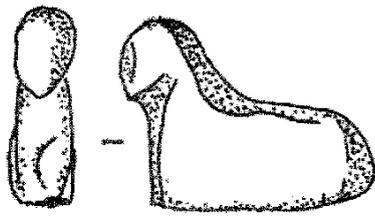


Figure 6.1: Calf figurine from Tell Beydar 1.9 X 1.5cm (after Debruyne et al. 2003: pl. VII)

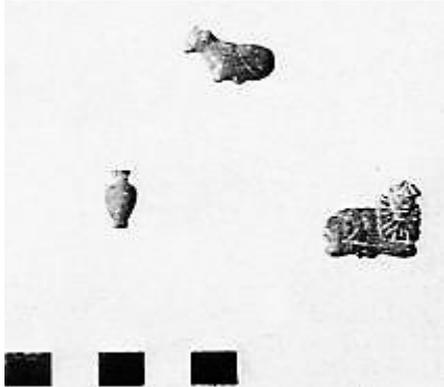


Figure 6.2: Top, calf pendant from Abu Salabikh 2 X 1.5cm (after Postgate and Moorey 1976: pl. XXVI. B)

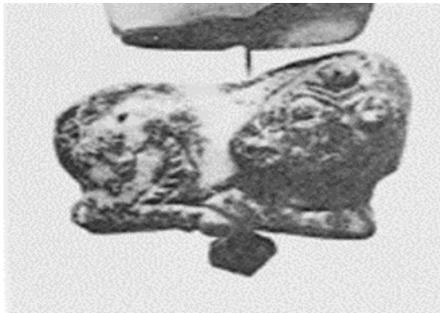


Figure 6.3: Lapis lazuli calf pendant from Ur 3.4cm (after Woolley 1934: pl. 143. D)



Figure 6.4: Oval stamp seal with calf motifs from Tell Brak 3.4 X 3cm (after Mallowan 1947: pl. XVI. 9)

the animal is still in a seated position.

Even though these examples are not exactly the same, they do all show the form of a calf in a similar position, and it should be noted that two of the items were pierced for suspension while the third is in an unfinished state. This indicates that, at least in the case of the pendants from Southern Mesopotamia, they were meant to be worn, either on a chain or rope, by an individual. The other two examples of calf representations are found on a single seal from the site of Tell Brak, figure 6.4. In the Tell Brak example, since one calf is suckling and the other is being born, it may be assumed that in this instance the calf, and cow, are associated with fertility, wealth, and perhaps rejuvenation as well.

When inspecting the other calf objects, one may suggest that these objects, too, might have had the same connotations ascribed to them, due to the fact that they are all similarly constructed and come from areas associated with religious or cultic practices as well as burial contexts.

It has also been suggested that the motif of

cattle had an apotropaic aspect, which may be one reason why cattle are a common theme in the iconography of pendants and jewellery (Root 2002; Breniquet 2002; Loughlin 2000). Subsequently, the motif of cow and calf has been suggested as a divine motif and is associated with the deities Inanna and Ninhursaga (Black and Green 1998: 53).



Figure 6.5: Detail of clay tower from Tell Brak 43 X 11 X 11cm (after Emberling and McDonald 2003: fig. 53)



Figure 6.6: Detail of clay dish from Abu Salabikh 41 X 37 X 11.5cm (after Martin et al. 1985: pl. XXVII. B)

The unusual clay objects from Tell Brak and Abu Salabikh share several similarities but also have several differences. The similarities include the addition of doors, as well as the inclusion of cattle motifs along the tops of the items. In the Brak example, there are also birds around the windows and along the top, and the tower has a square base and rectangular overall shape, figures 6.5 and 6.6. In the Abu Salabikh example, there are no birds, and the form is rounded and distinctively larger at its rounded base. This clay

stand is interesting in that it, along with the Brak tower, shows architectural features. Although cattle iconography is not as prevalent in the architecture of this period as it is in later periods, there are depictions of cattle in the form of friezes on the temple of Ninhursaĝa at Tell-el-Ubaid, which dates to the third millennium BC (Kawami 2014). This is important because it shows that cattle imagery, and associations with the animal, were important enough to be publicly displayed in comparison to the more personal items examined within this project. There are also differences in the representation of the cattle figures. In the Brak example, we only find the crania of the animals, which has also been suggested as representing caprine crania (Emberling and McDonald 2003: 51). However, due to artistic similarities with other clay cattle representations, I argue that the crania do in fact represent cattle. In the example from Abu Salabikh, we find complete bovine figures around the rim of the stand, which are positively identified as being cattle. If we compare the crania from the two objects, it can be seen that they are remarkably alike, indicating that they do, in fact, represent the same animal. One possible purpose for the tower may be as an incense burner. Although the use of this tower is unclear at present, due to the context in which it was found, it undoubtedly had some important meaning at the site, such as a cultic importance. The clay stand from Abu Salabikh is also interesting because it shows that cattle imagery could be associated with such objects and may indicate an increased importance related to the item or the person or group to whom it belonged. It is also interesting to note that this particular stand once consisted of two parts, a stand and dish, while other similar items from the site were smaller and a single combined form.

The crescent motif, which is found in all areas of Southwest Asia dating back to the Neolithic period, is found in several examples at all four Mesopotamian sites in this project. The motif is found on two cosmetic or ointment dippers and one pin at Tell Beydar, one pin from Tell Brak, one pin from Abu Salabikh, and one pin from Ur. There are also examples of crescents found on seals and impressions at each of the four sites,

with twenty motif examples in total. Since the motifs are found on items that may be considered high status, based on the context of the items as well as those members of society they were produced for, in the case of the dippers, pins, and administrative items such as the seals, one may say that the motif is associated with individuals that may have held high positions within their respective societies. It is also of interest that all of the items are personal objects and adornments. In terms of ideology and religious belief, the crescent form in Mesopotamia represents the deity Nanna, the moon god (Black and Green 1998: 54). This motif appears in several forms, from an independent crescent, one held by a deity, or in association with an animal, and it is usually associated with some sort of protective power or fertility (Rice 1998; Black and Green 1998: 54; Velten 2007). It should also be stressed that the crescent form is not only associated with the deity Nanna but his animal counterpart as well, namely the bull, and to a lesser extent the cow (Black and Green 1998: 135; Rafkin 1992: 18). It is due to this animal association that the crescent motif or form was chosen to be included within this project.

As discussed before, the material culture from the four Mesopotamian sites was separated into six categories, see section 2.4. In total, 261 individual objects from the sites display motifs or forms representing cattle and bulls in particular: 94 from Northern Mesopotamia and 167 from Southern Mesopotamia. The vast majority of these objects fall within the category of seals and impressions, totalling 156 items with 52 from the north and 104 from the south. The smallest category is that of clay objects with a total of four. Three of these clay objects come from Northern Mesopotamia, and the remaining item comes from the southern site of Abu Salabikh. Although these numbers may not seem very significant, it indicates that cattle did, in fact, have a solid place within the iconography and material culture of those individuals that inhabited these sites, and based on the context of the majority of these items, it also reveals that cattle held an important place within the religious, cultic, and administrative aspects of social life.

At the southern site of Abu Salabikh, the majority of material culture relating to cattle was discovered within the confines of the Ash Tip in the southeastern corner of the site's Main Mound. The site section with the second largest number of remains is area E, which overlaps the Ash Tip. The structures in area E are widely considered to be an administrative complex and temple area, and, as stated before, the Ash Tip is accepted as being the refuse from these two areas (Green 1993). This indicates that the vast majority of items representing cattle from Abu Salabikh are associated with religious and administrative practices. This trend can also be seen within the Northern Mesopotamian sites chosen for this project in that the majority of items representing or relating to cattle were discovered within similar archaeological contexts. From Abu Salabikh, Tell Brak, and Tell Beydar, the context of the material culture is quite similar, all relating to administrative or religious or cultic practices (Hansen 2001; Debruyne 1997; Green 1993; Mallowan 1947). In the Southern Mesopotamian site of Ur, the context is rather different. All of the material culture representing cattle from that site was discovered within the cemetery area, just to the south of the religious and administrative centre of the ancient city (Zettler 1998b). This context is similar to that of the Anatolian site of Alaca Höyük, where we find a number of high-status burials located close to the religious and administrative centres of the city (Koşay 1953). In fact, there are several similarities between the Anatolian site and the Mesopotamian site of Ur, which will be discussed later on within this chapter.

Some wider comparisons can be found in other objects from additional Southwest Asian sites. The very unusual human-headed bull statue from Tell Brak, figure 6.7, has a number of comparative items, all of which date to roughly the same period. These two items are nearly identical, figures 6.8 and 6.9. Figure 6.8 is a human-headed, bearded recumbent bull from the site of Larsa and is slightly later in date than the Tell Brak example, with the Brak example dating to 2300-2159 BC and the Larsa example dating to

between 2097-1889 BC (Evans 2003; Hansen 2001). The item from Larsa is made of



Figure 6.7: Stone human-headed bull statue from Tell Brak 40 X 30 x 20cm (after Oates and Oates 1991: pl. XXVI)



Figure 6.8: Stone human headed bull statue with shell inlay from Larsa 12 X 19cm (after Evans 2003: fig. 313)



Figure 6.9: Stone human headed bull statue, unknown provenance, 12.10 X 14.90 X 8cm (after Conrad 1959: p. 34)

steatite and is inlaid with shell spots, which have mostly been lost over time. This item is quite a bit smaller and is more finely detailed than the example from Tell Brak; however, the form and design of the items are nearly identical. Another strikingly similar example, which also comes from Mesopotamia, can be found in figure 6.9. This item, which dates to roughly the same period, is almost identical to the example from Larsa. It shows another human-headed, bearded recumbent bull with a headdress consisting of cattle horns resting around the head of the animal and pointing upwards, much like the items from Tell Brak and Larsa. Although the exact provenance of this item is unknown, based on the craftsmanship and form, it too is likely from the Mesopotamian region, possibly from the site of Tell Telloh.



Figure 6.10: Stone casting mould from Titiş Höyük 7.5 X 7.5cm (after Reinholdt 2003: fig. 163b)



Figure 6.11: Stone casting mould from Tell Brak 10.3 X 7.1 X 2.4cm (after McDonald et al. 2001: fig. 267)

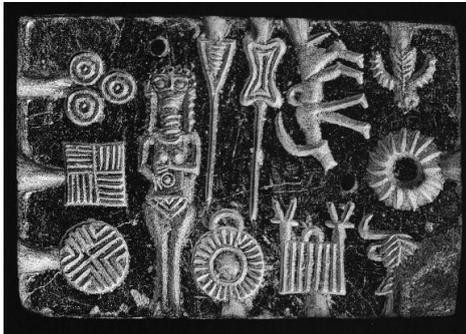


Figure 6.12: Stone casting mould from Sippar 9 X 5.7cm (after Reinholdt 2003: fig. 163c)

All three examples share similarities in construction as well as iconographically, and all three are orientated in the same position with the face of the animal overlooking the left shoulder.

Another comparison that can be made is with the jewellery moulds from Titiş Höyük and Tell Brak, Figures 6.10 and 6.11. Both are very similar in design and include horned altars, circular motifs, and goddess motifs; both items are also nearly the same size. As stated in chapter three, the example from the Anatolian site may have originated in Mesopotamia due to the similarity in design as well as the proximity of Titiş Höyük to the Mesopotamian region. A very similar jewellery mould was discovered at the Mesopotamian site of Sippar and displays comparable motifs,

figure 6.12. This mould is approximately the same size as those from this project and includes the motifs of horned altars, circular designs, and a goddess, and as with the other two moulds, this example is crafted from stone.

As for the metal bull heads from the Southern Mesopotamian site of Ur, figures 6.13 and 6.14, identical objects can be found in other areas of Southwestern Asia

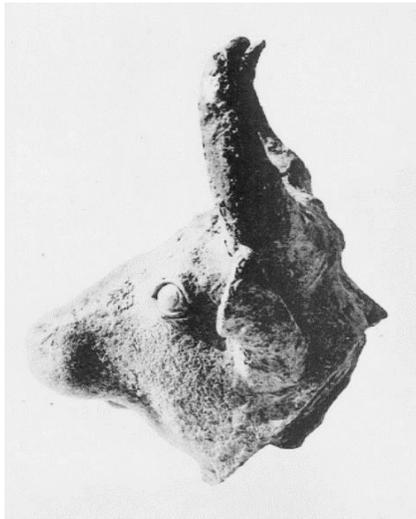


Figure 6.13: Silver bovine head from Ur 15cm (after Woolley 1934: pl. 120. A)



Figure 6.14: Copper bovine head from Ur 13cm (after Woolley 1934: pl. 120. B)



Figure 6.15: Copper bovine head from Tell Telloh (after Conrad 1959: pl. XIII)

within the same period. These bull heads, which come from the cemetery area of the site, are made of copper and silver and display amazing detail and craftsmanship. Both of the Ur examples are approximately the same size and were once likely ornamentation of some larger object, possibly musical instruments or furniture, based on the inclusion of similar items on instruments and furniture at the site (Woolley 1934; Hansen 1998). Similar Mesopotamian items can be found at Tell Telloh, Tell Agrab, and Tell al Ubaid, all dating to nearly the same period (Hansen 2003: 83). For the purpose of this research, two examples from other sites will be discussed, one from Tell Telloh and one from the Arabian Peninsula. The first example, figure 6.15, comes from the site of Tell Telloh and is remarkably similar to those examples from Ur. This object is made of copper with eyes inlaid with shell and lapis lazuli, just like the Ur examples. The only distinguishable differences are that the horns are slightly longer, and the ears project out further from the head while



Figure 6.16: Copper bovine head from Dilmun 20cm (after Bibby 1969: pl. V)

likely inlay similar to those from further north. Just like the example from Tell Telloh, this example from the Dilmun civilization also has elongated horns and protruding ears. And, like the Telloh example, it was likely ornamentation to a larger object, such as furniture or an instrument (Hansen 1998).

One design aspect that should be discussed is the unusual resting or recumbent cattle horns, which can be seen on objects from both Tell Brak and Ur, as well as in many seal and impression samples from the Mesopotamian sites. The best examples of this design can be found in the human-headed bull statue from Tell Brak, figure 6.7, as well as in the other human-headed bull statues from Mesopotamia and in the form of bovine pendants from both the northern site of Tell Brak and the southern site of Ur (Mallowan 1947; Woolley 1934). One may suggest that these cattle horns have been placed in a resting position on the bull statues as a means to indicate a crown or headdress for these animals, which may also suggest a certain amount of power or divinity for the animals. In the Brak example, we find only a single set of resting horns, which wrap around what appears to be a headdress, and in the other two similar examples, the animals wear headdresses with multiple sets of horns. This same theme can also be found in the representations of particular deities on many of the seals and impressions taken from all four Mesopotamian sites, with Tell Brak and Ur containing the largest numbers of these

the ears on the Ur examples are closer to the cranium. The second example comes from the island of Bahrain off the Arabian Peninsula, figure 6.16. This bull head is nearly the same size as those from Mesopotamia and dates to approximately the same period (Bibby 1969). The object is made of copper, and the eyes of the animal are hollow where there was most

examples. The horned headdress began to appear in the early 3rd millennium BC within the Mesopotamian region and was associated with divine power (Winter 1996; Black and Green 1998: 102). In addition to wearing horned headdresses, these rulers, along with the god Enlil from whom they gained their authoritative power, held the title of “Wild bull” (Velten 2007: 32). What is interesting about this headdress with a set or sets of resting horns is that there is no standard headdress style, and its association with deities is generally not consistent in that representations of deities do not always include the headdresses and by the fact that the number of horn pairs changes from representation to representation. Because of this association with divinity, I suggest that the resting cattle horns atop the heads of the human-headed bull statues from Mesopotamia indicate that these are divine animals, yet another indication of how the interrelationship between humans and cattle developed within this period. Another aspect of the resting cattle horns that must be discussed is the fact that this design can be found on more than just deities and hybrid creatures. At the sites of Tell Brak and Ur, it has been discovered that many of the pendants representing cattle also display this unusual feature. Although there are examples of these pendants that show resting horns atop the heads of bearded bulls, I also found examples where this element can be observed atop the heads of regular bovines (Mallowan 1947). This suggests that cattle were also seen as divine even when not in a hybridized form. Within a broader anthropological and ethnographic perspective, we can see that cattle are immensely influential animals and are, in many cases, considered sacred, with the best example being that of modern India (Sharpe 2006; Winter 1999). In the indigenous African groups of the Wachagga, Barabaig, Dassanetch, Himba, and Maasi, as well as others, cattle are symbols of power and authority and can be owned by both men and women, with the animals in multiple cases associated with religion or ancestry and their meat and blood being sacred (Shenjere-Nyabezi 2016; Sharpe 2006: 193; Crandall 2000). As a whole, the material culture representing cattle and the symbolism associated

with it from the four Mesopotamian sites, as well as the context from which they come, is all similar, indicating that the interrelationships between humans and cattle were comparable, at least iconographically, at all of the selected sites within the Early Bronze Age period, see section 1.7.

6.3. Anatolian and Regional Comparisons with North and South Mesopotamia

The material culture from the region of Anatolia that represents or relates to cattle seems to be more simplistic in form than that from the Mesopotamian regions, with the exception of some items from Alaca Höyük. It has also been discovered that the number of objects depicting or relating to cattle is also significantly smaller in Anatolia than in the Mesopotamian regions. This section will discuss that material culture collected from the sites of Alaca Höyük, Titriş Höyük, and Sos Höyük and will discuss the similarities and differences between the material from Anatolia and the material from Mesopotamia as well as wider comparisons where available. To begin, in comparison to the rather large number of objects found at the four sites in Mesopotamia, the material culture from the three sites in Anatolia is rather small with only 33 total items, see chapter three. These items also indicate a slightly different story in that the largest number of items comes from the category of clay bovine figurines, with eighteen, compared to a combined Mesopotamian total of fifteen. If we look at regional percentages, we find that these clay bovine figurines constitute 54.55 per cent of the Anatolian material culture total. This stands in contrast to the category of seals and impressions from Mesopotamia, the largest category of material objects from that region. Moreover, from the three sites in Anatolia, there were no examples of seals and impressions discovered from this period; the first examples of these objects do not appear until the later Bronze Age, at least at these particular sites.

Compared to the material from Mesopotamia, the material from Anatolia can be characterised as less sophisticated. The craftsmanship of many of the Anatolian items is quite simple when compared to that from the more affluent south. The only area where

there are similarities in construction between Anatolia and Mesopotamia is in the collections of clay bovine figurines, which share a comparable construction and size (Croucher and Belcher 2017).

Another point that must be discussed is that these items come from a different context than the items from Mesopotamia. In Mesopotamia, the majority of items were discovered in or near to areas associated with religious or administrative practices whereas a large portion of Anatolian items come from household or public contexts (Sagona 2000; Sagona *et al.* 1996; Arik 1937). These skewed archaeological contexts may be the result of the excavation strategies performed at each site, as well as the period in which the sites were originally excavated. The only instance where the context is different is at the site of Alaca Höyük where nearly all of the items unearthed are associated with burial contexts. An interesting parallel can be found in the material from the Mesopotamian site of Ur. Like the site of Alaca Höyük, all of the material culture from Ur discussed here was discovered within burial contexts. Both of these sites were initially excavated for their rich burials, which is why we do not have much information regarding other areas of the sites (Woolley 1934b; Koşay 1951). Another parallel can be seen in the location of these burial complexes at the two sites, both of which are located to the south and east of major religious and administrative areas.

Although the excavated architecture at Alaca Höyük dates to a later period than that investigated within the parameters of this project, i.e. the Late Bronze Age, one may suggest that earlier structures serving a similar purpose were located on or very near to these locations. Another point worth exploring is the fact that the burials at Alaca Höyük and Ur are rather similar in both construction and grave goods. Both areas are known as royal cemeteries based on the relative size of the tombs as well as the quality of the items unearthed within said tombs. Although the material from the Anatolian site is not as extravagant as that from the Mesopotamian city, the degree of craftsmanship is similar in

the quality of naturalistic animal forms.

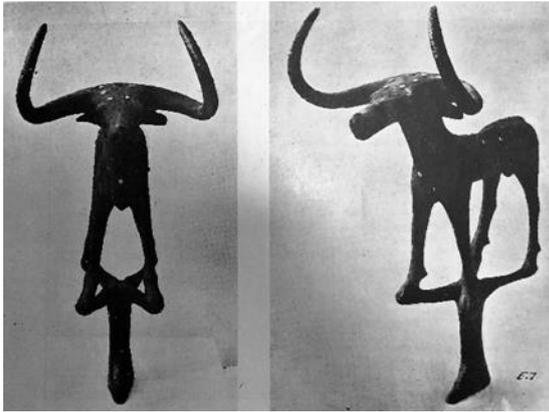


Figure 6.17: Copper bull standard with electrum detailing from Alaca Höyük, tomb E 35 X 28cm (after Koşay 1951: pl. CLXIV)

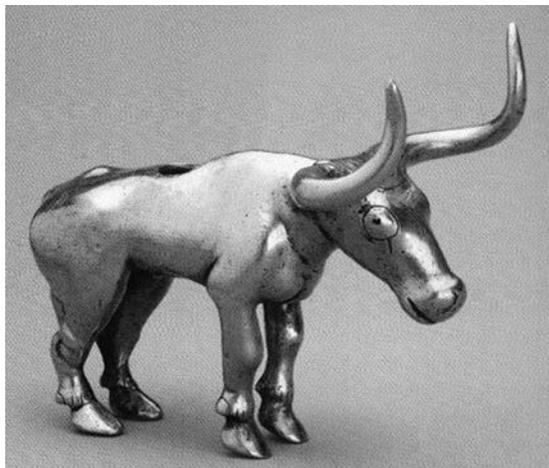


Figure 6.18: Gold bull standard from Maikop Kurgan 8 X 7.6cm (after Izbitser 2003: fig. 191a)

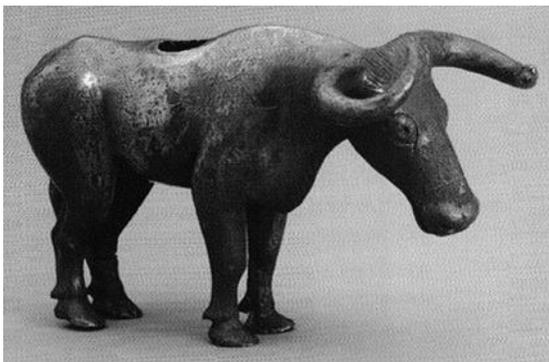


Figure 6.19: Silver bull standard from Maikop Kurgan 8 X 9.2cm (after Izbitser 2003: fig 191b)

Alaca Höyük. This example is constructed of copper with details in electrum, and the body of the animal is thin and narrow with an outstretched muzzle and long horns curving upward. Similar artistic properties can be found in the standards from Maikop Kurgan, and of the four examples, two will be discussed and compared here.

With regard to wider comparisons with the Anatolian region, we can find similarities in design and construction between the bovine standards from Alaca Höyük and comparable objects from further north in the Eurasian Steppe. At the Maikop Kurgan site, part of the larger Maikop Culture, four standards were discovered that are quite similar in style to those discovered within the burials at the Anatolian site (Izbitser 2003). This site is located in the area between the Black and Caspian seas and to the northeast of the Anatolian region. Although these two sites are separated by a considerable distance, their representations of cattle are alike, which indicates that these two sites may have viewed cattle in a similar way, at least artistically. Figure 6.17 shows one of the eight bull standards excavated from the burials at the site of

The first example, figure 6.18, is made of gold and, though smaller than the

Anatolian example, is rather similar in style. This object shares the same narrow body form and elongated horns as the item from Alaca Höyük. Figure 6.19 is another example from Maikop Kurgan and is approximately the same size as the previous example. This standard is crafted from silver and, like the other standard, has incised details around the head and hooves. The form of the body is identical to the gold standard with the same narrow body; however, the horns are not as elongated as the previous example. Although there are comparable properties of these objects, they also have several noticeable differences. The example from Alaca Höyük appears to be thinner, and in the majority of the Anatolian standards, the legs are quite close together. All of the Anatolian standards are made of copper, and many have details crafted in other precious metals while the examples from Maikop Kurgan are crafted from gold and silver (Izbitser 2003; Koşay 1951). Also, the Anatolian examples rest on small bases to be attached to another object, possibly a pole, while those from further north have been made with holes through the centre so they could be attached to something larger, most likely a pole as well. The craftsmanship of the Maikop Kurgan standards is also truer to life than the more abstract Anatolian objects, and while the standards from Alaca Höyük are rather large, those from Maikop Kurgan are decidedly smaller. Although there are several differences between the standards from Anatolia and those from further north, they are still comparable in both the material of construction and artistic representation of the forms. This may indicate that the artistic values and methods, at least at the site of Alaca Höyük, are more akin to those from the wider Eurasian Steppe area than to that of Mesopotamia. This is rather strange since the burials at Alaca Höyük and those from the Mesopotamian site of Ur are so similar.

Additionally, the faunal remains from the two burial complexes are comparable. At the site of Alaca Höyük, there are examples of sheep, goat, and cattle found within the burials. Although reports do not say where the remains of sheep and goat were found, we do see that the cattle remains take precedence over the other domesticates due to the fact

that the crania and hooves of cattle, most likely the remains of a funerary feast, are found on rudimentary pedestals within the burials as well as atop the roofs of the graves (Bachhuber 2015). At the Mesopotamian site of Ur, the faunal remains are quite similar. As with Alaca Höyük, we find examples of sheep, goat, and cattle; however, the cattle remains are similar in that the main physical components present are the crania of the animals. According to Anthony (2007:160), the skull and lower leg pieces of these animals held a symbolic significance to people of the Early Bronze Age Eurasian Steppe; however, he does not explain why these elements were significant. The presence of these elements at Alaca Höyük may indicate a similar significance to these individuals as well. Based on the faunal findings of the burial complexes and from the work by Anthony, it is clear that cattle did play a larger role in the cultic or funerary practices of Early Bronze Age humans than other domesticated stock.

One interesting point to discuss is the lack of variety in the Anatolian material culture collection compared to that found within the Mesopotamian material culture collection. Although the same categories are used for both regions, the material present in Anatolia is rather different than that from Mesopotamia. The two categories where we find the largest numbers of objects from Mesopotamia, namely seals and impressions and pendants and jewellery, are lacking within the Anatolian region at this point in time. This could be due to the sites selected for this project or the fact that jewellery and institutionalised administrative practices were not as important as they were in the south. The two largest groups of items present within the three sites from the Anatolian region are clay bovine figurines and other or unusual objects, with the vast majority of these items coming from the site of Alaca Höyük. In total, eighteen clay figurines were unearthed, and eleven of these items come from Alaca Höyük with the remaining seven coming from Sos Höyük. As for the other and unusual category of objects, all of these items were discovered at the site of Alaca Höyük and represent the famous standards found within the cemetery

complex there. It should also be said that from the site of Titriş Höyük, only three objects representing cattle were found, and, interestingly, one of the items, a stone jewellery mould, is very similar in its method of construction to a mould found at the Mesopotamian site of Tell Brak, figure 6.11. This may indicate that individuals from the Southern Anatolian site held similar artistic preferences, that is a preference for a particular construction technique or design element, for the animal or that the item, in fact, came from the Mesopotamian region since the iconography on the Anatolian mould appears to indicate a southern influence.

