

AL-SHARK 5  
University of Tsukuba: Studies for West Asian Archaeology  
*Excavation Reports of Tell el-Kerkh, Northwestern Syria,*  
*vol. 2*

Series Editors: Akira Tsuneki and Jamal Hydar

# The Neolithic Cemetery at Tell el-Kerkh

edited by

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with contributions by

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ARCHAEOPRESS PUBLISHING LTD  
Summertown Pavilion  
18-24 Middle Way  
Summertown  
Oxford OX2 7LG

[www.archaeopress.com](http://www.archaeopress.com)

ISBN 978-1-80327-026-5  
ISBN 978-1-80327-027-2 (e-Pdf)

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Front and back cover images: Excavation scenery at Kerkh Neolithic Cemetery

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# Contents

List of Figures and Tables.....	v
Acknowledgments.....	xiii
Contributors.....	xiv

## Chapter 1 Introduction Akira Tsuneki

1. Process Leading to the Investigations .....	1
2. Members and Operations of Each Excavation Season.....	2
3. Chronology of the Rouj Basin.....	7
a. Relative Chronology .....	7
b. Absolute Chronology.....	10

## Chapter 2 Geological Conditions of Tell el-Kerkh Ken-ichiro Hisada

1. Introduction.....	11
2. Geological Outline from West Asia to East Africa .....	11
3. Role of 'the Bassit Ophiolite' .....	12
4. Geological Features and Water Regime of the Rouj Basin .....	14
1) The Origin of the Rouj Basin.....	14
2) Water Environment of the Rouj Basin .....	15
5. Flint Acquisition of Tell el-Kerkh .....	15
6. Conclusion.....	18

## Chapter 3 The Tell el-Kerkh Site and Stratigraphy Akira Tsuneki

1. Investigating Neolithic Cultural Deposits in Tell Ain el-Kerkh .....	19
Northwest Area (Squares A386, D6, and D26).....	19
Square A318 .....	25
Square B230.....	26
Square B290.....	26
Square D11 .....	28
Square D16 .....	28
Square E1 .....	28
Square E10.....	29
Square F1 .....	29
Square E110.....	30
Squares G191 and G192 .....	32
Tell el-Kerkh 2 Test Pit A .....	35
East Trench (Squares E272, E273, E274, E275, E276, and E277) .....	35
Central Area (Squares E251, E270, E271, E290, E291, E310 and E311).....	35
Layer 1 structures .....	37
Layer 2 structures .....	38
Layer 3 structures .....	38
Layer 4 structures .....	40

Layer 5 structures .....	44
Layer 6 structures .....	53
Layer 7 structures .....	55
2. The Size of the Neolithic Settlement .....	62
Rouj 1a period.....	62
Rouj 1c period.....	63
Rouj 2a-b period.....	63
Rouj 2c period .....	64
Rouj 2d period .....	63

**Chapter 4**  
**Burial Types and the Transition of Kerkh Cemetery**  
Sari Jammo

1. Burial Types in Kerkh Cemetery.....	67
1) Primary Burials.....	71
2) Secondary Burials/Pits.....	73
3) Cremation Burials/Pits.....	74
3-a) Crematorium Pits.....	75
3-b) Removed Burned Bones.....	76
4) Urn Burials.....	76
5) Unknown Burials .....	76
2. The Transition of the Cemetery and the Distribution of Burials .....	77
Layer 7 (Before becoming a cemetery).....	78
Layer 6 (The beginning of the cemetery).....	79
Layer 5 .....	83
Layer 4 .....	85

**Chapter 5**  
**Burial Catalogue of Kerkh Cemetery**  
Akira Tsuneki, Naoko Hironaga, Sari Jammo, Yuko Miyachi and Yuki Tatsumi

Catalogue.....	93
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**Chapter 6**  
**The Human Remains of Tell el-Kerkh**  
Sean P. Dougherty

1. Introduction.....	253
2. Preservation .....	253
3. Mortuary Profile.....	255
4. Postcranial Measurements .....	262
5. Non-Specific Indicators of Morbidity and Malnutrition .....	264
1) Linear Enamel Hypoplasia .....	264
2) Porotic Hyperostosis and Cribra Orbitalia.....	267
3) Periostitis.....	269
6. Infectious Disease.....	269
7. Dental Pathology.....	270
1) Dental Caries .....	272
2) Periodontal Disease.....	272
3) Antemortem Tooth Loss .....	272
4) Periapical Abscess .....	274
5) Calculus .....	275
6) Dental Wear .....	275
7) Extramasticatory Dental Wear .....	275
8. Trauma.....	279
1) Antemortem Fractures .....	279
2) Perimortem Fractures .....	280
3) Soft Tissue Injuries.....	282
9. Osteoarthritis and Other Degenerative Joint Changes .....	283

10. Osteometric Indicators of Activity .....	284
11. Summary and Conclusions .....	286
Appendix 6-1: Catalogue of Human Remains .....	289
Appendix 6-2: Sex Determination .....	303
Appendix 6-3: Age Determination.....	308
Appendix 6-4: Adult Postcranial Osteometric Data .....	313
Appendix 6-5: Nonadult Postcranial Osteometric Data .....	314
Appendix 6-6: Odontometrics of the Permanent Teeth.....	315

**Chapter 7**  
**Radiocarbon Dating at Tell el-Kerkh**  
 Yu Itahashi and Minoru Yoneda

1. Materials .....	317
2. Methods.....	317
3. Results of Charcoal and Carbonized Samples .....	318
4. Results of Human Samples .....	319

**Chapter 8 (Discussion 1)**  
**Body Transformation: Skull Retrieval, Manipulation and Circulation**  
**of Human Remains at Kerkh Cemetery**  
 Sari Jammo

1. Introduction.....	323
2. The Pottery Neolithic and Funerary Practices.....	323
3. Status of Burial Disturbance at Kerkh Cemetery .....	325
4. Detached Skulls .....	327
4-1. Detached Skulls and Crania Associated with Primary Burials .....	327
4-2. Solo Detached Skulls and Crania Discovered on the Cemetery Ground .....	327
4-3. Detached Skulls and Crania Accompanied with and without Long Bones Found in the Collective Burials and Crematorium Pits.....	329
5. Headless Individuals at Kerkh Cemetery .....	330
5-1. Str. 711.....	330
5-2. Str. 714.....	331
5-3. Str. 750.....	331
5-4. Str. 752.....	332
5-5. Str. 926.....	332
5-6. Str. 927.....	333
5-7. Str. 1057.....	335
5-8. Str. 1072.....	335
5-9. Str. 1074.....	335
5-10. Str. 1094.....	336
5-11. Str. 834.....	336
6. Scope of Practicing Skull Removal in PN and Subsequent Periods.....	337
7. The Criteria for Selecting Individuals for Postmortem Treatment .....	338
8. Whose Skull Was Removed? .....	339
9. Manipulation and Circulation of Human Remains .....	341
10. Conclusion.....	343

**Chapter 9 (Discussion 2)**  
**The Meaning of Cremation**  
 Naoko Hironaga

1. Introduction.....	345
2. Ancient Cremations in West Asia .....	345
3. Cremation at Tell el-Kerkh .....	346
4. Transition in Cremation Practices .....	350
4-1. Pre-Pottery Neolithic.....	350
4-2. Late Neolithic.....	351

5. Cremation as Burial and Ritual .....	353
6. Conclusion.....	354

**Chapter 10 (Discussion 3)**  
**Stable Isotope Analyses of Human and Animal Bones at Tell el-Kerkh**  
Yu Itahashi and Minoru Yoneda

1. Introduction.....	355
2. Materials.....	355
3. Methods.....	356
4. Results.....	357
4-1. Stable Isotope Compositions of Charred Kernels.....	357
4-2. Faunal Isotopic Compositions of Collagen .....	358
4-3. Human Isotopic Compositions of Collagen at Tell el-Kerkh.....	359
4-4. Faunal Nitrogen Isotopic Compositions of Amino Acids by GC-C-IRMS.....	360
4-4-1. Nitrogen isotopic compositions of amino acids from humans .....	363
4-4-2. Strontium isotope values of tooth enamels of humans.....	363
5. Discussion.....	363
5-1. Characterizing the Diet and Temporal Changes in the Diet of Neolithic Populations in the Northern Levant .....	363
5-2. Social Structure of PN Period .....	366
6. Conclusions .....	367

**Chapter 11**  
**Conclusion**  
Akira Tsuneki

Layer 7.....	370
Layer 6.....	370
Layer 5.....	371
Layer 4.....	371

**Appendix**  
**Neolithic Burials Outside of the Cemetery**  
Naoko Hironaga

Burials from Rouj 2d period .....	373
Burials from Rouj 2c period.....	375
Burials from Rouj 1c period.....	381

<b>References.....</b>	<b>383</b>
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<b>Arabic Summary .....</b>	<b>404</b>
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# List of Figures and Tables

## Chapter 1

Figure 1-1. Location of the Rouj Basin, northwest Syria.....	1
Figure 1-2. The Rouj Basin and its surroundings .....	2
Figure 1-3. Geology of the Rouj Basin .....	3
Figure 1-5. General view of the Rouj Basin, looking north from Tell el-Kerkh 1.....	3
Figure 1-4. Archaeological tells in the Rouj Basin .....	3
Figure 1-6. People who participated in the 2010 season.....	6
Figure 1-7. Neolithic lithic chronology of the Rouj Basin .....	8
Figure 1-8. Neolithic pottery chronology of the Rouj Basin .....	9
Table 1-1. The Rouj Basin chronology (2021 version) .....	7

## Chapter 2

Figure 2-1. Outline of geology and plates in West Asia.....	12
Figure 2-2. Outline of geology in northwestern Syria. Based on Aghnabati (1986) .....	13
Figure 2-3. 'Bassit ophiolite'. a. Outcrop of serpentinite; b. Serpentinized peridotite .....	14
Figure 2-4. Distant view of Rouj Basin. a. western side; b. eastern side .....	15
Figure 2-5. Geologic map and profile of Rouj Basin. Based on Akahane (2003). Dip and strike are based on Hisada .....	16
Figure 2-6. Geology and topography around Rouj Basin. a: Uvala at the southern part of west side. b: Eocene stratified limestone. c: Miocene stratified limestone at the southern part of east side .....	17
Figure 2-7. Siliceous nodules near Latakia and along farm road from Rouj Basin to Ghab Plain.a: Siliceous nodule in Cretaceous limestone near Latakia.b: Cretaceous stratified limestone near Latakia.c & d: Siliceous nodules along the farm road from Rouj Basin to Ghab Plain.....	18

## Chapter 3

Figure 3-1. Mound complex of Tell el-Kerkh and grid system.....	20
Figure 3-2. Excavated squares at Tell el-Kerkh.....	21
Figure 3-3. Square D6, eastern section.....	22
Figure 3-4. Squares D6 – D26, Layer 1 structures .....	23
Figure 3-5. Square D26, Layer 2 structures.....	23
Figure 3-6. Square D6, Layer 3 structures.....	23
Figure 3-7. Square D6, Layer 4 structures.....	23
Figure 3-8a. Square D6, Layer 5 structures.....	23
Figure 3-8b. Square D6, Layer 5 structures from the east.....	23
Figure 3-8c. A cache of blade blanks from the west.....	23
Figure 3-9. Square D6, Layers 4 and 5 burials .....	24
Figure 3-10. Square D6, northern section and Aswad points discovered from Layers 7-10 .....	25
Figure 3-11. Square A318d, western section .....	25
Figure 3-12. Square A318d, Layer 1 structures from the west .....	26
Figure 3-13. Objects discovered from Layer 1, Square A318d. a. Frog shaped peridotite pendant; b. Ironstone axe; c. Female figurine .....	26
Figure 3-14. Square A318d, Layer 2 structures from the south.....	27
Figure 3-15. Square B230d, eastern section and Layer 2 structures.....	27
Figure 3-16. Square E290d, eastern section and Layer 2 structures.....	27
Figure 3-17. Square D11a-b, northern section.....	28
Figure 3-18. Square D16a, northern section and Layer 5 structures.....	29
Figure 3-19. Square E1a, northern section and Layer 3 structures .....	29
Figure 3-20. Square E10, eastern section.....	30
Figure 3-21. Square E10, Layer 6 structures from the east .....	30
Figure 3-22. Square F1, northern section .....	31
Figure 3-23. Square E110, eastern section and Layer 2 structures .....	31
Figure 3-24. Squares G191-G192, southern section.....	30
Figure 3-25. Square G192b, a cache of blades .....	31
Figure 3-26. East Trench, northern section .....	32
Figure 3-27a. Square E273, Strs. 602-605 from the east (Layer 2).....	32
Figure 3-27b. Square E273, Strs. 623-624 from the north (Layer 4).....	32
Figure 3-27c. Square E274, Strs. 657, 659, 660, 662 from the northwest (Layer 8) .....	32
Figure 3-28a. Squares E275-E276, Str. 655 from the west (Layer 9).....	33
Figure 3-28b. Str. 655, from the southeast .....	33
Figure 3-28c. Str. 655 from the south.....	33
Figure 3-29. One of the bins facilitated in Str. 655 produced many mud shell beads .....	34

Figure 3-30. Central Area, Squares E251-E271-E-291-E311, eastern section .....	34
Figure 3-31. Central Area, Layer 1 structures .....	36
Figure 3-32. Str. 221 from the north.....	37
Figure 3-33. Three ritual pits (Strs. 21, 22 and 38).....	38
Figure 3-34. Three ritual pits (Strs. 21, 22 and 38) and discovered objects.....	39
Figure 3-35. Str. 23 Burial.....	40
Figure 3-36. Central Area, Layer 2 structures .....	41
Figure 3-37. Central Area, Layer 2 southern structures from the north .....	42
Figure 3-38. Infant burials in Layer 2 .....	42
Figure 3-39. Central Area, Layer 3 structures .....	43
Figure 3-40. Str. 334 from the west.....	44
Figure 3-41. Str. 331, an infant burial and grave goods.....	44
Figure 3-42. Central Area, Layer 4a structures .....	45
Figure 3-43. Central Area, Layer 4b structures.....	46
Figure 3-44. Str. 332 from the north.....	47
Figure 3-45. Str. 332, thick lime plastering on stone .....	47
Figure 3-46. Str. 341, tannor .....	47
Figure 3-47. Str. 510 from the south.....	47
Figure 3-48a. Square E271, cemetery of Layer 4 from the south.....	47
Figure 3-48b. Square E251, cemetery of Layer 4-5 from the west .....	48
Figure 3-49. Str. 29 Burial.....	48
Figure 3-50. Central Area, Layer 5 structures .....	49
Figure 3-51. Central Area, Layers 5-6 structures from the north .....	50
Figure 3-52. Str. 72 from the west. a. Under digging; b. Complete digging.....	50
Figure 3-53. Str. 74 from the north.....	51
Figure 3-54. Str. 153 (Photograph: from the north).....	51
Figure 3-55. Str. 516 from the east.....	52
Figure 3-56a. Str. 109 from the east.....	52
Figure 3-56b. Str. 109 from the west.....	52
Figure 3-56c. Str. 109, base bottom from the west.....	52
Figure 3-57. Central Area, Layer 6 structures .....	54
Figure 3-58. Str. 167 from the west.....	55
Figure 3-59. Str. 167 and Str. 532 from the east .....	55
Figure 3-60. Objects found from the first floor of Str. 167 .....	56
Figure 3-61. Str. 124 from the west.....	56
Figure 3-62. The uppermost layer of Str. 827 from the west. Str. 908 burial was discovered in Room 5.....	56
Figure 3-63. Strs. 155 and 166 Burials .....	56
Figure 3-64. Central Area, Layer 7 structures .....	58
Figure 3-65. Square E271 and beyond, Layer 7 from the north.....	59
Figure 3-66a. The upper layer of Str. 827 from the west .....	59
Figure 3-66b. The middle layer of Str. 827 from the west.....	59
Figure 3-66c. The lower layer of Str. 827 from the west.....	59
Figure 3-66d. Str. 827, discovered objects .....	60
Figure 3-67. Str. 916 from the west.....	61
Figure 3-68. Str. 804 from the east.....	61
Figure 3-69. Estimated settlement range for Rouj 1a period .....	62
Figure 3-70. Estimated settlement range for Rouj 1c period .....	63
Figure 3-71. Estimated settlement range for Rouj 2a-b period.....	64
Figure 3-72. Estimated settlement range for Rouj 2c period .....	65
Figure 3-73. Estimated settlement range for Rouj d period .....	66
Table 3-1. Number of ground stone objects discovered from Str. 827 .....	60

## Chapter 4

Figure 4-1. General view of Kerkh Cemetery.....	68
Figure 4-2. Burial types at Kerkh Cemetery.....	70
Figure 4-3. Age-based burial distribution at Kerkh Cemetery .....	70
Figure 4-4. Age-based burial body position at Kerkh Cemetery.....	70
Figure 4-5. Age-based burial face direction at Kerkh Cemetery.....	70
Figure 4-6. Primary burials at Kerkh Cemetery .....	71
Figure 4-7. Primary burial conditions.....	72
Figure 4-8. Primary burials' age-based body position.....	72
Figure 4-9. Primary burials' age-based face direction .....	72
Figure 4-10. Secondary burials at Kerkh Cemetery .....	73
Figure 4-11. Collective burials at Kerkh Cemetery .....	74
Figure 4-12. Cremation burials at Kerkh Cemetery .....	75
Figure 4-13. Urn burials at Kerkh Cemetery .....	76
Figure 4-14. Unknown burials at Kerkh Cemetery .....	77
Figure 4-15. The area of Kerkh Cemetery, Layer 7 .....	79
Figure 4-16. Kerkh Cemetery, Layer 6 .....	80



Figure 4-17. Burial types at Layer 6.....	83
Figure 4-18. Burial groups in Kerkh Cemetery Layer 6.....	84
Figure 4-19. Individual burials and burial groups in layers 4, 5 and 6 of Kerkh Cemetery.....	84
Figure 4-20. Kerkh Cemetery, Layer 5.....	86
Figure 4-21. Burial types at Layer 5.....	88
Figure 4-22. Burial groups in Kerkh Cemetery Layer 5.....	88
Figure 4-24. Burial types at Layer 4.....	89
Figure 4-23. Kerkh Cemetery, Layer 4.....	90
Figure 4-25. Burial groups in Kerkh Cemetery Layer 4.....	92
Table 4-1. Sex and age-based distribution of deceased at Kerkh Cemetery.....	70
Table 4-2. Sex and age-based distribution of deceased in the primary burials at Kerkh Cemetery.....	72
Table 4-3. Sex and age-based distribution of deceased in the secondary burials at Kerkh Cemetery.....	73
Table 4-4. Sex and age-based distribution of deceased in the cremation burials at Kerkh Cemetery.....	75
Table 4-5. Sex and age-based distribution of deceased in the unknown burials at Kerkh Cemetery.....	77
Table 4-6. Sex and age of deceased in the Layer 6 at Kerkh Cemetery.....	82
Table 4-7. Sex and age of deceased in the Layer 5 at Kerkh Cemetery.....	85
Table 4-8. Sex and age of deceased in the Layer 4 at Kerkh Cemetery.....	89

## Chapter 5

Figure 5-1. Str. 502 Burial.....	101
Figure 5-2. Str. 504 Burial.....	101
Figure 5-3. Str. 507 Burial and grave goods: DFBW bowl.....	102
Figure 5-4. Str. 513 Burial and grave goods: Stone animal-shaped pendant.....	103
Figure 5-5. Str. 519 Burial.....	103
Figure 5-6. Str. 521 Burial.....	104
Figure 5-7. Str. 524 Burial.....	105
Figure 5-8. Str. 527 Burial.....	105
Figure 5-9. Str. 528 Burial.....	106
Figure 5-10a. Str. 533 Burial: A. The upper body covered with a large stone; B. The skeleton under a large stone.....	106
Figure 5-10b. Str. 533 Burial: A. The upper body covered with a large stone; B. The skeleton under a large stone.....	107
Figure 5-11a. Str. 710 Burial.....	107
Figure 5-11b. Str. 710 Burial.....	108
Figure 5-12a. Str. 712 Burial: A. Middle adult skeleton; B. The square-planned pit. Grave goods: 1. Flint blade in the skull; 2. Flint blade near the waist.....	108
Figure 5-12b. Str. 712 Burial.....	109
Figure 5-13. Str. 713 Burial.....	110
Figure 5-14a. Str. 715 Burial.....	110
Figure 5-14b. Str. 715 Burial and grave goods: 1. Stone vessel; 2. Shell bead; 3. Flint blade.....	111
Figure 5-15. Str. 716 Burial.....	112
Figure 5-16. Str. 717 Burial.....	113
Figure 5-17. Str. 725 Burial.....	113
Figure 5-18. Str. 726 Burial.....	114
Figure 5-19a. Str. 729 Burial.....	114
Figure 5-19b. Str. 729 Grave goods: 1. Stone stamp seal; 2. Flint core.....	115
Figure 5-20. Str. 730 Burial.....	115
Figure 5-21. Str. 738 Burial.....	116
Figure 5-22a. Str. 739 Burial.....	116
Figure 5-22b. Str. 739 Burial and grave goods: 1. Stone butterfly bead; 2, 3, 5. Clay barrel beads; 4. Stone barrel bead; 6. Tusk shell bead; 7. Conch shell bead.....	117
Figure 5-23. Str. 746 Burial: A. Northern part; B. Central part; C. Southern part.....	118
Figure 5-24a, Str. 748 Burial: General view.....	119
Figure 5-24b. Str. 748 Burial: Upper level.....	120
Figure 5-24c. Str. 748 Burial: Lower level.....	121
Figure 5-24d. Str. 748 Burial: A. Young adult skeleton; B. Infant bones. Grave goods: 1. Stone bead; 2. Flint borer; 3. DFBW bowl.....	122
Figure 5-25. Str. 750 Burial.....	123
Figure 5-26. Str. 752 Burial.....	123
Figure 5-27. Str. 756 Burial.....	124
Figure 5-28a. Str. 757 Burial.....	124
Figure 5-28b. Str. 757 Grave goods: Bone awl.....	125
Figure 5-29. Str. 759 Burial.....	125
Figure 5-30a. Str. 803 Burial.....	126
Figure 5-30b. Str. 803 Burial and grave goods: 1. Conch shell adornment; 2. Bone bead.....	127
Figure 5-31a. Str. 807 Burial: A. The body covered with lime plaster and limestone; B. The skeleton under lime plaster.....	128
Figure 5-31b. Str. 807 Burial: A. The body covered with lime plaster and limestone; B. The skeleton under lime plaster. Grave goods: 1. Flint drill; 2. Stone bead.....	129
Figure 5-32. Str. 822 Burial and grave goods: 1-4, 6-20. Stone beads; 5. Shell bead.....	130
Figure 5-33. Str. 823 Burial and grave goods: 1. Shell bead; 2. Bone needle.....	131
Figure 5-34. Str. 825 Burial.....	131