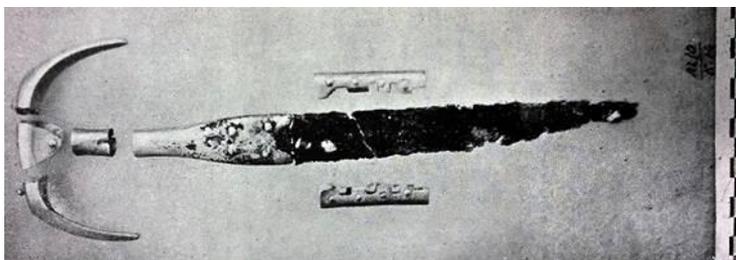


Figure 6.20: Iron dagger with gold detailing from Alaca Höyük 61.5cm (after Koşay 1951: p. 167)



Figure 6.21: Copper dagger with gold detailing from Ur 33 X 13cm (after Woolley 1934: pl. 152)

Another wider comparison that can be made is with the crescent-hilted daggers from Anatolia and Mesopotamia, which were included within this project. Although there were several daggers discovered within the burials at the sites of Alaca Höyük and Ur, these are the only examples that display

a very distinctive crescent-shaped hilt. As discussed in the previous section, the crescent form relates to not only religious beliefs but also to the shape of bovine horns and particular phases of the moon. Although there has not been much research done regarding this relationship, it has been established that the horns of cattle, that were associated with the moon and storm gods, were also metaphors for the phases of the moon, which may have related to the rainy season or season for planting (Miranda 2013; Velten 2007; Green

2003). Based on the context of these daggers, both coming from so-called royal burials at each site, I suggest that these particular objects held some religious or ceremonial purpose. What is particularly fascinating about these two daggers is their nearly identical form and construction, figures 6.20 and 6.21. Figure 6.20 shows the dagger example from the cemetery at Alaca Höyük in Anatolia. We can observe that the dagger blade itself is crafted from iron, and the remains of the hilt are crafted from gold and display a very distinctive crescent shape. The other dagger, figure 6.21, comes from the cemetery at the Mesopotamian site of Ur. In this example, the dagger blade is made from copper, and, like the Anatolian example, the hilt is crafted from gold in the form of a crescent. The presence of these daggers indicates that the inhabitants of both sites may have held similar religious views or burial practices as well as possible elite communication and interactions based not only on these daggers but also on the inclusion of particular skeletal elements within the burials in addition to the existence of cattle iconography within each set of these royal burial complexes (Bachhuber 2015; Anthony 2007).

When comparing the material culture from the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia, we can see quite a few differences in material representation from what has been discovered at these seven sites within the period of the Early Bronze Age. Table 6.1 shows the six categories of material culture and the numbers from each category on a regional basis. If we turn our attention to the region of Anatolia first, we can see that overall there were 33 individual objects from the selected sites, which is rather small compared to the numbers from the Mesopotamian regions. The largest category is that of the clay bovine figurines, with a total of eighteen artefacts combined for the three sites. Staying on the subject of material made of clay, the category of clay objects has a total of five individual items. Due to the fact that the majority of items from the region of Anatolia are crafted from clay, it may be suggested that clay was a preferred construction material for the region at that point in time, see sections 2.4.4 and 2.4.7. Since

the majority of clay objects came from the royal cemetery complex at Alaca Höyük, one can say that clay items were not an indication of economic status or contextual availability, but a preferred construction material for the individuals of this region. According to Boivin (2004), the medium of clay came to be associated with fertility and females, due to a comparison between fertile soil and female fertility, since both are principal sources for life. This may indicate that fertility was an important factor in the belief systems of Anatolia, especially due to the fact that the majority of agriculture within the region was rain-fed (Wilkinson 1990b)

<i>Material Culture Groups and Numbers for Multiregional Survey</i>				
Object Groups	Anatolia	N. Mesopotamia	S. Mesopotamia	Group Total
Seals & Impressions	0	52	101	153
Clay Bovine Figurines	18	10	5	33
Pendants & Jewellery	0	20	22	42
Stone Objects	1	5	3	9
Clay Objects	5	3	1	9
Other/Unusual	9	4	32	45
Regional Total	33	94	164	291

Table 6.1: Material culture categories with comparative totals for the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia

After the category of clay bovine figurines, the largest collection of material from the region is that which was placed within the other or unusual category. This group has a total of nine items, all of which come from the Alaca Höyük cemetery complex. This category consists of eight bull standards and the rather unusual iron dagger, which was previously discussed. The smallest category, consisting of only a single item, is that of stone objects. This item interestingly was not discovered at the site of Alaca Höyük, like so many of the other items, but derives from the southern Anatolian site of Titriş Höyük and comes from a household context. It is interesting to note that the only stone object that relates to or represents cattle from the three selected sites was discovered within a household context when the majority of stone items from the Mesopotamian regions come

from religious or administrative contexts. It should also be said that the stone jewellery mould from Titriş Höyük may not be of Anatolian origins and may, in fact, have come from Mesopotamia, based on the iconography and methods of construction. From two of the six material culture categories, seals and impressions and pendants and jewellery, no items were discovered from the three selected sites. This result is radically different from Mesopotamia where these are the two largest combined material culture categories. Since all of the items can be considered personal adornments, it can be suggested that these items were not as important within the Anatolian region as they were in other areas.

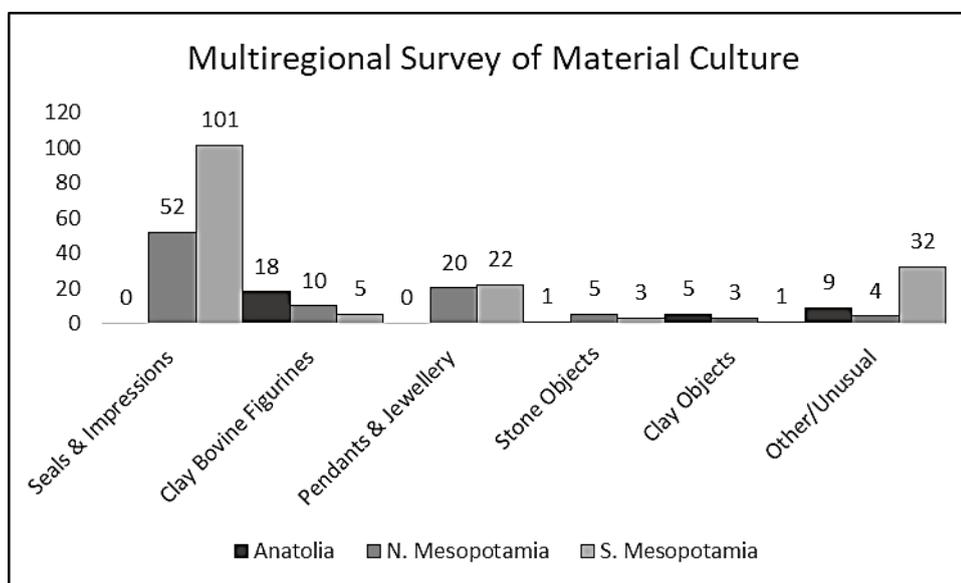
For the region of Northern Mesopotamia, the largest category is that of the seals and impressions, with a total of 52 items. The next largest category consists of pendants and jewellery with a total of 20 items from the sites of Tell Beydar and Tell Brak. It must also be said that the majority of items from these two categories come from the site of Tell Brak, and all but one item from the pendants and jewellery group are from Tell Brak. The third largest group of items is clay bovine figurines with a total of ten. The next largest category is that of stone objects, there are five examples within this collection. As with many of the categories from Northern Mesopotamia, the numbers from Tell Brak are considerably larger than those from Tell Beydar. This is likely due to Tell Brak being a larger and more prosperous city as well as a Northern Mesopotamian regional centre and even ruled over the smaller site of Tell Beydar for a period of time (De Ryck *et al.* 2003: 580).

The two categories with the smallest numbers are those groups that consist of clay objects and other or unusual objects. The first to be discussed is the other or unusual category, which has a total of four objects, three from Tell Beydar and one from Tell Brak. The smallest category is that of clay objects with a combined regional total of three. As previously mentioned, the material from Tell Brak, 63 objects, outnumbers the material from Tell Beydar, 31 objects, by twofold with a combined regional total of 94 individual

items that represent or relate to cattle. The point should be stressed that the combined Anatolian regional total, 33 objects, is only slightly larger than the total from the site of Tell Beydar. It is impressive that the combined material culture total from Northern Mesopotamia is nearly three times the size of the combined total from Anatolia. This is largely due to the number of seals and impressions from Northern Mesopotamia, a category which contains no artefacts for the Anatolian region. Overall, the material culture from the region of Northern Mesopotamia is remarkable in both quantity and quality and contains items made from a wide array of materials, from clay and bitumen to fine stones and metals. Although the materials of construction are far more varied in Mesopotamia than the group of artefacts from Anatolia, both assemblages tell a similar story—that interactions with cattle had a large influence on the social life of humans within the period of the Early Bronze Age.

In the Southern Mesopotamian region, the material culture record is relatively similar to that from Northern Mesopotamia; however, the numbers of objects are significantly larger. The category with the largest number of examples is the seals and impressions, just in Northern Mesopotamia, with 101 individual items. The next largest group is that of the other or unusual items, this category has 32 items. This is due to the material from the cemetery complex at the site of Ur where all but one of the examples were discovered. This category includes items such as gaming boards, various examples of inlay, and the musical instruments from the burials at the site. The third largest category is the collection of pendants and jewellery, and like all categories within the southern region, most were discovered at the site of Ur, with a total of 22 objects. Unlike the material culture from the region of Anatolia, all six material culture categories are represented by at least one object within the Mesopotamian regions.

Interestingly, one of the smallest material categories in Southern Mesopotamia is that of the clay bovine figurines, with five items. What is strange about this category is that all of these items were discovered at the site of Abu Salabikh, and there were no examples, even fragmentary, that were found at the site of Ur. This absence is likely because the excavations dating to this period were focused on the cemetery complex area or the site's architecture; in fact, this research did not produce any records of public, household, or administrative excavations that date to the Early Bronze Age period. The two smallest categories are those of clay objects and stone objects. The group of clay objects has a single item from the site of Abu Salabikh, the previously discussed clay dish. As for the stone object category, there are three items, all from Ur. In summary, the material culture assemblages for the regions of Northern and Southern Mesopotamia are rather similar with the largest groups being seals and impressions and pendants and jewellery. The only major discrepancy is the category of other and unusual objects, with a much larger number being found in the south than in the north.



Graph 6.1: Material culture comparative totals for the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia

The overall totals for the combined material culture assemblage are 153 for the category of seals and impressions, see table 2.3. (Graph 6.1) displays the material culture categories for each region for a side-by-side comparison to better understand the quantities of these objects relative to one another. For the category of other or unusual objects, the second largest group, there are 45 items, mostly from Ur. As for the collection of pendants and jewellery, there is a combined total of 42. For the category of clay bovine figurines, there are 33 items, with the majority of them coming from Anatolia. As expected, the two smallest categories are those of clay objects and stone objects; each of these categories has a total of 9 items combined from the three regions. This material indicates that, as in Anatolia, the material culture in the regions of Mesopotamia was highly influenced by the iconography and physical form of cattle, which demonstrates the importance of this complex interrelationship within the scope of this project.

Another interregional comparison that should be discussed is the comparison of the motif studies for the seals and impressions discovered within the regions. As stated before, there are no examples of seals or impressions from the region of Anatolia for this period in time, at least not for the three sites chosen for this project. There is, however, a sizable collection of seals and impressions from the regions of Northern and Southern Mesopotamia, which will be discussed here. From the 156 objects within the seals and impressions category, 909 individual subject motifs were positively identified, 308 from Northern Mesopotamia and 601 from Southern Mesopotamia. In total, ten motif groups were chosen for this review, which include *Bos taurus*, *Ovicaprine*, *Panthera leo*, god/deity, horned deity, human, other species, plough, cart, and crescent. The categories of plough and cart interestingly are only found at the site of Tell Beydar but still remain categories throughout the study. Surprisingly, the category with the largest numbers is that of *Bos taurus*, with a combined total of 220 identified motifs. This group includes not only complete images of cattle but also cattle crania and motifs identified as bearded bulls or

bull men. Initially, it was assumed that the largest collection of motifs would be those representing a god/deity or a horned deity; however, the numbers of these motifs were not as expected. The 220 identified cattle motifs constitute nearly a quarter of the overall total as shown in table 6.2. It is also worth mentioning that from the two regions included within this project, cattle motifs make up nearly a quarter of each regional motif collection.

<i>Glyptic Motif Frequencies from N. & S. Mesopotamia</i>			
Motif Subject	N. Mesopotamia	S. Mesopotamia	Subject Total
<i>Bos taurus</i>	73	147	220
<i>Ovicaprine</i>	21	47	68
<i>Panthera leo</i>	56	110	166
God/Deity	9	6	15
Horned Deity	27	79	106
Human	62	148	210
Other Species	47	48	95
Plough	6	0	6
Cart	3	0	3
Crescent	4	16	20
Site Total	308	601	909
Regional Percentages %	33.88	66.12	

Table 6.2: Results from the Mesopotamian glyptic study showing regional and combined frequencies

Another significant result is that the second largest subject category represents human motifs. There were 210 positively identified human motifs. The next largest collection is made up of motifs representing lions, which include both complete animal forms and crania, with 166 motifs identified. The fourth largest motif category is the representations of horned deities, in total, 106 motifs construct this collection. The remaining six categories contain less than 100 motifs with the largest of these categories containing 95 examples and the smallest containing three. The group of other species motifs that includes other domesticated animals, scorpions, and fish has a total of 95 motifs. Those motifs that were identified as representing ovicaprine animals have a total of 68 representations, and those motifs representing crescent shapes, has a total of 20 and

makes. With a combined total of 15, the god/deity category is surprisingly small. This collection only accounts for 1.65 per cent of the combined subject total. The two smallest categories are those of plough and cart images, all of which were discovered on seals and impressions from the site of Tell Beydar. In total, there are six plough motifs and three cart representations.

Based on the material culture evidence from the region of Anatolia, it is apparent that there is a different representational and figural style in the construction of objects studied for this project compared to that from the region of Mesopotamia. What does seem to be the same is the iconographic role of cattle in both regions, due to the fact that cattle were favoured highly in the burial contexts of Alaca Höyük (Muscarella 2003: 284). I have found through the faunal evidence that cattle remains are more predominant in Anatolia than in Mesopotamia within the Early Bronze Age period and that the majority of material available from the three Anatolian sites comes in the form of faunal remains. This is not the case within Mesopotamia, however, as in this region, the material culture assemblage is rather large, and cattle do not appear to be the most dominant domesticated species. Although the trends in material and faunal remains are rather different in Anatolia and Mesopotamia, I find that cattle, in fact, take precedence over other animals in some form within each region, even if that form is not exactly the same, depending on geographic location.

6.4. Faunal Comparisons

One of the more interesting signs of cultural or social identity is food, in particular, what was consumed, how it was consumed, and who it was produced for (Hastorf 2017; Bachhuber 2015; Anthony 2007: 128; Helwing 2003). Cattle were one of the first domesticated stock animals and were arguably the most influential of all domesticated species (Roberts 2017: 97). Humans first began their complex relationship with this animal, in its domesticated form, in the Neolithic and developed this relationship over

time. Humans can be regarded as both a provider and predator of all domesticated stock and, with the domestication of such social animals as bovines, can be seen as a leader of a particular herd or group of cattle (Phillips 2002: 217-218; Russell 1988; Dahl and Hjort 1976). This multi-purpose animal can be utilised not only as food for human populations but can be used as a source of power in agricultural practices and the transportation of products; their waste can be repurposed as fuel, and products derived from the animal, such as milk, leather, and bone, have always been an important factor in human economic practices (Johannsen 2011: 14). According to Johannsen (2011), the use of this multi-purpose animal has been a major factor in agricultural and social life since the beginning of its domestication. This section will investigate the similarities and differences between the faunal assemblages of Anatolia and Mesopotamia to determine how cattle may have been utilised by humans and how the animal transformed the dietary and social habits of those people who kept them.

As previously mentioned, the main method of assessment for the faunal remains of this project is through the investigation of each site's NISP, and to a lesser extent, a site's MNI, where available. Over the years, many have expressed concern over the accuracy of implementing NISP methods as a means of determining actual animal populations or dietary habits. However, there are problems with all forms of faunal assessment, which can affect the outcome of a faunal study (Lyman 2008: 78). Since NISP is a fundamental and absolute measurement of bone elements, and due to the fact that most of the sites concerned within this review do give some form of NISP, this method of assessment has been chosen as the primary form of measuring faunal abundance at these sites within the Early Bronze Age period, see section 2.5.1. The material for this project was separated into seven specific faunal groups, which include *Bos taurus*, *Capra/Ovis*, *Capra hircus*, *Ovis aries*, *Sus scrofa*, wild taxa, and other domesticated taxa, see table 2.4 for example. Although the main species under investigation is cattle, the other faunal groups were

selected as a means of comparison between other wild and domesticated species.

Table 6.3 shows the complete faunal sample from the seven selected sites within Anatolia and Mesopotamia, comparing the three regions on a species by species basis. Working from the bottom up, we see that the category of other domesticated species has a fair amount of variation with no real pattern emerging. Southern Mesopotamia has the smallest total with an NISP of 86, and Northern Mesopotamia is by far the largest with a total of 12,424 identified specimens. As with all of the Southern Mesopotamian sample, the majority of the sample comes from the site of Abu Salabikh with only a small portion of the sample being discovered within the cemetery complex of Ur (Ramos Soldado 2016; Clark 1993). In the category of wild taxa, we find that the largest collection of wild species comes from the region of Northern Mesopotamia with 4,547 and the smallest from Anatolia with 789. As for the collection of *Sus scrofa* remains, it has been discovered that by far the smallest numbers come from the region of Anatolia, with only 123 identified specimens from the three sites. In Mesopotamia, there is a combined total of 1,696 specimens, which indicates that pig was consumed more in Mesopotamia than in Anatolia. For the category of sheep, by far the largest number of identified specimens comes from the region of Anatolia with 2,266 samples, and the combined Mesopotamian sample only shows 694 specimens with none of the Mesopotamian sample coming from the Southern part of the region. This same trend can be seen within the goat sample with Anatolia having 1,528 specimens and Mesopotamia having 381 individual samples. As with the last category, the entire Mesopotamian sample was unearthed in the Northern Mesopotamian region.

<i>Combined Faunal Remains from Multiregional Survey</i>					
Taxon	Common Name	NISP	MIN	Region	Percentage %
<i>Bos taurus</i>	Cattle	3500	49	Anatolia	75.86
<i>Bos taurus</i>	Cattle	991	0	N. Mesopotamia	21.48
<i>Bos taurus</i>	Cattle	123	25	S. Mesopotamia	2.67
Total		4614			100
<i>Capra/Ovis</i>	Goat/Sheep	1779	85	Anatolia	23.86
<i>Capra/Ovis</i>	Goat/Sheep	4682	0	N. Mesopotamia	62.80
<i>Capra/Ovis</i>	Goat/Sheep	994	36	S. Mesopotamia	13.33
Total		7455			100
<i>Capra hircus</i>	Goat	1528	14	Anatolia	80.04
<i>Capra hircus</i>	Goat	381	0	N. Mesopotamia	19.96
<i>Capra hircus</i>	Goat	0	0	S. Mesopotamia	0
Total		1909			100
<i>Ovis aries</i>	Sheep	2266	36	Anatolia	76.55
<i>Ovis aries</i>	Sheep	694	0	N. Mesopotamia	23.45
<i>Ovis aries</i>	Sheep	0	0	S. Mesopotamia	0
Total		2960			100
<i>Sus scrofa</i>	Pig	123	2	Anatolia	6.76
<i>Sus scrofa</i>	Pig	663	0	N. Mesopotamia	36.45
<i>Sus scrofa</i>	Pig	1033	42	S. Mesopotamia	56.79
Total		1819			100
<i>Wild Taxa</i>	Various	789	32	Anatolia	N/A
<i>Wild Taxa</i>	Various	4547	0	N. Mesopotamia	N/A
<i>Wild Taxa</i>	Various	935	1	S. Mesopotamia	N/A
Total		6271			N/A
<i>Other</i>	Other	1973	6	Anatolia	N/A
<i>Other</i>	Other	12424	0	N. Mesopotamia	N/A
<i>Other</i>	Other	86	28	S. Mesopotamia	N/A
Total		14483			N/A

Table 6.3: Regional faunal assemblages from Anatolia, Northern Mesopotamia, and Southern Mesopotamia showing NISP, MNI, and NISP percentages of cattle, goat, sheep, and pig for each region

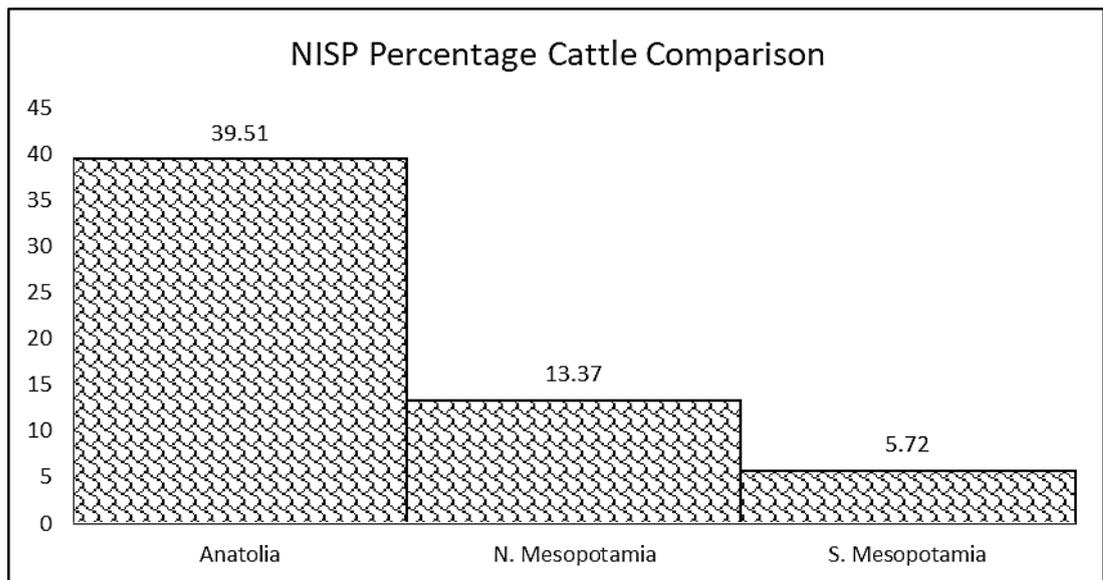
The categories of sheep and goat may indicate that herding practices in Mesopotamia were not as reliant on these species as in Anatolia. This may also suggest that populations of humans in the south may have produced more in the way of agricultural crops than those individuals living in Anatolia. In Northern Mesopotamia, we know that agricultural production was widely practised due to moister environmental conditions in the early third millennium and that the land use surrounding the highly populated Khabur

Basin was likely oriented towards the production of cereals rather than domesticated stock (Zeder 1998: 62). Because of this agricultural intensification, one can conclude that animal stock may not have been as necessary as it was in areas with less agricultural production. The category of *Capra/Ovis* is more of what one would expect from sheep and goat remains at any Southwest Asian region, with larger numbers. From Anatolia, we can see that there is a total of 1,779 individual remains identified as being either sheep or goat. The Mesopotamian sheep/goat sample, however, is significantly larger with a total 5,676 specimens. This sample size is likely the reason why the positively identified sheep category within Mesopotamia is so small and why there are no positively identified goat remains. It is interesting that such large numbers of these two species were not able to be positively identified, which may be due to the individuals responsible for identifying the faunal assemblages at the Mesopotamian sites or the fragmentation and difficulty in identifying these particular species.

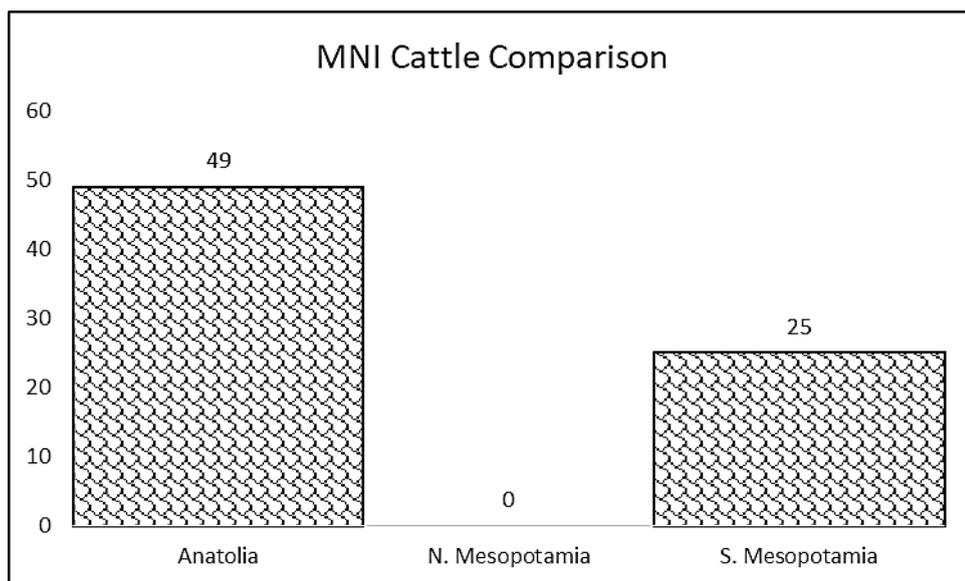
The final category, that of the cattle remains, is rather strange indeed. We can see that the smallest number comes from the region of Mesopotamia, with a total of 1,114; only 123 of these samples come from the Southern Mesopotamian region. Anatolia has the largest numbers of cattle remains with a total of 3,500 individual specimens. What is unusual about these results is that in Anatolia, we have smaller numbers of material culture representing cattle, but there is quite a large number of faunal remains from the animal. In the Mesopotamian region where there is an abundance of material culture representing cattle, we find the smaller number of actual animal remains. Although it is unclear why I have discovered this correlation in cattle remains, one may suggest that this is partially due to the environmental conditions surrounding each site as well as varying factors in excavation strategies. One may also argue that the cattle iconography was more abundant in Mesopotamia because the actual animal may have been scarcer within this region. If we turn our attention to the (graph 6.2), we can see the NISP percentages of cattle remains side

by side. It is clear that there is an abundance of cattle in Anatolia, and the numbers drop considerably as one moves south. This may also be due to the fact that in the region of Southern Mesopotamia, we get no possible dietary indications from the site of Ur since all of the faunal material from that site comes from funerary contexts, possibly from funerary feasting or provisioning the dead (Ramos Soldado 2016; Zettler 1998a).

Although this research has yet to locate any studies that encounter similar results, one can see that agriculture was more intensified in Northern and Southern Mesopotamia, likely due to larger centralized populations, and that the main purpose for cattle was as labour (Widell 2013; Johannsen 2011; Postgate 1992). Rain-fed agriculture is not as productive as irrigation agriculture, with larger portions of land needing to be cultivated, leading to less grazable land for herding (McMahon 2013a; Wilkinson 1994). With an increase in agricultural production, it appears that we see a marked decrease in cattle numbers, since one animal can manage a sizable area of land; however, since cattle were so important with respect to labour as well as religion, it may account for the prolific use of the animal in the iconographic repertoire of Mesopotamia. (Graph 6.3) illustrates the comparison of MNI numbers from the three regions. Again, the largest numbers come from Anatolia, with a total of 49 individual animals, followed by Southern Mesopotamia with 25 animals, and Northern Mesopotamia with an MNI of 0. Again, it must be stressed that not all of the sites selected for this project considered MNI numbers when examining the faunal assemblages; this is merely what this research has discovered from faunal and site reports.



Graph 6.2: Comparison of cattle remains from Anatolia, Northern Mesopotamia, and Southern Mesopotamia using the available NISP percentages



Graph 6.3: Comparison of cattle remains from Anatolia, Northern Mesopotamia, and Southern Mesopotamia using the available MNI numbers

6.5. Discussion

The material presented here, found in the form of material culture and faunal assemblages from the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia, all show that the interrelationships between humans and cattle were complex and well developed by the time of the Early Bronze Age. Although it is unclear as to the extent of these interrelationships, since it is impossible to develop an exact result

from the material available, it is clear that this particular animal held a strong place within the iconographic and economic aspects of Southwest Asian society. Based on the material culture the majority of items relating to or representing cattle from the seven sites selected for this project all come from religious or administrative areas of these sites. There are, however, a few examples that were located within household contexts or other public areas, such as a public plaza. In Anatolia, the bulk of the material culture comes from the site of Alaca Höyük with a few other items, mostly clay objects, coming from the other selected sites. One aspect of the other Anatolian sites that must be discussed is the fact that excavation techniques at the sites of Titriş Höyük and Sos Höyük were rather different than those carried out at Alaca Höyük. The focus of excavation at Alaca Höyük in the past was on the cemetery and public areas of the site, which could account for the skewed material representation, while the excavations at the other two sites were rather different. At Titriş Höyük, the focus of excavation was on the neighbourhood areas of the site to gain a better understanding of everyday life within this period, with the administrative and religious areas being left for future excavations (Matney and Algaze 1995). At the site of Sos Höyük, again, excavations took place in areas of the site identified as neighbourhoods or private areas due to the fact that a portion of the site is currently covered by modern construction (Howell-Meurs 2001). Since few or no burials, public areas, or religious buildings were excavated at Titriş Höyük and Sos Höyük, this could likely account for the lack of material culture from these sites.