Figure 5-35. Str. 826 Burial.....	132
Figure 5-36. Str. 828 Burial.....	132
Figure 5-37. Str. 829 Burial.....	133
Figure 5-38. Str. 830 Burial and grave goods: Stone bead .....	134
Figure 5-39a. Str. 832 Burial: A. Northern part; B. Western part; C. Southern part.....	135
Figure 5-39b. Str. 832 Grave goods: 1. DFBW jar; 2. Limestone barrel bead; 3. Gypsum oval bead; 4. Obsidian barrel bead; 5, 8. Agate flat beads; 6. Serpentinite barrel bead; 7. Cowrie shell bead .....	136
Figure 5-40. Str. 834 Burial.....	136
Figure 5-41. Str. 836 Burial and grave goods: Conch shell bead.....	137
Figure 5-42. Str. 838 Burial.....	138
Figure 5-43. Str. 841 Burial.....	138
Figure 5-44. Str. 851 Burial and grave goods: Shell bead (front and back).....	139
Figure 5-45. Str. 852 Burial.....	140
Figure 5-46. Str. 902 Burial.....	140
Figure 5-47. Str. 904 Burial.....	141
Figure 5-48. Str. 908 Burial.....	142
Figure 5-49. Str. 909 Burial and grave goods: Limestone stamp seal .....	143
Figure 5-50. Str. 910 Burial.....	144
Figure 5-51. Str. 911 Burial.....	144
Figure 5-52. Str. 912 Burial.....	145
Figure 5-53a. Str. 913 Burial.....	145
Figure 5-53b. Str. 913 Grave goods: 1, 15. Oval stone beads; 2, 4-6, 8-11, 16-20. Serpentinite butterfly/barrel beads; 3, 13-14. Agate flat beads; 7, 12. Fragments of stone beads.....	146
Figure 5-54a. Str. 914 Burial.....	146
Figure 5-54b. Str. 914 Grave goods: 1. Stone short-cylindrical bead; 2, 5, 8. Agate flat beads; 3. Stone cylindrical bead; 4. Stone barrel bead; 6. Serpentinite trapezoid bead; 7. Stone trapezoid bead.....	147
Figure 5-55. Str. 918 Burial.....	147
Figure 5-56. Str. 920 Burial.....	148
Figure 5-57. Str. 921 Burial.....	148
Figure 5-58. Str. 922 Burial and grave goods: 1-2. Stone beads; 3. Shell bead .....	149
Figure 5-59. Str. 924 Burial and grave goods: Stone bead .....	150
Figure 5-60. Str. 925 Burial.....	151
Figure 5-61. Str. 926 Burial and grave goods: 1. Shell bead; 2. Bone bead; 3. Limestone bead; 4. Tusk shell bead; 5. Bone bead; 6-7. Conch shell beads .....	152
Figure 5-62a. Str. 927 Burial and grave goods: 1. Incised and burnt bone bead; 2. Shell bead; 3. Conch shell bead; 4. Blue bead; 5. Stone bead; 6. Agate bead; 7. DFBW bowl.....	153
Figure 5-62b. Str. 927 Burial: A. Upper level; B. Lower level. Grave goods: 1. Incised and burnt bone bead; 2. Shell bead; 3. Conch shell bead; 4. Blue bead; 5. Stone bead; 6. Agate bead; 7. DFBW bowl; 8. Pottery fragment; 9. Bivalve shell .....	154
Figure 5-63a. Str. 930 Burial: Secondary burial contained human bones and animal bones .....	155
Figure 5-63b. Str. 930 Burial.....	156
Figure 5-63c. Str. 930 Burial: A. Animal jaw and human bones; B. Human skulls in situ; C. Human mandible and animal bones.....	157
Figure 5-64. Str. 931 Burial.....	157
Figure 5-65. Str. 933 Burial: A. The body covered with DFBW potsherds; B. The skeleton under DFBW potsherds; C. Restored a part of DFBW potsherds .....	158
Figure 5-66a. Str. 941 Burial.....	159
Figure 5-66b. Str. 941 Burial and grave goods: 1. Bone spatula; 2. Flint point; 3. Hammer stone .....	160
Figure 5-67. Str. 942 Burial.....	161
Figure 5-68. Str. 946 Burial and grave goods: Stone bead .....	161
Figure 5-69. Str. 977 Burial.....	162
Figure 5-70. Str. 981 Burial: A. Upside-down urn; B. Fetal skeleton in an urn.....	162
Figure 5-71. Str. 1040 Burial.....	163
Figure 5-72. Str. 1044 Burial and grave goods: Blue bead .....	164
Figure 5-73. Str. 1045 Burial.....	165
Figure 5-74. Str. 1047 Burial.....	166
Figure 5-75. Str. 1048 Burial.....	166
Figure 5-76. Str. 1050 Burial: A. Young adult skeleton; B. Broken left femur.....	167
Figure 5-77. Str. 1051 Burial.....	168
Figure 5-78. Str. 1052 Burial: A. Upper level; B. Lower level; Grave goods: Coarse pottery bowl .....	169
Figure 5-79. Str. 1053 Burial and grave goods: 1. Stamp seal; 2-3. Clay beads; 4-5. Stone beads; 6. Goat horn .....	170
Figure 5-80. Str. 1056 Burial and grave goods: 1-2. Stone beads; 3. Flint blade .....	171
Figure 5-81. Str. 1057 Burial.....	172
Figure 5-82a. Str. 1058 Burial: A. Adult skeleton and grave goods; B. DFBW bowl from the back of his head; C. Grave goods near his lower back .....	173
Figure 5-82b. Str. 1058 Grave goods: 1. DFBW bowl; 2. Clay (DFBW potsherd) stamp seal; 3-5. Deer horns; 6-8. Bone awls; 9-12. Soft stone hammers; 13. Whetstone .....	174
Figure 5-82c. Str. 1058 Grave goods: 1. Amuq-type flint point; 2-6. Flint blades; 7-8. Burins; 9-11. Flint axes.....	175
Figure 5-82d. Str. 1058 Grave goods: 1-18. Flint flakes.....	176
Figure 5-82e. Str. 1058 Grave goods.....	177

Figure 5-83. Str. 1059 Burial: A. Upper level; B. Middle level; C. Lower level. Grave goods: Animal talus.....	178
Figure 5-84. Str. 1062 Burial.....	179
Figure 5-85a. Str. 1064 Burial.....	179
Figure 5-85b. Str. 1064 Grave goods: 1-3. Shell beads.....	180
Figure 5-86. Str. 1066 Burial and grave goods: Imitation turquoise blue bead (front and back).....	180
Figure 5-87. Str. 1067 Burial.....	181
Figure 5-88. Str. 1068 Burial.....	181
Figure 5-89. Str. 1070 Burial.....	182
Figure 5-90. Str. 1072 Burial.....	182
Figure 5-91. Str. 1073 Burial and grave goods: Blue bead.....	183
Figure 5-92. Str. 1074 Burial.....	184
Figure 5-93a. Str. 1075 Burial.....	184
Figure 5-93b. Str. 1075 Burial.....	185
Figure 5-94. Str. 1076 Burial.....	185
Figure 5-95. Str. 1077 Burial: A. Upper level. B. Lower level. Grave goods: 1. Conch shell bead; 2. Tusk shell bead; 3. Stone short-cylindrical bead.....	186
Figure 5-96. Str. 1078 Burial.....	187
Figure 5-97. Str. 1079 Burial.....	188
Figure 5-98. Str. 1080 Burial.....	189
Figure 5-99a. Str. 1081 Burial.....	189
Figure 5-99b. Str. 1081 Burial: A. Adult skeleton; B. Cattle metacarpal and bone awls; C. Bead and bone awls. Grave goods: 1. Cattle metacarpal; 2-8. Bone awls; 9-11. Stone beads.....	190
Figure 5-99c. Str. 1081 Grave goods: 1. Cattle metacarpal; 2-8. Bone awls; 9-11. Stone beads.....	191
Figure 5-100. Str. 1082 Burial.....	192
Figure 5-101. Str. 1083 Burial.....	192
Figure 5-102. Str. 1084 Burial.....	193
Figure 5-103. Str. 1085 Burial.....	194
Figure 5-104. Str. 1086 Burial and grave goods: 1-2. Flint blades; 3. Stamp seal.....	195
Figure 5-105. Str. 1087 Burial and grave goods: Flat basalt beads.....	196
Figure 5-106. Str. 1088 Burial and grave goods: Stamp seal.....	197
Figure 5-107. Str. 1089 Burial.....	198
Figure 5-108. Str. 1090 Burial.....	198
Figure 5-109. Str. 1091 Burial and grave goods: 1. Stone bead; 2. Stone axe.....	199
Figure 5-110. Str. 1092 Burial.....	200
Figure 5-111a. Str. 1093 Burial.....	200
Figure 5-111b. Str. 1093 Burial and grave goods: Stone stamp seal.....	201
Figure 5-112. Str. 1094 Burial.....	201
Figure 5-113. Str. 1095 Burial.....	202
Figure 5-114a. Str. 1096 Burial.....	202
Figure 5-114b. Str. 1096 Burial.....	203
Figure 5-115. Str. 1097 Burial.....	203
Figure 5-116. Str. 1098 Burial.....	204
Figure 5-117. Str. 1099 Burial.....	204
Figure 5-118a. Concentration 1 Burial.....	207
Figure 5-118b. Concentration 1 Burial: A. General view; B. Strs. 740, 741 and 742; C. Strs. 718, 721, 722, 740 and 742; D. Str. 719; E. Str. 720.....	208
Figure 5-118c. Concentration 1 Burial: F. Str. 743; G. DFBW jar. Grave goods: DFBW jar.....	209
Figure 5-119a. Concentration 2 Burial.....	211
Figure 5-119b. Concentration 2 Burial: A. General view; B. Str. 711; C. Str. 714.....	212
Figure 5-119c. Concentration 2 Burial: D. Str. 731; E. Strs. 732 and 737; F. Str. 751; G. Limestone ball.....	213
Figure 5-119d. Concentration 2 Grave goods: 1-2. Shell beads (Str. 714); 3. Stone bead (Str. 731); 4. Stamp seal (Str. 751); 5. Cattle metacarpal (Str. 732); 6-7. Stone beads (Str. 751); 8. Limestone ball.....	214
Figure 5-120a. Concentration 3 Burial: A. Uppermost level and the elevation of the pit.....	216
Figure 5-120b. Concentration 3 Burial: B. Upper level; C. Middle level.....	217
Figure 5-120c. Concentration 3 Burial: D. Lower level; E. Uppermost level of southern half of the pit (Strs. 831 and 847); F. Uppermost level of northern half of the pit; G. Upper level of southern half of the pit (Strs. 847 and 848); H. Upper level of northern half of the pit.....	218
Figure 5-120d. Concentration 3 Burial: I. Middle level of southern half of the pit (Strs. 848 and 850); J. Middle level of northern half of the pit; K. Lower level of southern half of the pit (Str. 854); L. Lower level of northern half of the pit. Grave goods: 1. Stone bead (Str. 854); 2. Clay disc; 3. Stone bead.....	219
Figure 5-121a. Concentration 4 Burial: A. Upper level (Strs. 833 and 839); B. Middle level (Strs. 845, 846 and 853).....	221
Figure 5-121b. Concentration 4 Burial: C. Lower level (Str. 859); D. Strs. 833 and 839; E. Strs. 845 and 846.....	222
Figure 5-121c. Concentration 4 Burial: F. Str. 845; G. Str. 853; H. Str. 859; I. Stamp seal and beads; J. Shell bead. Grave goods: 1, 4. Stone beads; 2. Unfinished stone stamp seal; 3, 5. Shell beads.....	223
Figure 5-122a. Concentration 5 Burial: A. Upper level; B. Cremated cranium (Str. 842).....	225
Figure 5-122b. Concentration 5 Burial: C. Cremated cranial bones (Str. 855); D. Cremated cranial bones (Strs. 856 and 857); E. Lower level and bottom of the pit; F. DFBW jars on the top of the pit. Grave goods: 1-2. DFBW jars; 3. Bone stamp seal..	226
Figure 5-123a. Concentration 6 Burial: A. Just above the upper pit; B. Upper and lower pits.....	228
Figure 5-123b. Concentration 6 Burial: C. General view; D. Upper pit; E. Plaster and cranium bones (Str. 865); F. Strs. 866, 867 and 868; G. Bottom of the lower pit.....	229

Figure 5-123c. Concentration 6 Burial: H. Mass of carbonized wheat just above the upper pit; I. DFBW jar at the lower pit. Grave good: DFBW jar.....	230
Figure 5-124a. Concentration 7 Burial: A. General view .....	232
Figure 5-124b. Concentration 7 Burial: B. Strs. 860, 861, 862 and 863 (C7-1).....	233
Figure 5-124c. Concentration 7 Burial: C. Str 932 (C7-2); D. Strs 984, 985 and 988 (C7-2).....	234
Figure 5-124d. Concentration 7 Burial: E. General view (C7-1); F. Str 860 (C7-1); G. Str 861 (C7-1).....	235
Figure 5-124e. Concentration 7 Burial: H. Str. 862 (C7-1); I. Str. 863 (C7-1); J. Str. 932 (C7-2); K. Str. 984 (C7-2) .....	236
Figure 5-124f. L. Str. 985 (C7-2); M. Str. 988 (C7-2). Grave goods: 1. Stone stamp seal (Str. 860); 2-4. Bone stamps seals (Str. 860); 20. DFBW jar (Str. 862); 22. Stone bead (Str. 863) .....	237
Figure 5-124g. Concentration 7 Grave goods: 1. Stone stamp seal (Str. 860); 2-4. Bone stamp seals (Str. 860); 5-8. Butterfly stone beads (Str. 860); 9-10. Trapezoid stone beads (Str. 860); 11. Bone bead (Str. 860); 12-15. Cowrie beads (Str. 860); 16. Tusk shell (Str. 860); 17. Oval quartz bead (Str. 860); 18. Miniature stone vessel (Str. 860); 19. Coarse pottery bowl (Str. 861); 20. DFBW jar (Str. 862); 21. Animal left mandible (Str. 862); 22. Stone bead (Str. 863); 23. Amuq-type flint point (Str. 863) .....	238
Figure 5-124h. Concentration 7 Grave goods: 24. Flint blade (Str. 984); 25. Flint point (Str. 984); 26. Stone bead (Str. 984); 27. Bone spatula (Str. 988); 28. Flat stone bead (Str. 988); 29. Cylindrical stone bead (Str. 988); 30. Obsidian blade (Str. 988); 31. Shell (Str. 988); 32. Goat horn (Str. 988); 33. Flint blade (Str. 988) .....	239
Figure 5-125a. Concentration 8 Burial: A. Cremated bones and DFBW bowl; B. Cremated skull under the DFBW bowl (upper level); C. Cremated bones under the skull (lower level). Grave goods: Flint drill .....	240
Figure 5-125b. Concentration 8 Burial.....	241
Figure 5-126a. Concentration 9 Burial.....	242
Figure 5-126b. Concentration 9 Burial: A. Just above a crematorium pit and a stone ball; B. Upper level; C. Lower level; D. Bottom of the pit. Grave goods: Stone ball .....	243
Figure 5-127a. Concentration 10 Burial: A. Uppermost level of C10 north and C10 south.....	247
Figure 5-127b. Concentration 10 Burial: B. Uppermost level of C10 north; C. Upper level of C10 north.....	248
Figure 5-127c. Concentration 10 Burial: D. Middle level of C10 north; E. Lower level of C10 north.....	249
Figure 5-127d. Concentration 10 Burial: F. C10 south; G. C10 north and south.....	250
Figure 5-127e. Concentration 10 Burial: H. Str. 962 (C10 north); I. Strs. 971, 979, 978, 980 and 983 (C10 north); J. Str. 991 (C10 north); K. Strs. 972, 993, 995, 996 and 999 (C10 north); L. Str. 998 (C10 north); M. Str. 953 (C10 south) .....	251
Figure 5-127f. Concentration 10 Grave goods: 1. Flint blade (Str. 943); 2-3. Disk type clay objects (Str. 947); 4. Stone bead (C10 north); 5. Stone stamp seal (Str. 995); 6. Bone stamp seal (Str. 995); 7. Stone barrel bead (Str. 999); 8. Stone butterfly bead (Str. 999); 9. Stone flat bead (Str. 999); 10. DFBW bowl (C10 south) .....	252
Table 5-1. Burial list of Kerkh Cemetery.....	93

## Chapter 6

Figure 6-1. Regional variation in skeletal preservation.....	254
Figure 6-2. Mortality profile of individuals with known ages .....	261
Figure 6-3. Three linear enamel hypoplastic defects are visible on the right mandibular canine of Str. 921. Periodontal resorption is also evident .....	264
Figure 6-4. Modal distribution of linear enamel hypoplasia.....	265
Figure 6-5. Age of enamel defect formation .....	265
Figure 6-6. A fragment of parietal bone exhibiting active porotic hyperostosis, Str. 717.....	268
Figure 6-7. Cribrra orbitalia affecting the superior orbital plate of Str. 521 .....	268
Figure 6-8. Periostitis of the left proximal femur, Str. 988 .....	269
Figure 6-9. The second lumbar vertebra of Str. 748. The unusual erosive cavitation of the vertebral body is suggestive of tuberculosis.....	270
Figure 6-10. Inventory of permanent teeth.....	271
Figure 6-11. Inventory of deciduous teeth.....	271
Figure 6-12. Interproximal dental caries of the left second premolar with associated antemortem tooth loss of M1, and alveolar resorption, Str. 962.....	274
Figure 6-13. Comparison of age-specific tooth wear scores for the maxillary dentition.....	276
Figure 6-14. Comparison of age-specific tooth wear scores for the mandibular dentition .....	276
Figure 6-15. Comparison of adult male and female maxillary dental wear scores.....	277
Figure 6-16. Comparison of adult male and female mandibular dental wear scores .....	277
Figure 6-17. Severe dental wear of the anterior mandibular teeth, Str. 926. Note the oblique labial wear of the remaining central incisor .....	278
Figure 6-18. The left mandibular first and second molars of Str. 926 share a severe, concave pattern of dental wear .....	279
Figure 6-19. The right maxillary canine of Str. 1056 displays multiple abrasive stria.....	279
Figure 6-20. The anatomical distribution of observed fractures.....	281
Figure 6-21. The left ulna of Str. 803 exhibits two remodeled fractures .....	281
Figure 6-22. Detail of the 'butterfly' fracture of the left femoral midshaft, Str. 1050. The coarse porosity is indicative of osteoclastic activity during the healing process.....	282
Figure 6-23. A fatal penetrating fracture of the right frontal bone, Str. 807 .....	282
Figure 6-24. A comminuted perimortem fracture of the mandible, Str. 807 .....	282
Table 6-1. Preservation/fragmentation scores for the skull (n=201).....	255
Table 6-2. Preservation/fragmentation score frequencies for the cervical vertebrae (n=201).....	255
Table 6-3. Preservation/fragmentation score frequencies for the thoracic vertebrae (n=201) .....	255
Table 6-4. Preservation/fragmentation score frequencies for the lumbar vertebrae (n=201).....	256

Table 6-5. Preservation/fragmentation score frequencies for the sacrum (n=201) .....	256
Table 6-6. Preservation/fragmentation score frequencies for the ribs and sternum (n=201).....	256
Table 6-7. Preservation/fragmentation score frequencies for the clavicle (n=202).....	256
Table 6-8. Preservation/fragmentation score frequencies for the scapula (n=201).....	256
Table 6-9. Preservation/fragmentation score frequencies for the humerus (n=201) .....	256
Table 6-10. Preservation/fragmentation score frequencies for the radius (n=201).....	256
Table 6-11. Preservation/fragmentation score frequencies for the ulna (n=201) .....	256
Table 6-12a: Preservation/fragmentation score frequencies for the long bones of the hand (n=201) .....	256
Table 6-12b: Preservation/fragmentation score frequencies for the carpals of the hand (n=201) .....	256
Table 6-13. Preservation/fragmentation score frequencies for the os coxa (n=201) .....	257
Table 6-14. Preservation/fragmentation score frequencies for the femur (n=201) .....	257
Table 6-15. Preservation/fragmentation score frequencies for the tibia (n=201) .....	257
Table 6-16. Preservation/fragmentation score frequencies for the fibula (n=201).....	257
Table 6-17a: Preservation/fragmentation score frequencies for the long bones of the foot (n=201).....	257
Table 6-17b: Preservation/fragmentation score frequencies for the tarsals of the foot (n=201) .....	257
Table 6-18. Sex and age distribution* of the Tell el-Kerkh Cemetery: Primary burials.....	259
Table 6-19. Sex and age distribution* of the Tell el-Kerkh Cemetery: Secondary burials .....	259
Table 6-20. Sex and age distribution* of the Tell el-Kerkh Cemetery: Cremated remains.....	259
Table 6-21. Sex and age distribution of the Tell el-Kerkh Cemetery: Burial type unknown.....	260
Table 6-22. Sex and age distribution of the Tell el-Kerkh Cemetery, all burials included.....	260
Table 6-23. Sex and age distribution of the Tell el-Kerkh Cemetery, directly observed burials only.....	260
Table 6-24. Postcranial measurement means for adult males, females, and individuals of unknown sex .....	262
Table 6-25. Estimations of stature and body mass.....	263
Table 6-26. Estimations of nonadult stature (body length), and body mass, by age.....	264
Table 6-27. Individuals exhibiting linear enamel hypoplastic defects.....	266
Table 6-28. Summary of individuals with linear enamel hypoplastic defects .....	266
Table 6-29. Individuals exhibiting porotic hyperostosis and/or cribra orbitalia.....	268
Table 6-30. Summary of individuals with cribra orbitalia and/or porotic hyperostosis.....	268
Table 6-31. Individuals with selected dental pathology .....	273
Table 6-32. Summary of individuals with various dental pathology .....	274
Table 6-33. Individuals with extramasticatory dental wear.....	278
Table 6-34. Individuals with fractures, or other traumatic injuries .....	280
Table 6-35. Sex and age distribution of individuals with fractures .....	280
Table 6-36. Frequency of individuals with multiple fractures.....	281
Table 6-37. Individuals with osteoarthritis, or other degenerative bone conditions .....	283
Table 6-38. Anatomical distribution of osteoarthritis and other degenerative changes .....	284
Table 6-39. Indices of robusticity.....	285

## Chapter 7

Figure 7-1. Calibrated dates for charcoal and carbonized samples from Tell el-Kerkh .....	318
Figure 7-2. Calibrated dates for human bones from the PPNB layer .....	319
Figure 7-3. Calibrated dates for human bones found outside the cemetery in the PN layer.....	320
Figure 7-4. Calibrated dates for human bones found in the cemetery of the PN layer .....	322
Table 7-1. Results of the radiocarbon dating for charcoal and carbonized samples from Tell el-Kerkh .....	317
Table 7-2. Results of the radiocarbon dating for human bones from the PPNB layer .....	318
Table 7-3. Results of the radiocarbon dating for human bones found outside the cemetery in the PN layer.....	320
Table 7-4. Results of the radiocarbon dating for human bones found in the cemetery of the PN layer .....	321

## Chapter 8 (Discussion 1)

Figure 8-1. Location of individuals mentioned in the text.....	328
Figure 8-2. Str. 711, a 15–18-year-old sub-adult with most parts of the cranium missing.....	330
Figure 8-3. Str. 714, an adult, probably male with missing cranium.....	331
Figure 8-4a. Str. 750, a 5–6-year-old juvenile with missing cranium.....	332
Figure 8-4b. Str. 750. 1. mandible; 2. second cervical vertebrae; 3. maxillary teeth .....	332
Figure 8-5. Str. 752, a 20-year-old adult, probably female with missing skull.....	332
Figure 8-6a. Str. 926, an adult female with missing cranium .....	333
Figure 8-6b. Left mandible second molar.....	333
Figure 8-6c. Anterior dentition.....	333
Figure 8-6d. Grave goods. 1. shell bead; 2. bone bead; 3. limestone bead; 4. tusk shell bead; 5. bone bead; 6-7. conch shell beads.....	333
Figure 8-7a. Str. 927, a triple burial .....	334
Figure 8-7b. Young adult female of Str. 927 .....	334
Figure 8-7c. DFBW .....	334
Figure 8-7d. Large pottery fragment .....	334
Figure 8-7e. Beads. 1. bone bead; 2-3. shell beads; 4. turquoise bead; 5. stone bead; 6. agate bead.....	334
Figure 8-7f. Shell .....	334
Figure 8-8. Str. 1057, an adult, probably female with missing skull.....	335
Figure 8-9. Str. 1072, a 11–12-year-old juvenile with missing skull .....	336



Figure 8-10. Str. 1074, an infant with missing skull.....	336
Figure 8-11. Str. 1094, a juvenile with missing skull.....	337
Figure 8-12. Str. 834, a 2–3-year-old juvenile with a skull in an upside-down position.....	337
Figure 8-13. Retrieval, manipulation, and circulation of human remains at Kerkh Cemetery .....	342
Figure 8-14. Str. 1052, a 12–13-years-old subadult.....	343
Table 8-1. Status of burial disturbance at Kerkh Cemetery.....	327
Table 8-2. Isolated skulls and crania accompanying primary burials .....	329
Table 8-3. Solo isolated skull and crania discovered on the cemetery ground.....	329
Table 8-4. Detached skull and crania accompanied with/without long bones uncovered from the collective burials .....	329
Table 8-5. Detached skull and crania accompanied with/without long bones uncovered from the crematorium pits.....	330
Table 8-6. Skull/cranium removal specimens uncovered at Kerkh Cemetery.....	331