With respect to the faunal assemblages from the Anatolian sites, the situation is quite the opposite, with Alaca Höyük having no studies of faunal remains while the other sites possess large and well-documented assemblages. Although there are faunal remains from Alaca Höyük, we are just made aware of the relative numbers of a few species and are given no indication of where they were discovered (Koşay 1951). This dichotomy in material is one of the reasons why these sites are important for this research since they

show how varied excavation strategies affect the material discovered and the relationship between the presence of cattle imagery and the areas in which it is found.

In Northern Mesopotamia at the sites of Tell Brak and Tell Beydar, nearly all of the material culture relating to cattle comes from the religious, administrative, and public areas of these two sites. There are a few items that were discovered in household areas of Tell Brak, and at Tell Beydar, there were some items found within burials located at the site's acropolis in the temple area. Since there are few items found within household or neighbourhood contexts, one can suggest that those items that represent or relate to cattle also relate to administrative or religious practices since these are the areas where such objects are typically found.

As for the faunal assemblages from these sites, the material is more widely dispersed. Although the majority of physical cattle remains do come from the same areas where we find the largest numbers of artefacts relating to cattle, there are instances where cattle remains are located near household or neighbourhood areas as well, see section 4.3.2. It should be noted that the numbers of such remains are not nearly as high in these areas, however. As for other animal species, we do get larger numbers of ovicaprine remains within administrative and religious contexts, which can outnumber those of cattle remains; however, there are also quite large numbers of ovicaprine remains discovered in other areas of the sites as well. If we combine the material and faunal evidence from the two Northern Mesopotamian sites, we can see that the presence of cattle, both physically and iconographically, is centred within areas connected with individuals of higher status, which indicates that this animal was associated more with these groups than private or familial groups.

In the region of Southern Mesopotamia, the sites chosen were Abu Salabikh and Ur, and this region is also, where we find the largest numbers of material culture relating to or representing cattle within this project, most of which come from the site of Ur. The

Early Bronze Age environments around the two sites were drastically different from their current state, with the sites once resting in or near marshlands and the site of Ur being located at the ancient head of the Persian Gulf, see sections 5.2 and 5.3 (Crawford 2015; Postgate 1992). In opposition to Northern Mesopotamia, irrigation agriculture was employed more in Southern Mesopotamia, which produced higher yields on smaller tracts of agricultural land, and along with the utilisation of the southern littoral landscape, there does not seem to be the same need for herding animals as in the north (Widell 2013; Pournelle 2007). Abu Salabikh is an interesting site, not only because it is the only site within this project that is constructed of four separate mounds, but also because the majority of both material culture and faunal remains come from the same area of the site. The area known as the Ash Tip is located at the southern edge of the Main Mound, and this is where nearly all of the material for this project was discovered. Although other areas of the site were excavated as well, nearly all of those items representing cattle come from the Ash Tip area, as well as the only existing information on faunal remains for the site. Since this area is located directly adjacent to what has been suggested as an administrative and religious sector of the ancient city, it is suggested that this deposit comes from that area as well (Green 1993). Based on the results from other Mesopotamian sites of the same age, since this area holds the largest numbers of physical cattle remains as well as the largest number of artefacts relating to the animal, I can, with some confidence, say that this is the administrative and religious centre of this particular site.

As for the much larger site of Ur, the only material available relating to the period of the Early Bronze Age comes from the excavations of the site's famous cemetery complex. As stated before, this is very similar to the Anatolian site of Alaca Höyük in that all of the available material comes from a burial complex, and there is no indication of material from other areas of the site within the same period. However, this material gives us some very useful information as to the interrelationships between humans and cattle at

this site. We know that all of the material culture relates to individuals of high status, and based on the large numbers of seals discovered, this may have included administrative individuals as well. Because cattle are so highly represented within this collection of artefacts, I can conclude that, as in other Mesopotamian sites from this period, cattle were highly favoured compared to other domesticated stock in terms of iconography and were nearly always associated with religious, administrative, and high-ranking individuals.

6.6. Conclusions

This chapter has discussed the material culture and faunal assemblages from the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia and how this material varies, depending on location. This section has also discussed several of the more significant artefacts from the seven selected archaeological sites, how they compare to similar items from other selected sites, and how these items relate to similar objects from sites not represented within the parameters of the current project. Comparisons have been made between the material culture from Northern and Southern Mesopotamia to better understand how these items relate to the communities from which they came and what these items may indicate about the interrelationships between humans and their cattle during this period. We also have compared the material from the region of Anatolia to that of the combined Mesopotamian region and have discussed the results of this comparison. Although Anatolia does not have a large collection of artefacts representing or relating to cattle, these items do give a good indication of iconographic and material preferences. As for the faunal evidence from this region, those remains that have been positively identified as being cattle are rather large at each of the three sites, which suggests that the interrelationships between humans and the animal were strong throughout the period of the Early Bronze Age.

As for the region of Northern Mesopotamia, it has been discovered that the vast majority of material culture relating to cattle comes from religious, administrative, and

burial contexts. It has also been revealed that the unusual resting cattle horns that can be found on an array of artefacts from this region convey divinity, authority, and power. These elements are found not only on representations of deities or half-human, half-bull entities but also on representations of cattle, which indicates that this particular species was identified with more than economic practices. This same element can be found not only in Northern Mesopotamia but in the south as well, and there are a number of objects from the site of Ur that display the same resting horns, which signifies that interactions and beliefs associated with cattle were similar throughout the entire region. As for the faunal assemblages from Northern Mesopotamia, it has been found that the largest numbers of positively identified cattle remains come from religious and administrative contexts, which indicates that these particular remains may represent sacrificial offerings or communal dietary practices. This same trend can also be seen in the Southern Mesopotamian region where all of the identified cattle remains come from nearly identical contexts, with the exception of remains from the Ur burials.

Although the material culture and faunal assemblages suggest slightly varied interrelationships between humans and cattle amongst the regions of Anatolia and Mesopotamia, it is clear that the animal's interactions with humans had a major influence on the cultures of the two regions. It has been discovered that the relationships between cattle and humans is similar in both of the selected Mesopotamian regions and that these interactions played a part in economic, religious, and social life. Though the representations of cattle and the numbers and variety of material culture representing or relating to the animal are different within the region of Anatolia, we must take into account the excavation practices to possibly account for the variability in artefact numbers. If we compare the burials at the Anatolian site of Alaca Höyük and the Mesopotamian site of Ur, we find very similar circumstances. Both cemetery complexes contain elite burials; both housed the most ornate artefacts discovered through this research; the majority of items

from both complexes represent cattle, and similar faunal elements from cattle were excavated from each of these complexes. This indicates that even though there are differences between material culture and faunal representation of cattle between the regions, the interrelationships between humans and cattle may be analogous to one another within the Early Bronze Age.

Chapter Seven

Conclusions and Pathways for Future Research

7.1. Introduction

In this final chapter, I will examine the findings from this research on the interrelationships between humans and cattle in Southwest Asia within the timeframe of the Early Bronze Age. This topic was chosen because of the lack of information and investigation relating to the relationships between humans and cattle within the Bronze Age. The topic is significant due to the fact there are no in-depth studies that examine both the material culture and faunal assemblages from multiple sites and multiple regions within a single period of time. There have been multiple studies of the relationships between humans and animals, with a few that cover the subject of cattle; however, they typically just examine artefacts (McInerney 2010; Sharpes 2006; Rice 1998). In the work produced by McInerney (2010), the focus is on the specific geographic and cultural region of Greece where artefacts and texts are the main focus with a small amount of information regarding animal remains, which aided in the development of the methodology for this project. The works by Sharpes (2006) and Rice (1998) also examine artefacts with Rice focusing on archaeological perspectives, Sharpes examining more ethnographic properties, and both covering large geographical areas. This aim in this research was produced to examine the variety of roles and ways, both economically and socially, that cattle transformed human behaviour in terms of agriculture, social power, ideology, and ritual, as well as other social issues, and how environmental and human management practices affected cattle welfare, see sections 1.6-1.8. I will also discuss the initial aims and objectives set out at the start of the thesis and how they were addressed through this research. Next, there will be an examination of the research questions and how they were addressed. Subsequently, there will be a brief discussion of the results from this research and how they add to previous research undertaken relating to cattle in the Early Bronze Age period of the selected

regions. This section will also re-examine why the seven selected sites were chosen, how they were chosen, and how variable excavation practices may have affected the results from these sites. Lastly, this chapter will conclude with a discussion of major findings and pathways for future research within this field of work.

7.2. Aims and Objectives

Previous research into the subject of cattle and human interrelationships has had a major focus on either the material culture and representations of cattle or on the faunal remains from one or a few selected sites, with very little of the research addressing both the material culture and faunal assemblages in an integrated manner. There is also no prior work that compares the results between two or more regions, which would enable a comparative analysis. Another reason this subject was chosen was due to the fact that previous research does not address the interrelationships between humans and cattle in sufficient detail. The main objective of my research is to produce a comprehensive review of human and cattle interrelationships by examining both material culture and faunal remains between two distinct regions within Southwest Asia. Other objectives include analysis of the role of cattle in agricultural intensification and state formation and, equally important, to examine the role of imagery and religion and its associations with power and social status. Studying this region is particularly important due to the fact that this is where we find some of the earliest signs of animal domestication and urban settlement patterns. Exploring the topic in this context provides valuable information into how cattle affected the development of human behaviour at such an early stage. Three additional aims and objectives set out at the beginning of the project include:

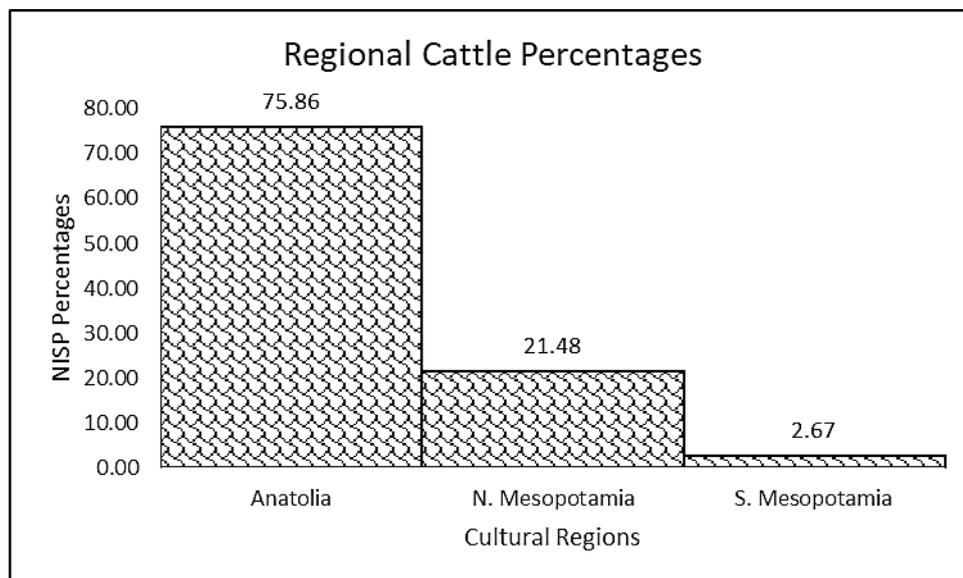
1. To identify areas where the selected material culture is most abundant;
2. To determine economic and social impacts based on faunal remains and their contexts;
3. To learn in what way or ways human and cattle populations interacted with each

other and transformed each other's behaviours within the period focus of this project.

The Early Bronze Age is an important period to study because this is when we find a rapid expansion of urban living and the widespread intensification of agricultural practices, including the increased use of the seeder plough, which, thanks to bovine labour, greatly increased crop yield and productivity and thus allowed for the development and spread of urbanization (Postgate 1992; Pollock 1999). These aims and objectives were set out in order to investigate these complex interrelationships and determine the nature and extent of these relationships.

As stated before, it has been discovered that the areas of the selected archaeological sites where material culture depicting or relating to cattle is most abundant are somewhat variable; however, areas associated with administrative and religious practices at these sites are usually where the largest numbers of objects are found. The Mesopotamian sites of Tell Brak, Tell Beydar, and Abu Salabikh all follow this trend with the largest numbers of objects coming from religious and administrative contexts in the central areas of each ancient city, see table 2.3. These three sites also appear to have applied good excavation practices and samples of all available material from multiple areas of the site, and all have well-documented reports on both the material culture and faunal material. Tell Beydar, Tell Brak, and Abu Salabikh also have secondary data available from paleoenvironmental studies, which aided greatly in the understanding of cattle herding practices relating to the sites. The Anatolian sites of Titriş Höyük and Sos Höyük are different in that the two sites are relatively lacking in terms of relevant material culture. Moreover, the contexts of the items from these two sites are different from the other sites in that they come from household and neighbourhood contexts. At Titriş, the recovery strategy was to focus on residential areas, and at Sos, the levels dating to the Early Bronze Age were only associated with household contexts. Although I do not have information relating to the central portions of these sites, the material collected gives us a good indication of non-elite

individuals and their relationship to cattle. As for the Anatolian site of Alaca Höyük and the Southern Mesopotamian site of Ur, nearly all of the available material culture comes from funerary contexts. This result is due to the early dates of initial excavations at each site. The focus of such early excavations was to discover the treasures of the past, with little interest in the aspects of daily life, which is why there is a lack of faunal remains. Although the material we do have from Ur and Alaca gives us a good indication of the relationships between iconography and social status, we know very little regarding the economic importance of cattle other than their documented use as a source of labour. What is interesting about this is that the cemetery areas at both sites are associated with individuals of higher status and are commonly referred to as “royal” burials, and these cemetery areas are both located within the central areas of each site near to where the religious and administrative centres of each city were focused in later periods.



Graph 7.1: Cattle NISP percentages from the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia

The faunal remains from the seven sites have provided much useful information to help in addressing the economic and social impacts of cattle within the Early Bronze Age in Anatolia and Mesopotamia. Based on the information analysed, we can see that cattle remains from Anatolia have higher representations than those from both Northern and

Southern Mesopotamia by a considerable margin. 75.86 per cent of the entire cattle assemblage comes from the Anatolian region with 21.48 per cent coming from Northern Mesopotamia, and 2.67 per cent coming from Southern Mesopotamia, (graph 7.1). This indicates that the animal played a larger role within the economic sector of Anatolian society, which is quite remarkable when we consider the small percentages of material culture relating to cattle within the region. The situation is almost opposite in the Mesopotamian regions where we find that the cattle assemblage is only 24.15 per cent of the combined total. However, the material culture discovered at the four Mesopotamian sites is extensive compared to that from Anatolia. Although I initially sought to investigate the faunal remains in more taphonomic detail, such as indications of butchery and cooking or relative age at death or sex of a specimen, when examining these assemblages to determine the extent to which the animal was utilised within society, I was unable to do so due to the lack of material availability and published taphonomic records relating to the assemblages under investigation. However, based on the information that was available, it has been determined that cattle were utilised for both economic and religious purposes at nearly all sites selected for this project. Based on the context of these remains, the majority of Mesopotamian cattle remains discovered within religious and, to a lesser extent, administrative contexts whereas in Anatolia, the majority of remains relate to economic and household contexts.

As for the aim of learning in what way or ways human and cattle populations transformed each other's behaviours within the Early Bronze Age, it has been discovered that they have transformed social behaviours in a number of ways. The animal was influential in the social and economic sectors of life, and the iconographic representations of cattle appear to be associated with religious activities and social differentiation, see section 1.7. Although it is still unclear as to the extent humans altered the behavioural patterns of cattle, we can see that the animal was highly utilised economically in Anatolia,

indicating that these animals were herded not only for their meat, traction, and breeding but also for other secondary products, such as milk, ghee, and dung. The environs of the selected sites also indicate how humans changed the behaviours of cattle to suit specific needs or herding practices, see section 1.6 (Phillips 2002). In the Mesopotamian regions, it seems that the primary iconographic use of the animal was for religious and economic practices. Since the majority of cattle remains from Mesopotamia come from religious contexts, one could suggest that another common use for the animal was sacrifice as well as feasting; however, according to other sources, the primary use of the animal was for traction purposes (Johannsen 2011; Postgate 1992). This discrepancy is rather strange because, if traction was the main purpose for keeping cattle stock in Mesopotamia, we would expect to discover larger proportions of the animal in areas other than the central portion of the city. Variable excavation practice may account for this result; however, it remains unclear as to why this difference has been discovered. The use of multi and interdisciplinary approaches, especially anthropological, ethnographic, and environmental studies, may be able to shed some light on discrepancies within the archaeological record and tell us what relatable cultures and similar environments suggest, which may fill in gaps of missing information and give us a better understanding of the ancient world.

As for how the animal transformed human behaviours, it has been proposed that the animal had a larger influence on humans than vice versa. In Anatolia, even though it is unclear as to the exact social impacts that cattle had, we do find the remains of the animal within the cemetery area of Alaca Höyük. In fact, a large portion of cattle remains, approximately 962 individual specimens, roughly a third of the regional cattle assemblage, come from this cemetery area, which indicates that the animal was highly significant in burial practices at this point in time. In the Mesopotamian regions, it is clear that the animal held a large importance both in terms of religious and administrative practices based on the extensive collection of seals and impressions as well as items relating to

religious and burial practices. We can also see that cattle iconography had an impact on the religious beliefs of these individuals by the presence of deities displaying cattle horns, at times multiple sets of horns, as well as the inclusion of cattle representations within numerous burials at all four Mesopotamian sites. Based on these results, it has been determined that cattle greatly influenced the behaviours of these Early Bronze Age peoples not only economically but also, and perhaps more importantly, idealistically in terms of social practices and religious beliefs.

7.3. Research Questions

Concerning the interrelationships between humans and cattle within the Early Bronze Age in Southwest Asia, a number of questions were developed at the beginning of this research project to address such complex relationships and aid in our understanding of the subject. It was an intention of the main questions of this research to be addressed by examining both the material culture depicting or relating to cattle and the faunal assemblages from the regions to gain a more cohesive understanding of how humans and cattle interacted within this period. Two main questions were developed and addressed throughout the project, which includes:

1. Is there variability and similarity in the symbolic and cultic significance of cattle among these sites and regions, or does the symbolic nature of cattle change from site to site? And if so, how?
2. What is the nature of social and economic interrelationships between humans and cattle in the Early Bronze Age of Southwest Asia, in association with ritual, material culture, and agriculture, and how do they affect one another?

These questions allow us to consider such relationships between these two species within the timeframe of the Early Bronze Age and detect changes depending on site or regional preference. The purpose of examining material from multiple sites and two

regions was to establish if economic and cultural practices were similar throughout each region and to ascertain what, if any, practices may be isolated to a specific region or archaeological site. This comparison allows us to view possible changes in human and cattle behaviour throughout this period and across the regions. In addressing these questions, I expected to see some distinctive variability between economic and social practices in the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia, which were found. However, this research has also discovered several similarities between different sites and regions, which may indicate a common social need to interact with cattle. In Anatolia, it was discovered that due to larger proportions of animal remains, cattle had a more influential economic aspect and likely played an important role in the procurement of secondary products, especially milk products (Cakirlar 2012; Evershed *et al.* 2008; Howell-Meurs 2001). We also know that cattle had an impact on social and religious practices, but it does seem that the actual animal is seemingly more important than the iconography associated with it.

The influence of the animal in Mesopotamia is different in that we find smaller proportions of cattle remains, indicating a possible decrease in economic importance. The social impacts of the animal, however, are quite different with large collections of artefacts depicting or relating to cattle and a marked increase in the religious, social, and cultic associations with the animal (Kawami 2014; Harmanşah 2013; Breniquet 2002; Scurlock 2002). The role of milk and milk products in Mesopotamia was also different because milk had religious connotations and was often utilised as offerings to deities and the dead (McCormick 2012; Katz 2007; Winter 1999). Although religious and social practices are altered in a variety of ways through environmental and economic constraints, we can see that cattle were utilised at all of the seven selected sites in some form within this project, which indicates that this animal may have been highly prized over other domesticated or wild stock based on the abundance of cattle representations compared to the presence of

other animal representations.

To address the first question concerning variability and similarity in symbolic and cultic significance of cattle, it has been established that there is a sense of continuity among several sites within the project; however, there are several changes as well. In the region of Anatolia, the material culture seems to change depending on the sites. At the site of Sos Höyük, the material culture representing cattle is rather small, consisting of only seven clay bovine figurines, all of which are similar in form and construction. All of these items come from household and, to a lesser extent, public contexts, see section 3.4.3. This suggests that the clay figurines likely had a use that did not relate to religious practices, or related to personal or small group practices, see section 2.4.4. The material from Titriş Höyük is quite small with only two items; however, these items are in two separate material categories, and, like the material from Sos Höyük, relates to household and neighbourhood contexts, see section 3.3.3. This fact is due to the excavation practices centring on such contexts; still, within the burials located near the site, there were no representations of cattle to be found either (Laneri 2007). At the site of Alaca Höyük, the material culture assemblage is significantly larger with 23 objects placed within three separate groups. Almost all of the material, including faunal remains, come from the context of the cemetery area, see section 3.2.3. Again, this is due to the excavation practices of the 1930s. For the combined region of Mesopotamia, the material culture numbers are considerably larger than at any site in Anatolia. Moreover, the material culture throughout the Northern and Southern Mesopotamian regions is analogous in terms of artistic style and material category representation. The only visible changes between Mesopotamian objects come in the form of artistic skill with a few objects constructed more skillfully than others.

It has been suggested that in Anatolia there seems to be more change in the symbolic and cultic significance of cattle between sites with the site of Alaca Höyük

seemingly displaying more symbolic importance to the animal than the other sites. In the region of Northern Mesopotamia, the symbolic and cultic significance of the animal is nearly identical between the sites of Tell Brak and Tell Beydar. Although Tell Brak has larger numbers of items representing cattle as well as a most unusual bovine statue, the context of the items from both sites suggests that iconographic significance is comparable at both sites. The context of Tell Beydar is centred on the acropolis of the site and comes from a number of temple and administrative buildings, with the burials being located beneath these areas, see sections 4.2.3 and 4.2.4. Tell Brak is more unusual, in that, we have artefacts and faunal remains coming from multiple contexts, see sections 4.3.3 and 4.3.4. The majority of material, however, does come from public and administrative contexts, with some relating to palatial and religious contexts as well.

As for the region of Southern Mesopotamia, there appears to be more variation between the sites of Abu Salabikh and Ur. At the site of Abu Salabikh, the numbers of material culture are significantly smaller than those from the site of Ur, with 15 items from Abu Salabikh and 152 from the site of Ur. Additionally, the material from the two Southern sites comes from different contexts. At Abu Salabikh, nearly all of the material comes from contexts similar to those from the Northern Mesopotamian sites whereas, at the site of Ur, the material comes from a burial context, like the material from the Anatolian site of Alaca Höyük. For Abu Salabikh, these contexts include the possible refuse from a temple and administrative centre as well as from burials located on the Main Mound and beneath the Ash Tip deposit, see sections 5.2.3 and 5.2.4. The material for the much larger site of Ur comes from a single context, that of the cemetery area, located to the south and east of the city's acropolis and very near to a temple complex, see section 5.3.3 (Zettler 1998c). From an examination of the material available from the seven selected archaeological sites, it can be said that there are both variations and similarities in the material culture from these sites, variations in the fact that several of the selected sites

have seemingly placed less significance on the representations of cattle, and similarities in that a number of sites have surprisingly similar significance placed on these items. In general, it has been discovered that at all of the sites within this review, cattle hold a place within the symbolic and cultic practices of each site and region; however, the significance placed on these practices is variable, depending on location.

Concentrating on the second question on the nature of social and economic interrelationships between humans and cattle, it has been established that the animal fulfilled several roles for the human populations within the Early Bronze Age period in Southwestern Asia. In the Anatolian region, especially at the sites of Titriş Höyük and Sos Höyük, cattle appear to have had a greater impact on the economic sectors of society as opposed to social practices. Although economic interrelationships do affect social interactions, it seems that at these two sites, the animal was utilised more for primary and secondary products than for social customs such as worship or sacrifice. At the Anatolian site of Alaca Höyük in the western portion of the survey area, the interrelationship seems to differ from those found further east. At this particular site, we find that cattle may have been more important in the social aspects of religious life than they were in terms of economic stability, or at least that is what can be gleaned from the material studied. According to the faunal data gathered for this review, it has been determined that cattle were highly valuable to the Early Bronze Age economy of this region. Not only did these animals provide primary and secondary products, they also gave much wealth and power to those areas that held larger populations of cattle stock. This wealth was possibly coming in the form of larger crop yields, from the animal labour, and products derived from the animal. Based on this information, it can be suggested that elites or individual families who owned cattle stock must have held more influence over the settlements than those that held other stock animals, such as sheep and goat, due to the large numbers of faunal remains, the presence of cattle remains, and the objects unearthed within burials from the sites

selected for this project.

As for the region of Northern Mesopotamia, it has been discovered that even though the cattle assemblages are considerably variable in terms of size, there are some strong similarities between the two sites of Tell Brak and Tell Beydar. Compared to the cattle assemblages from Anatolia, which are all relatively alike, those from Northern Mesopotamia vary in size, which is likely due to the relative size and populations of the two sites. Although the numbers are not similar, the majority of cattle remains come from similar religious and administrative contexts, which suggests that this animal was utilised in similar ways at both locations. This may imply that the same social importance was allocated to the animal at both of the selected sites. Since there are few cattle remains that come from contexts other than those previously stated, it may be suggested that the animal was considerably more important socially than it was economically, at least at these particular sites. When investigating the region of Southern Mesopotamia, there have been several similarities and differences discovered between the sites of Abu Salabikh and Ur. For example, the faunal assemblages are radically different in size and composition, due to a lack of faunal remains from Ur. The contexts of each site are similar and relate to religious practices with the only discernible difference being that the material from Abu Salabikh also includes administrative contexts. Although it is unclear exactly how the presence of cattle altered social and economic life, due to a lack of information from Ur, it can be said with some confidence that the animal was highly valued and played a distinctive role within religious and cultic practices during the Early Bronze Age, as attested in the Royal Cemetery at Ur.

7.4. General Results and Contributions to the Research Field

In terms of general results, it has been established that the interrelationships between humans and cattle in Southwest Asia during the Early Bronze Age are much more complex than initially believed. Cattle in general became associated with wealth as herds

grew and the animal affected social, economic, and political life (Fagan 2016: 79). Products produced by cattle, such as milk, could be generated year after year, which provided a powerful bond between humans and cattle not only in the Early Bronze Age but also in other periods of history and up to the present day, though perhaps to a lesser extent in modern times. The animal also helped to transform agricultural management through the use of its labour, see section 1.8. Additionally, it has been observed through contemporary texts and archaeological investigation that religious institutions and city administrators owned much of the agricultural land, especially in Southern Mesopotamia, and owned the cattle used for ploughing as well (Ur 2012; Postgate 1992: 80). Although it is unknown if religious or public institutions were the primary owners of cattle throughout Northern and Southern Mesopotamia, it is a rather intriguing concept, which deserves further research. The use of milking is yet another aspect of cattle management that warrants further inquiry. The use of milk is an important factor in the size of a herd as well as in herding and culling practices (Dahl and Hjort 1976). Milk and milk products were also important in daily life, for use in religious and cultic practices, and in association with the Sumerian deity *Ninhursaĝa*, see section 1.7 (Kawami 2014: 226; McCormick 2012).

Interestingly, unlike most other domesticated species, cattle gender qualities became associated and compared with human gender qualities. Cows became symbols of life, renewal, stability, abundance, and nurturing and loving mothers. Bulls, on the other hand, were associated with masculine power, ferocity, fertility, power, virility, control, and strength, and like cows were also symbols of abundance (Fagan 2016; Arbuckle 2014; Rice 1998; Sharpes 2006; Velten 2007). These attributes all overlap with modern notions of feminine and masculine properties, which may be one reason for their importance in social, cultic, and religious life. Throughout this research, it has been revealed that cattle not only helped shape ancient economic life by providing much-needed labour and products in a very labour intensive society; they also transformed religious, cultic, and social practices.

Since we cannot get a clear understanding of exactly how the animal was utilised within economic practices of Anatolia and Mesopotamia due to a lack of taphonomic information, we can assume that the animal was exploited for agricultural and transport labour as well as for breeding and consumable products. Based on archaeological and ethnozoarchaeological studies of animal exploitation and secondary product procurement, it has been confirmed that cattle were utilised for secondary products as well as employed as a major source of labour (Greenfield 2014; Kawami 2014; Johannsen 2011). I can also say that the animal was greatly utilised in religious, cultic, and burial practices based on the presence of large numbers of cattle remains discovered in areas related to religious practices as well as various burial complexes at the majority of archaeological sites selected for this project.

In terms of symbolic significance, it is quite clear that the animal largely influenced social and religious life. Based on the information gathered, it has been discovered that the vast majority of objects representing or relating to cattle are associated with religious and administrative, as well as burial and cultic practices. Iconographic representations of cattle are the most common motif found on seals and impressions within both regions, and design elements related to the animal, namely the animal horns, are found in the forms of jewellery, weaponry, cosmetic tools, and most importantly in association with various deities, although the use of a horned crown as a symbol of a specific deity is almost never consistent, see section 1.7 (Black and Green 1998: 102). There are two principal gods that are associated with cattle, the first being An, a creator god, who is almost always found with a horned crown, and the second is Nanna, whose animal is the bull (Black and Green 1998: 135). From the information presented, I can say that human and cattle interrelationships played a substantial part in the development of Early Bronze Age social and political life and that the animal may have affected human behaviour more deeply than previously believed.

As stated before, the majority of research relating to cattle in Southwest Asia and the Mediterranean region usually has a strong focus on the bull. This is argued to be due to the fact that much of the material culture relating to or representing cattle is usually centred on the bull as opposed to the cow (McInerney 2010; Rice 1998). One of the initial intentions of this project was to investigate representations of the cow as well as the bull. However, from the sites selected, there was only a single definite representation of a cow from the Northern Mesopotamian site of Tell Brak and a possible set of cow heads from the site of Ur, see chapters four and five. In the course of this research, I have learned that previous research on the subject is limited and discusses cattle in various perspectives (Rice 1998; McInerney 2010; Sharpes 2006; Velten 2007; Conrad 1959). All of these works focus on the material culture representing the animal with very few mentions of faunal remains and economic practices relating to cattle.

Three of the volumes, those by Conrad, Sharpes, and Velten, discuss cattle and their relation to wider cultural practices with some information on the female of the species, but they are not regionally specific or do not go into much detail regarding individual sites. In his work on the bull, Rice (1998) examines the animal in a cultural sense, investigating material from a number of Mediterranean cultural regions, including Anatolia and Mesopotamia, but much of the text discusses the early role of the bull at sites such as Catal Höyük. The focus of his research seems to be on the Mediterranean region, selecting material from a number of sites and completely excluding faunal investigations. The last major text by McInerney (2010) focuses on the role of cattle within ancient Greek society and goes into some detail as to the interrelationships between humans and cattle within this culture. Additionally, McInerney does include some information on faunal investigations, which was helpful in constructing the methodology for this project.

The only existing work that is relatively similar to this project is a recent study by Arbuckle (2014), who investigates the cattle culture of Bronze Age Anatolia. In his work,

he discusses the importance of cattle both socially and economically and considers material from several sites as well. As with my project, Arbuckle aligns his work to a single period. This research differs from previous work on the subject of cattle in that it includes not only material culture and faunal assemblages to come to a comparable conclusion, but also investigates all of the material representing or relating to cattle from each selected site and does not only include the more interesting objects. This project also includes material from large and small archaeological sites to determine if site size was a factor in the presence of cattle material. Another major difference between this research and other work on the subject is that this research investigates material from a single period, the Early Bronze Age, which is different from other work that includes material from numerous periods of time. Although other studies do include work comparing neighbouring cultural regions, again selecting objects to suit their purpose, they do not include faunal assemblages or discuss the material from a single period of time.

7.5. Examination of Site Selection and Variable Excavation Practices

The archaeological sites, as well as the three regions, were selected to increase our overall knowledge of the interrelationships between humans and cattle and to investigate and compare these relationships to determine any possible variations and in what respects these possibly occurred. The selected sites cover a vast geographic region with varied landscapes from the fertile river systems of North and South Mesopotamia to the pasturelands of Anatolia (Potts 1997; Roaf 1990; Wilkinson 2003). Paleoenvironmental conditions play an extremely important role in human and cattle welfare. The environs of each site were discussed within their respective sections, sections 3.2, 3.3, 3.4, 4.2, 4.3, 5.2, 5.3, and indicate that past conditions varied throughout Anatolia and especially in Mesopotamia. The proximity of Tell Beydar to Tell Brak allowed for an in-depth examination of two interconnected urban centres existing within a similar landscape during a single period. From paleoenvironmental studies and archaeological investigation, it was

discovered that Beydar was once the centre of a small collection of villages and settlements and itself was under control of the larger state of Nagar, Tell Brak (Sallaberger and Purß 2015; Eidem and Warburton 1996). The environments surrounding the sites were similar, aside from the fact that there was a greater distance between reliable water and Tell Beydar than there was for Tell Brak, which indicates that Beydar likely relied more on sheep and goat in comparison to cattle, see section 1.6 (Kouchoukos and Wilkinson 2007; Ur and Wilkinson 2008).

The initial intent of this research was to investigate and compare all regions of Southwest Asia, but due to the material available as well as the timeframe allotted for my research, the three regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia were chosen because of their proximity to one another. The archaeological sites selected for this project were chosen to determine how humans and cattle interacted with one another in a variety of environmental and social conditions, such as pastoral environments and relative urban sizes. As stated in chapter two on methodology, the seven sites were selected based on four properties:

1. The quality of material remains representing/relating to cattle.
2. The amount of faunal remains and amount of work relating to such assemblages.
3. The size of the site and environment in which it is located.
4. The location of the site within each region.

Although some of the selected sites do not include substantial numbers of either faunal remains or material culture, they are still good for studying human and cattle interactions under such conditions.

The first site to be discussed is the Anatolian site of Alaca Höyük, which is the westernmost site for the region. The main reasons why this site was selected was for the material found within the burial complex at the site, see section 3.2.1. Initially, I was unable to locate any information regarding faunal remains, but I was eventually able to do

so. Although there is no faunal information, aside from the basic NISP, this site was chosen primarily to investigate the iconographic importance of cattle within a funerary context. The next site of Titriş Höyük was chiefly selected based on the large faunal assemblage, which has been well studied in good detail, section 3.2.2, although the material culture from the site is rather small. Unlike most of the other sites selected for the project, Titriş is a single-phase site dating to the Early Bronze Age, which provides valuable information for the economic importance of cattle at this time. Sos Höyük is the easternmost site in Anatolia and, like Titriş Höyük, was primarily selected for its large and well-studied faunal assemblage, see section 3.4.2.

In the Northern Mesopotamian region, two sites were selected, based not only on their locations but also on the availability of material culture and faunal remains. The site of Tell Brak was chosen because it was a large urban centre, one of the earliest in the north. This site also has a large faunal assemblage as well as a large amount of material culture relating to cattle, sections 4.2.1 and 4.2.2. As for the smaller site of Tell Beydar, the site was selected due to its proximity to its larger neighbour, Tell Brak, as well as for its well-preserved faunal assemblage and the amount of material relating to or representing cattle, sections 4.3.1 and 4.3.2. Both sites give us a good indication of the interrelationships between humans and cattle in both large and small urban contexts. In Southern Mesopotamia, the aim again was to compare a smaller site to a larger one. The small site of Abu Salabikh was chosen based on its location, between the Tigris and Euphrates rivers, as well as for its collection of material and faunal remains. Although the material culture collection is small and the faunal information is not as well studied as at other sites, this information does provide valuable insight into human and animal interactions at the site, see sections 5.2.1 and 5.2.2. The much larger city of Ur was primarily chosen because of its extremely impressive cemetery complex, which has produced the largest collection of material culture representing cattle for this research,

section 5.3.1. Unfortunately, there is almost no information relating to faunal remains aside from that material that was excavated from the burials.

The excavation practices for each of the sites will have been a factor in the results of this research based on what sections of each site were chosen for investigation. The site of Titriş Höyük was excavated relatively recently, and the main areas of excavation were the neighbourhood sections of the site. Although this does provide information on the everyday and economic utilisation of cattle, we do not get any indication of how the animal impacted religious and administrative life, due to the fact that the acropolis of the site was left untouched. The situation at Sos Höyük is much the same, with the outer areas of the sites excavated. From the information gathered regarding excavation, there seems to be no indication of an acropolis or temple complex, but this may be due to the fact that only a portion of the site was excavated since the site is partially covered by a modern village. The site of Tell Beydar has a slightly better excavation record, with multiple areas of the site excavated, including the site's acropolis. Although we do have indications of neighbourhood areas, there is was not much found relating to cattle within these contexts. At Abu Salabikh, the site is made of four mounds. Although one of the mounds primarily dates to the earlier Uruk period, the other mounds can be dated to the Early Bronze Age. Several areas of the site were excavated, and like at Tell Beydar, these outer areas did not produce much in the way of material relating to cattle. The area of the site with the most material, as well as the area most highly excavated, displays characteristics relating to religious and administrative contexts.

The site of Tell Brak is different from other sites in that there have been excavations in almost every area of the impressive site. Excavations have been carried out in areas identified as neighbourhoods, storage areas, palace complexes, and religious and administrative areas, which allows for a better overall impression of life at this northern cultural and economic centre. As for the sites of Alaca Höyük and Ur, the excavation

practices are quite different. Both of the sites and the material chiefly examined for this research were excavated in the 1920s and 1930s. Because of the early date of initial investigation, there is a very noticeable lack of faunal material, due to excavation strategies at the time, which were not interested in such remains. When examining the early excavation reports, the majority of faunal material was either discarded or largely ignored and only had short, single-page reports regarding the faunal assemblages (Woolley 1934: 409; Koşay 1951: 198). The primary focus for the early excavations at Alaca Höyük and Ur were on the areas identified as having the best and most impressive artefacts, namely the cemetery complexes. Because of this, the majority of work relating to these sites, both now and in the past, is focused on these areas. The variable excavation practices conducted at the seven selected archaeological sites played a part in the material culture and faunal assemblages available for study. Although information and results may be skewed due to situational excavation preferences, the information we have does give an indication of the interrelationships between humans and cattle within this period in Southwestern Asia.

7.6. Major Findings and Pathways for Future Research

Throughout this research, it has been discovered that the interrelationships between humans and cattle in the regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia are much more varied than it was initially believed. Interrelationships between the two species were affected by a number of variables including environmental and social contexts. In Anatolia, it has been determined that the animal held an important position within the economic sphere of society and was a highly valued source of labour, food, and wealth. This is based on the faunal assemblages from the three selected sites, see chapter three. Although it is unclear exactly how cattle were utilised within religious customs in the region of Anatolia, due to a lack of information from two of the three sites, we can clearly see that the animal was widely present within burial contexts both in terms of artefacts and the presence of animal remains at the site of Alaca Höyük. In fact, a large

portion of the region's cattle remains come from this cemetery complex. This indicates that the animal did hold a place within the religious practices of the region, even though the extent of this is unclear.

In the regions of Northern Mesopotamia and Southern Mesopotamia, it has been established that the animal seemingly held much more importance in terms of iconographic and religious value than in the region of Anatolia. This trend can be seen at all four sites with the majority of artefacts coming from religious as well as burial contexts, with the site of Tell Brak being the only site with no discernible excavated burial complex. Based on the faunal remains from each site, we can see that cattle were not economically utilised as much as they were in Anatolia; nevertheless, they were an indispensable source of agricultural labour. Interestingly the majority of cattle remains come from the same contexts as the majority of artefacts representing or relating to cattle. Moreover, we also find representations of deities as well as images of cattle and cattle hybrid creatures displaying unusual horned crowns, which, as discussed in a previous chapter, represent a form of divine power or authority. Since cattle remains are not as common in areas associated with households or neighbourhoods, I suggest that the animal may not have been as economically important in Mesopotamia as they were in Anatolia, and that it was valued more for its social implications than for its economic ones.

As for pathways for the future, research would benefit from the inclusion of additional archaeological sites and regions to gain a more in-depth understanding of the subject under investigation, such as investigations into the regions of Egypt, Arabia, or the Indus Valley (Sharpes 2006; Wengrow 2001; Rice 1998; Green 2003). I believe that the subject is worthy of further pursuit due to the fact that cattle have been held in high regard by humanity from at least the Neolithic, through the Bronze Age, and even up to today in some areas of the world. We can also view the importance of the animal in modern societies, i.e. the modern cattle cultures of Spain, Texas, India, Australia, Argentina, and

sub-Saharan Africa, as well as in ancient societies such as those investigated within this project. Even though there have been some studies of the relationships between humans and cattle found in both archaeological and anthropological literature, they are few and far between, and very few include investigations of both artefacts and faunal remains, which have proven to be a valuable addition to our understanding of economic and social practices within these areas of Southwest Asia. Even if we have never taken notice of it, cattle have shaped the lives of ancient and modern humans both economically and socially, perhaps more than any other domesticated animal.

Another perspective pathway for future research would be to conduct a more in-depth investigation of the religious significance of cattle not only in these regions but in other regions within Southwest Asia, such as in the Levant, the Indus Valley, and in better documented cultures such as Egypt. A similar examination may be produced by examining the fertility symbolism associated with cattle or a more detailed survey of cattle motifs on seals and impressions from a variety of sites. Another helpful addition would be to examine how cattle are referred to in Early Bronze Age texts. One could also research differences and similarities between more than three regions or the interrelationships between humans and cattle in older and more modern cultures. A detailed cattle iconography survey would also be useful in determining the social utilisation of the animal in one or several areas. More scientific investigations, such as dung identification from archaeological sites, cattle DNA analysis, and pXRF analysis of artefacts, can add valuable information to our understanding of how environmental conditions, population movement, and human management affected cattle (Forouzan *et al.* 2012; Shahack-Gross 2011; Edwards *et al.* 2003). One highly interesting project would be to investigate these relationships not only archaeologically but also anthropologically and compare ancient and modern perspectives. Another intriguing project would be to determine the relative importance of cattle in relation to other wild and domesticated species. There is a multitude

of varying future research opportunities to be discussed regarding the interrelationships between humans and cattle with the current project being a possible starting point for further investigation.

7.7. Conclusions and Final Thoughts

This research has explored the interrelationships between humans and cattle within the timeframe of the Early Bronze Age by comparing and contrasting the artefacts and faunal assemblages from seven sites in the geographical regions of Anatolia, Northern Mesopotamia, and Southern Mesopotamia. It has been discovered that cattle not only had a substantial influence on the economic and agricultural practices of the areas, seemingly more so in Anatolia, but also made significant impacts to the religious and social aspects of life. It may be suggested that cattle represent not only what frightens us about the world we live in, but also what we see as comfort and stability (Marciniak 2011: 35). From the material culture and faunal remains available from the three regions, we can see that there are a few similarities and differences between the regions. In the Anatolian region, cattle were highly represented in the faunal assemblages from the three selected sites, and the majority of these remains were unearthed within household and neighbourhood contexts, which indicates the animal was an important factor in economic and agricultural behaviours of this region. In comparison to this, the cattle assemblages from the four Mesopotamian sites included within this review are less impressive with considerably smaller numbers.

Household contexts in Southern Mesopotamia appear to be quite unusual, with the only discernable contexts coming from three burials located beneath households within area E of the Main Mound and one burial from the West Mound. These items, which include a copper pin, figure 5.17, and the clay dish, figures 5.18-5.20, are comparable with items found within burials at Tell Beydar; however, the burials at Beydar are from religious/public contexts. What this does tell us is that even if burials are not located within

comparable contexts, grave goods from the north and south are comparable, which may suggest a religious or cultic parallel. What is intriguing about these assemblages is that most of the cattle remains present at the Mesopotamian sites were discovered within religious and administrative contexts, indicating that the animal may have been more valuable socially than economically in these two regions.

As for the material culture from the three regions, it has been established that cattle are well represented within religious, administrative, and burial contexts at the majority of sites selected. Although the material from the region of Anatolia is small in terms of overall numbers, I argue that, based on the evidence from Alaca Höyük, the animal likely held an influential position in the religious and cultic beliefs of the region. In the regions of Northern Mesopotamia and Southern Mesopotamia, it is clear that cattle were highly influential within the religious, cultic, and administrative sectors of ancient society. The largest numbers of material culture and the most impressive artefacts representing the animal come from these contexts, and at the site of Ur, we find one of the most remarkable collections of items representing cattle from the ancient world. This prominence of cattle symbolism at Ur likely relates to the Sumerian deity Nanna, the patron god of the ancient city (Crawford 2015: 76). Nanna, the god of the moon, was symbolized by the recumbent crescent moon as well as the bull (Velten 2007; Black and Green 1998). In terms of politics and social relations, cattle did hold an important place within ideology and associations of power, especially with rulers, and also seem to have had an impact on social orientation and class separation, see section 1.7. (Harmanşah 2013; Winter 1996). As for the animal's impact on agricultural practices and the effect of humans on cattle, it has been discovered that cattle were so instrumental to humans that they can be found at sites that do not have environments particularly suitable for herding, and in later periods when environments became more arid, the drought-tolerant zebu species was utilised with more regularity, see section 1.6 (Matthews 2002; Zeuner 1963). Cattle also had an

enormous impact on the production of agriculture through the use of their labour, which increased not only the available land for cereal production but also increased the actual crop yield, section 1.8 (Johannsen 2011; Postgate 1992).

These results indicate that this particular animal was one, if not the most, prominent animal within the religious, social, and economic aspects of society. This result may be due to the symbolism associated with cattle and how the animal represents certain powers or behavioural aspects, which are attractive to humans and their belief systems. It may also be suggested that physical artistic representations of the animal, found in a variety of forms and materials, represent a physical symbol for an abstract set of beliefs, which can be found in a variety of comparisons of past and modern religious practices. The results of this research indicate that cattle not only held an important place within a variety of economic and agricultural practices, but also were highly utilised within the religious, social, and economic systems of humans within the Early Bronze Age of Southwest Asia.

Appendix I

Seals and Impressions from the Regions of North and South Mesopotamia

Seals and Impressions from Tell Beydar: Chapter 4

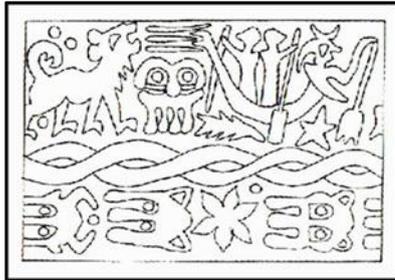


Figure 4.4: Seal reconstruction from field M found in remains of temple E. Reconstructed from several sealings 3.4 X 2.2 cm. (after Milano and Rova 2014: fig. 27. 9)

The upper register shows a lion figure to the left with a bearded head in front of the animal; on the right side, we find the depiction of a horned boat-god with his arms spread and holding a three-pronged oar. The lower register consists of three animal heads, two lions and one human-headed bull, along with a six-pointed rosette.

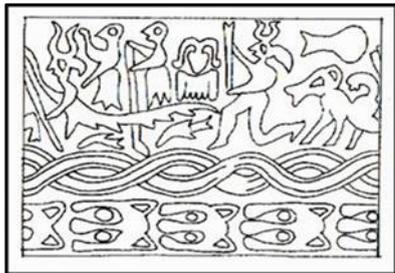


Figure 4.5: Seal reconstruction from temple E. Reconstructed from several sealings 3.5 X 2.5 cm. (after Milano and Rova 2014: fig. 27. 10)

This design shows a horned boat-god at the left with spread arms holding a pole. Atop the god figure are two human figures, one touching the boat-god on his horn and shoulder and another that seems to be steering with a pole. Beneath the boat-god are two fish, and behind the group is a kneeling horned god holding another pole with both hands. The lower register shows a series of lion heads

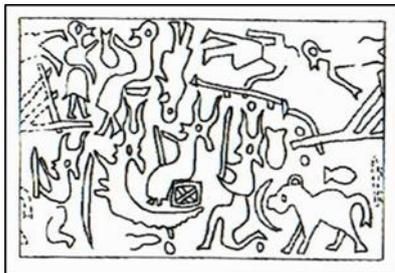


Figure 4.6: Seal reconstruction taken from several sealings found in fields M, B, F, & S 2.8 X 1.7 cm. (after Rova 2012: fig. 5. 4)

The scene shows a horned boat-god preceded and followed by kneeling horned deities. The deity in front holds a pole, and the deity behind holds a canopy over a seated god figure, which is holding a pole. An interesting motif that should be mentioned is that of a crescent shape behind the back deity, which frames the head of a lion.

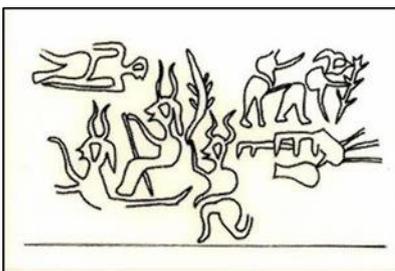


Figure 4.7: Seal reconstruction 4 X 2.1 cm. (after Debruyne and Jans 2007: scene136)

This reconstruction shows a horned boat-god sailing to the left carrying a seated horned deity holding a pole. Behind these figures is a kneeling horned figure holding some sort of long branched object. Above the boat-god is a human figure, and to the right are an additional two human figures above a plough and a vessel.

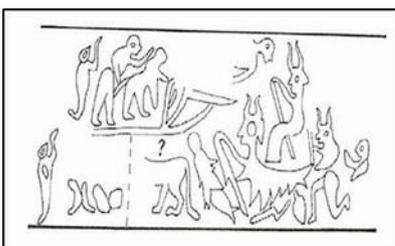


Figure 4.8: Seal reconstruction taken from multiple door sealings from field S 4.2 X 1.8 cm. (after Rova and Devecchi 2008: fig. 7. 7)

The top register shows a scorpion-human hybrid creature behind two human figures on top of a plough. The lower register shows a second scorpion-human figure at the far left facing a fragmented quadruped, possibly a lion. The right side of the impression shows another horned boat-god carrying a seated horned deity holding a pole. Behind the two is a second horned deity holding a pole with a partial human figure behind him.

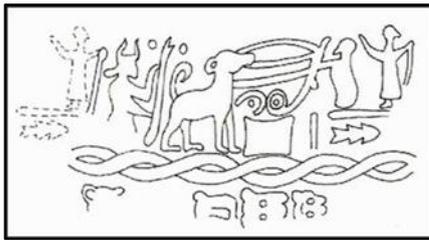


Figure 4.9: Seal reconstruction taken from multiple door sealings. Found in palace complex, field P 2.5 X 1.6 cm. (after Rova and Devecchi 2008: fig. 8. 9)

The top register shows a quadrupedal figure, possibly a dog, in the centre with a plough in front controlled by two human figures. Behind the dog stands the partial figure of a horned deity holding a pole in front of a human figure standing on a line, which has been interpreted as a boat. The lower register is separated by a twisted cable and is home to several detached animal heads.

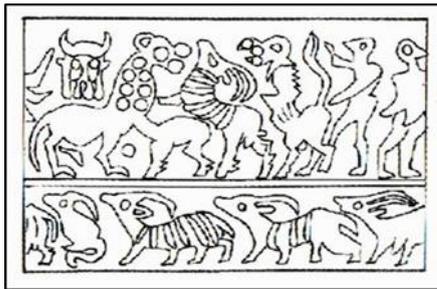


Figure 4.10: Seal reconstruction from large administrative building in field M, near temple E 3.3 X 2.4 cm. (after Milano and Rova 2014: fig. 27. 68)

Design in two registers with top register showing a battle scene or contest scene with several animals and two human figures. Above the back of what appears to be a lion is a detached bearded bull head, seemingly out of place. The lower register, separated by a single line, shows four caprine-like figures facing to the left.

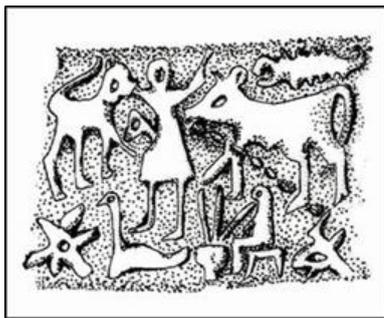


Figure 4.11: Seal reconstruction made from impressions on pottery sherds in field M 4.1 X 3 cm. (after Rova and Devecchi 2008: fig. 16. 18)

The scene shows a man holding the head of a lion to his left. A small rounded item, possibly an axe, is attached to the skirt of the man and rests on the lion's forepaw. To the right, the man holds the horn of a bull. The bull has a rope/chain connected to a ring suspended from its muzzle, which runs to the back legs. Beneath the main scene is a small rosette, a long-necked bird-like figure, a man drinking from a vessel, and the head of a caprine figure. Above the back of the bull is the figure of a scorpion.

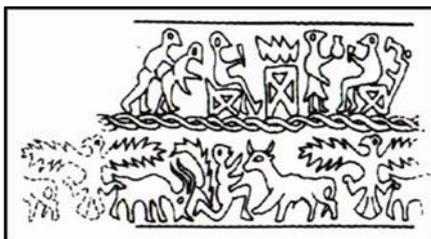


Figure 4.12: Seal reconstruction from room 19122, field S 3.3 X 1.4 cm. (after Rova 2012: fig. 9. 56)

The reconstruction is divided into two registers separated by a twisted cable. The upper register shows what appears to be a banquet scene with five human figures while the lower register shows a single human figure facing a bull and in front of a caprine figure. This is the only seal example examined from the site that has only been located in a single room.

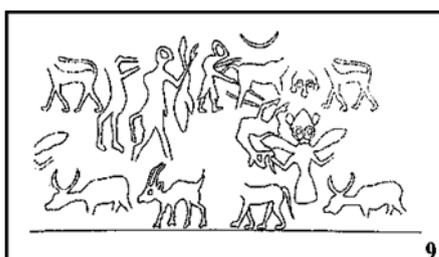


Figure 4.13: Seal reconstruction from door sealing 2.25 cm. (after Teissier 1997: fig. 1. 9)

This example is on two levels with the upper level displaying a large human-bull hybrid figure and a rearing animal behind him. In front of the creature is a small human figure using a plough with a crescent shape above the back of the plough animal. The lower level shows an Anzu figure holding what appears to be an upturned caprine figure. There are also four quadrupedal figures in the same level, two of which are bovine.



Figure 4.14: Seal reconstruction from impressions on one sealing, from field I 2.8 X 1.3 cm. (after Rova and Devecchi 2008: fig. 22. 31)

To the far left of the scene is a comb-like item above the head of a lion; in the centre are two crossed animals, a lion and a bull. The long-horned bull is attacking a rearing goat or gazelle, and the lion is attacking an unidentified animal, possibly another goat or gazelle. However, this remains unclear due to the incomplete nature of the reconstruction.

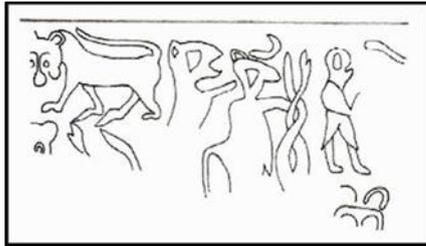


Figure 4.15: Seal reconstruction from two impressions, field N 3.7 X 2.1 cm. (after Rova and Devecchi 2008: fig. 18. 24)

The scene shows a lion with an outward facing head to the left, above an unidentified animal figure. In the centre of the scene is a rampant lion figure attacking a bull-man from behind, with the bull-man battling what have been interpreted as the coils of a standing intertwined snake.