### Chapter 9 (Discussion 2)

Figure 9-1. Map of the main sites discussed in this study .....	346
Figure 9-2. The Kerkh Cemetery .....	347
Figure 9-3. Crematorium pits in Kerkh Cemetery: 1. C5; 2. C6; 3. C9 .....	348
Figure 9-4. Offerings from the crematorium pits in Kerkh Cemetery: 1. C5; 2. C6; 3. C9; 4-a. A DFBW and a stamp seal from C5; b. A DFBW from C5; c. A DFBW from C6; d. A stone ball from C9.....	349
Figure 9-5. Transition of types of cremation throughout the Neolithic .....	353
Table 9-1. Categorization of cremation burials from Kerkh Cemetery .....	348
Table 9-2. Age and sex of cremated individuals from Kerkh Cemetery .....	349
Table 9-3. Categorization of cremation burials dating to the Late Neolithic .....	352

### Chapter 10 (Discussion 3)

Figure 10-1. The $\delta^{13}\text{C}_{\text{col}}$ and $\delta^{15}\text{N}_{\text{col}}$ of human individuals from PPNB layer.....	359
Figure 10-2. The $\delta^{13}\text{C}_{\text{col}}$ and $\delta^{15}\text{N}_{\text{col}}$ of human individuals from PN layer .....	360
Figure 10-3. Comparisons of the nitrogen isotope compositions of glutamic acid and phenylalanine ( $\delta^{15}\text{N}_{\text{Glu}}$ and $\delta^{15}\text{N}_{\text{Phe}}$ ) for human from PPNB layer, human and faunal remains from PN layer at Tell el-Kerkh.....	363
Figure 10-4. Strontium isotope ratios ( $^{87}\text{Sr}/^{86}\text{Sr}$ ) in human tooth enamel.....	364
Figure 10-5. The $\delta^{15}\text{N}_{\text{col}}$ values of humans in the Tell el-Kerkh PPNB and PN layers.....	365
Figure 10-6. The location of burial groups (1–10) in PN layer .....	366
Figure 10-7. Plots of the mean $\delta^{13}\text{C}_{\text{col}}$ and $\delta^{15}\text{N}_{\text{col}}$ values for each burial group in the cemetery from PN layer.....	367
Table 10-1. Isotopic results for wheat grains from Tell el-Kerkh (Itahashi <i>et al.</i> 2018).....	357
Table 10-2. Isotopic results for faunal skeletal remains from Tell el-Kerkh. C/N is the atomic ratio of carbon to nitrogen .....	358
Table 10-3. Isotope compositions of collagen ( $\delta^{13}\text{C}_{\text{col}}$ and $\delta^{15}\text{N}_{\text{col}}$ ), glutamic acid ( $\delta^{15}\text{N}_{\text{Glu}}$ ) and phenylalanine ( $\delta^{15}\text{N}_{\text{Phe}}$ ) for human skeletal remains from the PPNB layer at Tell el-Kerkh.....	360
Table 10-4. Isotope compositions of collagen ( $\delta^{13}\text{C}_{\text{col}}$ and $\delta^{15}\text{N}_{\text{col}}$ ), glutamic acid ( $\delta^{15}\text{N}_{\text{Glu}}$ ) and phenylalanine ( $\delta^{15}\text{N}_{\text{Phe}}$ ) for human skeletal remains from the PN layer of Tell el-Kerkh.....	361
Table 10-5. Results of strontium isotope analysis of tooth enamel of humans and rodents from PN layer .....	364

### Appendix

Figure A-1. Str. 223 Burial.....	375
Figure A-2. Str. 1009 Burial .....	375
Figure A-3. Str. 226 Burial .....	375
Figure A-4. Str. 339 Burial.....	375
Figure A-5. Str. 48 Burial .....	378
Figure A-6. Str. 246 Burial .....	378
Figure A-7. Str. 29 Burial .....	378
Figure A-8. Str. 44 Burial .....	378
Figure A-9. Str. 301 Burial.....	378
Figure A-10. Str. 302 Burial .....	378
Figure A-11. Str. 402 Burial .....	379
Figure A-12. Str. 426 Burial .....	379
Figure A-13. Str. 431 Burial .....	379
Figure A-14. Str. 433 Burial .....	379
Figure A-15. Str. 436 Burial .....	379
Figure A-16. Str. 522 Burial .....	379
Figure A-17. Str. 76 Burial .....	380
Figure A-18. Str. 141 Burial .....	380
Figure A-19. Str. 145 Burial .....	380
Figure A-20. Str. 901 Burial .....	380
Figure A-21. Str. 810 Burial .....	380
Figure A-22. Str. 162 Burial .....	382
Figure A-23. Str. 179 Burial .....	382
Figure A-24. Str. 656 Burial .....	382
Table A-1. Burials from Rouj 2d period.....	373
Table A-2. Burials from Rouj 2c period .....	375
Table A-3. Burials from Rouj 1c period .....	381

## Acknowledgements

This book is the second volume of the final excavation reports at Tell el-Kerkh, northwest Syria. Excavations at Tell el-Kerkh began in 1997 and continued until 2010, the year before the outbreak of the conflict in Syria. For the execution of archaeological research at Tell el-Kerkh, we are deeply grateful to the government of the Syrian Arab Republic, especially the Ministry of Culture, and the Directorate General of Antiquities and Museums (DGAM). Dr. Sultan Muhesen, then director of the DGAM, allowed a joint archaeological excavation with the University of Tsukuba to commence work in 1997 at Tell el-Kerkh in the Rouj Basin, Idlib Governorate. For the excavation permit, Dr. Adnan Bounni, then Director of Archaeological Excavations and Studies of DGAM, also provided valuable advice. Subsequently, many staff members of DGAM in Damascus extended the greatest consideration and permissions to enable our work. We cannot mention the names of all the DGAM staff members who took care of us in this regard, but we would like to express our deepest gratitude to the following colleagues in particular: Mr. Mohammad Qador; Mr. Nassib Salibi; Dr. Bassam Jammous; Dr. Michel al-Maqdissi; Dr. Ammar Abdulrahman; Dr. Ali al-Kayem; Dr. Abd al-Razzaq Moaz; Dr. Ahmad Serrieh; Dr. Maamoun Abdulkarim; Mr. Ahmad Taraqqi; Dr. Haitham Hassan; Dr. Mahmoud Hamud; Dr. Ahmad Deeb; Dr. Samer Abdel Ghafour; and Mr. Tony Gerroug. We also thank Dr. Antoine Suleyman, Mr. Hamido Hammade, and Dr. Youssef Kanjou of the Aleppo National Museum for their unwavering cooperation with our studies.

We deeply appreciate the enormous help given by the staff at the Department of Antiquities of Idlib, in particular, Mr. Abdo Asfari, Mr. Nicola Kabbad, and Mr. Fajer Haji Mohamad, all of whom supplied the conveniences and bridges necessary for our investigation in the field. In the excavations at Tell el-Kerkh, many people from the Ainata village, where our base camp was situated, as well as neighboring villagers worked for us as excavation workers. It is thanks to them that our investigation went very well. Their consistent

hospitality was very encouraging for us. In particular, there are no words of gratitude that will suffice for the work of Mr. Mohammad Subhi Khalifa, who lives in the village of Ainata and serves as a guardian for the site of Tell el-Kerkh.

Last but not least, we express special thanks to Dr. Giro Orita, advisor of ICARDA for his inestimable support to our mission and Ms. Yayoi Yamazaki, an archaeologist who lived in Aleppo for her constant warm support.

Sadly, many of those mentioned above have already passed away. They are Dr. Bounni, Mr. Qador, Mr. Salibi, Dr. Suleyman, Mr. Hammade, and Dr. Orita. One of our important excavation members from the University of Tsukuba, Prof. Takuya Iwasaki, has also passed away. We pray for the souls of those who have passed and apologize for the time it took to complete the excavation reports.

The financial support for Tell el-Kerkh excavations came from grants for excavations provided by DGAM, grants under the Scientific Studies of Japanese Ministry of Education and Science, and grants-in-aid for Scientific Research of the Japan Society for the Promotion of Science. The grants are titled: 'A Study of the Settlement Organization in Neolithic Syria' (08041004), 1996–1998; 'A Study of the Prehistoric Urbanization in the Northern Levant' (13571034), 2001–2003; 'An Archaeological Studies on the Urbanization: Based on the Excavations at Tell el-Kerkh, Northwest Syria (17401025) 2005–2008; 'The Emergence of Cemetery in West Asia: Based on the Results of Archaeology and Natural Sciences' (21320145) 2009–2011, 'Social Complexity and Urbanization in Prehistoric West Asia' (22251009) 2010.

In addition to the above research grants from the Syrian and Japanese governments, we also received scientific research grants from the Suntory, Takanashi, and Mitsubishi Foundations. We are deeply grateful for the many grants from these institutions for the excavation and research at Tell el-Kerkh.

Akira Tsuneki and Jamal Hydar  
Co-directors for the Investigations  
at Tell el-Kerkh

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# Chapter 1

## Introduction

Akira Tsuneki

### 1. Process Leading to the Investigations

Questions such as where did human beings change their way of life from hunter-gathers to farmer-herders and why did human societies become more complex are timeless. As are those considering how and why human beings began to form large settlements and why did they begin to construct large cities. These questions seem to be some of the most challenging and exciting ones in the study of human history. All of these great transitions appeared in West Asia earlier than any other region in the world. Therefore, West Asian archaeology entices and attracts our attention. As such, archaeological investigations in West Asia will provide the basis for answering some of these questions.

The University of Tsukuba executed the first archaeological investigation in the Rouj Basin, Idlib province, northwest Syria, from 1990 to 1992 (Figures 1-1, 1-2). The purpose of these investigations was to pursue the above-mentioned questions, especially the formation of early farming societies and the development of complex societies based on archaeological data retrieved from the field. The Rouj Basin was chosen for exploration, because this small

basin, measuring 37km from north to south and 2-7km from east to west, has extremely rich soil and water for farming fields, and the basin is full of artificial tells. The Rouj Basin was first surveyed archaeologically by a French mission (Courtois 1973) which was mainly concerned with Bronze Age tells. The University of Tsukuba team focused on a more holistic approach, with special emphasis on tracing the transition of settlement patterns. The director of the mission, the Late Professor Takuya Iwasaki, and the current field director, Akira Tsuneki, took part in the excavations as members of the Tell Mastuma (5km south of Idlib city) team led by the Ancient Orient Museum of Tokyo since 1980. Besides the excavations at Tell Mastuma, both of them repeated general survey around Tell Mastuma (Tsuneki 2009). This work revealed that the Rouj Basin was one of the richest areas for studying neolithization and urbanization in northwest Syria. A request was made to the Syrian Directorate General of Antiquities and Museums for approval to undertake investigations in the Rouj Basin. Fortunately, permission was granted to conduct an archaeological investigation for three years from 1990.

Three seasons' investigations in the Rouj Basin reconfirmed how this basin was rich in both prehistoric and historic period remains (Iwasaki, Nishino and Tsuneki 1995; Iwasaki and Tsuneki 2003). We discovered thirty-eight tell-type settlements within the relatively small basin (Figures 1-3, 1-4). In pursuit of our research aim, i.e., the formation and development of farming societies, twenty-two of thirty-eight tell-type settlements produced materials from Neolithic periods (Tsuneki 2012, Tsuneki n.d.). Therefore, there was no doubt that this basin was very prolific area for our study focus. Furthermore, a very large Neolithic tell complex, Tell el-Kerkh, is located in the south of the basin. The size of this tell complex, as a Neolithic settlement, was beyond our imagination, and it was believed that further investigation of Tell el-Kerkh would reveal how ancient people began to form large settlements based on the new farming way of life. It also seemed that the site would provide a hint to understand the background for the formation of complex societies and in turn the emergence of urbanism.



Figure 1-1. Location of the Rouj Basin, northwest Syria.