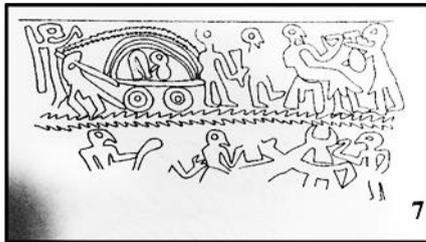


Figure 4.16: Seal reconstruction from jar sealing 1.9 cm. (after Teissier 1997: fig. 1. 7)

The top register displays a number of human figures and what appears to be a wheeled cart at the left of the register. Underneath are an additional three human figures and three fragmented animal figures, one of which can positively be identified as a bovine. The registers are separated by a horizontal vine-like band.

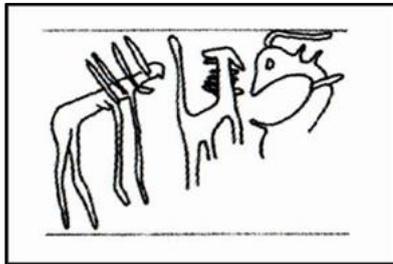


Figure 4.17: Seal reconstruction found near palace, field B 2.4 X 1.9 cm. (after Bretschneider and Jans 2012: fig. 22a)

The design shows two rather strange animal-like figures, one with extremely long legs and strange offshoots near the figure's head, and the other has a long upright tail with projections coming from what appears to be the animal's neck. To the right of these two creatures is what has been interpreted by this research as a rampant bovine figure with its head facing towards the strange creatures.

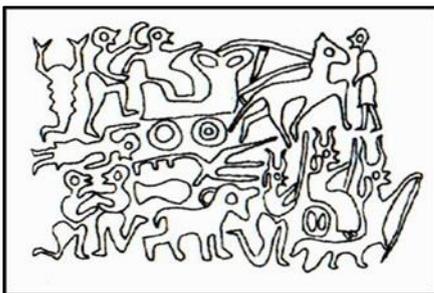


Figure 4.18: Seal reconstruction from temple E, field M 2.5 X 2 cm. (after Rova 2012: fig. 5. 62)

At the top of the design, we see a human figure in a chariot, preceded and followed by an additional two human figures. Behind and below the chariot are the figure of a scorpion and three additional human figures. In the bottom centre of the image is the figure of a lion beneath a vessel and a plough. Finally, in the bottom right, we find a procession of horned deities carrying poles.



Figure 4.19: Seal reconstruction 4 X 2.6 cm. (after Debruyne and Jans 2007: scene 94)

A two-tiered design with a processional scene at the bottom, showing two human figures in a cart or chariot being pulled by what appears to be a horse, preceded and followed by an additional two human figures with raised hands. In the upper tier above the chariot are two animal figures, and to the right of that is a horned boat-god with a pole carrying a seated figure holding a pole as well. Below the boat-god, a fish figure swims to the left.

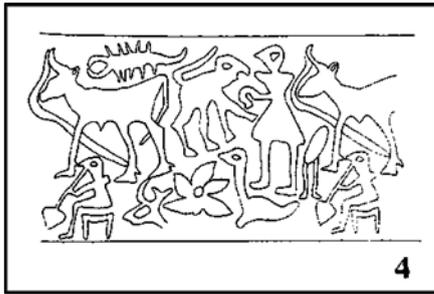


Figure 4.20: Seal reconstruction from impression on pottery sherd 3 cm. (after Teissier 1997: fig. 1. 4)

Design shows a male figure in a skirt facing left between a bull and what appears to be a lion. There is a figure of a bird below the male figure and a rosette below the lion. In front of the bull is a snake, and above the animal's back is the figure of a scorpion; there is also a small seated figure below the bull

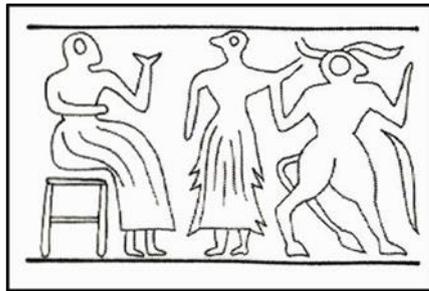


Figure 4.21: Seal reconstruction from multiple impressions, field I 3.5 X 2.3 cm. (after Rova and Devecchi 2008: fig. 13. 17)

Design displays a simple three-figured motif. To the left is a human figure with a long skirt sitting on a stool, facing a standing skirted figure. Behind the standing figure is a standing bull-man figure with long horns, walking to the right. The bull-man seems to be elevating one of the central figure's arms; lastly, there is a curved, vertical motif in front of the bull-man figure.

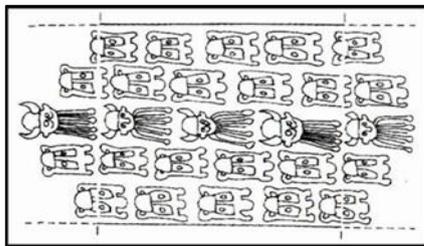


Figure 4.22: Seal reconstruction from multiple impressions, field S 4 X 2 cm. (after Rova 2012: fig. 9. 43)

This image shows five vertical columns of detached animal heads. The outer four columns display the heads of lions, while the central column shows a series of detached bearded bull-man heads.

Seals and Impressions from Tell Brak: Chapter 4

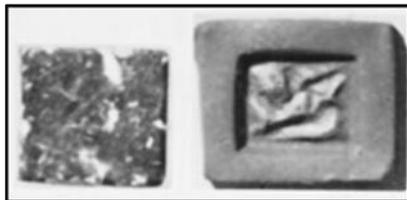


Figure 4.39: Stamp seal and impression from southern area of mound. Black stone 1.6 X 1.6 cm, vertically pierced. (after Mallowan 1947: pl. XVIII. 14)

The image consists of two caprine heads and a single bovine head.



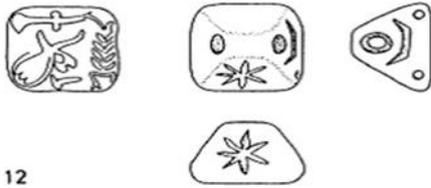
Figure 4.40: Stamp seal from southern area of mound. Grey limestone 3.7 X 4.2 cm, vertically pierced. (after Mallowan 1947: pl. XVIII. 28)

The image of this seal shows two lions in opposing directions, and located above the heads of the animals are the depictions of caprine and bovine crania.



Figure 4.41: Stamp seal from area ER. Grey limestone 3.4 X 3 cm, horizontally pierced. (after Mallowan 1947: pl. XVI. 9)

The strange image appears to show a three-headed cow with long horns that is feeding one calf while giving birth to a second. Of the material representing cattle from Brak, this is one of two examples that represents a female bovine and the only one that can be undoubtedly confirmed



12

Figure 4.42: Stamp seal from Oval Building area TC. 1.35 X 1.3 cm Pierced through top. (after Emberling and McDonald 2001: fig. 17: 12)

The impression displays a bovine head, which dominates the space. Below the animal's head is the image of a nail, and above is the possible depiction of a bird, with the image of a scorpion to the right. There are also crescent and rosette motifs on the sides.



Figure 4.43: Cylinder seal from house area CH. Transparent quartz 2.5 cm. (after Mallowan 1947: pl. XXII. 3, 4)

The ritual scene shows the head of a bearded bull-man being burned in front of a seated figure. To the left of the burning head is what appears to be a boiling cauldron with an additional three figures in procession behind it.



Figure 4.44: Cylinder seal from palace complex area ER. Stone 3.27 cm. (after Felli 2001: fig. 180)

This processional scene displays the horned sun-god Shamash seated at the left in front of a procession of three horned deities.



Figure 4.45: Cylinder seal from palace complex area ER. Stone 2cm. (after Felli 2001: fig. 178)

The scene presents a human figure at the centre flanked by two standing bulls with their heads facing away from the main figure. The bulls are being attacked from behind by two rearing lions.

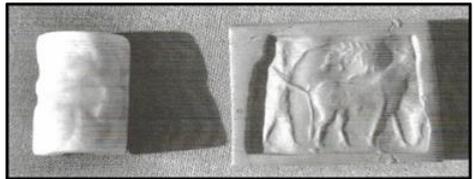


Figure 4.46: Cylinder seal from Palace area ER. Marble 2.2 cm. (after Felli 2001: fig. 179)

The incomplete scene shows a bearded man standing behind a bull. The bull is being attacked from the front by a lion.

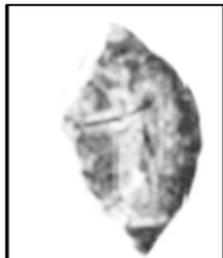


Figure 4.47: Seal impression from Palace complex area ER. Made of black coloured clay 4 X 2.2 cm. (after Mallowan 1947: pl. XXIV. 6)

Impression of a bearded bull-man in the act of attacking some type of rearing animal in an area of the sealing, which has since broken away



Figure 4.48: Seal impression from Palace complex area. Made of dark coloured clay 5.6 X 4 cm. (after Mallowan 1947: pl. XXIV. 12)

This fragment displays a twisted cable through the centre with rows of bearded bull-man heads on either side. This particularly intriguing motif of a twisted cable flanked by heads of bull-men is also found in drawings of seals from Tell Brak.



Figure 4.49: Seal impression from room 6 area CH. Made of dark coloured clay 4.8 X 4 cm. (after Mallowan 1947: pl. XXIII. 13)

This sealing fragment consists of a design with rosettes and bearded bull-men heads in profile.



Figure 4.50: Seal impression from Palace complex area ER. Made of black coloured clay 4.8 X 4 cm. (after Mallowan 1947: pl. XXIV. 15)

This scene shows a bearded bull-man who is being attacked by a lion that appears to be biting the shoulder of the bull-man. Behind the lion is a second figure that is holding an axe over his right shoulder.



Figure 4.51: Seal impression from area ER. Made of light coloured clay 6 X 5 cm. (after Mallowan 1947: pl. XXIII. 11)

This sealing impression is made up of two registers, with the top register having the image of a possible antelope and the head of yet another bearded bull-man.



Figure 4.52: Seal impression from area CH. Made of black coloured clay 7 X 6 cm. (after Mallowan 1947: pl. XXIII. 10)

This is one of the more complex scenes within this grouping of seal impressions. The sealing shows a lion attacking a gazelle at the same time as a bull-man stays the lion with one hand and stabs the animal with the other.



Figure 4.53: Seal impression from room 10 of Naram Sin Palace. Clay bulla fragment 6 X 5 cm. (after Mallowan 1947: pl. XXIV. 16)

This design contains rows of bearded bull-men, possibly some sort of deity, sporting conical headdresses.



Figure 4.54: Seal impression from area ER. Made of dark coloured clay 6 X 6 cm. (after Mallowan 1947: pl. XXIII. 16)

This design shows a god with horns and a horned headdress or perhaps a headdress with two sets of horns. The second figure is that of a bearded bull-man, with the figures separated by lines of inscriptions.



Figure 4.55: Seal impression from Naram Sin Palace. Made of dark coloured clay 7 X 6.4 cm. (after Mallowan 1947: pl. XXIV. 1)

Sealing displays yet another bearded bull-man as well as a bull with the head of a human. Both figures are fighting a rampant lion; there are also two columns of inscriptions in this sample.

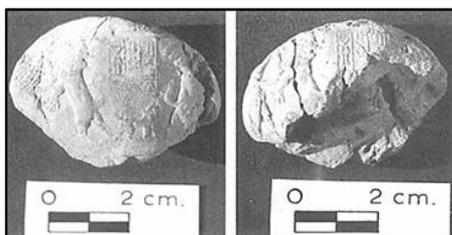


Figure 4.56: Seal impression from area FS. Clay bulla fragment 5.2 X 4 cm. (after Oates 1987: pl. XXXVIII. a, b)

The impression shows a lion on either side of a small inscription. Directly to the left of the lion is a bull-man combatting the animal



Figure 4.57: Seal impression from area CH. Made of dark coloured clay 6 X 5.8 cm. (after Mallowan 1947: pl. XXIV. 3)

This seal design shows a scene consisting of a rampant lion and bull crossing each other while they are being attacked by two human figures.



Figure 4.58: Seal impression from Naram Sin Palace. Made of light coloured clay 4 X 4 cm. (after Mallowan 1947: pl. XXIII. 2)

The design of this stamp seal impression shows the right facing figure of a bull with a sunburst/rosette and crescent motifs above the animal's back.

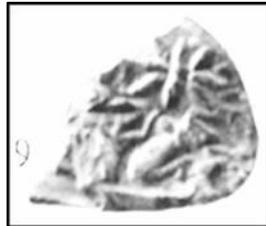


Figure 4.59: Seal impression from Naram Sin Palace. Made of dark coloured clay 4.8 X 4 cm. (after Mallowan 1947: pl. XXIV. 9)

This impression displays a rosette in the top right-hand corner, below which lies the front portion of a crouching bull. Behind the bull appears to be two stooped human figures.



Figure 4.60: Seal impression from room 13 of Naram Sin Palace. Made of black coloured clay 6.4 X 4.4 cm. (after Mallowan 1947: pl. XXIV. 17)

The image shows a figure facing a seated deity. Behind the standing figure is a second figure in the midst of fighting a rearing bull.



Figure 4.61: Seal reconstruction area CH 5.5 X 3 cm. (after Matthews *et al.* 1994: fig. 13: 16)

The design shows a bearded bull-man in the midst of battle with two lions. To the right is a smaller figure stabbing one of the lions with a dagger. As with several other examples, this design has a rosette between one of the lions and the smaller figure, and above is a twisted cable

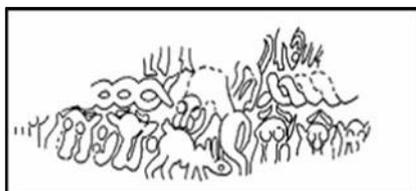


Figure 4.62: Seal reconstruction from Oval Building area TC. From clay bulla fragment 5.2 X 3 cm. (after Emberling and McDonald 2001: fig. 17: 5)

In the centre separating a cable design is the figure of a lion attacking a caprine figure, and to the right and left of this scene are a series of stylised bull crania.

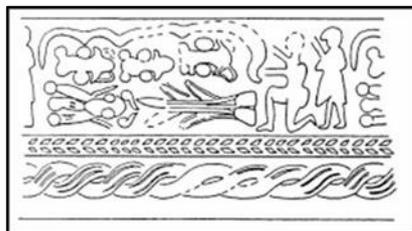


Figure 4.63: Seal reconstruction from Oval Building area TC. Reconstructed from 8 sealings 4.55 X 2.9 cm. (after Emberling and McDonald 2001: fig. 17: 6)

The lower register is simply another twisted cable design, while the upper register is rather more complex. At the right of the upper register are two human figures, one standing and one kneeling. In front of the figures is a snake below which lie three animal heads and the head of a bull.



Figure 4.64: Seal reconstruction from Oval Building area TC 3.5 X 3 cm. (after Emberling and McDonald 2001: fig. 17: 7)

The design is made up of two rows of animal heads; one row consists of lioness heads while the other is a series of bull heads. There are also a few unclear markings below the two rows.

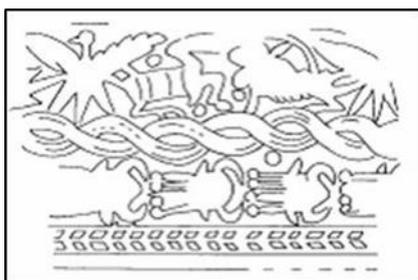


Figure 4.65: Seal reconstruction from area HP 5 X 3.1 cm. (after Matthews *et al.* 1994: fig. 13: 10)

This design is made up of upper and lower registers separated by a twisted cable. Although the design of the upper register is a bit unclear to this researcher, the lower figures depict the detached heads of what appear to be bearded bull-men.

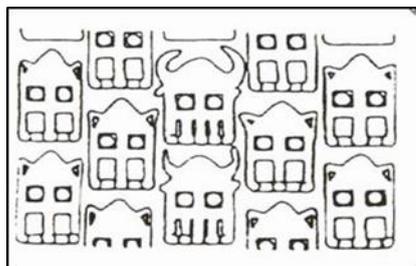


Figure 4.66: Seal reconstruction from room 18 area SS 3.1 X 2.1 cm. (after Oates 2001: fig. 167: 1)

The image is constructed of five vertical columns. The four outer columns are made of a series of stylised lioness heads, with the central column displaying a number of bull crania.



Figure 4.67: Seal reconstruction from area HS 5.5 X 1.5 cm. (after Matthews 2003: fig. 12)

This seal design shows a scene with the figure of a caprine and bull. Filling up the rest of the space are a number of seemingly abstract figures; the only figure that is relatively identifiable are those of a scorpion and a fish above the back of the bull.

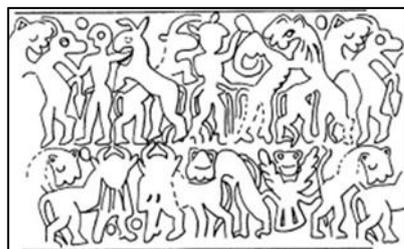


Figure 4.68: Seal reconstruction from room 2 area TC 6.5 X 3.9 cm. (after Emberling and McDonald 2003: fig. 47: 4)

The design is made up of two horizontal registers. The top scene has two human figures with a number of caprine figures, possibly goat and gazelle. The lower scene shows a figure holding the back ends of two lions, which are attacking two bearded bulls.

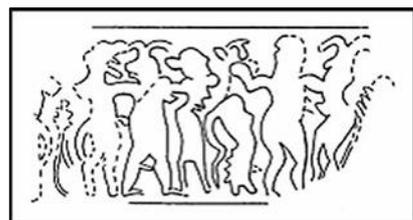


Figure 4.69: Seal reconstruction from Oval Building area TC. Quite fragmented 3.7 X 2.15 cm. (after Emberling and McDonald 2001: fig. 17: 2)

This design consists of two groups of three figures. The right grouping has a human figure in the centre being attacked by a lion and a bull while the left grouping shows a bull being attacked by two lions.



Figure 4.70: Seal reconstruction from Oval Building area TC. Quite fragmented 3.5 X 2.45 cm. (after Emberling and McDonald 2001: fig. 17: 1)

The figures in this design consist of two crossed lions. The one on the right is attacking an unknown animal, and the one on the left is attacking a bull. The bull is facing away from his attacker while being held by a second bull from behind; there is also a small rosette between the two bovines.

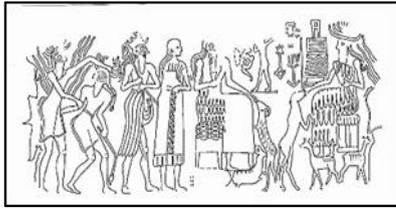


Figure 4.71: Seal reconstruction from area SS. Scribe's seal found on 20 impressions 4.05 cm. (after Oates 2001: fig. 171)

This scene shows two seated deities with the right deity wearing a headdress with three sets of cattle horns. Behind the left seated figure are four figures, three of which have headdresses with multiple sets of cattle horns.

Seals and Impressions from Abu Salabikh: Chapter 5

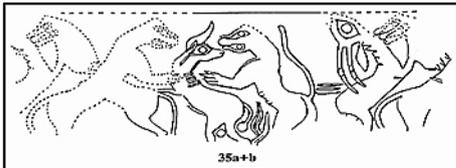


Figure 5.4: Seal reconstruction from Ash Tip. Reconstructed from 2 sealings, 3.5 cm original height. (after Martin and Matthews 1993: figs. 35. a+b)

The scene shows a set of crossed lions with one attacking a bull and the other attacking an ibex.



35a

Figure 5.5: Seal impression from Ash Tip. Impression from previous reconstruction 5.4. 3 X 3.7 cm. (after Martin and Matthews 1993: fig. 35. a)

The partial scene shows a set of crossed lions with one attacking a bull and the other attacking an ibex.



35b

Figure 5.6: Seal impression from Ash Tip. Impression from reconstruction 5.4. 5.7 X 4 cm. Possible peg or door sealing. (after Martin and Matthews 1993: fig. 35. b)

The partial scene shows a set of crossed lions with one attacking a bull and the other attacking an ibex.



Figure 5.7: Seal impression from main mound, found in kiln area. 5.3 X 3.7 cm, original seal size 2cm. (after Postgate 1977: pl. XXXIV. E)

The scene consists of two bull-men with crescent-hilted daggers or swords, attacking lions from behind.



Figure 5.8: Cylinder seal from grave 193 west mound. Made of baked clay, 2.6 cm high. (after Postgate and Moon 1982: pl. V. A)

The design shows two crossing animals, a rearing bull and a lion that is attacking the bull. There are also human figures on either side of the warring animals.



56

Figure 5.9: Seal reconstruction from Ash Tip main mound. Made on clay, 3.3 X 3.4 cm. (after Martin and Matthews 1993: fig. 56)

This design shows a bull-man and lion that are crossed, with the bull-man possibly restraining the rearing legs of a second animal figure.



59

Figure 5.10: Seal reconstruction from Ash Tim main mound. Made on clay, 2.5 cm high. (after Martin and Matthews 1993: fig. 59)

The image shows a bull-man flanked by a number of other figures. Behind him is the figure of a lioness, and the bull-man seems to be fighting with a bull figure with his hands grasping one of the animal's front legs and its neck.

Seals and Impressions from Ur: Chapter 5



Figure 5.23: Cylinder seal from PG/580 cemetery. Made of shell, 3.8 X 2.3 cm. (after Woolley 1934: pl. 99. a)

The design shows two men fighting rampant bulls with a third rampant bull against a background of shrubbery

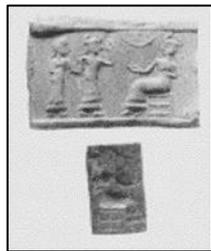


Figure 5.24: Cylinder seal from PG/1850 cemetery. Made of lapis lazuli, 3 X 1.5 cm. (after Woolley 1934: pl. 147)

The seal's design shows two standing deity figures facing a seated horned deity figure at the right, with a crescent motif directly above the lap of the seated figure.



Figure 5.25: Cylinder seal, impression, from PG/1054 cemetery. Made of lapis lazuli, 3.6 X 2.3 cm. (after Woolley 1934: pl. 192. 12)

The top register has two recumbent bearded bulls with outward facing heads; behind the animal at the right is a quadrupedal animal, possibly an equid. Above the backs of the bulls are two-winged creatures. The lower register shows a bull in the centre being attacked from behind by a lion and followed by what appears to be a second lion figure. At the far right is a seated human figure and the figure of a deity



Figure 5.26: Cylinder seal, impression, from PG/1054 cemetery. Made of gold and shell over a core, 4 X 1.8cm. (after Woolley 1934: pl. 193. 21)

The upper register shows a banquet scene with two standing and two seated human figures, and the lower register seems to be a continuation of the banquet with a group of three musicians accompanied by a dancer. What is so unusual about this particular design is that one of the musicians plays a large harp or lyre in the form of a bull, which is almost identical to those from the site's burial contexts.



Figure 5.27: Cylinder seal, impression, from PG/1237 cemetery. Made of lapis lazuli, 4.1 X 1.7 cm. (after Woolley 1934: pl. 194. 22)

The top register shows a seated figure at the far right being attended to by a standing figure, with two seated figures drinking at the left end. In the lower register, we find a musical procession of nine with the central figure playing a harp or lyre with the same bovine form as the previous example; the harp is carried by two smaller figures.

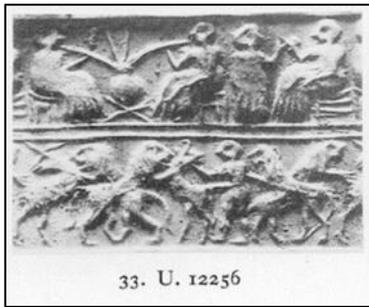


Figure 5.28: Cylinder seal, impression, from PG/1312 cemetery. Made of lapis lazuli, 3.6 X 1.5 cm. (after Woolley 1934: pl. 194. 33)

The top register is a banquet scene very similar to that from the previous seal. There is a seated figure to the right attended to by a standing figure, and there are two seated figures at the left drinking from a vessel. The lower register has two crossed lions attacking two bulls, with a single human attempting to protect the bulls



Figure 5.29: Cylinder seal, impression, from PG/357 cemetery. Made of shell, 4.2cm. (after Woolley 1934: pl. 195. 38)

The top register is a simple banquet scene with three human figures, and the bottom register shows a lion attacking a bull as well as two crossed ovicaprids and a human figure, which seems to be attacking another ovicaprid.



Figure 5.30: Cylinder seal, impression, from PG/1407 cemetery. Made of shell, 3.7 X 2.5 cm. (after Woolley 1934: pl. 195. 46)

The design shows a combat or hunting scene in a single register with a bull-headed human figure flanked by two goats. On the right end of the scene, we find three human figures and what appears to be a rearing lion.



Figure 5.31: Cylinder seal, impression, from PG/165 cemetery. Made of lapis lazuli, 3 cm. (after Woolley 1934: pl. 196. 47)

The design shows a combat or hunting scene, with two groups of crossed lions, a group of crossed bulls, and two human figures.



Figure 5.32: Cylinder seal, impression, from PG/1627 cemetery. Made of limestone, 3.9 X 2.3 cm. (after Woolley 1934: pl. 196. 51)

This scene shows a set of rearing crossed lions attacking an ovicaprid and a bull.



Figure 5.33: Cylinder seal, impression, from PG/743 cemetery. Made of shell, 5.1 X 3.6 cm. (after Woolley 1934: pl.197. 57)

The design has three lions, two of which are crossed, attacking a bull and a caprid. There is also a human figure with a dagger that is holding the tail of the lion to the right while he pushes the dagger into the animal's neck. Behind the human figure is a small set of two crossed bulls above another small grouping of unidentifiable crossed animals.



Figure 5.34: Cylinder seal, impression, from PG/43 cemetery. Made of shell, 4.2 X 3.1 cm. (after Woolley 1934: pl. 197. 58)

Scene shows a combat or hunting scene with two crossed lions and what appears to be a leopard attacking two bulls, with one of the bulls having a bearded human head; there is also a human figure with a dagger at the right, which is attacking the leopard.



Figure 5.35: Cylinder seal, impression, from PG/ 160 cemetery. Made of shell, 4.5 X 2.3 cm. (after Woolley 1934: pl. 197. 59)

The design shows two crossed lions attacking a bearded bull and a caprid, and at the right of the scene, there is a human figure fighting what appears to be a leopard, based on the spotted patterning along the animal.



Figure 5.36: Cylinder seal, impression, from PG/261 cemetery. Made of shell, 4.5 X 2.7 cm. (after Woolley 1934: pl. 197. 60)

Compared to other seals from Ur, this example is notable due to its orientation, with two lions attacking a caprid superimposed over a background made of two registers. On the upper register, there are two small crossed bulls, and below that, there is a human figure lifting the hind legs of two unidentified animals.



Figure 5.37: Cylinder seal, impression, from PG/1050 cemetery. Made of lapis lazuli, 3.5 X 1.9 cm. (after Woolley 1934: pl. 198. 65)

This is a simple contest or hunting scene. This particular design has three lions, two of which are crossed, with one of the lions attacking a bull while the other two attack a caprid. There is also some text above the back of the lion at the far left.



Figure 5.38: Cylinder seal, impression, from PG/1227 cemetery. Made of lapis lazuli, 3.5 cm. (after Woolley 1934: pl. 198. 72)

The top register shows three lions and six caprids attacking one another with a single human figure at the far left. The lower register has three bulls, two caprids, and seven lions. All animals are crossed and attacking each other, with a single human figure attacking a bull while being attacked by a lion at the right of the design.



Figure 5.39: Cylinder seal, impression, from PG/861 cemetery. Made of lapis lazuli, 2.2 X 1.5 cm. (after Woolley 1934: pl. 198. 73)

The design has two bearded rearing bulls being attacked by two human figures at the left, and at the right, there is a deity and a lion attacking a caprid.