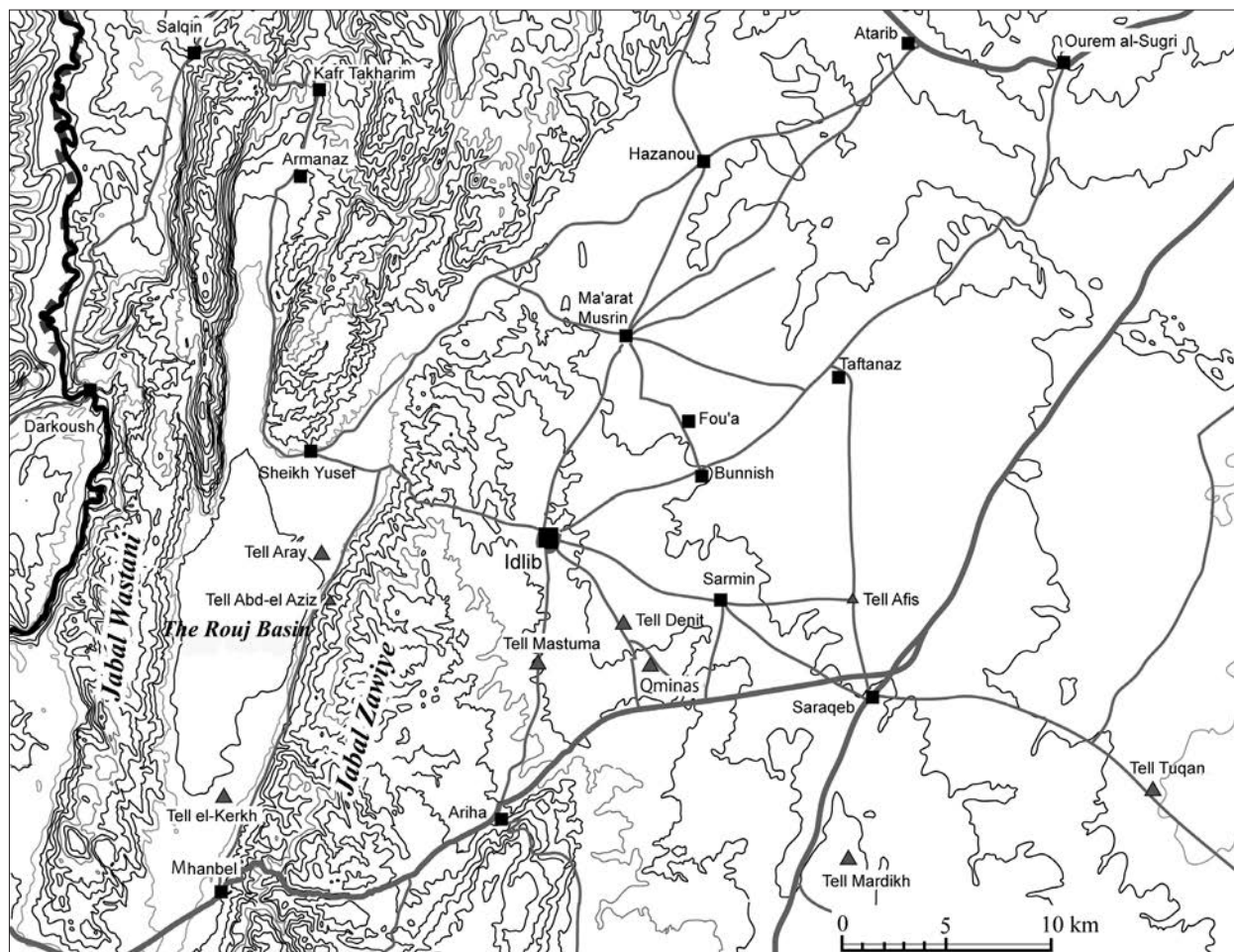


Figure 1-2. The Rouj Basin and its surroundings (revised drawing of Nishiyama).

Therefore, permission was sought from the DGAM to begin excavations at Tell el-Kerkh. After much negotiation, DGAM finally decided to begin a joint archaeological mission with the University of Tsukuba to excavate Tell el-Kerkh. Based on their sincere goodwill, the new excavations started at Tell el-Kerkh in 1997, and continued until 2010, just before the conflict began in Syria.

The years of the twelve-season field campaign resulted in several unexpected archaeological results. The excavations revealed that there had been a series of large and complicated societies during the late Pre-Pottery Neolithic B and the early-middle Pottery Neolithic periods (c. 7600 – 6000 BC). In addition to the Neolithic inventories, Tell el-Kerkh produced a range of rich historical cultural properties as well.

One of the most conspicuous results of the investigation at Tell el-Kerkh was the discovery of a Neolithic cemetery. Though a few graves had been already discovered in the former excavation seasons at Tell el-Kerkh, 2007 season revealed the existence of an outdoor communal cemetery for the first time. Since then, over 240 burials had been discovered until

the 2010 season. It is clear that this cemetery is one of the oldest outdoor communal cemeteries not only in West Asia but also in the world; leading to increased understanding of its importance in human history. Investigation of the cemetery continued until 2010, but it has not been possible to completely excavate the whole area of the Neolithic cemetery. However, it was considered necessary to publish the known aspects of this precious Neolithic cemetery as soon as possible. So, the decision was made to publish the final report of the Kerkh Neolithic Cemetery as the second volume of the final report of excavations at Tell el-Kerkh.

## 2. Members and Operations of Each Excavation Season

### 1997 Season

Field duration: August 26 – October 9.

Operations: Paleo-environmental study (Landforms; geology; agricultural productivity potential); Excavations in Tell Ain el-Kerkh (Squares E270, E290 and E310 in the Central Area; Square E10 at the northern part of the mound; Square A386 at the northwestern fringe of the mound).



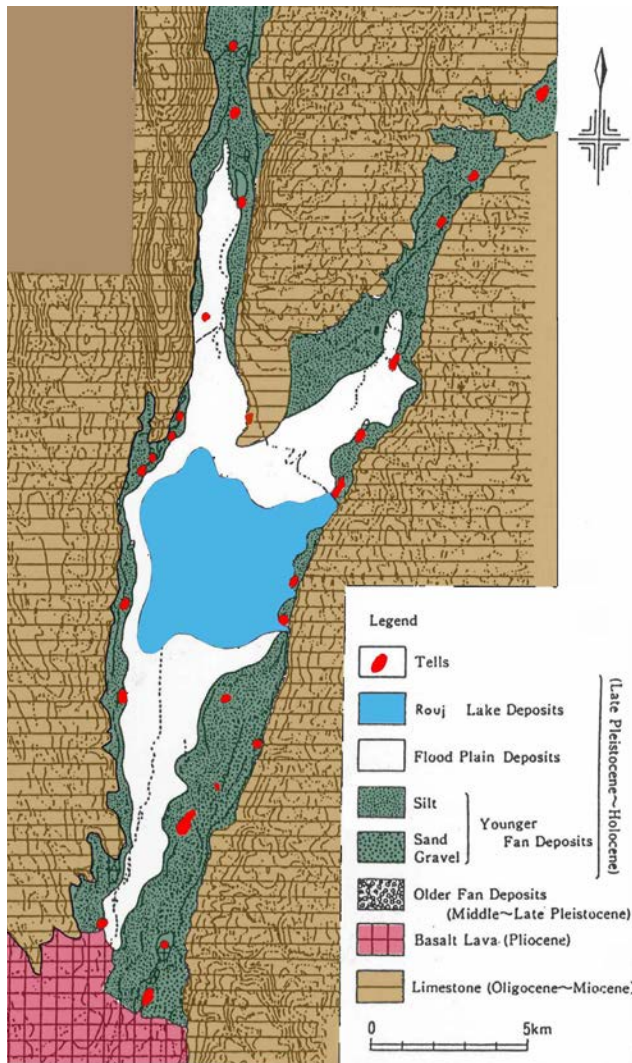


Figure 1-3. Geology of the Rouj Basin.

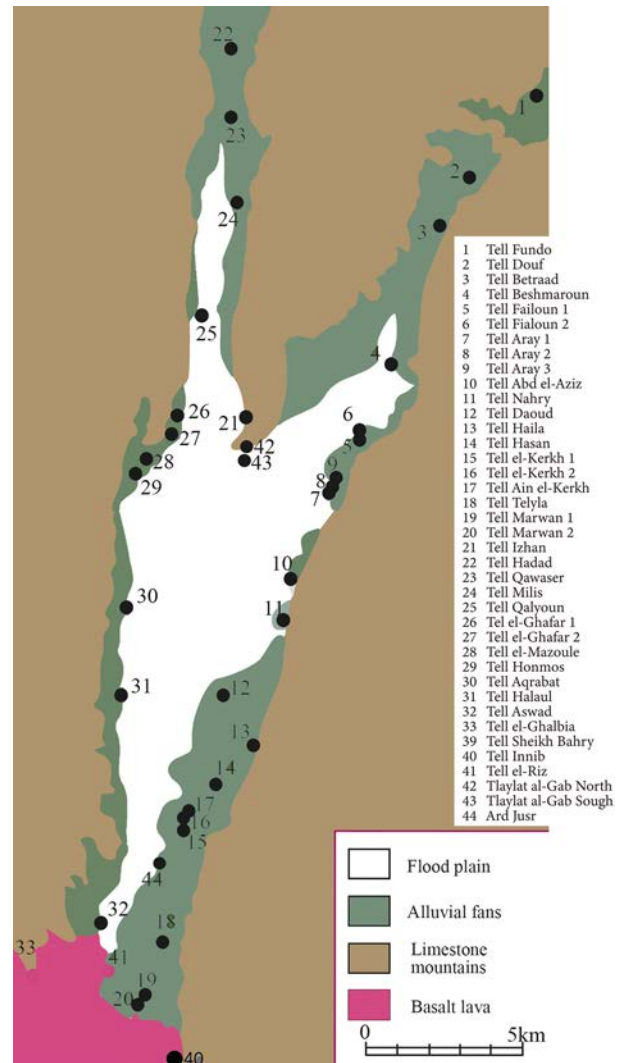


Figure 1-4. Archaeological tells in the Rouj Basin.

Syrian side members: Jamal Hydar (co-director); Adel Habash; Taghrid Mohammad.

Japanese side members: Takuya Iwasaki (advisor); Akira Tsuneki (co-director); Yutaka Miyake; Makoto Takizawa; Etsuko Kurata; Sadayuki Akahane; Toru Nakamura; Makoto Arimura; Osamu Maeda; Shuich Sekine.

**1998 Season**

Field duration: July 25 – September 10.

Operations: Paleo-environmental study (Geology; ancient Rouj lake deposits); Excavations in Tell Ain el-Kerkh (Squares E270, E290 and E310 in the Central Area; Squares D6 and D26 in the Northwest Area; Sounding



Figure 1-5. General view of the Rouj Basin, looking north from Tell el-Kerkh 1.

trenches in Tell Ain el-Kerkh (Squares D11, D16, E1, F1, B230, B290, and E110); A Roman-Byzantine tomb excavation at the southern summit of Tell Ain el-Kerkh.

Syrian side members: Jamal Hydar (co-director); Adel Habash; Haifa Sha'baan; Hazem Jarkas,

Japanese side members: Takuya Iwasaki (advisor); Akira Tsuneki (co-director); Yutaka Miyake; Makoto Takizawa; Sadayuki Akahane; Takuro Adachi, Makoto Arimura; Toru Tomita; Shin-ichi Nishiyama; Tomoko Anezaki; Masaharu Nishizawa; Ken Hayase; Sachiko Yano; Atsunori Hasegawa.

#### **1999 Season**

Field duration: August 4 – August 30.

Operations: Excavations in Tell Ain el-Kerkh (Squares E270, E271 and E310 in the Central Area; Square D6 in the Northwest Area).

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Ghaith Sbeh; Saraa Saleh; Hazem Jarkas.

Japanese side members: Akira Tsuneki (co-director); Yutaka Miyake; Mark Hudson; Makoto Arimura; Osamu Maeda; Shin-ichi Nishiyama; Takahiro Odaka; Toshiko Matsuo; Sachiko Yano.

#### **2000 Season**

Field duration: August 5 – August 24.

Operations: Excavations in Tell Ain el-Kerkh (Squares E291, E310 and E311 in the Central Area).

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Ghaith Sbeh; Zeinab Ahmad.

Japanese side members: Akira Tsuneki (co-director); Yutaka Miyake; Makoto Arimura; Osamu Maeda; Ken-ichi Tanno; Takahiro Odaka; Atsunori Hasegawa; Daisuke Yamaguchi; Natsuko Kawazoe; Saori Katagiri (volunteer staff).

#### **2001 Season**

Field duration: July 21 – August 30.

Operations: Paleo-environmental study (Geology); Excavations in Tell Ain el-Kerkh (Squares E270, E271, E290, E291, E310 and E311 in the Central Area; Square D6 in the Northwest Area); Excavations in Tell el-Kerkh 1 (Square K-183 = the northern foot of Tell el-Kerkh 1)

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Adel Habassi.

Japanese side members: Takuya Iwasaki (advisor); Akira Tsuneki (co-director); Makoto Takizawa; Sadayuki Akahane; Mark Hudson; Makoto Arimura; Osamu Maeda; Ken-ichi Tanno; Takahiro Odaka; Atsunori Hasegawa; Sean Dougherty.

#### **2002 Season**

Field duration: July 29 – September 1.

Operations: Excavations in Tell Ain el-Kerkh (Squares E270, E271, E290, E291, E310 and E311 in the Central Area; Square D6 in the Northwest Area, Squares G191-G192 at the western outside of the tell); Excavations in Tell el-Kerkh 1 (Squares K-182, K183 and K163 = the northern foot of Tell el-Kerkh 1)

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Adel Habassi; Zeinab Ahmad; Basel Hamid.

Japanese side members: Akira Tsuneki (co-director); Yutaka Miyake; Makoto Takizawa; Makoto Arimura; Osamu Maeda; Ken-ichi Tanno; Takahiro Odaka; Tomoko Anezaki; Koji Miyazawa.

#### **2005 Season**

Field duration: August 13 – September 5.

Operations: Excavations in Tell Ain el-Kerkh (Squares E272, E273 and E274 in the East Trench); Excavations in Tell el-Kerkh 1 (Square O185 = the eastern foot of Tell el-Kerkh 1)

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Samaher Wannous.

Japanese side members: Akira Tsuneki (co-director); Takahiro Odaka; Ken-ichi Tanno; Atsunori Hasegawa; Mina Kosuge.

#### **2006 Season**

Field duration: August 11 – September 6.

Operations: Excavations in Tell Ain el-Kerkh (Squares E272, E273, E274, E275, E276 and E277 in the East Trench, Square A318 at Northern frontier of tell); Excavations in Tell el-Kerkh 1 (Squares O184 and O185 = the eastern foot of Tell el-Kerkh 1)

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Rudaena Harfoush.

Japanese side members: Akira Tsuneki (co-director); Takahiro Odaka; Atsunori Hasegawa; Ken-ichi Tanno; Tsuyoshi Maeda; Chie Akashi; Wataru Ando; Hiroki Takano; Yuki Tatsumi.

#### **2007 Season**

Field duration: July 17 – August 23.

Operations: Excavations in Tell Ain el-Kerkh (Squares E270, E271, E290, E291, E310 and E311 in the Central Area; Squares E274, E275, E276 and E277 in the East Trench, Square A318 at Northern frontier of tell); Excavations in Tell el-Kerkh 1 (Squares P110 and Q85 = the southern hilltop of Tell el-Kerkh 1)

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Mohamad Qantar.

Japanese side members: Akira Tsuneki (co-director); Takahiro Odaka; Atsunori Hasegawa; Ken-ichi Tanno; Hiroko Hashimoto; Naoko Murakami (Hironaga); Chie Akashi; Yuki Tatsumi; Maiko Nakamura; Tomoyuki Ishikawa; Morito Iizuka.

**2008 Season**

Field duration: July 16 – August 28.

Operations: Excavations in Tell Ain el-Kerkh (Squares E271, E291, and E311 in the Central Area; Squares E274, E275, E276 and E277 in the East Trench); Excavations in Tell el-Kerkh 1 (Square P110 = the southern hilltop of Tell el-Kerkh 1)

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Rudaena Harfoush; Mustafa Qador.

Japanese side members: Akira Tsuneki (co-director); Takahiro Odaka; Sean Dougherty; Atsunori Hasegawa; Ken-ichi Tanno; Naoko Murakami (Hironaga); Tomoyuki Ishikawa; Morito Iizuka; Yuji Matsushima.

**2009 Season**

Field duration: July 16 – August 28.

Operations: Excavations in Tell Ain el-Kerkh (Squares E271, E291, and E311 in the Central Area; Squares E274, E275, E276 and E277 in the East Trench); Excavations in Tell el-Kerkh 1 (Square P110 = the southern hilltop of Tell el-Kerkh 1)

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Rudaena Harfoush; Mustafa Al-Qador; Sari Jammo.

Japanese side members: Akira Tsuneki (co-director); Takahiro Odaka; Sean Dougherty; Atsunori Hasegawa; Ken-ichi Tanno; Naoko Murakami (Hironaga); Yuko Miyauchi; Tomoyuki Ishikawa; Morito Iizuka; Yuji Matsushima.

**2010 Season**

Field duration: July 4 – August 10, September 12 – September 29.

Operations: Excavations in Tell Ain el-Kerkh (Squares E251, E270, E271, E291 in the Central Area; Square A318 at Northern frontier of tell); Excavations in Tell el-Kerkh 1 (Squares P109 and P110 = the southern hilltop of Tell el-Kerkh 1; Squares M57 – M78 = Step trenches at northwest slope of Tell el-Kerkh 1).

Syrian side members: Jamal Hydar (co-director); Haifa Sha'baan; Rudaena Harfoush; Raed Badoura; Siham Ismail, Sari Jammo, Yahya Al-Amouri.

Japanese side members: Akira Tsuneki (co-director); Shigeo Wakita, Ken-ichiro Hisada; Takahiro Odaka; Sean Dougherty; Atsunori Hasegawa; Ken-ichi Tanno; Bérénice Chamel; Kaisho D. Masumori; Yuki Tatsumi; Morito Iizuka; Yu Itahashi; Masato Nagata, Yuji Matsushima; Yuko Miyauchi; Mariko Makino.

***Affiliation of the members of the Tell el-Kerkh investigations between 1997 – 2010***

(Position and affiliation at the time of latest participation)

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Co-director: Jamal Hydar: Director, Latakia Department of Antiquities

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Basel Hamid: Architect, Jable Branch, Latakia Department of Antiquities

Samaher Wannous: Architect, Latakia Department of Antiquities

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Mustafa Al-Qador: Archaeologist, Idlib Department of Antiquities

Raed Badoura: Archaeologist, Latakia Department of Antiquities

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Etsuko Kurata: Archaeologist, Matsudo City Museum

Sadayuki Akahane: Prof in Geology, Shinshu University

Toru Nakamura: Prof. in Botany, University of Tsukuba

Makoto Arimura: PhD candidate in Archaeology, University of Lyon

Osamu Maeda: PhD candidate in Archaeology, University of Tsukuba

Shuichi Sekine: PhD candidate in Biblical studies, University of Tsukuba

Takuro Adachi: PhD candidate in Archaeology, Aoyama Gakuin University



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Tomoko Anezaki: Zoo Archaeologist, National Museum of Japanese History  
Masaharu Nishizawa: MA student in Archaeology, Kokugakuin University  
Ken Hayase: MA student, Shizuoka University  
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Tomoyuki Ishikawa: Student, University of Tsukuba  
Morito Iizuka: Student, University of Tsukuba  
Yuji Matsushima: Student, University of Tsukuba



Figure 1-6. People who participated in the 2010 season.

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Masato Nagata: Student, Yamaguchi University

Mariko Makino: Student, University of Tsukuba

### 3. Chronology of the Rouj Basin

#### a. Relative Chronology

First, we will describe the Rouj Basin, where Tell el-Kerkh is located, and its local chronology. The Rouj Basin, located 10km west of modern Idlib city, is a small graben surrounded by limestone mountains. It extends north to south by about 37km and east to west by between 2 and 7km (Figure 1-3). An archaeological mission from the University of Tsukuba conducted the first intensive general survey in this basin from 1990 to 1992, including test pits at Tell Aray 1 and 2, Tell Abd el-Aziz, and Tell el-Kerkh 2 (Iwasaki and Nishino 1990, 1991, 1992; Iwasaki, Nishino and Tsuneki 1996).

Afterwards, archaeological study of the basin continued (e.g., Iwasaki and Tsuneki 2003; Tsuneki and Hydar 2007; Tsuneki *et al.* 2011). These studies formed the basis of the local Rouj Basin chronology. The Neolithic part of the Rouj Basin chronology is briefly summarized below (see Table 1-1, Figures 1-7 and 1-8).

Rouj 1 corresponds to the Pre-Pottery Neolithic B in the broad Levantine chronology. No PPNA site was discovered during the research in the Rouj Basin. The Early PPNB layers recovered at Tell Ain el-Kerkh

represent the earliest Neolithic evidence found in the Rouj Basin. The Rouj 1 era can be divided into two periods, Rouj 1a and 1c. As there must have been a hiatus between these two periods contemporary with the Middle PPNB period, the term Rouj 1b was created to indicate this period.

**Rouj 1a (EPPNB):** The lowest layers of the Northwest Area at Tell Ain el-Kerkh provide the indicator for this period. <sup>14</sup>C dating suggests that this area dates from c. 8700 to 8300 cal BC. Sophisticated naviform cores were used in blade production, and the stone tools were primarily made from the blades. The most characteristic tool-types are Aswad points and large blades with fine retouch on one lateral edge. Pressure flaking was frequently used to retouch the point.

**Rouj 1c (LPPNB):** This period corresponds to the Late PPNB period. Many test trenches which were set in each place of Tell Ain el-Kerkh and Test Pit A of Tell el-Kerkh 2 produced the Rouj 1c cultural layers. <sup>14</sup>C dating suggests that this period dates from c. 7600 to 7000 cal BC. The stone cores for blade production consisted of naviform cores and single platform cores. The Byblos point had become the main point type, with the Ugarit point also frequently appearing in the assemblage. Large sickle blades truncated at both ends, ordinary blades, and end scrapers on flakes were the main tool types.

Rouj 2 corresponds to the Pottery Neolithic (PN). This era can be divided into four periods.

**Rouj 2a (Incipient PN):** Layers 6–5 in the Test Pit A of Tell el-Kerkh 2, which produced the earliest type of pottery in the Levant, provides a typical assemblage for this period. The main chipped stone tool types are the Ugarit point, Amuq point, large sickle blades truncated at both ends, and end scrapers on blades and flakes; the technical continuity from Rouj 1c is remarkable. The most notable indicator for this period is the presence of so-called ‘Kerkh Ware,’ the prototype of Dark-faced

Table 1-1. The Rouj Basin chronology (2021 version).

Rouj Basin chronology	Supposed years based on <sup>14</sup> C dating (cal)	Levantine chronology
Rouj 2d	6000 - 5700 BC	Late Pottery Neolithic (Early-Halaf-related)
Rouj 2c	6600 - 6000 BC	Middle Pottery Neolithic
Rouj 2a-2b	7000 - 6600 BC	Early Pottery Neolithic
Rouj 1c	7600 - 7000 BC	Late Pre-Pottery Neolithic B
Rouj 1a	8700 - 8300 BC	Early Pre-Pottery Neolithic B