Figure 5.40: Cylinder seal, impression, from PG/861 cemetery. Made of marble, 3.7 X 2.5 cm. (after Woolley 1934: 198. 76)

The design shows a procession of four horned deities, three of which are in profile, standing in front of a fifth seated horned deity at the far right of the design.



Figure 5.41: Cylinder seal, impression, found loose in cemetery area. Made of shell, 3.7 X 2.1 cm. (after Woolley 1934: pl. 200. 108)

The design has two crossed lions each attacking a bull in the centre, while at the left is a small seated human figure above a scorpion. At the far right is a figure with the body of a human and the head of a bull attacking one of the bulls.

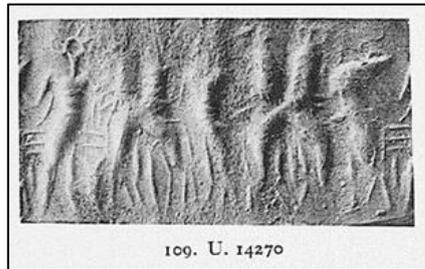


Figure 5.42: Cylinder seal, impression, from PG/1720 cemetery. Made of shell, 3.2 cm. (after Woolley 1934: 201. 109)

The design has five rather unclear animal figures and the figure of a bull at the far right. Four of the other animals are crossed and from a close examination appear to be lions; however, the animal at the centre of the scene remains unidentifiable. At the far right of the scene is the figure of a human attacking one of the lions and the bull.



Figure 5.43: Cylinder seal, impression, found loose in cemetery area. Made of black coloured steatite, 3.4 X 2.4 cm. (after Woolley 1934: pl. 201. 111)

This seal's design shows a human figure fighting two lions in the centre with a large dagger or sword at the bottom. To the left is another human figure who is fighting two bulls, with an unidentifiable creature behind the back of the right bull.



Figure 5.44: Cylinder seal, impression, from PG/1462 cemetery. Made of white coloured calcite, 3.6 X 2 cm. (after Woolley 1934: pl. 201. 117)

Hunting scene with a human figure at the left attacking a lion that is in the midst of a fight with a bull. In the centre is another lion attacking a caprid figure, and at the right is a second human figure striking another caprid figure.



Figure 5.45: Cylinder seal, impression, found loose in cemetery area. Made of lapis lazuli, 2.3 X 1.6 cm. (after Woolley 1934: pl. 201. 118)

At the centre is a bearded bull-man fighting with a bull; to the right of the bull is a leopard being attacked from behind by a human with a dagger. To the left of the bull-man is another bull being attacked by a lion with a second human figure about to stab the lion with a raised dagger.



Figure 5.46: Cylinder seal, impression, from PG/362 cemetery. Made of shell, 2.9 X 1.5 cm. (after Woolley 1934: pl. 201. 119)

The design has two crossed lions, one attacking a bull and the other a caprid, with a second caprid at the far right. To the left of the scene is a human figure with a dagger that seems to be hunting the caprid being attacked by one of the lions.



Figure 5.47: Seal impression, found on four impressions in cemetery. Made of clay 8 X 3.5 cm. (after Woolley 1934: pl. 202. 121)

The design displays a human figure at the left holding up a lion by the hind legs. There is another lion attacking a bull, and at the lower right of the design is a recumbent bull with what appears to be some sort of bird on its back. This is one of the only instances from the site where the same seal impression has been found on more than one sealing

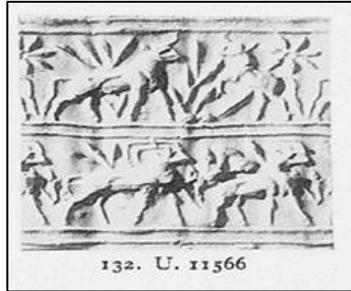


Figure 5.48: Cylinder seal, impression, from PG/1081 cemetery. Made of black coloured steatite, 4.4 X 1 cm. (after Woolley 1934: pl. 203. 132)

The top register on the left displays a bull walking to the right. At the right is a smaller rampant bull facing left, both of which are surrounded by shrubbery, and there is a rosette above the back of the smaller bull. The bottom register shows two caprid figures walking to the right, and both are surrounded with shrubbery similar to that in the upper register.



Figure 5.49: Cylinder seal, impression, from PG/153 cemetery. Made of lapis lazuli, 1.9 cm. (after Woolley 1934: pl. 203. 133)

The design is in a single register and shows two bulls walking in opposite directions with a crescent shape above the back of the right animal and a bird above the back of the animal facing left. The two animals appear to be surrounded by vegetation.



Figure 5.50: Cylinder seal, impression, from PG/1079 cemetery. Made of shell, 3.8 X 2.3 cm. (after Woolley 1934: pl. 203. 137)

Bottom right is a boat-god figure, a common theme at Beydar, paddling left and carrying a horned seated figure. Bottom left is a bearded bull walking to the left with a scorpion above the animal's back. The rest of the field is covered with eight unidentifiable creatures. The design is Tell Beydar in style.



Figure 5.51: Cylinder seal, impression, from PG/1379 cemetery. Made of lapis lazuli, 2.2 X 1 cm. (after Woolley 1934: pl. 203. 141)

The design is classic banquet scene with two figures drinking from a vessel. Above the vessel is a crescent shaped motif.



Figure 5.52: Cylinder seal, impression, from PG/525 cemetery. Made of shell, 2.3 cm. (after Woolley 1934: pl. 203. 142)

Design is classic banquet scene with two figures drinking from a vessel. Above the vessel is a crescent shaped motif.



Figure 5.53: Cylinder seal, impression, from PG/1387 cemetery. Made of lapis lazuli, 2.9 X 1.6 cm. (after Woolley 1934: pl. 203. 146)

The design is that of a contest or hunting scene with two bull-headed human figures wielding daggers and attacking lions. The two lions are also attacking two caprid figures, which are rearing and back to back.



Figure 5.54: Cylinder seal, impression, from PG/1586 cemetery. Made of white coloured calcite, 4 X 2.3 cm. (after Woolley 1934: pl. 204. 150)

This design displays two crossed lions attacking a caprid and a bull, and there is a third lion figure at the far left; at the right is a human figure, which seems to be attacking the bull.



Figure 5.55: Cylinder seal, impression, from PG/1081 cemetery. Made of lapis lazuli, 4.2 X 2.2 cm. (after Woolley 1934: pl. 204. 151)

The design is another combat or hunting scene with two crossed lions, one attacking a bull and the other attacking a bull with a bearded face. Behind the regular bull is the figure of a leopard about to attack the animal, and at the left is a small register with a horned human figure holding up two unidentified animal figures and a rampant caprid in the register below.

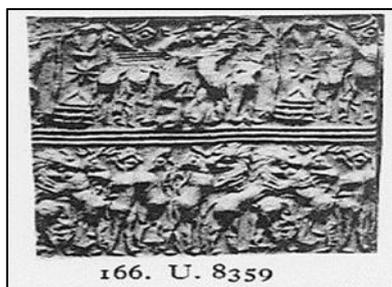


Figure 5.56: Cylinder seal, impression, from PG/219 cemetery. Made of lapis lazuli, 3.9 cm. (after Woolley 1934: pl. 204. 166)

The design consists of two registers, with the upper register showing a horned human or deity figure battling two bulls. The lower register has two crossed lions attacking two bull figures.



Figure 5.57: Cylinder seal, impression, from PG/867 cemetery. Made of lapis lazuli, 2.2 X 1.3 cm. (after Woolley 1934: pl. 205. 168)

The seal design shows a lion at the right fighting a horned deity figure. To the left are two rearing bearded bulls, each being attacked by a human figure.



Figure 5.58: Cylinder seal, impression, from PG/697 cemetery. Made of lapis lazuli with gold caps, 2.6 X 1.3 cm. (after Woolley 1934: pl. 205. 169)

On the left is a rampant bearded bull-man being attacked by a human figure with a dagger, and in the centre is a bull-man battling a lion figure. At the right is another bearded bull-man under attack from a human figure; all figure faces are facing outward, and the lion and right human figure are in profile.



Figure 5.59: Cylinder seal, impression, from PG/724 cemetery. Made of haematite, 2.7 X 1.7 cm. (after Woolley 1934: pl. 205. 170)

The design shows a human figure attacking a rearing bearded bull to the left with a rearing lion behind the human figure. In the centre is a bearded bull-man attacking a bearded bull, and at the right is a human figure hunting a caprid.



Figure 5.60: Cylinder seal, impression, from PG/559 cemetery. Made of black coloured steatite, 3.4 X 2.2 cm. (after Woolley 1934: pl. 205. 172)

At the left of the design is a human figure fighting a bearded bull, and at the centre is another human figure attacking a regular bull. At the right of the scene is a deity with a horned headdress battling a rampant lion.



Figure 5.61: Cylinder seal, impression, from PG/726 cemetery. Made of shell, 2.7 X 1.4 cm. (after Woolley 1934: pl. 205. 173)

The design has two human figures that surround a bearded bull figure. In the centre of the design is the figure of a bearded bull-man facing forward.



Figure 5.62: Cylinder seal, impression, from PG/33 cemetery. Made of dark coloured steatite, 3.1 X 2.2 cm. (after Woolley 1934: pl. 205. 174)

The design is much the same as other Ur seals with two human figures battling two bearded rearing bulls; the only major difference is the addition of a tree behind the human figure at the right.



Figure 5.63: Cylinder seal, impression, from PG/395 cemetery. Made of lapis lazuli with gold caps, 3.3 cm. (after Woolley 1934: pl. 205. 181)

The design of this seal displays a human figure fighting a bearded bull and a bearded bull-man attacking a lion figure.



Figure 5.64: Cylinder seal, impression, from PG/549 cemetery. Made of lapis lazuli with gold caps, 3.7 X 1.4 cm. (after Woolley 1934: pl. 205. 182)

The design of this simple seal features a human figure fighting a bearded bull at the right and a horned deity battling a lion.



Figure 5.65: Cylinder seal, impression, from PG/543 cemetery. Made of dark green steatite, 2.7 cm. (after Woolley 1934: pl. 205. 183)

The left side of the design shows a horned deity fighting a lion, and on the right end, one can view a human figure attacking a bearded bull.



Figure 5.66: Cylinder seal, impression, from PG/735 cemetery. Made of black steatite, 3.5 X 2.4 cm. (after Woolley 1934: pl. 206. 185)

The design shows two human figures attacking a rampant bull that is urinating, one figure grabbing the bull by the horns and the other with its hand on the animal's front leg and holding a dagger to the throat. To the right of these three figures is a figure, which appears to be half human and half animal, fighting a rampant lion.



Figure 5.67: Cylinder seal, impression, from PG/35 cemetery. Made of lapis lazuli, 4.6 X 1.3 cm. (after Woolley 1934: pl. 206. 188)

This seal design is made up of two registers, both of which display processional scenes. The upper register shows two horned deities facing a third seated horned deity at the right, with a crescent motif resting above the seated figure's reaching hand. The lower register has three standing human figures facing a seated human figure in front of a tree



Figure 5.68: Cylinder seal, impression, from PG/559 cemetery. Made of steatite, 2.7 X 1.6 cm. (after Woolley 1934: pl. 206. 189)

The design has three human figures that appear to be paying tribute to the seated horned deity at the left of the scene.



Figure 5.69: Cylinder seal, impression, from PG/689 cemetery. Made of lapis lazuli, 2.4 X 1 cm. (after Woolley 1934: pl. 206. 190)

This design is much the same as other examples from Ur with two human figures before a seated horned deity at the left of the scene.

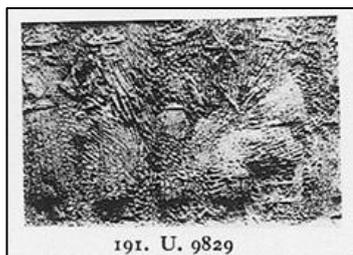


Figure 5.70: Cylinder seal, impression, from PG/77 cemetery. Made of grey coloured marble, 3.1 X 2 cm. (after Woolley 1934: pl. 206. 191)

The design displays a small procession of three horned deities facing a seated horned deity at the right. Behind the seated figure is a fifth horned deity, which may be interpreted as a servant of the seated figure.



Figure 5.71: Cylinder seal, impression, from PG/681 cemetery. Made of haematite with copper caps, 2.9 X 1.9 cm. (after Woolley 1934: pl. 206. 192)

This is a simple banquet scene with two seated human figures being attended to by two standing human figures. The seated figures are facing each other, and above the raised hand of the left figure is a star/rosette motif, while above the raised hand of the figure to the right is a crescent motif.



Figure 5.72: Cylinder seal, impression, from PG/1035 cemetery. Made of grey coloured steatite, 2.8 X 1.8 cm. (after Woolley 1934: pl. 206. 193)

A simple banquet scene shows three standing figures attending to a seated human figure facing to the left. Between the seated figure and the standing figure in front is a crescent motif.

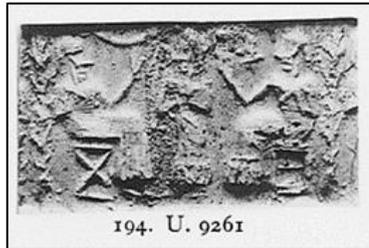


Figure 5.73: Cylinder seal, impression, from PG/573 cemetery. Made of shell, 2.7 X 1.5 cm. (after Woolley 1934: pl. 206. 194)

This is another banquet scene with two seated human figures facing each other with an attendant between them; above the raised hand of the right figure is a star/rosette motif, and above the hand of the left seated figure is a crescent motif.



Figure 5.74: Cylinder seal, impression, from PG/1086 cemetery. Made of brown coloured steatite, 3 X 2.1 cm. (after Woolley 1934: pl. 206. 196)

A processional or tribute design is shown with three horned deities facing a fourth seated horned deity at the right of the scene. There is a small tree or large branch behind the seated figure who is brandishing a small branch.



Figure 5.75: Cylinder seal, impression, from PG/719 cemetery. Made of marble, 3.1 X 2.1 cm. (after Woolley 1934: pl. 206. 198)

The scene shows three horned deities facing left towards a seated horned deity figure. Above the seated figure's raised hand is a star/rosette motif, and behind the figure is a small caprid figure.



Figure 5.76: Cylinder seal, impression, from PG/1118 cemetery. Made of shell, 2 X 1.3 cm. (after Woolley 1934: pl. 206. 201)

This design has three horned deities facing right towards a standing horned deity with a staff and one foot propped on what appears to be a pile of stones, possibly representing a throne or perhaps a small hill.



Figure 5.77: Cylinder seal, impression, from PG/1152 cemetery. Made of black coloured steatite, 2.6 X 1.4 cm. (after Woolley 1934: pl. 206. 199)

At the right of the scene is a horned figure attacking another horned deity figure, and at the left are two standing horned deity figures with daggers on either side of a seated deity figure. Seated deity on pile of stones as in the last example.

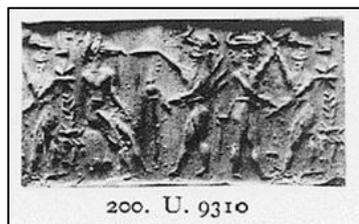


Figure 5.78: Cylinder seal, impression, from PG/563 cemetery. Made of shell, 2.1 X 1.2 cm. (after Woolley 1934: pl. 206. 200)

The design has two horned deities battling at the right, and at the left is a standing horned deity figure pointing a dagger at a sitting horned figure.



Figure 5.79: Cylinder seal, impression, found loose in cemetery area. Made of lapis lazuli, 4.1 X 1.3 cm. (after Woolley 1934: pl. 207. 216)

The design consists of two registers; in the upper register at the left is a human figure fighting a bull and caprid. Attacking the animals from behind are two lions. The bottom register has two rampant lions attacking what appear to be caprine figures, and to the left of the animals is a single human figure.



Figure 5.80: Cylinder seal, impression, from PG/1173 cemetery. Made of lapis lazuli, 4 X 1.7 cm. (after Woolley 1934: pl. 208. 217)

This seal design is in two registers. The upper register displays two crossed lions with one attacking a rearing bull and the other a rearing caprid, and a human figure attacks the caprid from behind. The lower register has two crossed lion figures, each attacking a rearing caprid, and a human figure battling a caprid and a lion.

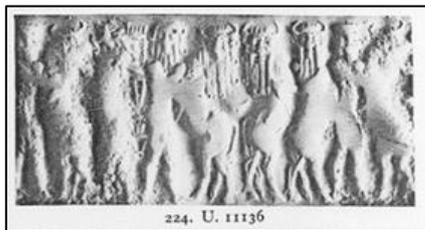


Figure 5.81: Cylinder seal, impression, from PG/827 cemetery. Made of shell, 3.8 X 2.1 cm. (after Woolley 1934: pl. 208. 224)

The seal design shows four bearded bull-men along with two human figures and a lion. Although it is unclear as to what the scene actually shows, due to the preservation of the seal, one may suggest it is some sort of contest or hunting scene.



Figure 5.82: Cylinder seal, impression, from PG/1173 cemetery. Made of calcite, 3.3 X 2 cm. (after Woolley 1934: pl. 208. 225)

The design has a bearded bull-man fighting a bearded rearing bull at the right; in the centre is a rearing bearded bull with an unidentifiable animal. At the right of the design is the figure of a rearing lion attacking another animal, which has not been identified

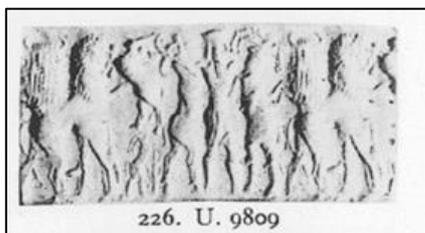


Figure 5.83: Cylinder seal, impression, found loose in cemetery area. Made of lapis lazuli, 2.3 X 1.1 cm. (after Woolley 1934: pl. 208. 226)

This seal shows another contest or hunt scene with a human figure fighting two rampant caprids. To the left is a bearded bull and a lion crossed with the lion attacking a bull figure.



Figure 5.84: Cylinder seal, impression, found loose in cemetery area. Made of lapis lazuli, 2.2 cm. (after Woolley 1934: pl. 208. 227)

The design shows another contest scene with a human figure battling a rearing bearded bull and a bull-man fighting another bearded bull; to the right is a horned deity facing left.



Figure 5.85: Cylinder seal, impression, from PG/1046 cemetery. Made of breccia rock, 3.4 X 2 cm. (after Woolley 1934: pl. 208. 230)

This seal design shows a lion and a horned deity crossed, with the deity attacking the lion and the lion attacking a bull. Behind the rearing bull figure is a human figure who has grabbed the bull by the horn and tail



Figure 5.86: Cylinder seal, impression, from PG/1159 cemetery. Made of green coloured steatite, 4.2 X 2.7 cm. (after Woolley 1934: pl. 208. 231)

The design shows a contest or hunt scene with two rearing crossed bulls being attacked by two lions. Behind each lion is a human figure seizing the animals by their mane and tail.



Figure 5.87: Cylinder seal, impression, from PG/521 cemetery. Made of dark green steatite, 4.1 X 2.7 cm. (after Woolley 1934: pl. 208. 232)

The seal design has two crossed bearded bulls fighting two human figures; each figure holds a bull leg in one hand and a dagger in the other. To the right is a horned deity that is half bull and half human holding a raised staff.



Figure 5.88: Cylinder seal, impression, from PG/1002 cemetery. Made of breccia stone, 3.6 X 2.3 cm. (after Woolley 1934: pl. 208. 233)

The design shows a bull fighting a horned half human, half bull deity at the right. In the centre is a lion and a bearded bull crossed with the bearded bull being attacked by a human figure, and the lion is attacked by a human figure with a dagger.

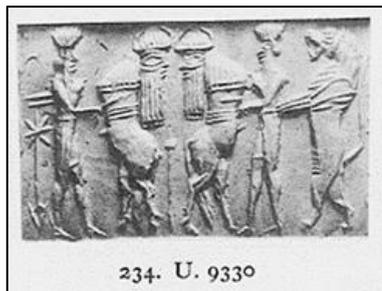


Figure 5.89: Cylinder seal, impression, from PG/585 cemetery. Made of haematite, 3 X 1.9 cm. (after Woolley 1934: pl. 209. 234)

The design displays two rearing bearded bulls with their backs nearly together, and heads turned facing one another. Each animal is battling a human figure, and behind the human figure to the right is a rearing lion.



Figure 5.90: Cylinder seal, impression, found loose in cemetery area. Made of lapis lazuli with silver caps, 3 X 1.1 cm. (after Woolley 1934: pl. 209. 239)

At the left of the design is a bearded bull-man attacking a rearing bearded bull; at the centre is a human figure attacking another rearing bearded bull, with both bulls back to back. At the right of the scene is a second human figure battling a lion.



Figure 5.91: Cylinder seal, impression, found loose in cemetery area. Made of green jadeite, 3 X 1.8 cm. (after Woolley 1934: pl. 209. 236)

The design shows a human figure fighting a bull to the left and a bearded bull-man attacking a lion at the right. Between the two animals is a star motif and a crescent motif below it.



Figure 5.92: Cylinder seal, impression, found loose in cemetery area. Made of green jadeite, 3 X 2.1 cm. (after Woolley 1934: pl. 209. 237)

The design has a bearded bull-man fighting a rearing lion at the left, and at the right of the scene is a human figure with a dagger attacking a caprid. There is also a faint indication of text at the far left.



Figure 5.93: Cylinder seal, impression, from PG/635 cemetery. Made of shell, 3.4 X 2.2 cm. (after Woolley 1934: pl. 209. 238)

This seal design has a human figure at the left battling a urinating bull, and at the right a horned deity fights a lion figure.



Figure 5.94: Cylinder seal, impression, from PG/796 cemetery. Made of black coloured steatite. 2.5 X 1.7 cm. (after Woolley 1934: pl. 209. 247)

The design shows a human figure at the right attacking a bull; in the centre is a lion figure attacking another bull, and to the far right of the scene is a horned deity attacking the lion with a dagger.



Figure 5.95: Cylinder seal, impression, from PG/345 cemetery. Made of lapis lazuli, 1.5 X 0.7 cm. (after Woolley 1934: pl. 210. 253)

This is one of the smallest seals from the site, and the design is that of a banquet scene. There are two seated human figures facing each other with one attendant between them and a second attendant behind the seated figure at the right, and above the reaching arms of the seated figures are two crescent motifs.



Figure 5.96: Cylinder seal, impression, found loose in cemetery area. Made of limestone, 2.3 X 1.6 cm. (after Woolley 1934: pl. 210. 254)

In the scene centre is a seated horned deity facing right with two more horned deities on either side of the figure, and above the outstretched hand of the seated deity is a crescent motif.

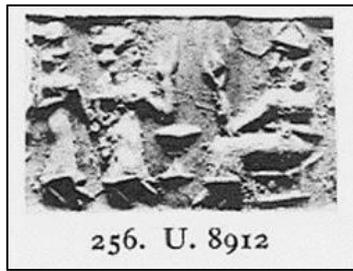


Figure 5.97: Cylinder seal, impression, found loose in cemetery area. Made of greenish coloured steatite, 2 cm. (after Woolley 1934: pl. 210. 256)

The scene shows a horned seated deity on the right that is facing left, with two human figures to the left paying tribute. Between the seated deity and human figures is a small caldron or altar.



Figure 5.98: Cylinder seal, impression, from PG/1058 cemetery. Made of greyish coloured jadeite, 2.2 X 1.2 cm. (after Woolley 1934: pl. 210. 258)

Design shows two human figures to the left facing a seated horned deity and paying tribute. Here too we find a pot or small altar between the human figures and the deity, and behind the seated figure is a small scorpion.

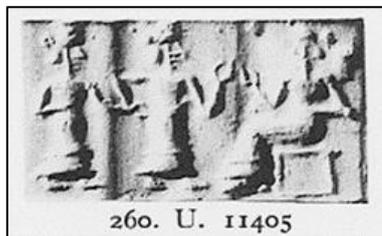


Figure 5.99: Cylinder seal, impression, found loose in cemetery area. Made of marble, 2.1 X 1.2 cm. (after Woolley 1934: pl. 210. 260)

The design on this seal has a seated horned deity facing left and two human figures paying tribute to the left.



Figure 5.100: Cylinder seal, impression, from PG/583 cemetery. Made of limestone, 3.6 X 2.1 cm. (after Woolley 1934: pl. 210. 267)

This unusual design shows a horned deity facing right and a human figure facing to the left. Between the two figures is a recumbent bull that appears to have a dewlap. This seal displays a possible Indus influence.



Figure 5.101: Cylinder seal, impression, from PG/193 cemetery. Made of grey coloured steatite, 3.1 X 2 cm. (after Woolley 1934: pl. 210. 269)

The design has a procession of three horned deities facing a seated horned deity at the left. Behind the seated deity is what appears to be an attendant in the form of another horned deity



Figure 5.102: Cylinder seal, impression, from PG/541 cemetery. Made of black coloured steatite, 3.1 cm. (after Woolley 1934: pl. 210. 268)

There are three horned deities facing a seated horned deity to the left. Around the central standing figure are objects, which appear to be fish, and above the figure's shoulder is a star motif. The seated deity is holding a staff, and above his raised hand is a crescent motif.



Figure 5.103: Cylinder seal, impression, from PG/709 cemetery. Made of marble, 3.1 X 2.1 cm. (after Woolley 1934: pl. 210. 270)

The design shows a procession of four horned deities facing to the left with three maces between them. At the left of the scene is a seated horned deity holding a fourth mace.



Figure 5.104: Cylinder seal, impression, found loose in cemetery area. Made of dark coloured marble, 3.1 X 2 cm. (after Woolley 1934: pl. 210. 278)

This design has a seated horned deity with water streams and six fish flowing from its head. In the centre is a standing horned deity followed by a figure that appears to be half human and half bird and a third standing figure missing its head.



Figure 5.105: Cylinder seal, impression, from PG/1845 cemetery. Made of green coloured steatite, 3 X 1.6 cm. (after Woolley 1934: pl. 211. 282)

The worn design shows a central seated horned deity facing left with a large crescent motif resting above the figure's raised hand. On either side of the seated figure is an attendant, with the attendant at the left having a set of horns; behind the figure at the right is a tree.



Figure 5.106: Cylinder seal, impression, from PG/1845 cemetery. Made of steatite, 1.9 X 1 cm. (after Woolley 1934: pl. 211. 283)

The design shows a seated horned deity at the right with a human figure to the left paying tribute; between the two is what appears to be an altar.



Figure 5.107: Stamp seal, impression, from PG/1847 cemetery. Made of grey coloured steatite, 2.2 cm. (after Woolley 1934: pl. 211. 285)

What is most unusual about this stamp seal is that its form and design are in the Indus Valley style, indicating a strong connection between the two cultures. The simple design shows a humped zebu bull beneath some Indus writing.

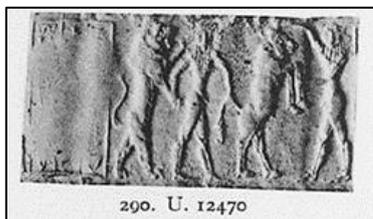


Figure 5.108: Cylinder seal, impression, from PG/1422 cemetery. Made of lapis lazuli with gold caps, 2.8 X 1.8 cm. (after Woolley 1934: pl. 211. 290)

The design has a lion attacking a bearded bull-man to the left, and at the right is a rampant bull battling another bearded bull-man. At the far left are the remains of some text.



Figure 5.109: Cylinder seal, impression, from PG/1847 cemetery. Made of shell, 3.1 X 1.9 cm. (after Woolley 1934: pl. 211. 293)

The scene shows a seated horned deity in front of a tree with a crescent motif above the figure's raised hand. Facing the seated deity are a standing horned deity and a standing human figure. From the same burial as the Indus seal.



Figure 5.110: Cylinder seal, impression, from PG/1850 cemetery. Made of lapis lazuli, 3 X 1.5 cm. (after Woolley 1934: pl. 211. 294)

This seal design is a less detailed version of the design on the previous seal; a horned deity at the right has a crescent shape above its reaching hand, and in front of the figure is a standing horned deity followed by a standing human.



Figure 5.111: Cylinder seal, impression, from PG/576 cemetery. Made of lapis lazuli, 2.7 X 1.4 cm. (after Woolley 1934: pl. 212. 302)

The seal design shows a lion and bearded bull crossed, each attacking a caprid figure, and a human figure with a raised dagger stands at the far left.



Figure 5.112: Cylinder seal, impression, found loose in cemetery area. Made of light coloured granite, 3.7 cm. (after Woolley 1934: pl. 212. 307)

This seal design depicts two small crossed lions at the far left next to two rearing bearded bulls. The bearded bull on the right is battling a bearded bull-man in the centre. At the right is the figure of a bull being attacked by a human at the left and a lion at the right; above the two crossed lions is some text.



Figure 5.113: Sealing, found loose in cemetery area. Clay bulla fragment, 2.5 X 2.5 cm. (after Woolley 1934: pl. 212. 309)

The fragmentary design shows a bull/water buffalo facing to the right and looking up; above the animal's back are some lines of writing. On the opposite side is a mark where the sealing was attached to a rope.

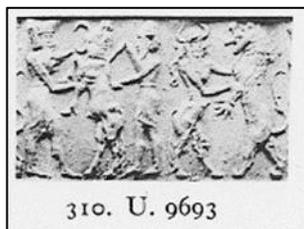


Figure 5.114: Cylinder seal, impression, from PG/695 cemetery. Made of lapis lazuli with gold caps, 2 X 1.1 cm. (after Woolley 1934: pl. 212. 310)

The left side of the design shows a bull being attacked by two human figures, one on each side, and to the right is a bull-man battling a rearing lion figure.



Figure 5.115: Cylinder seal, impression, from PG/557 cemetery. Made of haematite, 1.8 cm. (after Woolley 1934: pl. 212. 312)

This design is of a combat scene with two pairs of rearing bulls battling human figures, and between the two pairs is a single tree.

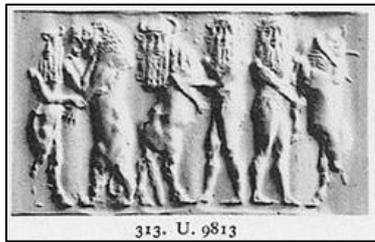


Figure 5.116: Cylinder seal, impression, from PG/703 cemetery. Made of lapis lazuli, 3.5 X 2 cm. (after Woolley 1934: pl. 212. 313)

At the left is a bearded bull-man fighting a lion; the central pair is that of a bearded bull man attacking a rearing bearded bull, and at the right is a third bearded bull-man battling a rearing bull figure.

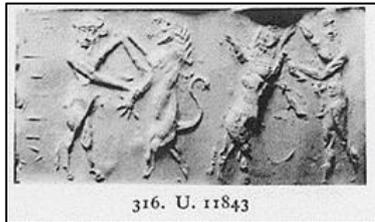


Figure 5.117: Cylinder seal, impression, from PG/1154 cemetery. Made of grey coloured steatite, 3.1 X 2 cm. (after Woolley 1934: pl. 212. 316)

The design consists of four figures battling each other. To the left is a bearded bull-man attacking the figure of a rearing lion, and at the right of the design, one can see a human figure attacking a rearing bull.

Bibliography

- Alagze, G., G. Dinckan, B. Hartenberger, T. Matney, J. Pournelle, L. Rainville, S. Rosen, E. Rupley, D. Schlee & R. Vallet. 2001. Research at Tiris Hoyuk in southeastern Turkey: the 1999 Season. *Anatolica* 27: 23-106.
- Alagze, G. 1999. Trends in the archaeological development of the upper Euphrates basin of SE Anatolia during the late Chalcolithic and EBA, in G. Olmo & J.L. Montero-Fenollos (eds.) *Archaeology of the upper Syrian Euphrates. The Tishrin Dam area. Proceedings of the international symposium held at Barcelona, Jan 28th-30th, 1998*. Barcelona: Editorial AUSA.
- Algaze, G., T. Matney, J. Kelly & D. Schlee. 1996. Late EBA urban structure at Tiris Höyük, southeastern Turkey: the 1995 season. *Anatolica* 22: 129-43.
- Algaze, G. & A. Mısır. 1994. Tiris Höyük: an Early Bronze Age urban center in southeastern Anatolia, 1993. *Kazı Sonuçları Toplantısı* 16: 107-20.
- Algaze, G. & A. Mısır. 1995. Tiris Höyük, a small Early Bronze Age urban center in southeastern Anatolia: the 1994 season. *Kazı Sonuçları Toplantısı* 17: 129-50.
- Allentuck, A. & H.J. Greenfield. 2010. The organization of animal production in an early urban center: the zooarchaeological evidence from Early Bronze Age Tiris Höyük, southeast Turkey, in D. Campana, P. Crabtree, S.D. DeFrance, J. Lev-Tov & A. Choyke (eds.) *Anthropological approaches to zooarchaeology: complexity, colonialism, and animal transformations*: 12-29. Oxford: Oxbow Books.
- Ameri, M., S.K. Costello, G.M. Jamison & S.J. Scott. 2018. Introduction: small windows, wide views, in M. Ameri, S.K. Costello, G. Jamison & S.J. Scott (eds.) *Seals and sealing in the ancient world*: 1-10. Cambridge: Cambridge University Press.
- Anthony, D.W. 2007. *The horse the wheel and language: how Bronze Age riders from the Eurasian Steppes shaped the modern world*. Princeton: Princeton University Press.
- Arbuckle, B.S. 2012. Animals in the ancient world, in D.T. Potts (ed.) *A companion to the archaeology of the ancient Near East*: 201-220. Chichester: Blackwell Publishing.
- Arbuckle, B.S. 2014. The rise of cattle cultures in Bronze Age Anatolia. *Journal of Eastern Mediterranean Archaeology and Heritage Studies* 2: 277-97.
- Arik, R.O. 1937. *Türk Tarih Kurumu tarafından yapılan Alaca Höyük hafriyatı; 1935daki çalışmalara ve keşiflere ait ilk rapor*. Ankara: Türk Tarih Kurumu.
- Aruz, J. (ed.). 2003. *Art of the first cities*. New Haven: Yale University Press.
- Bachhuber, C. 2015. *Citadel and cemetery in Early Bronze Age Anatolia*. Sheffield: Equinox.
- Beja-Pereira, A., D. Caramelli, C. Lalueza-Fox, C. Vernesi, N. Ferrand, A. Casoli, F. Goyache, L.J. Royo, S. Conti, M. Lari, A. Martin, L. Ouragh, A. Magid, A. Atash, A. Zsolnai, P. Boscato, C. Triantaphylidis, K. Ploumi, L. Sineo, F. Malleyni, P. Taberlet, G. Erhardt, L. Sampietro, J. Bertranpetit, G. Barbujani, G. Luikart & G. Bertorelle. 2006. *The origin of European cattle: evidence from modern and ancient DNA. Proceedings of the National Academy of Sciences of the United States of America* 103: 8113-18.
- Bibby, G. 1969. *Looking for Dilmun*. New York: Borzoi Books.
- Black, J. & A. Green. 1998. *Gods, demons and symbols of ancient Mesopotamia: an illustrated dictionary*. London: British Museum Press.
- Blackman, M. 1998. The Unitary Association Method of relative dating and its application to archaeological data. *Journal of Archaeological Method and Theory* 5: 165-207.
- Boivin, N. 2004. From veneration to exploitation: human engagement with the mineral world, in N. Boivin & M.A. Owoc (eds.) *Soils, stones and symbols: cultural perceptions of the mineral world*: 1-10. London: UCL Press.
- Boivin, N. 2008. *Material cultures, material minds: the impact of things on human thought, society, and evolution*. Cambridge: Cambridge University Press.
- Breniquet, C. 2002. Animals in Mesopotamian art, in B.J. Collins (ed.) *A history of the animal world in the ancient Near East*: 145-168. Leiden: Brill.

- Bretschneider, J. & T. Cunningham. 2007. An elite Akkadian grave on the Acropolis at Tell Beydar, in M. LeBeau & A. Suleiman (eds.) *Tell Beydar: the 2000-2002 seasons of excavations, the 2003-2004 seasons of architectural restoration: a preliminary report = rapport preliminaire sur les campagnes de fouilles 2000-2002 et les campagnes de restauration architecturale 2003-2004*: 98-158. Turnhout: Brepols.
- Bretschneider, J., T. Cunningham, & G. Jans. 2007. Report on the 2000 excavations in the south-western part of the early dynastic temple A on the Acropolis of Tell Beydar, in M. LeBeau & A. Suleiman (eds.) *Tell Beydar: the 2000-2002 seasons of excavations, the 2003- 2004 seasons of architectural restoration: a preliminary report = rapport preliminaire sur les campagnes de fouilles 2000-2002 et les campagnes de restauration architecturale 2003-2004*: 41-51. Turnhout: Brepols.
- Bretschneider, J. & G. Jans. 2012. Checkpoint room 32912: inspection of incoming goods, outgoing wares or temporary sealing disposals in the Early Jazirah IIIb official upper city complex of Tell Beydar, in P. Quenet, M. Maqdissi, & A. Suleiman (eds.) *"L'heure immobile" entre ciel et terre: mélanges en l'honneur d'Antoine Souleiman*: 9-19. Tunrhout: Brepols.
- Cakirlar, C. 2012. Neolithic dairy technology at the European-Anatolian frontier: implications of archaeozoological evidence from Ulucak Hoyuk, Izmir, Turkey, ca. 7000-5700 cal. BC. *Anthropozoologica* 47: 77-98.
- Campbell, S. & A. Daems. 2017. Figurines in prehistoric Mesopotamia, in T. Insoll (ed.) *The Oxford handbook of prehistoric figurines*: 567-589. Oxford: Oxford University Press.
- Canby, J.V. 1989. Hittite art. *The Biblical Archaeologist* 52: 109-29.
- Carter, E. 2012. On human and animal sacrifice in the Late Neolithic at Domuztepe, in A. Porter & G.M. Schwartz (eds.) *Sacred killing: the archaeology of sacrifice in the ancient Near East*: 97-124. Winona Lake: Eisenbrauns.
- Çelik, A.Ç.D. 2013. Alaca Höyük, in M. Doğan-Alparslan & M. Alparslan (eds.) *Hittites: an Anatolian empire: 196-205*. Istanbul: Yapi Kredi Yayinlari.
- Çevik, Ö. 2007. The emergence of different social systems in Early Bronze Age Anatolia: urbanisation versus centralisation. *Anatolian Studies* 57: 131-40.
- Chen, S.Y., B.Z. Lin, B. Baig, B. Mitra, R.J. Lopes, A.M. Santon, D.A Magee, M. Azevedo, P. Tarroso, S. Sasazaki, S. Ostrowski, O. Mahgoub, T.K. Chaudhuri, Y.P. Zhang, V. Costa, L.J. Royo, F. Goyache, G. Luikart, N. Boivin, D.Q. Fuller, H. Mannen, D.G. Bradley & A. Beja-Pereira. 2010. Zebu cattle are an exclusive legacy of the south Asia Neolithic. *Molecular Biology and Evolution*. 27: 1-6.
- Childe, V.G. 1957. The Bronze Age. *Past & Present* 12: 2-15.
- Clark, G. 1993. Faunal remains, in A. Green (ed.) *Abu Salabikh excavations. Volume 4: The 6G Ash-Tip and its contents: cultic and administrative discard from the temple*: 177-201. Melksham: British School of Archaeology in Iraq.
- Clutton-Brock, J. & R. Burleigh. 1978. The animal remains from Abu Salabikh: preliminary report. *Iraq* 40: 89-102.
- Collins, B.J. 2002. Animals in the religions of ancient Anatolia, in B.J. Collins (ed.) *A history of the animal world in the ancient Near East*: 309-334. Leiden: Brill.
- Conrad, J.R. 1959. *The horn and the sword: the history of the bull as symbol of power and fertility*. London: MacGibbon and Kee.
- Costello, S.K. 2018. Rematerializing the early dynastic banquet seal, in M. Ameri, S.K. Costello, G.M. Jamison & S.J. Scott (eds.) *Seals and sealing in the ancient world*: 68-80. Cambridge: Cambridge University Press.
- Crandall, D.P. 2000. *The place of stunted ironwood trees: a year in the lives of the cattle-herding Himba of Namibia*. New York: Continuum.
- Crawford, H. 2015. *Ur: the city of the moon god*. London: Bloomsbury Academic.
- Croucher, K. & E. Belcher. 2017. Prehistoric figurines in Anatolia (Turkey), in T. Insoll (ed.) *The Oxford handbook of prehistoric figurines*: 443-467. Oxford: Oxford University Press.

- Cunliffe, E. 2014. The archaeological landscape of the Tell Beydar region: satellite imagery and its implications for settlement patterning, in L. Milano & M. LeBeau (eds.) *Tell Beydar: environmental and technical studies, volume II*: Turnhout: 91-110. Brepols.
- Dahl, G. & H. Hjort. 1976. *Having herds: pastoral herd growth and household economy*. Stockholm: Department of Social Anthropology, University of Stockholm.
- De Cupere, B. & W. Van Neer. 2014. Consumption refuse, carcasses and ritual deposits at Tell Beydar (northeastern Syria), in L. Milano (ed.) *Paleonutrition and food practices in the ancient Near East: towards a multidisciplinary approach*: 187-213. Padova: SARGON Editrice e Libreria.
- De Cupere, B., A. Lentacker, W. Van Neer, M. Waelkens & L. Verslype. 2000. Osteological evidence for the draught exploitation of cattle: first applications of a new methodology. *International Journal of Osteoarchaeology* 10: 254-67.
- De Ryck, I.A.A. & F. Adams. 2003. Microanalytical metal technology study of ancient Near Eastern bronzes from Tell Beydar. *Archaeometry* 45: 579-90.
- Debruyne, M. 1997. A corbelled Akkadian grave (field F), in M. LeBeau & A. Suleiman (eds.) *Tell Beydar, three seasons of excavations (1992-1994): a preliminary report = Trois campagnes de fouilles à Tell Beydar (1992-1994): rapport préliminaire*: 145-154. Turnhout: Brepols.
- Debruyne, M. & G. Jans. 2007. The south-eastern area of the "Palatial Complex" of Tell Beydar: the EJ III/ED III main entrance, monumental stairway and temple D, in M. LeBeau & A. Suleiman (eds.) *Tell Beydar: the 2000-2002 seasons of excavations, the 2003-2004 seasons of architectural restoration: a preliminary report = rapport préliminaire sur les campagnes de fouilles 2000-2002 et les campagnes de restauration architecturale 2003-2004*: 75-83. Turnhout: Brepols.
- Debruyne, M., G. Jans & V. Van Der Stede. 2003. Small finds from the Acropolis (F field), in M. LeBeau & A. Suleiman (eds.) *Tell Beydar, the 1995-1999 seasons of excavations: a preliminary report*: 203-224. Turnhout: Brepols.
- Dickson, D.B. 2006. Public transcripts expressed in theatres of cruelty: the royal graves at Ur in Mesopotamia. *Cambridge Archaeological Journal* 16: 123-44.
- Dobney, K., D. Jaques & W. Van Neer. 2003. Diet, economy and status: evidence from the animal bones, in R.J. Matthews (ed.) *Excavations at Tell Brak. Volume 4: exploring an Upper Mesopotamian regional centre, 1994-1996*: 417-430. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- Düring, B.S. 2011. *The prehistory of Asia Minor: from complex hunter-gatherers to early urban societies*. Cambridge: Cambridge University Press.
- Edwards, C.J., D.E. Machugh, K. Dobney, L. Martin, N. Russell, L.K. Horwitz, S.K. McIntosh, K.C. Macdonald, D. Helmer, A. Tresset, J.D. Vigne & D.G. Bradley. 2003. Ancient DNA analysis of 101 cattle remains: limits and prospects. *Journal of Archaeological Science* 31: 695-710.
- Eidem, J. & D. Warburton. 1996. In the land of Nagar: a survey around Tell Brak. *Iraq* 58: 51-64.
- Emberling, G., J. Cheng, T.E. Larsen, H. Pittman, T.B.B. Skuldboel, J. Weber & H.T. Wright. 1999. Excavations at Tell Brak 1998: preliminary report. *Iraq* 61: 1-41.
- Emberling, G. & H. McDonald. 2001. Excavations at Tell Brak 2000: preliminary report. *Iraq* 63: 21-54.
- Emberling, G. & H. McDonald. 2003. Excavations at Tell Brak 2001-2002: preliminary report. *Iraq* 65: 1-75.
- Evans, J.M. 2003. Approaching the divine: Mesopotamian art at the end of the third millennium B.C., in J. Aruz (ed.) *Art of the first cities*: 417-424. New Haven: Yale University Press.

- Evershed, R.P., S. Payne, A.G. Sherratt, M.S. Copley, J. Coolidge, D. Urem-Kotsu, K. Kotsakis, M. Ozdogan, A.E. Ozdogan, O. Nieuwenhuys, P.M.M.G. Akkermans, D. Bailey, R.R. Andeescu, S. Campbell, S. Farid, I. Hodder, N. Yalman, M. Ozbasaran, E. Bicakci, Y. Garfinkel, T. Levy & M.M. Burton. 2008. Earliest date for milk use in the Near East and southeastern Europe linked to cattle herding. *Nature* 455: 528-31.
- Fagan, B. 2016. *The intimate bond: how animals shaped human history*. New York: Bloomsbury Press.
- Felli, C. 2001. Some notes on the Akkadian glyptic from Tell Brak, in D. Oates, J. Oates & H. McDonald (eds.) *Excavations at Tell Brak. Volume 2: Nagar in the third millennium*: 141-150. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- Forouzan, F., J.B. Glover, F. Williams & D. Deocampo. 2012. Portable XRF analysis of zoomorphic figurines, "tokens," and sling bullets from Chogha Gavaneh, Iran. *Journal of Archaeological Science* 39: 3534-41.
- Frodeman, R. 2004. Reading the Earth: philosophy in/of the field, in N. Boivin & M.A. Owoc (eds.) *Soils, stones and symbols: cultural perceptions of the mineral world*: 203-216. London: UCL Press.
- Gansell, A.R. 2007. Identity and adornment in the third-millennium BC Mesopotamian 'Royal Cemetery' at Ur. *Cambridge Archaeological Journal* 17: 29-46.
- Gilbert, A.C. 2002. The native fauna of the ancient Near East, in B. Collins (ed.) *A history of the animal world in the ancient Near East*: 3-78. Leiden: Brill.
- Glock, A.E. 1985. Tradition and change in two archaeologies. *American Antiquity* 50: 464-77.
- Goddeeris, A. 2003. EJ small finds (E field- campaigns 1995-1996), in M. LeBeau & A. Suleiman (eds.) *Tell Beydar, the 1995-1999 seasons of excavations: a report*: 279-286. Turnhout: Brepols.
- Google Earth pro. 2017. 5 and 10 km radii around Abu Salabikh, 32°15'07.50" N 45°03'12.13" E, elevation 25m. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.
- Google Earth pro. 2017. 5 and 10 km Radii around Alaca Höyük, 40°14'03.77" N 34°41'41.05" E, elevation 1169m. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.
- Google Earth pro. 2017. 5 and 10 km radii around Sos Höyük, 39°59'37.58" N 41°31'20.15" E, elevation 1760m. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.
- Google Earth pro. 2017. 5 and 10 km radii around Tell Beydar, 36°44'17.16" N 40°35'14.81" E, elevation 375m. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.
- Google Earth pro. 2017. 5 and 10 km radii around Tell Brak, 36°40'05.15" N 41°03'31.60" E, elevation 354m. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.
- Google Earth pro. 2017. 5 and 10 km radii around Titriş Höyük, 37°28'34.86" N 38°40'33.82" E, elevation 583m. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.
- Google Earth pro. 2017. 5 and 10 km radii around Ur, 30°57'40.50" N 46°06'16.20" E, elevation 14m. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.
- Google Earth pro. 2017. Bronze Age Anatolia, 36°N-42°N 26°E-50°E. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.
- Google Earth pro. 2017. Map of Early Bronze Age Mesopotamia, 29°N-37°N 37°E-50°E. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.
- Google Earth pro. 2017. Map of Project Area, 29°N-42°N 50°E-29°E. Topographical map. [Online] Available through <<http://www.google.com/earth/>>.

- Gorny, R.L. 1989. Environment, archaeology, and history in Hittite Anatolia. *The Biblical Archaeologist* 52: 78-96.
- Greaves, A.M. & B. Helwing. 2003. Archaeology in Turkey: the Stone, Bronze, and Iron Ages, 2000. *American Journal of Archaeology* 107: 71-103.
- Green, A.R.W. 2003. *The storm god in the ancient Near East*. Winona Lake: Eisenbrauns.
- Green, A. 1993. The excavations, in A. Green (ed.) *The 6G Ash-Tip and its contents: cultic and administrative discard from the temple*: 1-22. London: British School of Archaeology in Iraq.
- Greenfield, H.J. 2002. Preliminary report on the faunal remains from the Early Bronze Age site of Titriş Höyük in southeastern Turkey, in H. Buitenhuis, A.M. Choyke, M. Mashkour & A.H. Al-Shiyab (eds.) *Archaeozoology of the Near East V: proceedings of the archaeozoology of southwest Asia and adjacent areas*: Groningen: ARC Publications.
- Greenfield, H.J. 2010. The secondary products revolution: the past, the present and the future. *World Archaeology* 41: 29-54.
- Greenfield, H.J. 2014. Some reflections on the origins and intensification of dairying in the archaeological record, in H.J. Greenfield (ed.) *Animal secondary products: domestic animal exploitation in prehistoric Europe, the Near East and the Far*: 20-39. Oxford: Oxbow Books.
- Grigson, C. 1980. The craniology and relationships of four species of *Bos*: 5. *Bos indicus* L. *Journal of Archaeological Science* 7: 2-32.
- Grigson, C. 1991. An African origin for African cattle: some archaeological evidence. *The African Archaeological Review* 9: 119-44.
- Grubestic, M., D. Konjevic, K. Severin, M. Hadziosmanovic, K. Tomljanovic, T. Masek, J. Margaletic & A. Slavica. 2011. Dressed and undressed weight in naturally bred wild boar (*Sus scrofa*): the possible influence of crossbreeding. *Acta Alimentaria* 40: 502-508.
- Gunter, A.C. 2002. Animals in Anatolian art, in B.J. Collins (ed.) *A history of the animal world in the ancient Near East*: 79- 96. Leiden: Brill.
- Gursan-Salzman, A. 1992. *Alaca Höyük: a reassessment of the excavation and sequence of the Early Bronze Age settlement*. PhD. University of Pennsylvania.
- Hambleton, E. 1999. *Animal husbandry regimes in Iron Age Britain*. Oxford: Archaeopress.
- Hansen, D.P. 1998. Art of the Royal Tombs of Ur: a brief interpretation, in R.L. Zettler & L. Horne (eds.) *Treasures from the Royal Tombs of Ur*: 43-72. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology.
- Hansen, D.P. 2001. The reclining human-faced bison sculpture from area SS, in D. Oates, J. Oates & H. McDonald (eds.) *Excavations at Tell Brak. Volume 2: Nagar in the third millennium*: 257-262. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- Hansen, D.P. 2003. Art of the early city-states, in J. Aruz (ed.) *Art of the first cities*: 11-134. New Haven: Yale University Press.
- Harmanşah, O. 2013. The cattlepen and the sheepfold: cities, temples, and pastoral power in ancient Mesopotamia, in D. Ragavan (ed.) *Heaven on Earth: temples, ritual, and cosmic symbolism in the ancient world*: 373-394. Chicago: University of Chicago Press.
- Hartenberger, B., S. Rosen & T. Matney. 2000. The Early Bronze Age blade workshop at Titris Hoyuk: lithic specialization in an urban context. *Near Eastern Archaeology* 63: 51-58.
- Hastorf, C.A. 2017. *The social archaeology of food: thinking about eating from prehistory to the present*. Cambridge: Cambridge University Press.
- Helwing, B. 2003. Feasts as a social dynamic in prehistoric western Asia—three case studies from Syria and Anatolia. *Paleorient* 29: 63-85.

- Hopkins, L. 2003. *Archaeology at the north-east Anatolian frontier, VI: an ethnoarchaeological study of Sos Höyük and Yiğittaşı Village*. Dudley: Peeters Press.
- Howe, T. 2014. Domestication and breeding of livestock: horses, mules, asses, cattle, sheep, goats, and swine, in G.L. Campbell (ed.) *The Oxford handbook of animals in classical thought and life*: 99-108. Oxford: Oxford University Press.
- Howell-Meurs, S. 2001. *Early Bronze and Iron Age animal exploitation in northeastern Anatolia: the faunal remains from Sos Höyük and Büyüktepe Höyük*. Oxford: Archaeopress.
- Irving, A. & J. Ambers. 2002. Hidden treasure from the Royal Cemetery at Ur: technology sheds new light on the ancient Near East. *Near Eastern Archaeology* 65: 206-13.
- Izbitser, E. 2003. The North Caucasus, in J. Aruz (ed.) *Art of the first cities: 206-213*. New Haven: Yale University Press.
- Johannsen, N. 2011. Past and present strategies for draught exploitation of cattle, in U. Albarella & A. Trentacoste (eds.) *Ethnozooarchaeology: the present and past of human-animal relationship: 13-19*. Oxford: Oxbow Books.
- Katz, D. 2007. Sumerian funerary rituals in context, in N. Laneri (ed.) *Performing death: social analyses of funerary traditions in the ancient Near East and Mediterranean: 167-188*. Chicago: University of Chicago Press.
- Kawami, T.S. 2014. ... Til the cows come home: the secondary products revolution and Mesopotamian art in the 3rd millennium BCE, in H.J. Greenfield (ed.) *Animal secondary products: domestic animal exploitation in prehistoric Europe, the Near East and the Far East: 220-232*. Oxford: Oxbow Books.
- Klein, R.G. & K. Cruz-Urbe. 1984. *The analysis of animal bones from archaeological sites*. Chicago: University of Chicago Press.
- Koşay, H. 1953. *Alacahoyuk*. Ankara: Turkish Press, Broadcasting and Tourist Department.
- Koşay, H. 1973. *Alaca Höyük excavations: preliminary report on research and discoveries, 1963- 1967*. Ankara. s. n.
- Koşay, H. & M. Akok. 1966. *Türk Tarih Kurumu tarafından yapılan Alaca Höyük kazisi; 1940-1948 deki çalışmalara ve keşiflere ait ilk rapor*. Ankara: Türk Tarih Kurumu Basımevi.
- Koşay, H.Z. 1951. *Alaca Höyük Kazisi: 1937-1939 Daki calismalara ve kesiflere ait ilk rapor*. Ankara: Turk Tarih Kurumu Basımevi.
- Kouchoukos, N. & T. Wilkinson. 2007. Landscape archaeology in Mesopotamia: past, present, and future, in E.C. Stone (ed.) *Settlement and society: essays dedicated to Robert McCormick Adams: 1-18*. Los Angeles: Costen Institute of Archaeology University of California, Los Angeles and The Oriental Institute of the University of Chicago.
- Laneri, N. 2007. Burial practices at Tiriş Höyük, Turkey: an interpretation. *Journal of Near Eastern Studies* 66: 241-66.
- LeBeau, M. & A. Suleiman. 2016. Tell Beydar/Nabada/Nabatium (Hassake), in Y. Kanjou & A. Tsuneki (eds.) *A history of Syria in one hundred sites: 103-106*. Oxford: Archaeopress.
- Loughlin, E. 2000. *Representations of the cow and calf in Minoan art*. PhD. University of Edinburgh.
- Lyman, R.L. 2001. *Vertebrate taphonomy*. Cambridge: Cambridge University Press.
- Lyman, R.L. 2008. *Quantitative paleozoology*. Cambridge: Cambridge University Press.
- Machugh, D.E., M.D. Shriver, R.T. Loftus, P. Cunnigham & D.G. Bradley. 1997. Microsatellite DNA variation and the evolution, domestication and phylogeography of taurine and zebu cattle (*Bos taurus* and *Bos indicus*) *Genetics* 146: 1071-86.
- Mallowan, M.E.L. 1947. Excavations at Brak and Chagar Bazar. *Iraq* 9: 1-87+89-259+i-iv.
- Maltby, M. 2006 *Integrating zooarchaeology*. Oxford: Oxbow Books.