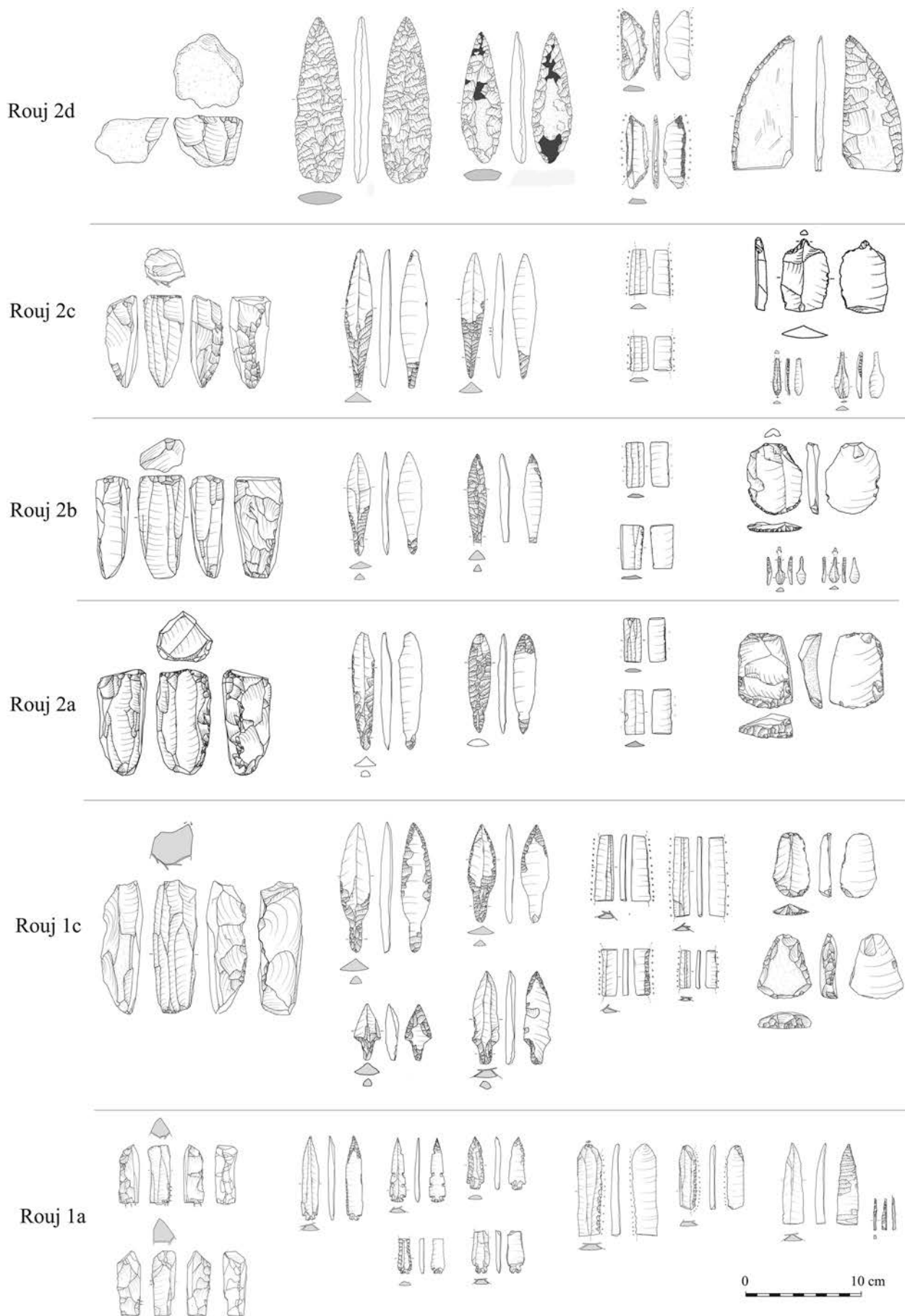


Figure 1-7. Neolithic lithic chronology of the Rouj Basin.



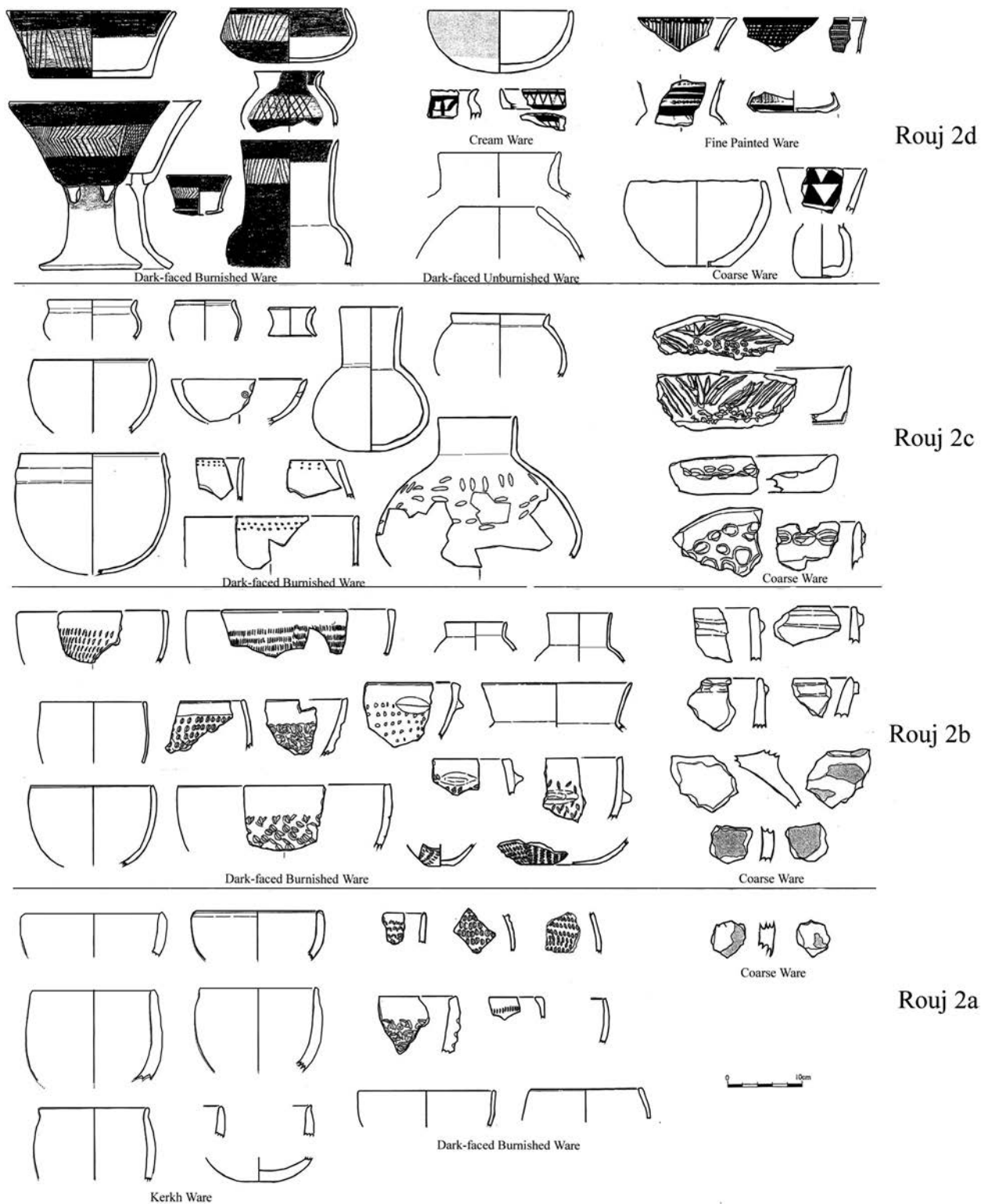


Figure 1-8. Neolithic pottery chronology of the Rouj Basin.

Burnished Ware (DFBW) (Tsuneki and Miyake 1996; Miyake 2003). In Layers 6–5 of Tell el-Kerkh 2, Kerkh Ware accounted for 33–42% of the pottery assemblage. However, a pure Kerkh Ware cultural layer has not yet been discovered in the excavations at Tell el-Kerkh. Kerkh Ware potsherds have always been discovered with early DFBW.

**Rouj 2b (Early PN):** The layers of this period were discovered in various trenches at Tell Ain el-Kerkh, Tell el-Kerkh 2, and Tell Aray 2. Although we do not have good <sup>14</sup>C dating for the Rouj 2a-b period, Rouj 2a-b must be dated from between c. 7000 and 6600 cal BC based on the absolute dates of Rouj 1c and Rouj 2c. The chipped stone tools are similar to those of Rouj 2a. Kerkh Ware

dwindled and finally disappeared, and the DFBW became the main pottery, with some accompanying Coarse Ware potsherds. The DFBW is a fine ware with grit tempering. In addition to the bowl, the jar became a significant pottery form. Applique bands and ridge handles were sometimes added to the outer surface of the pottery. Nail and pinch impressions are the most characteristic decorations for DFBW of this period. White plastering, with occasional reddish painting, is also a characteristic decoration for this pottery.

**Rouj 2c (Middle PN):** Layers 7–3 of the Central Area, the main excavated squares of Tell Ain el-Kerkh, provide the most typical objects for this period. <sup>14</sup>C dating of many of the organic samples indicates that this period spans between c. 6600 and 6000 cal BC. For the chipped stone tools, the Amuq point with pressure flaking retouch had become the main point type. Most sickle elements were truncated at both ends and of relatively short lengths. Small drills on blades for boring beads had become one of the main chipped stone tools. The number of scrapers on flakes had diminished less than in the previous period. DFBW and Coarse Ware were the main pottery types. The varieties of DFBW became richer and included carinated bowls, S-shaped bowls, hemispherical bowls, deep bowls, shallow bowls, short-necked jars, collar-necked jars, hole-mouthed jars, and stands. Low applique bands were frequently applied to the upper part of the outer surface of the pottery. In addition, fine stick impressions were observed as a decoration. Large and flat-based bowls and jars were the main forms of chaff-tempered Coarse Ware, which were mostly plain and rarely decorated. The husking tray is one of the most characteristic of Coarse Ware varieties.

**Rouj 2d (Late PN):** The last phase of the Pottery Neolithic dates from c. 6000 to 5700 cal BC. With few diagnostic imported potsherds, this period can be compared to the beginning of the Halaf period in Jazirah. This period was mainly represented by the material from Layers 2-1 of the Central Area at Tell Ain el-Kerkh. The chipped stone tools suddenly lost their definite forms and consisted mainly of rough flake tools. Although the point-type tool disappeared, a few very sophisticated stone daggers made with pressure flaking retouches were discovered. Crescent-shaped sickle elements and tile knives were also characteristic stone tools of this period. In addition to DFBW and Coarse Ware pottery, Dark-faced Unburnished Ware and Cream Ware (Red Washed Ware) appeared in this period. A few fine painted potteries, including Early Halaf painted potsherds, were also discovered. Remarkable forms, such as the flat-based bowl with a flared rim, the cream bowl, and the short-necked jar, all of which were typical of Early Halaf painted pottery, flourished among the Rouj 2d DFBW. Sophisticated pattern burnishing is a characteristic decoration of fine DFBW.

## **b. Absolute Chronology**

We have many and various <sup>14</sup>C date results from Tell el-Kerkh, and these results were shown and discussed in the Chapter 7. Here the essence of the results is summarized to reconfirm the discussion for the Rouj Basin chronology.

**Rouj 1a:** There are five data samples from Square D6 of Tell Ain el-Kerkh. The oldest sample dates 8749-8470 cal BC (1 $\sigma$ ) and the youngest dates 8426-8295 cal BC (1 $\sigma$ ). The other three data samples show the ages between these two. Therefore, it is suggested that the Rouj 1a dates between 8700-8300 cal BC.

**Rouj 1c:** There are twelve data samples (five from charcoal and seven from human bones) from Square D6 of Tell Ain el-Kerkh and one datum from Test Pit A of Tell el-Kerkh 2. The oldest sample of the former dates to 7932-7585 cal BC (1 $\sigma$ ), and the youngest one dates to 7177-6863 cal BC (1 $\sigma$ ). Other samples from Square D6 date between 7578-7380 and 7312-7077 cal BC (1 $\sigma$ ). The latter sample from Tell el-Kerkh 2 dates to 7345-6660 cal BC (1 $\sigma$ ) (Yoneda 2003: 193-194). Therefore, it is suggested that the Rouj 1c dates between 7600-7000 cal BC.

**Rouj 2a-b:** There is just one old sample from the Test Pit A of Tell el-Kerkh 2. This sample is dated to 8280-7363 cal BC (1 $\sigma$ ) (ibid). However, this date is too old for the beginning of the Pottery Neolithic period. The next, the Rouj 2c period started around 6600 cal BC. Therefore, it is suggested that the Rouj 2a-b period dates to 7000-6600 cal BC.

**Rouj 2c:** There are five samples from the Central Area (except human bone samples from Kerkh Neolithic cemetery), and five samples from the East Trench of Tell Ain el-Kerkh. There are also six samples from the Test Trench at Tell Aray (Yoneda 2003: 193-194). Ten samples from Tell Ain el-Kerkh date from 6748 to 5845 cal BC (1 $\sigma$ ). However, middle six samples represent from 6570 to 6023 cal BC. In addition, all carbon ages of the twenty-five human bone samples from Kerkh Neolithic Cemetery fall within this range, especially from 6400 to 6100 cal BC (see Chapter 7: Table 7-4). Therefore, it is very probable that the Rouj 2c dates to between 6600-6000 cal BC.

**Rouj 2d:** There are one sample from the Central Area and five samples from the East Trench of Tell Ain el-Kerkh (except human bone samples). One sample dates to 6390-6260 cal BC (1 $\sigma$ ), and the other five samples indicate a date between 5969 and 5669 cal BC (1 $\sigma$ ). Four human bone samples from the Rouj 2d layers date 6057-5676 cal BC. Therefore, 6000-5700 cal BC is the most probable term for the Rouj 2d period.