- Manuelli, F., L. Bartosiewicz, G. Bozzetti, S. Bököny, A. Buccolieri, R. Laurito, C. Lemorini, C. Mora, A. Serra & G. Siracusano. 2013. *Arslantepe, Late Bronze Age: Hittite influence and local traditions in an eastern Anatolian community*. Rome: Sapienza Università di Roma, Dipartimento di Scienza dell'Antichità.
- Marciniak, A. 2011. Folk taxonomies and human-animal relations: The Early Neolithic in the Polish Lowlands, in U. Albarella & A. Trentacoste (eds.) *Ethnozoarchaeology: the present and past of human-animal relationships*: 29-38. Oxford: Oxbow Books.
- Marom, N. & V.R. Hermann. 2014. Incorporation into the Neo-Assyrian Empire from the perspective of the faunal remains from Zincirli Höyük, Turkey. *Journal of Eastern Mediterranean Archaeology and Heritage Studies 2*: 298-316.
- Martin, H.P. & R.J. Matthews. 1993. Seals and sealings, in A. Green (ed.) *Abu Salabikh excavations. Volume 4: the 6G Ash-Tip and its contents: cultic and administrative discard from the temple*: 23-81. Melksham: British School of Archaeology in Iraq.
- Martin, H.P., J. Moon & J.N. Postgate. 1985. *Abu Salabikh excavations. Volume 2: graves 1 to 99*: Hertford: British School of Archaeology in Iraq.
- Martin, L.A. 1994. *Hunting and herding in a semi-arid region: an archaeozoological and ethnographical analysis of the faunal remains from the Epipalaeolithic and Neolithic of the eastern Jordanian Steppe*. PhD. University of Sheffield.
- Mason, J. 2011. Animals: from souls and the sacred in prehistoric times to symbols and slaves in antiquity, in L. Kalof (ed.) *A cultural history of animals in antiquity*: 17-46. Oxford: Berg.
- Matney, T. 2012. Northern Mesopotamia, in D.T. Potts (ed.) *A companion to the archaeology of the ancient Near East*: 556-574. Oxford: Wiley-Blackwell.
- Matney, T. & G. Algaze. 1995. Urban development at Mid-Late Early Bronze Age Tiriş Höyük in southeastern Anatolia. *Bulletin of the American Schools of Oriental Research 299/300*: 33-52.
- Matney, T., G. Algaze & H. Pittman. 1997. Excavations at Tiriş Höyük in southeastern Turkey: a preliminary report of the 1996 season. *Anatolica 23*: 61-84.
- Matthews, R.J. 1995. Excavations at Tell Brak, 1995. *Iraq 57*: 87-111.
- Matthews, R.J. 1996. Excavations at Tell Brak, 1996. *Iraq 58*: 65-77.
- Matthews, R.J. 2002. Zebu: harbingers of doom in Bronze Age western Asia? *Antiquity 76*: 438-46.
- Matthews, R.J. 2003a. *The archaeology of Mesopotamia: theories and approaches*. London, Routledge.
- Matthews, R.J. 2003b. A chiefdom on the northern plains early third-millennium investigations: the Ninevite 5 Period, in R.J. Matthews (ed.) *Excavations at Tell Brak Volume 4: exploring an Upper Mesopotamian regional centre, 1994-1996*: 97-191. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- Matthews, R.J., W. Matthews & H. McDonald. 1994. Excavations at Tell Brak, 1994. *Iraq 56*: 177-94.
- McAdam, E. 1993. Clay figurines, in A. Green (ed.) *Abu Salabikh excavations. Volume 4: the 6G Ash-Tip and its contents: cultic and administrative discard from the temple*: 83-109 Melksham: British School of Archaeology in Iraq.
- Mcc. Adams, R. 1966. *The evolution of urban society: early Mesopotamia and prehistoric Mexico*. Chicago: Aldine Publishing.
- McCarthy, A. 2018. The first female bureaucrats: gender and glyptic in third-millennium northern Mesopotamia, in M. Ameri, S.K. Costello, G.M. Jamison & S.J. Scott (eds.) *Seals and sealing in the ancient world*: 54-67. Cambridge: Cambridge University Press.

- McClure, S.B., M.A. Jochim & C.M. Barton. 2006. Human behavioral ecology, domestic animals, and land use during the transition to agriculture in Valencia, eastern Spain, in D.J. Kennett & B. Winterhalder (eds.) *Behavioral ecology and the transition to agriculture*: 197-216. Berkeley: University of California Press.
- McCormick, F. 2012. Cows, milk and religion: the use of dairy produce in early societies *Anthropozoologica* 47: 101-13.
- McCorrison, J. 2011. *Pilgrimage and household in the ancient Near East*. Cambridge, Cambridge University Press.
- McCorrison, J., Harrower, M., Martin, L. & Oches, E. 2012. Cattle cults of the Arabian Neolithic and early territorial societies. *American Anthropologist* 114: 45-63.
- McDonald, H. 2001. Third-millennium clay objects, in D. Oates, J. Oates & H. McDonald (eds.) *Excavations at Tell Brak. Volume 2: Nagar in the third millennium*: 269-293. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- McDonald, H., J. Curtis & R. Maxwell-Hyslop. 2001. Third-millennium metalwork, in D. Oates, J. Oates & H. McDonald (eds.) *Excavations at Tell Brak. Volume 2: Nagar in the third millennium*: 233-256. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- McGauran, H.E. 2014. *Contextual analysis of economic and social networks: the circulation of Bronze Age soft-stone artefacts in Bahrain and Cyprus*. PhD. University of Reading.
- McInerney, J. 2010. *The cattle of the sun: cows and culture in the world of the ancient Greeks*. Princeton: Princeton University Press.
- McMahon, A. 2013a. Northern Mesopotamia in the third millennium BC, in H. Crawford (ed.) *The Sumerian world*: 462-477. London: Routledge.
- McMahon, A. 2013b. Tell Brak: early northern Mesopotamian urbanism, economic complexity and social stress, fifth-fourth millennia BC, in D. Bonatz & L. Martin (eds.) *100 Jahre Archäologische Feldforschungen in Nordost-Syrien-eine Bilanz: Internationales Symposium des Instituts für Vorderasiatische Archäologie der Freien Universität Berlin und des Vorderasiatischen Museums der Staatlichen Museen zu Berlin vom 21. Juli bis 23. Julie 2011 im Pergamonmuseum*: 65-78. Wiesbaden: Harrassowitz Verlag.
- McMahon, A., J. Oates, S. Al-Quntar, M. Charles, C. Colantoni, M.M. Hald, P. Karsgaard, L. Khalidi, A. Sołtysiak, A. Stone & J. Weber. 2007. Excavations at Tell Brak 2006-2007. *Iraq* 69: 145-71.
- Mellaart, J. 1966. *The Chalcolithic and Early Bronze Ages in the Near East and Anatolia*. Beirut: Khayats.
- Mellink, M.J. 1956. The Royal Tombs at Alaca Höyük and the Aegean world, in S.S. Weingerg (ed.) *The Aegean and the Near East. Studies presented to Hetty Goldman on the occasion of her 75th birthday*: 39-58. New York: J.J. Augustin.
- Michels, J.W. 1972. Dating methods. *Annual Review of Anthropology* 1: 113-26.
- Milano, L. & E. Rova. 2014. Tell Beydar 2010—fields I and R, study of the glyptic material, in M. LeBeau & A. Suleiman (eds.) *Tell Beydar: The 2010 season of excavations and architectural restoration: a preliminary report = rapport préliminaire sur la campagne de fouilles et de restauration architecturale 2010*: 83-105. Turnhout: Brepols.
- Miller, N.F. 2013. Symbols of fertility and abundance in the Royal Cemetery at Ur, Iraq. *American Journal of Archaeology* 117: 127-33.
- Miranda, M.C. 2013. *Cattle in Arabia: a comparative analysis of man's relationship to cattle in the Arabian Peninsula*. MA. University College London.
- Mukasa-Mugerwa, E. 1989. *ILCA monograph no. 6: a review of reproductive performance of female Bos indicus (zebu) cattle*. Ethiopia Addis Ababa.

- Muscarella, O.W. 2003. The Central Anatolian Plateau: the tombs of Alaca Höyük, in J. Aruz (ed.) *Art of the first cities: 277-288*. New Haven: Yale University Press.
- Nicholson, R.A. 1991. *An investigation into variability within archaeologically recovered assemblages of faunal remains: the influence of pre-depositional taphonomic processes*. PhD. University of York.
- Nishimura, Y. 2007. The north Mesopotamian neighborhood: domestic activities and household space at Tiriş Höyük. *Near Eastern Archaeology* 70: 53-56.
- Nishimura, Y. 2012. The life of the majority: a reconstruction of household activities and residential neighborhoods at the late-third-millennium urban settlement at Tiriş Höyük in northern Mesopotamia, in B.J. Parker & C.P. Foster (eds.) *New perspectives on household archaeology: 347-372*. Winona Lake: Eisenbrauns.
- O'Connor, T. 2012. *The archaeology of animal bones*. Brimscombe Port, Stroud: The History Press.
- Oates, D. 1985. Excavations at Tell Brak, 1983-84. *Iraq* 47: 159-73.
- Oates, D. 1987. Excavations at Tell Brak 1985-86. *Iraq* 49: 175-91.
- Oates, D. & J. Oates. 1991a. Excavations at Tell Brak 1990-91. *Iraq* 53: 127-45.
- Oates, D. & J. Oates. 1991b. A human-headed bull statue from Tell Brak. *Cambridge Archaeological Journal* 1: 131-35.
- Oates, J. 2001a. The evidence of the sealings, in D. Oates, J. Oates & H. McDonald (eds.) *Excavations at Tell Brak. Volume 2: Nagar in the third millennium: 121-140*. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- Oates, J. 2001b. Third-millennium BC stone objects, in D. Oates, J. Oates & H. McDonald (eds.) *Excavations at Tell Brak. Volume 2: Nagar in the third millennium: 263-268*. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- Oates, J. & D. Oates. 1994. Tell Brak: a stratigraphic summary, 1976-1993. *Iraq* 56: 167-76.
- Özdoğan, M. 2007. Amidst Mesopotamia-centric and Euro-centric approaches: the changing role of the Anatolian Peninsula between the east and the west. *Anatolian Studies* 57: 17-24.
- Palumbi, G. 2011. The Arslantepe Royal Tomb and the "manipulation" of the Kurgan ideology in eastern Anatolia at the beginning of the third millennium, in E. Borgna & S.M. Celka (eds.) *Ancestral landscapes*: Lyon: TMO 61, Maison de l'Orient et de la Méditerranée.
- Phillips, C. 2002. *Cattle behaviour and welfare*. Oxford: Blackwell Publishing.
- Pittman, H. 1998a. Cylinder seals, in R.L. Zettler & L. Horne (eds.) *Treasures from the Royal Tombs of Ur: 75-84*. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology.
- Pittman, H. 1998b. Jewelry, in R.L. Zettler & L. Horne (eds.) *Treasures from the Royal Tombs of Ur: 87-122*. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology.
- Pittman, H. 2013. Seals and sealings in the Sumerian world, in H. Crawford (ed.) *The Sumerian world: 319-340*. London: Routledge.
- Pittman, H. 2018. Administrative role of seal imagery in the Early Bronze Age: Mesopotamian and Iranian traders on the plateau, in M. Ameri, S.K. Costello, G.M. Jamison & S.J. Scott (eds.) *Seals and sealing in the ancient world: 13-35*. Cambridge: Cambridge University Press.
- Plog, S. 1983. Analysis of style in artifacts. *Annual Review of Anthropology* 12: 125-42.
- Pollock, S. 1990. Archaeological investigations on the Uruk mound, Abu Salabikh, Iraq. *Iraq* 52: 85-93.
- Pollock, S. 1999. *Ancient Mesopotamia: the Eden that never was*. Cambridge: Cambridge University Press.

- Pollock, S. & R. Bernbeck. 2005. *Archaeologies of the Middle East: critical perspectives*. Malden: Blackwell Publishing.
- Postgate, J.N. 1977. Excavations at Abu Salabikh, 1976. *Iraq* 39: 269-99.
- Postgate, J.N. 1982. Abu Salabikh, in J. Curtis (ed.) *Fifty years of Mesopotamian discovery: the work of the British School of Archaeology in Iraq 1932-1982*: 48-61. London: The British School of Archaeology in Iraq.
- Postgate, J.N. 1983. *Abu Salabikh excavations. Volume I: the west mound surface clearance*. Hertford: British School of Archaeology in Iraq.
- Postgate, J.N. 1992. *Early Mesopotamia: society an economy at the dawn of history*. London: Routledge.
- Postgate, J.N. & A.J. Moon. 1982. Excavations at Abu Salabikh, 1981. *Iraq* 44: 103-36.
- Postgate, J.N. & P.R.S. Moorey. 1976. Excavations at Abu Salabikh, 1975. *Iraq* 38: 133-69.
- Potts, D.T. 1997. *Mesopotamian civilization: the material foundations*. Ithaca: Cornell University Press.
- Pournelle, J.R. 2007. KLM to CORONA: a bird's-eye view of cultural ecology and early Mesopotamian urbanization, in E.C. Stone (ed.) *Settlement and society: essays dedicated to Robert McCormick Adams*: 29-62. Los Angeles: Cotsen Institute of Archaeology University of California, Los Angeles and the Oriental Institute of the University of Chicago.
- Purß, A. & A. Schmitt. 2011. Excavations in field P in the years 2004-2009, in M. LeBeau & A. Suleiman (eds.) *Tell Beydar. The 2004/2-2009 seasons of excavations: the 2004/2-2009 seasons of architectural restoration. A preliminary report: 111-175*. Turnhout: Brepols.
- Rafkin, J. 1992. *Beyond beef: the rise and fall of the cattle culture*. New York: Dutton.
- Ramos Soldado, J.L. 2016. *Structured deposition of animal remains in the Fertile Crescent during the Bronze Age*. Oxford: Archaeopress.
- Reinholdt, C. 2003. The Aegean and western Anatolia: social forms and cultural relationships, in J. Aruz (ed.) *Art of the first cities*: 251-255. New Haven: Yale University Press.
- Reitz, E.J. & E.S. Wing. 2010. *Zooarchaeology*. Cambridge: Cambridge University Press.
- Rice, M. 1998. *The power of the bull*. London: Routledge.
- Rimas, A. & E.D.G. Fraser. 2008. *Beef: the untold story of how milk, meat, and muscle shaped the world*. New York: Harper.
- Roaf, M. 1990. *Cultural atlas of Mesopotamia and the ancient Near East*. New York: Facts on File.
- Robb, J. 2010. Beyond agency. *World Archaeology* 42: 493-520.
- Robb, J. 2017. 'Art' in archaeology and anthropology: an overview of the concept. *Cambridge Archaeological Journal* 27: 587-97.
- Root, M.C. 2002. Animals in the art of ancient Iran, in B.J. Collins (ed.) *A history of the animal world in the ancient Near East*: 169-209. Leiden: Brill.
- Roberts, A. 2017. *Tamed: ten species that changed our world*. London: Hutchinson.
- Rova, E. 2012. A new group of seal impressions from Tell Beydar, in R.J. Matthews & J. Curtis (eds.) *Proceedings of the 7th International Congress on the archaeology of the ancient Near East: 12 April-16 April 2010, the British Museum and UCL, London*: 151-166. Wiesbaden: Harrassowitz Verlag.
- Rova, E. & E. Devecchi. 2008. Seal impressions from Tell Beydar (2002-2006 seasons), in M. LeBeau & A. Suleiman (eds.) *Beydar Studies 1*: 63-194. Turnhout: Brepols.
- Rubinson, K.S. 1991. A mid-second millennium tomb at Dinkha Tepe. *American Journal of Archaeology* 95: 373-94.
- Russell, K.W. 1988. *After Eden: the behavioral ecology of early food production in the Near East and North Africa*. Oxford, BAR.
- Sagona, A. 2000. Excavations at Sos Höyük, 1998 to 2000: fifth preliminary report. *Ancient Near Eastern Studies* 37: 56-127.

- Sagona, A., M. Erkmén, C. Sagona, I. McNiven & S. Howells. 1998. Excavations at Sos Hoyuk, 1997: fourth preliminary report. *Anatolica* 24: 31-64.
- Sagona, A., M. Erkmén, C. Sagona & I. Thomas. 1996. Excavations at Sos Höyük, 1995: second preliminary report. *Anatolian Studies* 46: 27-52.
- Sagona, A., C. Sagona & H. Ozkorucuklu. 1995. Excavations at Sos Höyük 1994: first preliminary report. *Anatolian Studies* 55.
- Sagona, A. & P. Zimansky. 2009. *Ancient Turkey*. London: Routledge.
- Sagona, A.G., M. Erkmén, C. Sagona & S. Howells. 1997. Excavations at Sos Höyük 1996: third preliminary report. *Anatolica* 23: 181-226.
- Sallaberger, W. 2004. A note on the sheep and goat flocks introduction to texts, in L. Milano & F. Ismail (eds.) *Third millennium cuneiform texts from Tell Beydar: Seasons 1996-2002*: 151-67. Turnhout: Brepols.
- Sallaberger, W. & A. Purß. 2015. Home and work in Early Bronze Age Mesopotamia: "ration lists" and "private houses" at Tell Beydar/Nabada, in P. Steinkeller & M. Hudson (eds.) *Labor in the ancient world. Volume 5: a colloquium held at Hirschbach (Saxony), April 2005*: 69-136. Dresden: Islet Verlag.
- Sasson, A. 2008. *Animal husbandry in ancient Israel: a zooarchaeological perspective on livestock exploitation, herd management and economic strategies*. London: Routledge.
- Schwartz, G.M. & S.E. Falconer. 1994. Rural approaches to social complexity, in G.M. Schwartz & S.E. Falconer (eds.) *Archaeological views from the countryside: village communities in early complex societies*: 1-9. Washington: Smithsonian Institution Press.
- Scott, J.C. 2017. *Against the grain: a deep history of the earliest states*. New Haven, Yale University Press.
- Scurlock, J.A. 2002. Animals in ancient Mesopotamian religion, in B.J. Collins (ed.) *A history of the animal world in the ancient Near East*: 361-388. Leiden: Brill.
- Shahack-Gross, R. 2011. Herbivorous livestock dung: formation, taphonomy, methods for identification, and archaeological significance. *Journal of Archaeological Science* 38: 205-18.
- Sharpes, D.K. 2006 *Sacred bull, holy cow: a cultural study of civilization's most important animal*. New York: Peter Lang.
- Shenjere-Nyabezi, P. 2016. Imperceptible realities: an ethnoarchaeological perspective on the acquisition, ownership and management of cattle by women in southeastern Zimbabwe. *Azania: Archaeological Research in Africa* 51: 380-402.
- Siracusano, G. 2014. Third millennium BC fauna at Tell Beydar, in L. Milano & M. LeBeau (eds.) *Tell Beydar: Environmental and Technical Studies, volume II*: 217-303. Turnhout: Brepols.
- Smith, J.S. 2018. Authenticity, seal recarving, and authority in the ancient Near East and eastern Mediterranean, in M. Ameri, S.K. Costello, G.M. Jamison & S.J. Scott (eds.) *Seals and sealing in the ancient world*: 95-124. Cambridge: Cambridge University Press.
- Snell, D.C. 2011. *Religions of the ancient Near East*. Cambridge: Cambridge University Press.
- Spiteri, C.D., R.E. Gillis, M. Roffet-Salque, L.C. Navarro, J. Guilaine, C. Manen, I.M. Muntoni, M.S. Segui, D. Urem-Kotsu, H.L. Whelton, O.E. Craig, J.D. Vigne & R.P. Evershed. 2016. Regional asynchronicity in dairy production and processing in early farming communities of the northern Mediterranean. *Proceedings of the National Academy of Sciences of the United States of America* 113: 13594-99.
- Staubwasser, M. & H. Weiss. 2006. Holocene climate and cultural evolution in late prehistoric-early historic west Asia. *Quaternary Research* 66: 372-87.

- Stein, G. 2004. Structural parameters and sociocultural factors in the economic organization of north Mesopotamian urbanism in the third millennium BC, in G.M. Feinman & L.M. Nicholas (eds.) *Archaeological perspectives on political economies*: 61-78. Salt Lake City: The University of Utah Press.
- Stone, E.C. 2013. The organisation of a Sumerian town: the physical remains of ancient social systems, in H. Crawford (ed.) *The Sumerian world: 156-178*. London: Routledge.
- Taracha, P. 2012. The sculptures of Alacahoyuk: a key to religious symbolism in Hittite representational art. *Near Eastern Archaeology* 75: 108-15.
- Teissier, B. 1997. The glyptic (season 1994), in M. LeBeau & A. Suleiman (eds.) *Tell Beydar, three seasons of excavations (1992-1994): a preliminary report = Trois campagnes de fouilles à Tell Beydar (1992-1994): rapport préliminaire*: 156-178. Turnhout: Brepols.
- Thomas, R. 2005. *Animals, economy and status: integrating zooarchaeological and historical data in the study of Dudley Castle, West Midlands (c.1100-1750)*. Oxford: Archaeopress.
- Tonussi, M. 2008. Metal workshops and metal finds from third-millennium Tell Beydar/Nabada (1992-2005 seasons), in M. LeBeau & A. Suleiman (eds.) *Beydar Studies 1: 195-257*. Turnhout: Brepols.
- Ur, J.A. & Wilkinson, T.J. 2008. Settlement and economic landscapes of Tell Beydar and its hinterland, in M. LeBeau & A. Suleiman (eds.) *Beydar Studies 1: 305-327*. Turnhout: Brepols.
- Ur, J. 2012. Southern Mesopotamia, in D.T. Potts (ed.) *A companion to the archaeology of the ancient Near East*: 533-555. Oxford: Wiley-Blackwell.
- Ur, J.A., P. Karsgaard & J. Oates. 2007. Early urban development in the Near East. *Science* 317: 1188.
- Van Neer, W. & B. De Cupere. 2000. Faunal remains from Tell Beydar (excavation seasons 1992-1996 & 1997), in K. Van Lerberghe & G. Voet (eds.) *Tell Beydar: environmental and technical studies*: 69-115. Turnhout: Brepols.
- Velten, H. 2007. *Cow*. London: Reaktion Books LTD.
- Weber, J.A. 2001. A preliminary assessment of Akkadian and post-Akkadian animal exploitation at Tell Brak, in D. Oates, J. Oates & H. McDonald (eds.) *Excavations at Tell Brak. Volume 2: Nagar in the third millennium*: 345-350. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- Wengrow, D. 2001. Rethinking 'cattle cults' in early Egypt: towards a prehistoric perspective on the Namer Palette. *Cambridge Archaeological Journal* 11: 91-104.
- Wengrow, D. 2003. Interpreting animal art in the prehistoric Near East, in D.T. Potts, M. Roaf & D. Stein (eds.) *Culture through objects: ancient Near Eastern studies in honour of P.R.S. Moorey*: 139-160. Oxford: Griffith Institute Oxford.
- Widell, M. 2013. Sumerian agriculture and land management, in H. Crawford (ed.) *The Sumerian world*: 55-67. London: Routledge.
- Wilkinson, T.J. 1990a. Early channels and landscape development around Abu Salabikh, a preliminary report. *Iraq* 52: 75-83.
- Wilkinson, T.J. 1990b. *Town and country in SE Anatolia: settlement and land use at Kurban Höyük and other sites in the Lower Karababa Basin*. Chicago: University of Chicago Press.
- Wilkinson, T.J. 1994. The structure and dynamics of dry-farming states in Upper Mesopotamia. *Current Anthropology* 35: 483-520.
- Wilkinson, T.J. 2003. *Archaeological landscapes of the Near East*. Tucson: The University of Arizona Press.

- Wilkinson, T.J., C.A.I. French, W. Matthews & J. Oates. 2001. Geoarchaeology, landscape and the region. In: D. Oates, J. Oates & H. McDonald, eds. *Excavations at Tell Brak. Volume 2: Nagar in the Third Millennium BC*. Cambridge: McDonald Institute for Archaeological Research British School of Archaeology in Iraq.
- Winter, I.J. 1996. Sex, rhetoric, and the public monument: the alluring body of Naram-Sin of Agade, in N.B. Kampen (ed.) *Sexuality in ancient art: Near East, Egypt, Greece, and Italy*: 11-26. Cambridge: Cambridge University Press.
- Winter, I.J. 1999. Reading ritual in the archaeological record: deposition pattern and function of two artifact types from the Royal Cemetery of Ur, in H. Kuhne, R. Bernbeck & K. Bartl (eds.) *Fluchtpunkt Uruk: archäologische Einheit aus methodischer Vielfalt; Schriften für Hans Jörg Nissen*: 229-256. Espelkamp: Verlag Marie Leidorf.
- Winter, I.J. 2007. Representing abundance: the visual dimension of the agrarian state, in E.C. Stone (ed.) *Settlement and society: essays dedicated to Robert McCormick Adams*: 117-138. Los Angeles: Cotsen Institute of Archaeology University of California, Los Angeles and the Oriental Institute of the University of Chicago.
- Winter, I.J. 2008. Touched by the gods: visual evidence for the divine status of rulers in the ancient Near East, in N. Brisch (ed.) *Religion and power: divine kingship in the ancient world and beyond*: 75-101. Chicago: University of Chicago Press.
- Winterhalder, B. & D.J. Kennett. 2006. Behavioral ecology and the transition from hunting and gathering to agriculture, in D.J. Kennett & B. Winterhalder (eds.) *Behavioral ecology and the transition to agriculture*: 1-21. Berkeley: University of California Press.
- Woolley, C.L. 1934a. *Ur excavations: the Royal Cemetery. A report on the predynastic and Sargonid graves excavated between 1926 and 1931*. London: Trustees of the British Museum.
- Woolley, C.L. 1934b. *Ur excavations: The Royal Cemetery. A report on the predynastic and Sargonid graves excavated between 1926 and 1931*. London: The British Museum and Museum of the University of Pennsylvania.
- Woolley, C.L. 1963. *Excavations at Ur: a record of twelve years' work*. London: Ernest Benn Limited Barnes & Noble INC.
- Wright, H.T. 2007. Ancient agency: using models of intentionality to understand the dawn of despotism, in E.C. Stone (ed.) *Settlement and society: essays dedicated to Robert McCormick Adams*: 173-184. Los Angeles: Cotsen Institute of Archaeology University of California, Los Angeles and the Oriental Institute of the University of Chicago.
- Zeder, M.A. 1991. *Feeding cities: specialized animal economy in the ancient Near East*. Washington: Smithsonian Institution Press.
- Zeder, M.A. 1998. Environment, economy, and subsistence on the threshold of urban emergence in northern Mesopotamia, in M. Fortin & O. Aurenche (eds.) *Espace naturel, espace habité en Syrie du Nord (10e-2e millénaires av. j.c), Natural space, inhabited space in northern Syria (10th-2nd millennium B.C.)*: Quebec: Canadian Society for Mesopotamian Studies and Maison de l'Orient Méditerranéen Lyon.
- Zettler, R.L. 1987. Sealings as artifacts of institutional administration in ancient Mesopotamia. *Cuneiform Studies* 39: 197-240.
- Zettler, R.L. 1998a. The burials of a king and queen, in R.L. Zettler & L. Horne (eds.) *Treasures from the Royal Tombs of Ur*: 33-39. Philadelphia University of Pennsylvania Museum of Archaeology and Anthropology.
- Zettler, R.L. 1998b. The Royal Cemetery of Ur, in R.L. Zettler & L. Horne (eds.) *Treasures from the Royal Tombs of Ur*: 21-31. Philadelphia University of Pennsylvania Museum of Archaeology and Anthropology

- Zettler, R.L. 1998c. Ur of the Chaldees, in R.L. Zettler & L. Horne (eds.) *Treasures from the Royal Tombs of Ur*: 9-19. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology
- Zimmermann, T. 2007. Anatolia as a bridge from north to south? Recent research in the Hatti heartland. *Anatolian Studies* 57: 65-75.